

KIC 008543278

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})
008543278-01	OBS	7052.01	7.549300	135.011343	44388.3	2.482	2562.8	2074.4	0.63	5085	19.71	53.82
008543278-02	OBS	No	3.774650	135.074027	17980.9	2.337	1059.3	1015.9	0.63	5085	12.86	135.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008543278-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008543278-02	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.

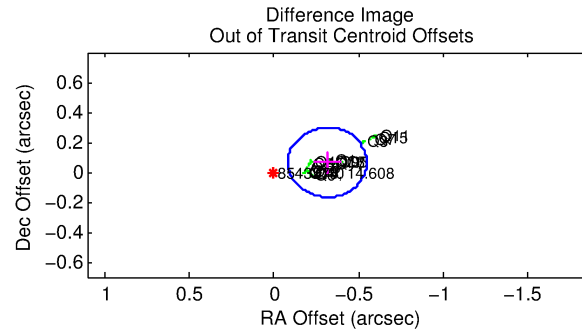
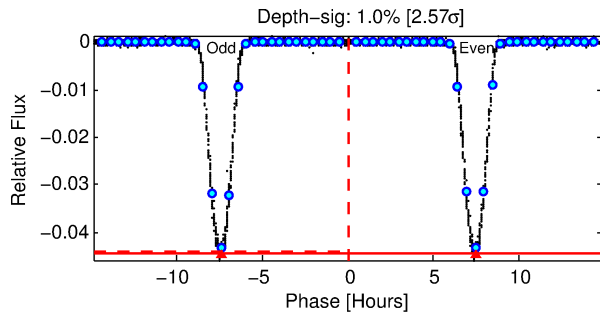
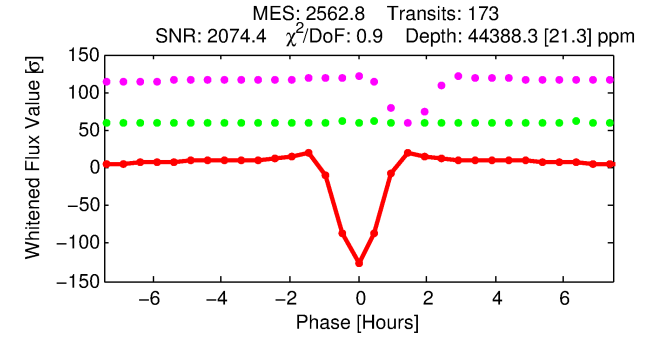
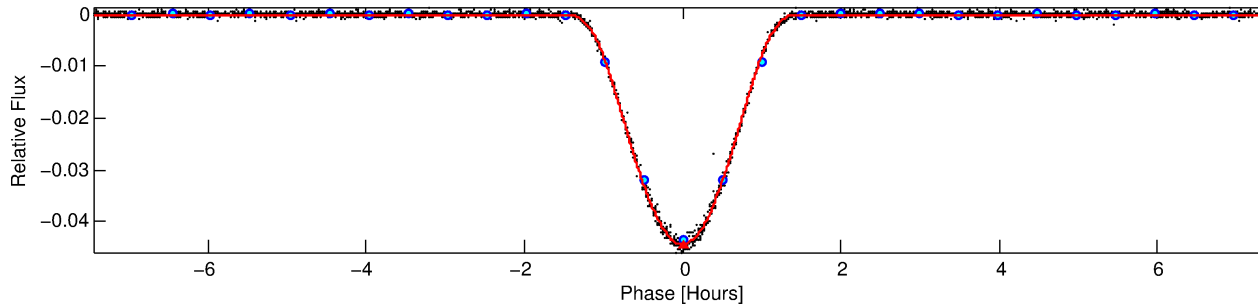
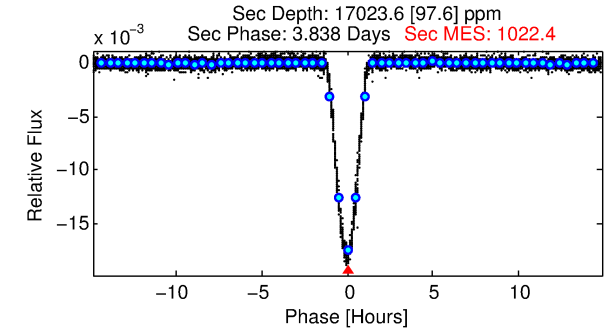
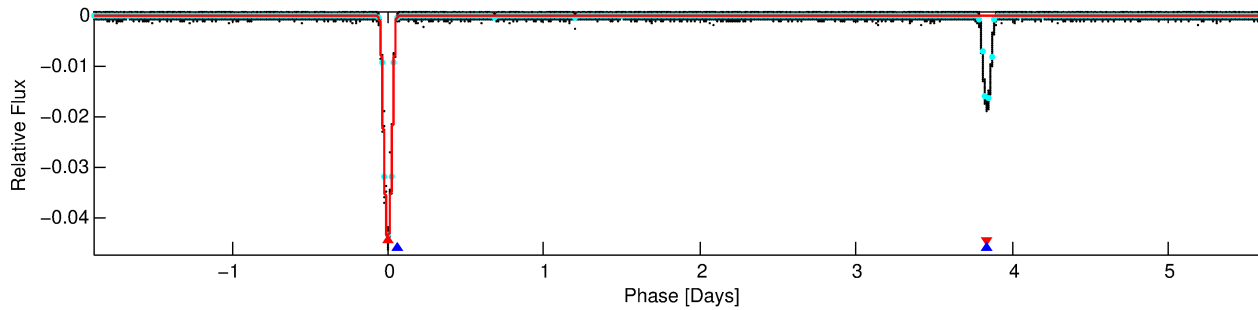
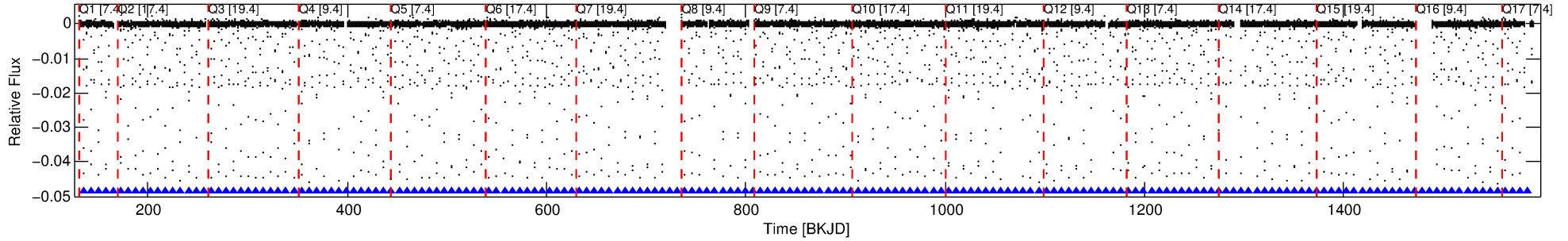
Ephemeris Match Information For 008543278-01

No Significant Match Found

DV One-Page Summary

KIC: 8543278 Candidate: 1 of 2 Period: 7.549 d
KOI: K07052.01 Corr: 0.995

Kp: 14.61 R*: 0.63 Rs Teff: 5085.0 K Logg: 4.68 Fe/H: -0.580



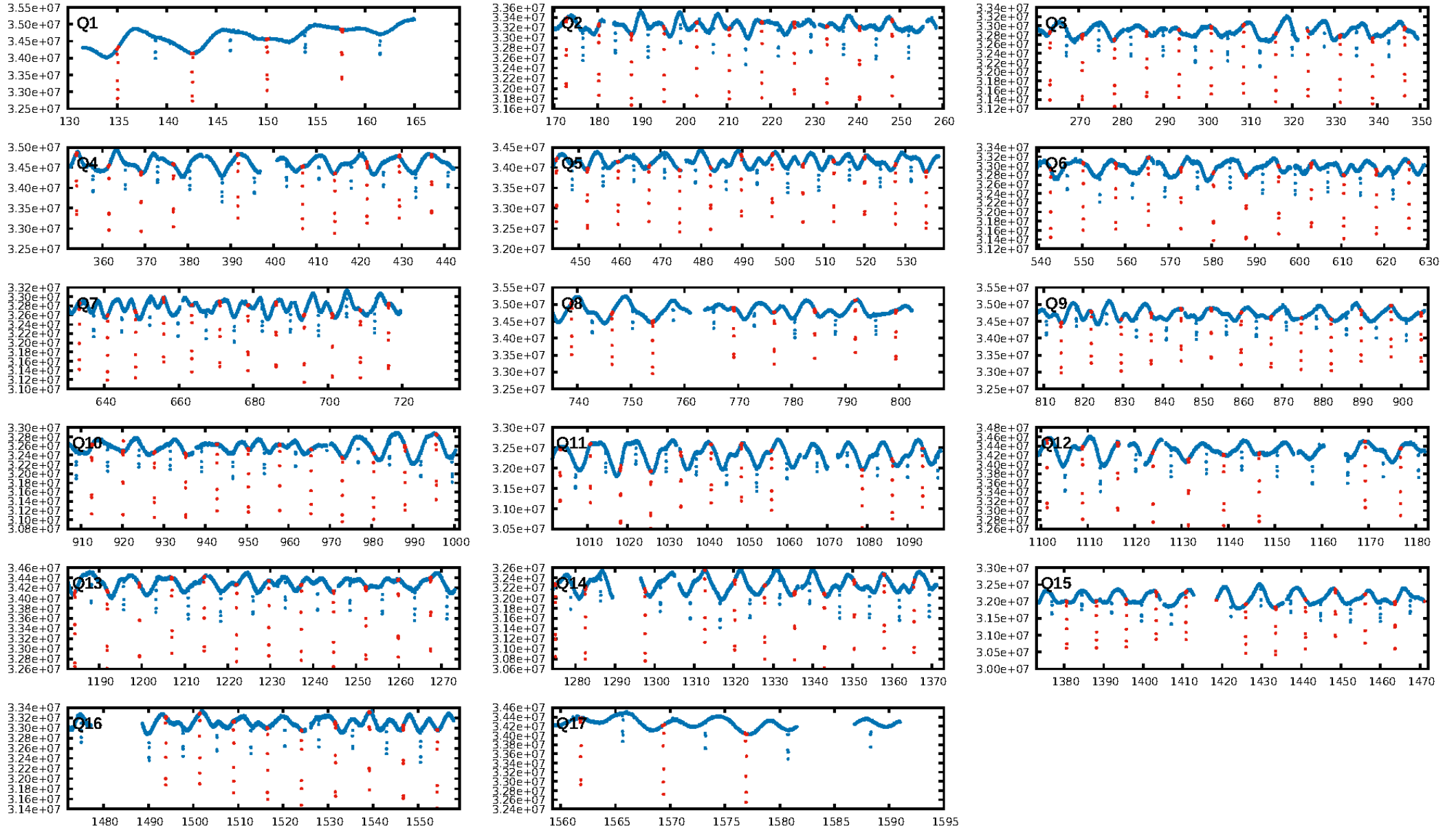
DV Fit Results:

Period = 7.54930 [0.00000] d
Epoch = 135.0113 [0.0000] BKJD
Rp/R* = 0.2849 [0.0058]
a/R* = 20.86 [0.04]
b = 0.92 [0.01]
Seff = 53.82 [10.14]
Teq = 691 [33] K
Rp = 19.71 [2.58] Re
a = 0.0669 [0.0070] AU
Ag = 107.87 [16.39] [6.52σ]
Teffp = 3441 [108] K [24.36σ]

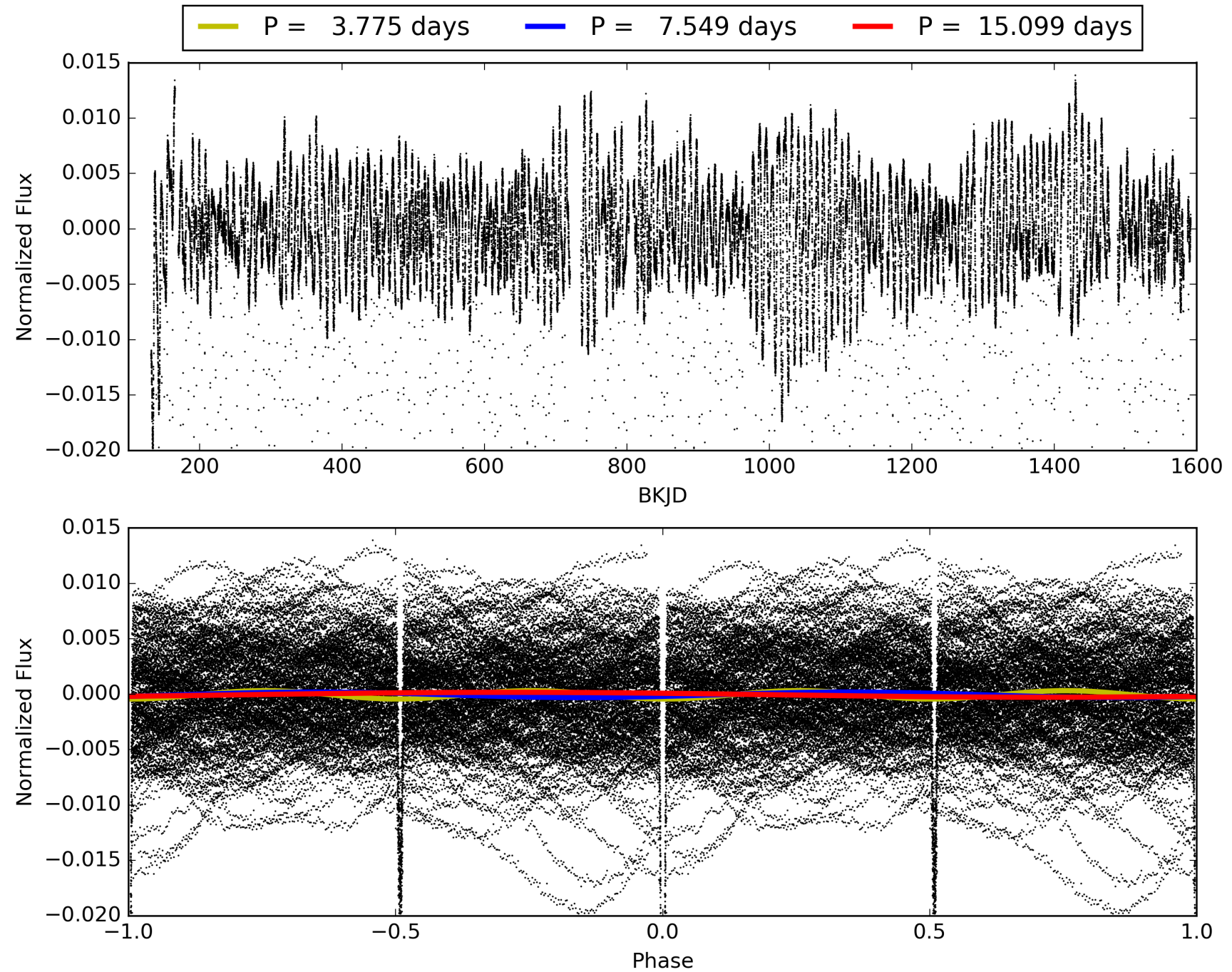
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.57σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [166/166]
GhostDiagnostic-chr: 3.031
Centroid-sig: N/A
Centroid-so: 0.104 arcsec [28.72σ]
OotOffset-rm: 0.322 arcsec [4.16σ]
KicOffset-rm: 0.210 arcsec [2.97σ]
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]

TCE 008543278-01, PDC Light Curves

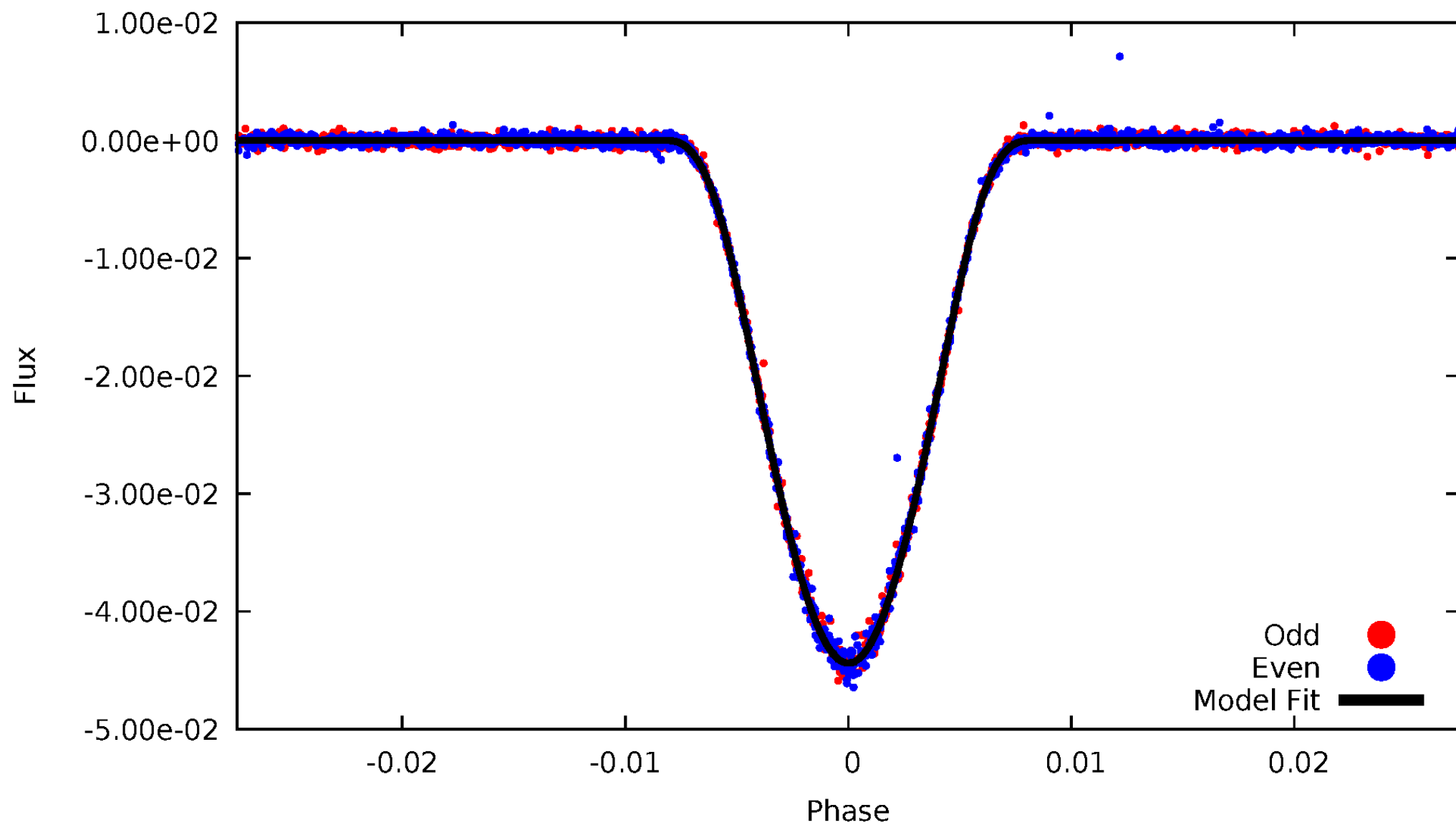


TCE 008543278-01



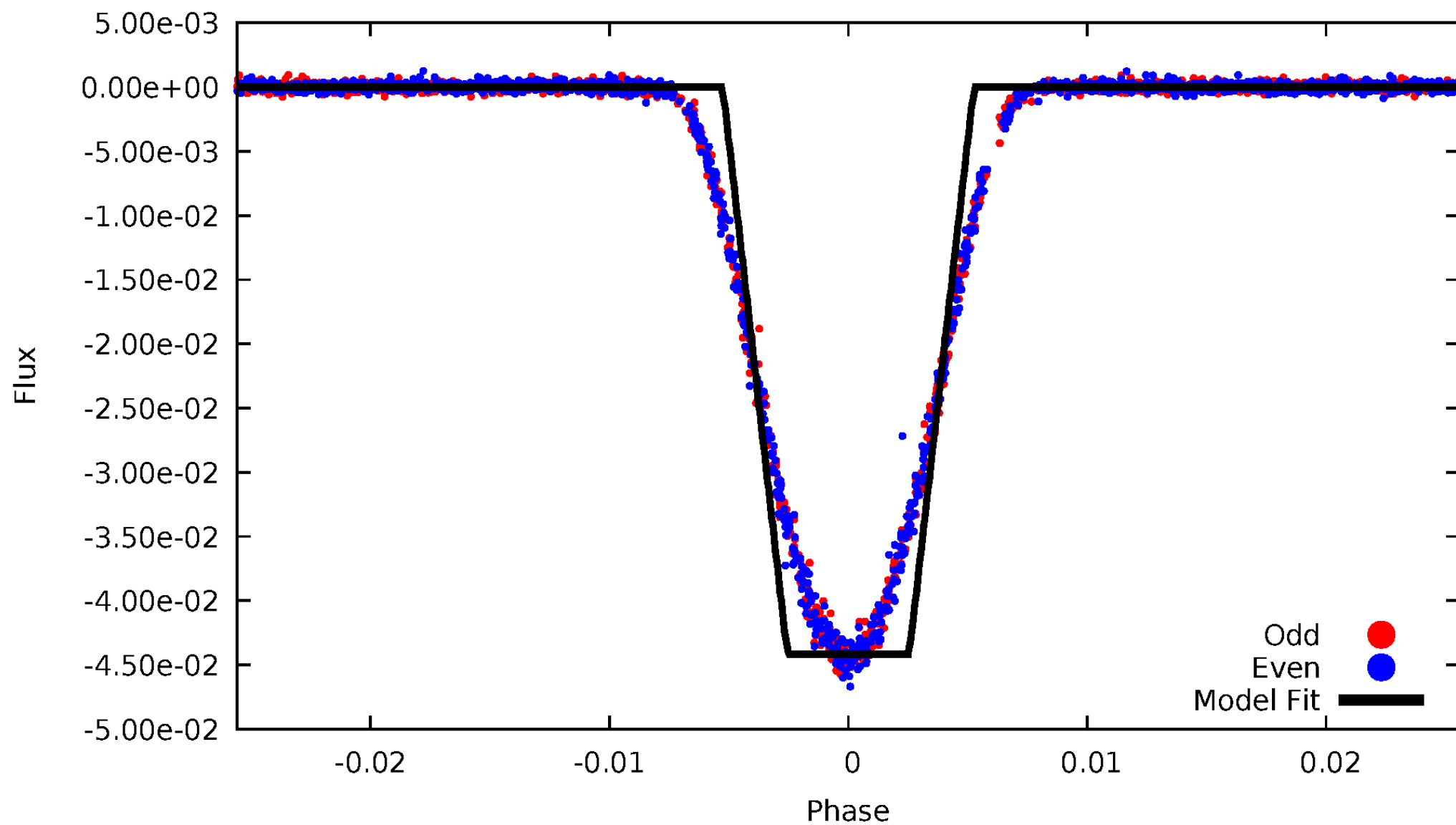
DV Odd/Even

TCE 008543278-01



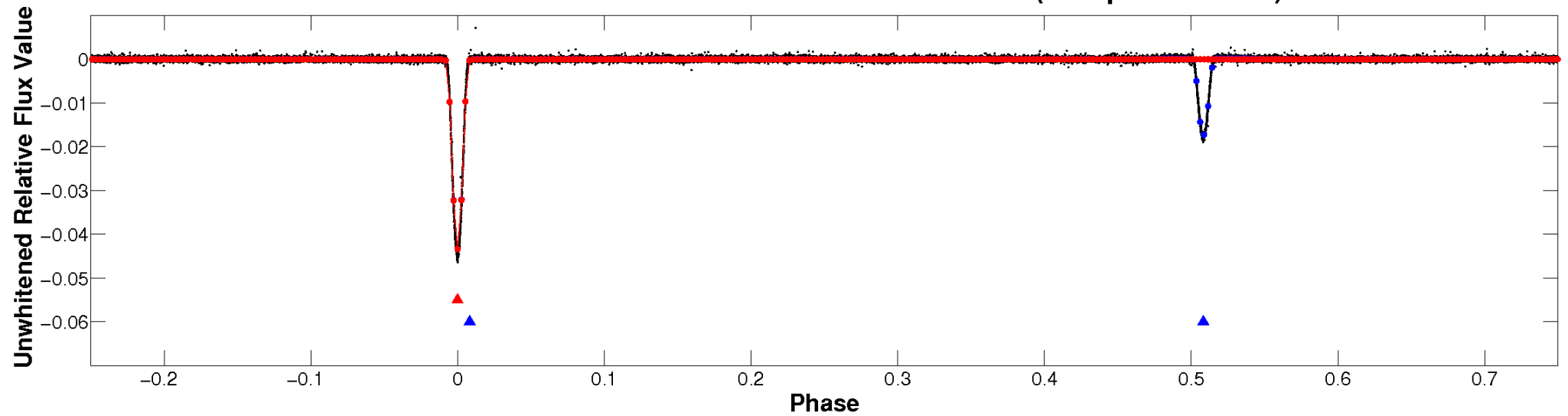
ALT Odd/Even

TCE 008543278-01

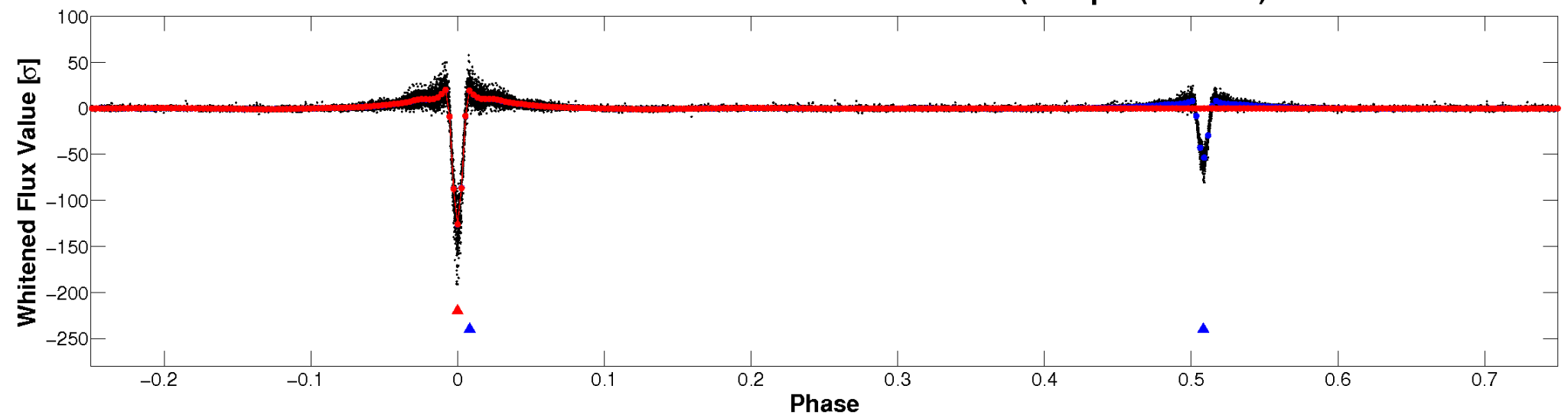


Non-Whitened Vs. Whitened Light Curve

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

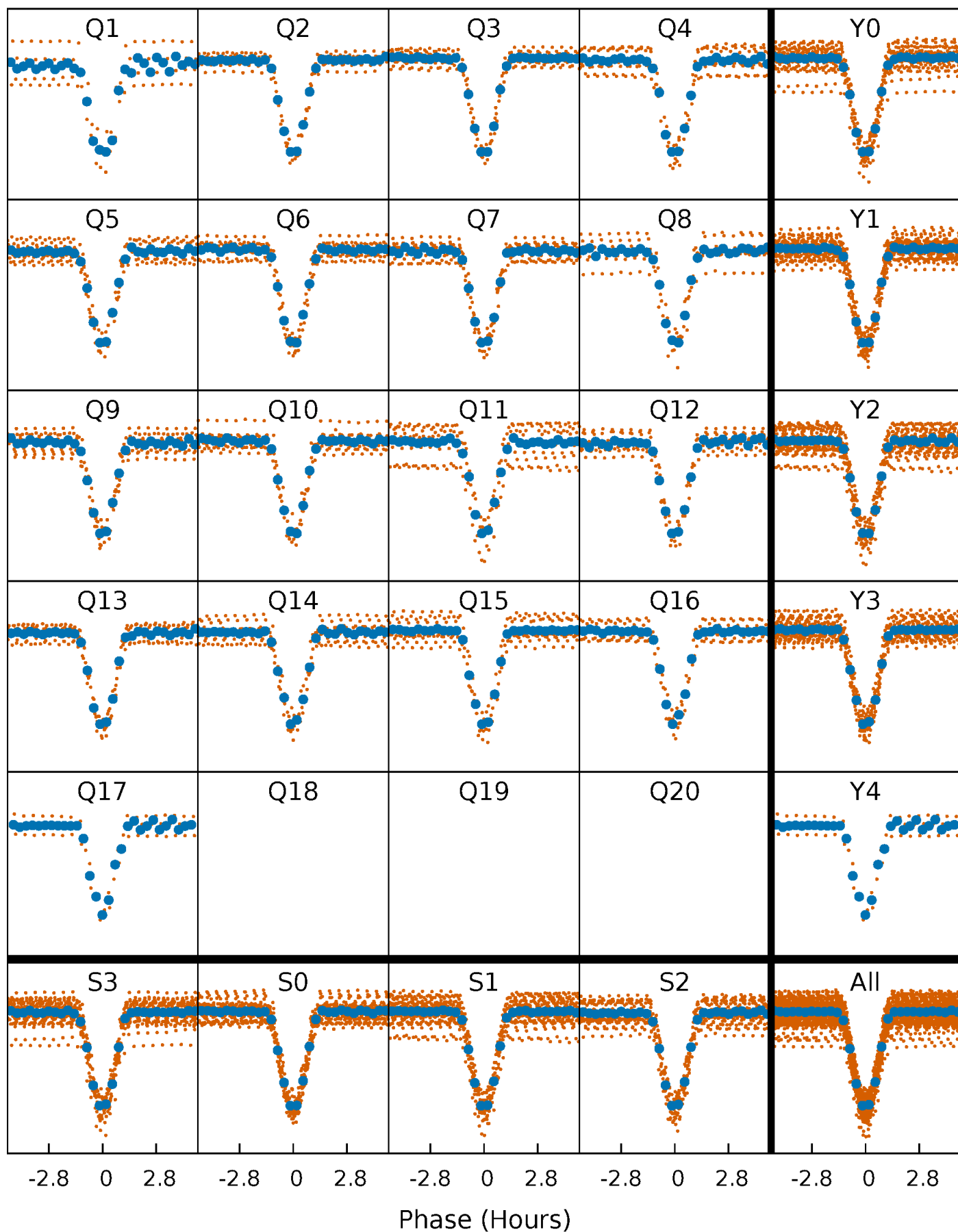


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



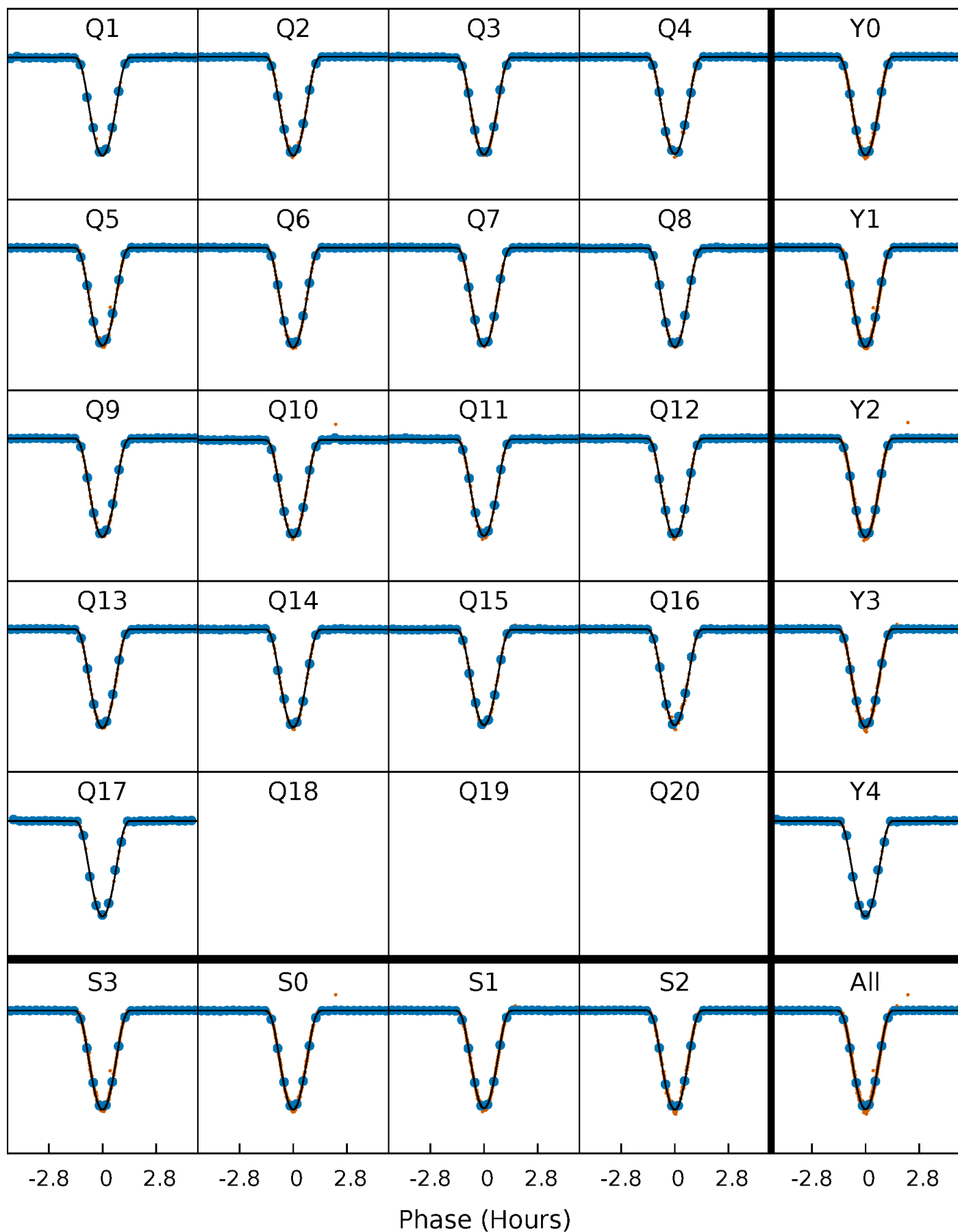
PDC Quarter-Phased Transit Curves

TCE 008543278-01 P= 7.549300 Days $T_0=135.011343$ (BKJD)



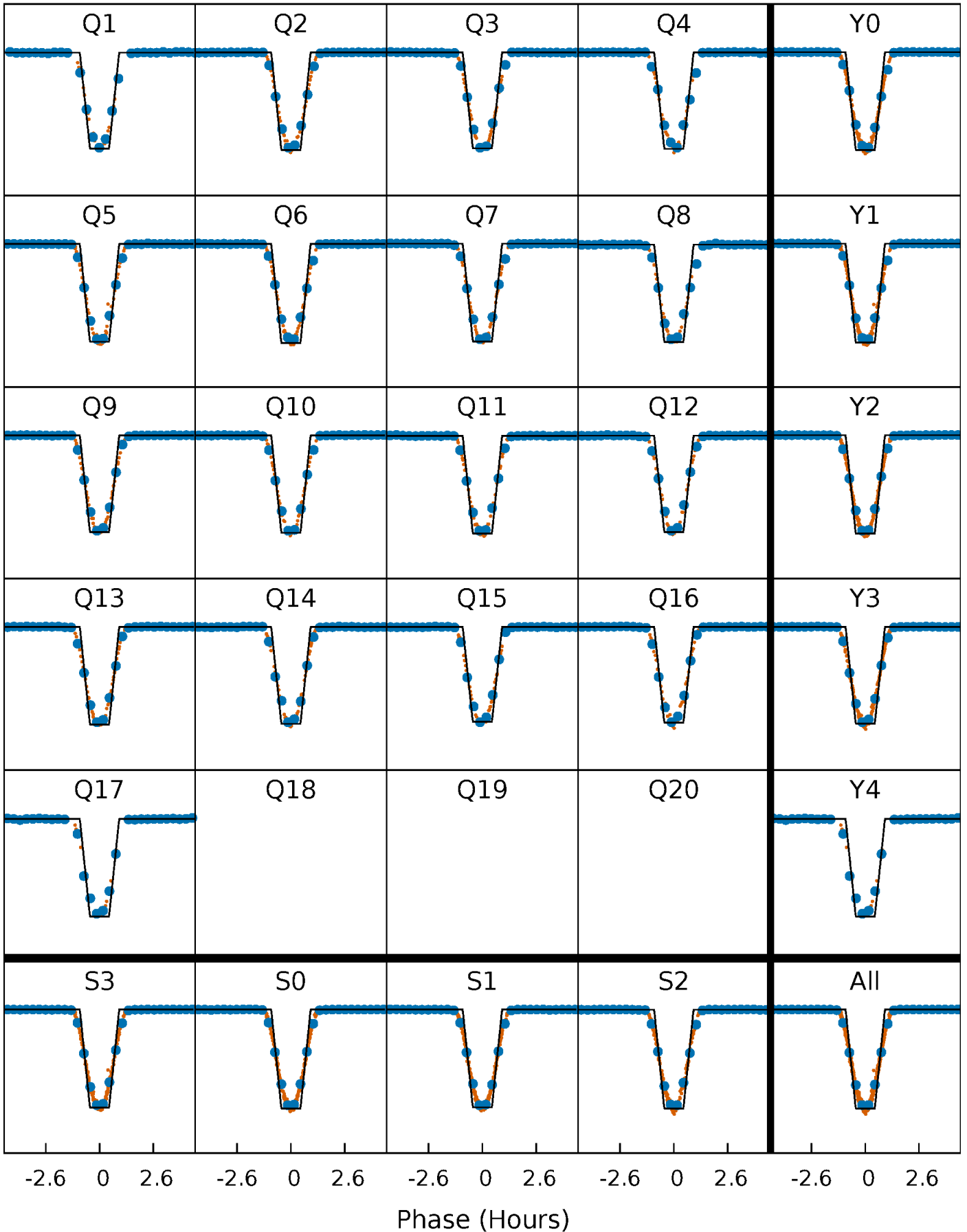
DV Quarter-Phased Transit Curves

TCE 008543278-01 P= 7.549300 Days $T_0=135.011343$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

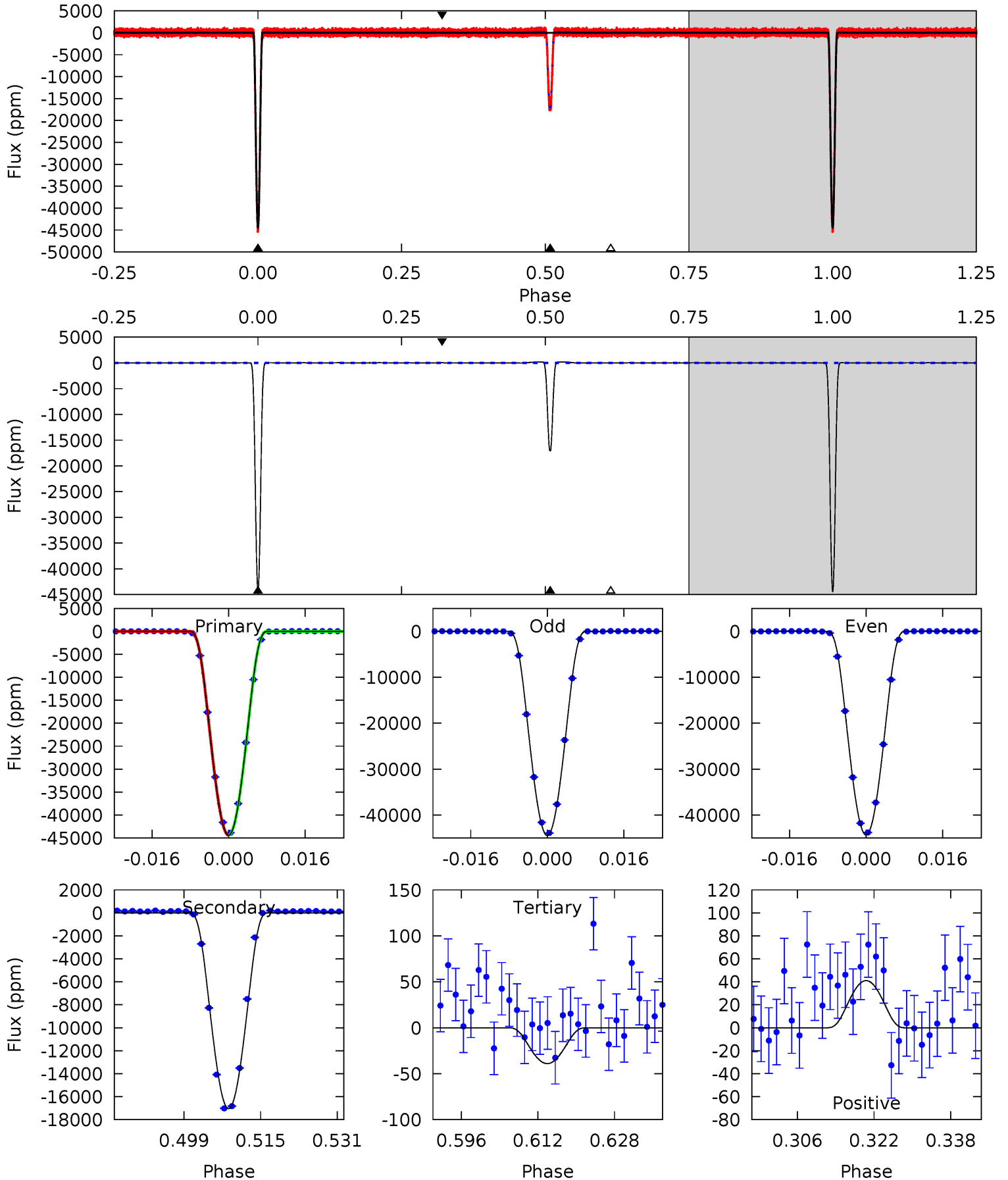
TCE 008543278-01 P= 7.549312 Days $T_0=135.010194$ (BKJD)



DV Model-Shift Uniqueness Test

008543278-01, P = 7.549300 Days, E = 127.462043 Days

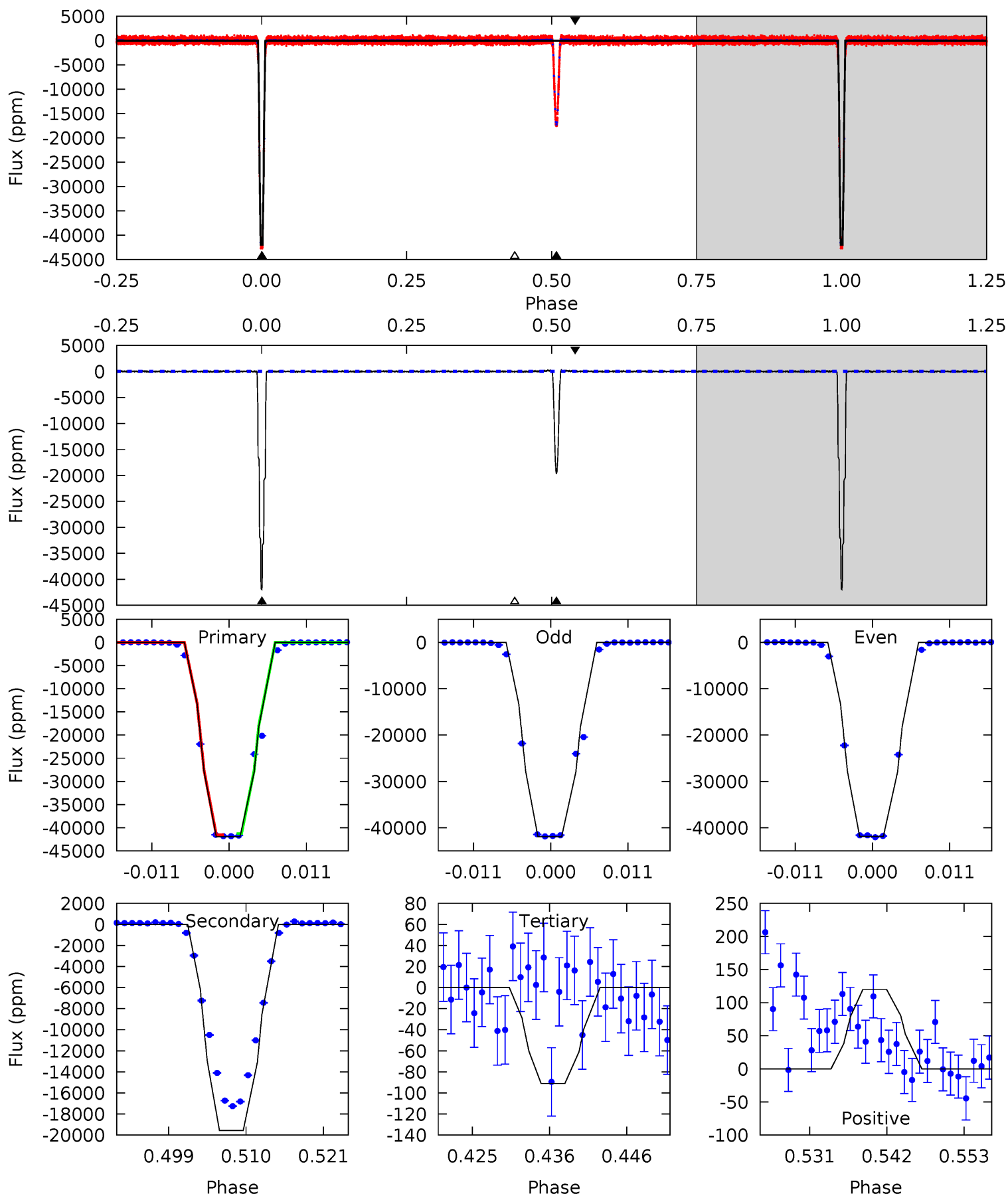
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4818	1850	4.24	4.45	4.93	2.41	3.75	4813	4813	1846	1845	6.18	1.00	0.00	0.62



Alt Model-Shift Uniqueness Test

008543278-01, P = 7.549312 Days, E = 127.460882 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1730	806.6	3.75	4.94	5.01	2.55	1.55	1727	1725	802.8	801.7	1.09	0.99	0.01	0



Stellar Parameters For KIC 008543278

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5085^{+136}_{-151}	$4.679^{+0.028}_{-0.077}$	$-0.580^{+0.300}_{-0.300}$	$0.634^{+0.082}_{-0.041}$	$0.699^{+0.068}_{-0.061}$	$3.862^{+0.506}_{-0.963}$
	+3%/-3%	+1%/-2%	+52%/-52%	+13%/-6%	+10%/-9%	+13%/-25%
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 008543278-01 / KOI 7052.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-17047 ± 9	$19.91^{+1.42}_{-0.98}$	974^{+34}_{-34}	3794^{+80}_{-92}	107^{+9}_{-11}
Alt.	-19561 ± 24	$14.70^{+0.95}_{-0.76}$	972^{+35}_{-32}	4337^{+111}_{-121}	225^{+21}_{-23}

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 $A_{obs} \gg 1.0$

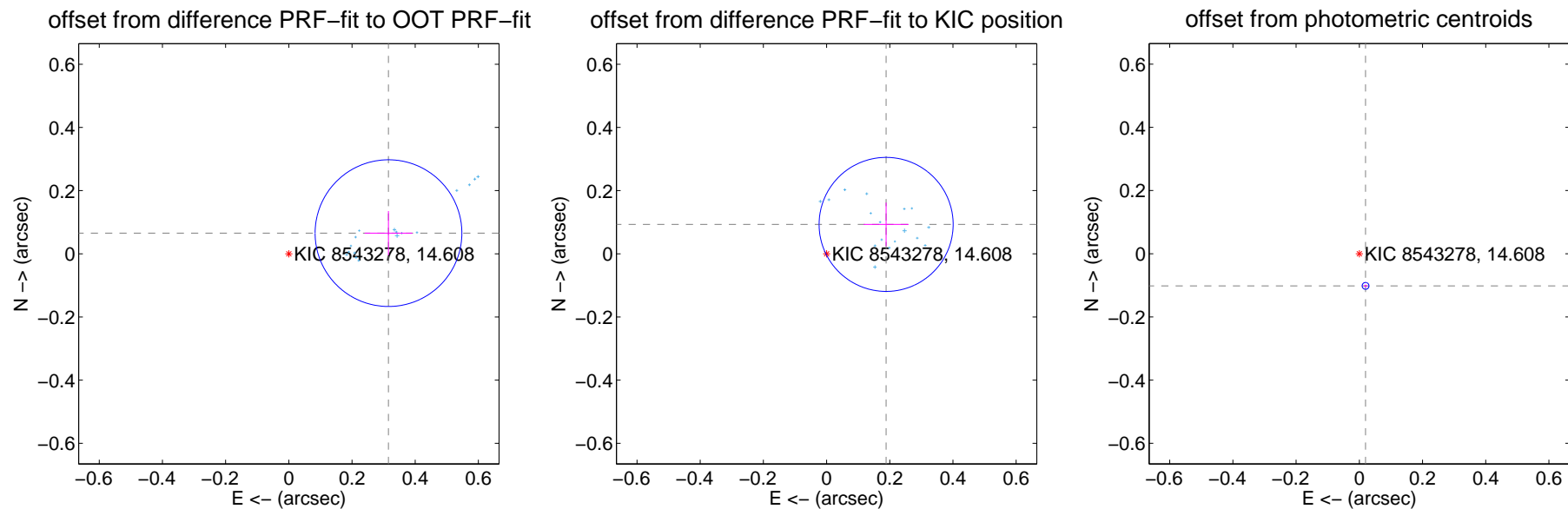
DV Centroid Data

Supplemental centroid analysis for 008543278-01. Kepler magnitude: 14.61. Transit SNR 2074.38

There are 17 quarters with good PRF difference image offsets

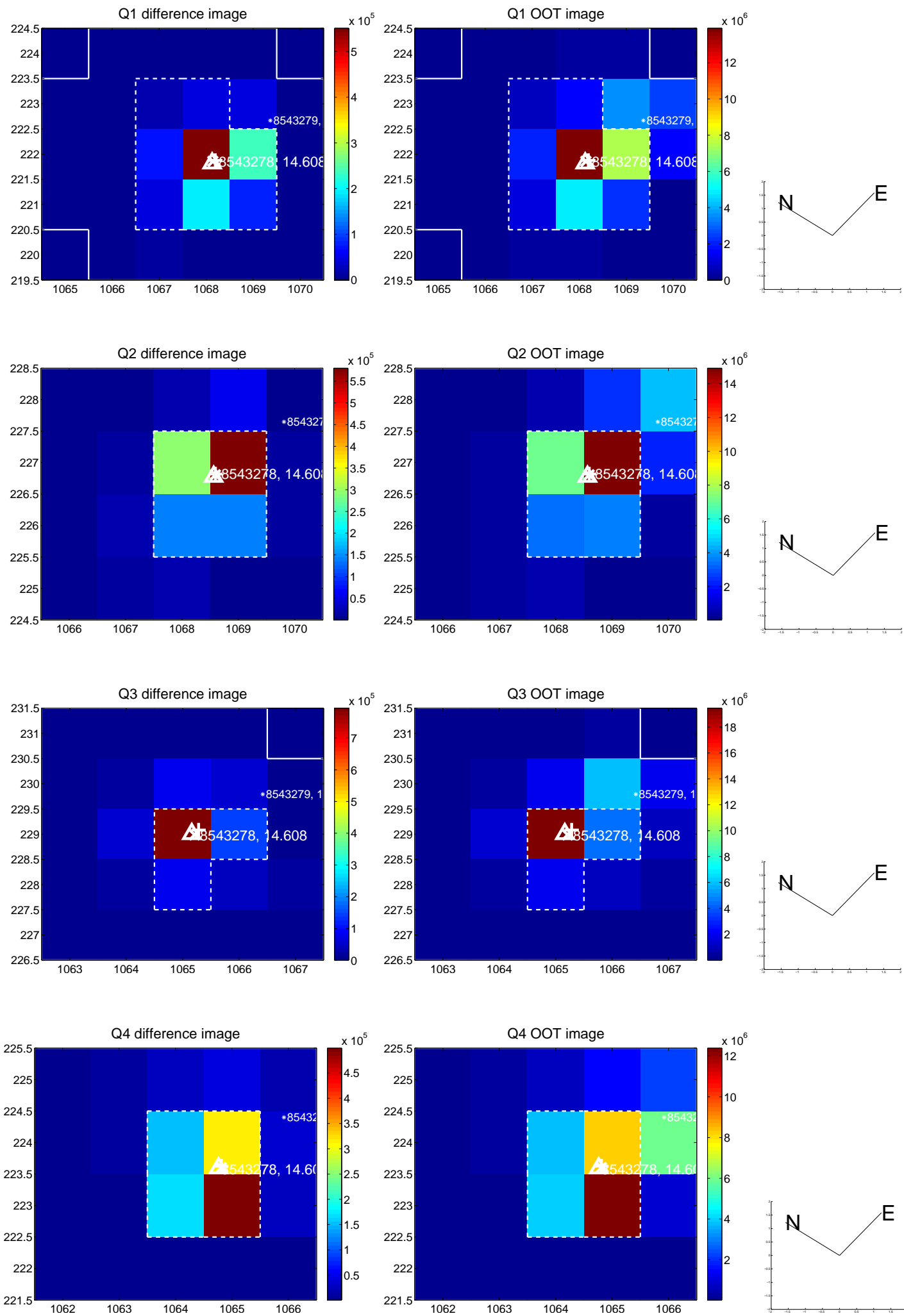
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.322 \pm 0.077	4.16	-0.315 \pm 0.076	0.065 \pm 0.070
PRF-fit source offset from KIC position	0.210 \pm 0.071	2.97	-0.188 \pm 0.071	0.093 \pm 0.069
photometric centroid source offset	0.10 \pm 0.00	28.72	-0.02 \pm 0.00	-0.10 \pm 0.00

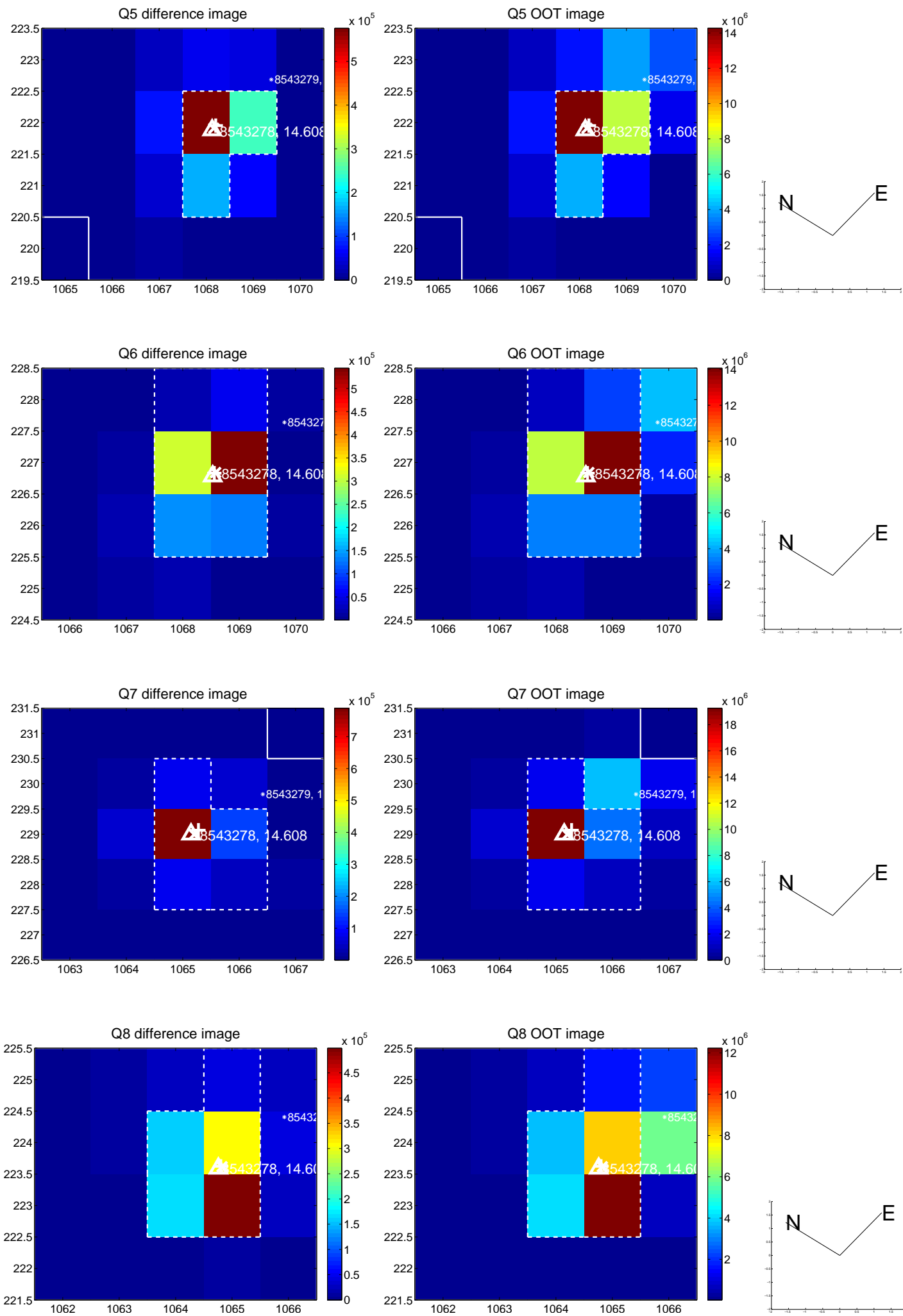


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

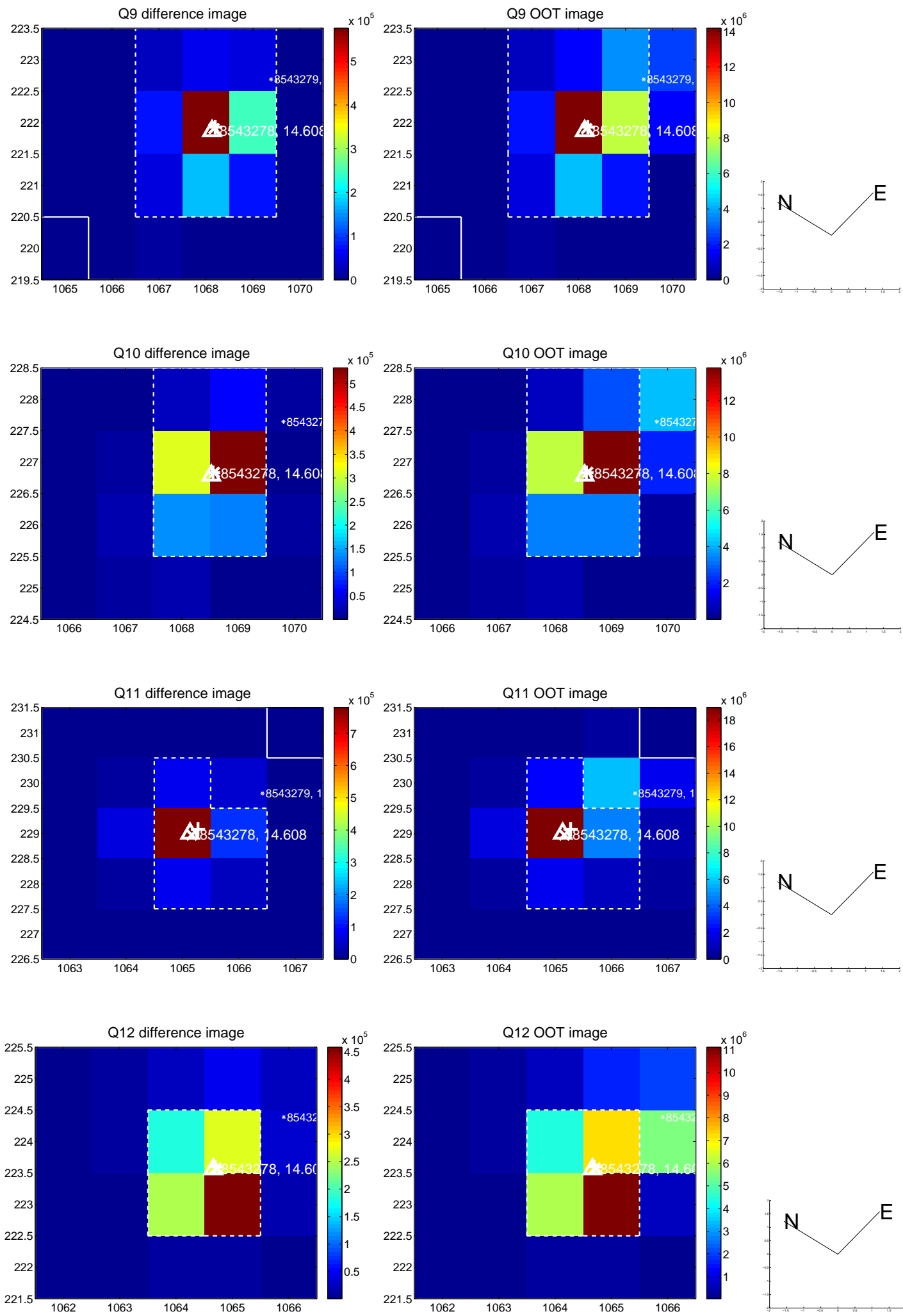
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



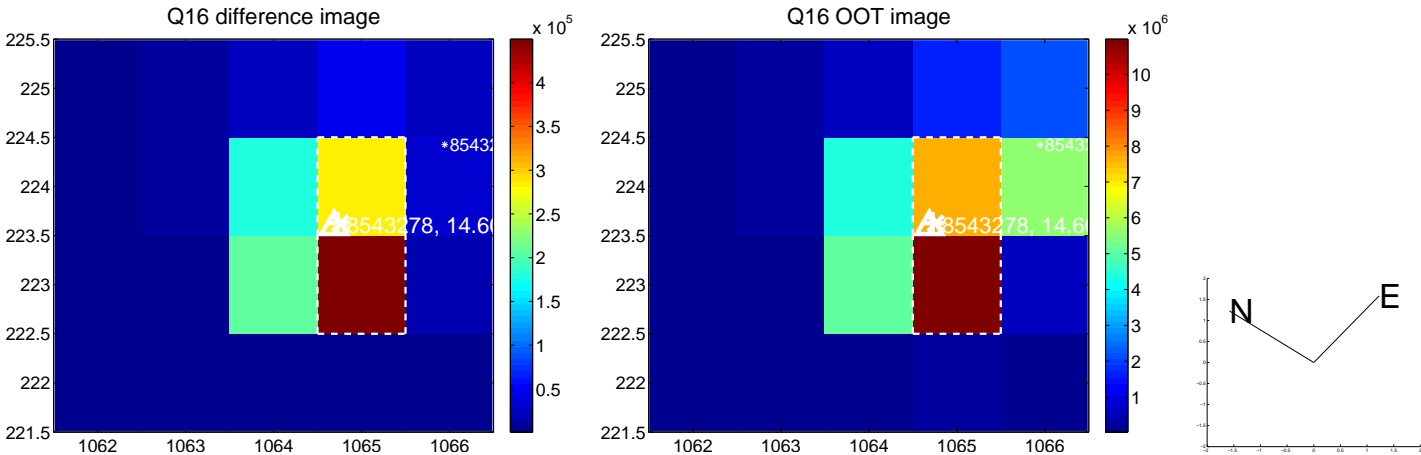
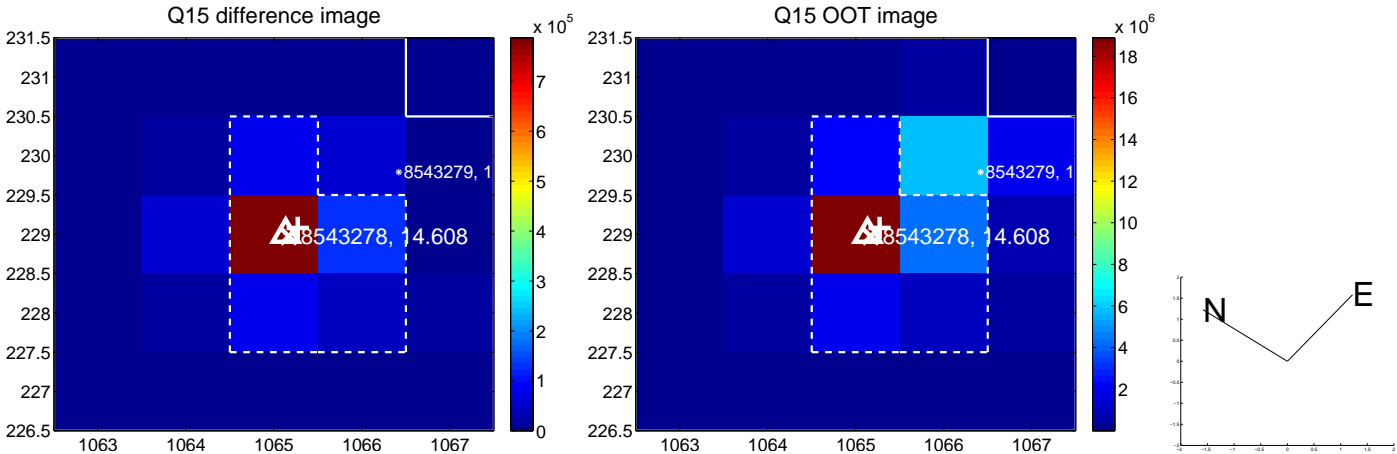
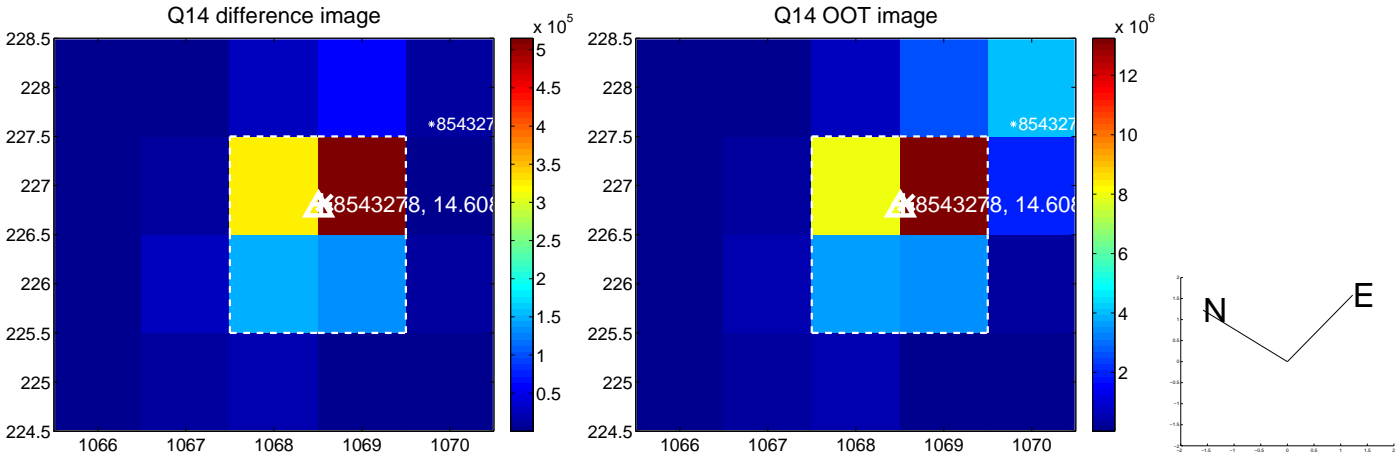
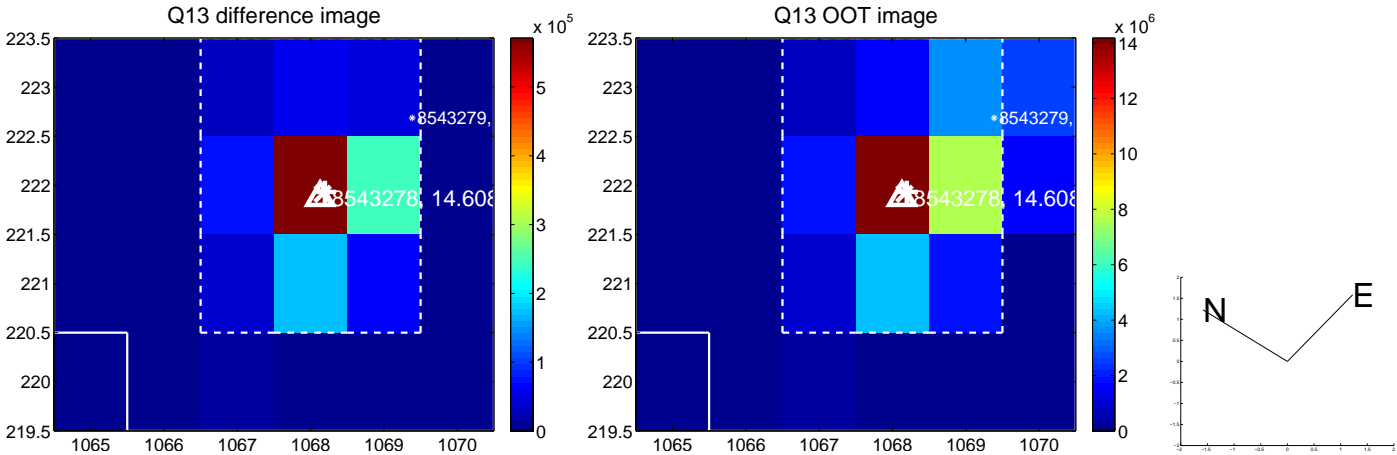
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



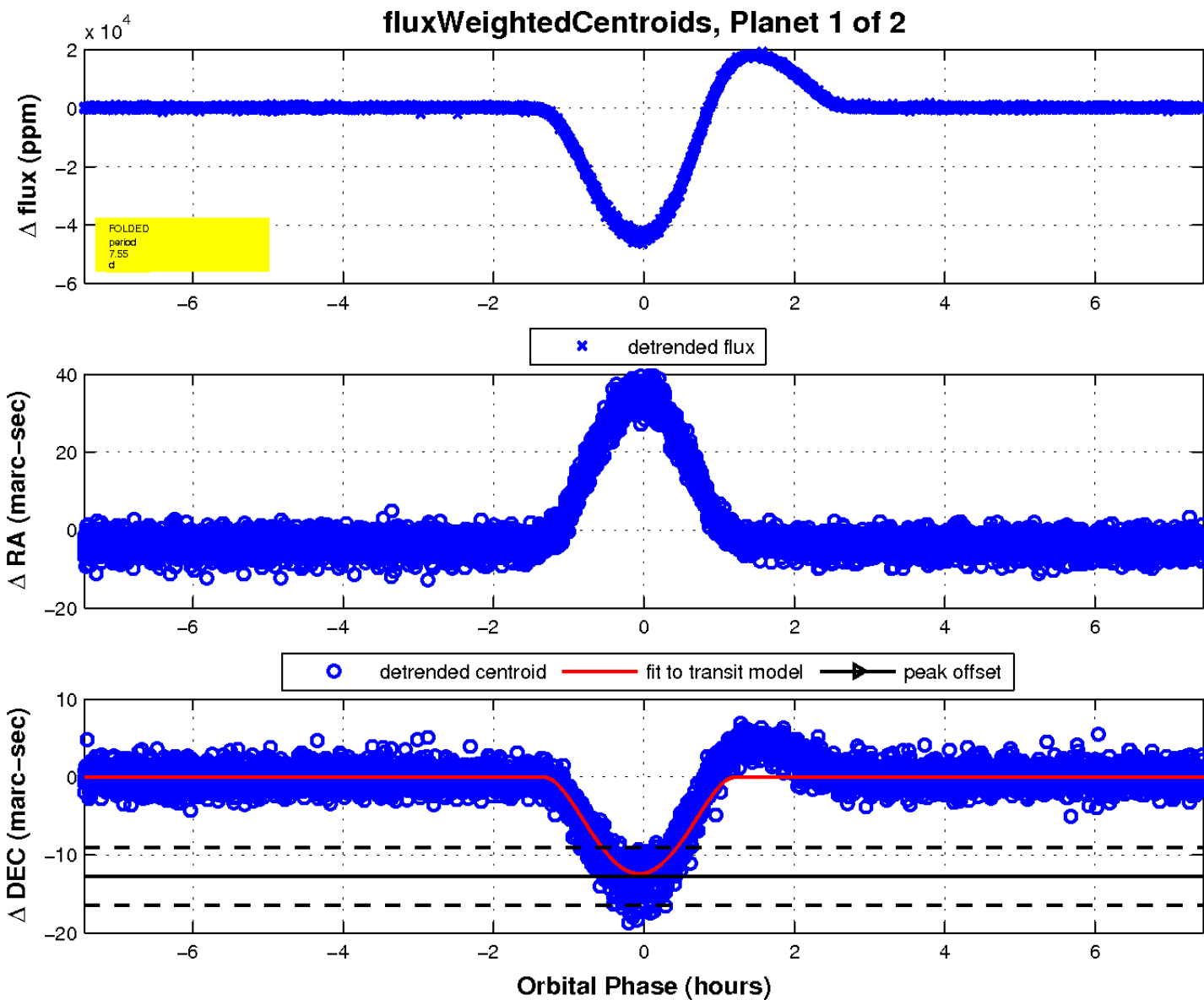
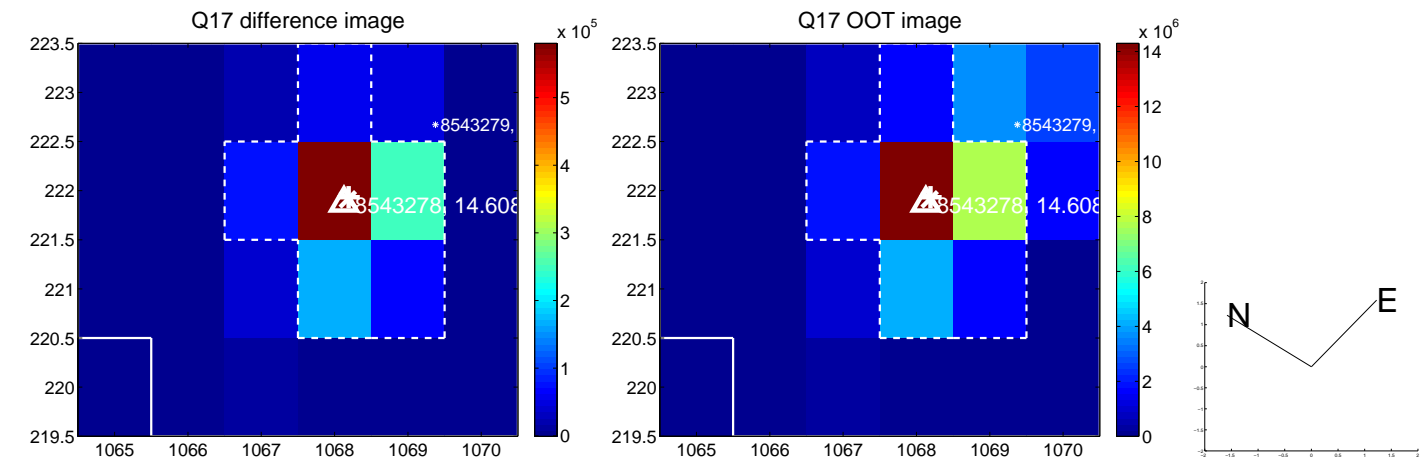
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

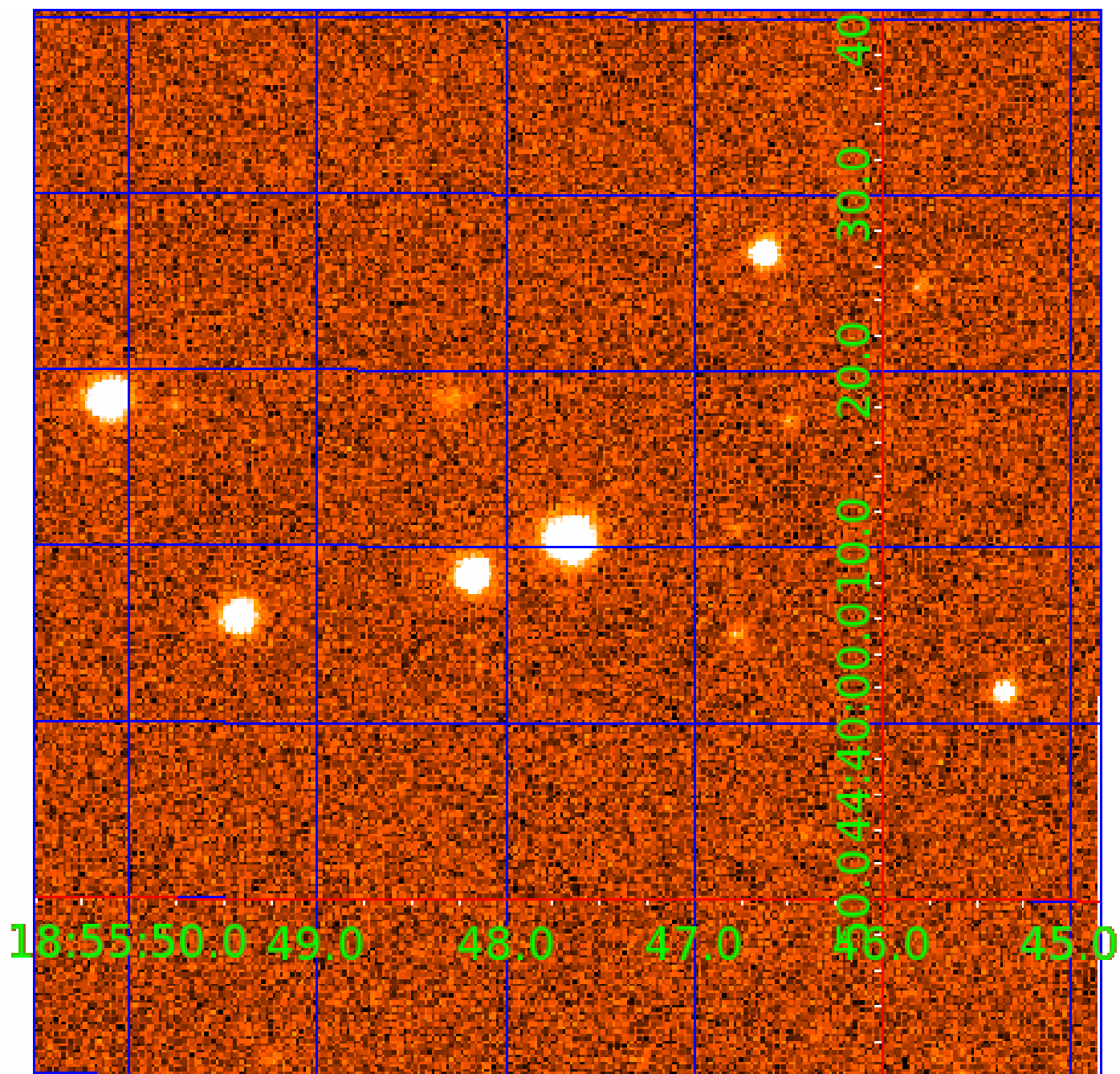


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008543278

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})
008543278-01	OBS	7052.01	7.549300	135.011343	44388.3	2.482	2562.8	2074.4	0.63	5085	19.71	53.82
008543278-02	OBS	No	3.774650	135.074027	17980.9	2.337	1059.3	1015.9	0.63	5085	12.86	135.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008543278-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008543278-02	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.

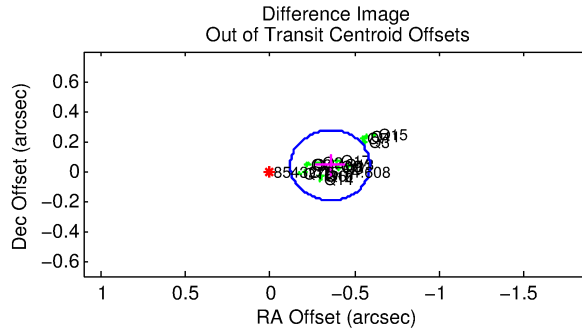
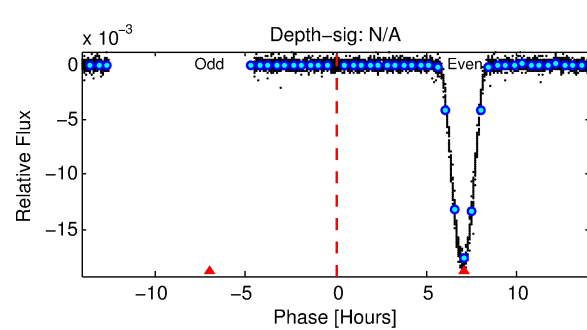
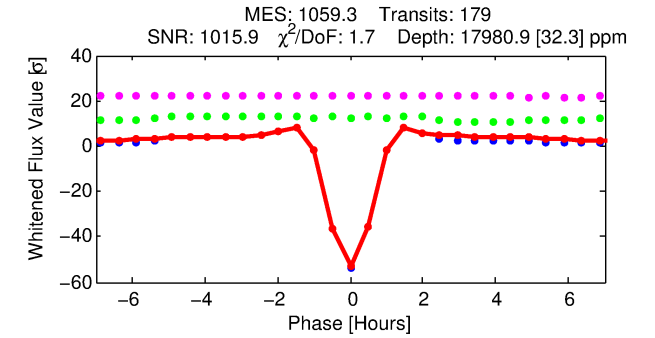
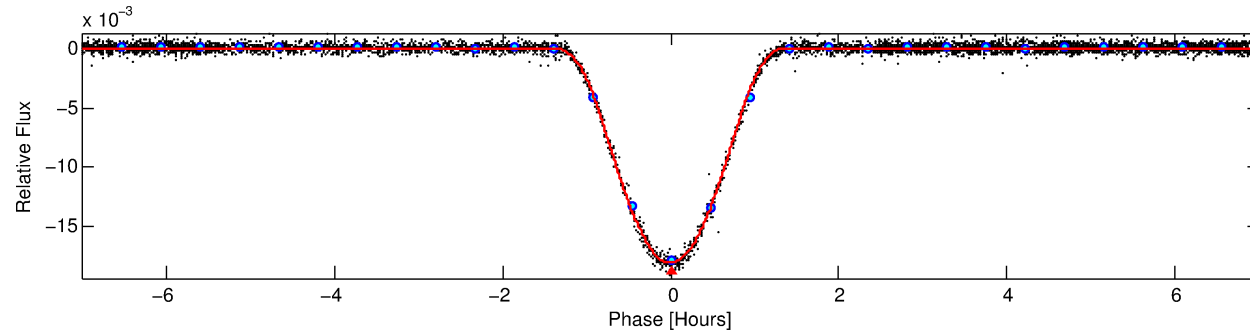
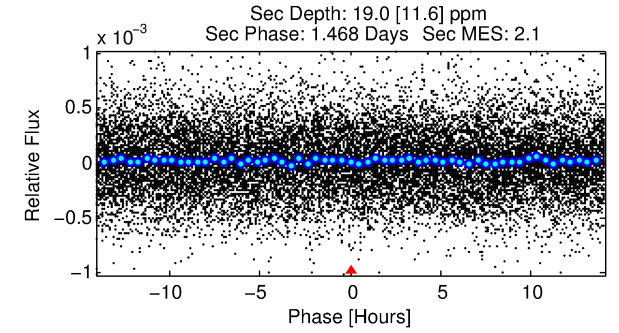
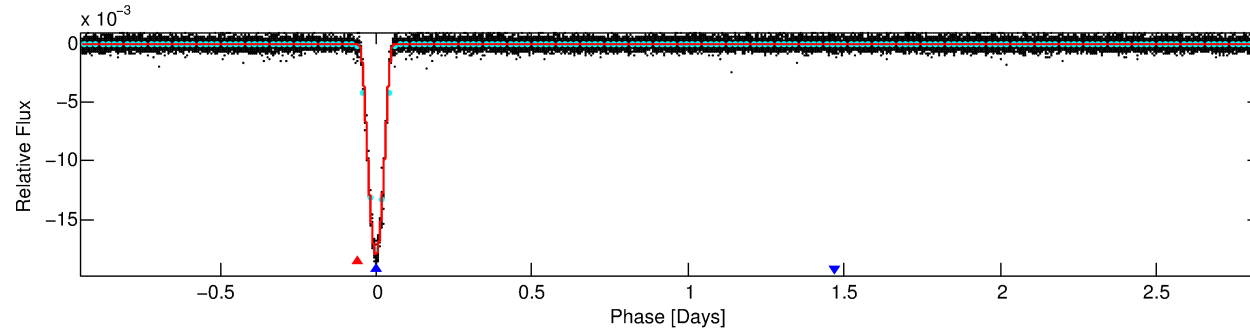
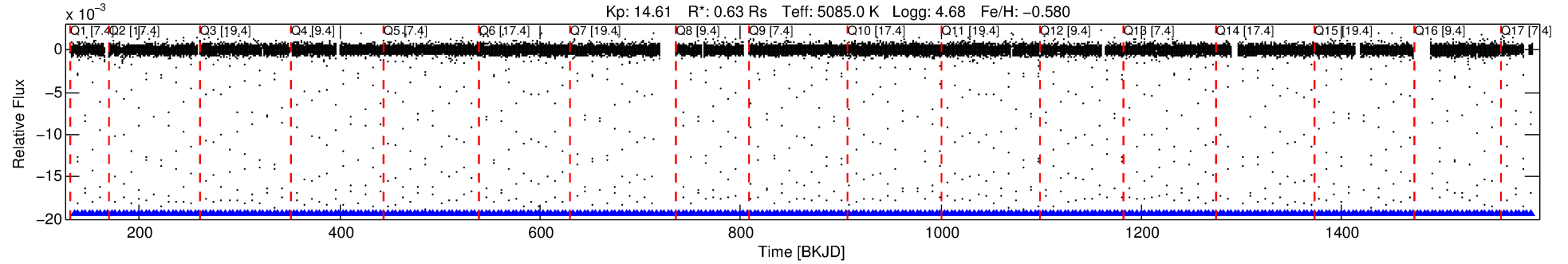
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008543278-02

No Significant Match Found

DV One-Page Summary

KIC: 8543278 Candidate: 2 of 2 Period: 3.775 d
KOI: K07052 Corr: No Ephemeris Match



DV Fit Results:

Period = 3.77465 [0.00000] d
Epoch = 135.0740 [0.0001] BKJD
Rp/R* = 0.1858 [0.0093]
a/R* = 8.91 [0.08]
b = 0.94 [0.02]
Seff = 135.61 [25.56]
Teff = 870 [41] K
Rp = 12.86 [1.78] Re
a = 0.0421 [0.0044] AU
Ag = 0.11 [0.07] [-12.43 σ]
Teffp = 779 [123] K [-0.71 σ]

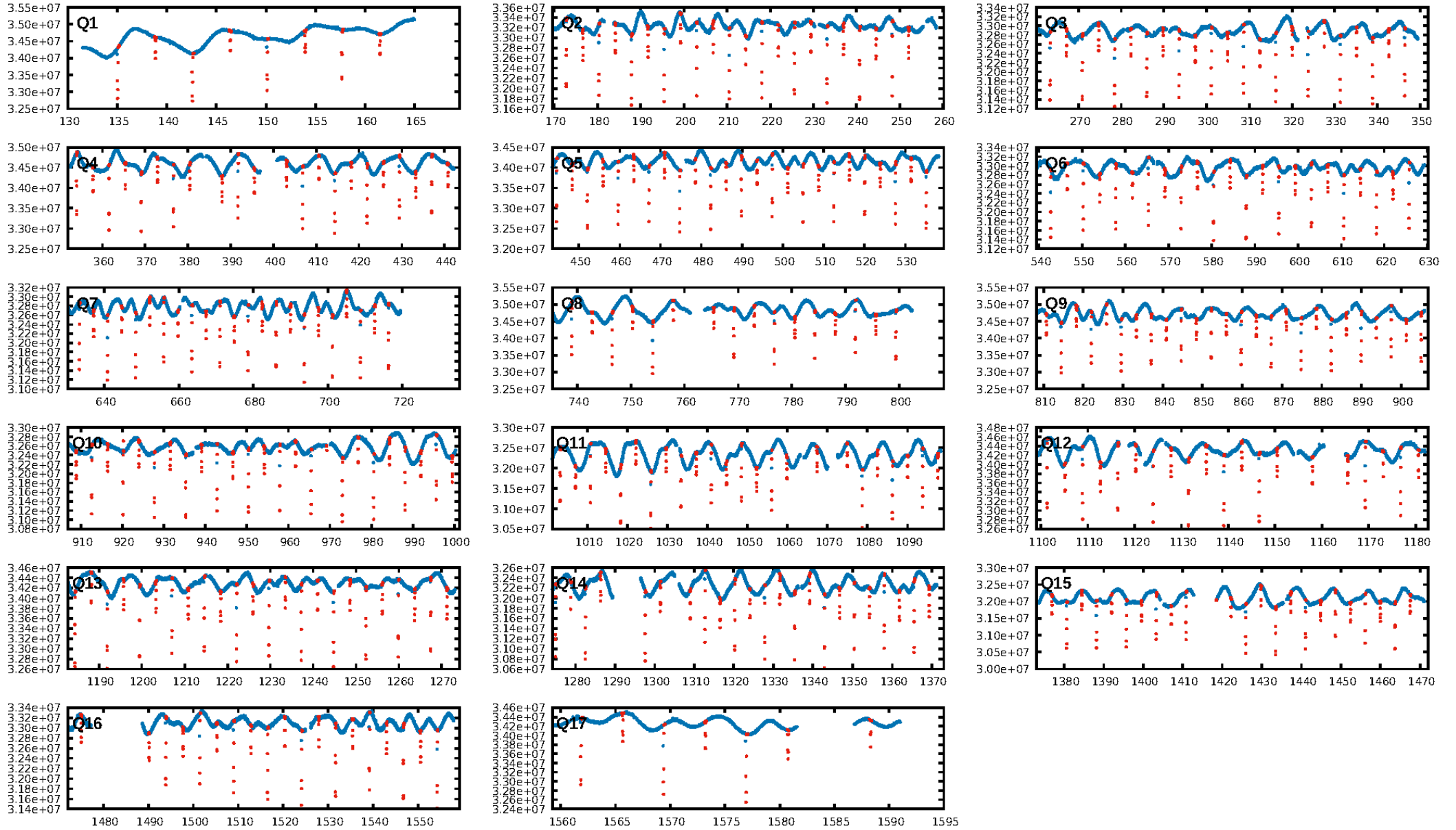
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [26.57 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [171/171]
GhostDiagnostic-chr: 2.617
Centroid-sig: N/A
Centroid-so: 0.482 arcsec [60.15 σ]
OotOffset-rm: 0.358 arcsec [4.58 σ]
KicOffset-rm: 0.227 arcsec [3.09 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]

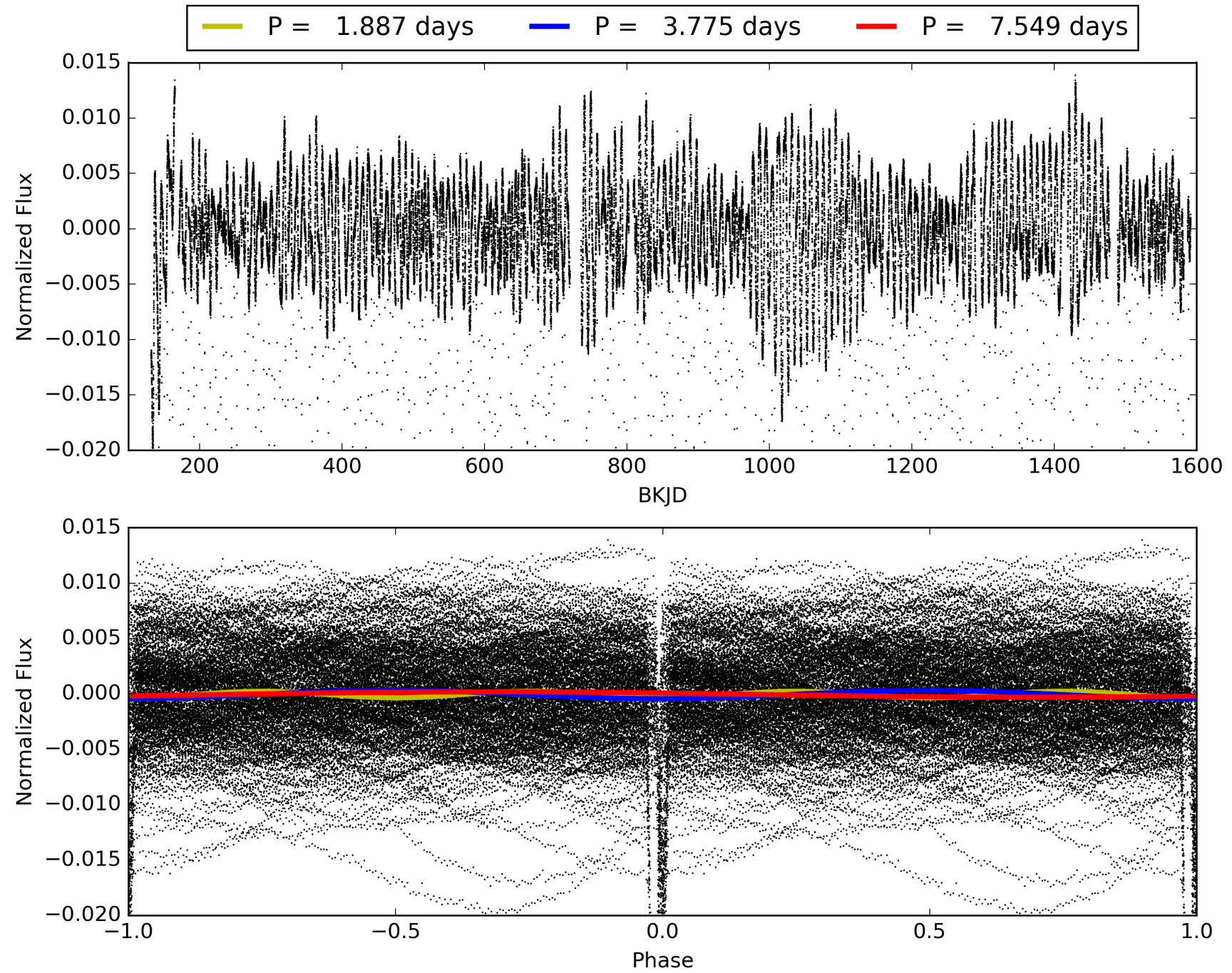
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 20:10:47 Z

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

TCE 008543278-02, PDC Light Curves

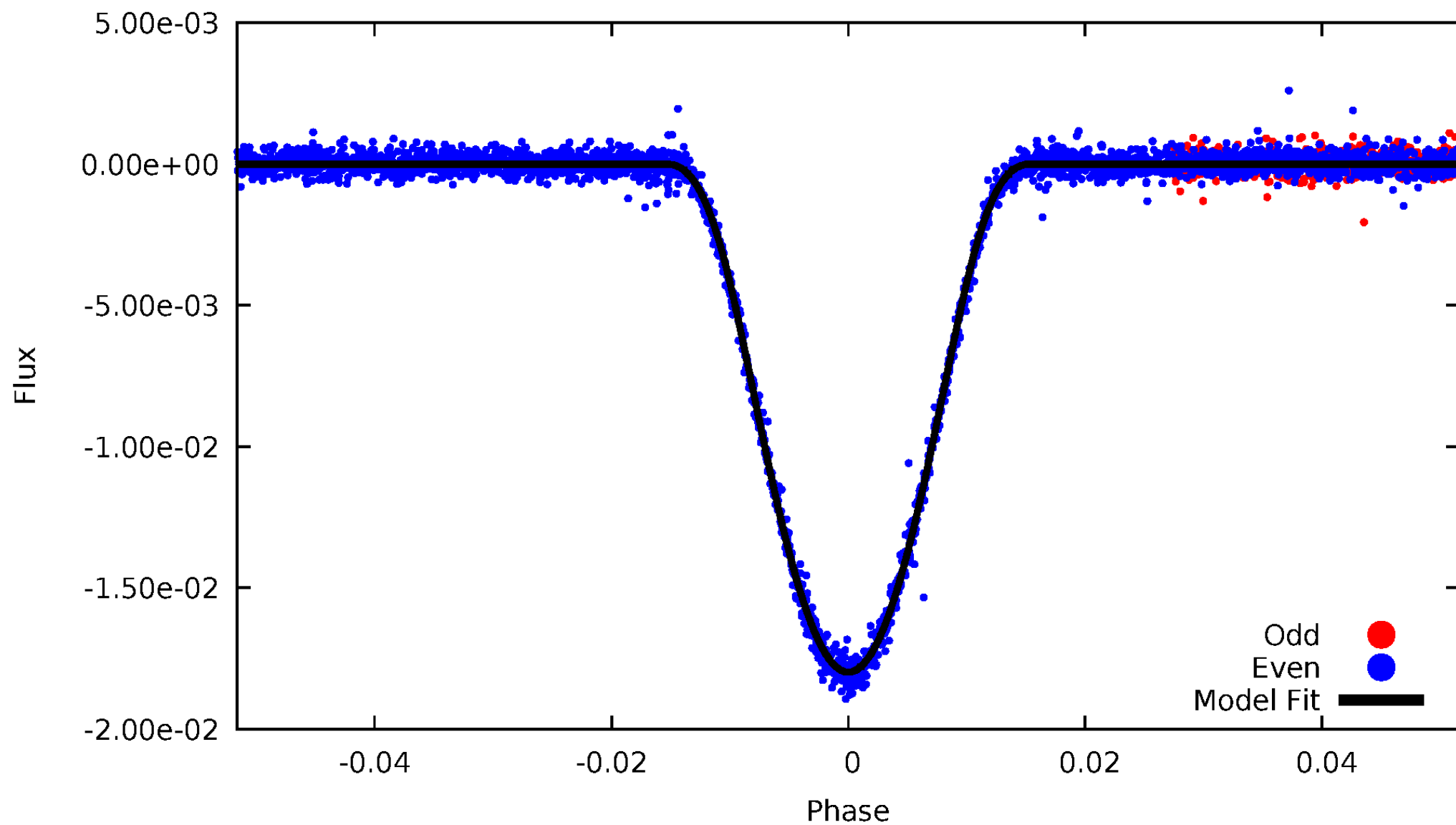


TCE 008543278-02



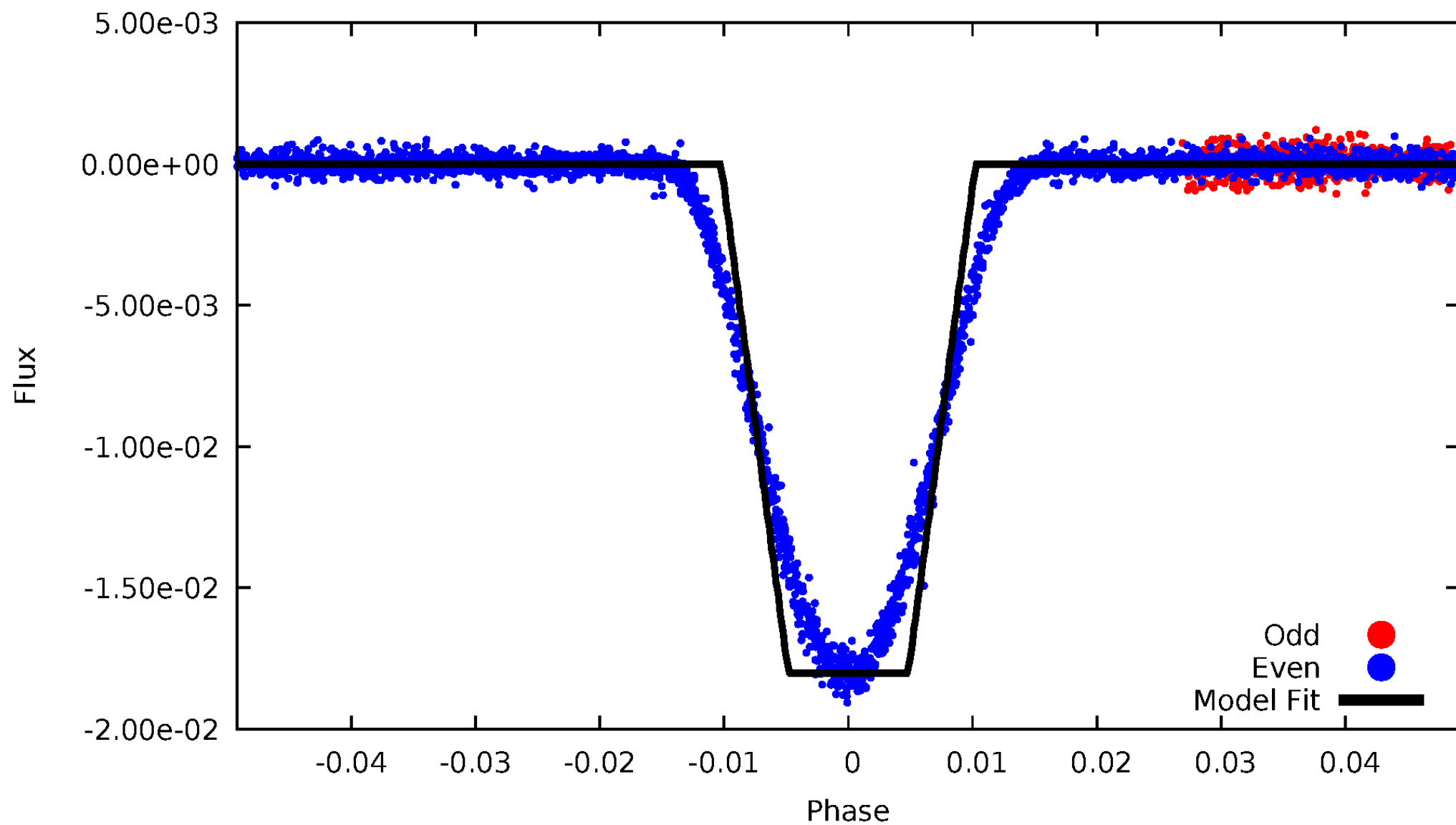
DV Odd/Even

TCE 008543278-02



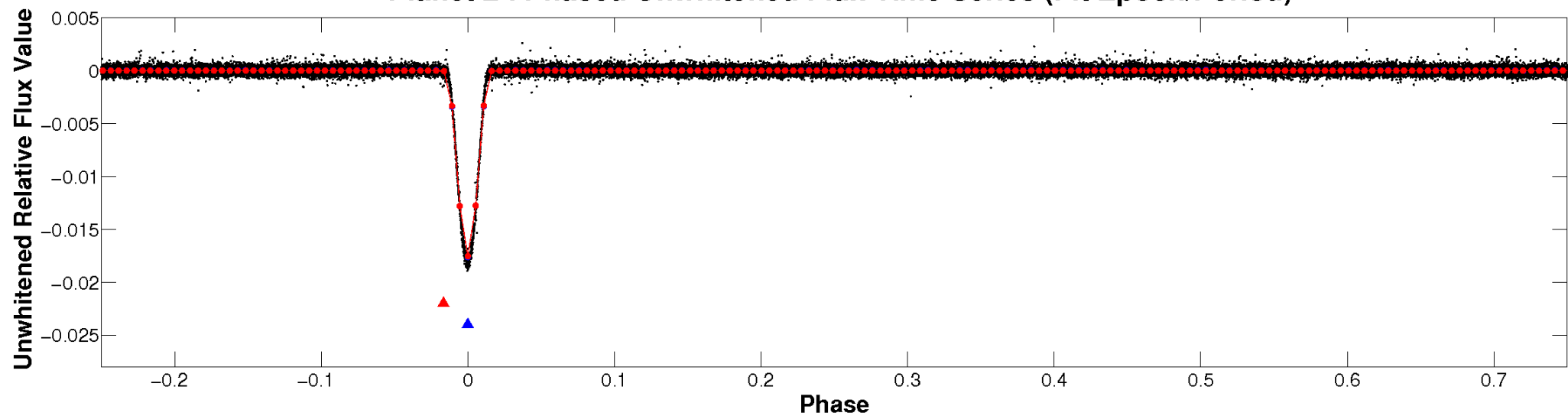
ALT Odd/Even

TCE 008543278-02

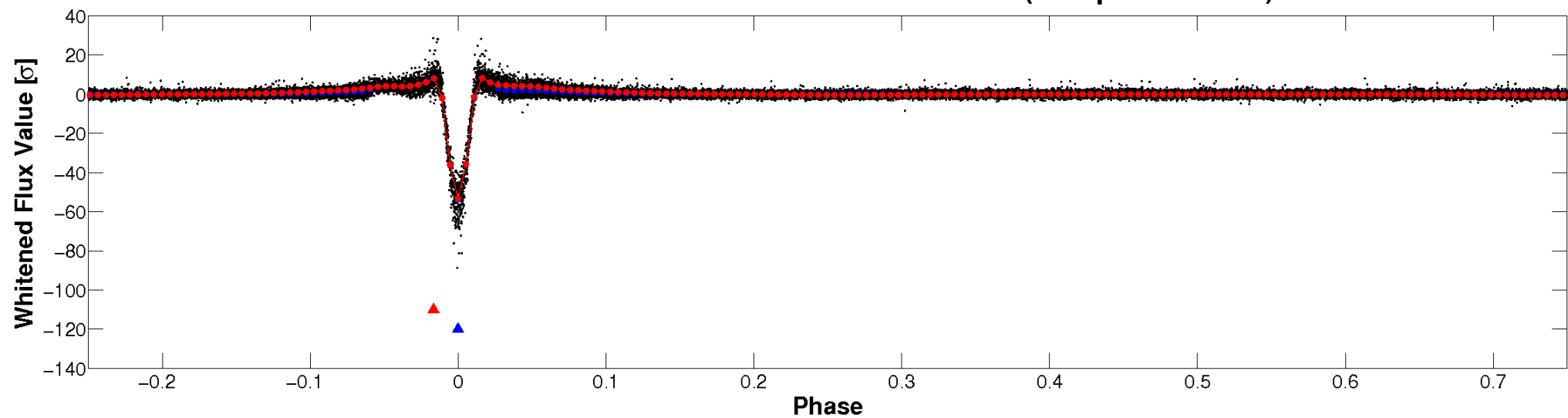


Non-Whitened Vs. Whitened Light Curve

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

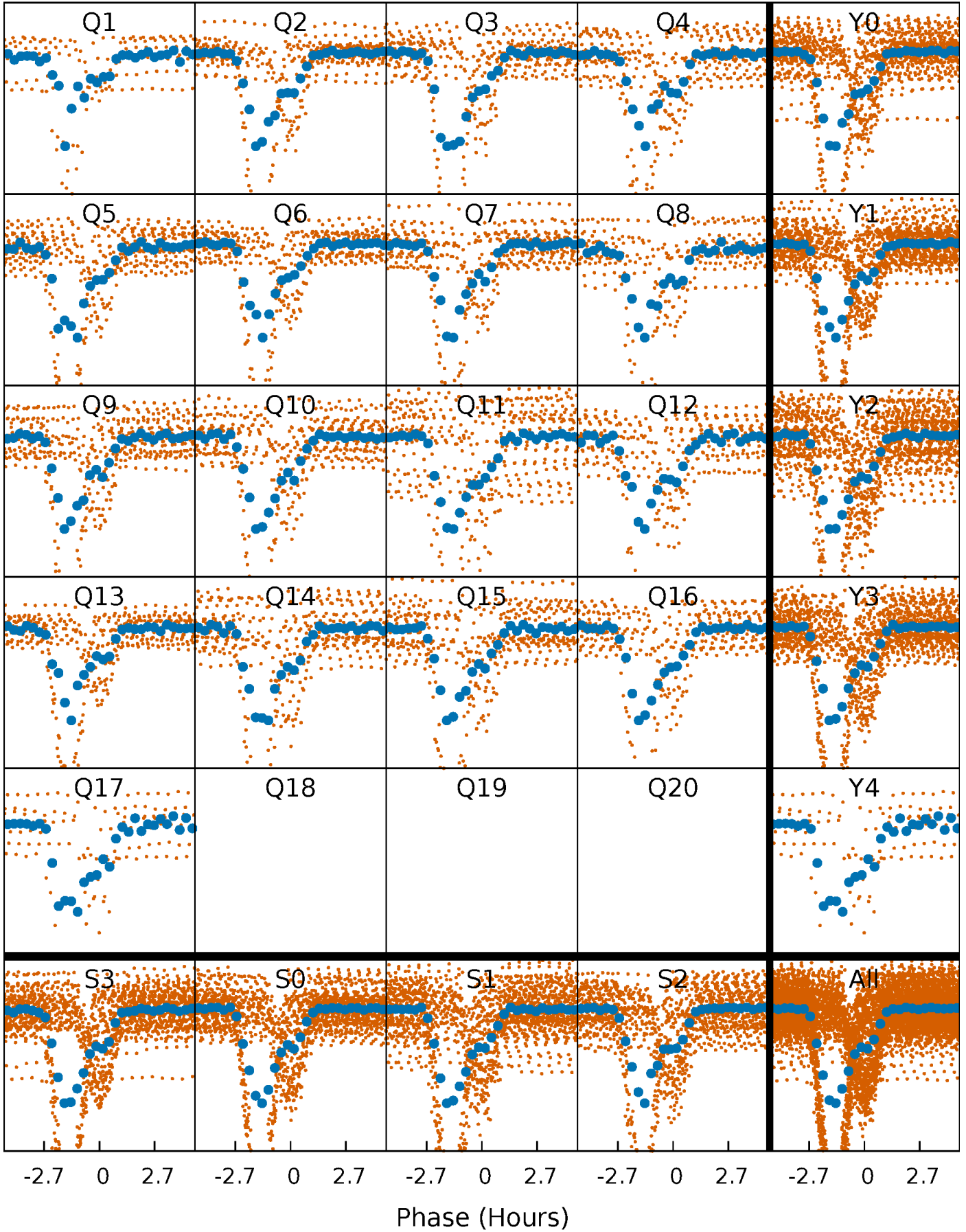


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



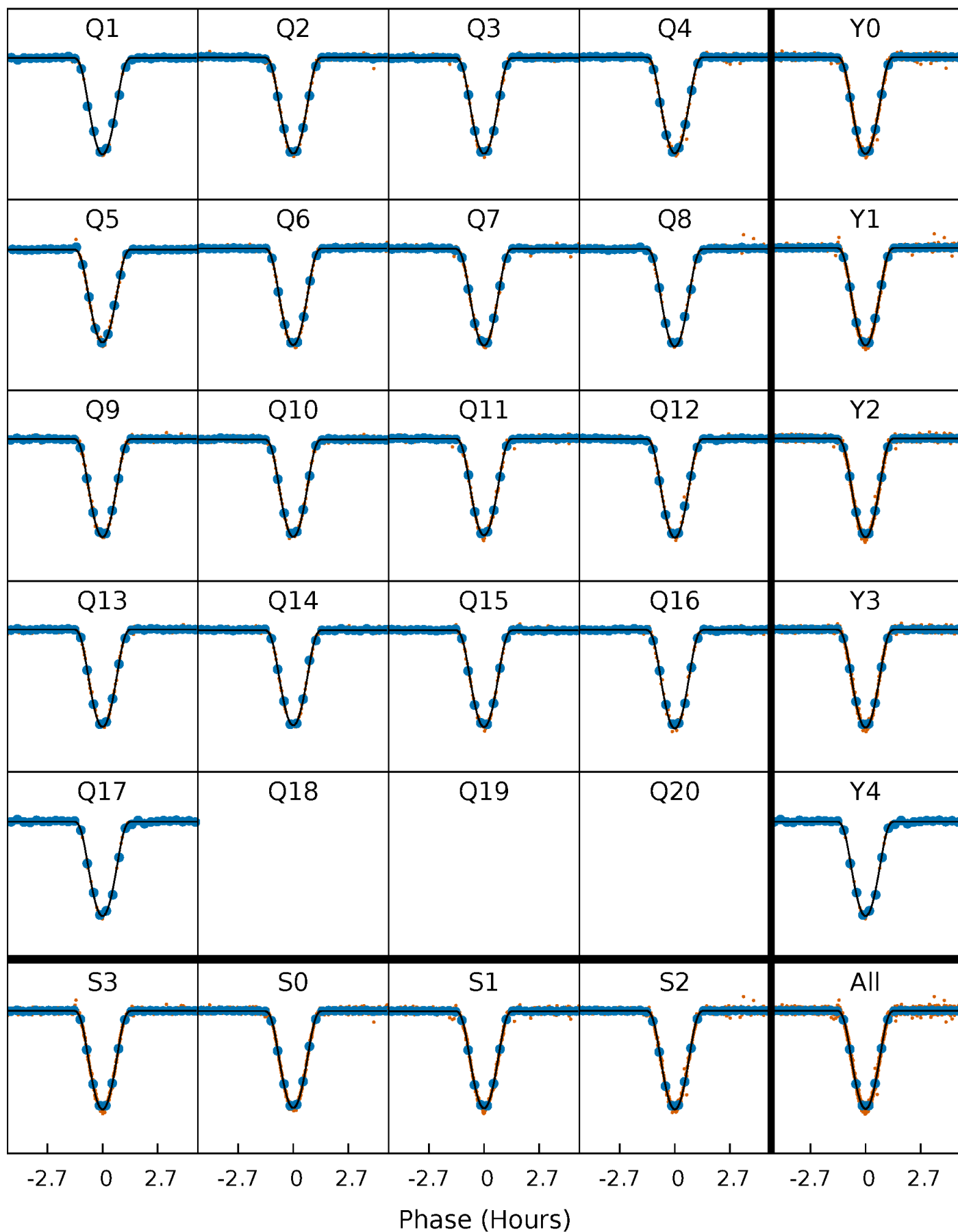
PDC Quarter-Phased Transit Curves

TCE 008543278-02 $P = 3.774650$ Days $T_0 = 135.074027$ (BKJD)



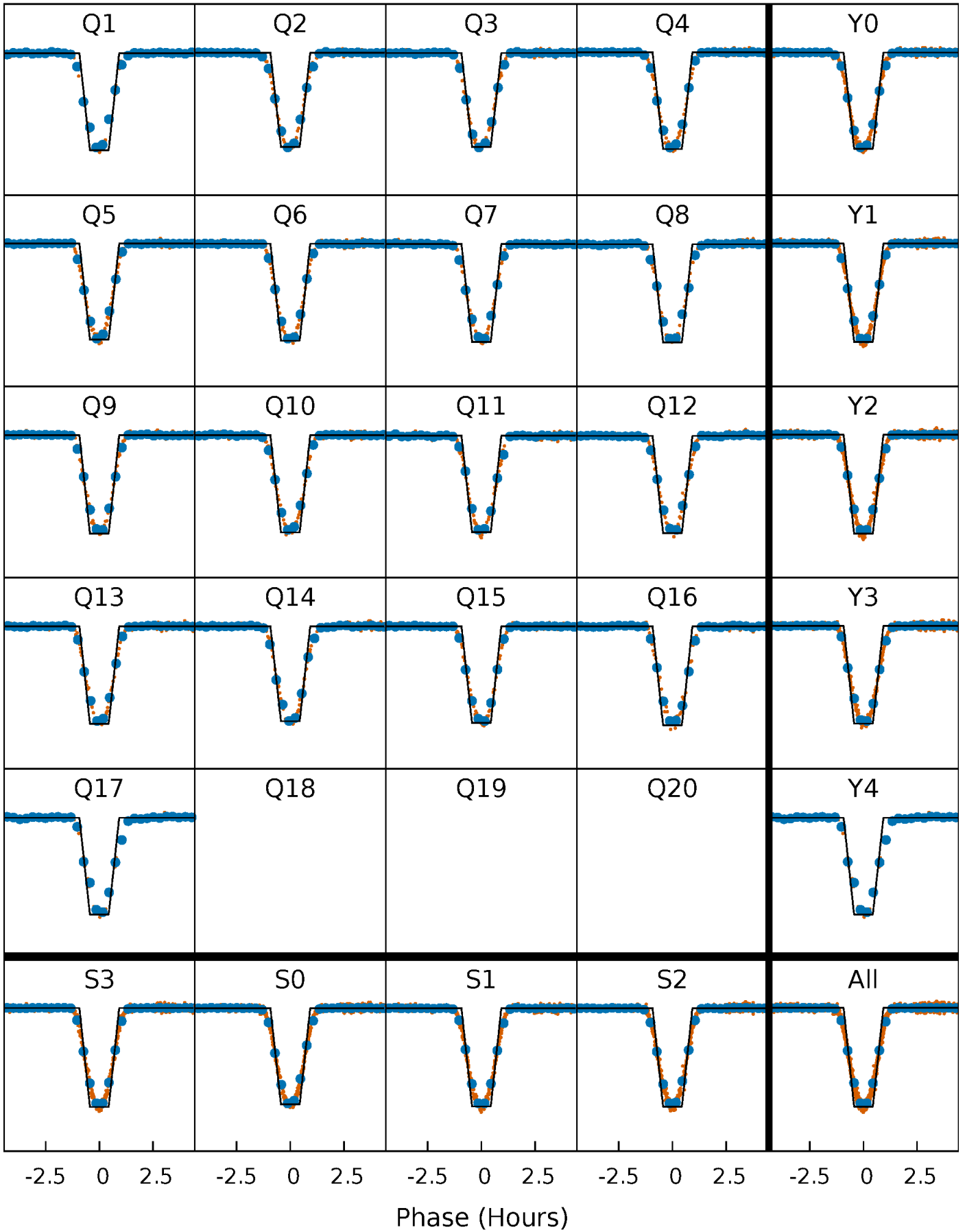
DV Quarter-Phased Transit Curves

TCE 008543278-02 P= 3.774650 Days $T_0=135.074027$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

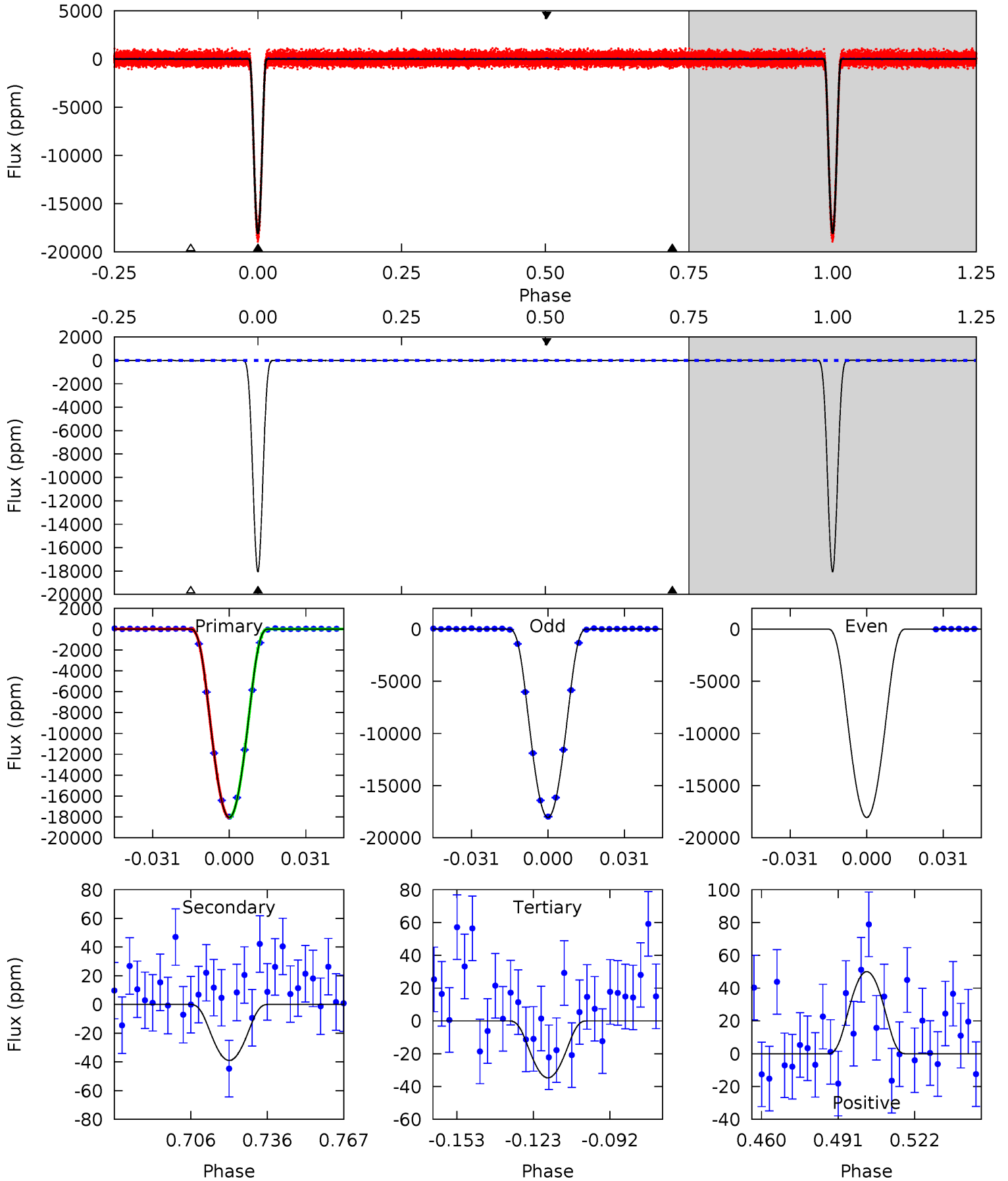
TCE 008543278-02 $P = 3.774641$ Days $T_0 = 135.075614$ (BKJD)



DV Model-Shift Uniqueness Test

008543278-02, P = 3.774650 Days, E = 131.299377 Days

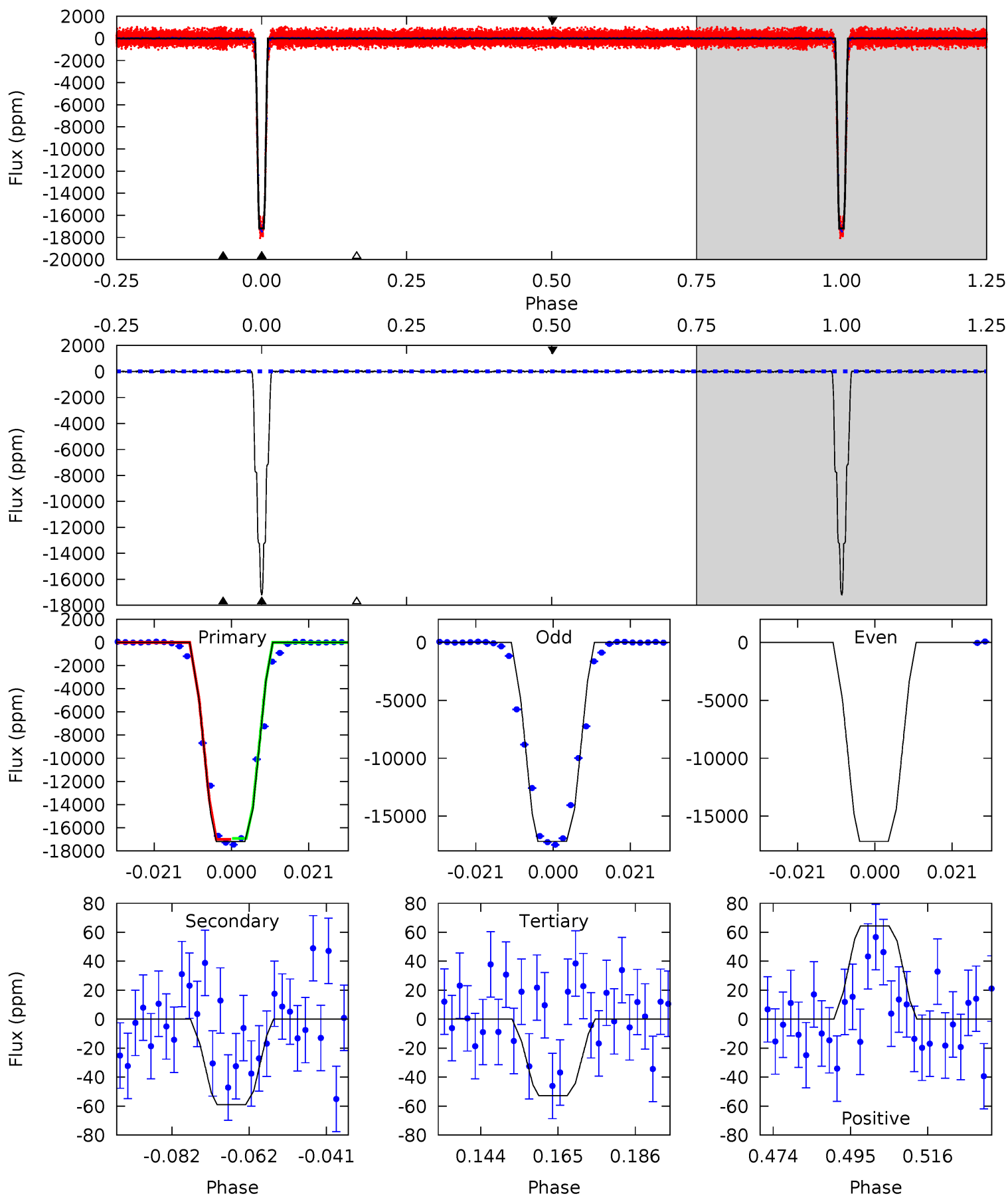
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2029	4.38	3.90	5.62	4.81	2.16	1.62	2025	2023	0.48	-1.24	0	1.00	0.00	1.24



Alt Model-Shift Uniqueness Test

008543278-02, P = 3.774641 Days, E = 131.300973 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1113	3.82	3.41	4.17	4.89	2.31	1.16	1109	1108	0.41	-0.34	0	1.00	0.00	0



Stellar Parameters For KIC 008543278

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5085^{+136}_{-151}	$4.679^{+0.028}_{-0.077}$	$-0.580^{+0.300}_{-0.300}$	$0.634^{+0.082}_{-0.041}$	$0.699^{+0.068}_{-0.061}$	$3.862^{+0.506}_{-0.963}$
	+3%/-3%	+1%/-2%	+52%/-52%	+13%/-6%	+10%/-9%	+13%/-25%
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 008543278-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-39 ± 9	$13.07^{+0.95}_{-0.88}$	1228^{+45}_{-43}	-1755^{+249}_{-98}	$0.220^{+0.066}_{-0.055}$
Alt.	-59 ± 15	$9.50^{+0.90}_{-0.84}$	1227^{+44}_{-43}	2017^{+104}_{-150}	$0.635^{+0.196}_{-0.190}$

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 $A_{obs} \gg 1.0$

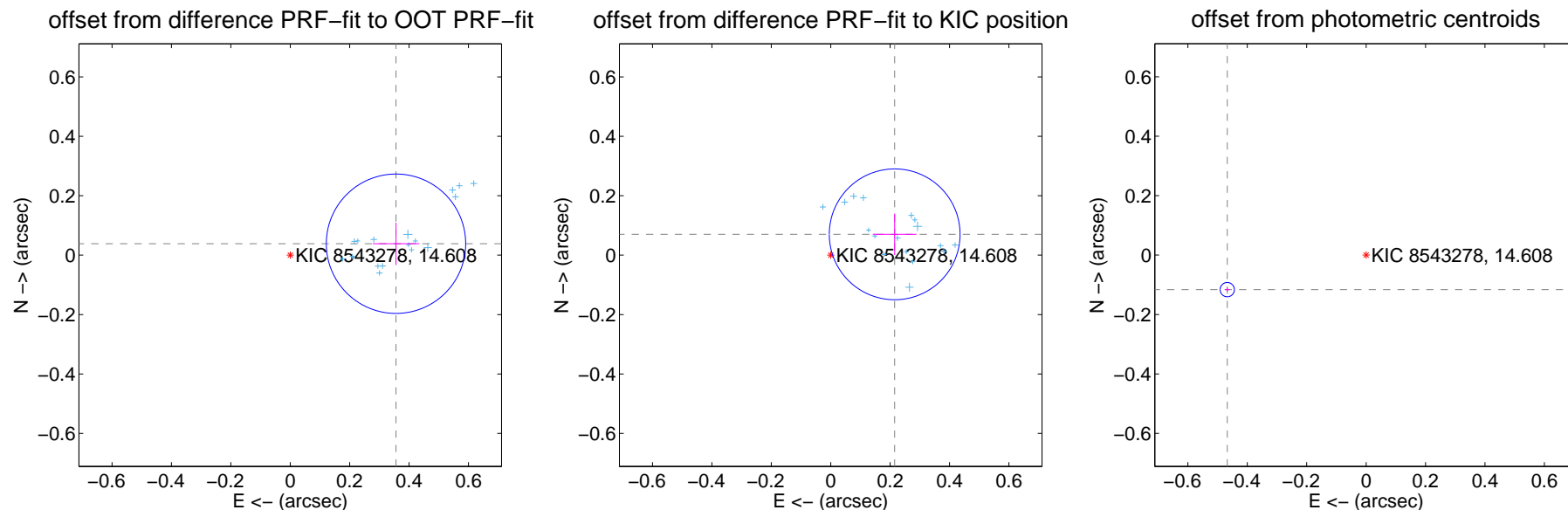
DV Centroid Data

Supplemental centroid analysis for 008543278-02. Kepler magnitude: 14.61. Transit SNR 1015.94

There are 17 quarters with good PRF difference image offsets

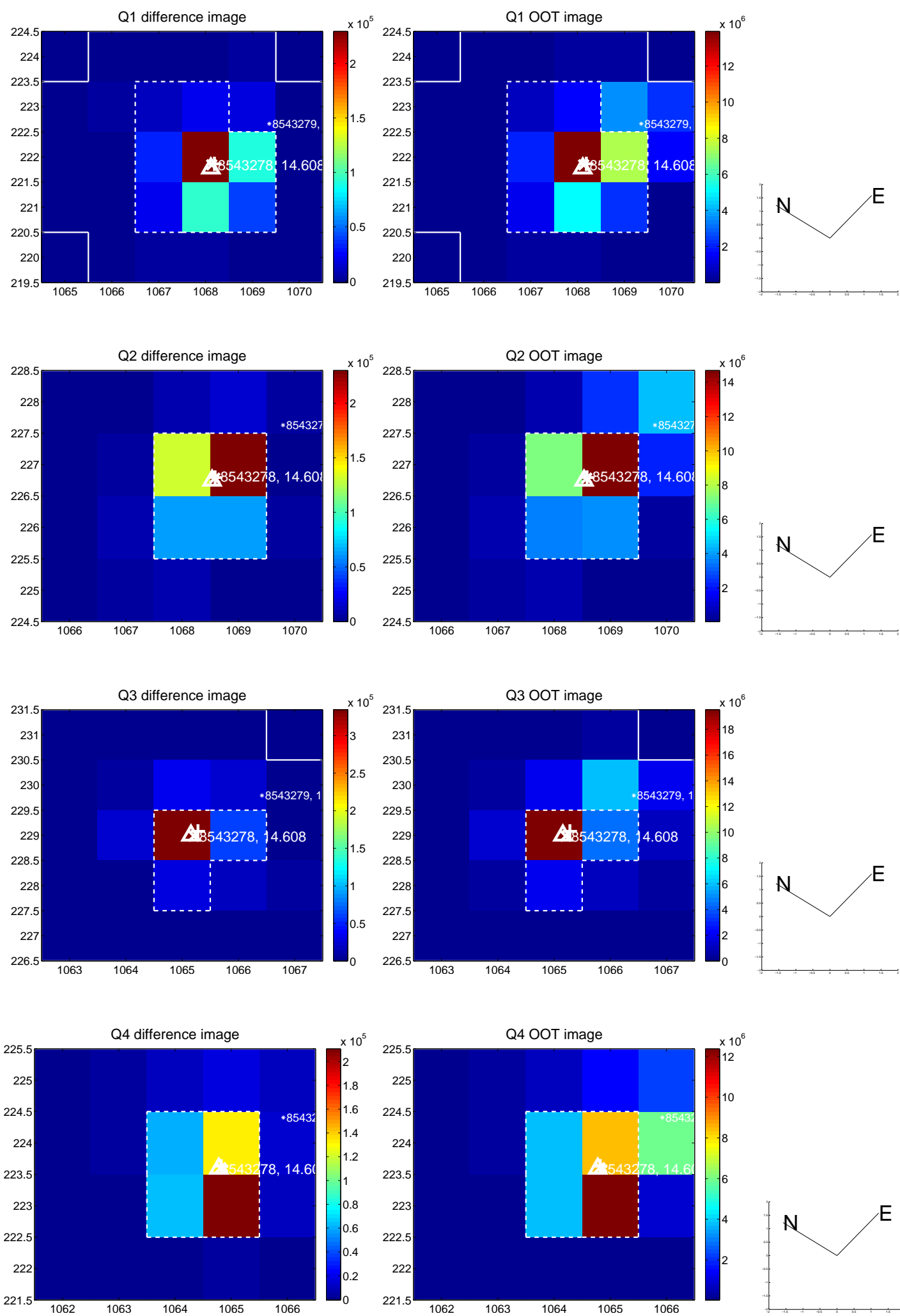
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.358 ± 0.078	4.58	-0.356 ± 0.078	0.038 ± 0.071
PRF-fit source offset from KIC position	0.227 ± 0.073	3.09	-0.215 ± 0.074	0.070 ± 0.070
photometric centroid source offset	0.48 ± 0.01	60.15	0.47 ± 0.01	-0.12 ± 0.01

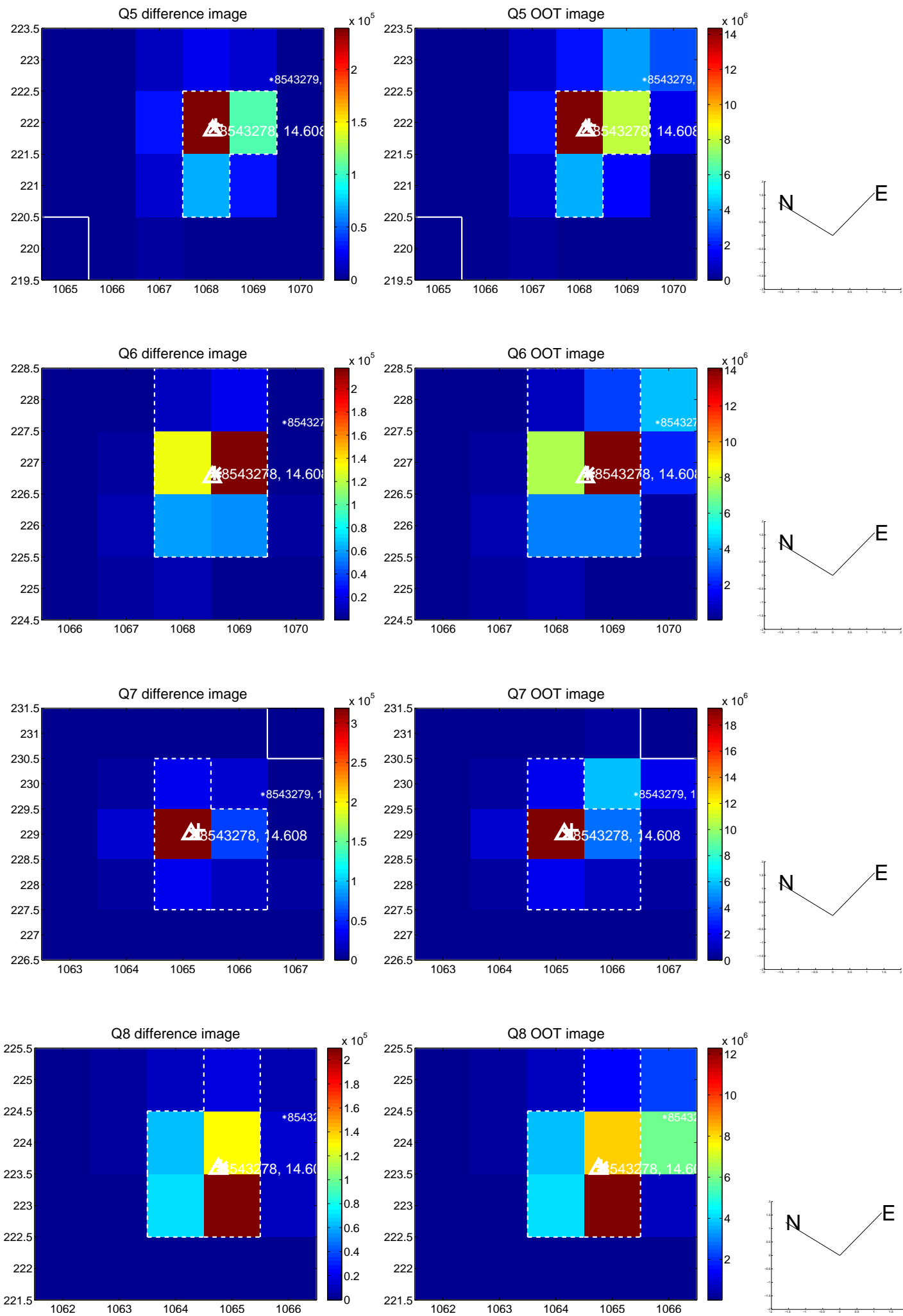


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

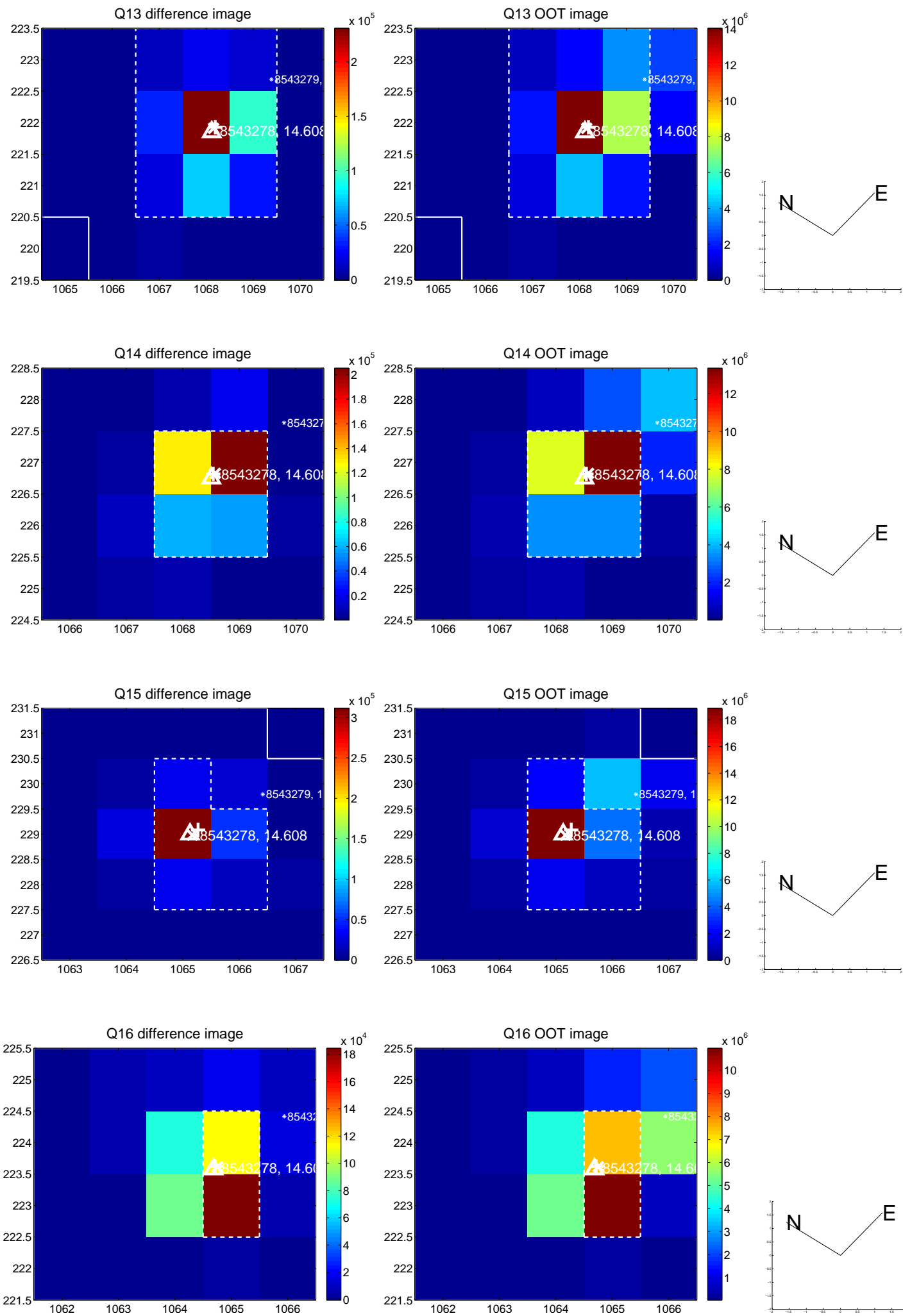
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



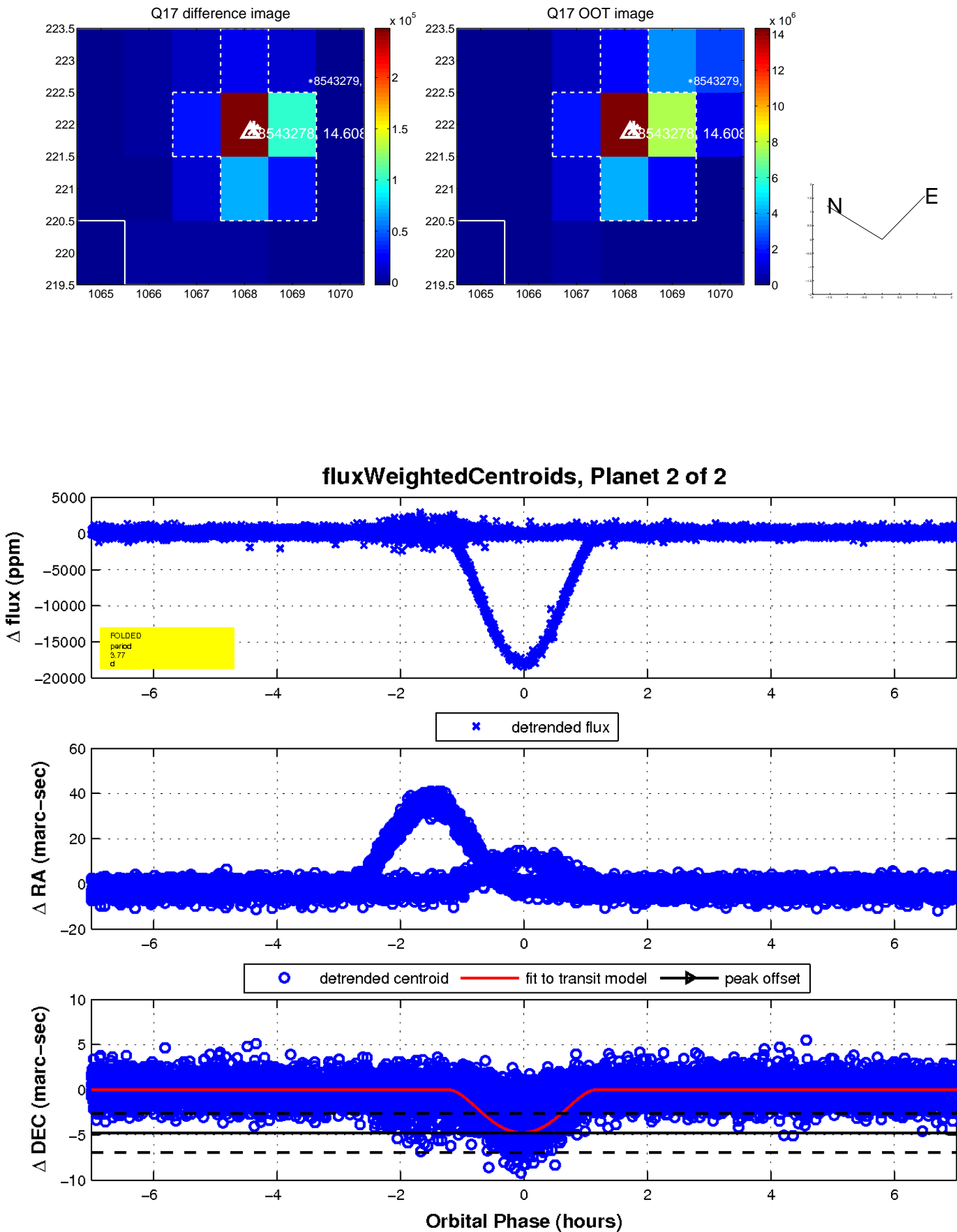
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

