

KIC 006878167

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})
006878167-01	OBS	1371.01	1.667911	132.863710	145.2	1.754	19.7	22.4	0.87	5747	1.27	1021.19
006878167-02	OBS	No	1.667920	132.027007	145.7	1.878	29.2	24.2	0.87	5747	1.26	1021.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006878167-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
006878167-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

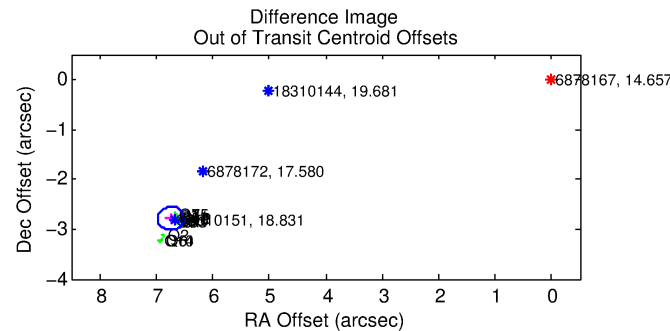
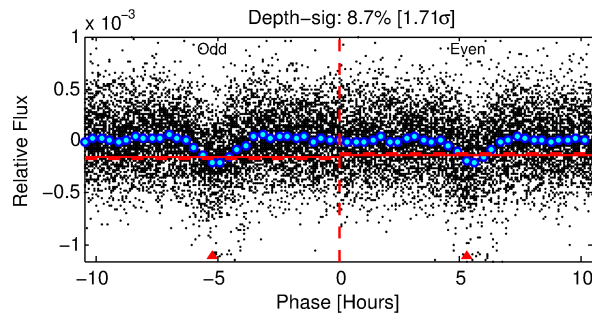
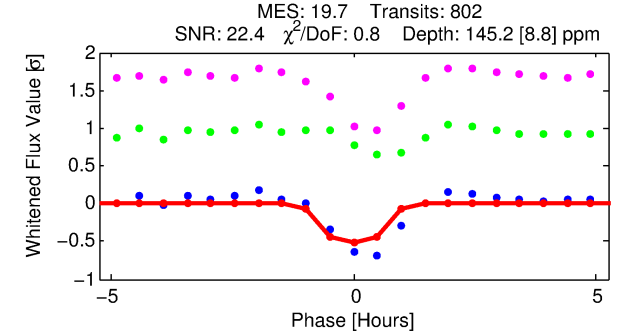
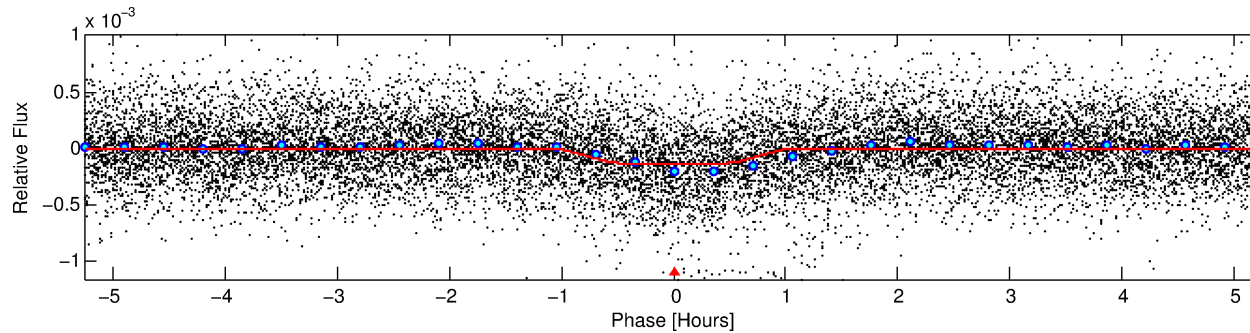
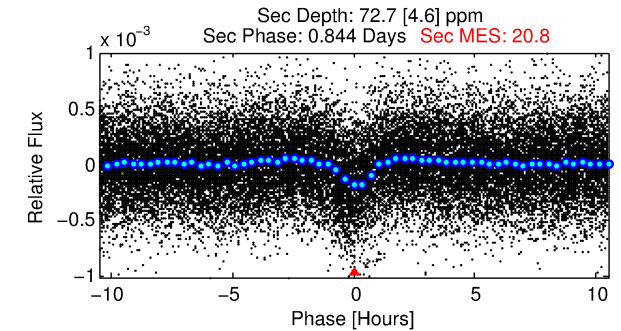
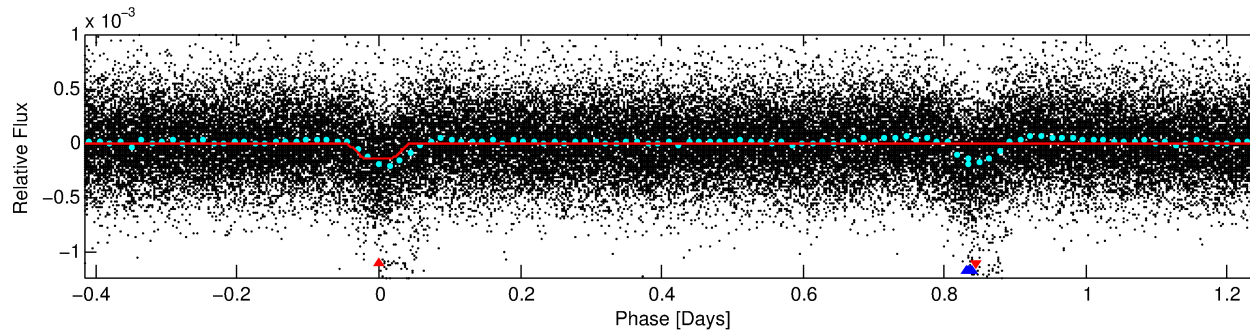
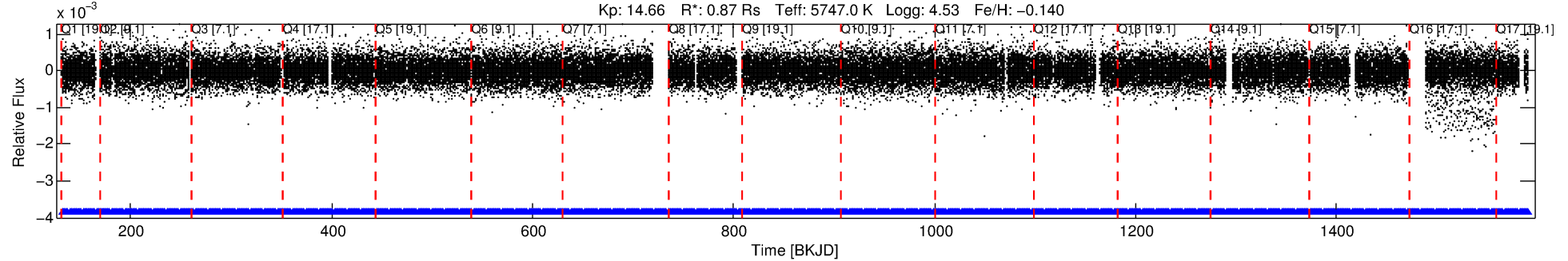
Ephemeris Match Information For 006878167-01

No Significant Match Found

DV One-Page Summary

KIC: 6878167 Candidate: 1 of 2 Period: 1.668 d
KOI: K01371 Corr: No Ephemeris Match

Kp: 14.66 R*: 0.87 Rs Teff: 5747.0 K Logg: 4.53 Fe/H: -0.140



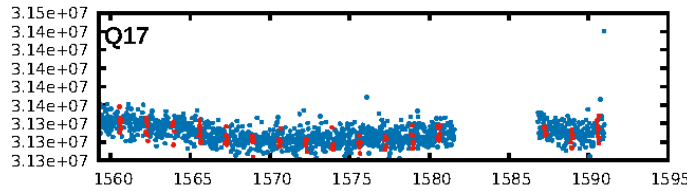
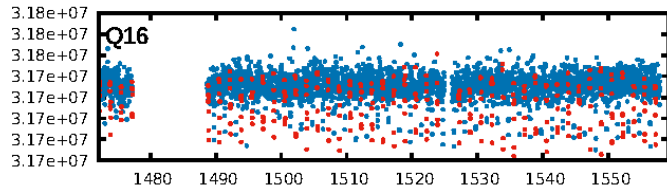
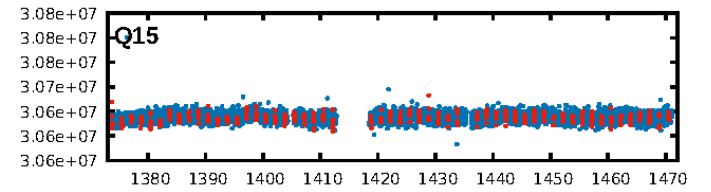
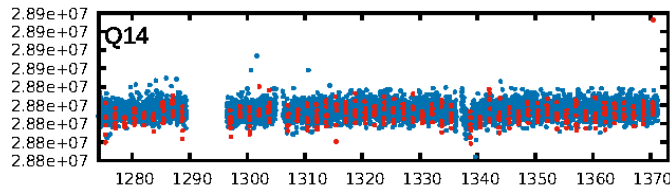
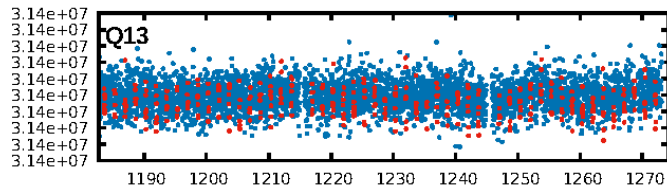
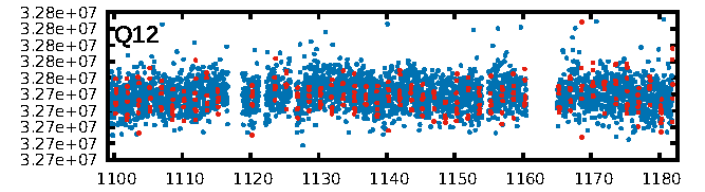
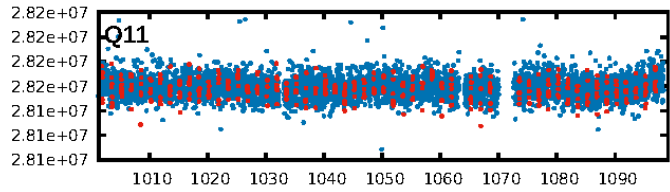
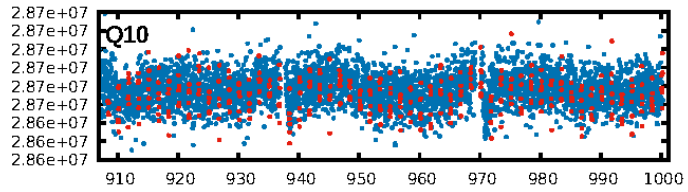
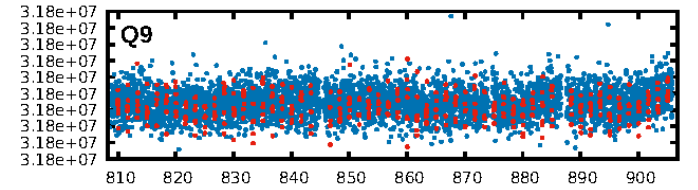
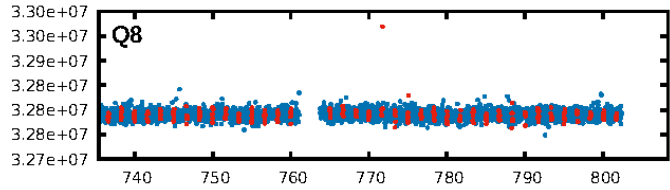
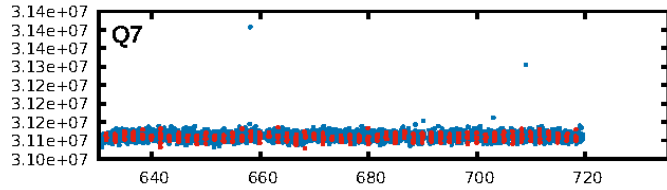
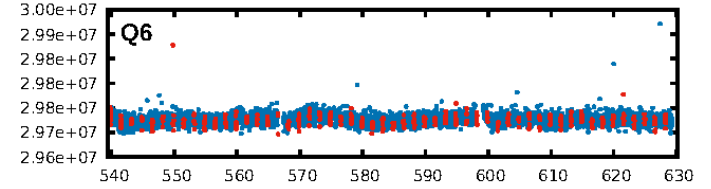
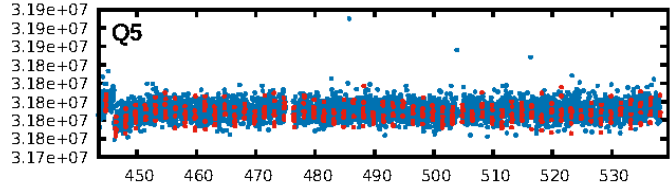
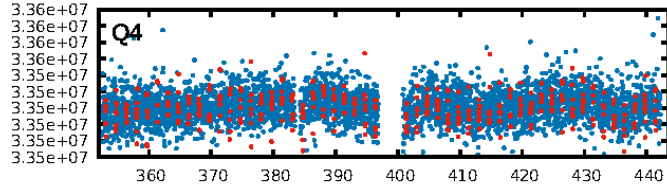
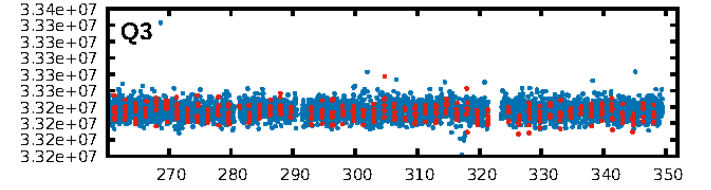
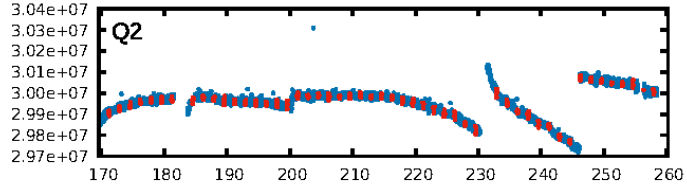
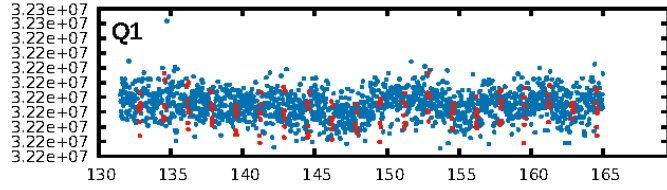
DV Fit Results:

Period = 1.66791 [0.00001] d
Epoch = 132.8637 [0.0012] BKJD
Rp/R* = 0.0133 [0.0041]
a/R* = 3.31 [4.56]
b = 0.91 [0.28]
Seff = 1021.19 [381.31]
Teq = 1441 [135] K
Rp = 1.27 [0.54] Re
a = 0.0269 [0.0066] AU
Ag = 18.03 [12.93] [1.32σ]
Teffp = 4592 [729] K [4.25σ]

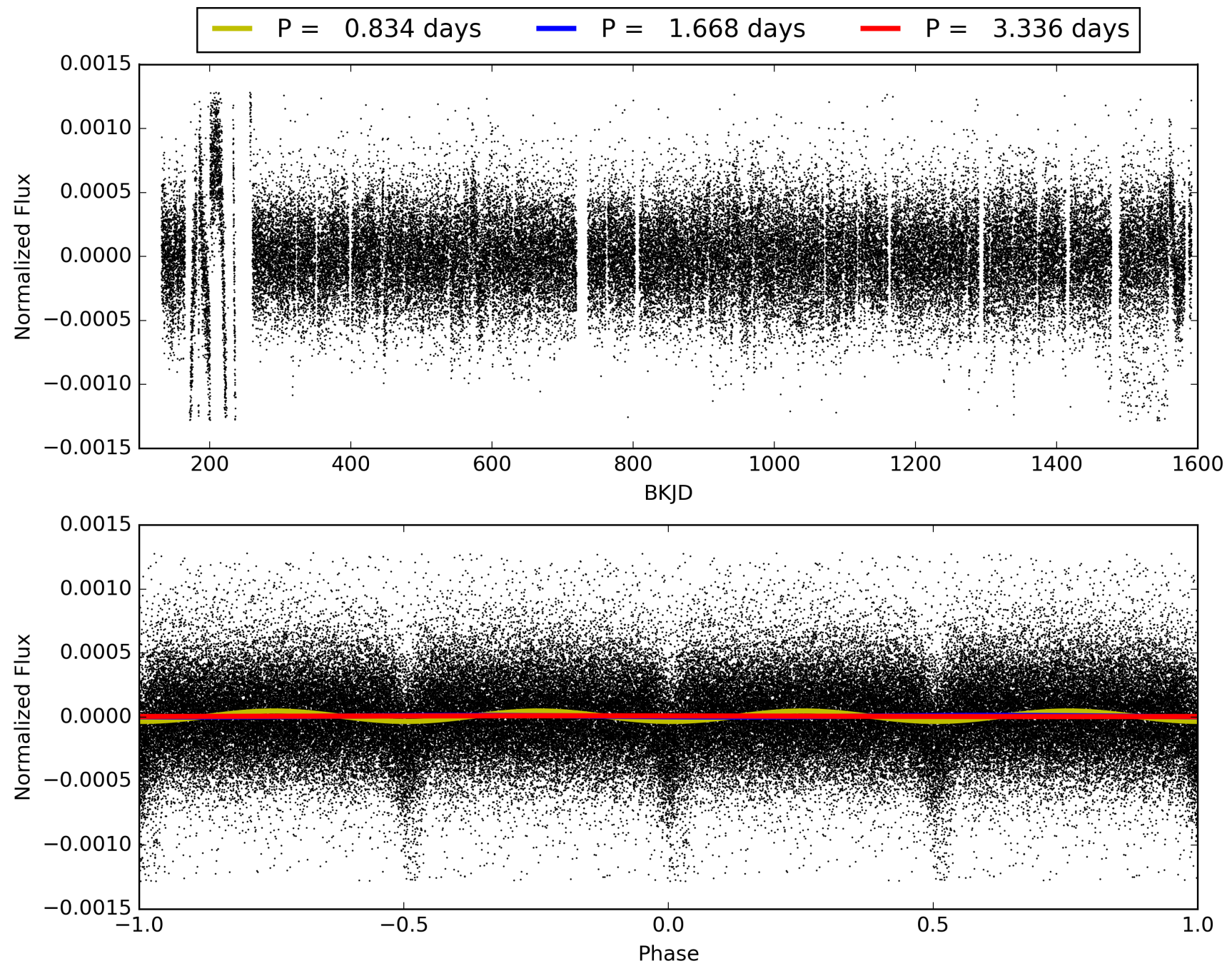
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.66e-82
RollingBand-fgt: 1.00 [766/766]
GhostDiagnostic-chr: -0.06714
Centroid-sig: 0.0%
Centroid-so: 78.850 arcsec [150.88σ]
OotOffset-rm: 7.295 arcsec [93.27σ]
KicOffset-rm: 7.308 arcsec [107.44σ]
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]

TCE 006878167-01, PDC Light Curves

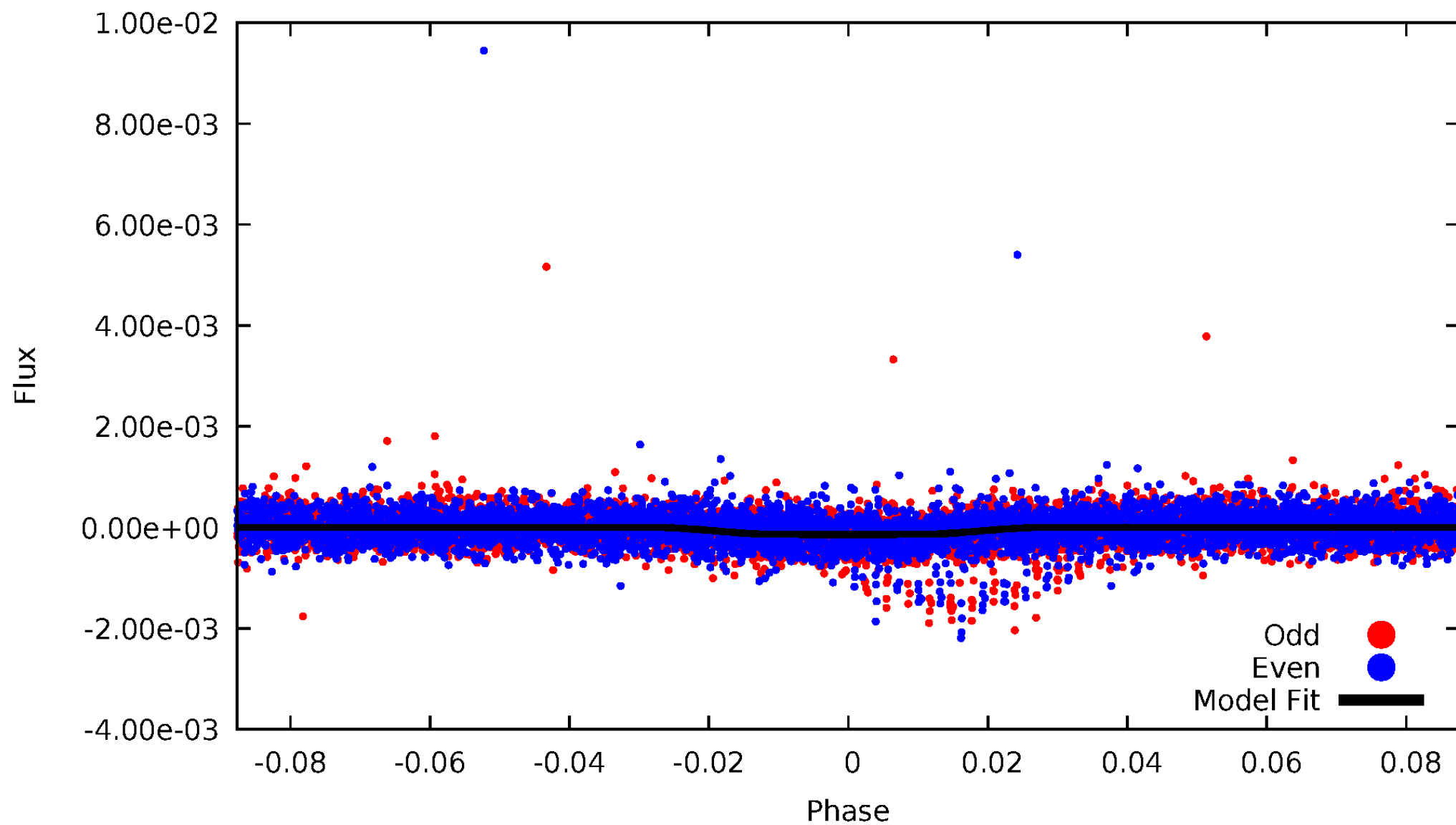


TCE 006878167-01



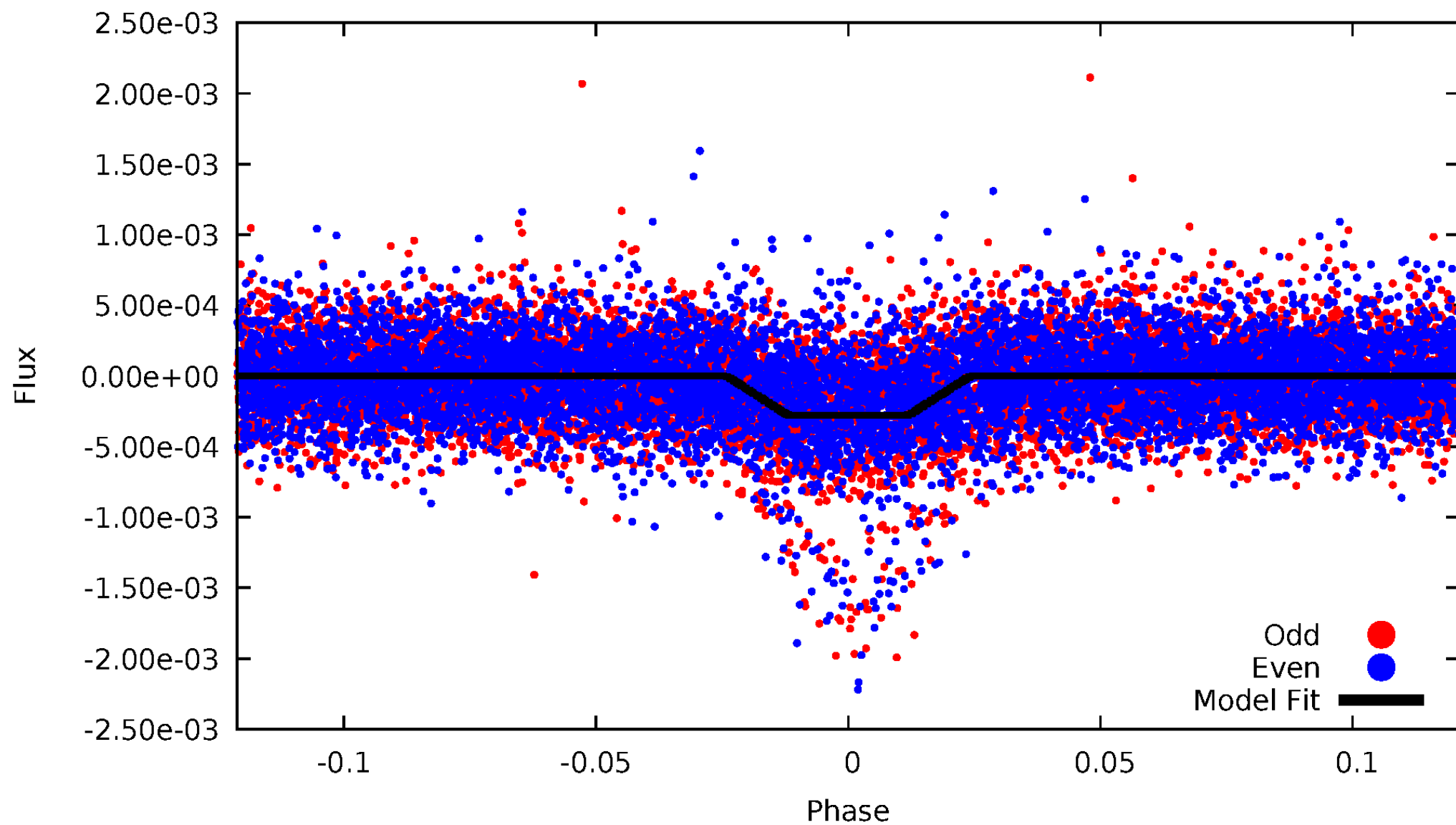
DV Odd/Even

TCE 006878167-01

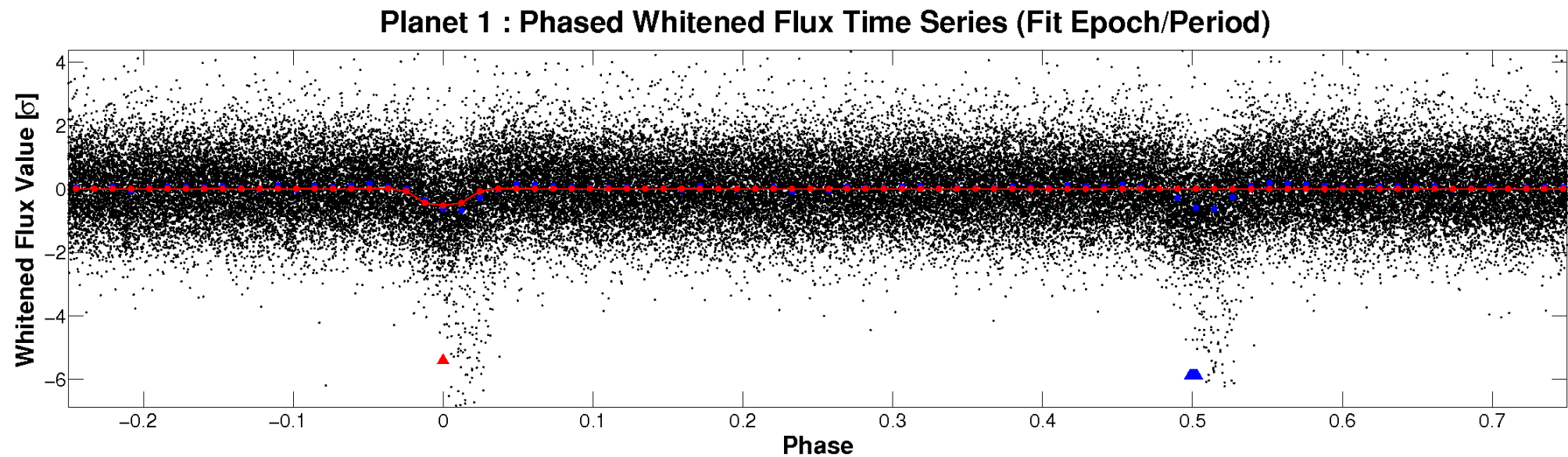
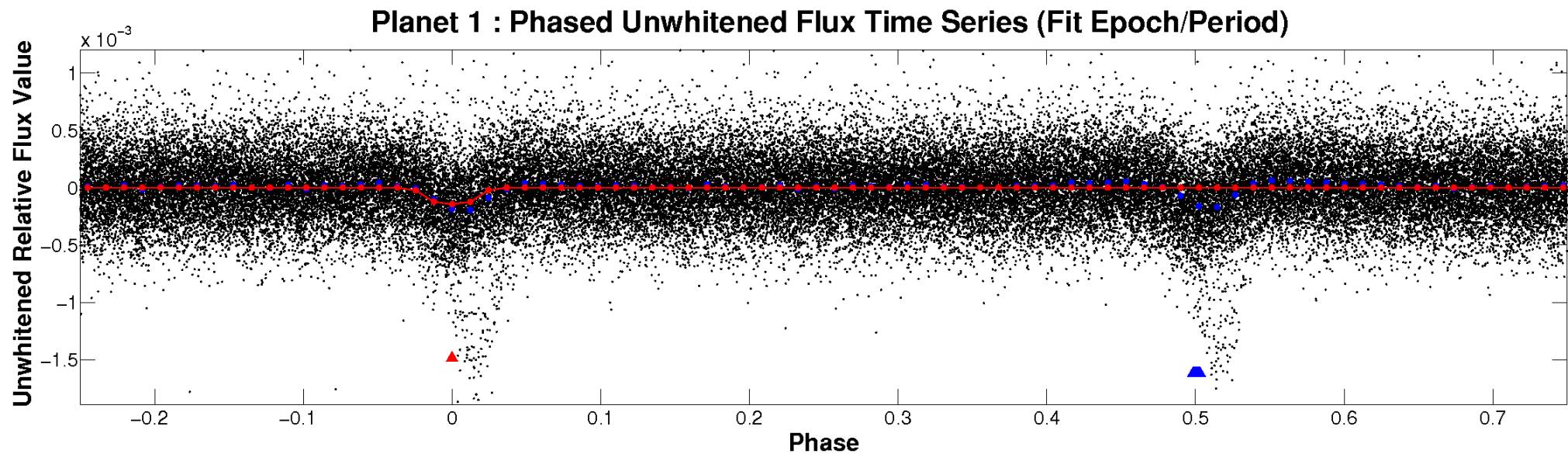


ALT Odd/Even

TCE 006878167-01

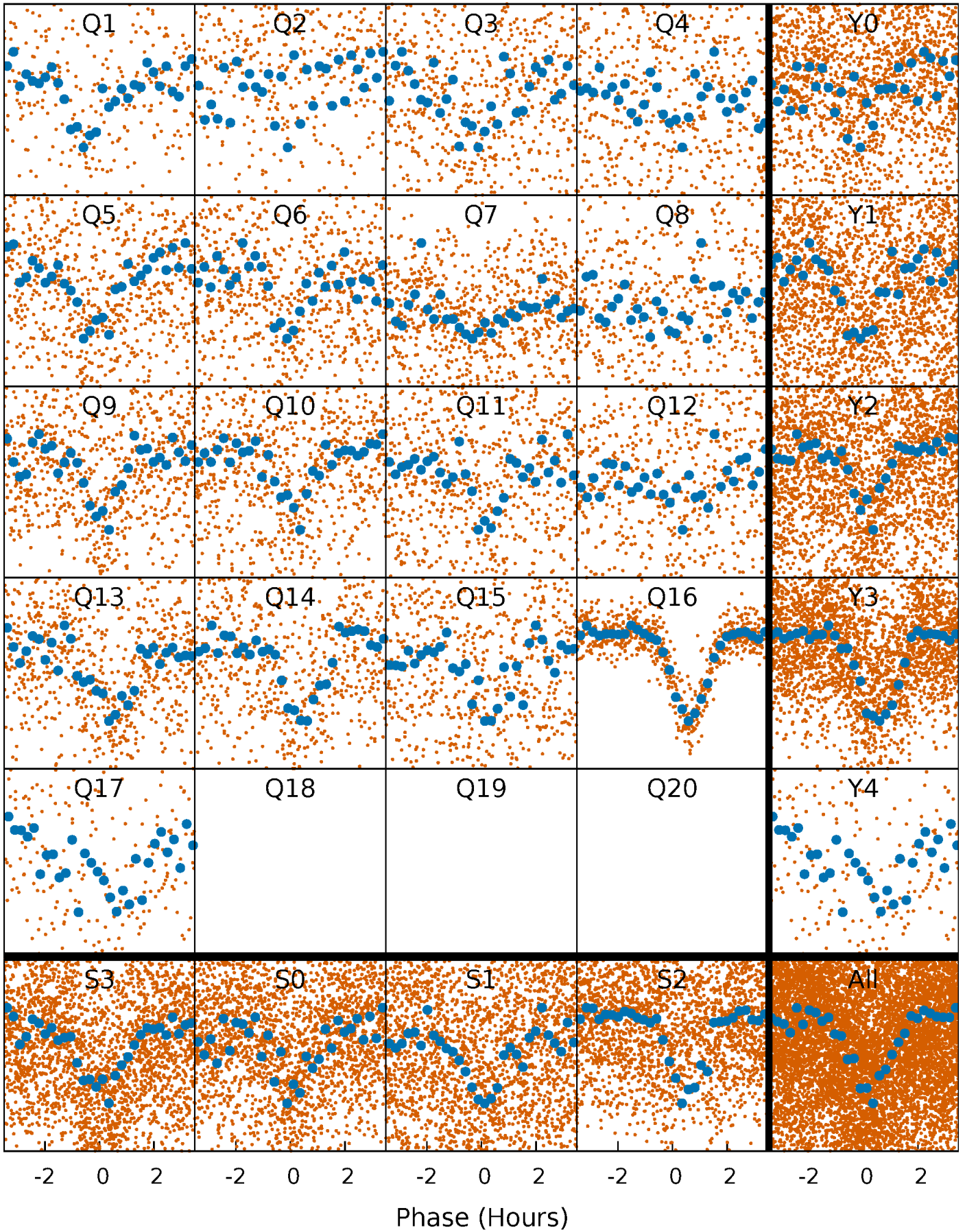


Non-Whitened Vs. Whitened Light Curve



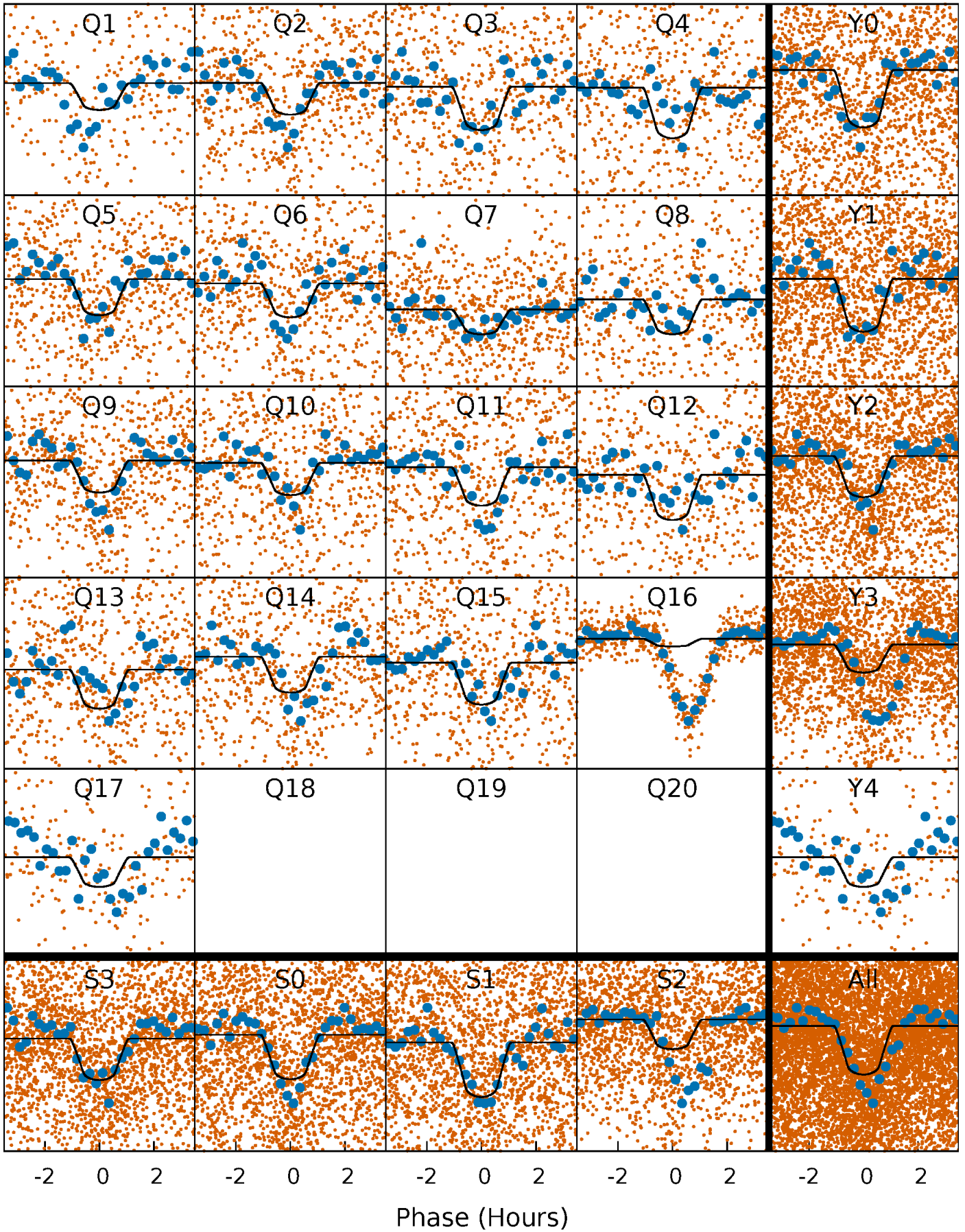
PDC Quarter-Phased Transit Curves

TCE 006878167-01 P= 1.667911 Days $T_0=132.863710$ (BKJD)



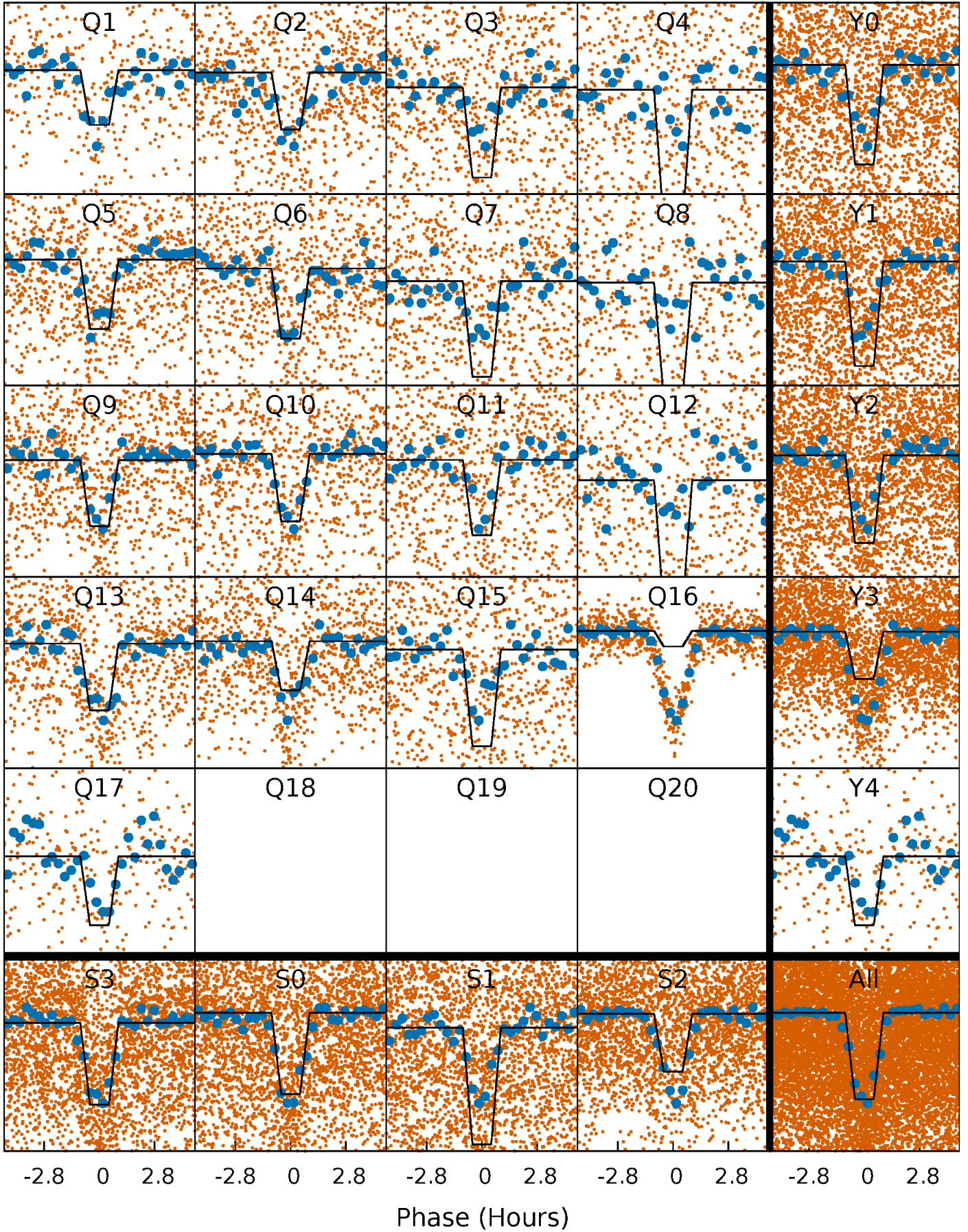
DV Quarter-Phased Transit Curves

TCE 006878167-01 P= 1.667911 Days $T_0=132.863710$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

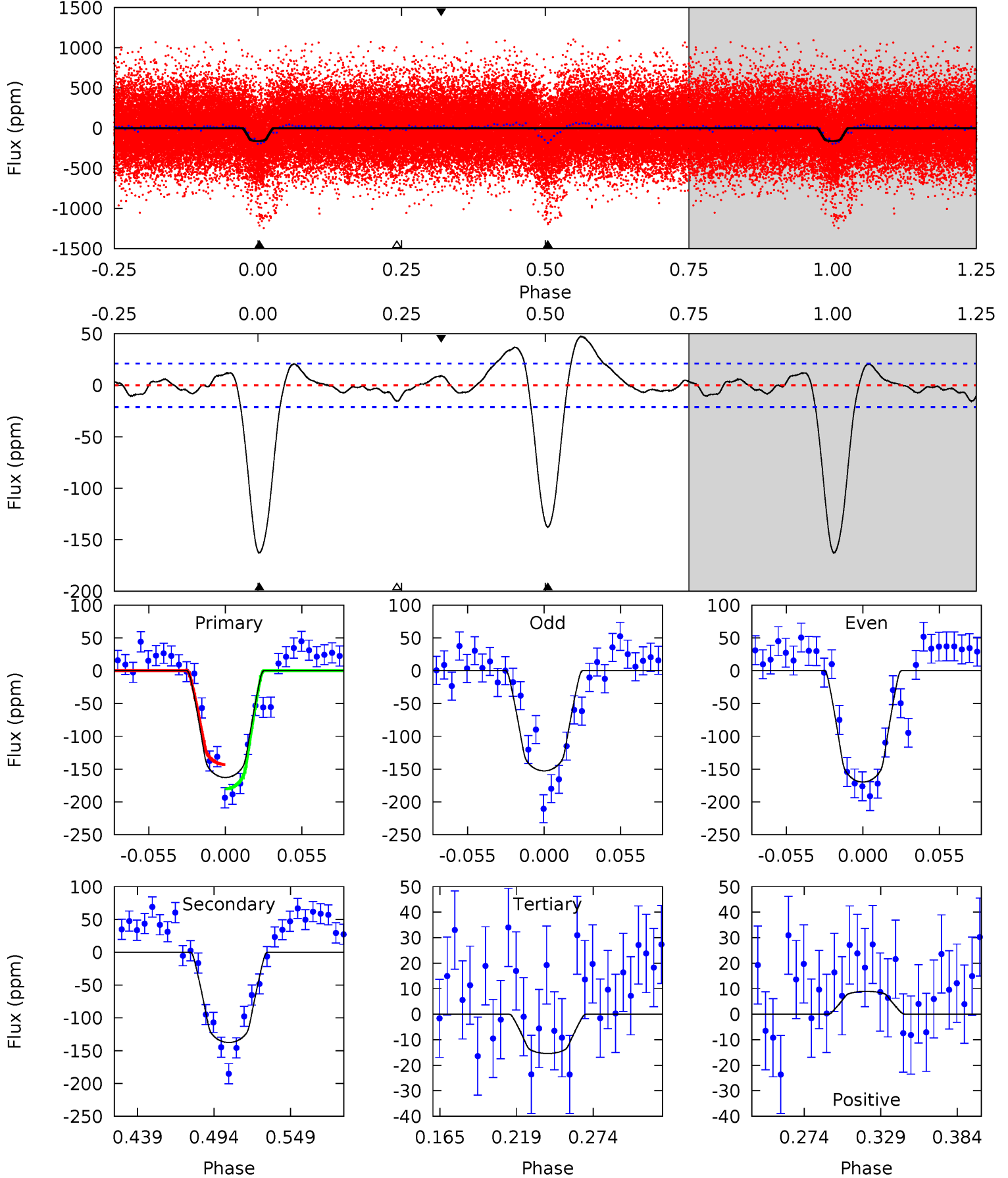
TCE 006878167-01 P= 1.667955 Days $T_0=132.850155$ (BKJD)



DV Model-Shift Uniqueness Test

006878167-01, P = 1.667911 Days, E = 131.195799 Days

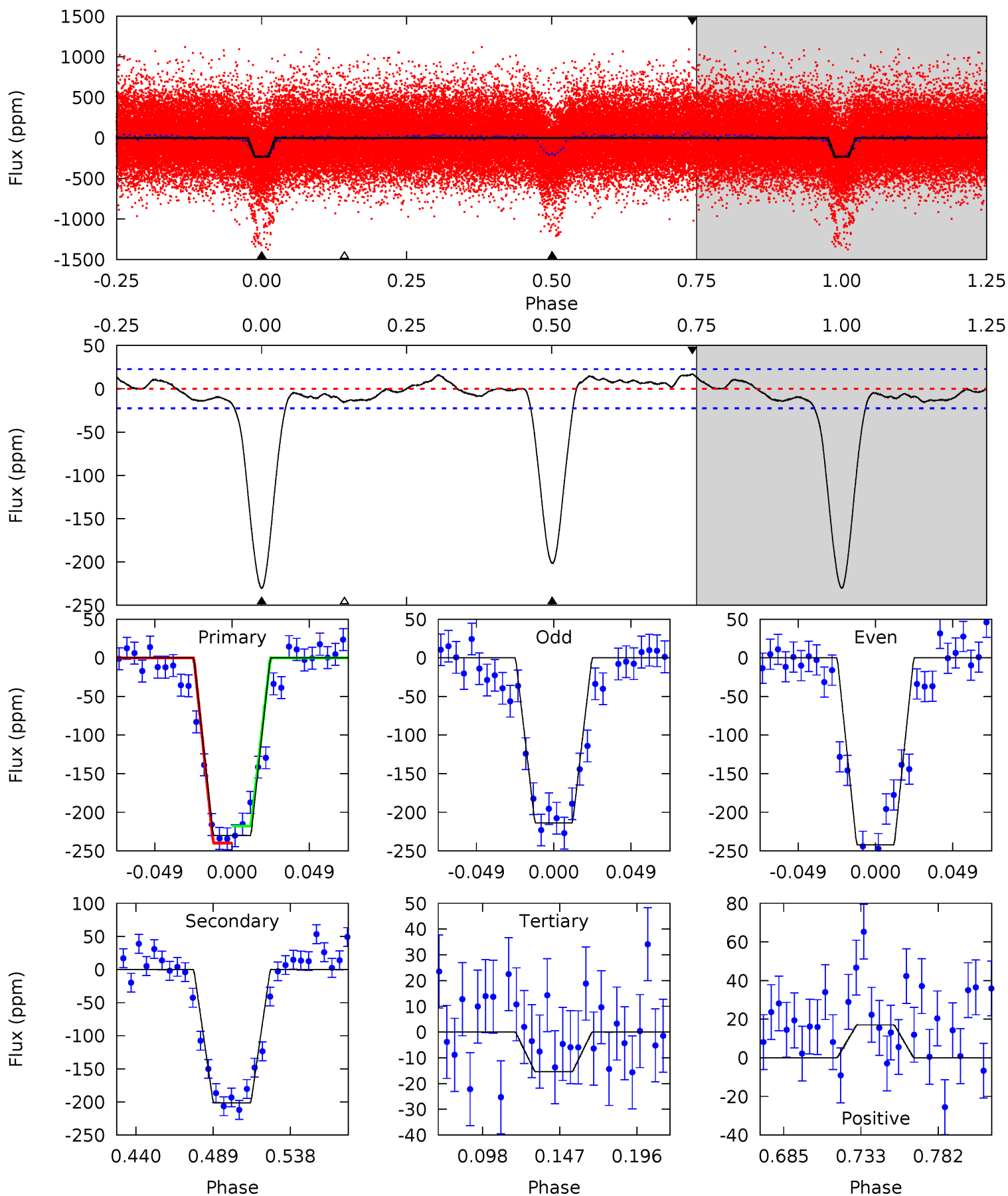
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.0	30.4	3.40	1.98	4.69	1.92	2.78	32.5	34.0	27.0	28.4	1.88	1.19	0.23	4.10



Alt Model-Shift Uniqueness Test

006878167-01, P = 1.667955 Days, E = 131.182200 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
48.0	42.0	3.20	3.55	4.71	1.97	1.86	44.8	44.4	38.8	38.4	2.96	1.26	0.07	2.27



Stellar Parameters For KIC 006878167

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5747^{+154}_{-171}	$4.530^{+0.048}_{-0.192}$	$-0.140^{+0.300}_{-0.300}$	$0.871^{+0.256}_{-0.085}$	$0.939^{+0.101}_{-0.112}$	$2.000^{+0.499}_{-0.971}$
	+3%/-3%	+1%/-4%	+214%/-214%	+29%/-10%	+11%/-12%	+25%/-49%
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 006878167-01 / KOI 1371.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-138 ± 5	$1.31^{+0.41}_{-0.43}$	2052^{+124}_{-97}	5427^{+1112}_{-647}	31^{+36}_{-14}
Alt.	-201 ± 5	$1.64^{+0.46}_{-0.39}$	2052^{+140}_{-95}	5337^{+716}_{-511}	29^{+22}_{-11}

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

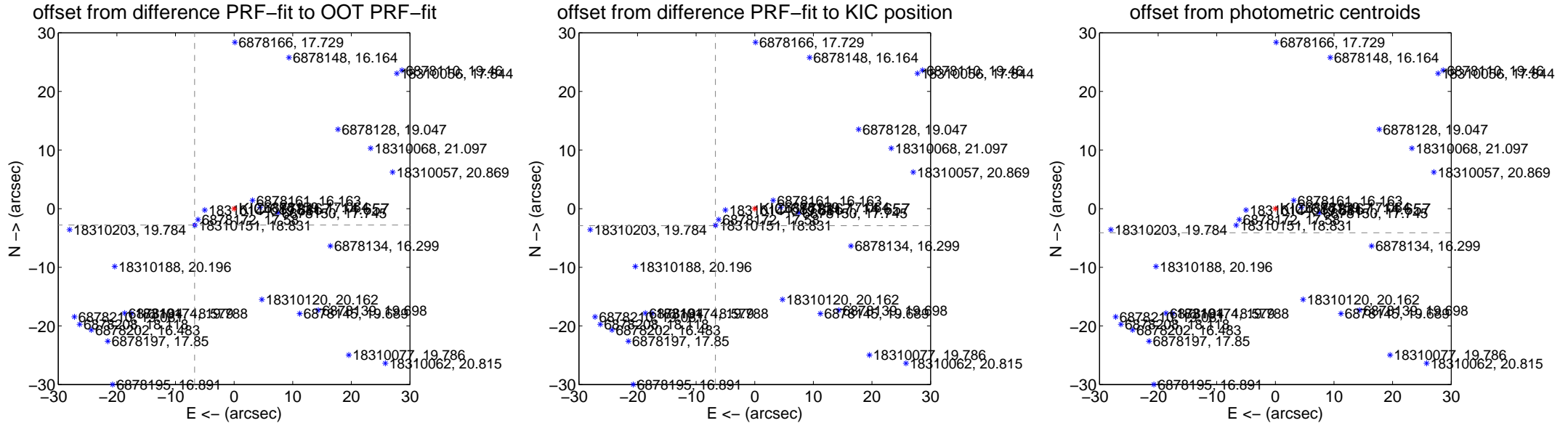
DV Centroid Data

Supplemental centroid analysis for 006878167-01. Kepler magnitude: 14.66. Transit SNR 22.35

There are 17 quarters with good PRF difference image offsets

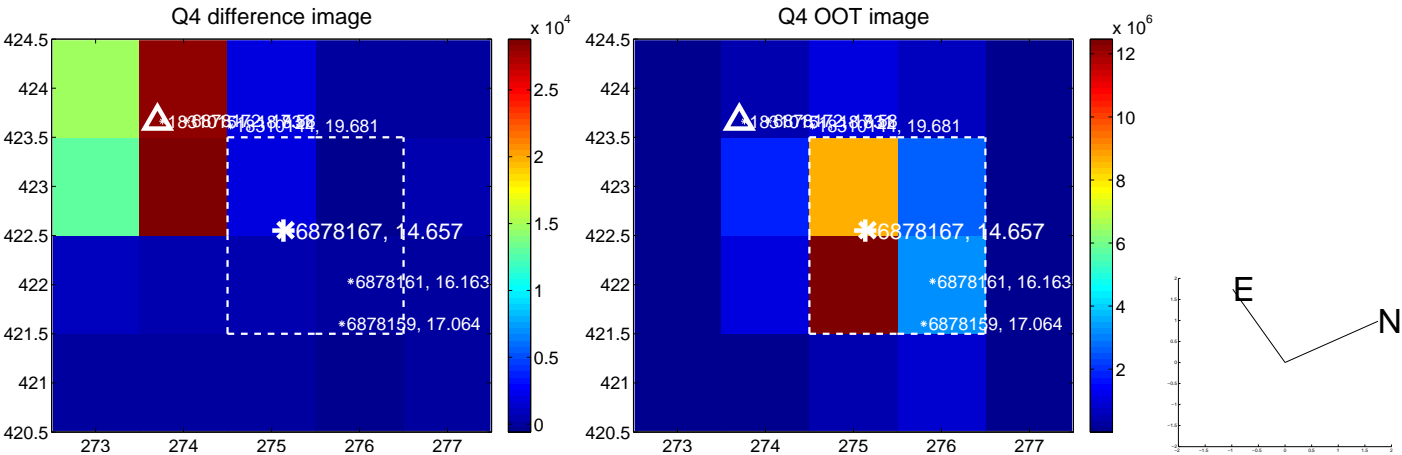
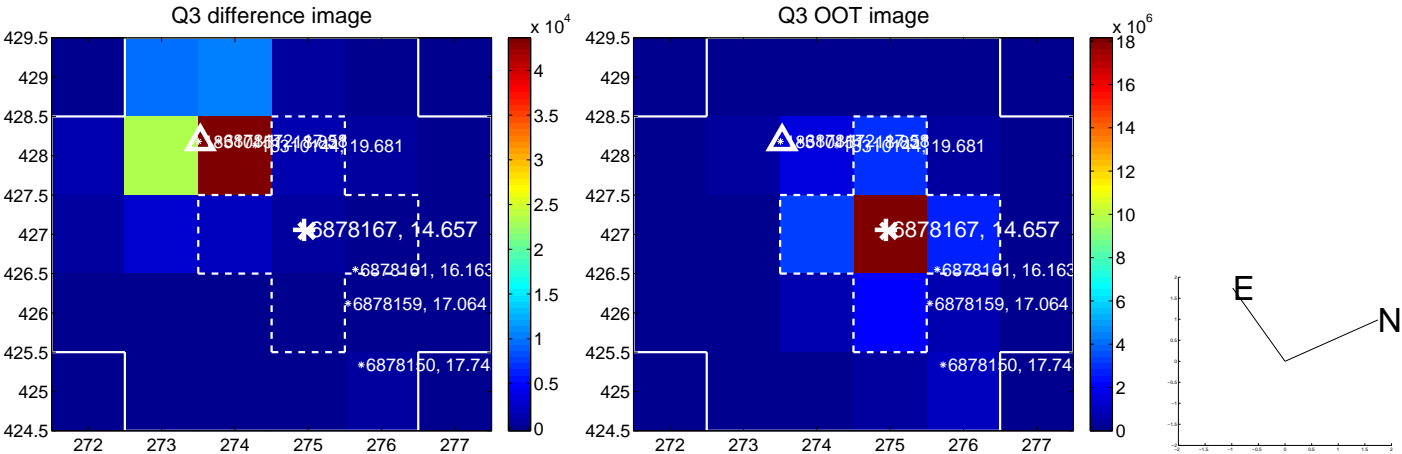
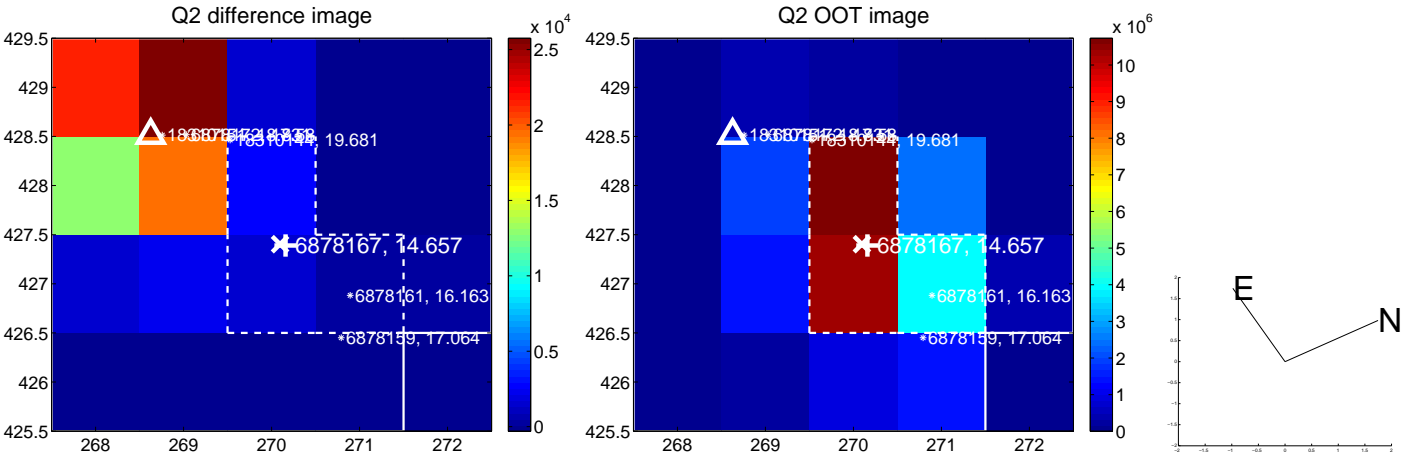
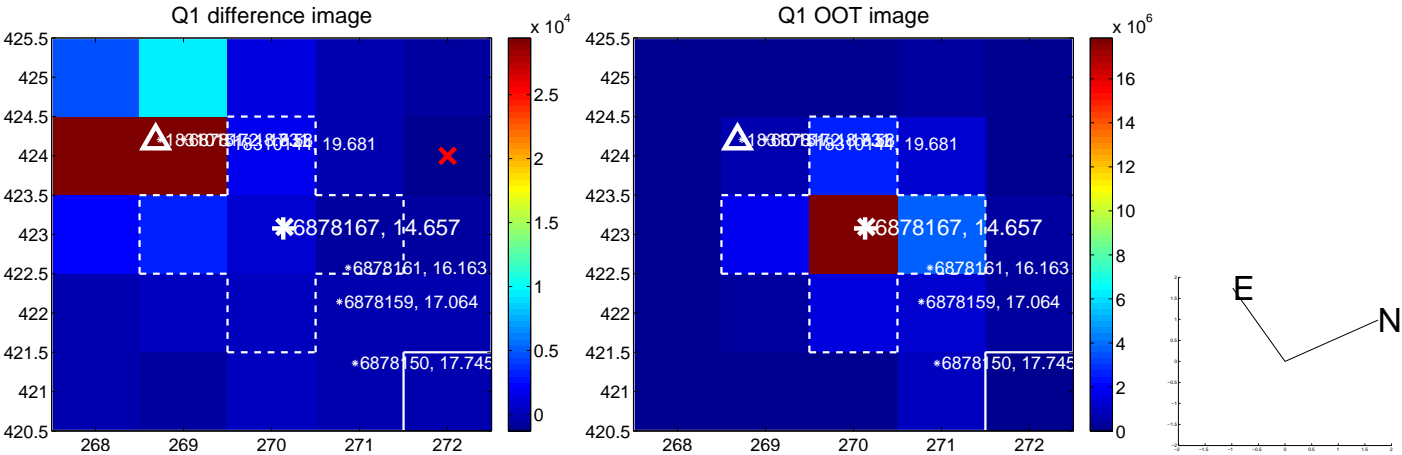
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.295 \pm 0.078	93.27	6.742 \pm 0.072	-2.788 \pm 0.080
PRF-fit source offset from KIC position	7.308 \pm 0.068	107.44	6.707 \pm 0.068	-2.901 \pm 0.069
photometric centroid source offset	78.85 \pm 0.52	150.88	78.74 \pm 0.52	-4.11 \pm 0.56

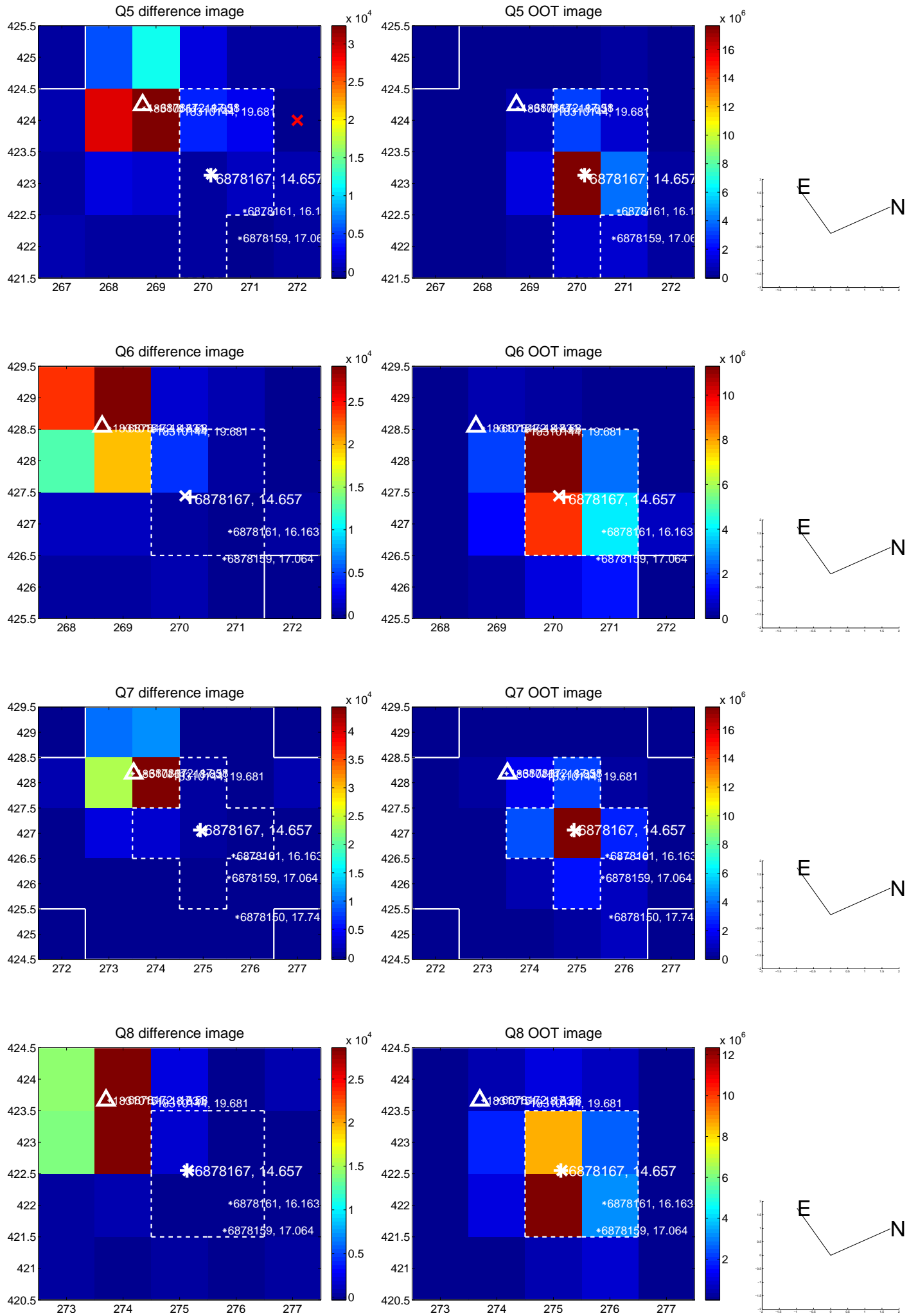


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

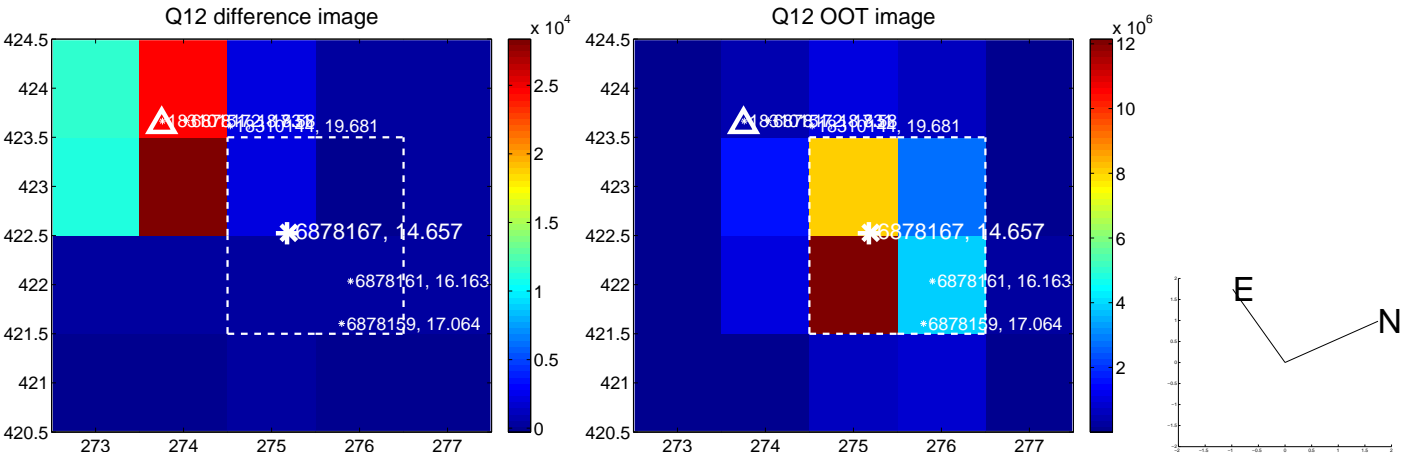
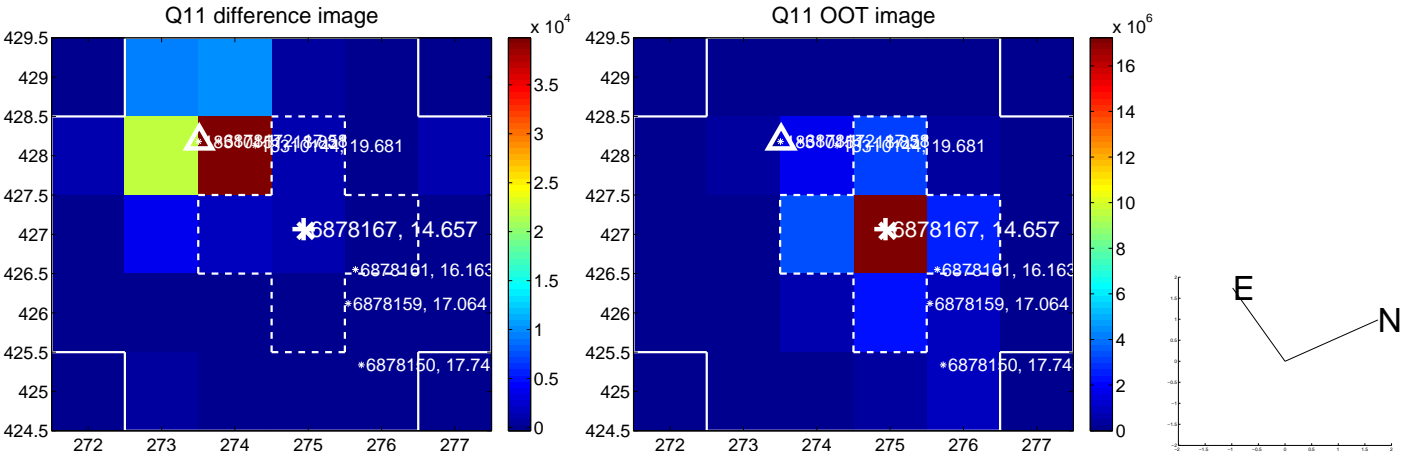
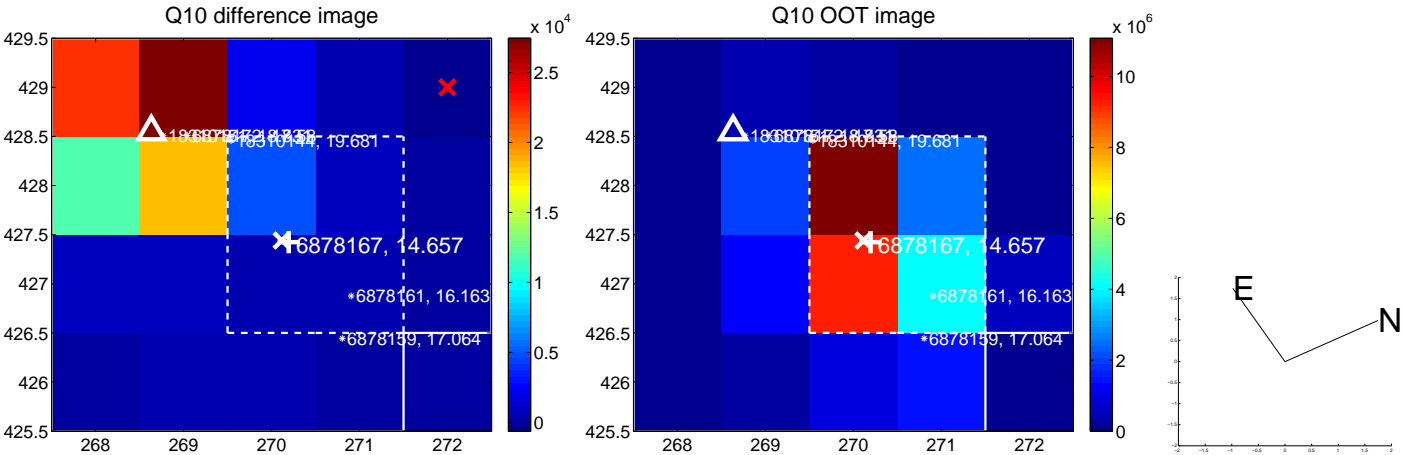
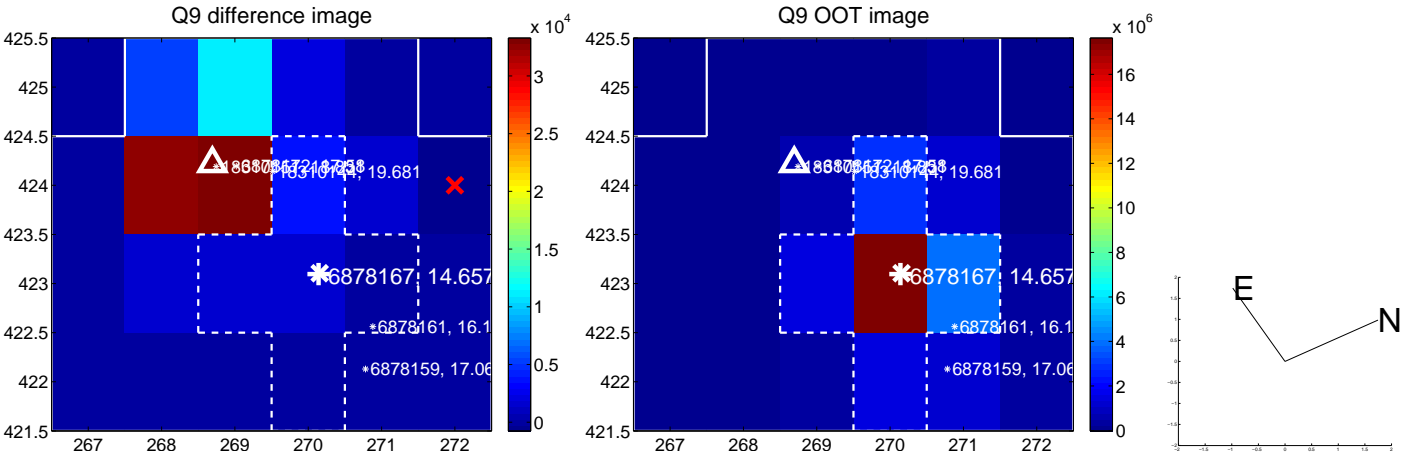
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



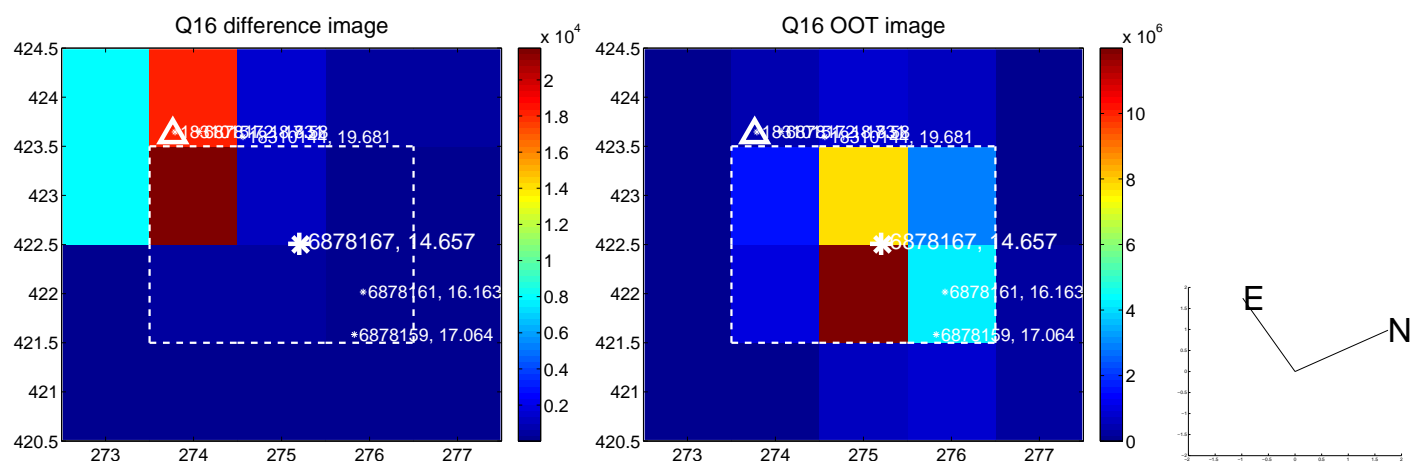
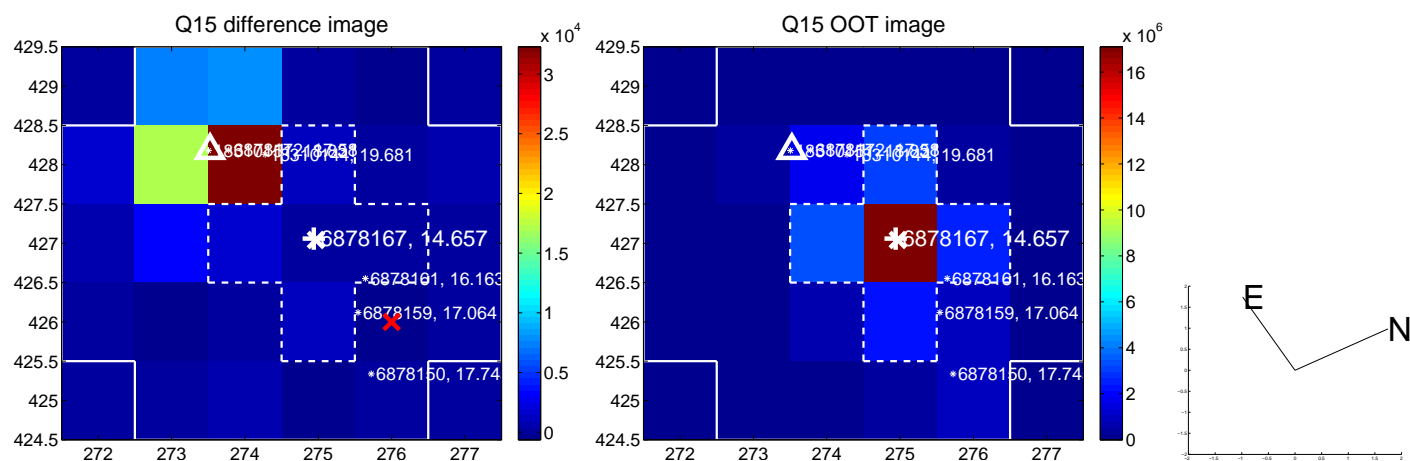
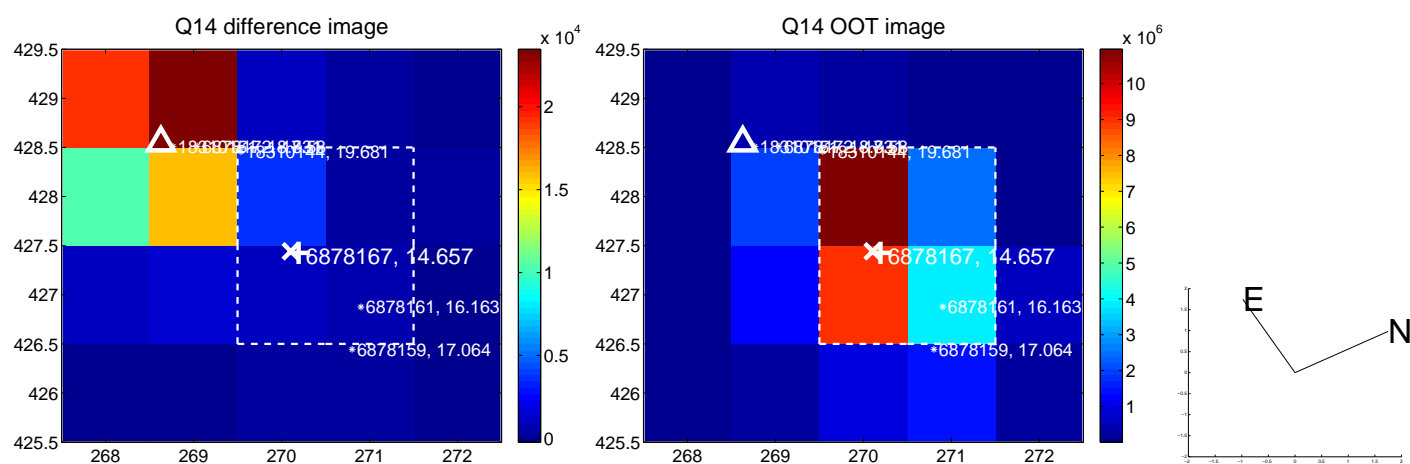
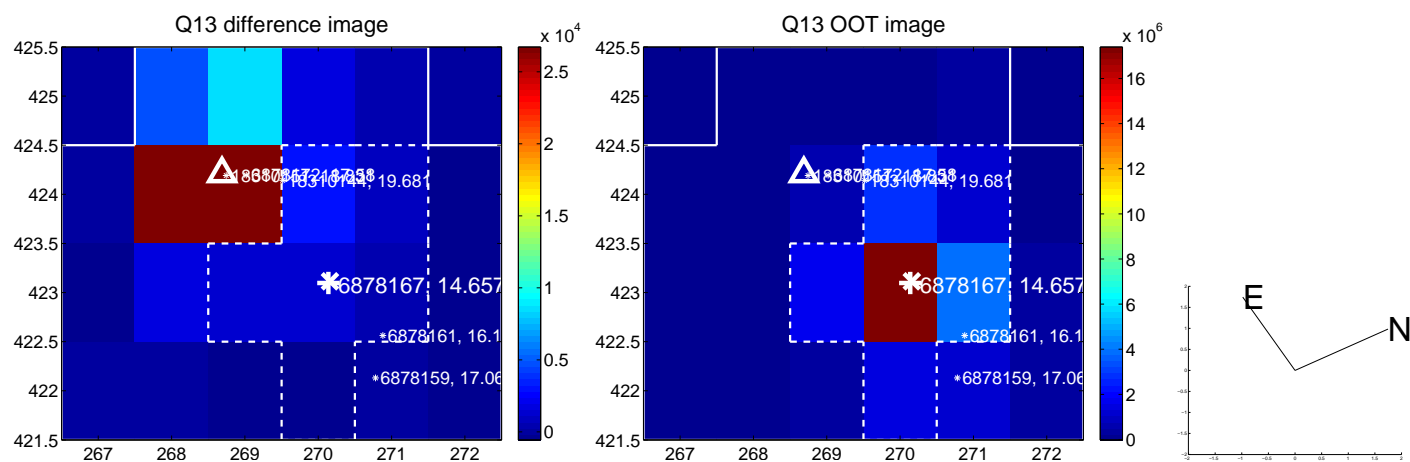
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



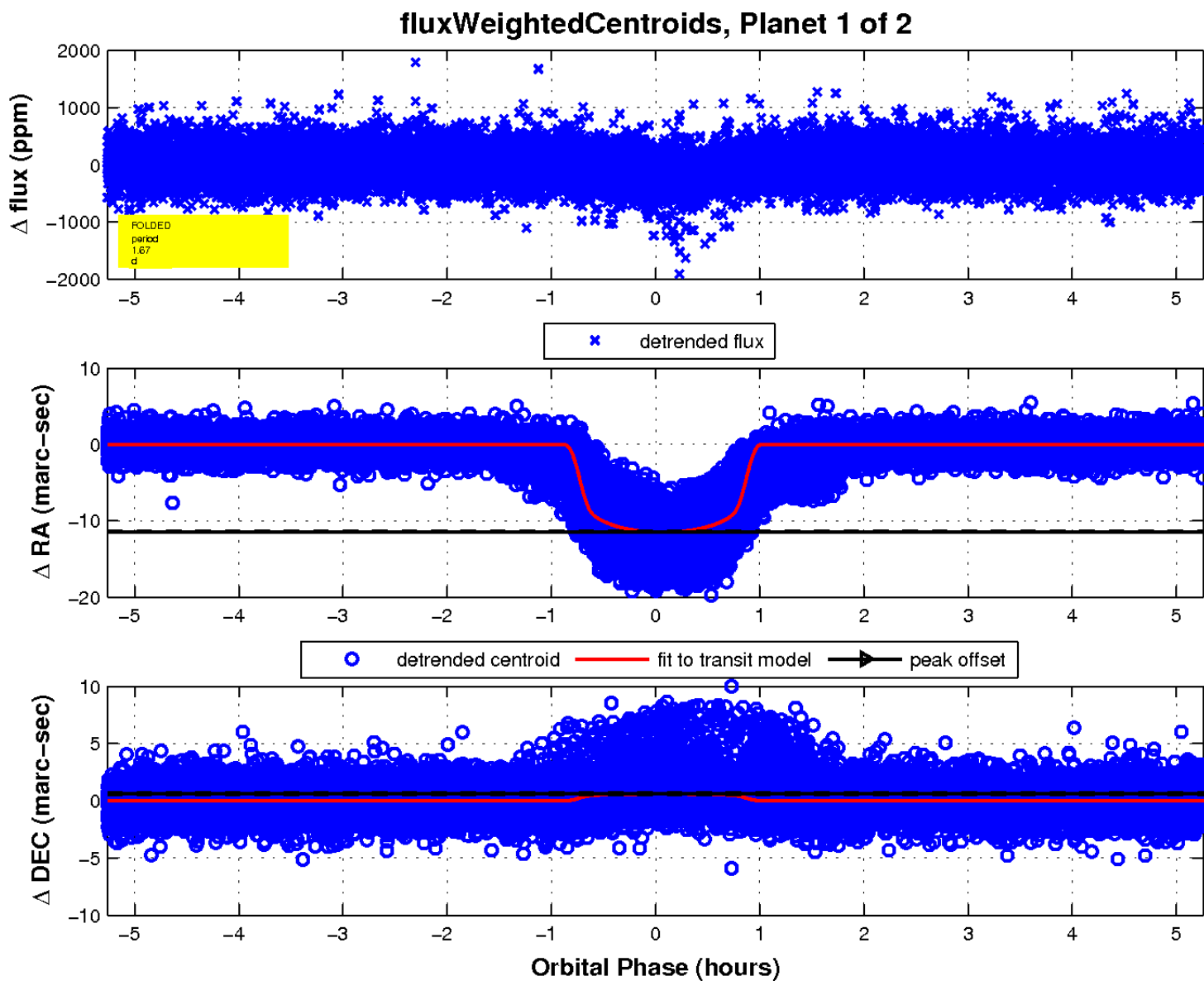
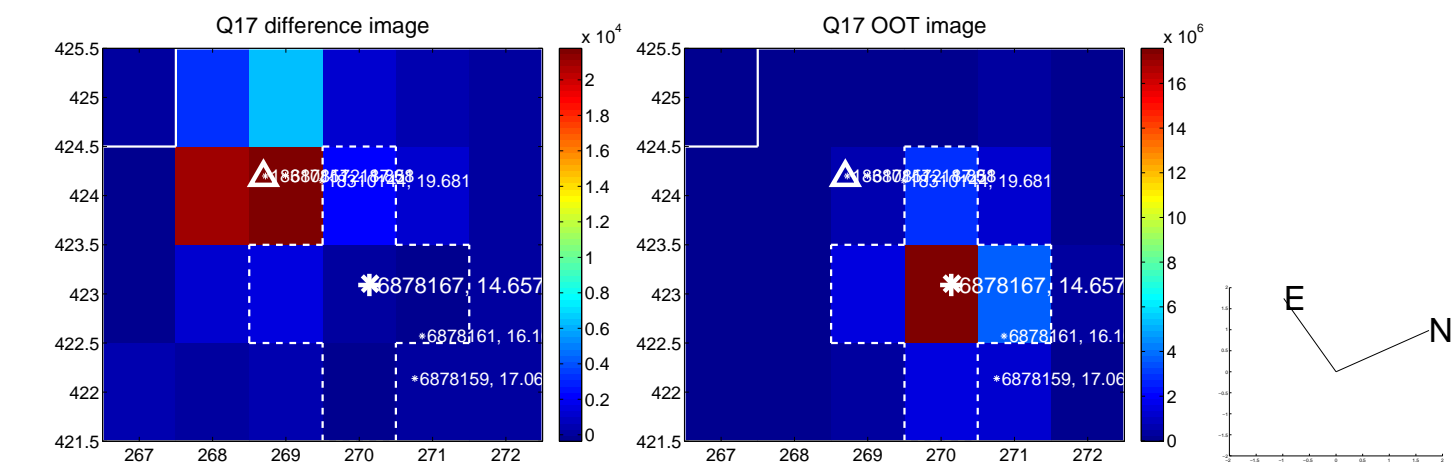
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

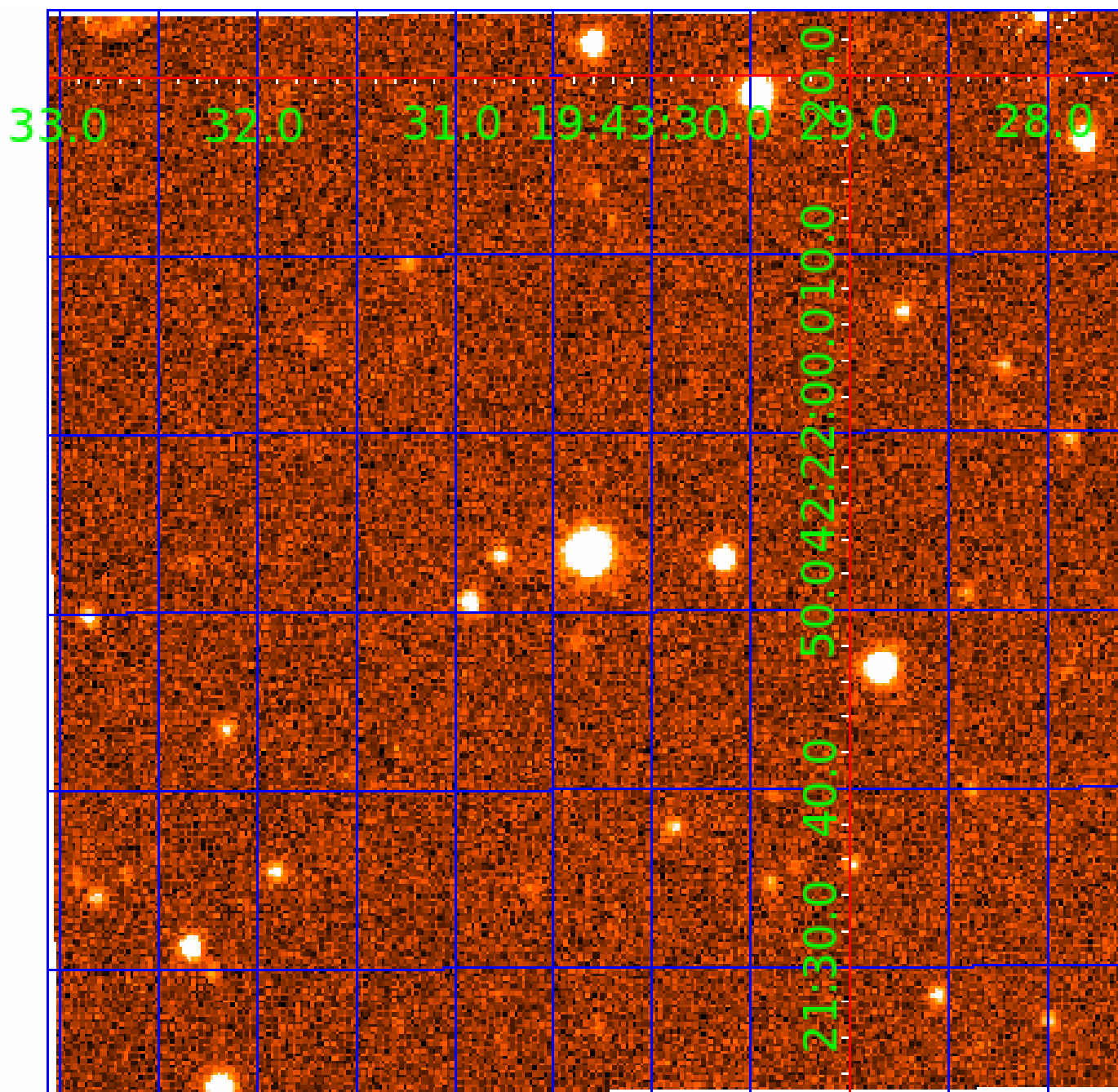


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006878167

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})
006878167-01	OBS	1371.01	1.667911	132.863710	145.2	1.754	19.7	22.4	0.87	5747	1.27	1021.19
006878167-02	OBS	No	1.667920	132.027007	145.7	1.878	29.2	24.2	0.87	5747	1.26	1021.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006878167-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
006878167-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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 006878167-02

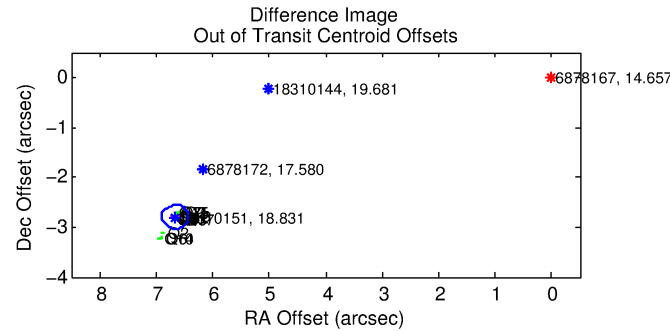
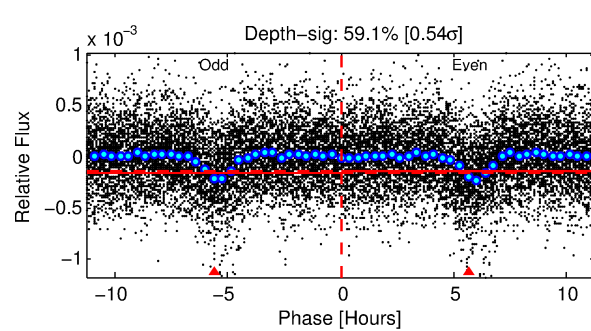
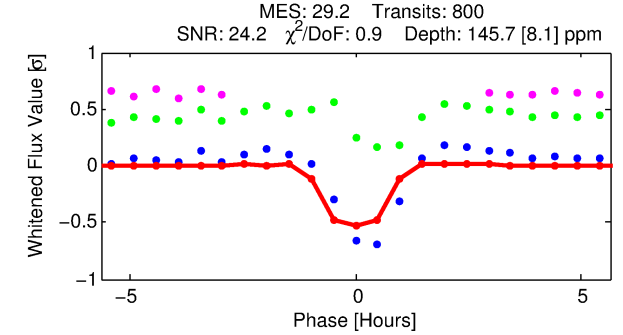
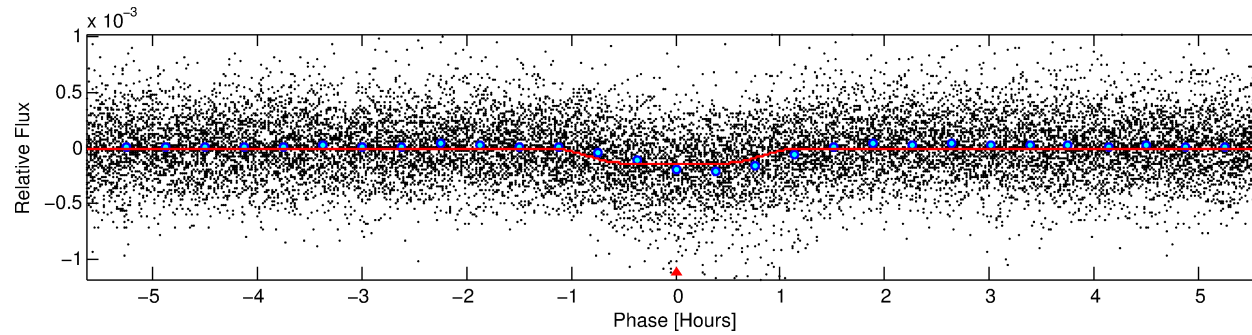
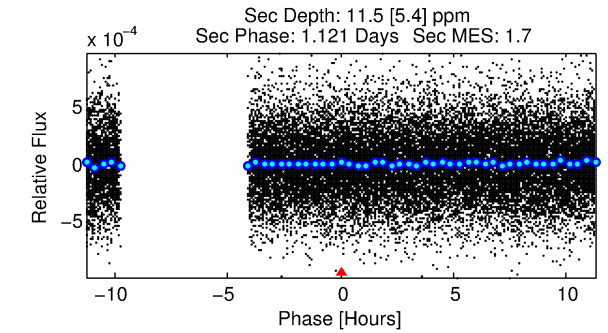
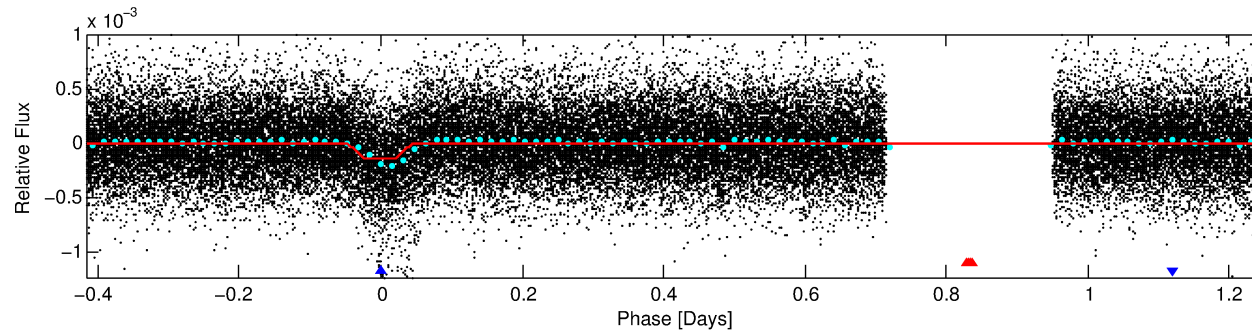
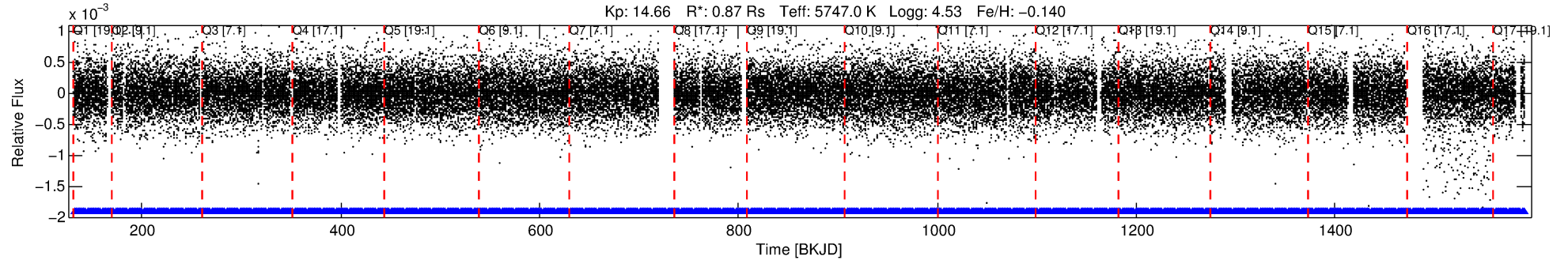
No Significant Match Found

DV One-Page Summary

KIC: 6878167 Candidate: 2 of 2 Period: 1.668 d

KOI: K01371 Corr: No Ephemeris Match

Kp: 14.66 R*: 0.87 Rs Teff: 5747.0 K Logg: 4.53 Fe/H: -0.140



DV Fit Results:

Period = 1.66792 [0.00001] d
Epoch = 132.0270 [0.0012] BKJD
Rp/R* = 0.0133 [0.0039]
a/R* = 3.21 [4.13]
b = 0.91 [0.29]
Seff = 1021.18 [381.31]
Teff = 1441 [135] K
Rp = 1.26 [0.52] Re
a = 0.0269 [0.0066] AU
Ag = 2.91 [2.41] [0.79σ]
Teffp = 2910 [552] K [2.58σ]

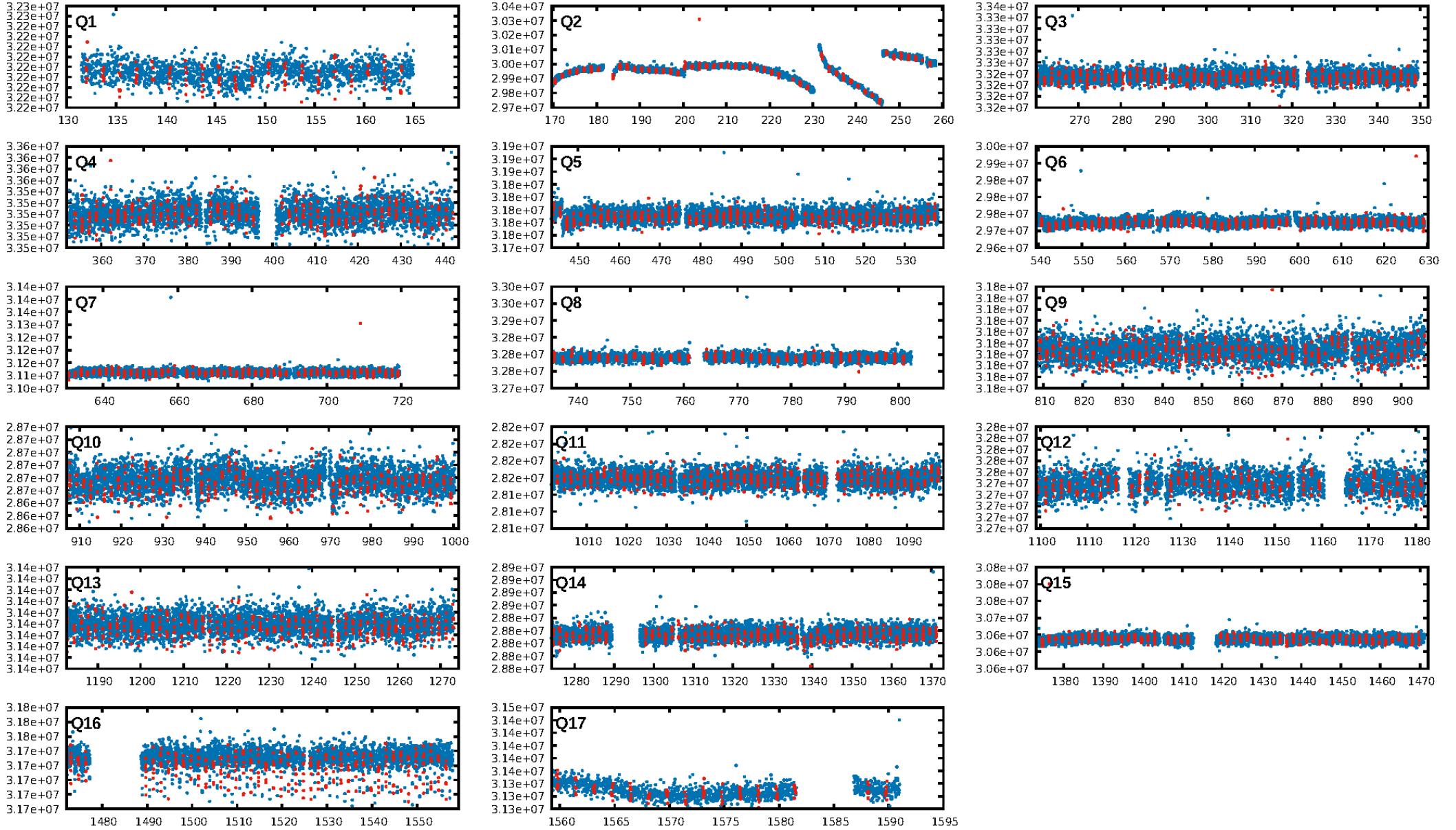
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.51e-176
RollingBand-fgt: 1.00 [764/764]
GhostDiagnostic-chr: -0.06904
Centroid-sig: 0.0%
Centroid-so: 73.053 arcsec [144.66σ]
OotOffset-rm: 7.224 arcsec [91.87σ]
KicOffset-rm: 7.307 arcsec [107.78σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

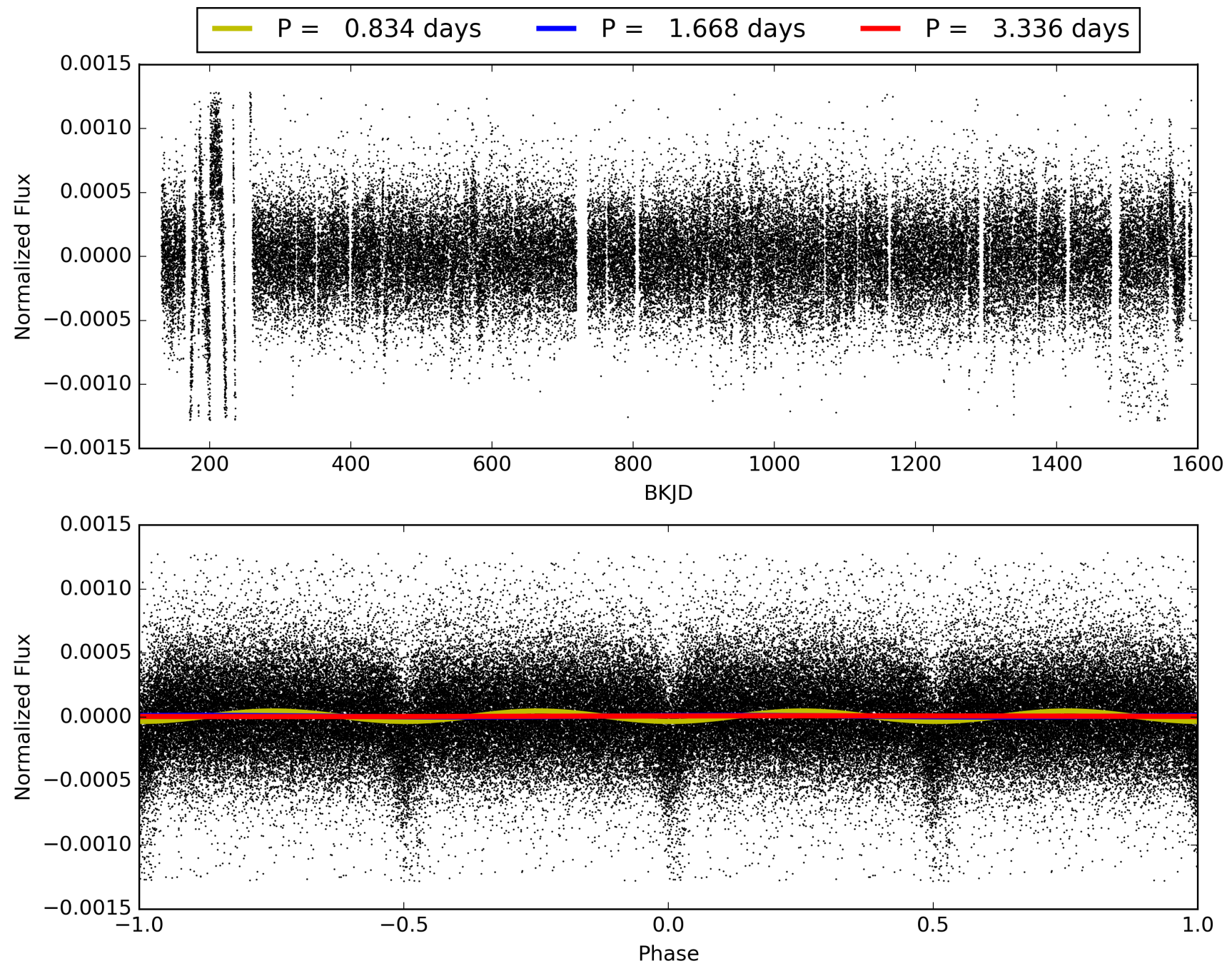
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:17:55 Z

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

TCE 006878167-02, PDC Light Curves

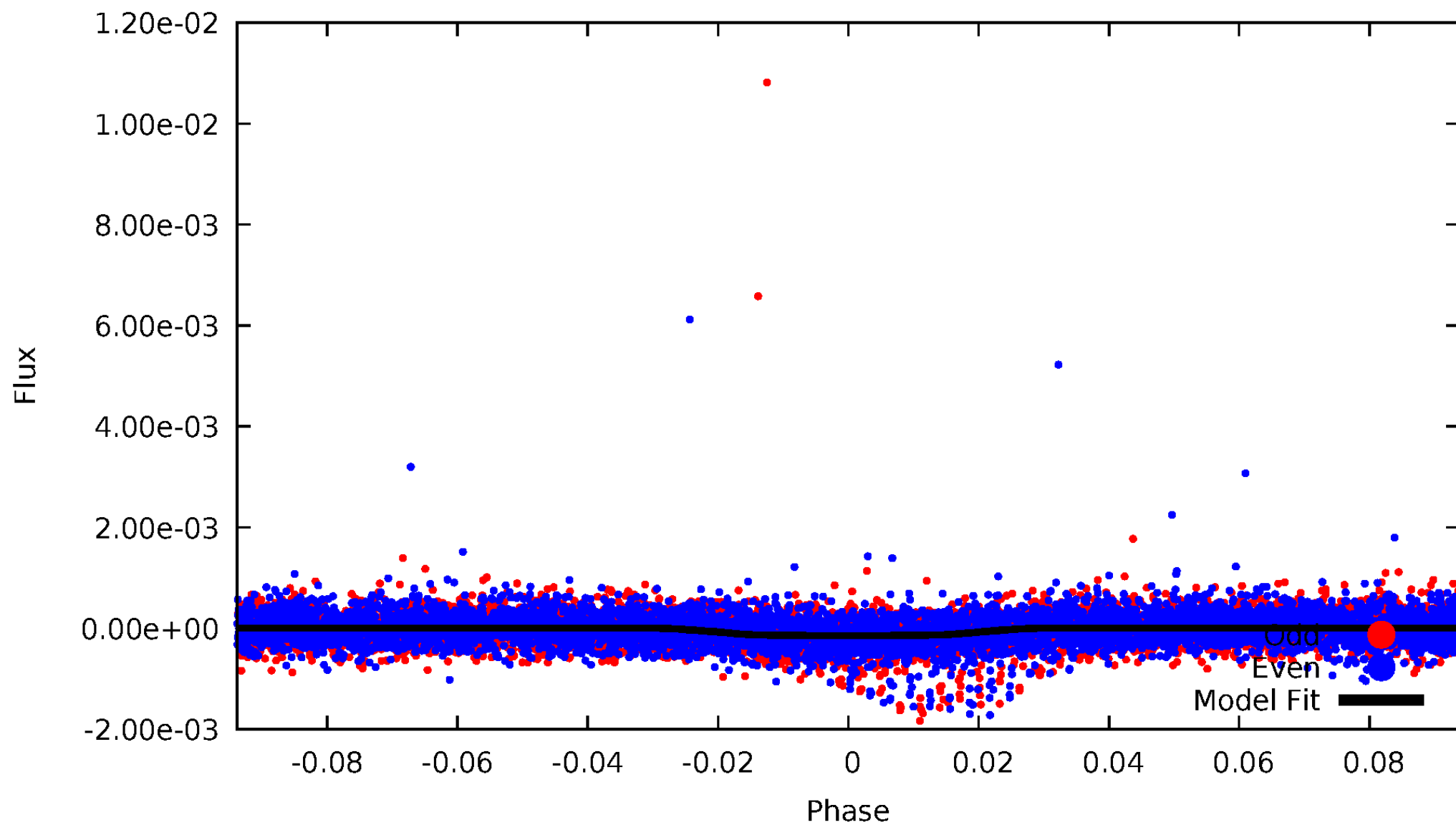


TCE 006878167-02



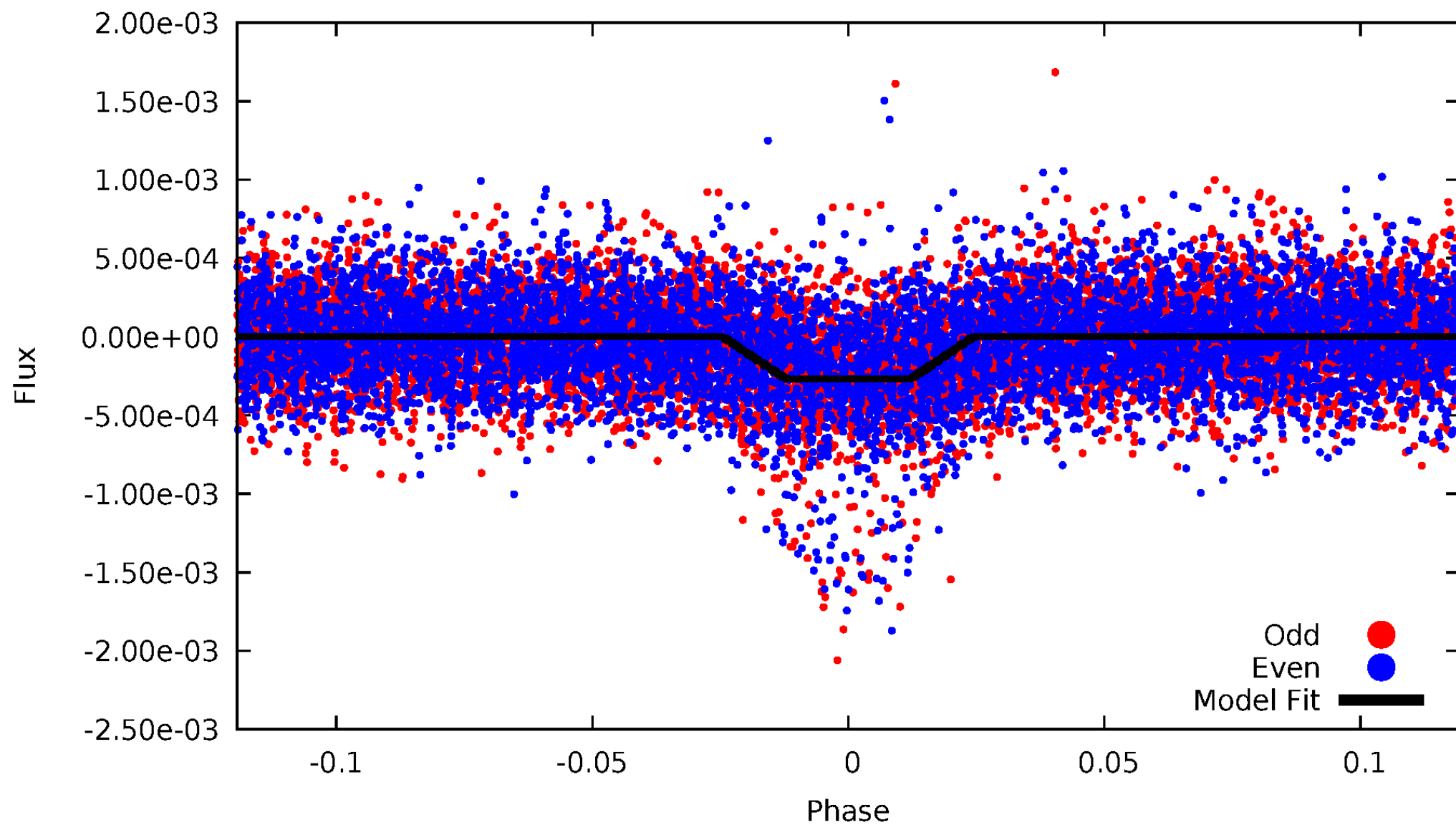
DV Odd/Even

TCE 006878167-02



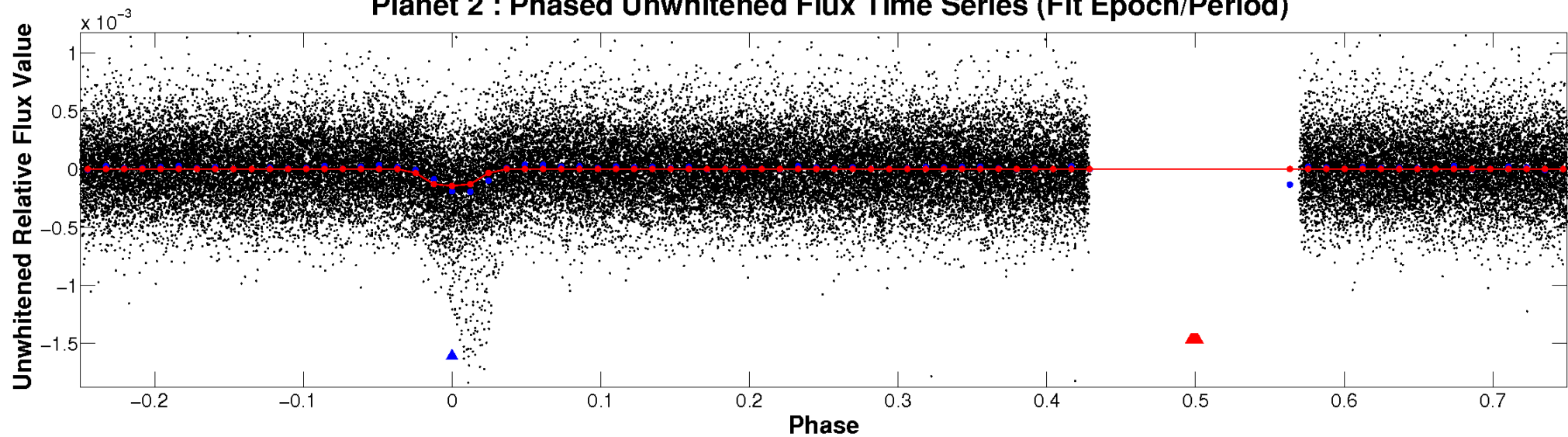
ALT Odd/Even

TCE 006878167-02

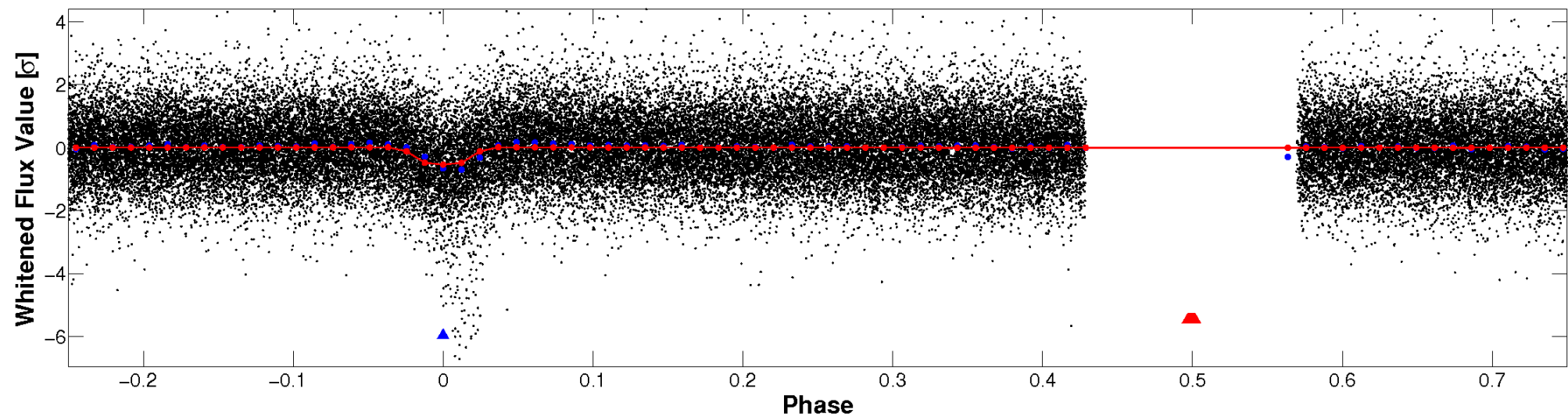


Non-Whitened Vs. Whitened Light Curve

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

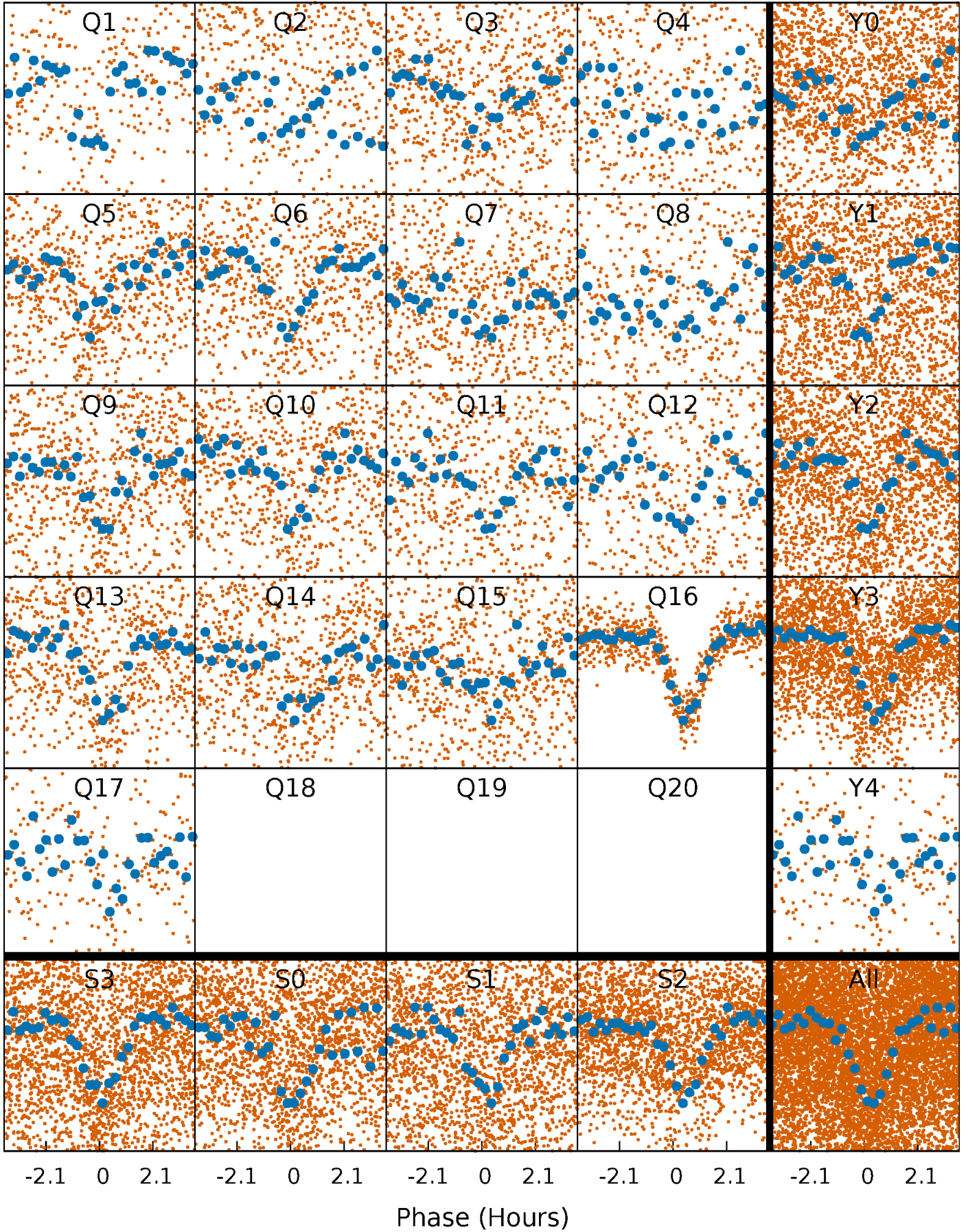


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



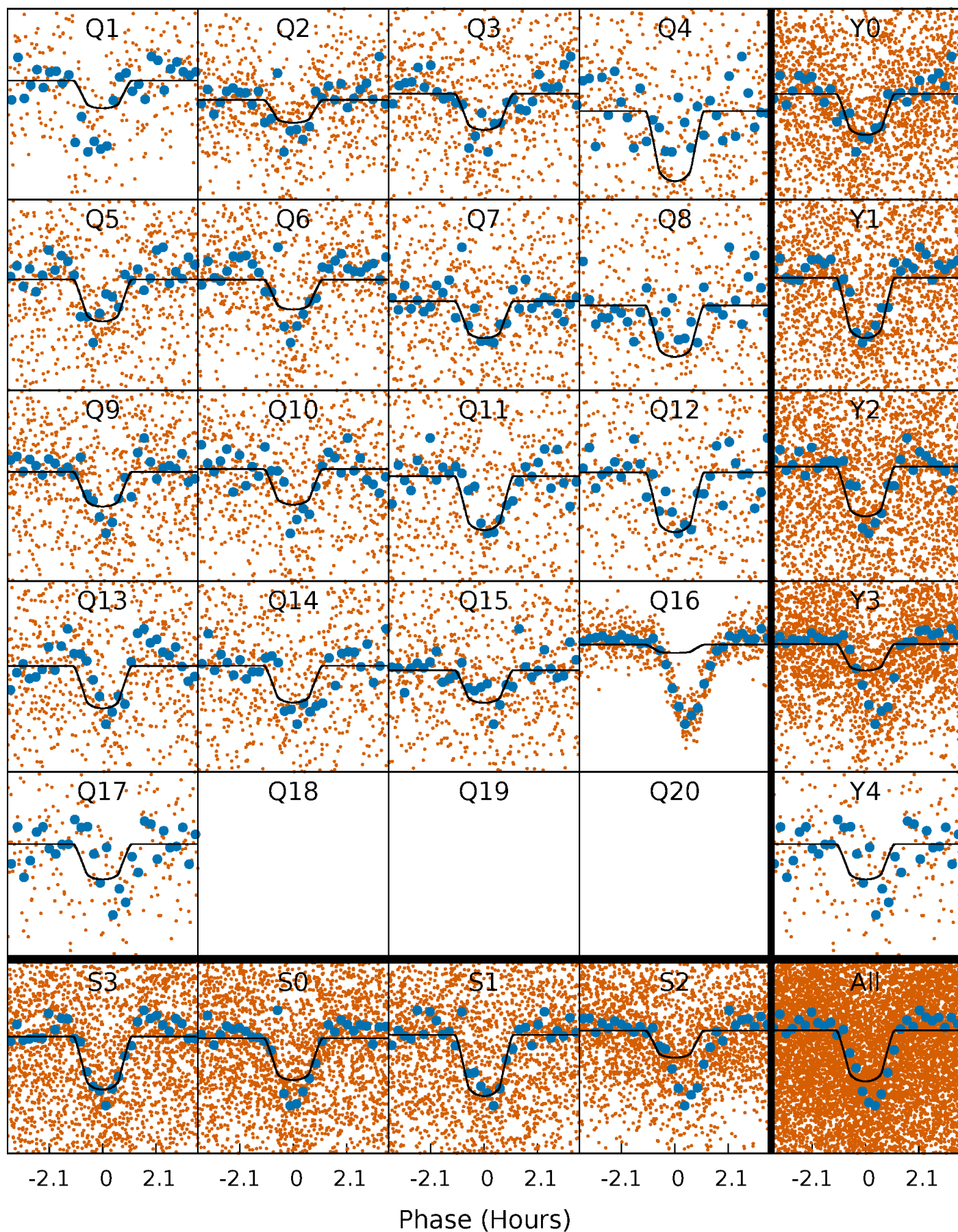
PDC Quarter-Phased Transit Curves

TCE 006878167-02 P= 1.667920 Days $T_0=132.027007$ (BKJD)



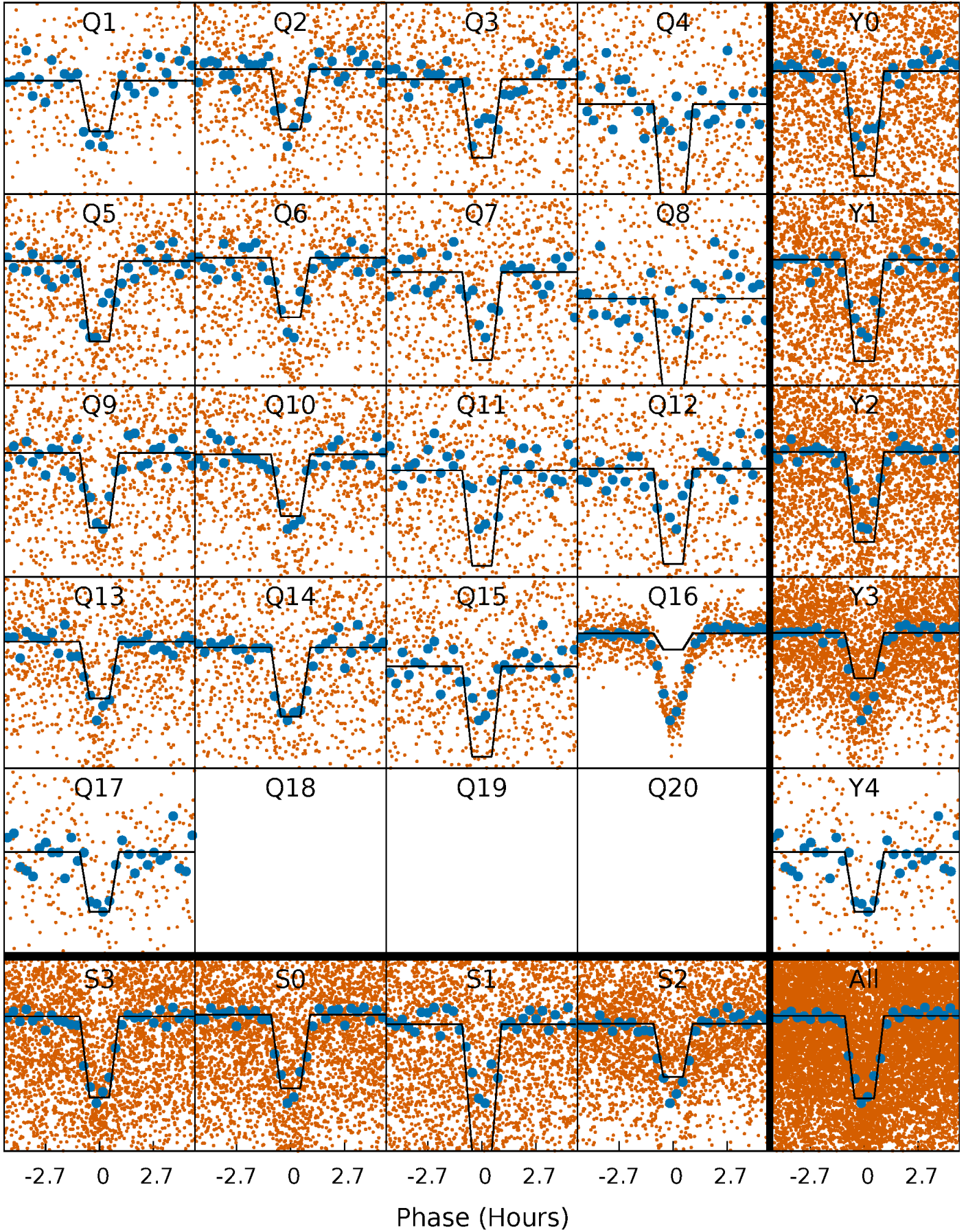
DV Quarter-Phased Transit Curves

TCE 006878167-02 P= 1.667920 Days $T_0=132.027007$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

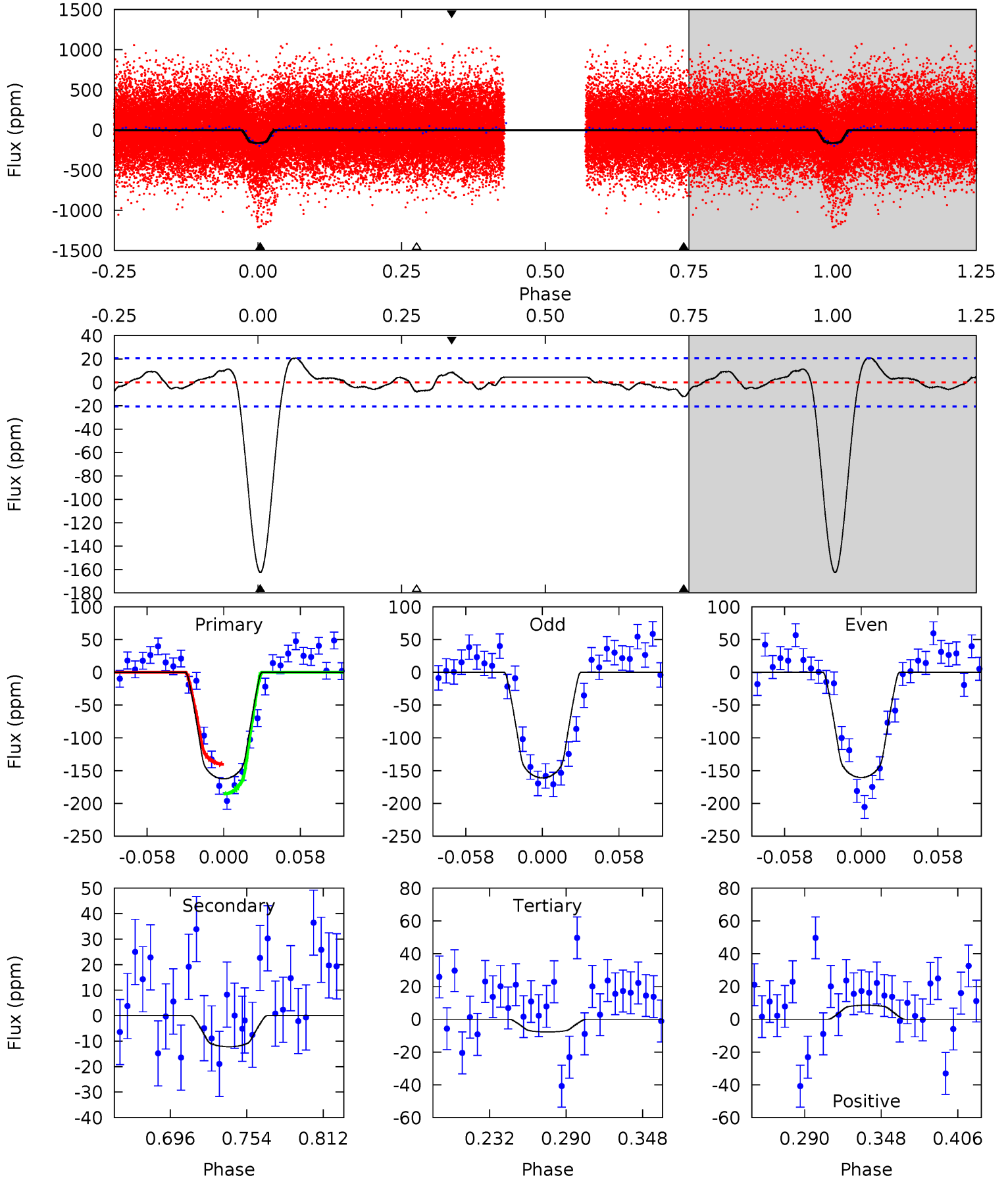
TCE 006878167-02 P= 1.667960 Days $T_0=132.014747$ (BKJD)



DV Model-Shift Uniqueness Test

006878167-02, P = 1.667920 Days, E = 130.359087 Days

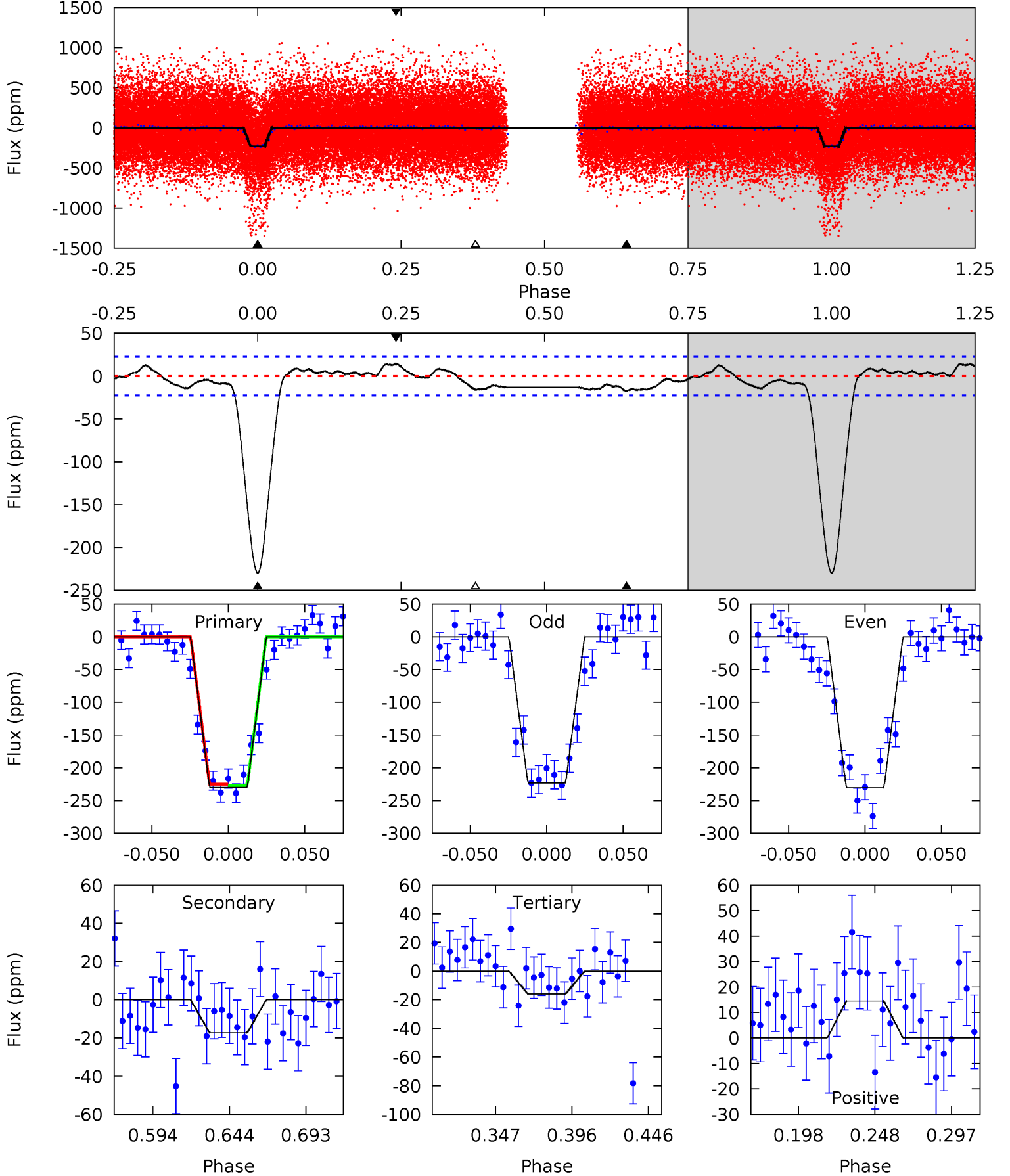
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.9	2.77	1.76	1.95	4.68	1.90	1.27	35.1	34.9	1.01	0.82	0.05	1.13	0.11	5.15



Alt Model-Shift Uniqueness Test

006878167-02, P = 1.667960 Days, E = 130.346787 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
48.0	3.61	3.32	3.03	4.71	1.96	1.69	44.7	45.0	0.29	0.58	0.75	1.19	0.06	0.21



Stellar Parameters For KIC 006878167

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5747^{+154}_{-171}	$4.530^{+0.048}_{-0.192}$	$-0.140^{+0.300}_{-0.300}$	$0.871^{+0.256}_{-0.085}$	$0.939^{+0.101}_{-0.112}$	$2.000^{+0.499}_{-0.971}$
	+3%/-3%	+1%/-4%	+214%/-214%	+29%/-10%	+11%/-12%	+25%/-49%
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 006878167-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 4	$1.33^{+0.38}_{-0.38}$	2053^{+127}_{-96}	3339^{+482}_{-346}	$2.570^{+2.994}_{-1.235}$
Alt.	-17 ± 5	$1.63^{+0.40}_{-0.42}$	2057^{+135}_{-98}	3348^{+341}_{-310}	$2.580^{+2.119}_{-1.159}$

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

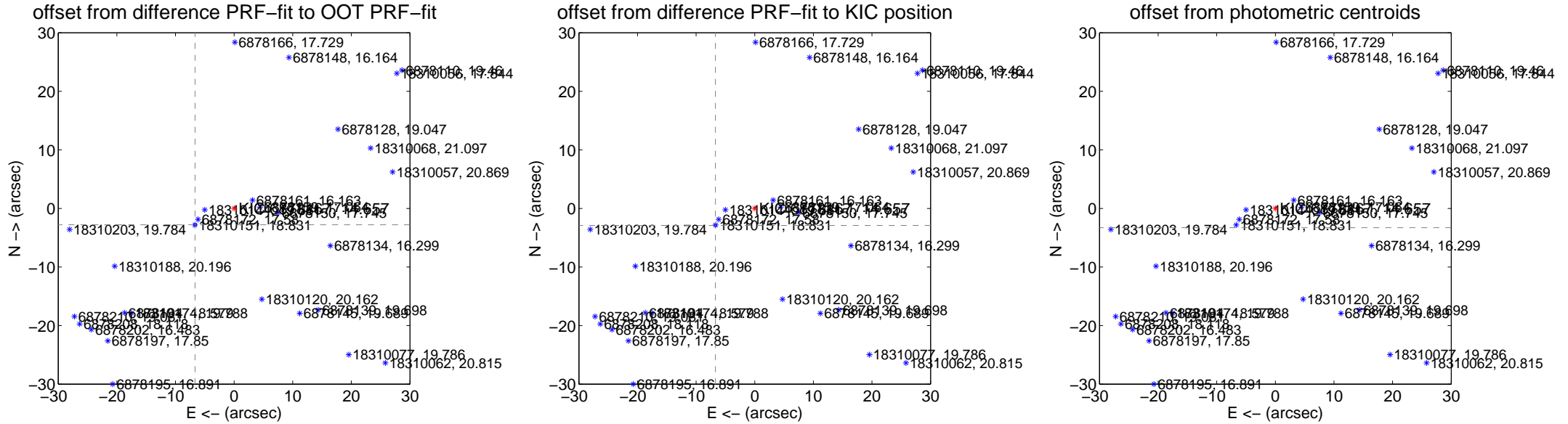
DV Centroid Data

Supplemental centroid analysis for 006878167-02. Kepler magnitude: 14.66. Transit SNR 24.22

There are 17 quarters with good PRF difference image offsets

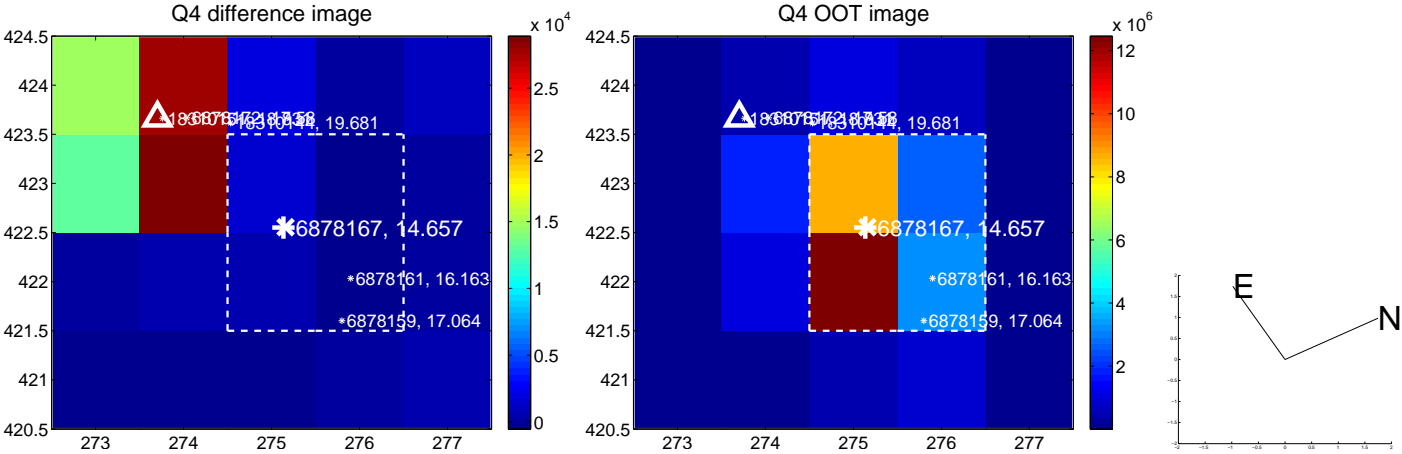
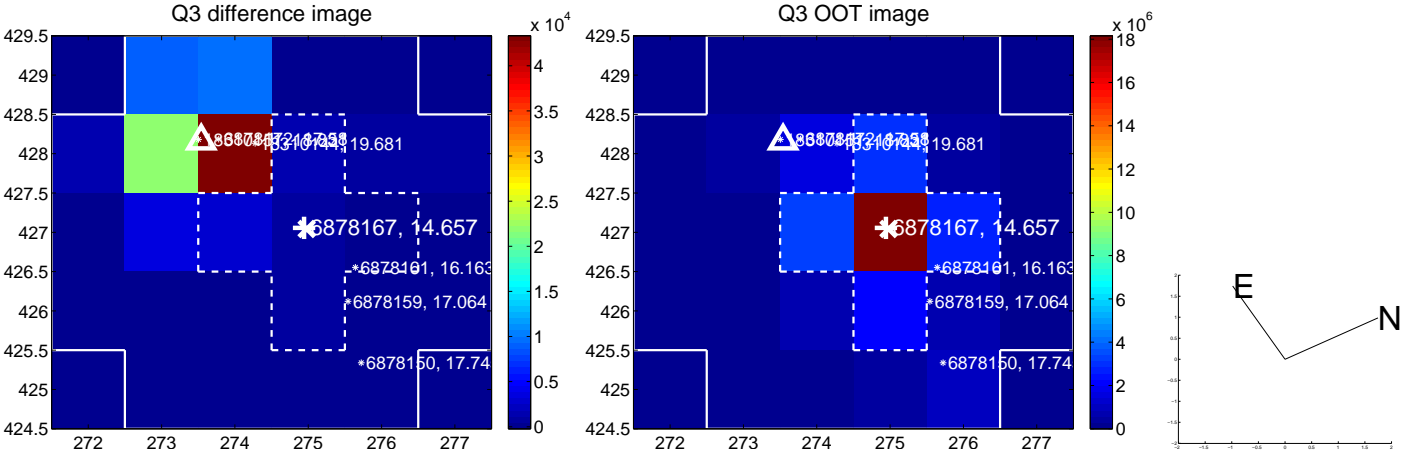
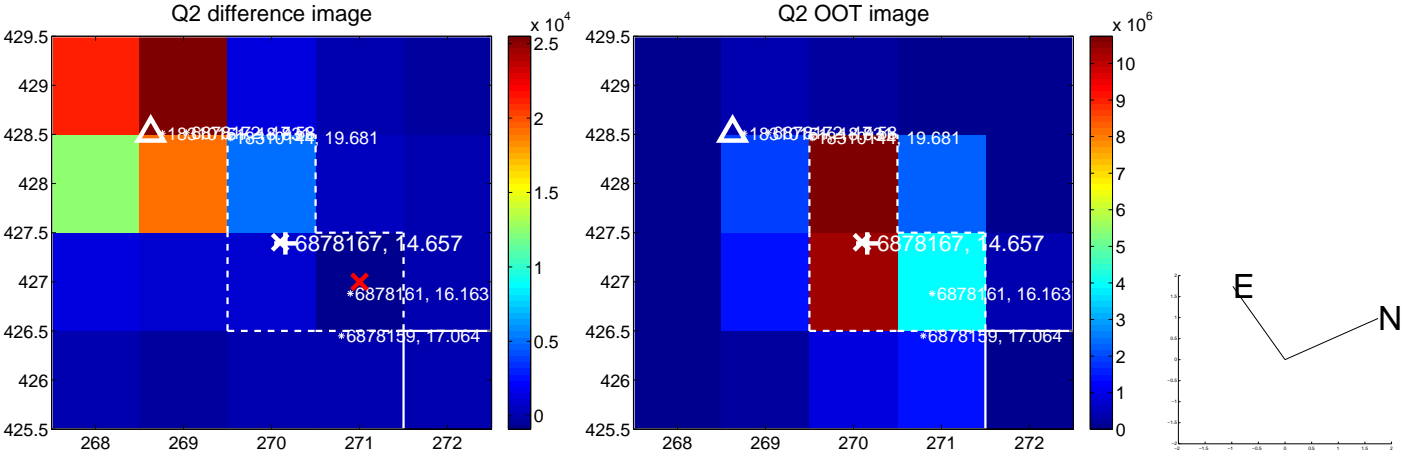
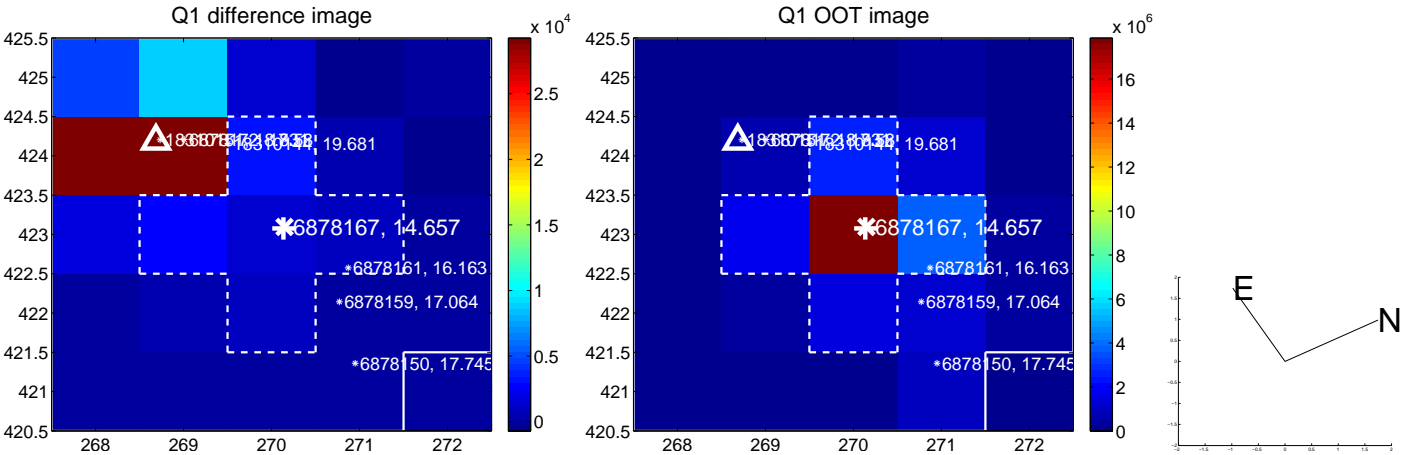
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.224 \pm 0.079	91.87	6.661 \pm 0.072	-2.796 \pm 0.080
PRF-fit source offset from KIC position	7.307 \pm 0.068	107.78	6.702 \pm 0.067	-2.910 \pm 0.069
photometric centroid source offset	73.05 \pm 0.51	144.66	72.98 \pm 0.50	-3.28 \pm 0.53

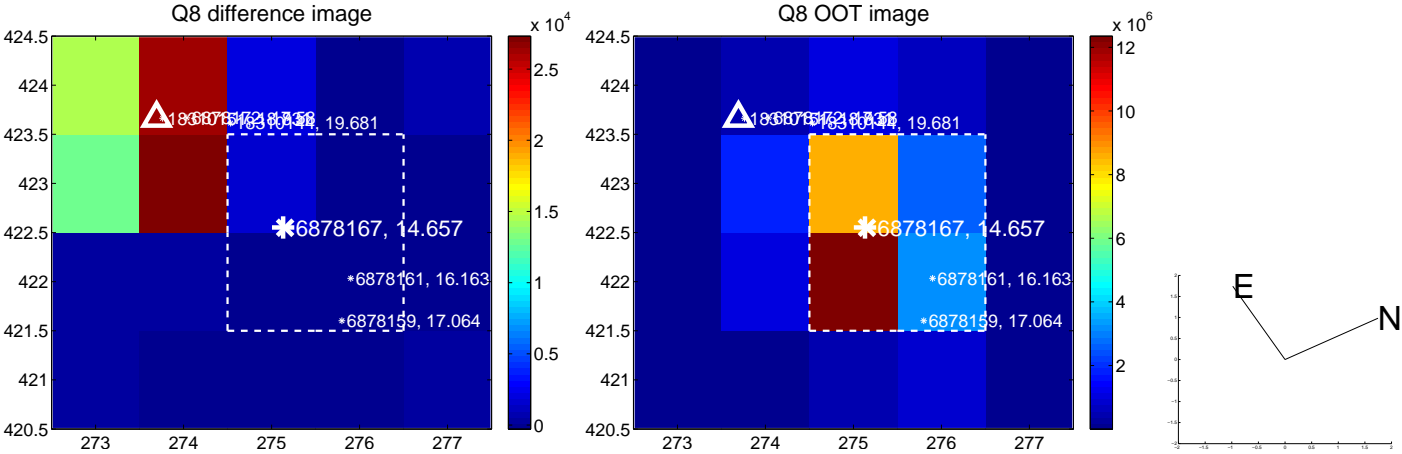
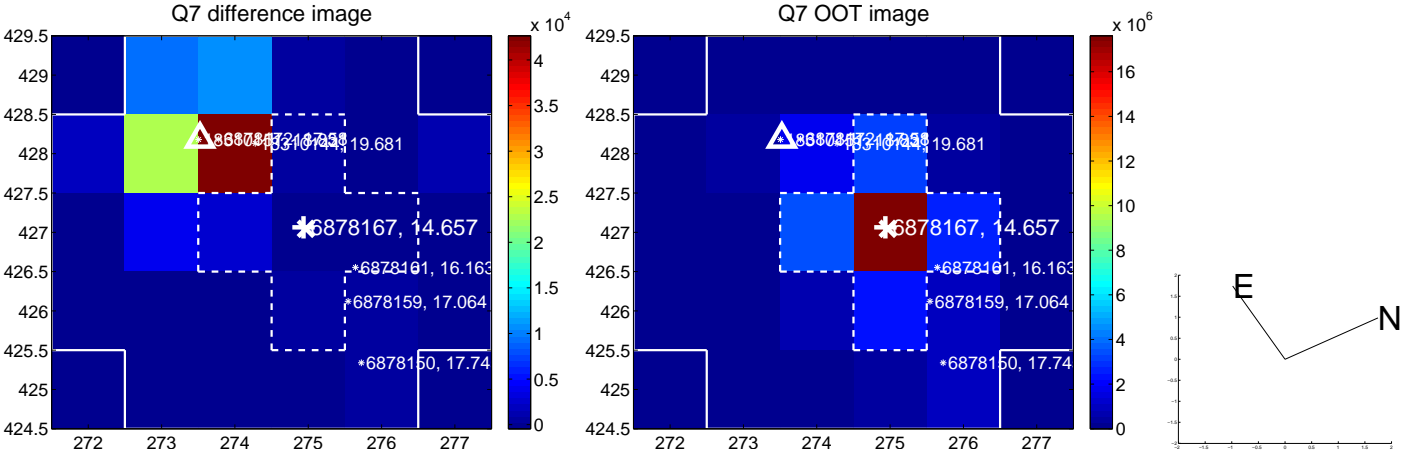
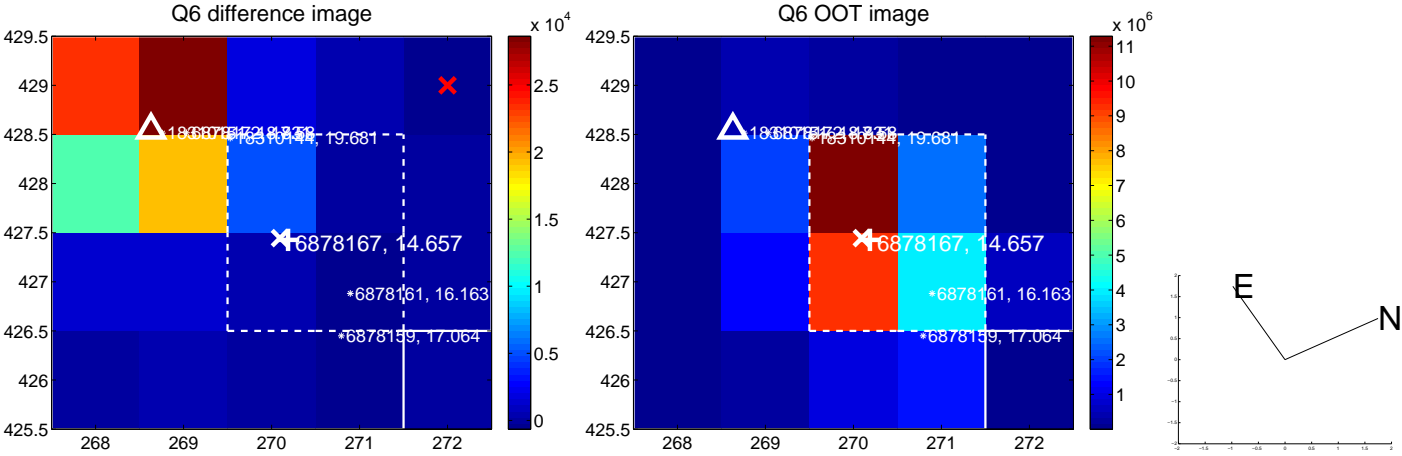
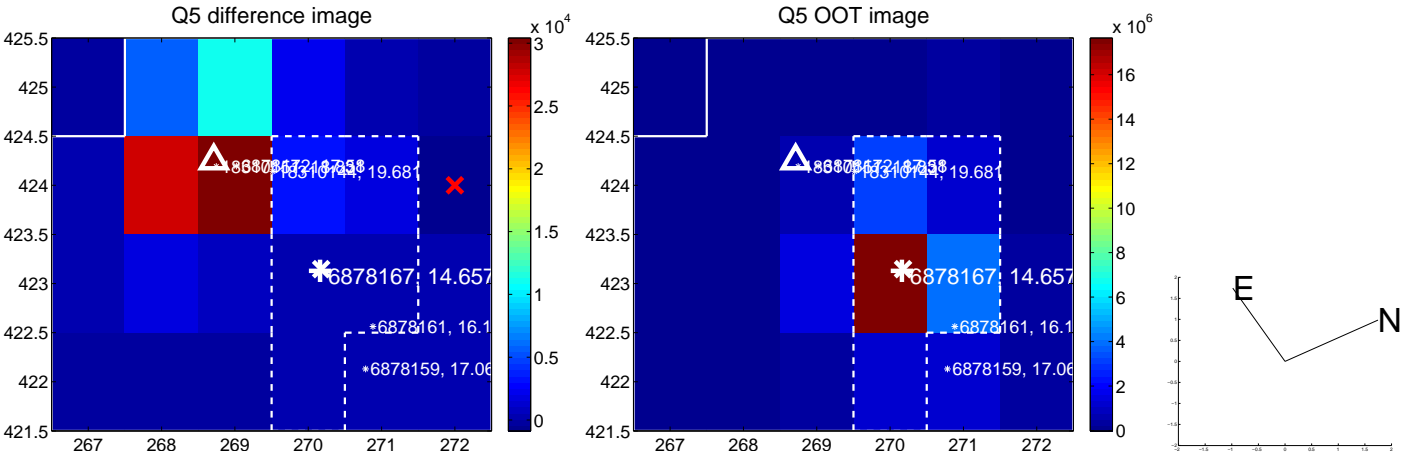


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

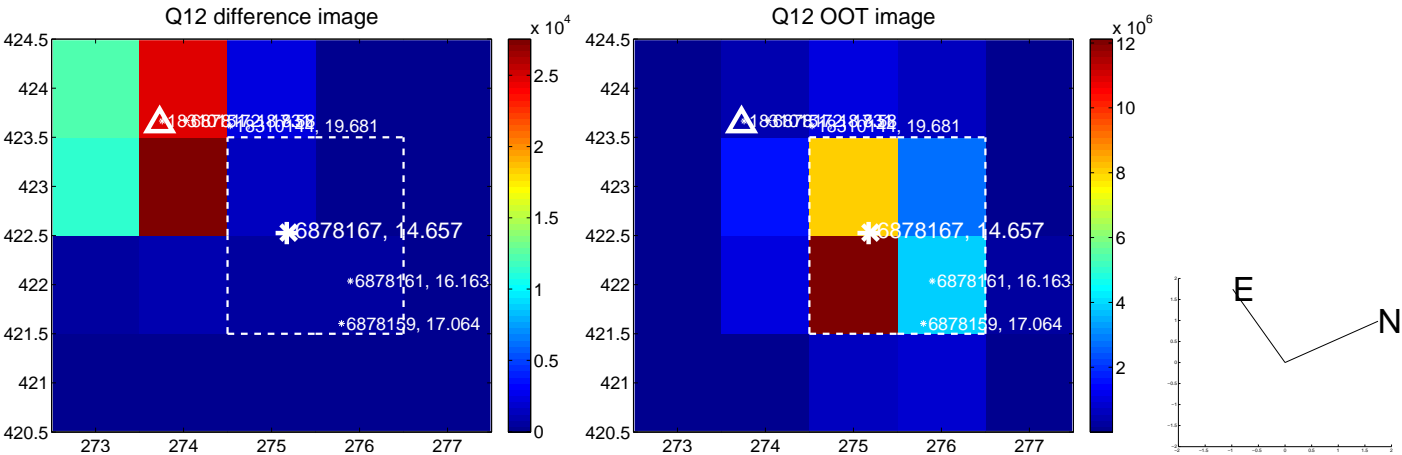
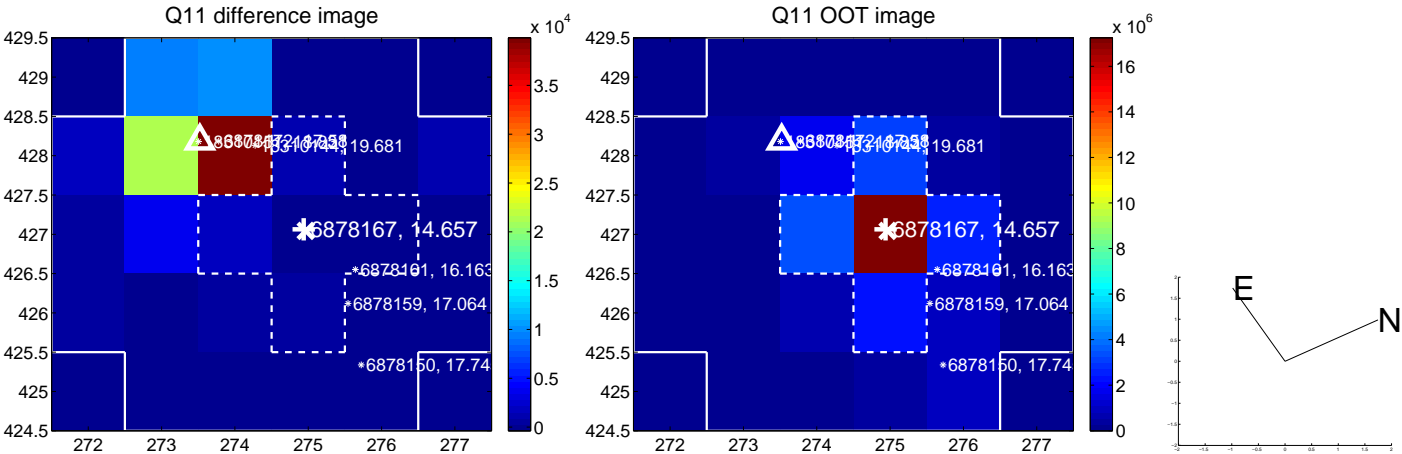
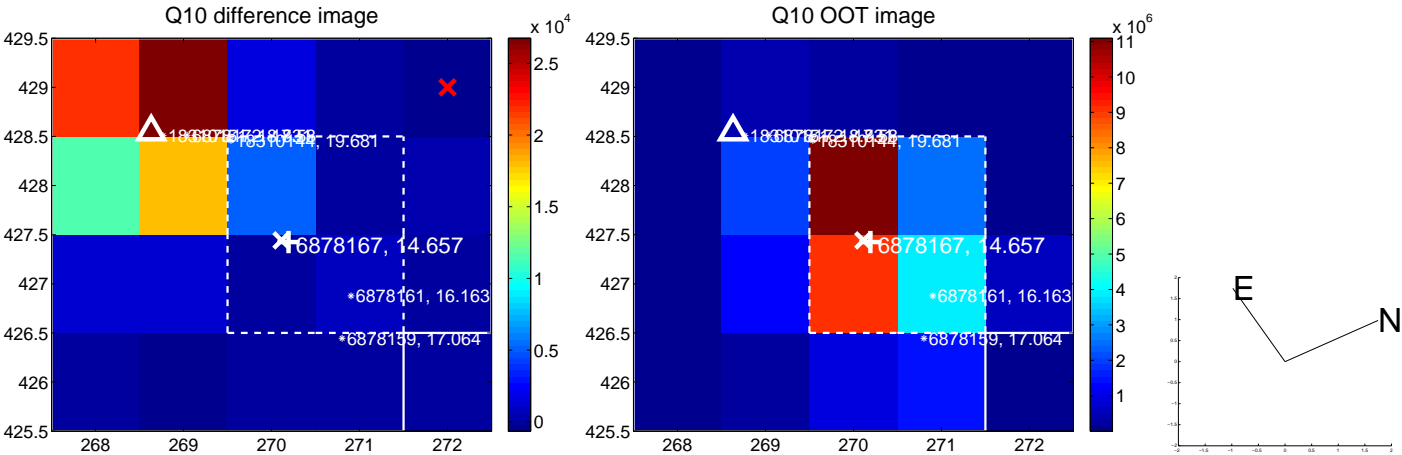
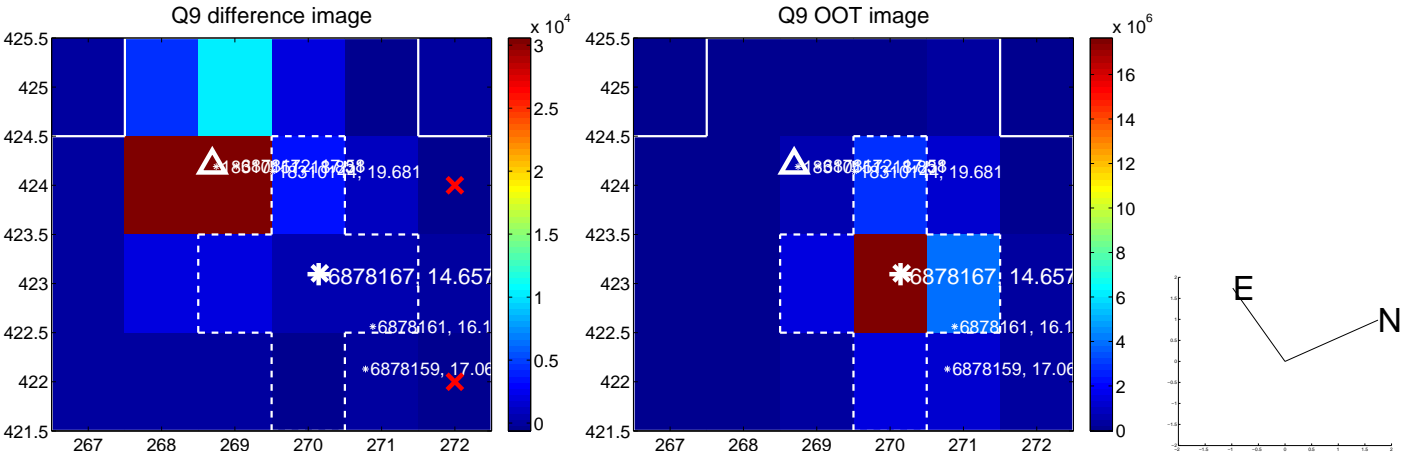
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



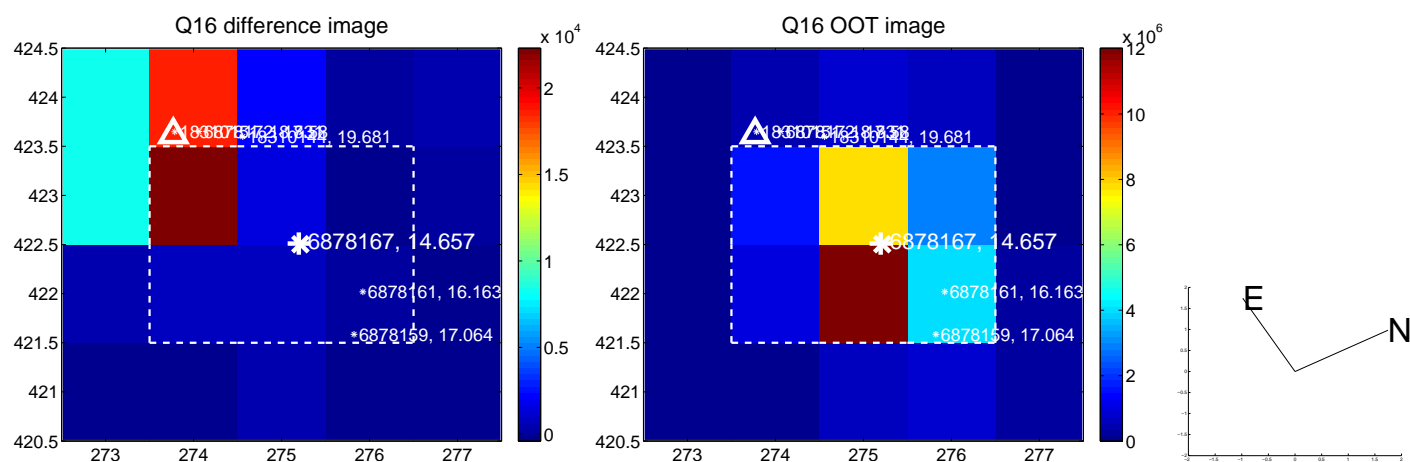
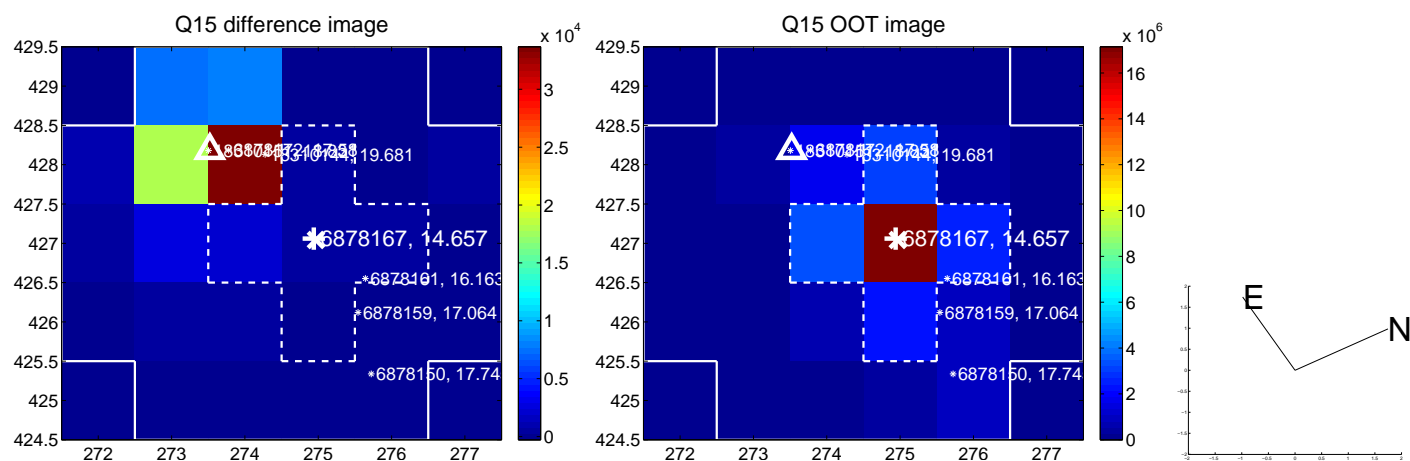
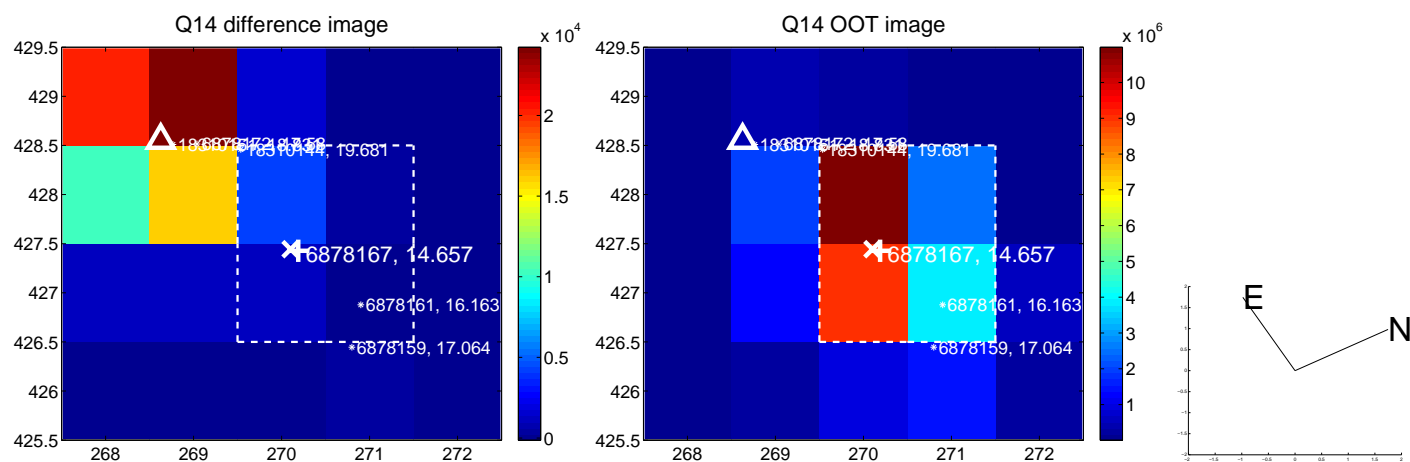
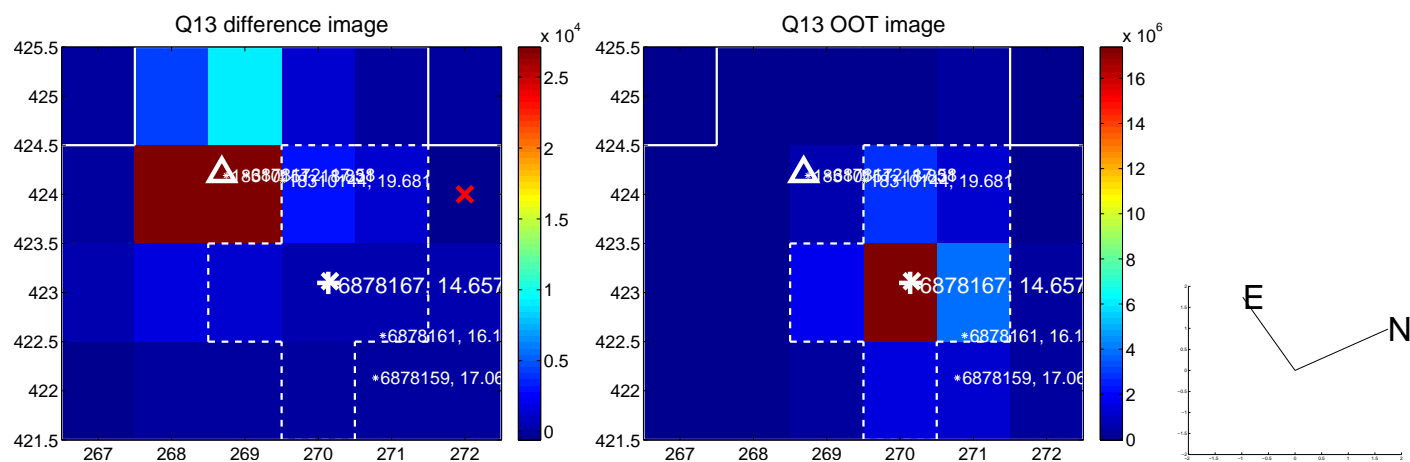
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



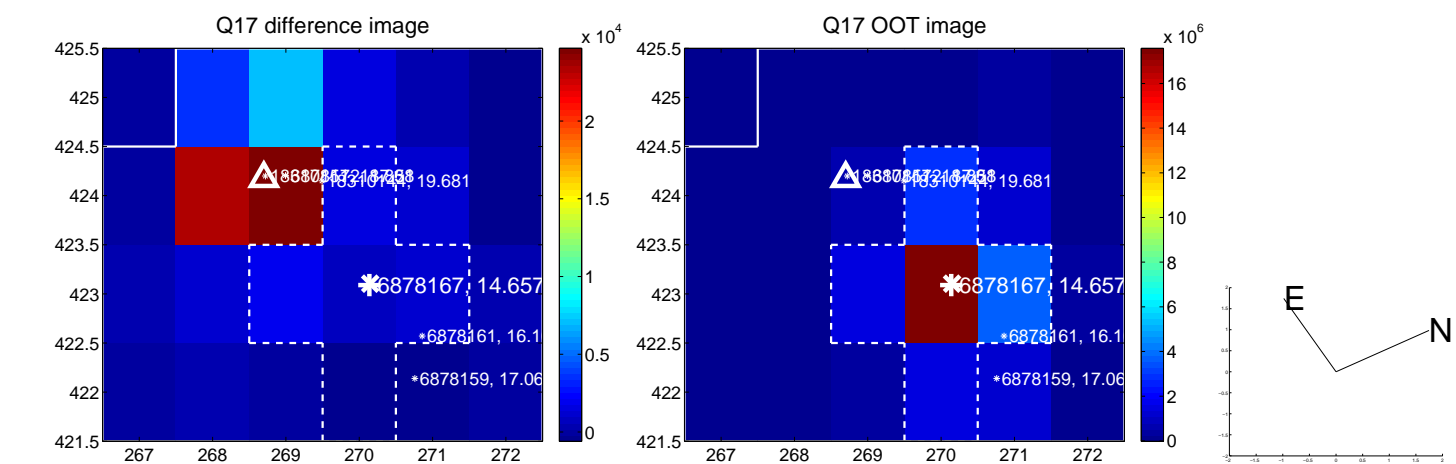
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



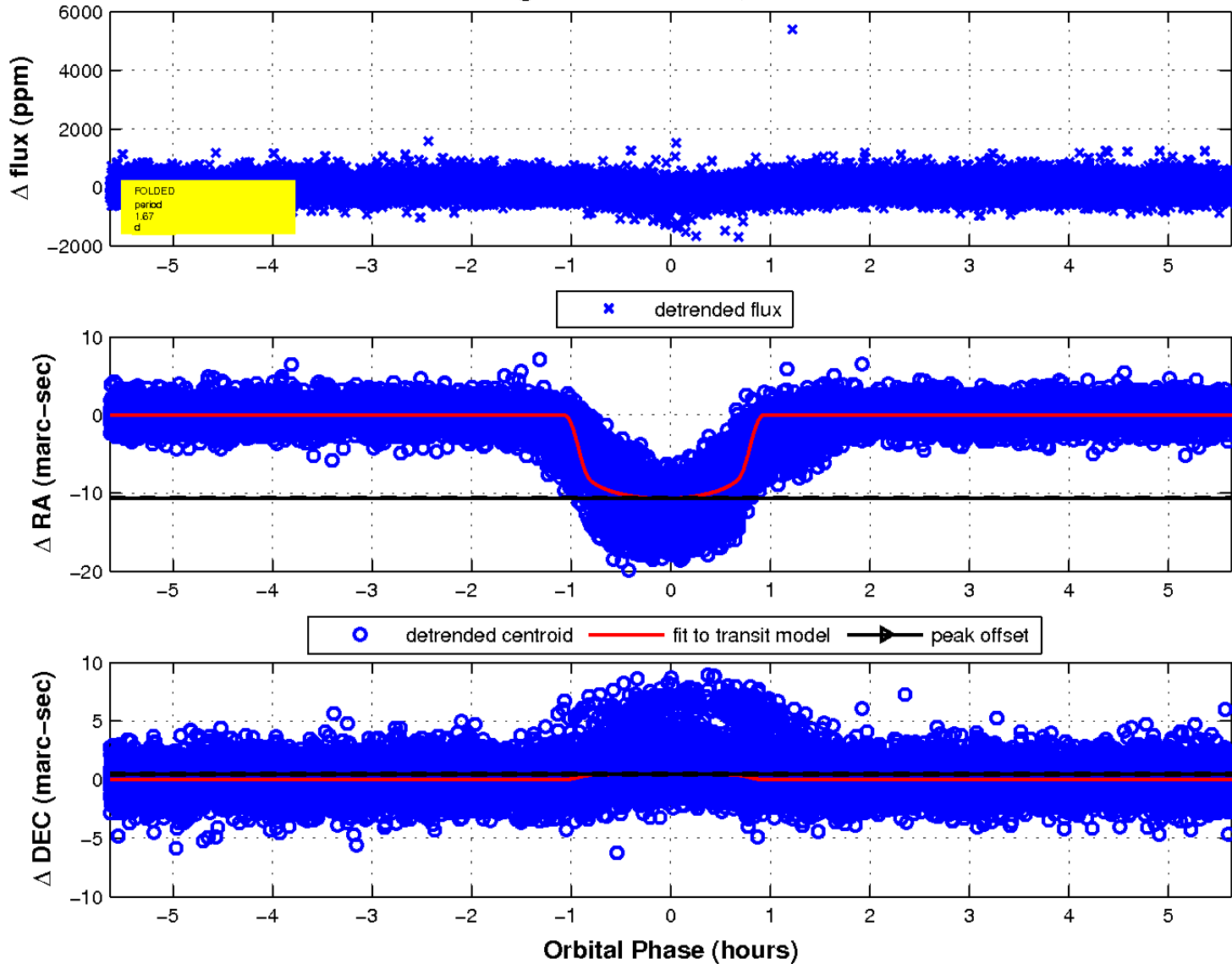
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

