

KIC 008543279

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})
008543279-01	OBS	3759.01	7.549301	135.011043	9951.8	2.404	227.3	191.3	0.81	5402	13.10	94.19
008543279-02	OBS	No	3.774644	135.075508	3474.9	2.190	79.0	78.6	0.81	5402	6.27	237.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008543279-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
008543279-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 008543279-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008543279-01	8543279	7052.01	8543278	1:1	5.7	1	1	14.61	15.99	4.53	Direct-PRF	0	0.01	0.01

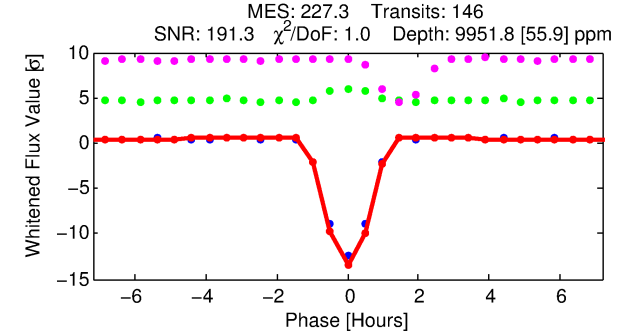
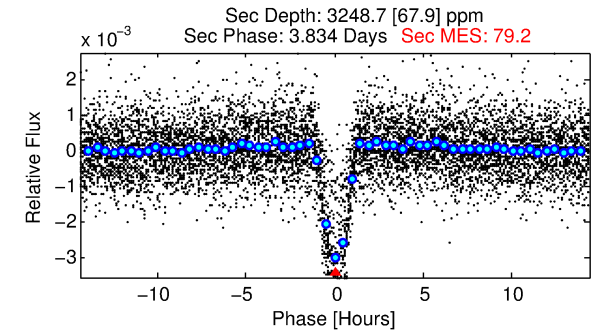
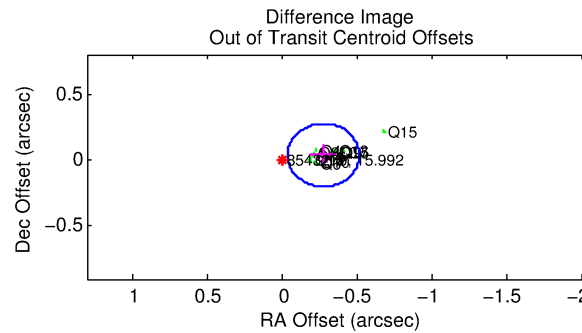
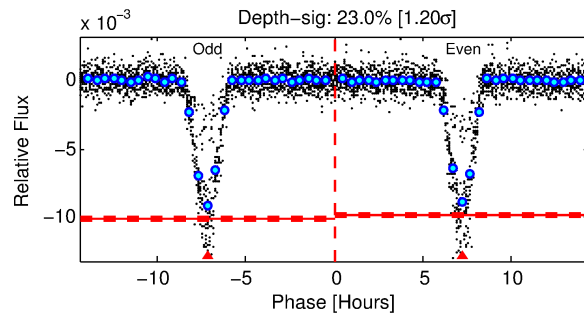
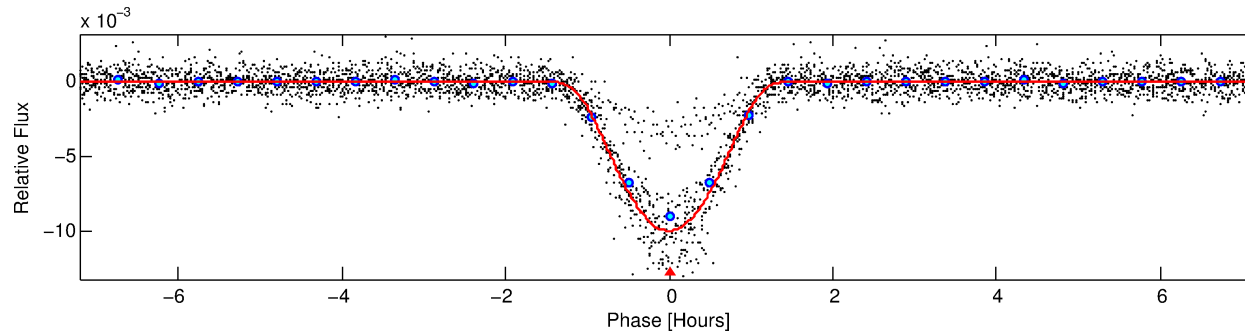
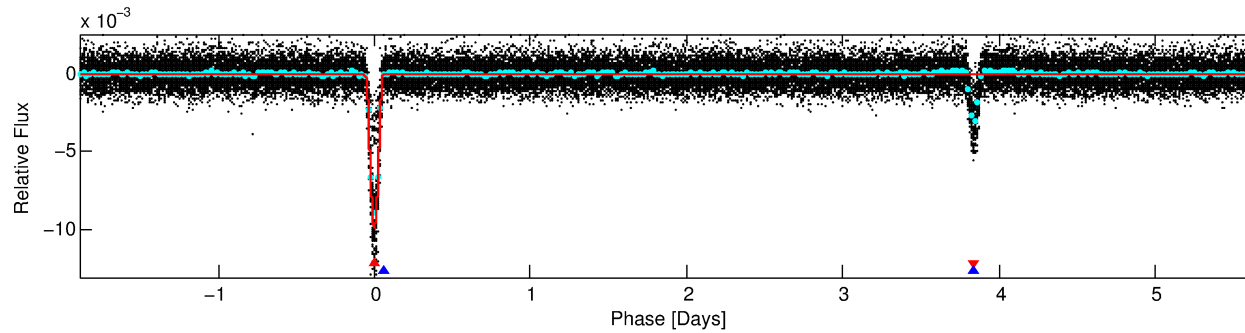
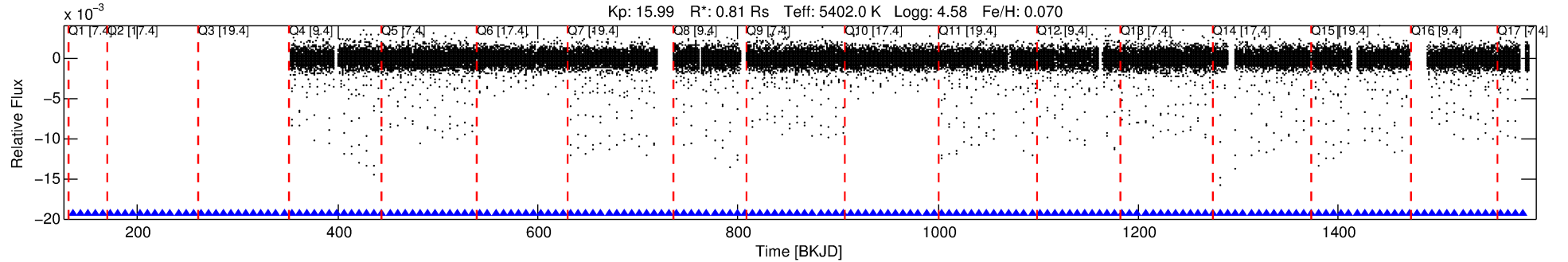
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8543279 Candidate: 1 of 2 Period: 7.549 d

KOI: K03759.01 Corr: 0.985

Kp: 15.99 R*: 0.81 Rs Teff: 5402.0 K Logg: 4.58 Fe/H: 0.070



DV Fit Results:

Period = 7.54930 [0.00000] d
Epoch = 135.0110 [0.0003] BKJD
Rp/R* = 0.1473 [0.0286]
a/R* = 14.83 [0.57]
b = 0.97 [0.05]
Seff = 94.19 [25.92]
Teq = 794 [55] K
Rp = 13.10 [3.59] Re
a = 0.0734 [0.0119] AU
Ag = 56.05 [25.46] [2.16σ]
Teffp = 3361 [348] K [7.29σ]

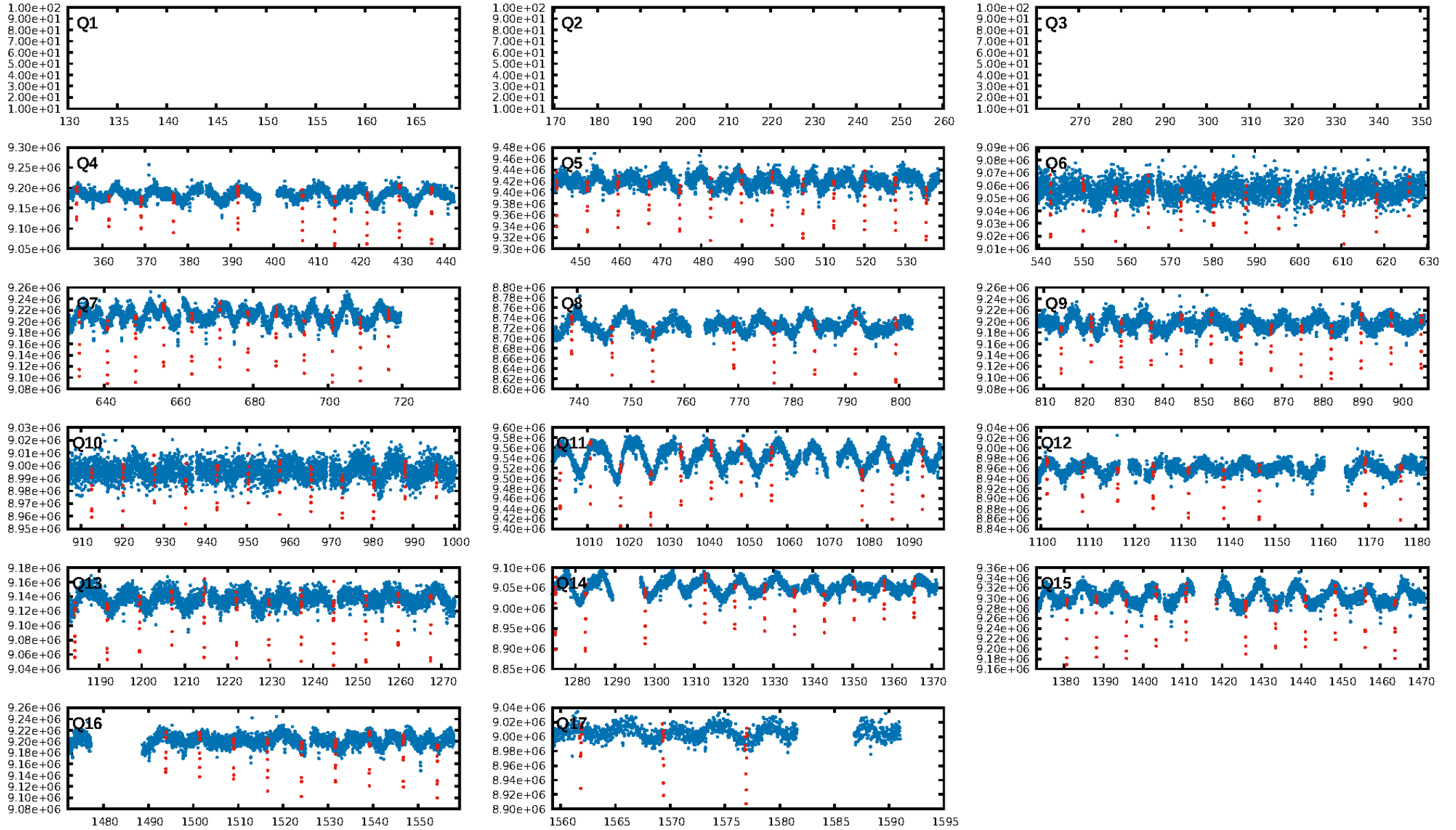
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.86σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [143/143]
GhostDiagnostic-chr: -0.4568
Centroid-sig: N/A
Centroid-so: 8.034 arcsec [350.93σ]
OotOffset-rm: 0.281 arcsec [3.53σ]
KicOffset-rm: 5.957 arcsec [84.51σ]
OotOffset-st: 3/1/4/4 [12]
KicOffset-st: 3/1/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 0.00 [0/14]

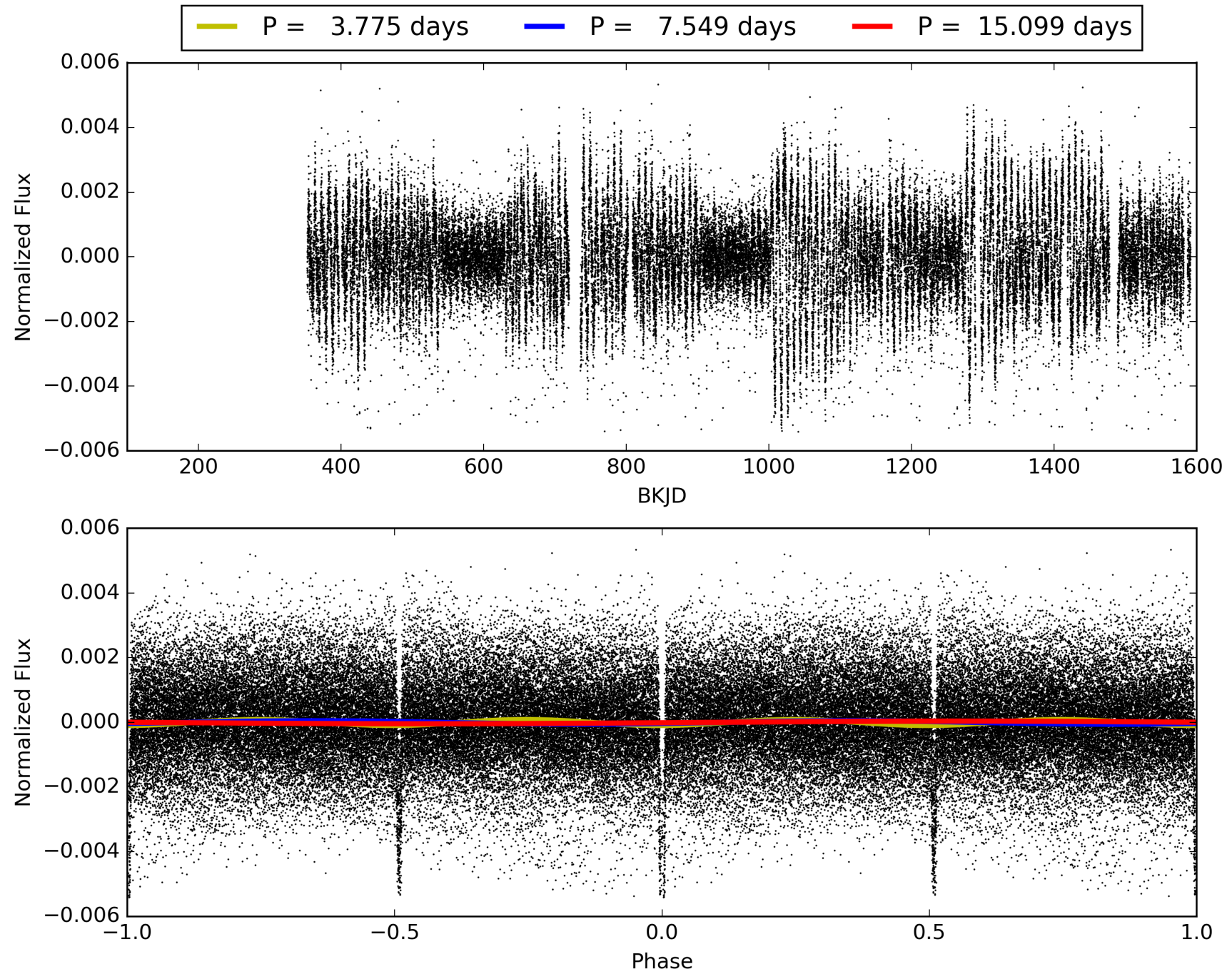
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:04:08 Z

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

TCE 008543279-01, PDC Light Curves

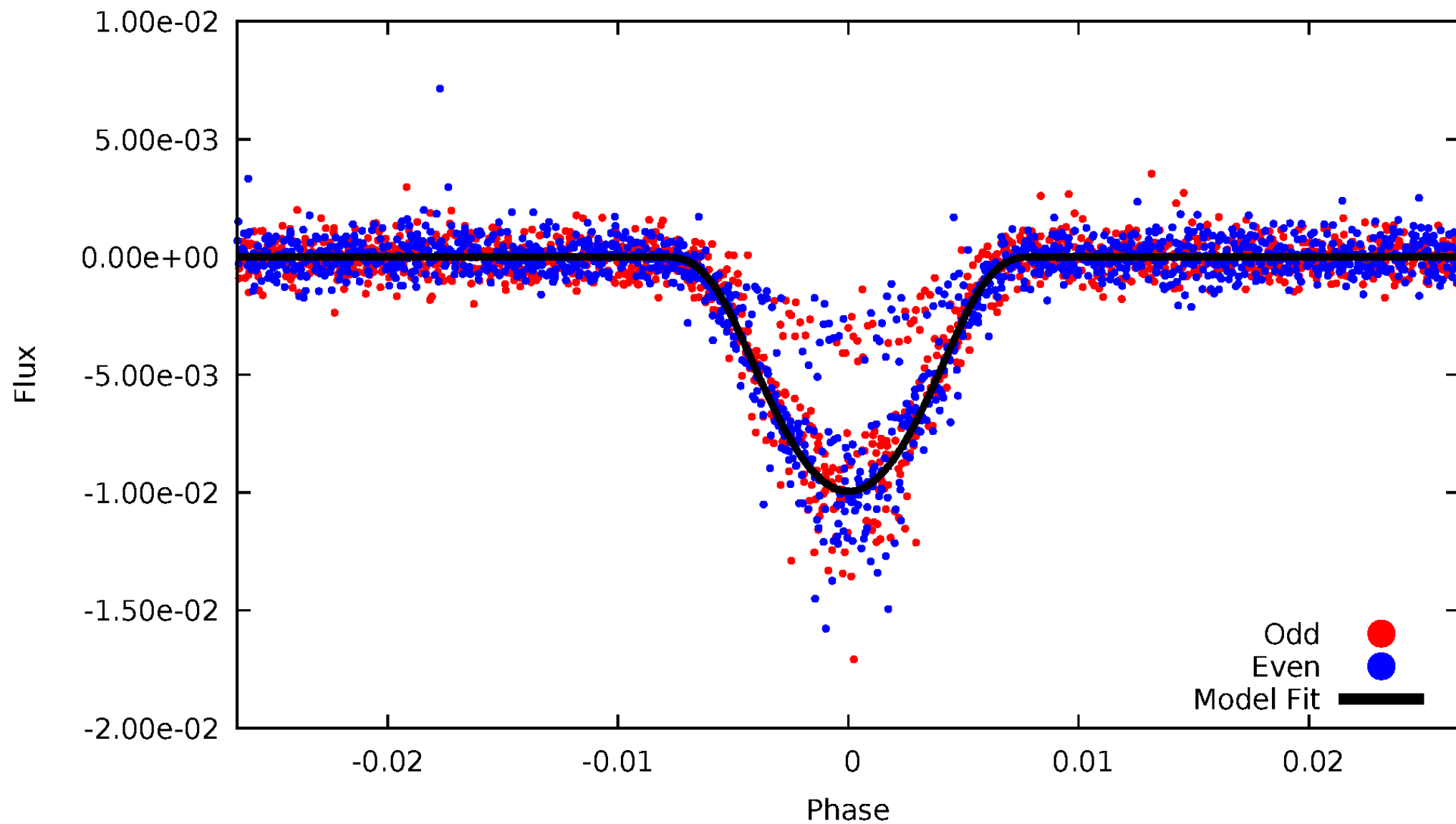


TCE 008543279-01



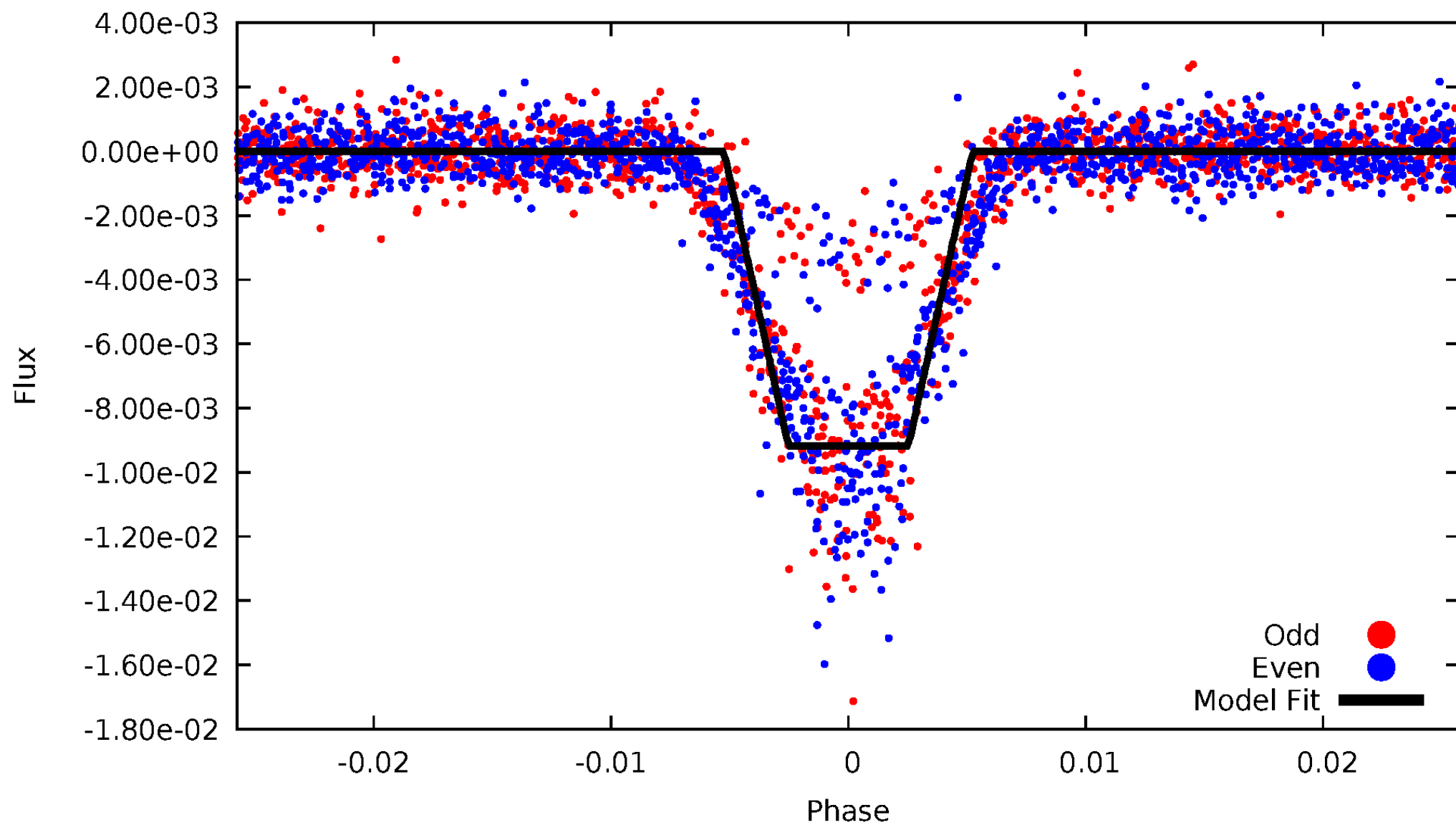
DV Odd/Even

TCE 008543279-01



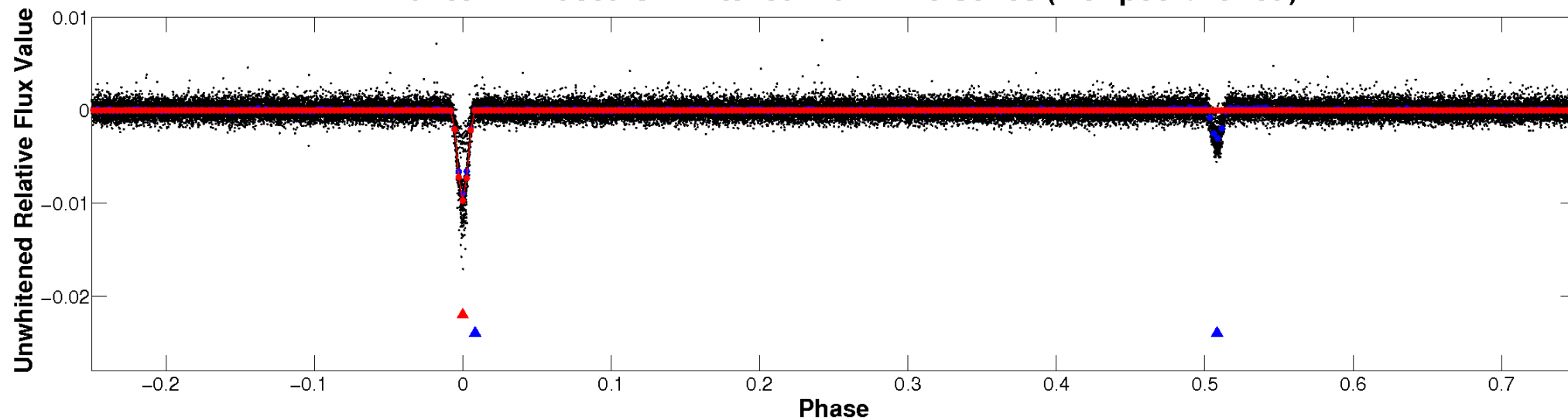
ALT Odd/Even

TCE 008543279-01

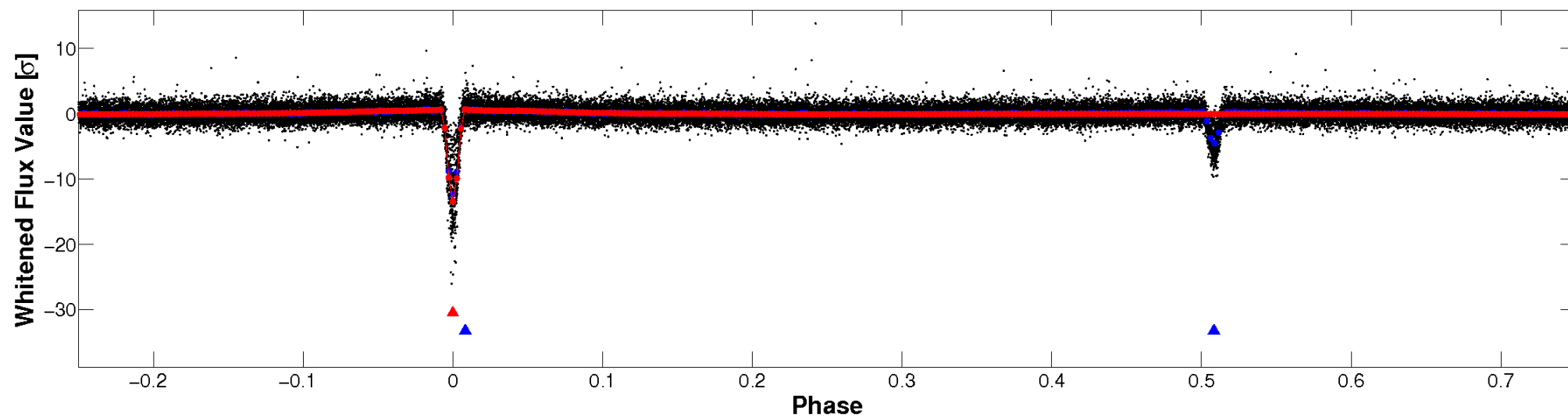


Non-Whitened Vs. Whitened Light Curve

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

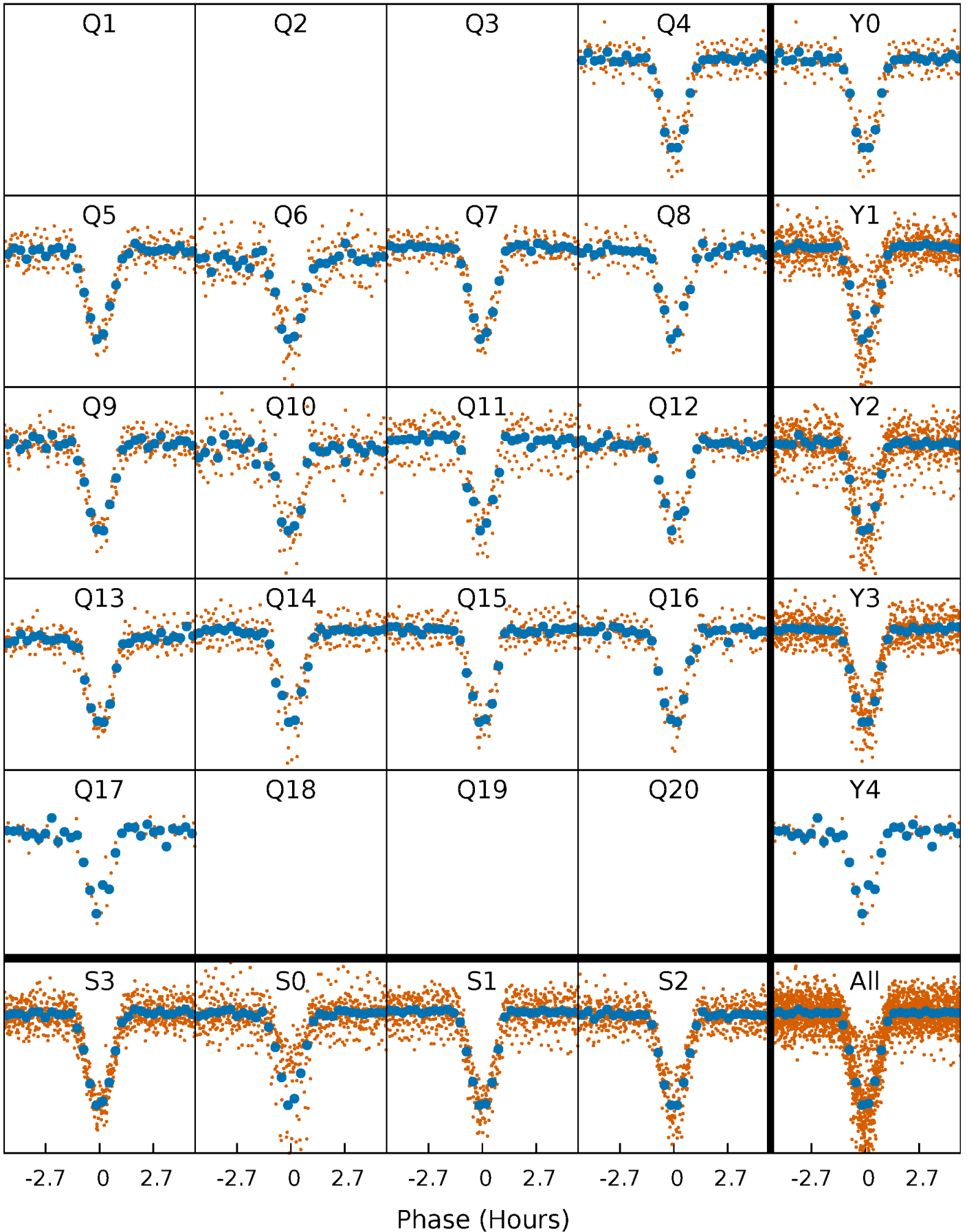


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



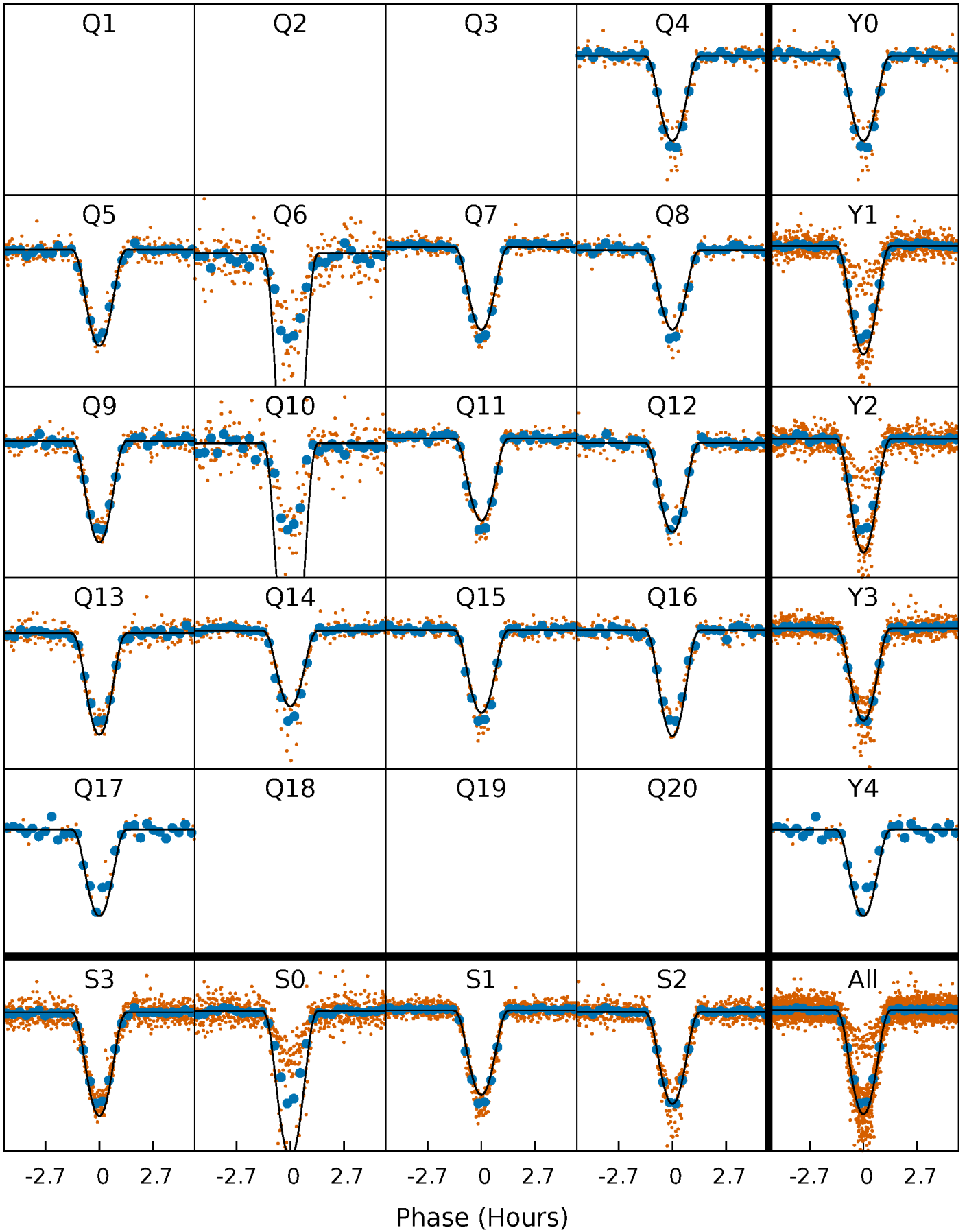
PDC Quarter-Phased Transit Curves

TCE 008543279-01 P= 7.549301 Days $T_0=135.011043$ (BKJD)



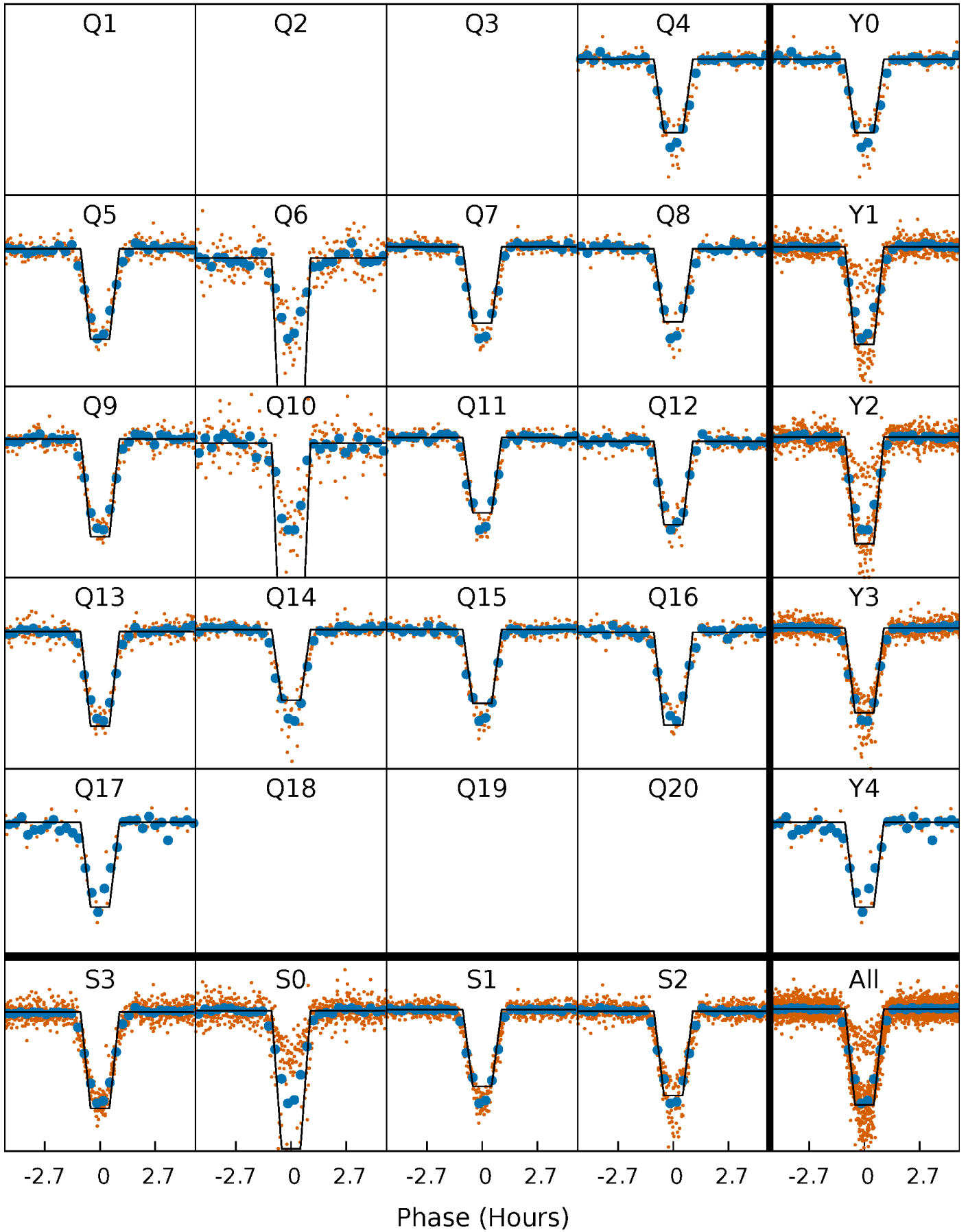
DV Quarter-Phased Transit Curves

TCE 008543279-01 P= 7.549301 Days $T_0=135.011043$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

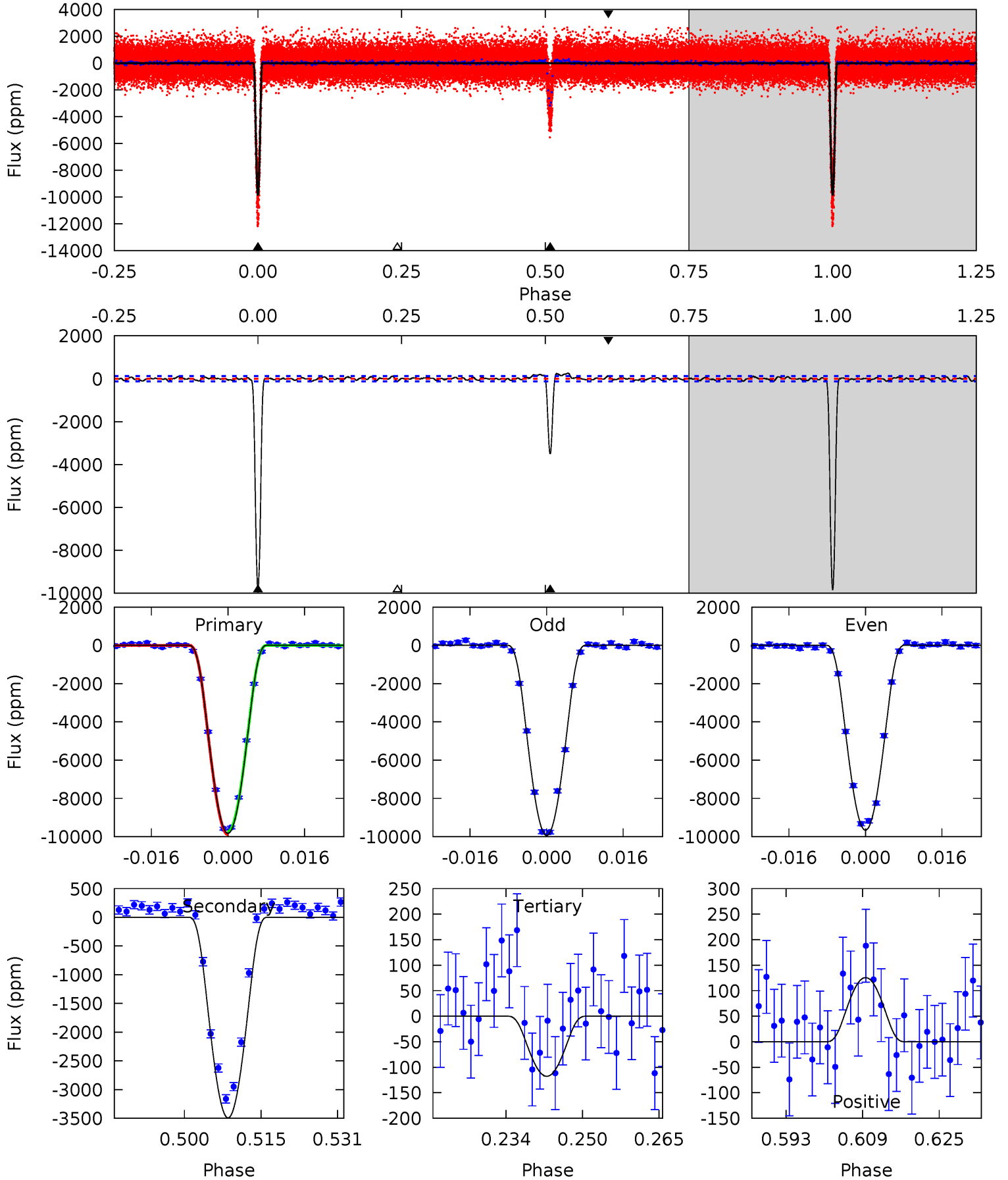
TCE 008543279-01 P= 7.549312 Days $T_0=135.009674$ (BKJD)



DV Model-Shift Uniqueness Test

008543279-01, P = 7.549301 Days, E = 135.011043 Days

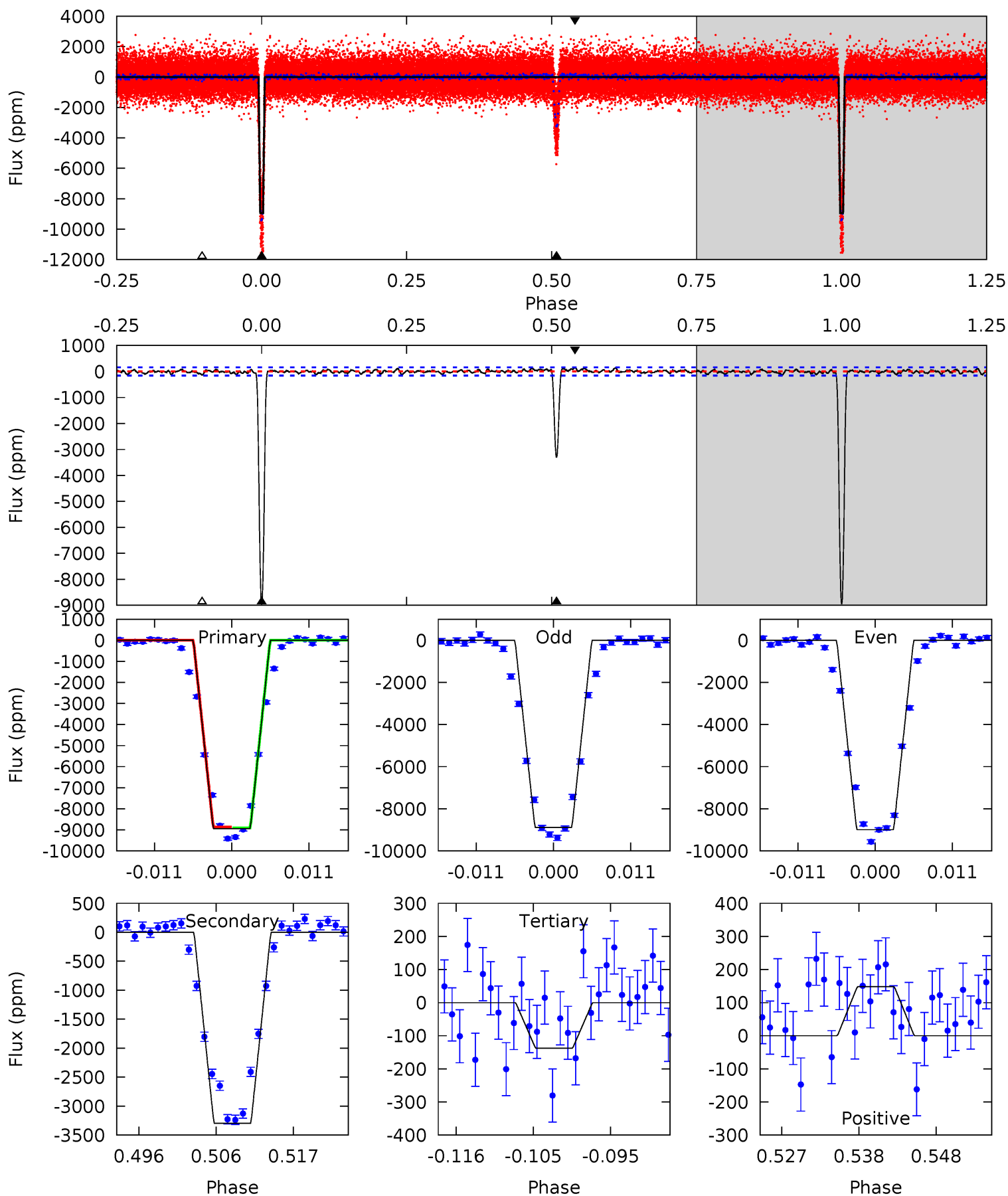
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
397.8	141.3	4.76	5.09	4.94	2.42	2.28	393.0	392.7	136.6	136.3	5.59	0.95	0.03	2.92



Alt Model-Shift Uniqueness Test

008543279-01, P = 7.549312 Days, E = 135.009674 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
281.6	103.8	4.34	4.66	5.02	2.56	1.46	277.3	276.9	99.5	99.1	1.76	0.97	0.02	0



Stellar Parameters For KIC 008543279

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5402^{+177}_{-193}	$4.581^{+0.032}_{-0.128}$	$0.070^{+0.250}_{-0.300}$	$0.815^{+0.158}_{-0.068}$	$0.931^{+0.063}_{-0.108}$	$2.419^{+0.403}_{-0.893}$
	+3%/-4%	+1%/-3%	+357%/-429%	+19%/-8%	+7%/-12%	+17%/-37%
Source	KIC0	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 008543279-01 / KOI 3759.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3492 ± 25	$13.65^{+2.82}_{-2.74}$	1128^{+64}_{-47}	3786^{+282}_{-232}	55^{+29}_{-17}
Alt.	-3297 ± 32	$8.79^{+3.03}_{-2.72}$	1131^{+53}_{-51}	4356^{+719}_{-437}	125^{+136}_{-55}

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

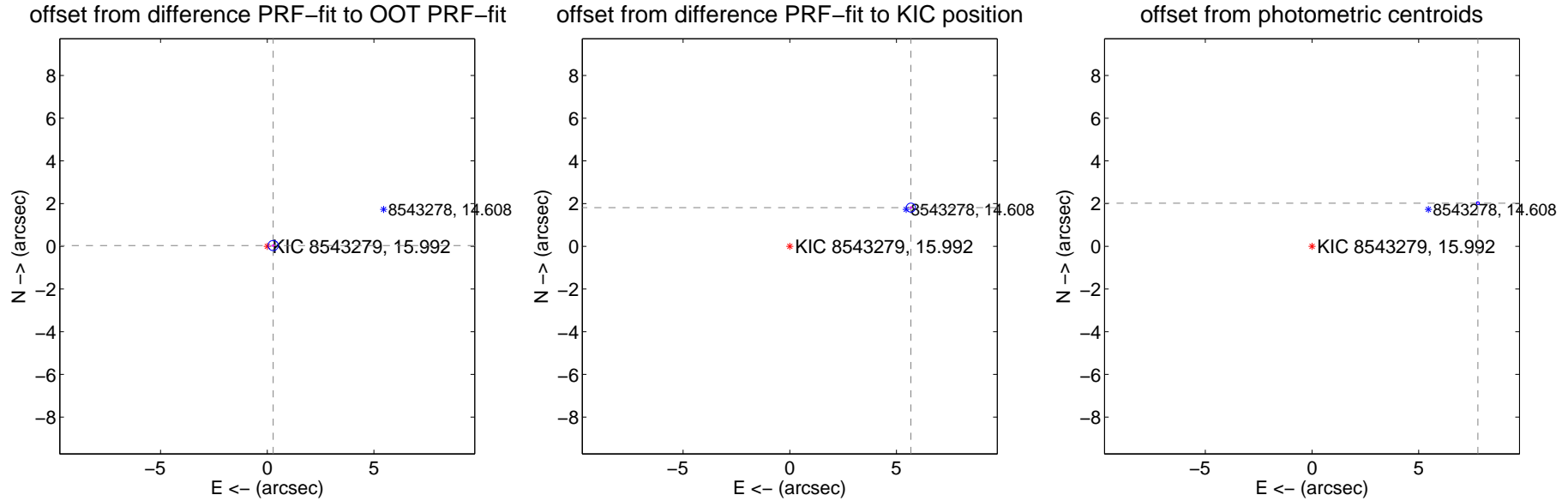
DV Centroid Data

Supplemental centroid analysis for 008543279-01. Kepler magnitude: 15.99. Transit SNR 191.34

There are 12 quarters with good PRF difference image offsets

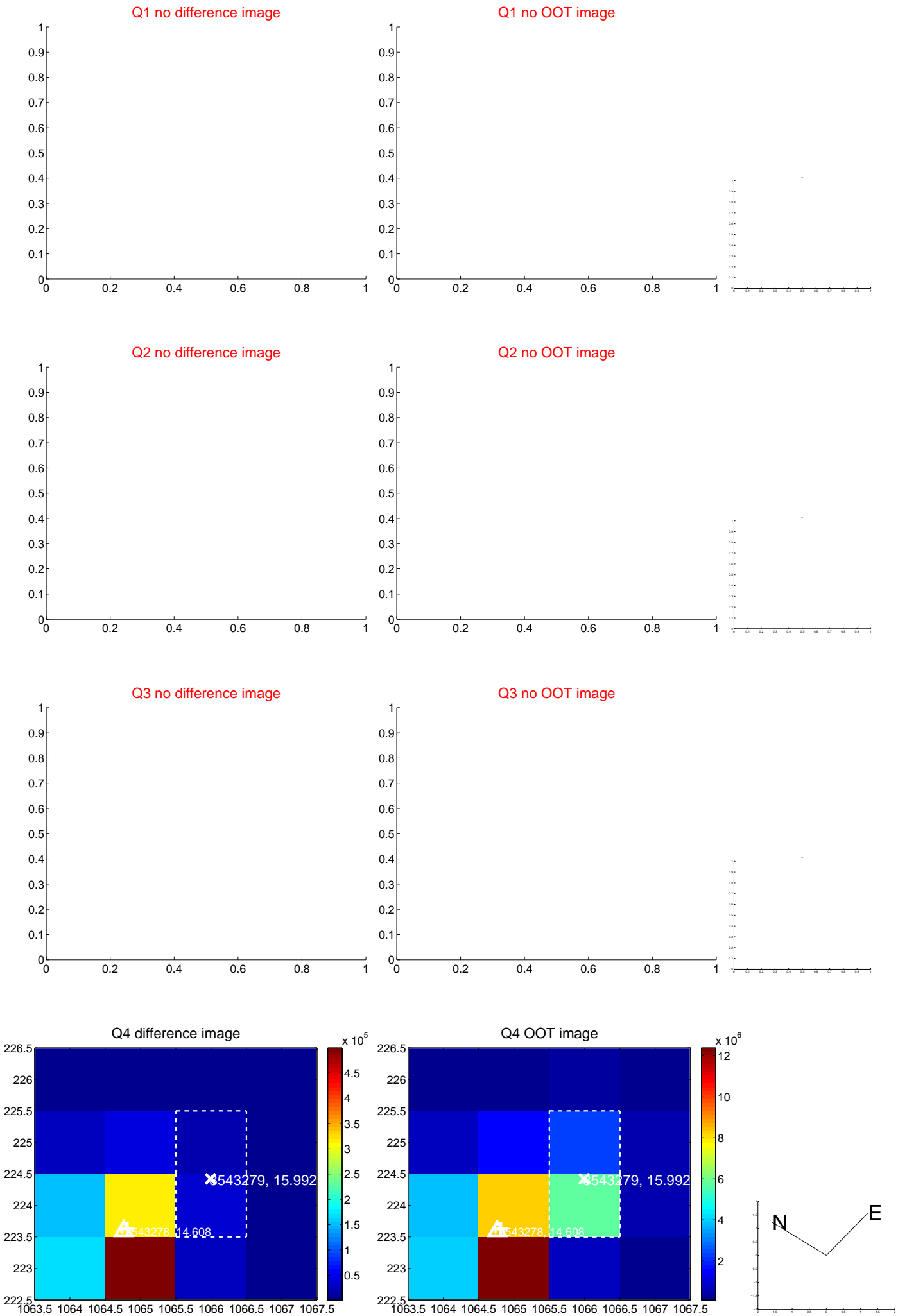
The OOT PRF centroid is offset from the target star catalog position by about 5.63 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.281 ± 0.080	3.53	-0.279 ± 0.079	0.037 ± 0.069
PRF-fit source offset from KIC position	5.957 ± 0.070	84.51	-5.675 ± 0.072	1.811 ± 0.068
photometric centroid source offset	8.03 ± 0.02	350.93	-7.78 ± 0.02	2.02 ± 0.02

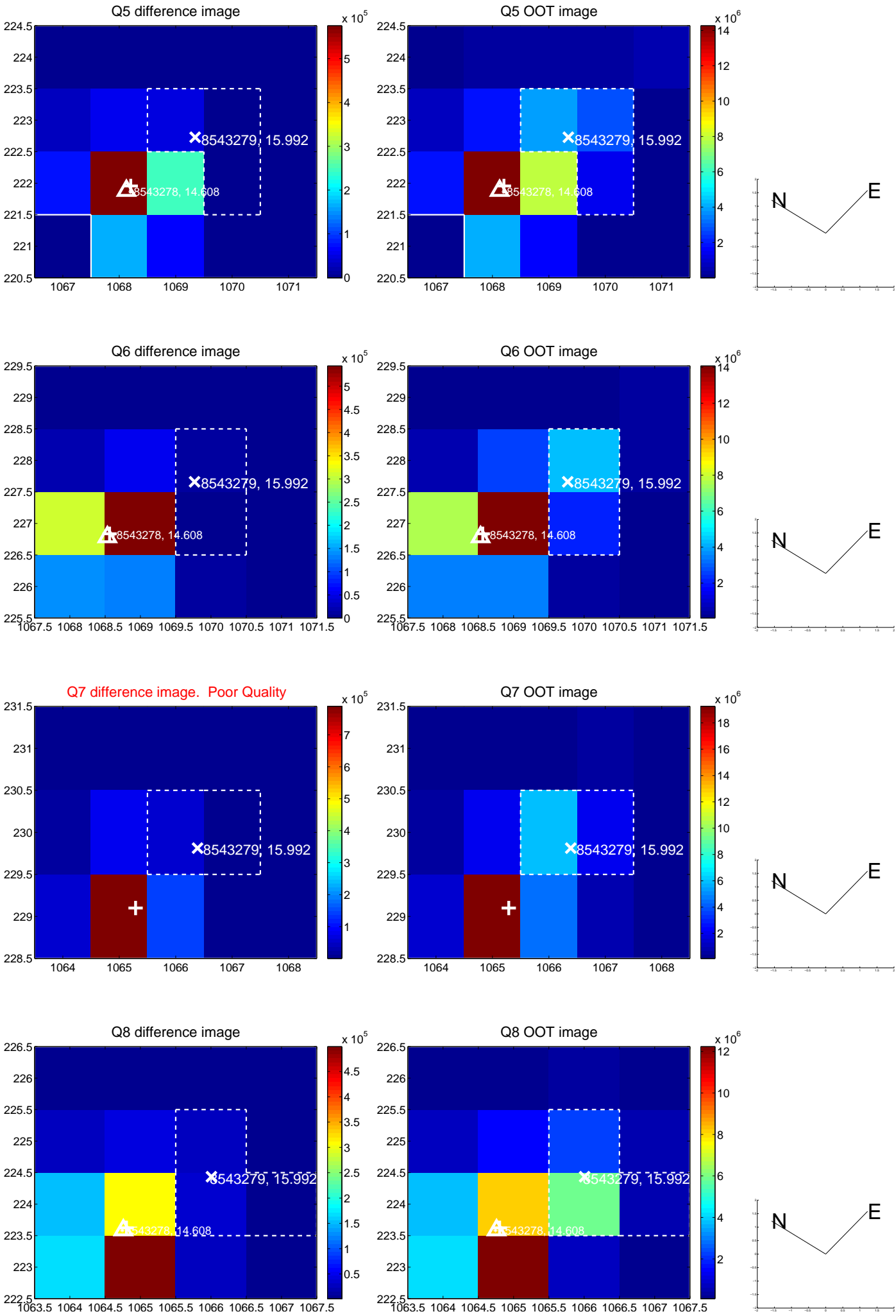


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

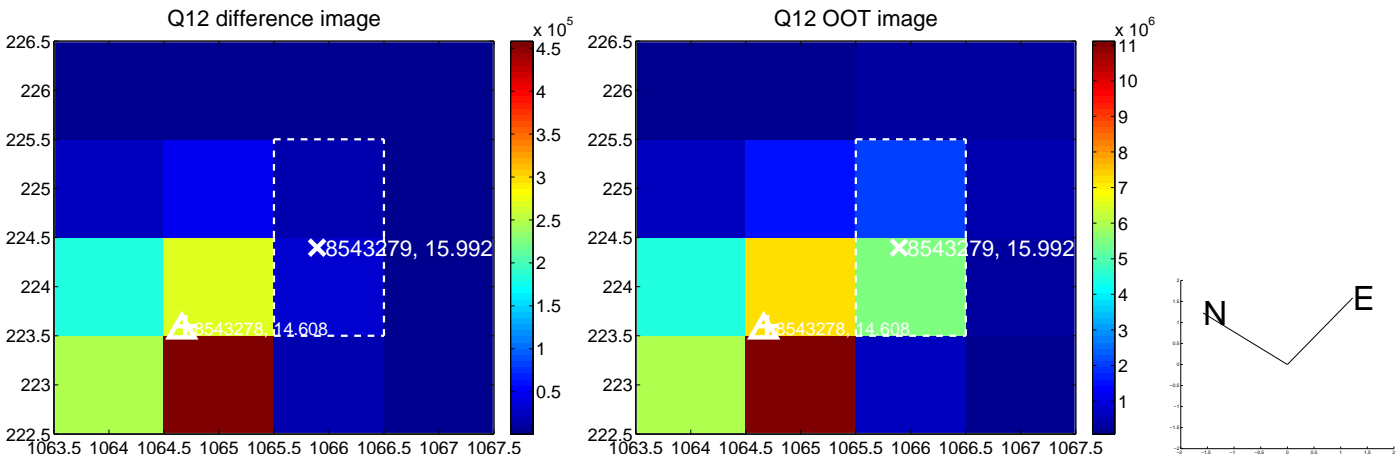
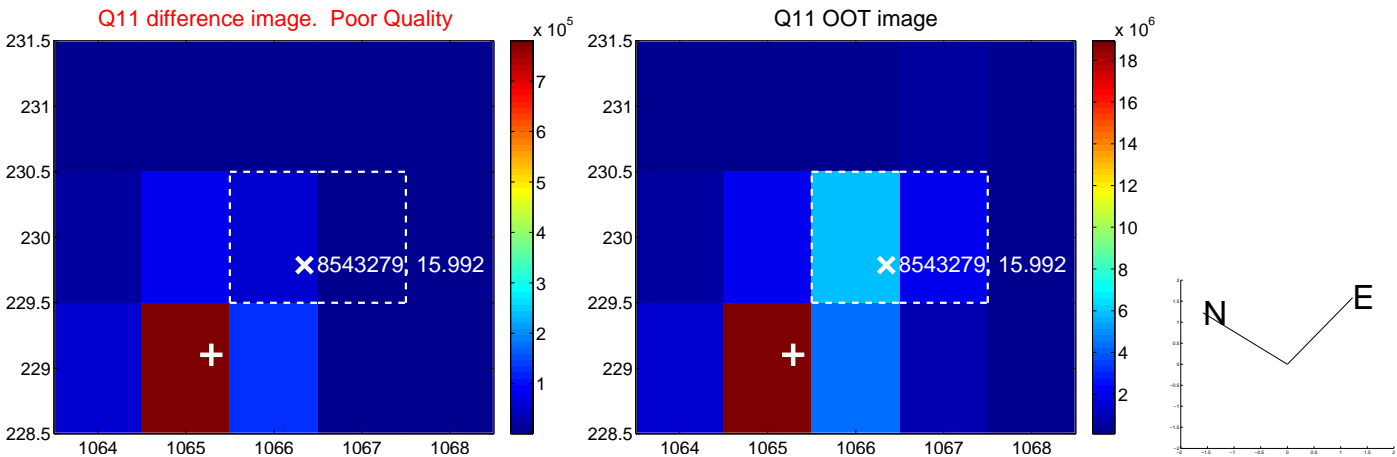
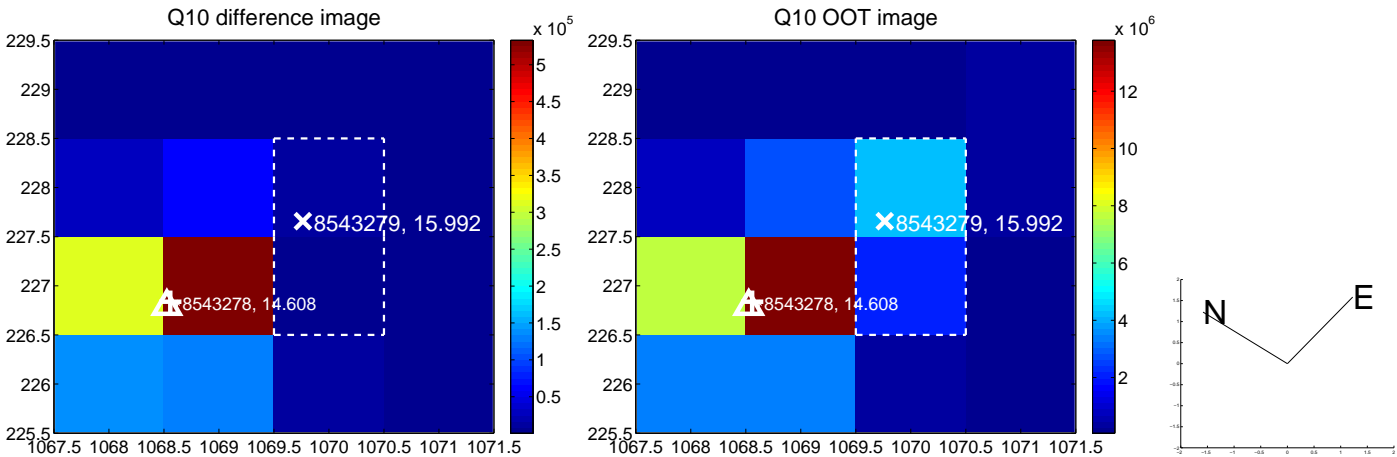
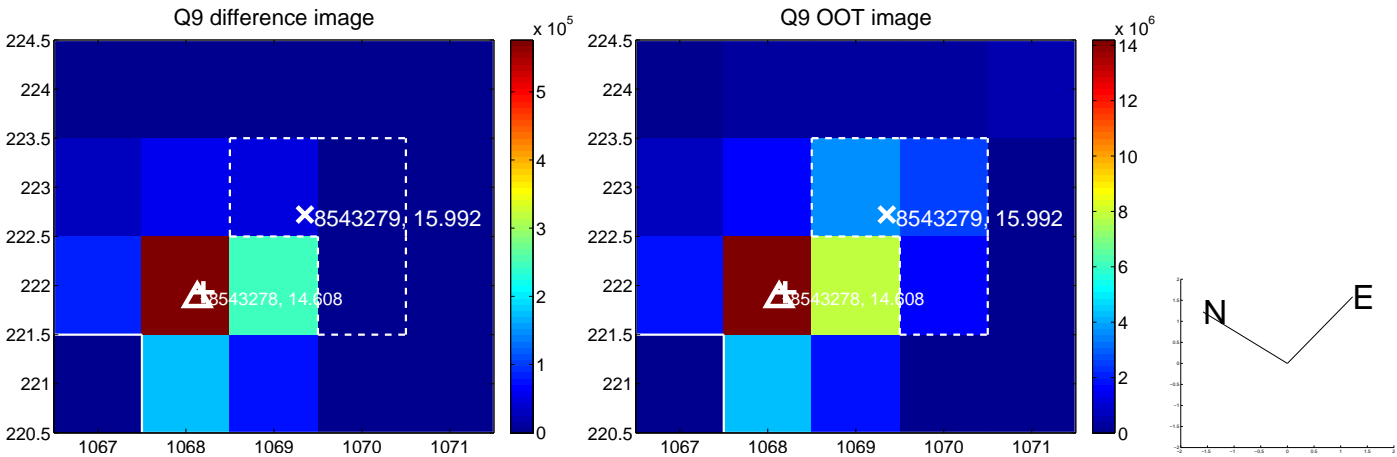
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



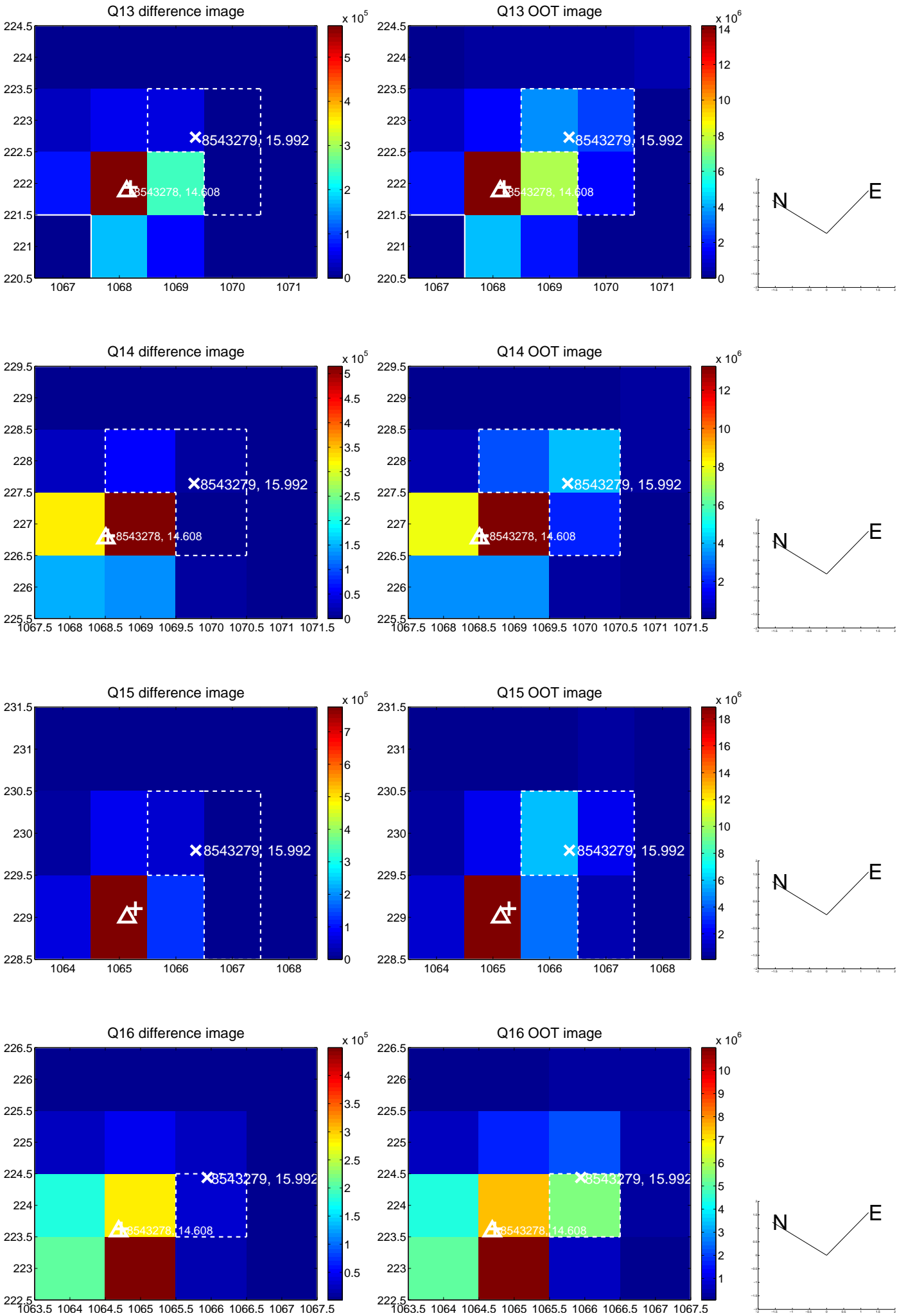
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



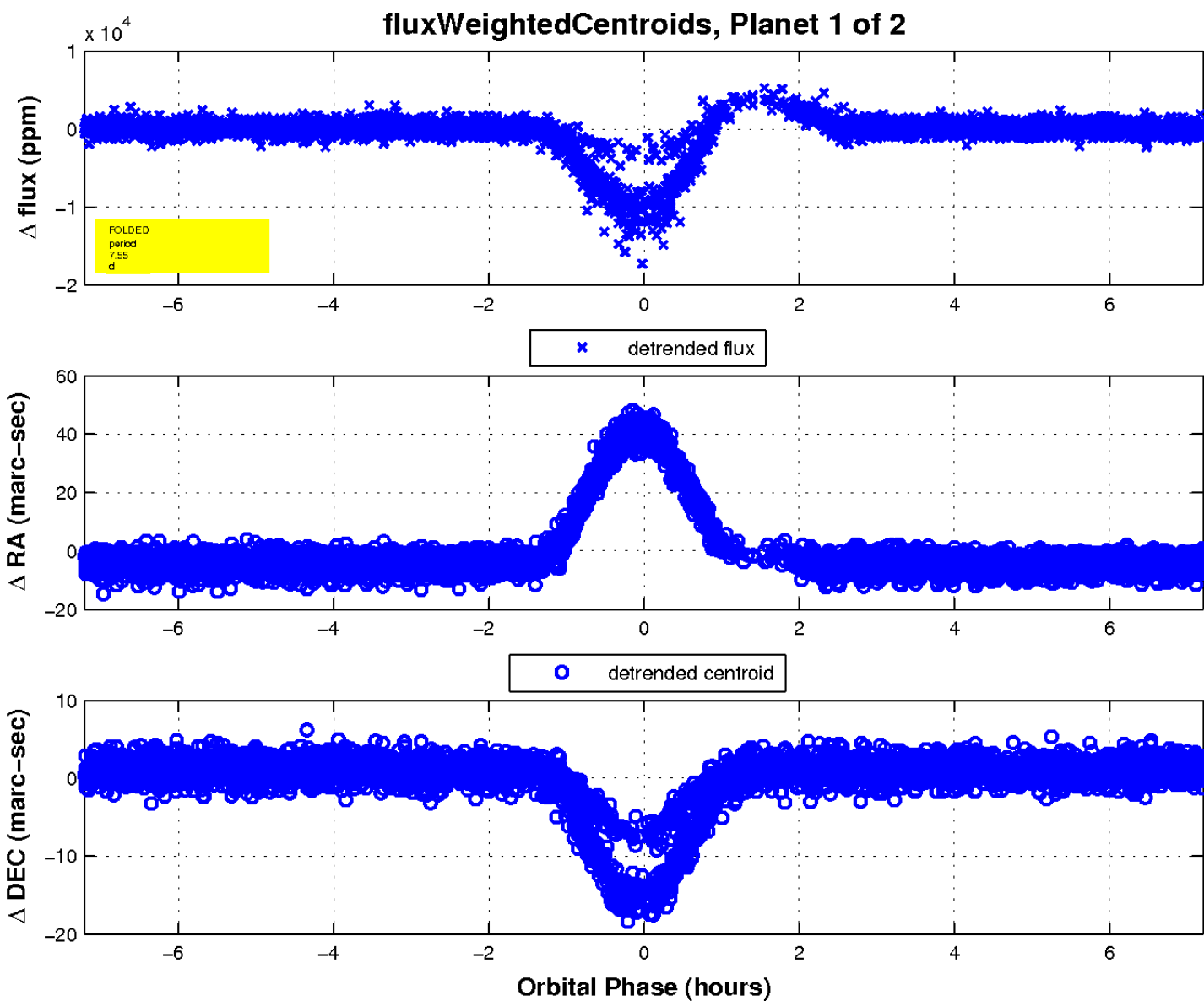
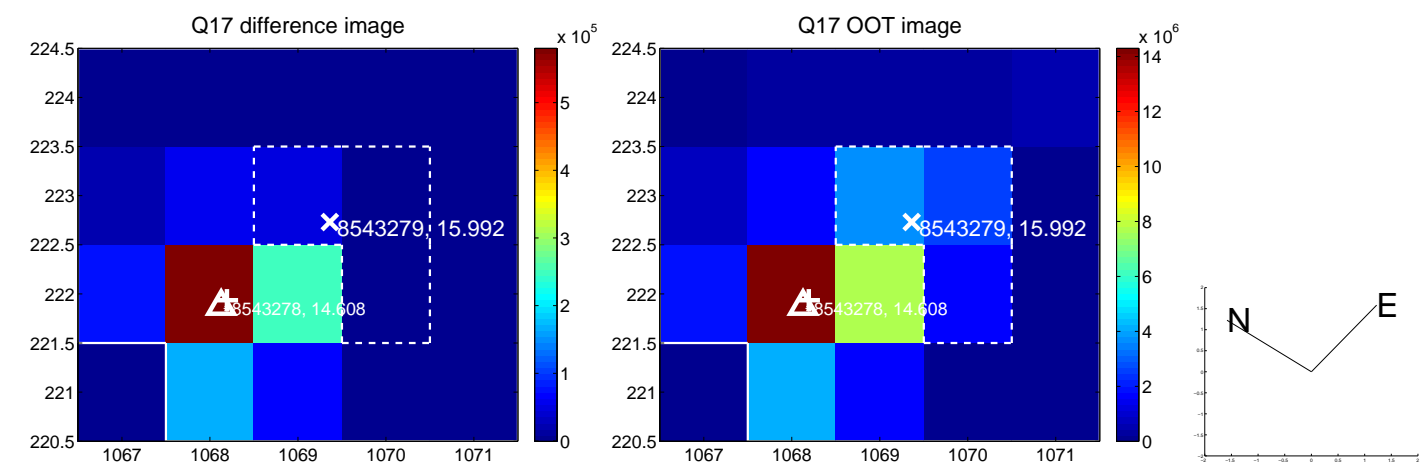
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

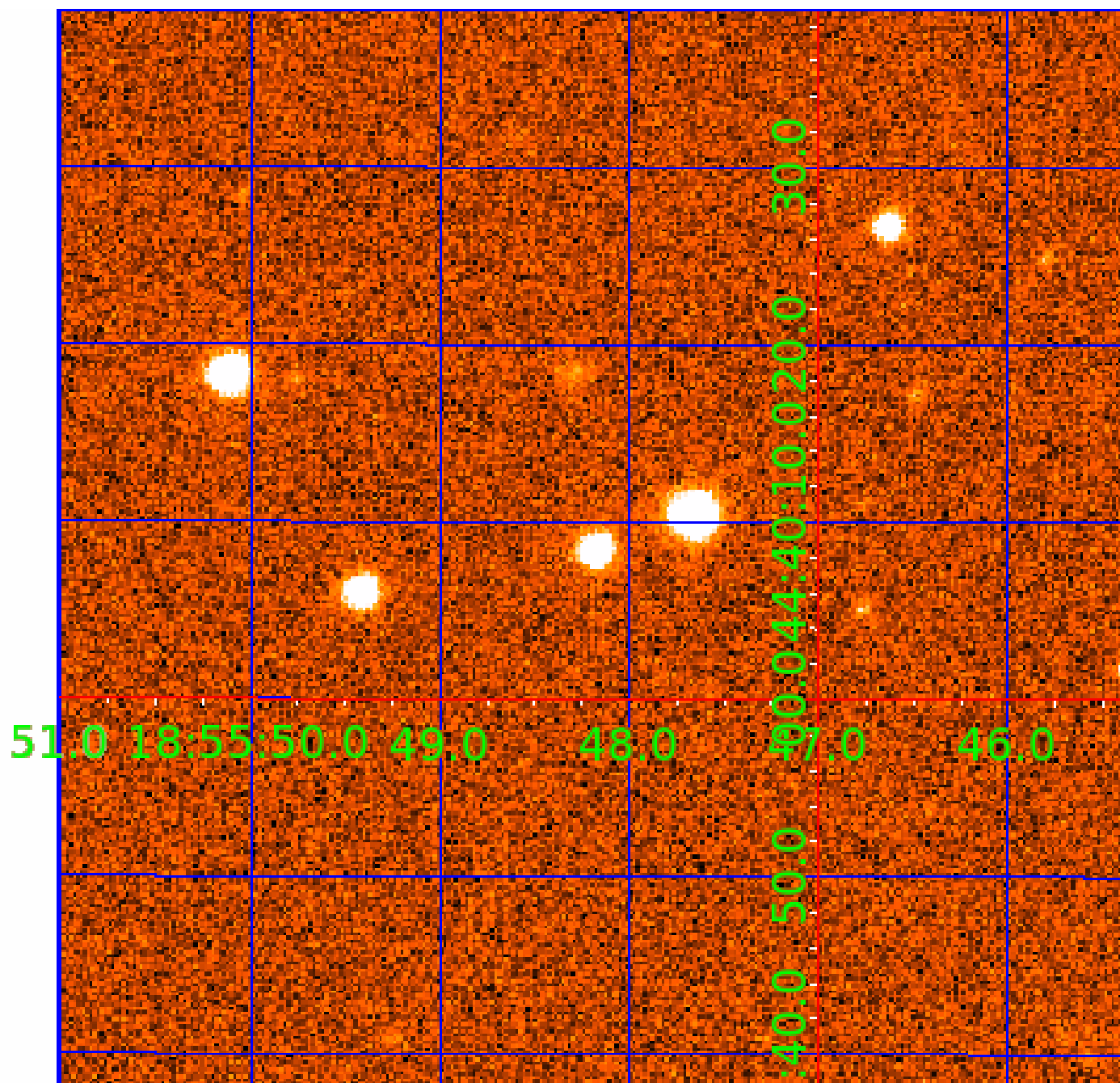


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008543279

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})
008543279-01	OBS	3759.01	7.549301	135.011043	9951.8	2.404	227.3	191.3	0.81	5402	13.10	94.19
008543279-02	OBS	No	3.774644	135.075508	3474.9	2.190	79.0	78.6	0.81	5402	6.27	237.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008543279-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
008543279-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 008543279-02

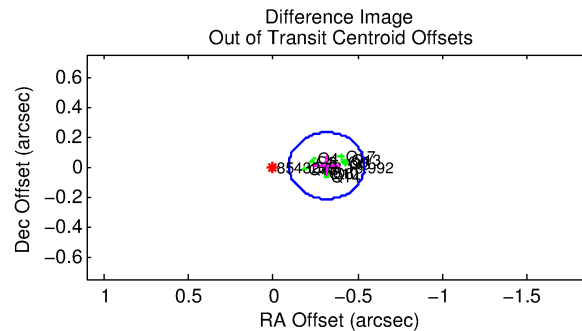
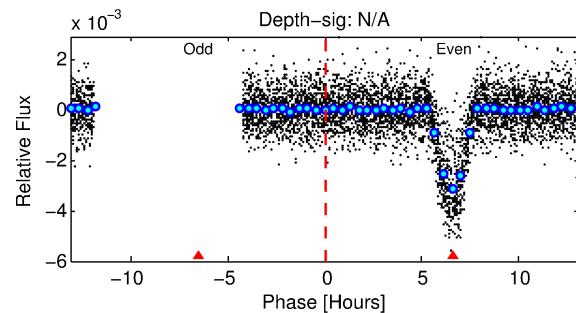
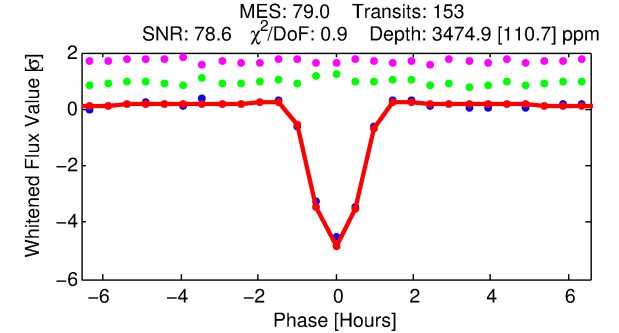
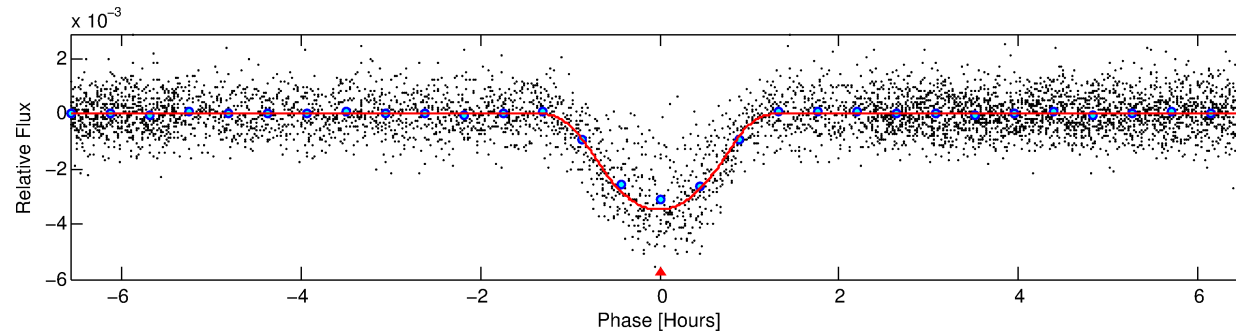
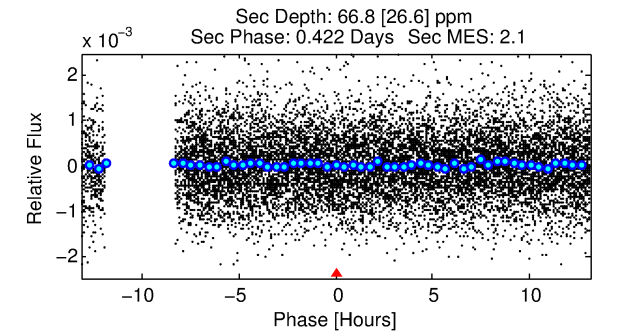
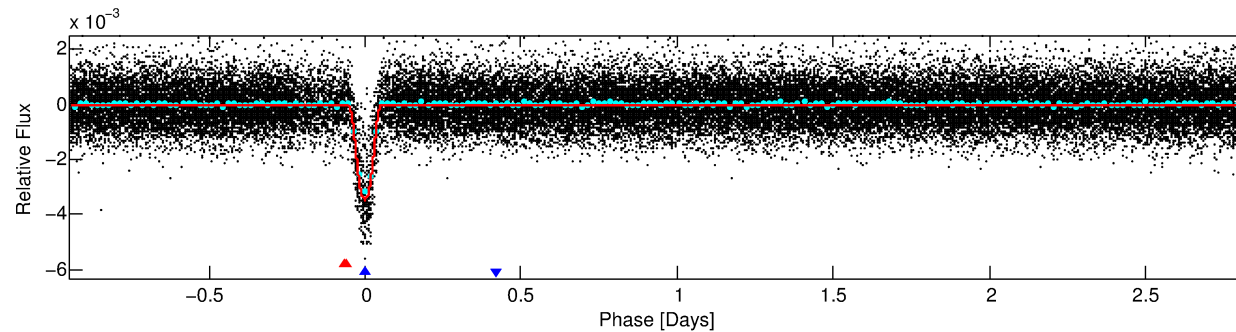
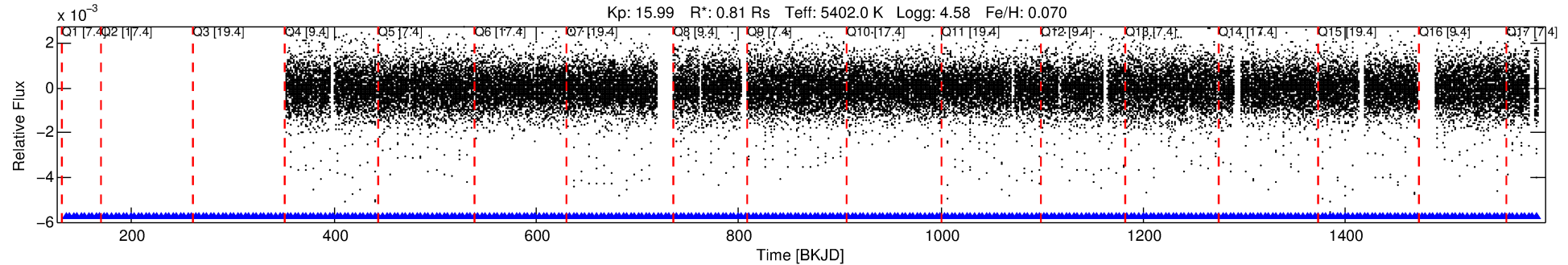
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008543279-02	8543279	7052.01	8543278	1:2	5.7	1	1	14.61	15.99	12.96	Direct-PRF	0	0.18	2.89

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8543279 Candidate: 2 of 2 Period: 3.775 d
KOI: K03759 Corr: No Ephemeris Match

Kp: 15.99 R*: 0.81 Rs Teff: 5402.0 K Logg: 4.58 Fe/H: 0.070



DV Fit Results:

Period = 3.77464 [0.00000] d
Epoch = 135.0755 [0.0006] BKJD
Rp/R* = 0.0705 [0.0052]
a/R* = 6.87 [0.40]
b = 0.94 [0.02]
Seff = 237.35 [65.32]
Teq = 1001 [69] K
Rp = 6.27 [1.30] Re
a = 0.0462 [0.0075] AU
Ag = 1.99 [0.97] [1.03σ]
Teff = 1839 [206] K [3.86σ]

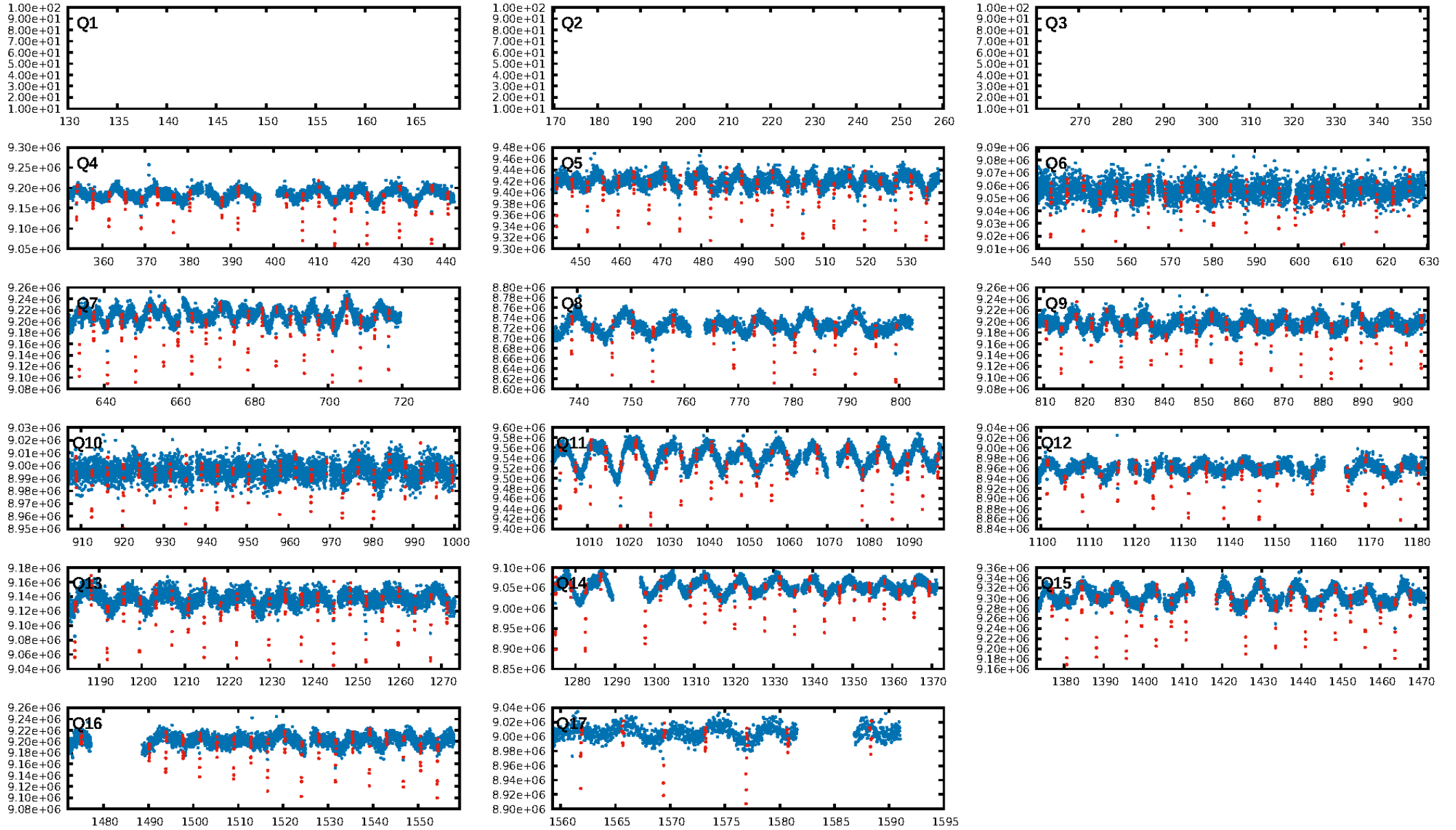
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.86σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [149/149]
GhostDiagnostic-chr: -0.3302
Centroid-sig: N/A
Centroid-so: 6.742 arcsec [148.09σ]
OotOffset-rm: 0.317 arcsec [4.27σ]
KicOffset-rm: 5.986 arcsec [82.57σ]
OotOffset-st: 3/0/4/4 [11]
KicOffset-st: 3/0/4/4 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 1.00 [14/14]

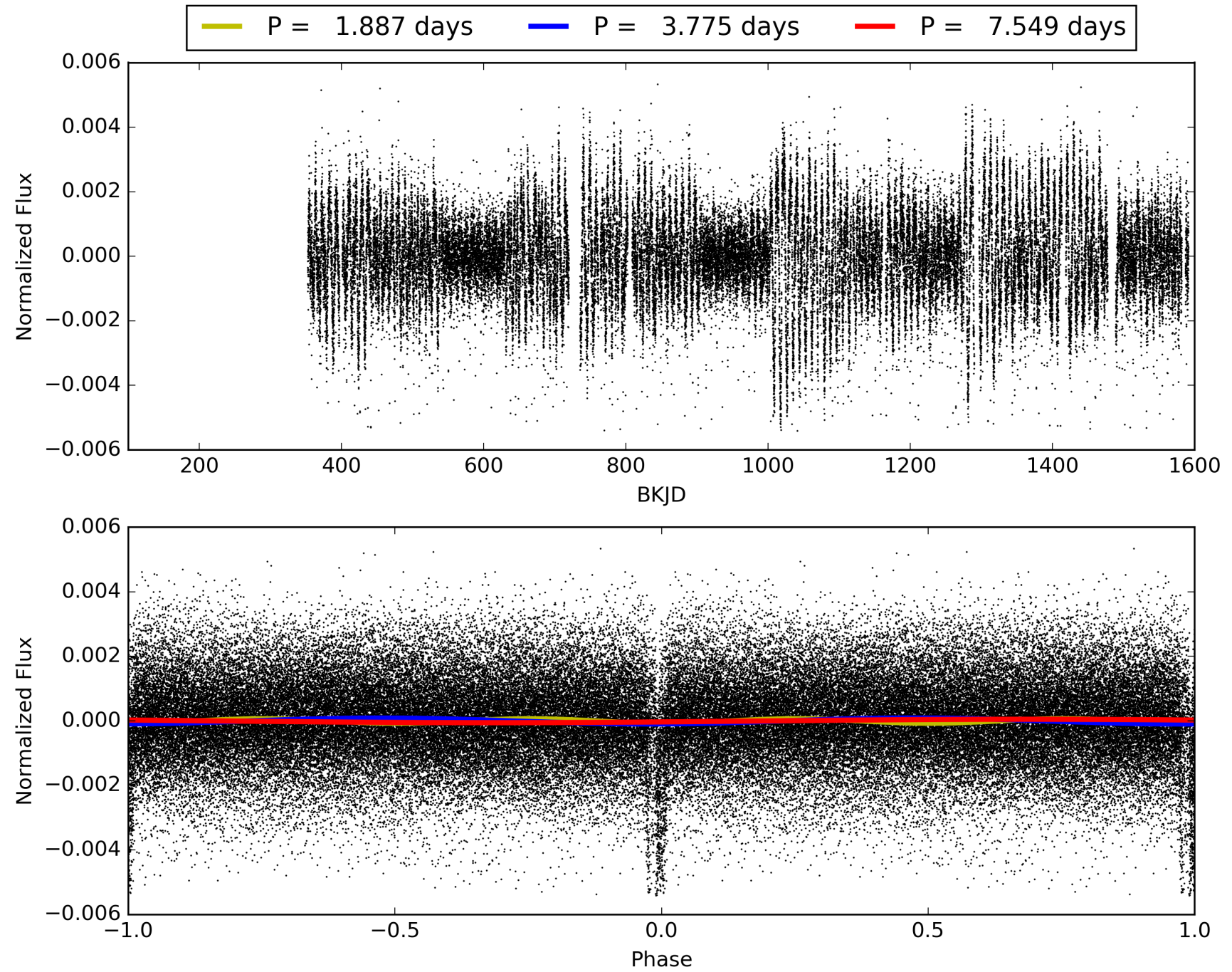
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:04:15 Z

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TCE 008543279-02, PDC Light Curves

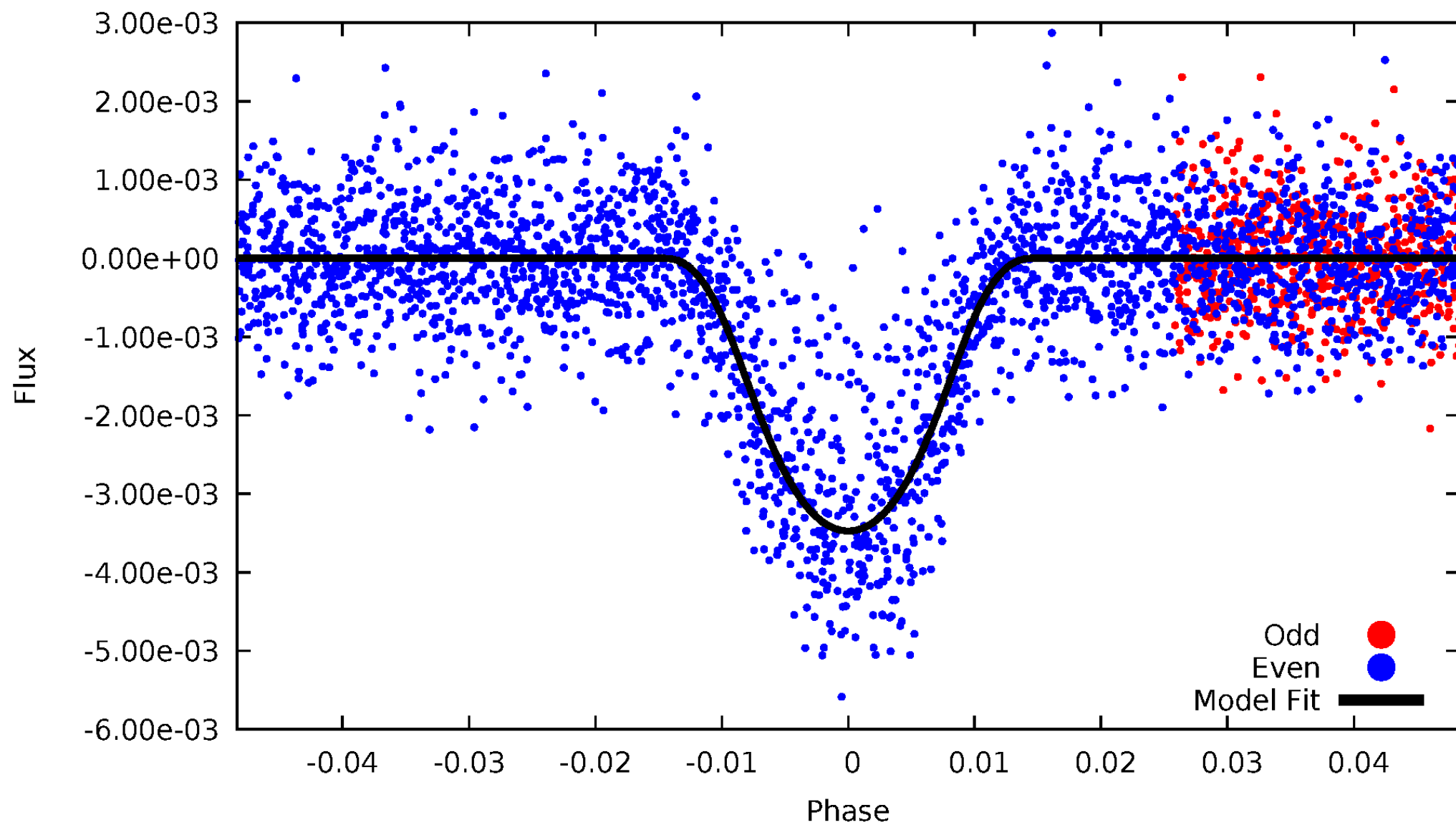


TCE 008543279-02



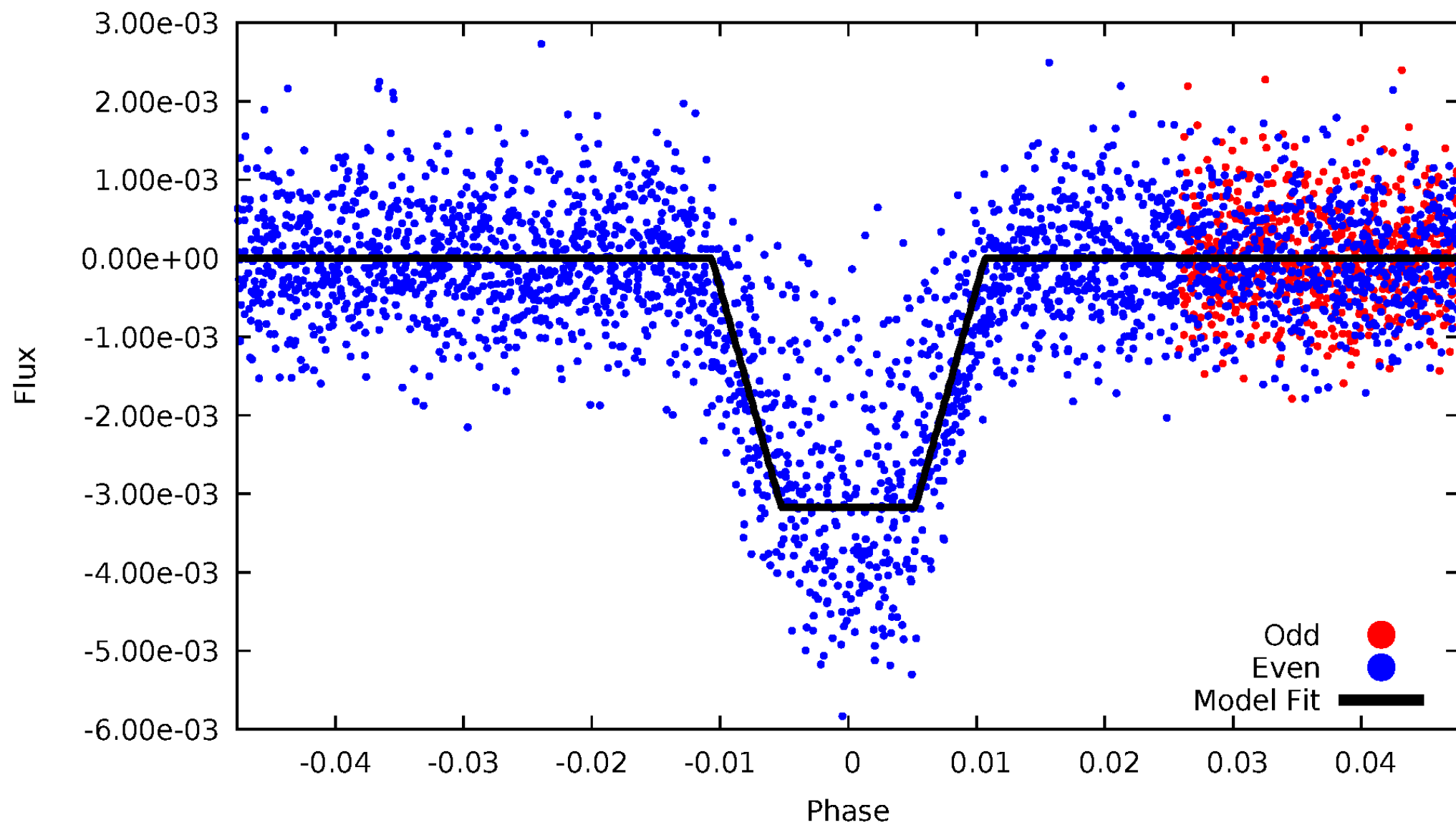
DV Odd/Even

TCE 008543279-02



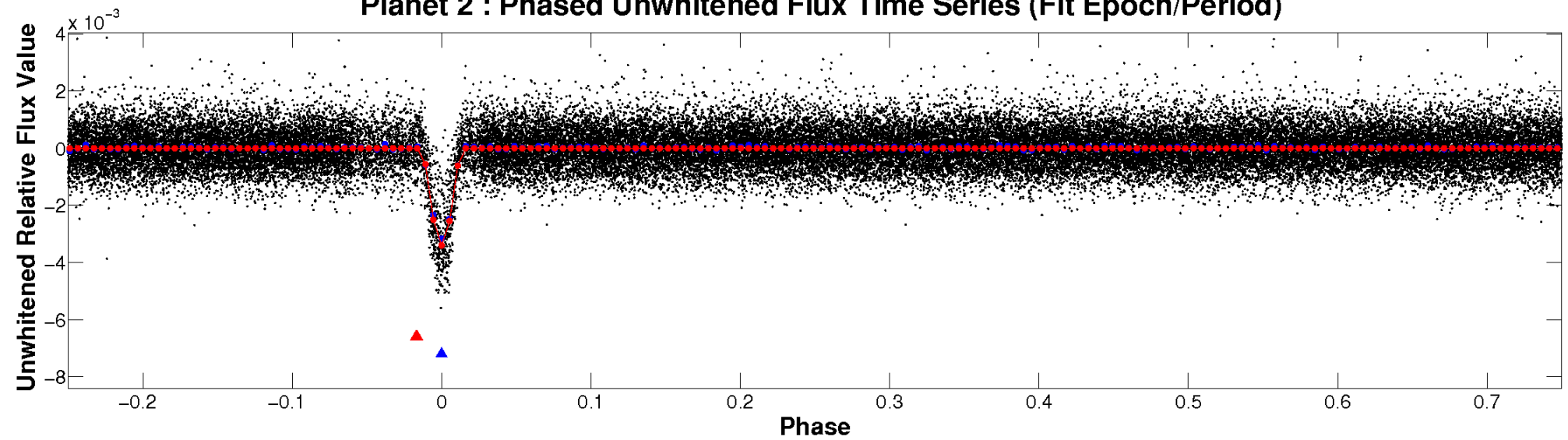
ALT Odd/Even

TCE 008543279-02

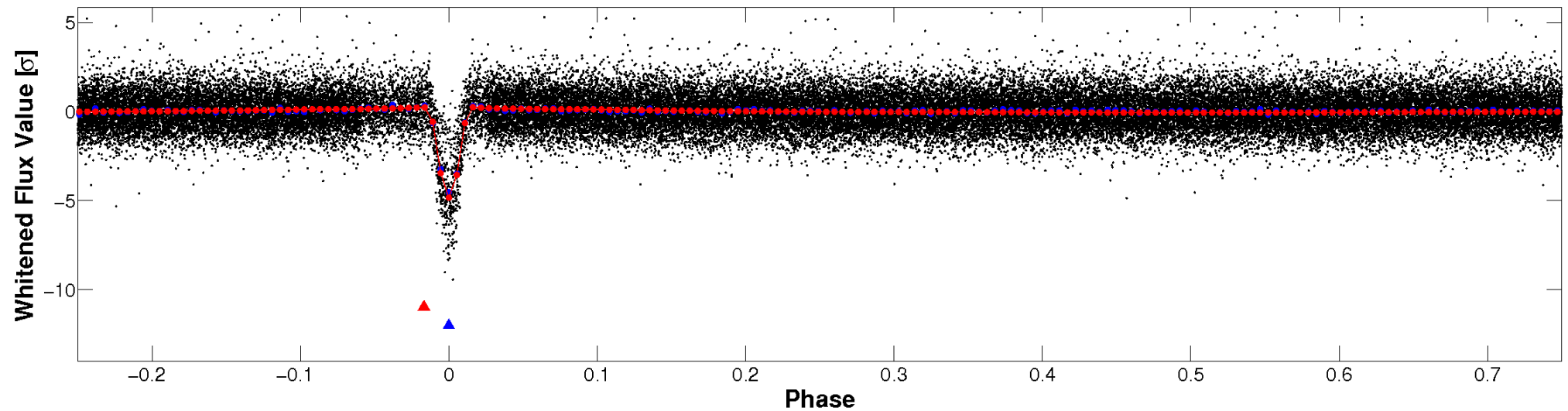


Non-Whitened Vs. Whitened Light Curve

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

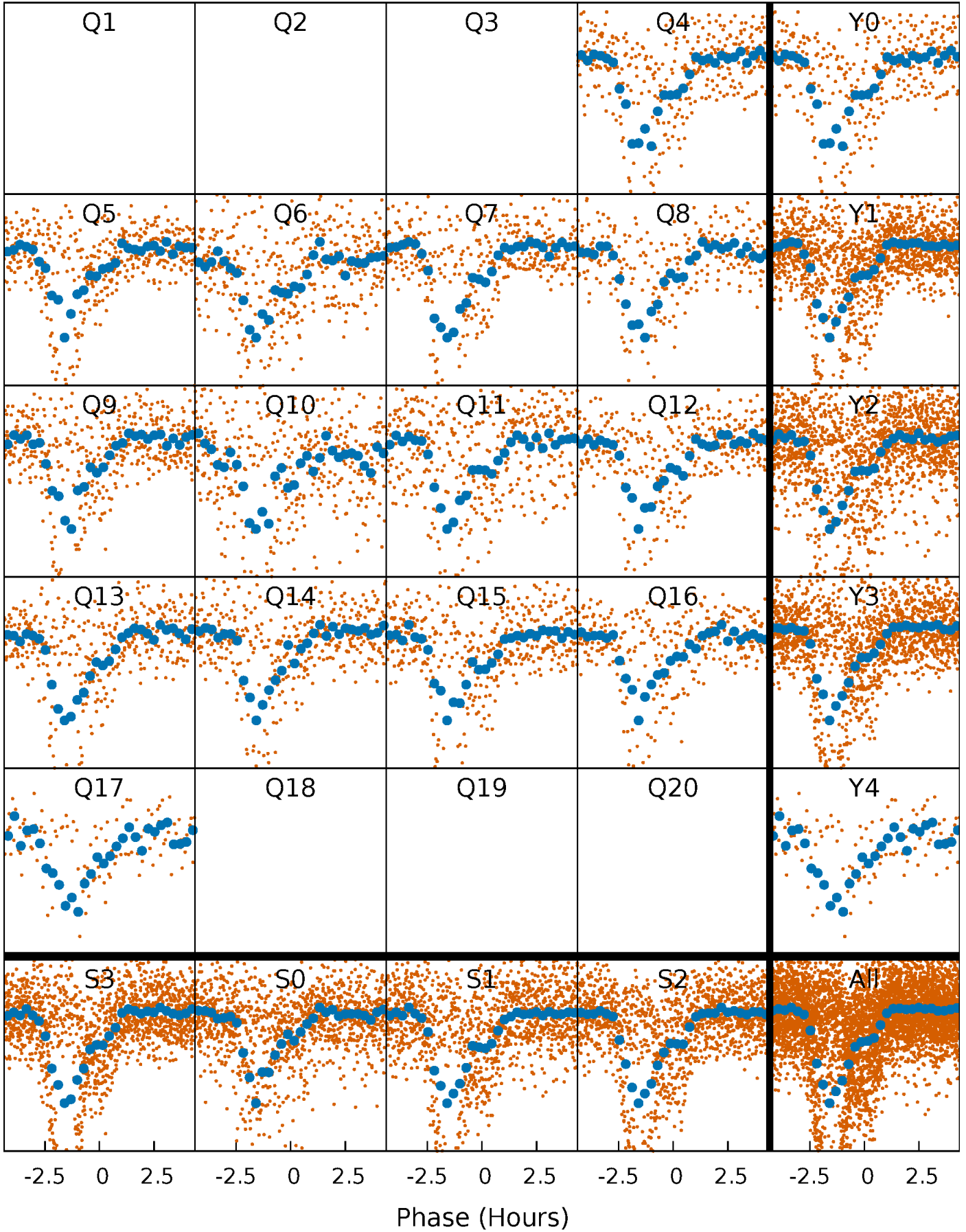


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



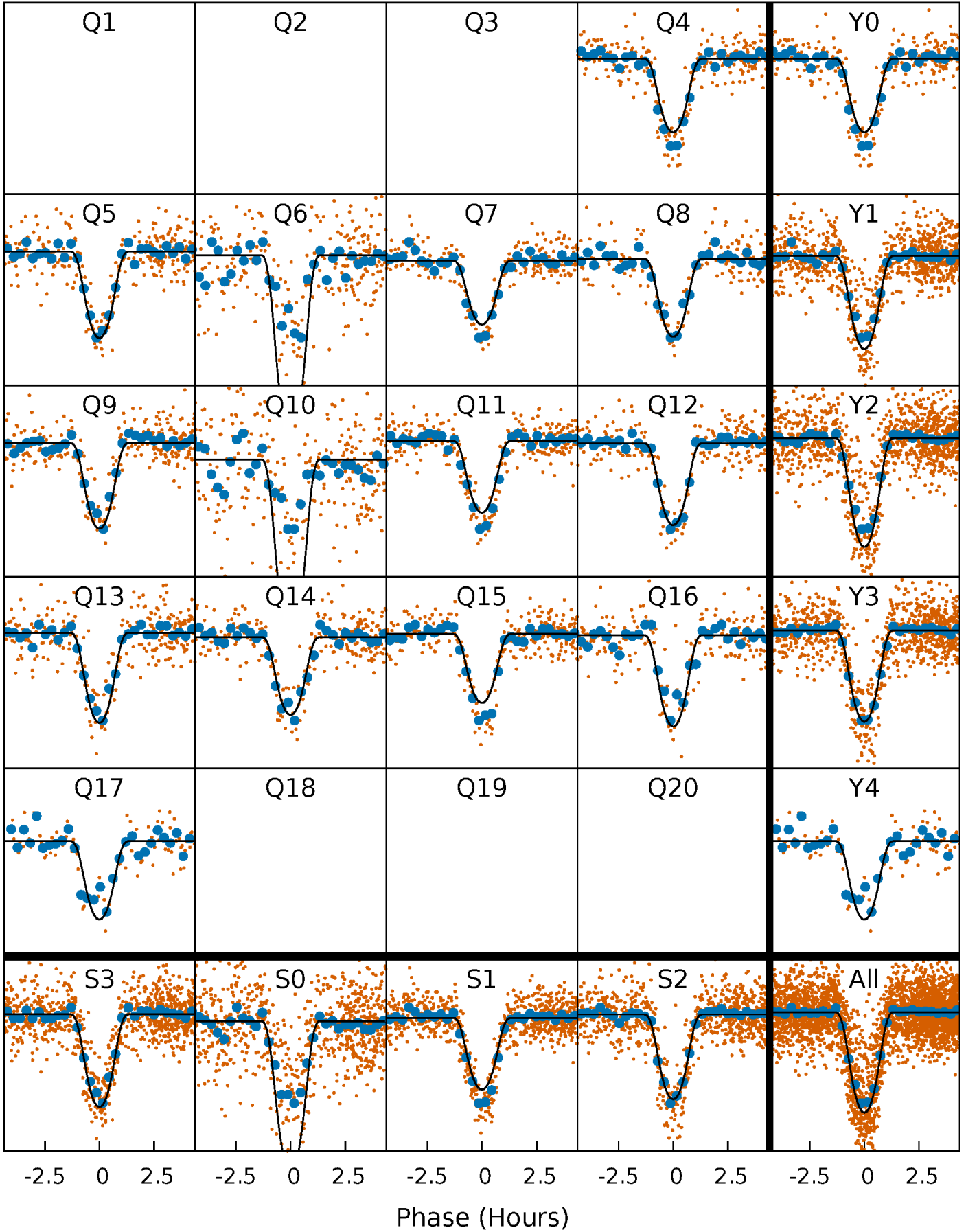
PDC Quarter-Phased Transit Curves

TCE 008543279-02 $P = 3.774644$ Days $T_0 = 135.075508$ (BKJD)



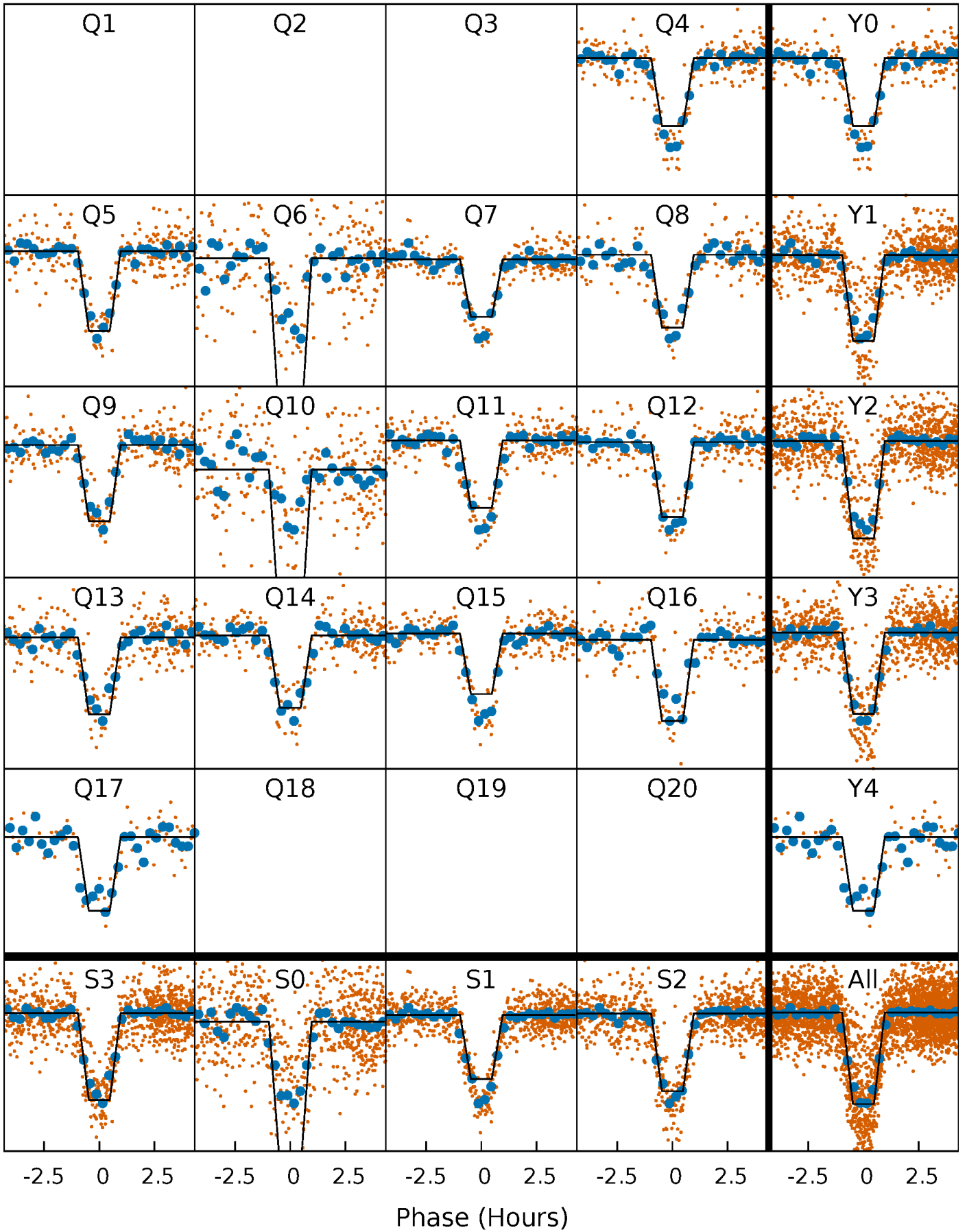
DV Quarter-Phased Transit Curves

TCE 008543279-02 P= 3.774644 Days $T_0=135.075508$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

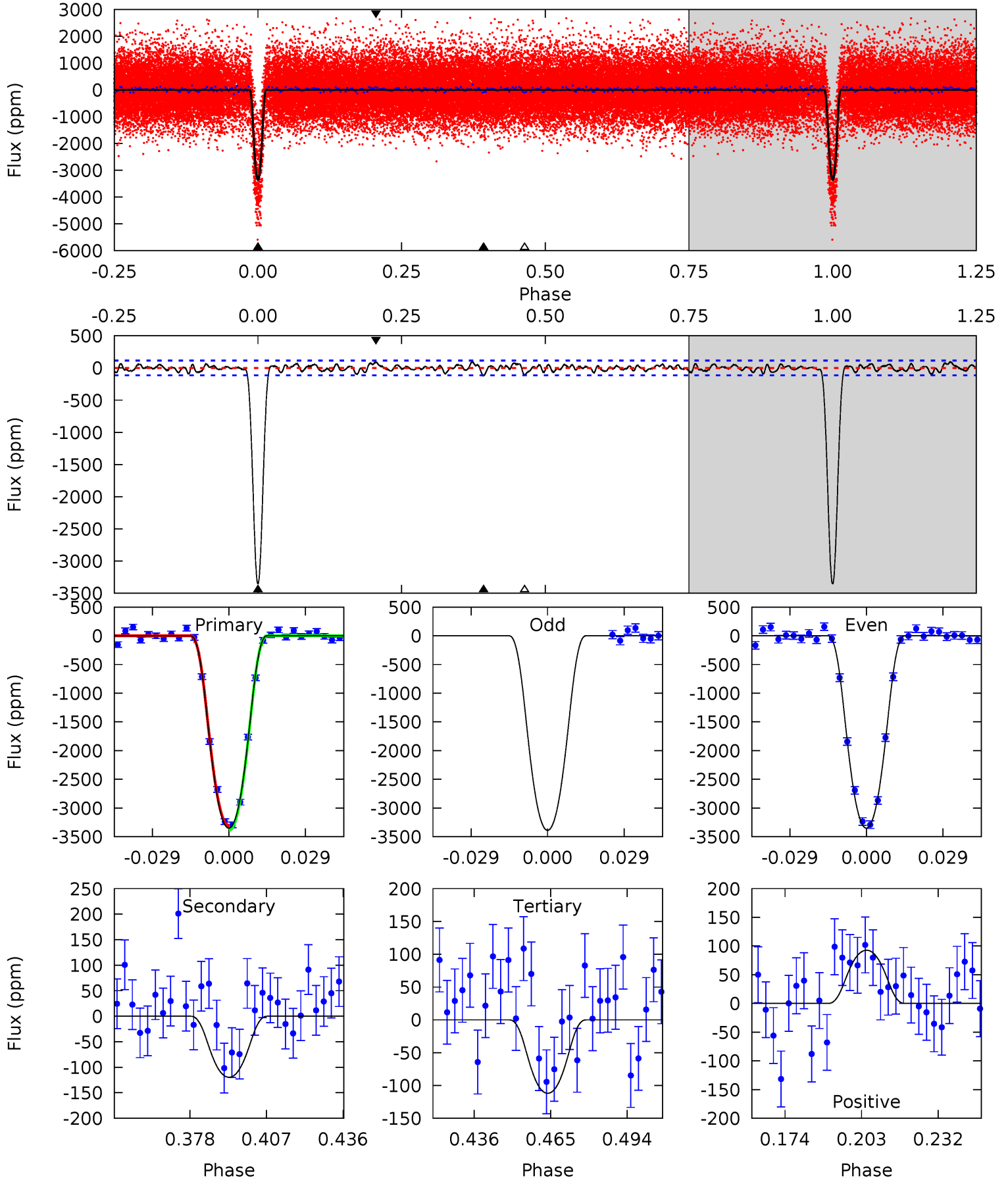
TCE 008543279-02 $P = 3.774641$ Days $T_0 = 135.076024$ (BKJD)



DV Model-Shift Uniqueness Test

008543279-02, P = 3.774644 Days, E = 135.075508 Days

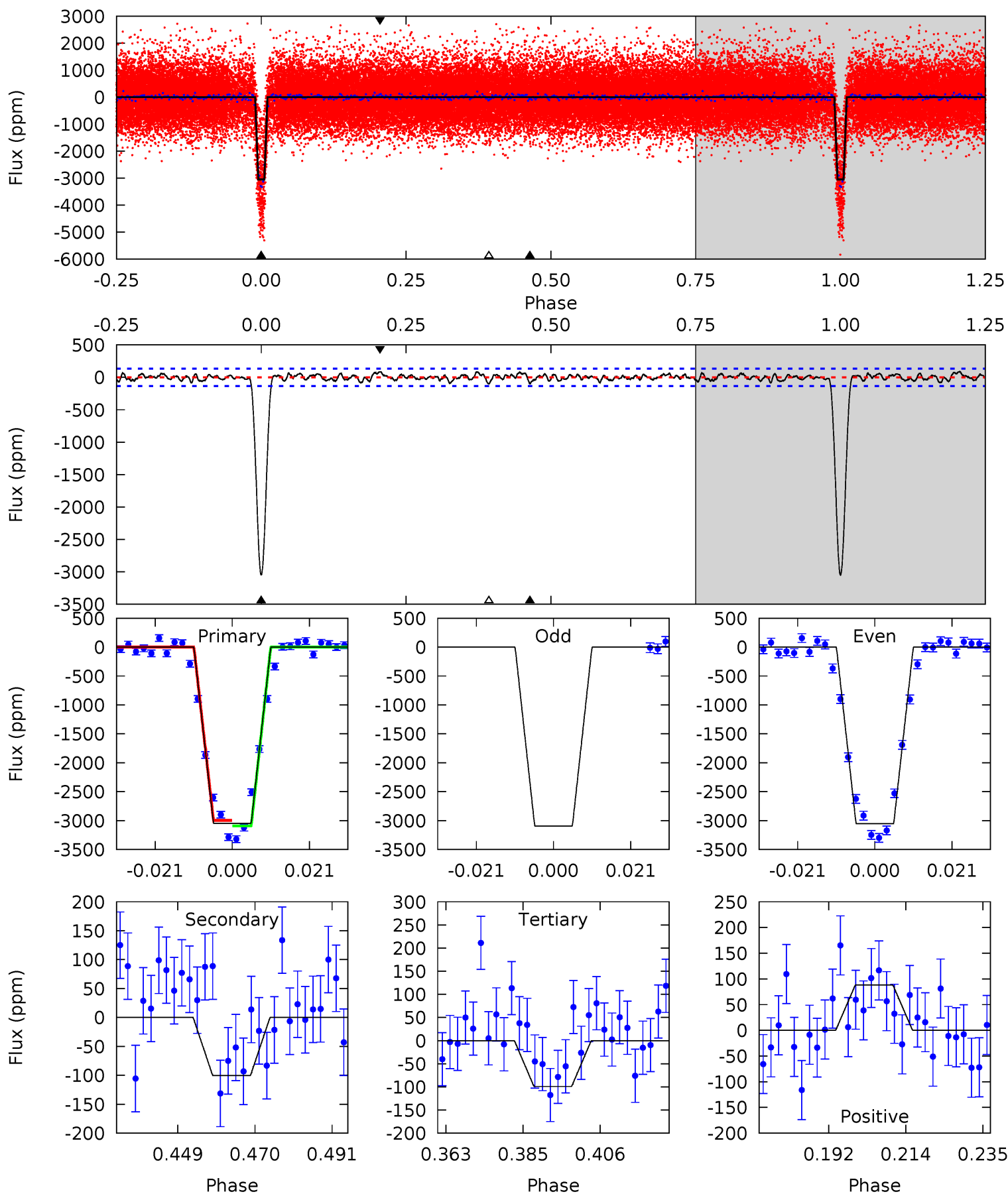
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
141.5	5.05	4.72	3.91	4.82	2.18	1.53	136.8	137.6	0.32	1.14	0.92	0.93	0.03	1.60



Alt Model-Shift Uniqueness Test

008543279-02, P = 3.774641 Days, E = 135.076024 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
110.7	3.65	3.60	3.19	4.88	2.30	1.23	107.1	107.5	0.06	0.46	0.85	0.94	0.03	1.75



Stellar Parameters For KIC 008543279

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5402^{+177}_{-193}	$4.581^{+0.032}_{-0.128}$	$0.070^{+0.250}_{-0.300}$	$0.815^{+0.158}_{-0.068}$	$0.931^{+0.063}_{-0.108}$	$2.419^{+0.403}_{-0.893}$
	+3%/-4%	+1%/-3%	+357%/-429%	+19%/-8%	+7%/-12%	+17%/-37%
Source	KIC0	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 008543279-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-120 ± 24	$6.42^{+0.74}_{-0.59}$	1421^{+79}_{-66}	2810^{+105}_{-130}	$3.313^{+1.018}_{-0.864}$
Alt.	-101 ± 28	$5.22^{+0.64}_{-0.56}$	1430^{+74}_{-64}	2912^{+156}_{-162}	$4.151^{+1.708}_{-1.238}$

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

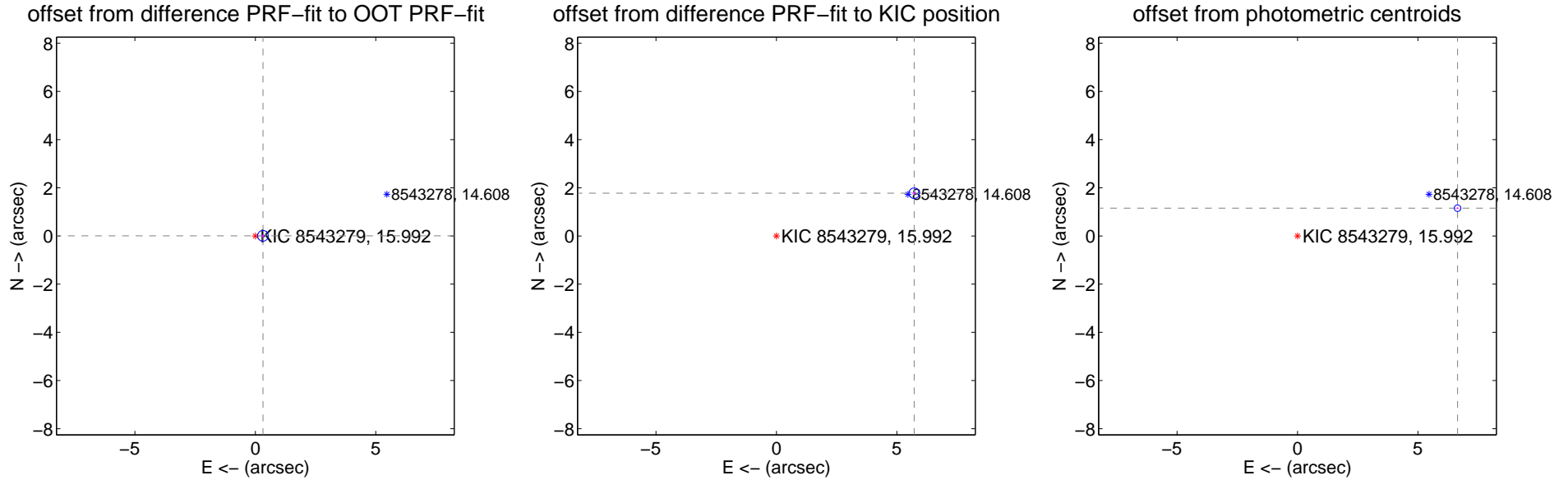
DV Centroid Data

Supplemental centroid analysis for 008543279-02. Kepler magnitude: 15.99. Transit SNR 78.65

There are 11 quarters with good PRF difference image offsets

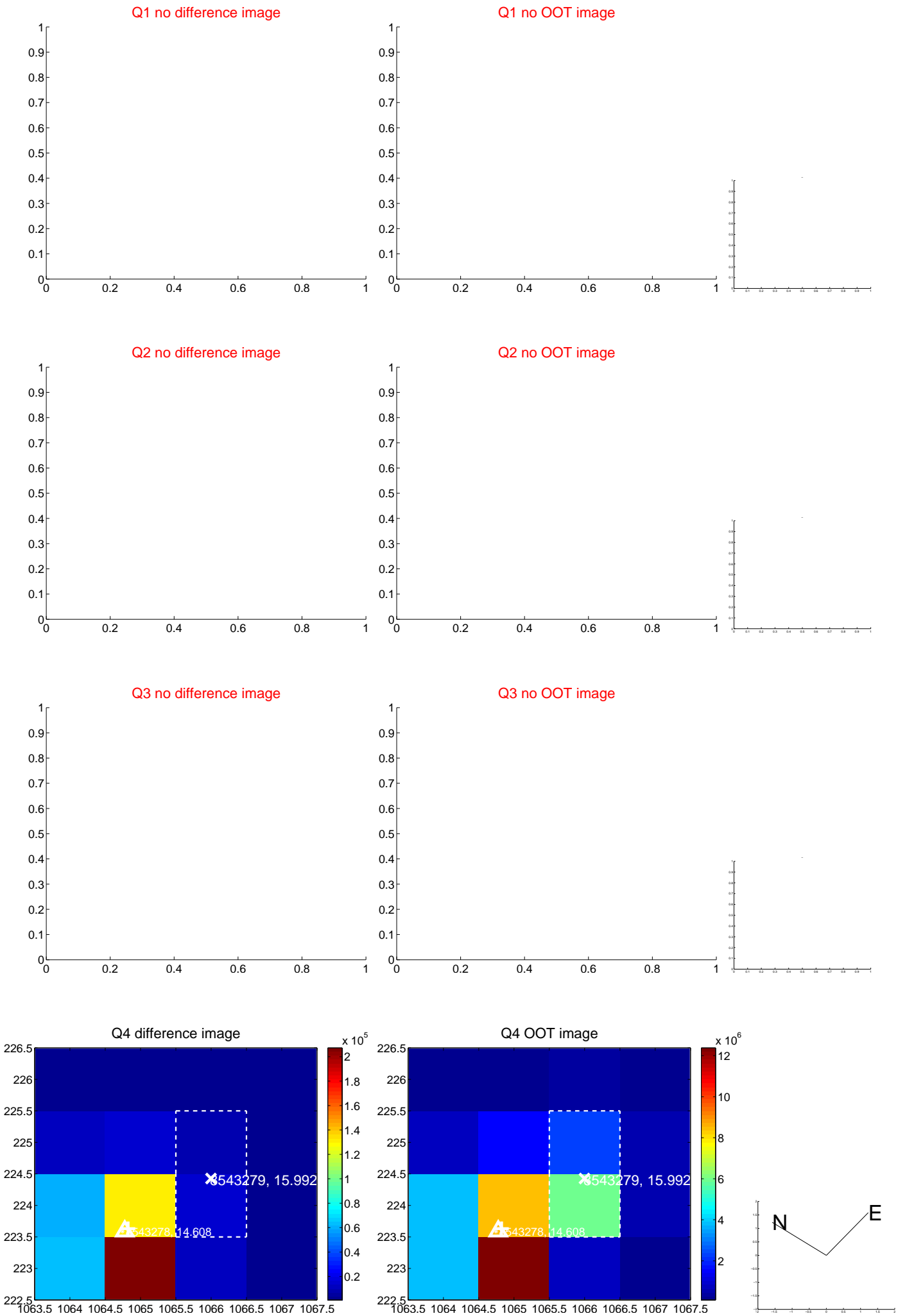
The OOT PRF centroid is offset from the target star catalog position by about 5.63 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.317 ± 0.074	4.27	-0.316 ± 0.074	0.006 ± 0.068
PRF-fit source offset from KIC position	5.986 ± 0.072	82.57	-5.716 ± 0.073	1.775 ± 0.069
photometric centroid source offset	6.74 ± 0.05	148.09	-6.64 ± 0.05	1.15 ± 0.03

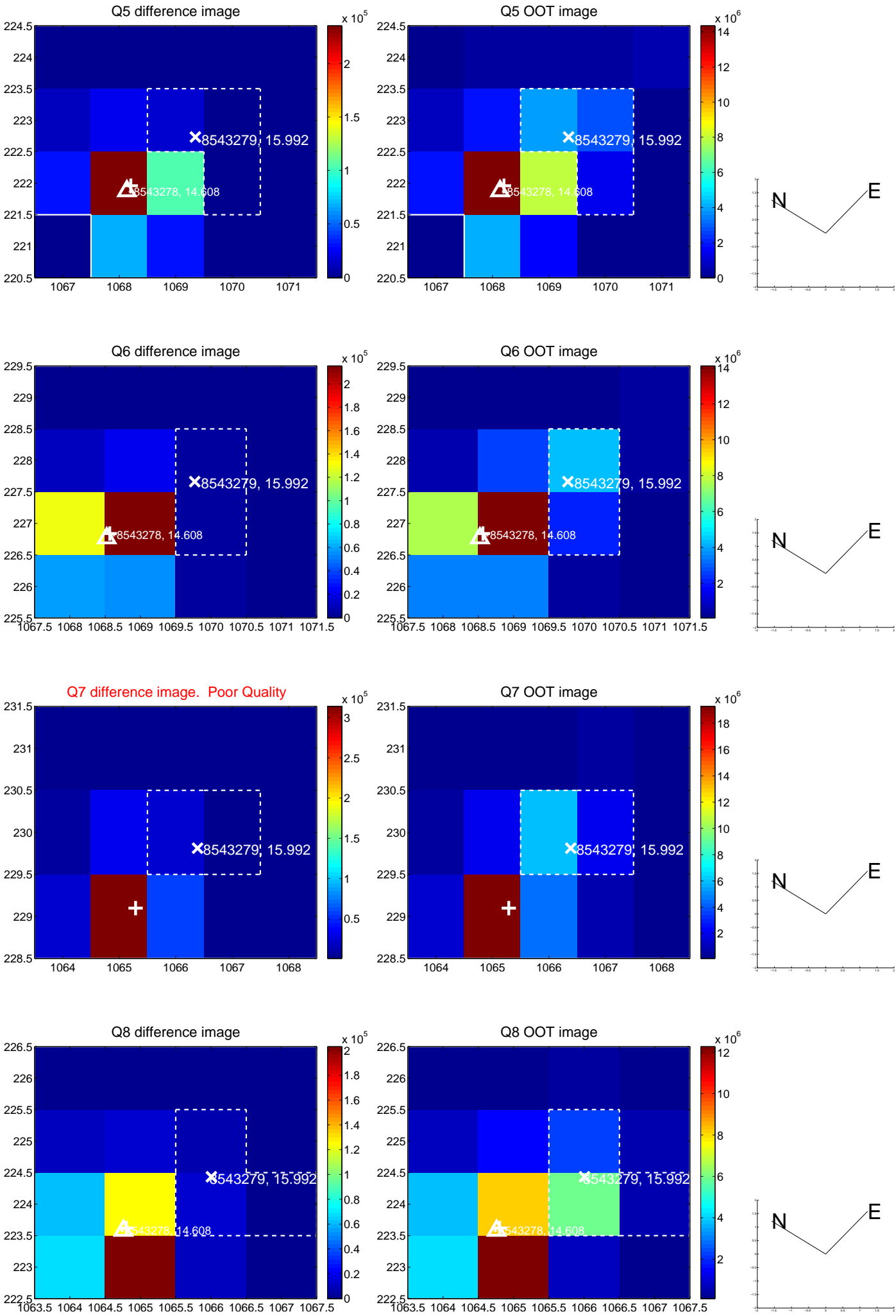


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

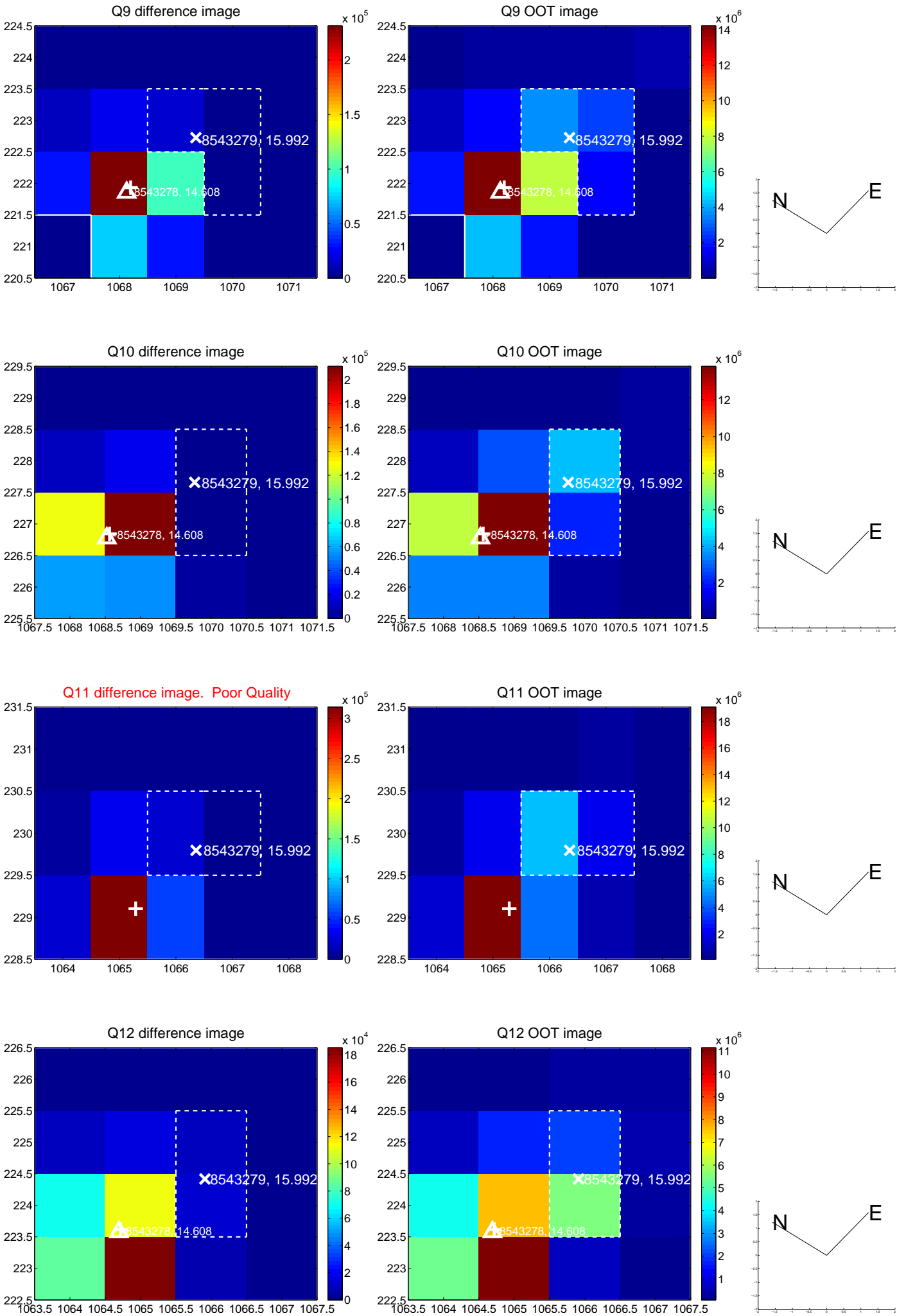
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



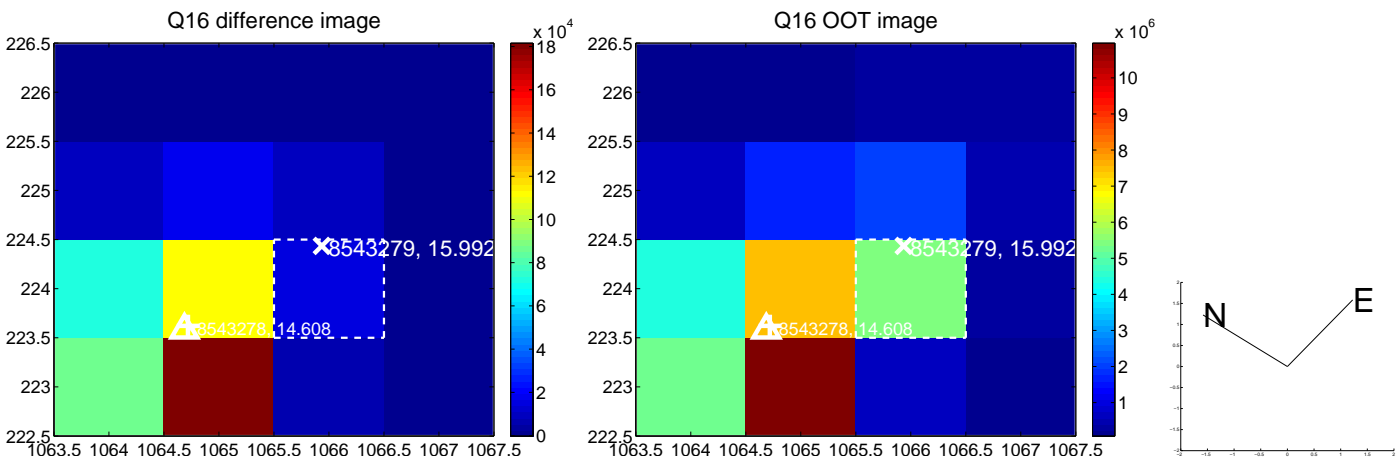
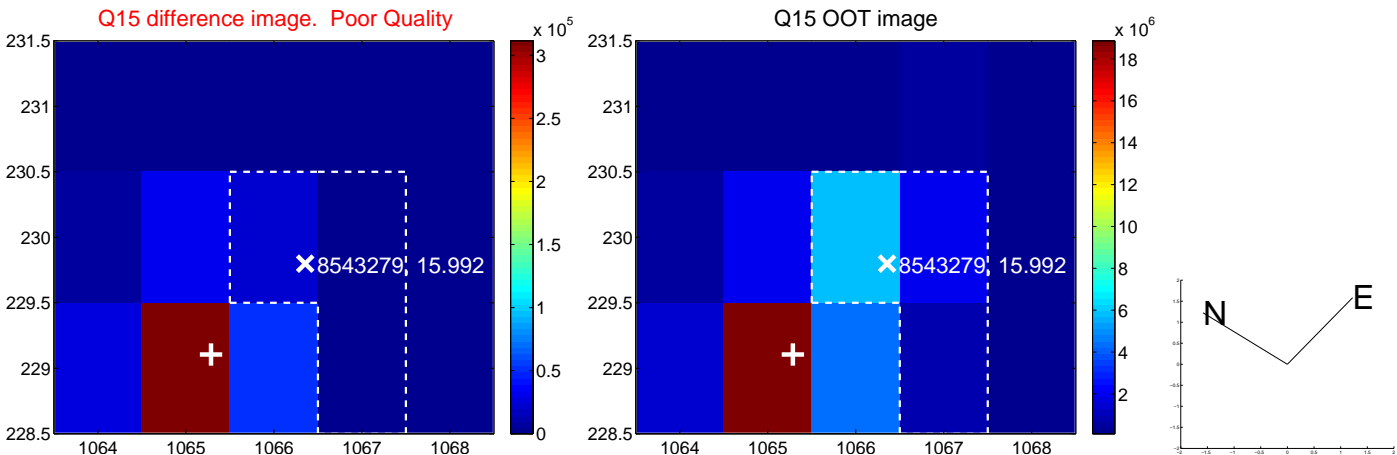
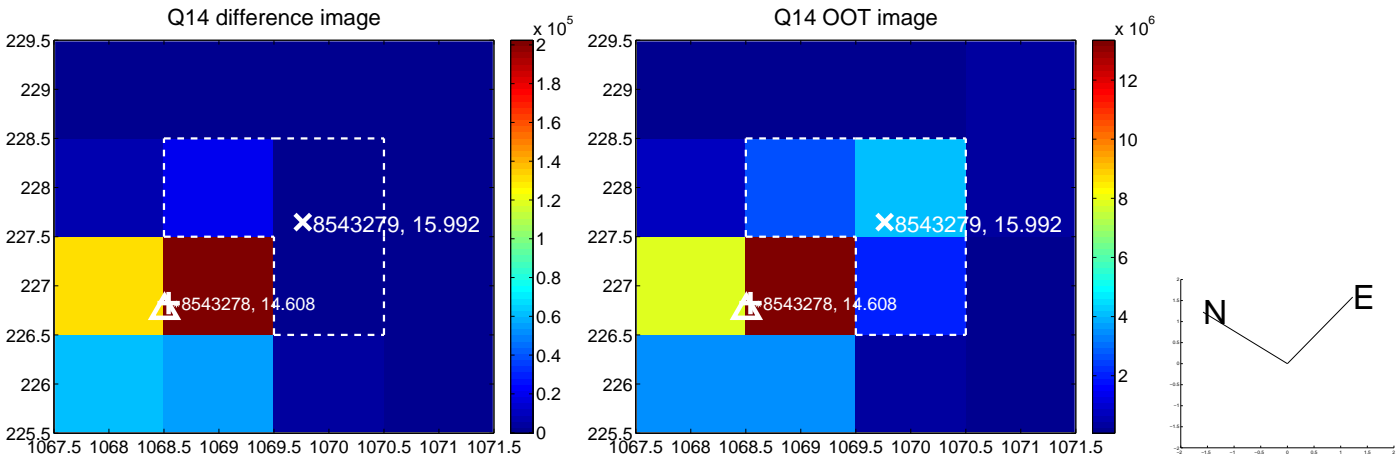
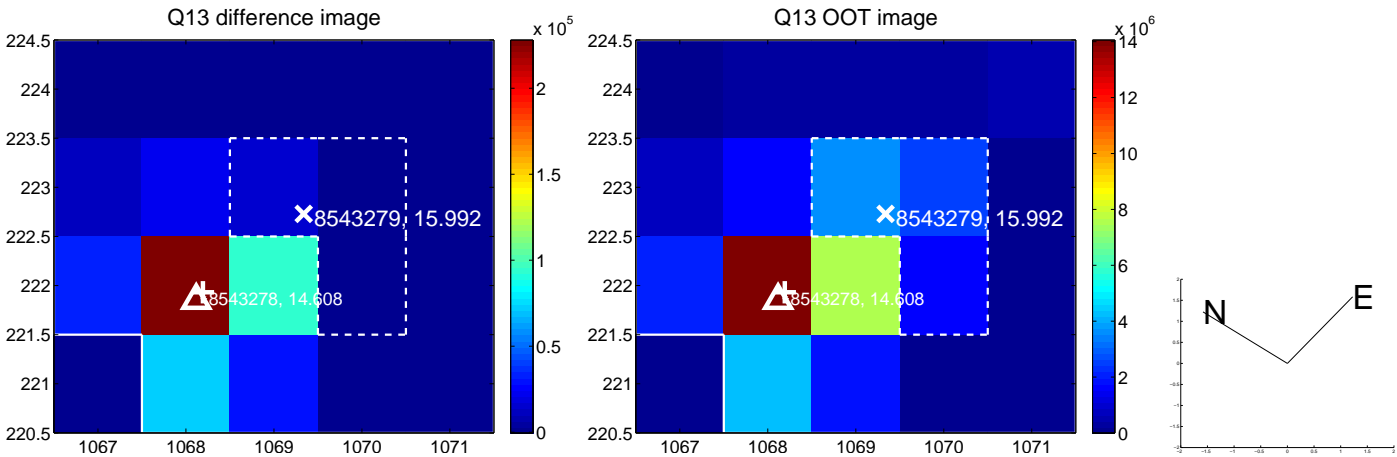
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



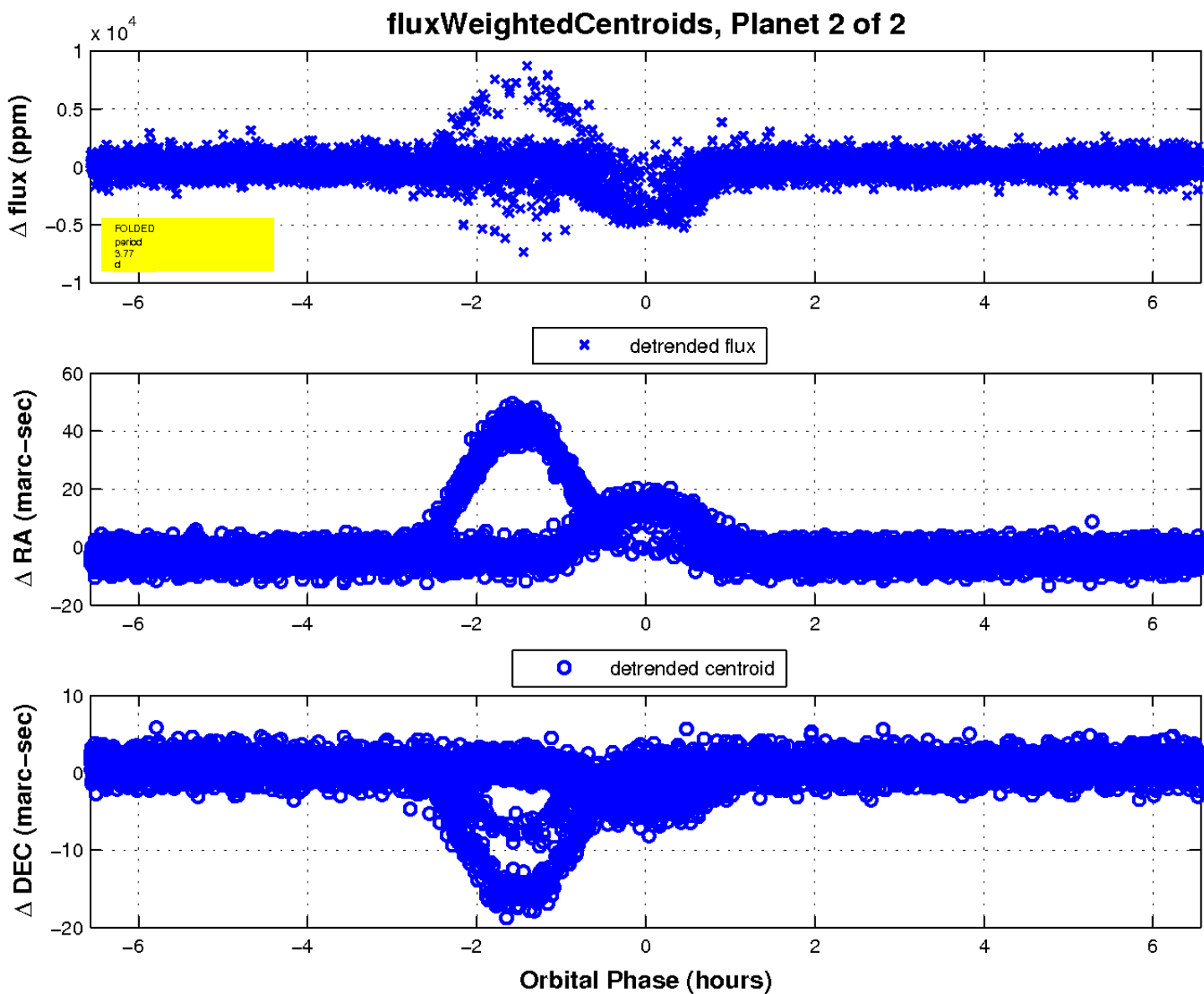
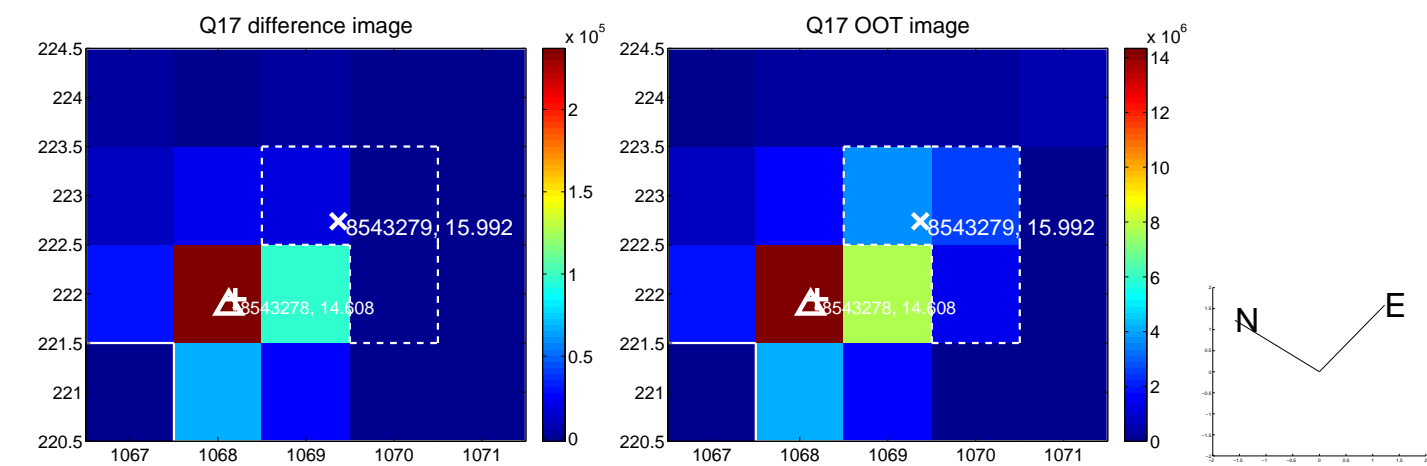
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

