

KIC 010002866

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})
010002866-01	OBS	0723.03	10.088800	132.728828	2021.5	1.744	83.0	79.5	0.84	5431	4.65	68.73
010002866-02	OBS	0723.01	3.936998	134.216461	1252.0	1.937	76.3	85.8	0.84	5431	3.47	241.03
010002866-03	OBS	0723.02	28.081909	138.751693	1788.3	4.601	58.2	57.7	0.84	5431	3.74	17.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010002866-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010002866-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010002866-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

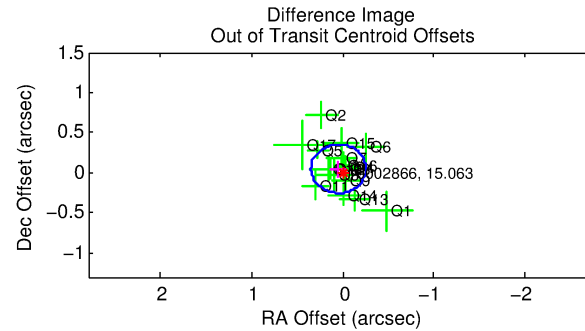
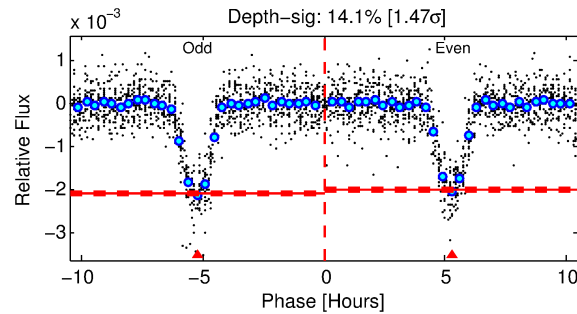
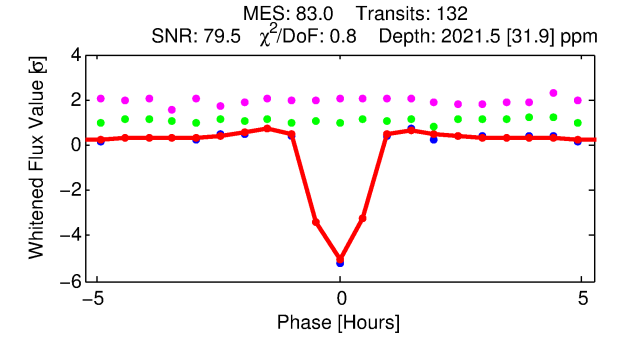
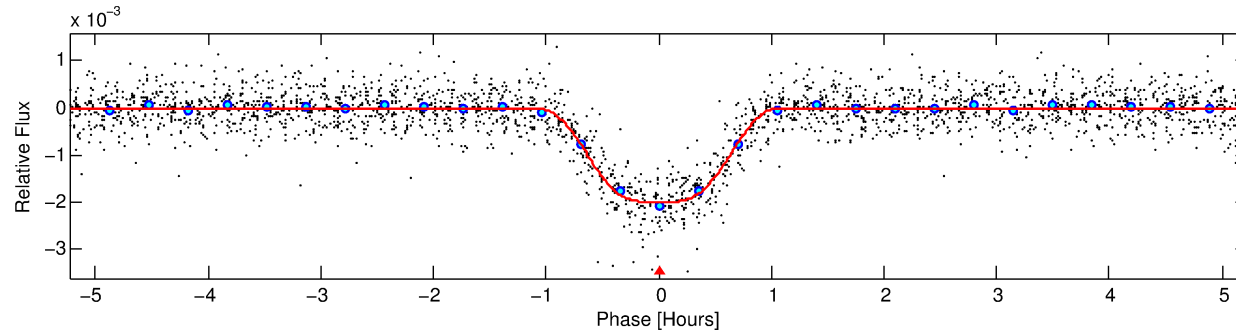
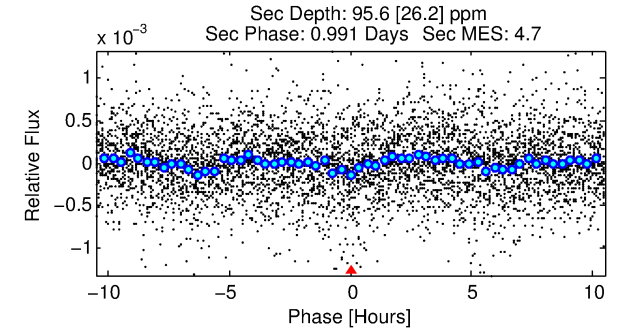
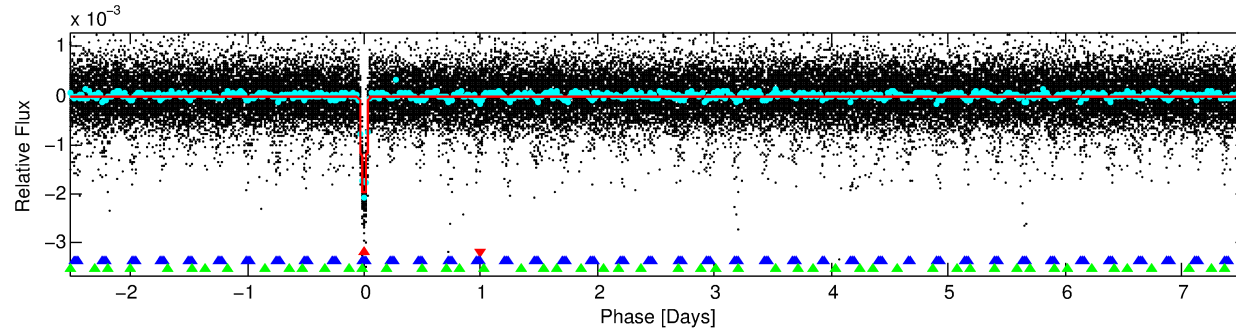
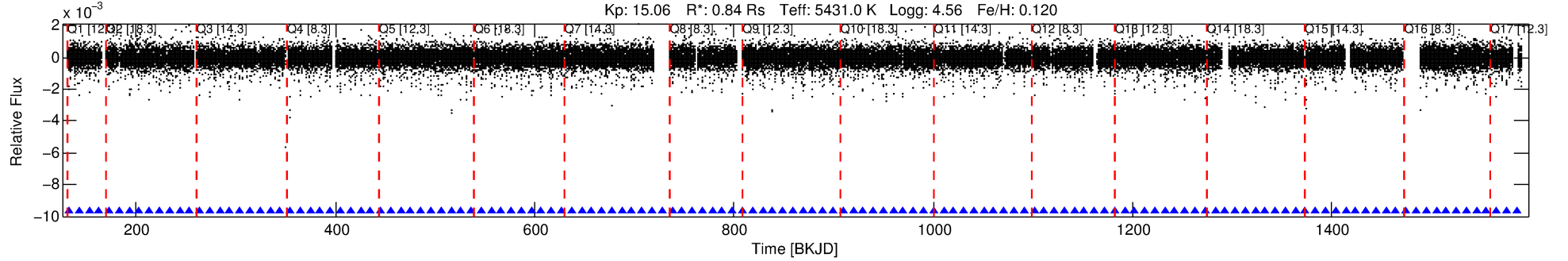
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010002866-01

No Significant Match Found

DV One-Page Summary

KIC: 10002866 Candidate: 1 of 3 Period: 10.089 d
KOI: K00723.03 Name: Kepler-222c Corr: 0.998



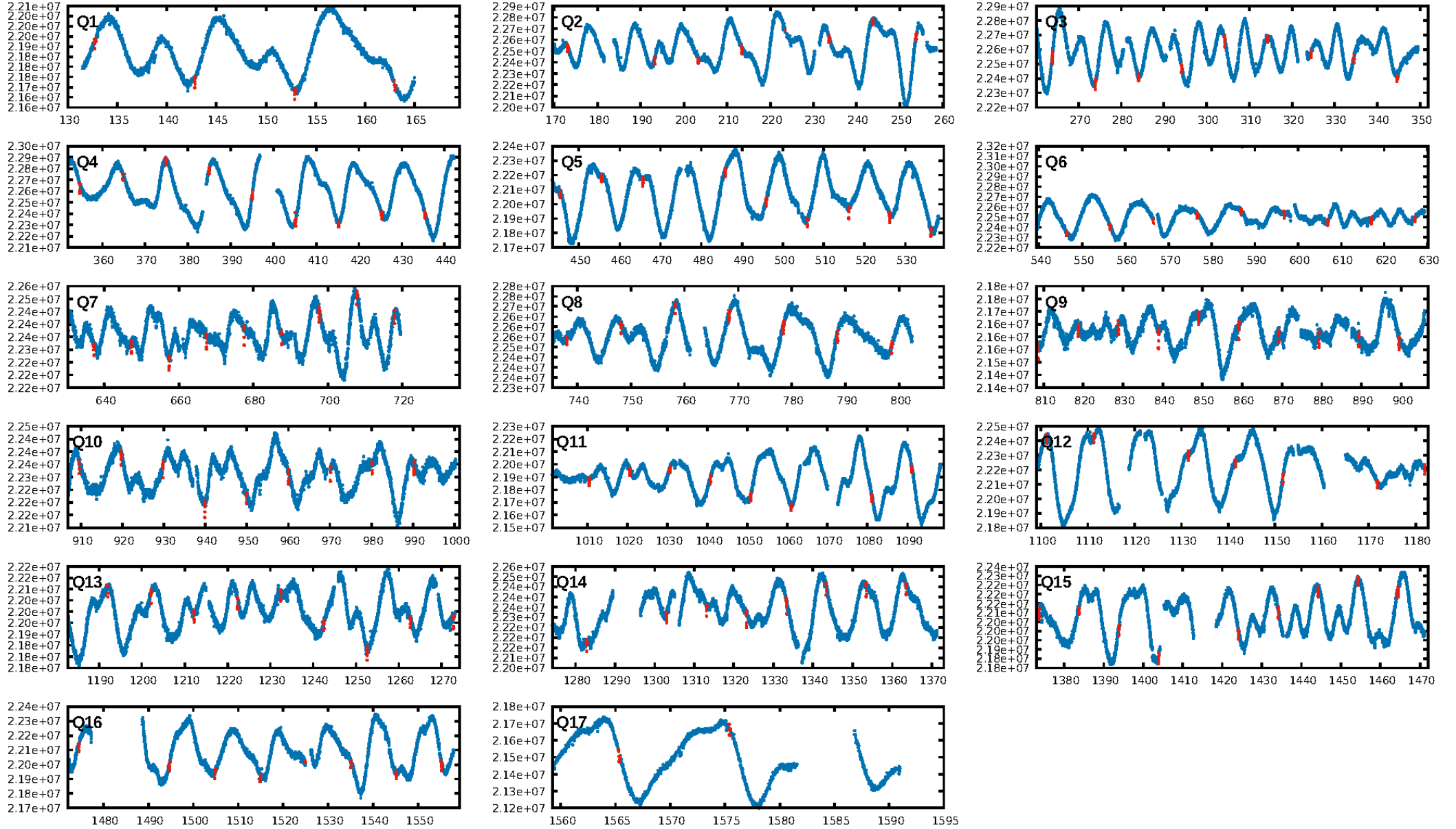
DV Fit Results:

Period = 10.08880 [0.00001] d
Epoch = 132.7288 [0.0005] BKJD
Rp/R* = 0.0505 [0.0014]
a/R* = 23.21 [2.08]
b = 0.91 [0.02]
Seff = 68.74 [20.70]
Teff = 734 [55] K
Rp = 4.65 [1.03] Re
a = 0.0898 [0.0169] AU
Ag = 19.62 [7.70] [2.42σ]
Teffp = 2389 [182] K [8.71σ]

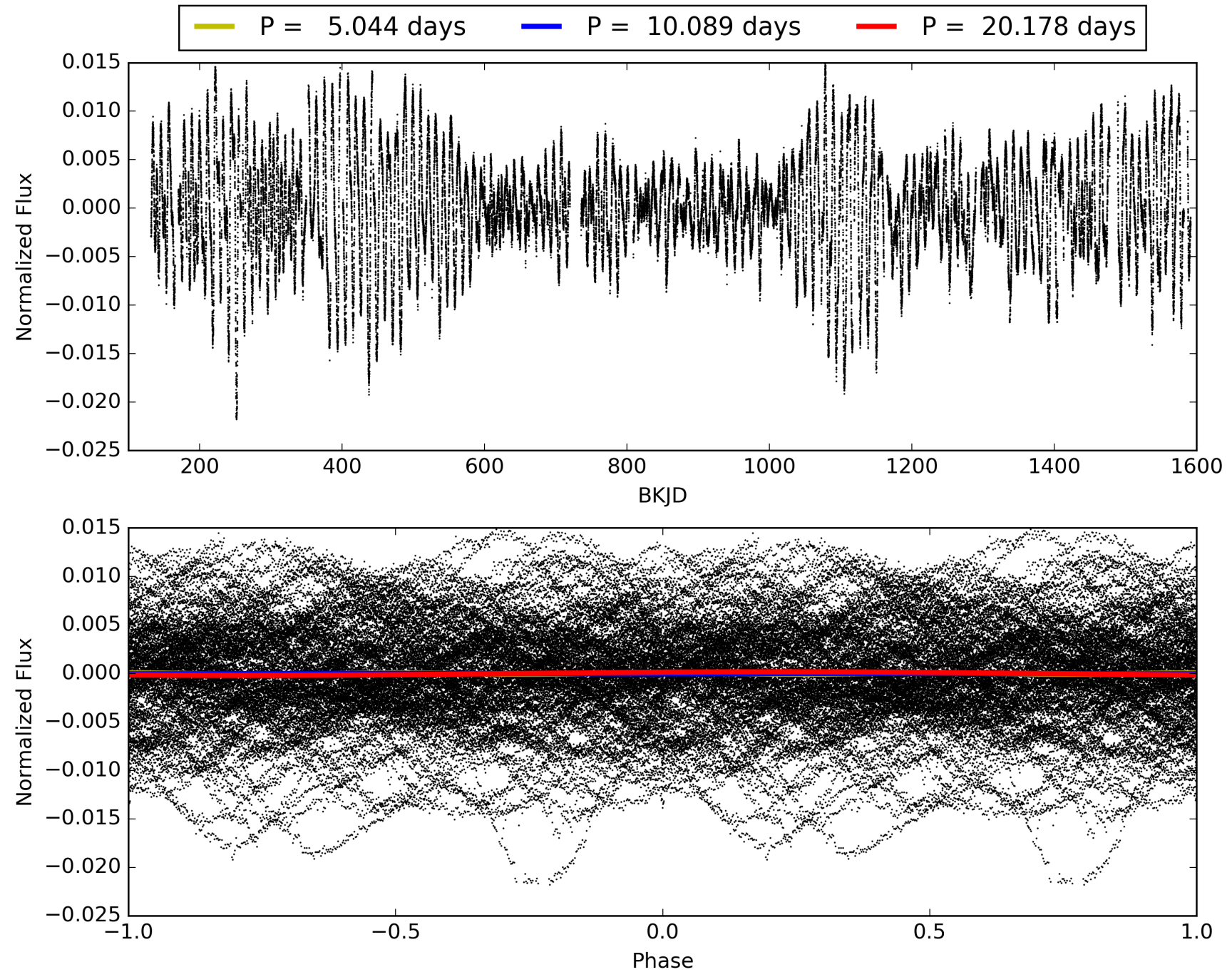
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.65σ]
LongPeriod-sig: 100.0% [87.77σ]
ModelChiSquare2-sig: 70.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [126/126]
GhostDiagnostic-chr: 3.606
Centroid-sig: 4.0%
Centroid-so: 0.097 arcsec [0.72σ]
OotOffset-rm: 0.068 arcsec [0.67σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.087 arcsec [0.95σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 010002866-01, PDC Light Curves

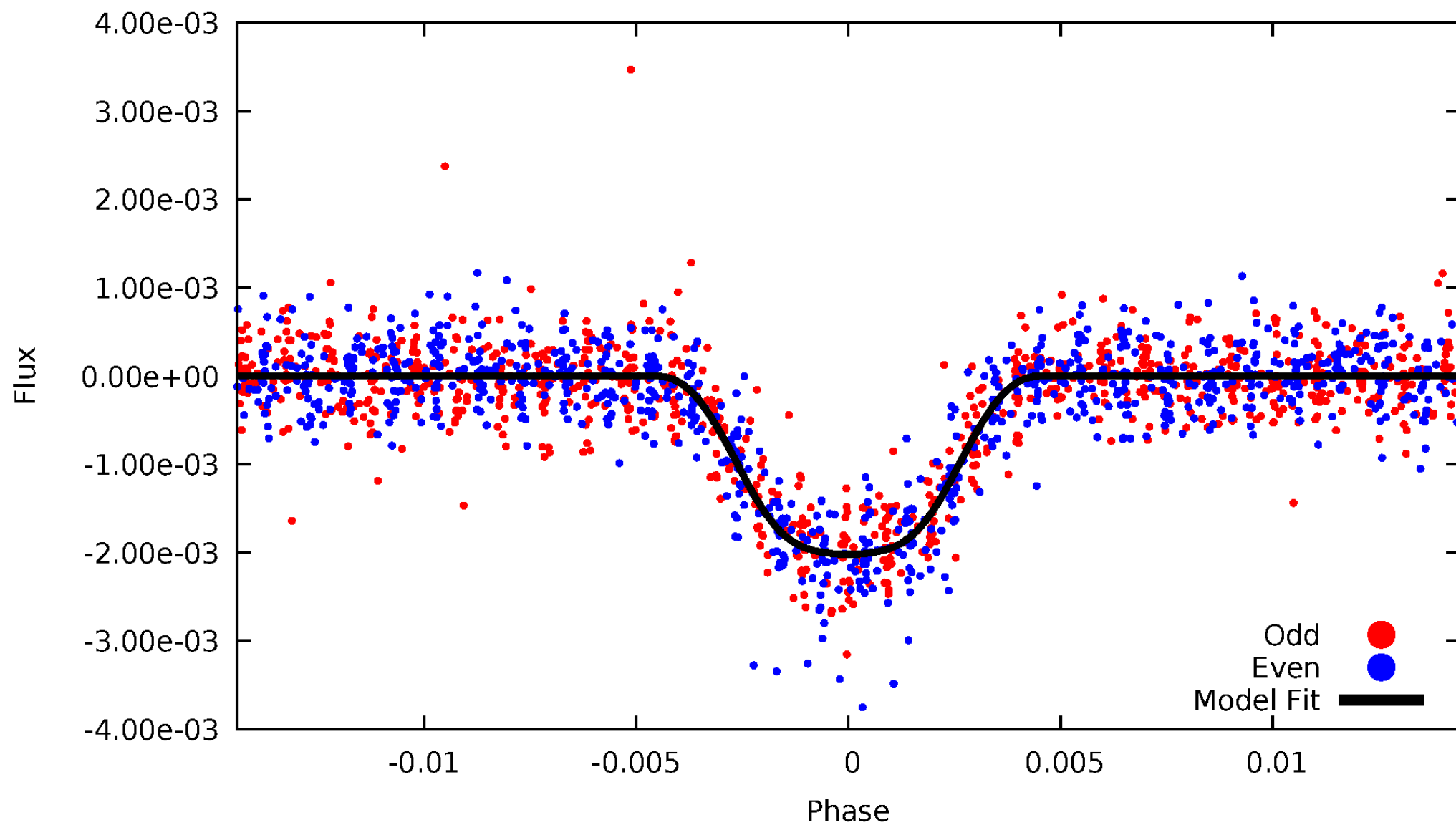


TCE 010002866-01



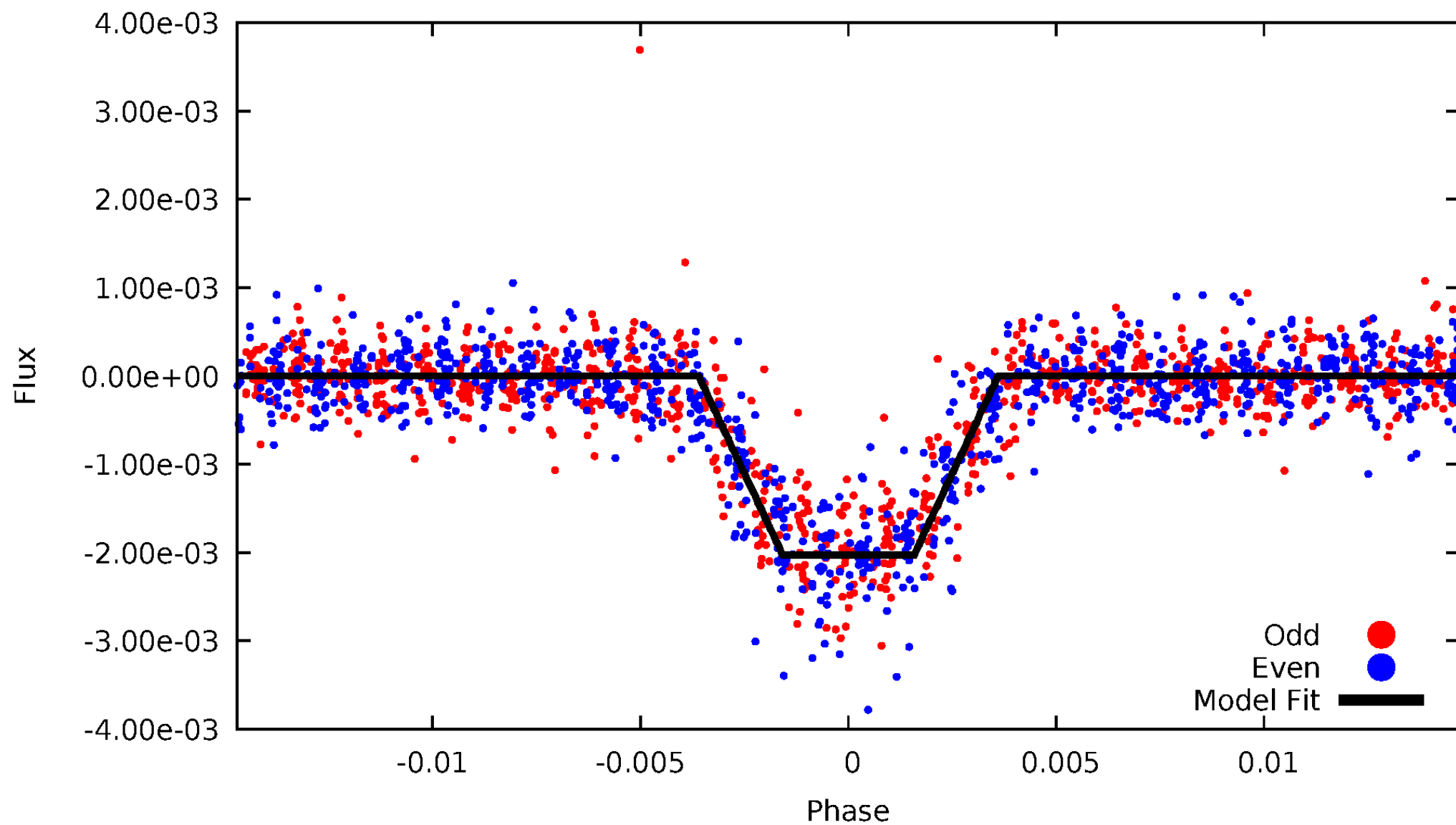
DV Odd/Even

TCE 010002866-01



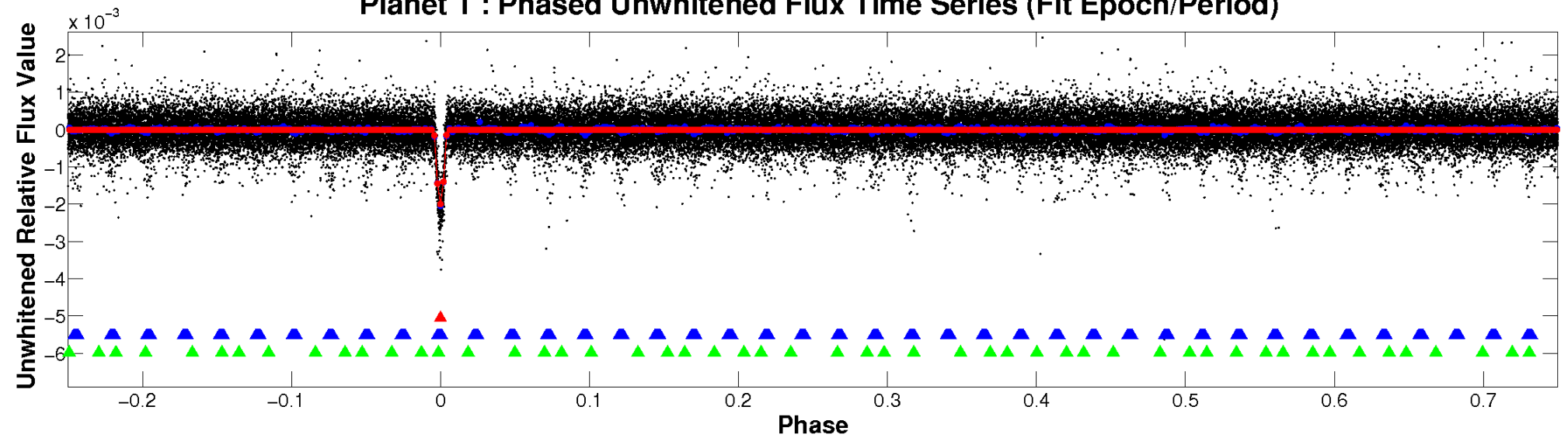
ALT Odd/Even

TCE 010002866-01

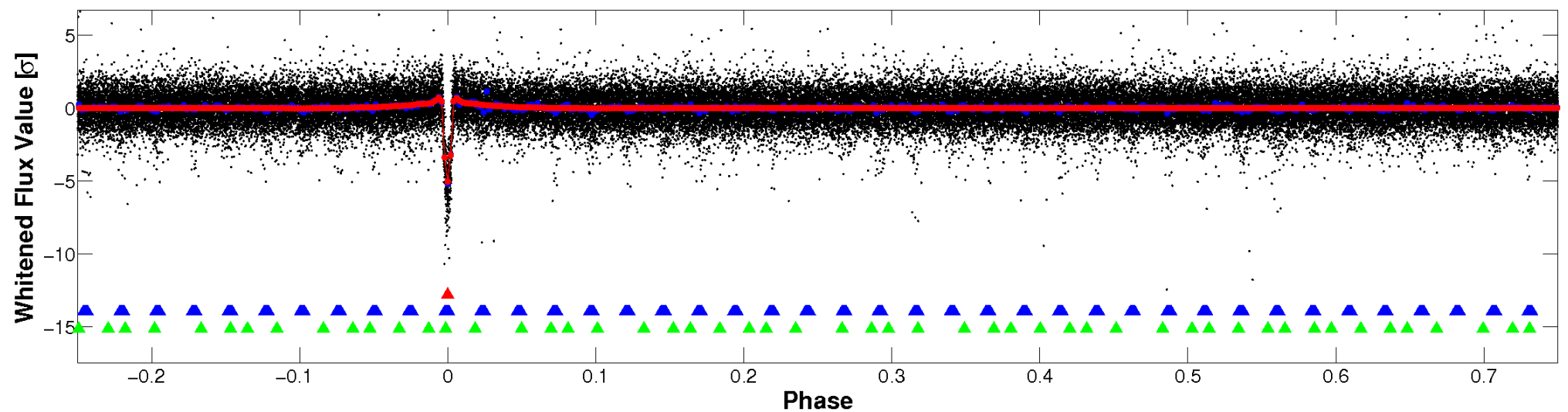


Non-Whitened Vs. Whitened Light Curve

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

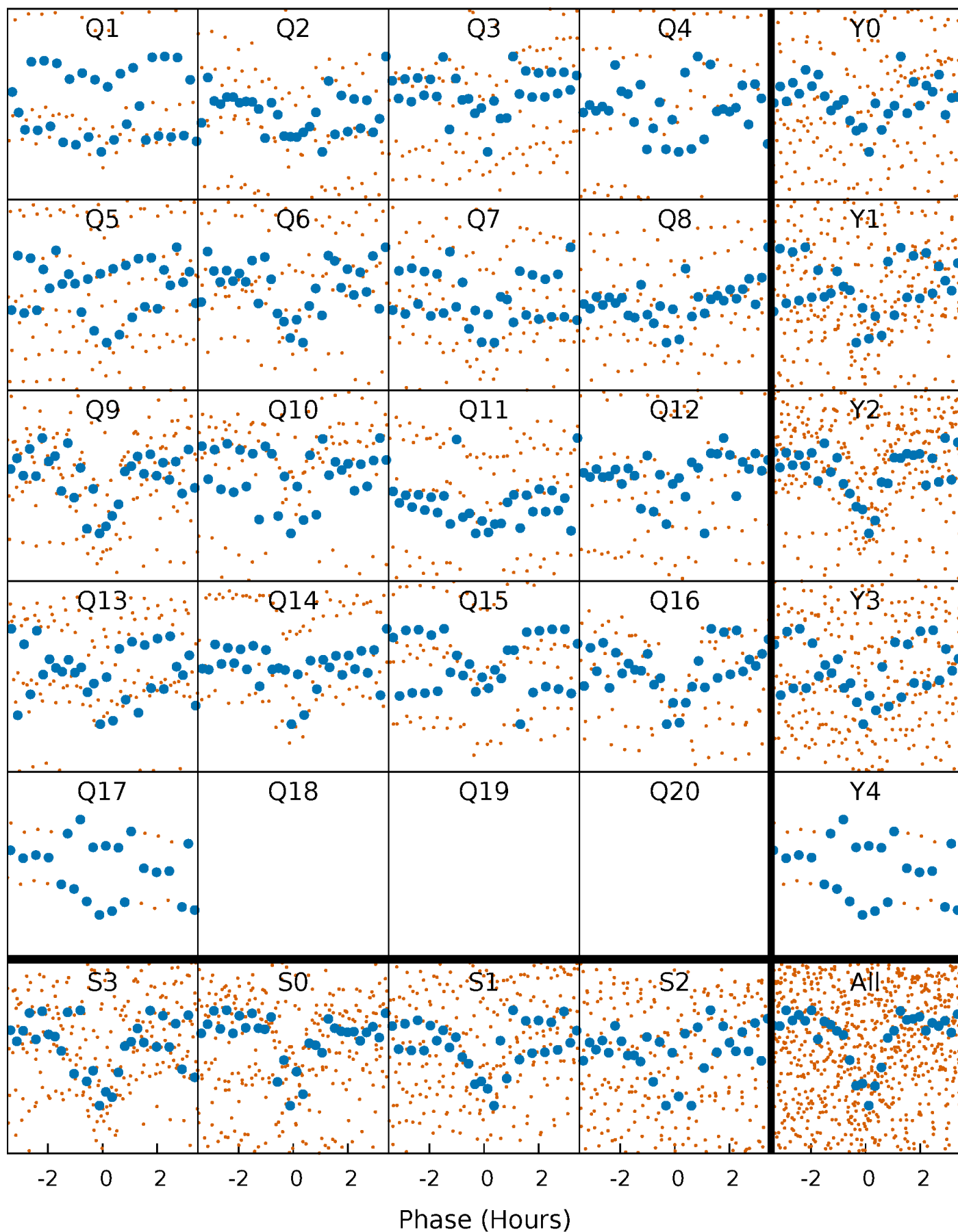


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



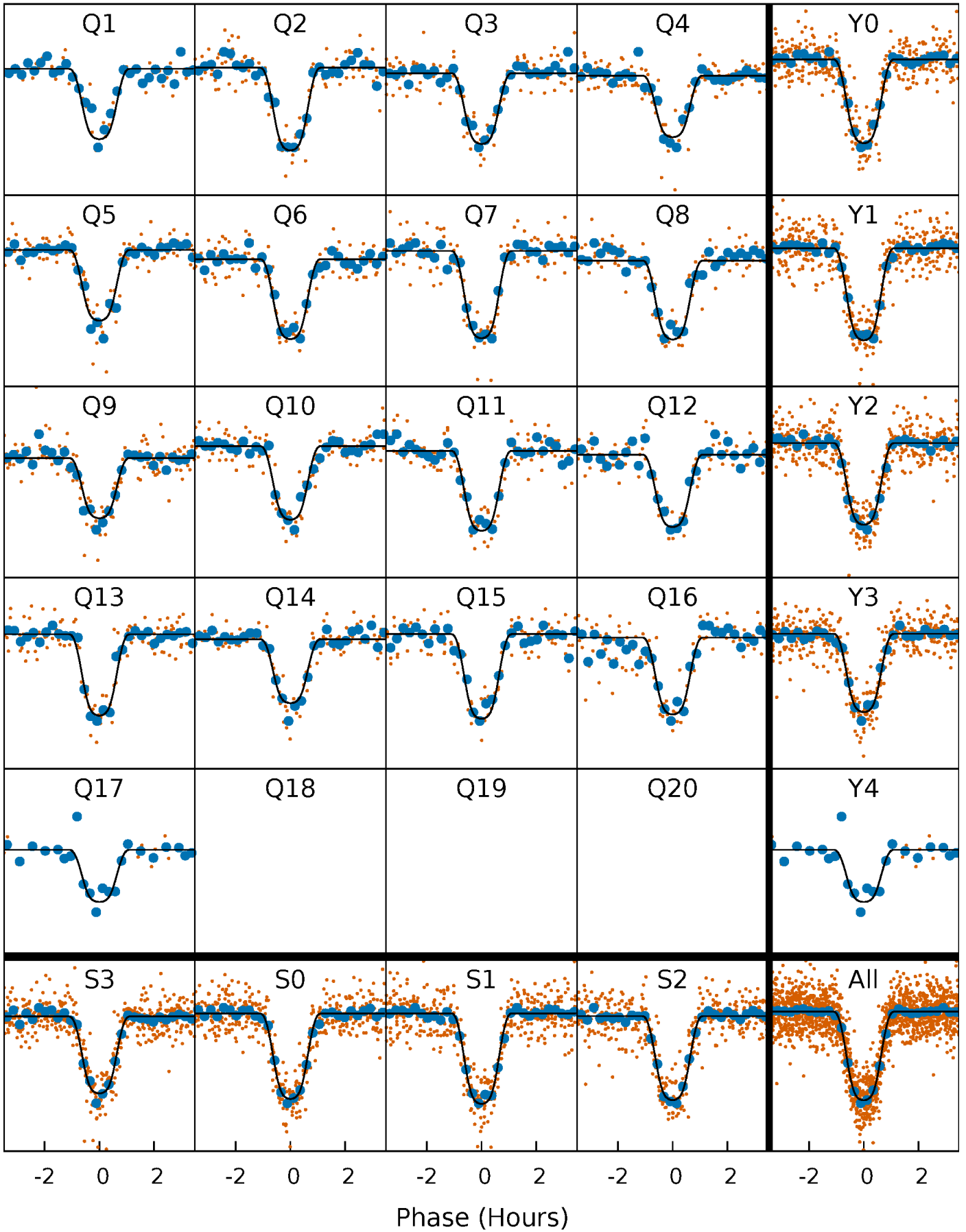
PDC Quarter-Phased Transit Curves

TCE 010002866-01 P= 10.088800 Days $T_0=132.728827$ (BKJD)



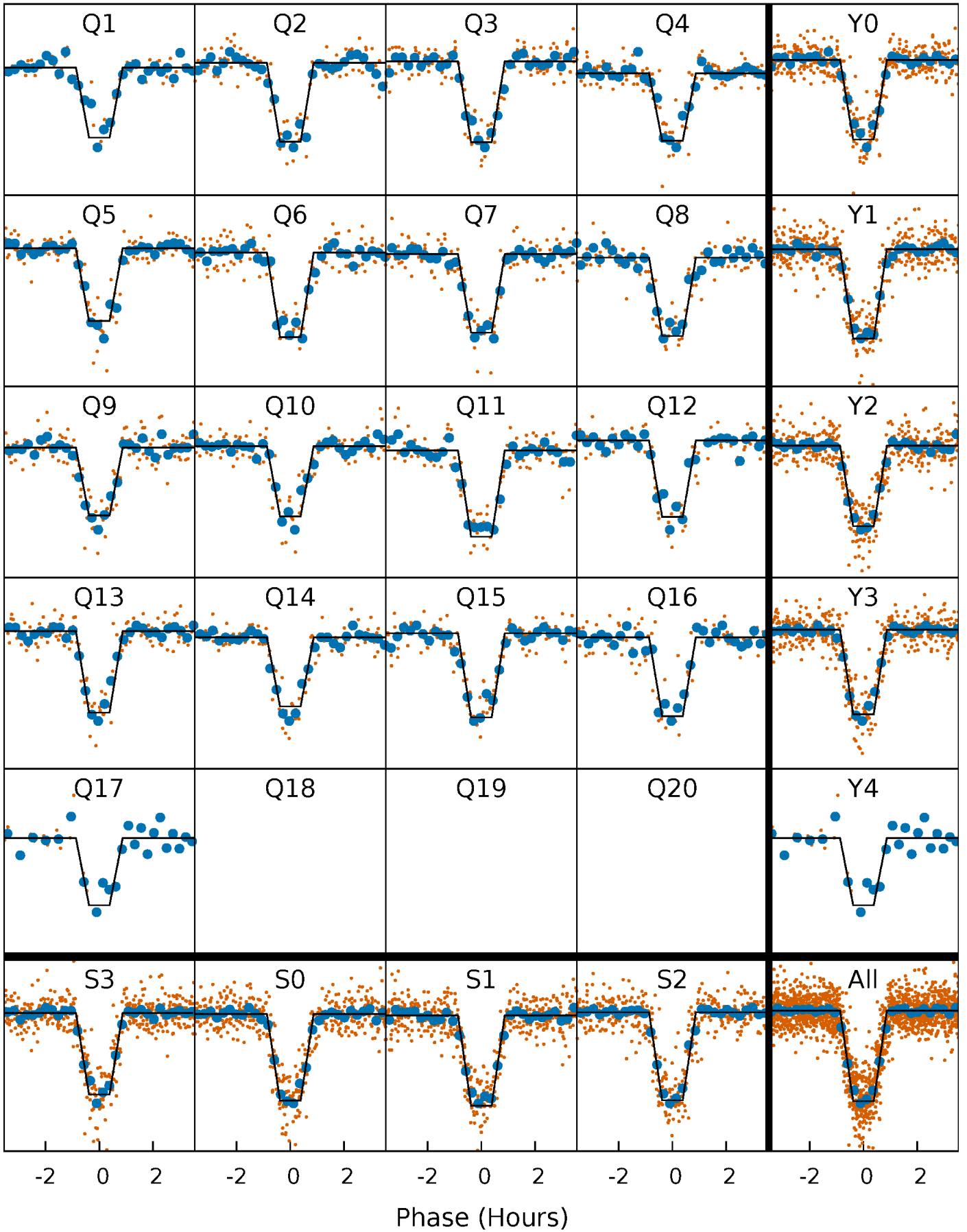
DV Quarter-Phased Transit Curves

TCE 010002866-01 P= 10.088800 Days $T_0=132.728827$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

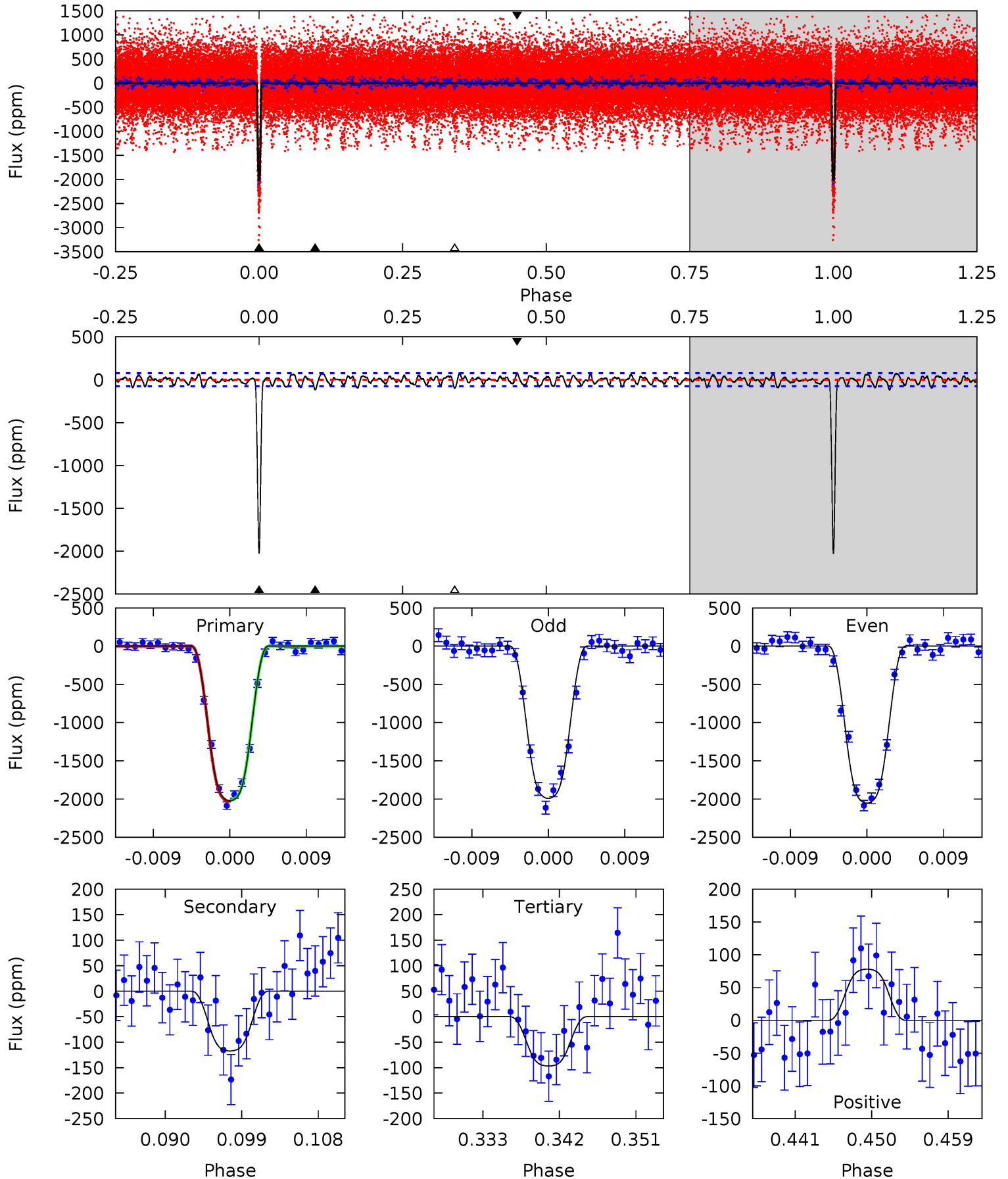
TCE 010002866-01 P= 10.088829 Days $T_0=132.726793$ (BKJD)



DV Model-Shift Uniqueness Test

010002866-01, P = 10.088800 Days, E = 122.640027 Days

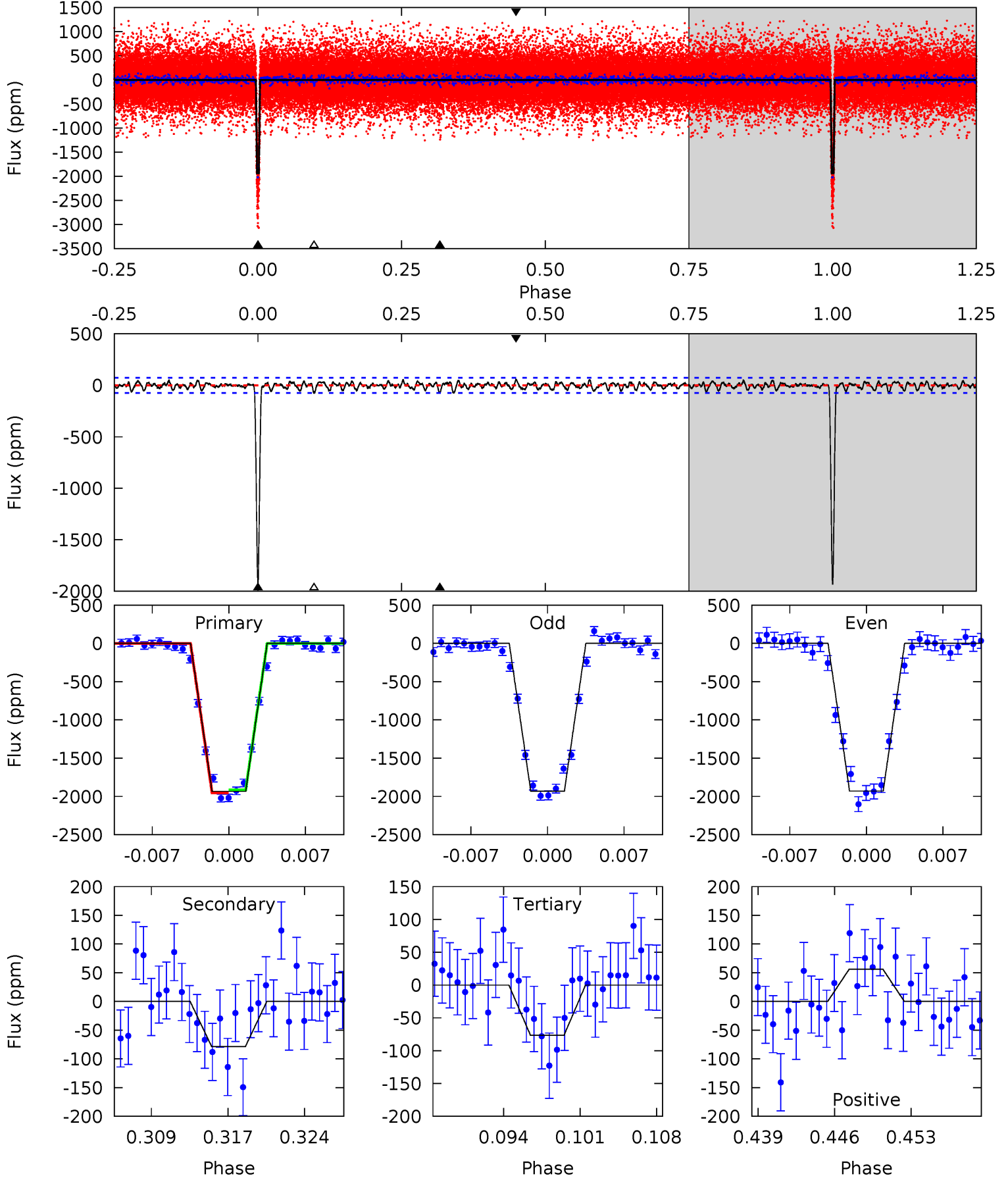
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
131.9	7.65	6.32	5.09	5.05	2.61	2.26	125.6	126.8	1.33	2.56	2.03	1.00	0.04	0.53



Alt Model-Shift Uniqueness Test

010002866-01, $P = 10.088829$ Days, $E = 122.637964$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
133.1	5.42	5.26	3.87	5.09	2.69	1.55	127.8	129.2	0.16	1.55	0.06	1.01	0.03	1.24



Stellar Parameters For KIC 010002866

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5431^{+164}_{-164}	$4.563^{+0.029}_{-0.152}$	$0.120^{+0.250}_{-0.250}$	$0.843^{+0.186}_{-0.062}$	$0.945^{+0.065}_{-0.098}$	$2.223^{+0.346}_{-0.935}$
	+3%/-3%	+1%/-3%	+208%/-208%	+22%/-7%	+7%/-10%	+16%/-42%
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 010002866-01 / KOI 0723.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-117 ± 15	$4.74^{+0.52}_{-0.29}$	1048^{+56}_{-46}	3116^{+89}_{-96}	22^{+4}_{-5}
Alt.	-79 ± 15	$4.24^{+0.47}_{-0.29}$	1047^{+55}_{-43}	3040^{+98}_{-104}	19^{+4}_{-4}

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

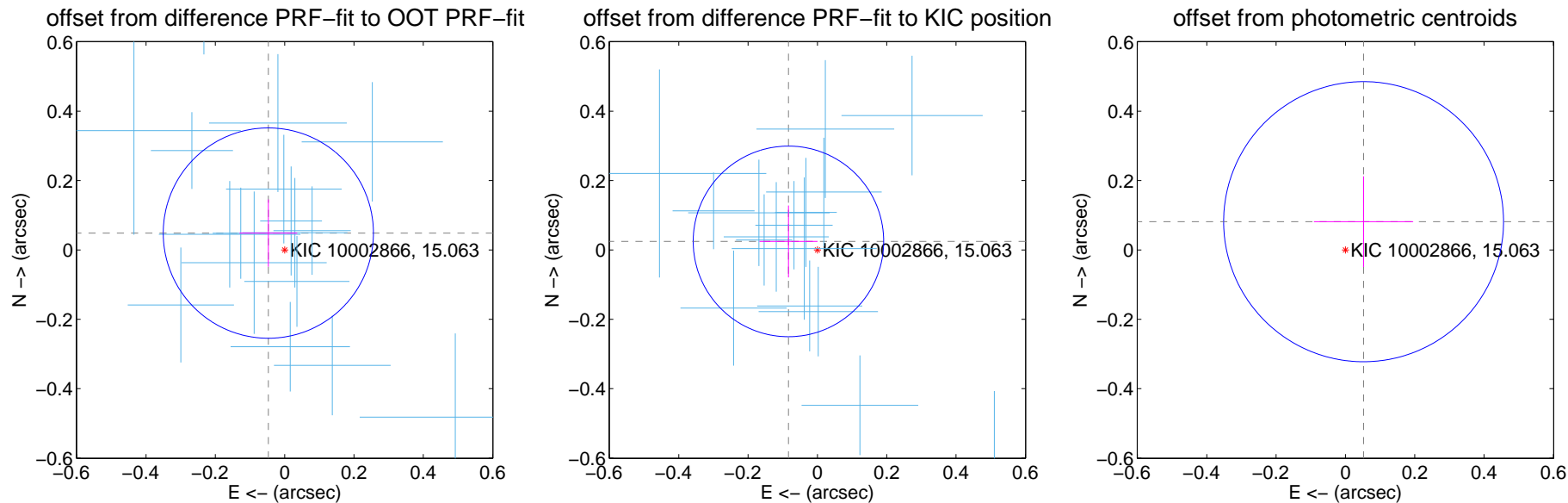
DV Centroid Data

Supplemental centroid analysis for 010002866-01. Kepler magnitude: 15.06. Transit SNR 79.48

There are 17 quarters with good PRF difference image offsets

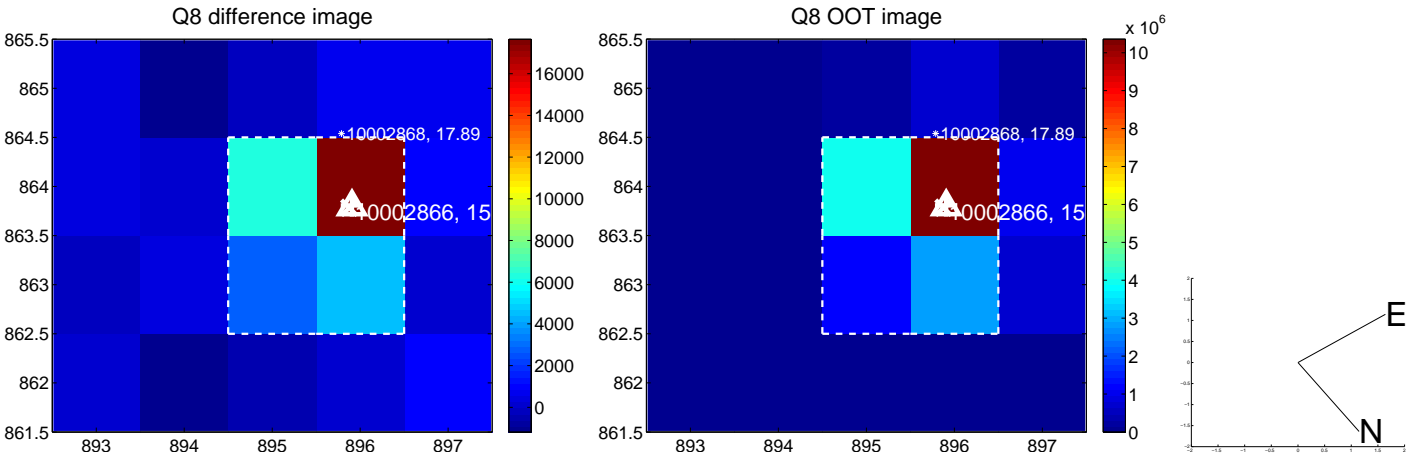
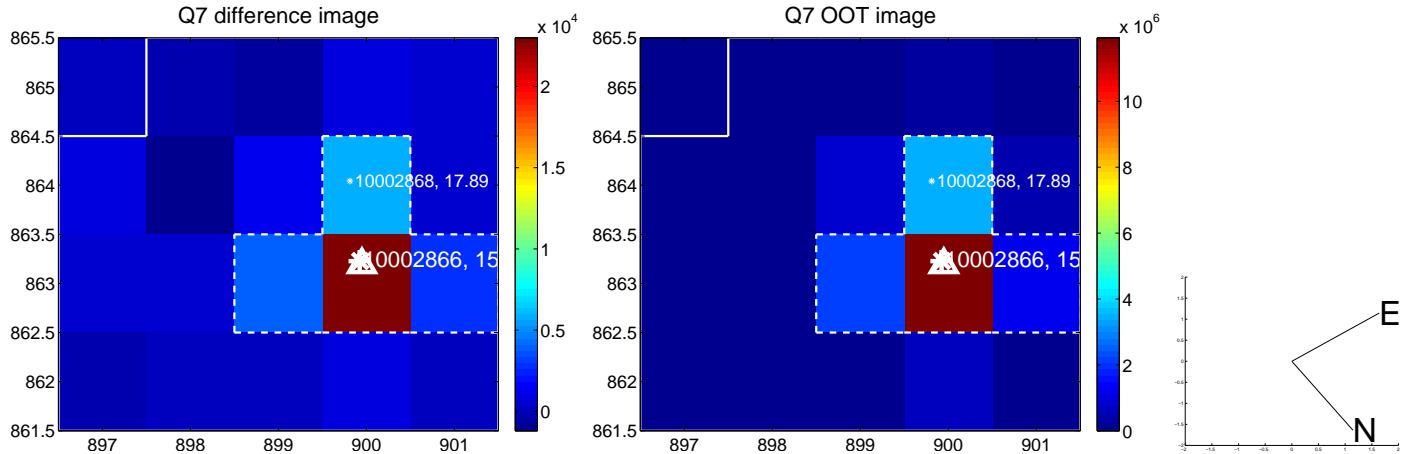
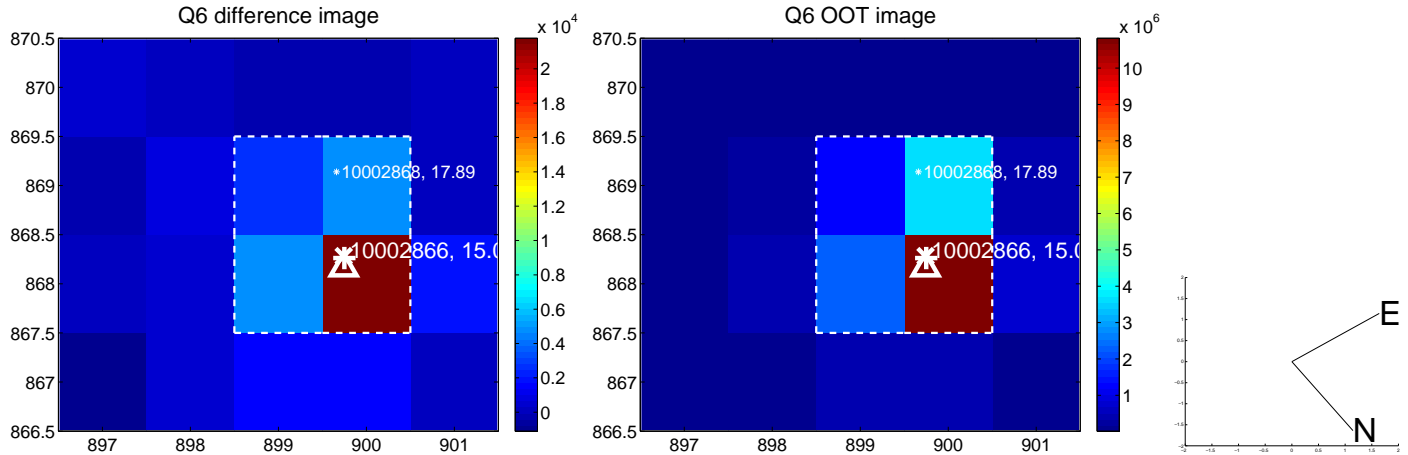
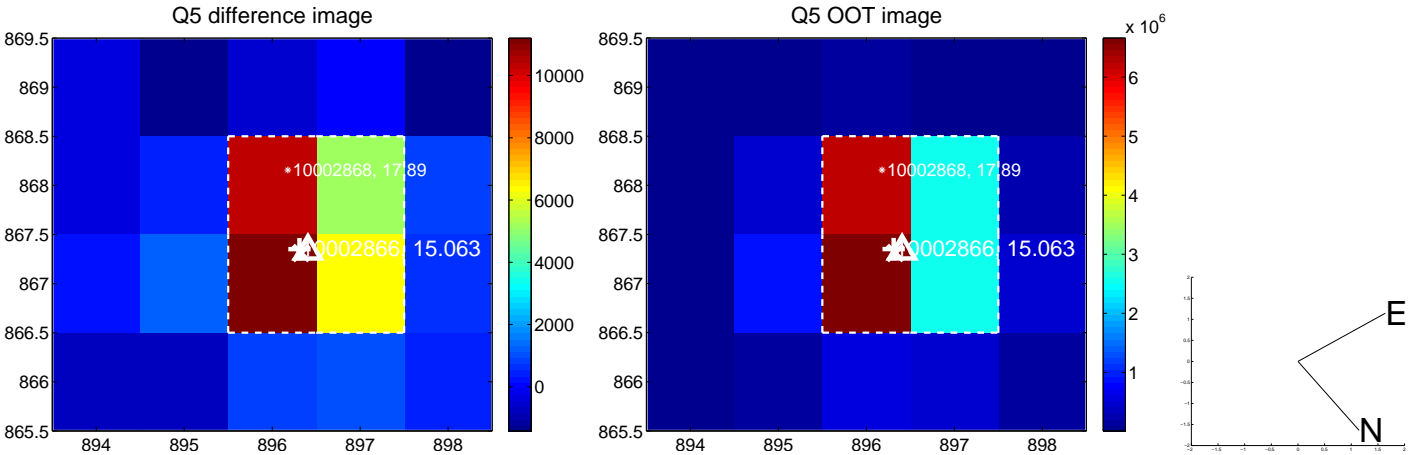
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.068 ± 0.101	0.67	0.047 ± 0.083	0.049 ± 0.097
PRF-fit source offset from KIC position	0.087 ± 0.092	0.95	0.084 ± 0.084	0.025 ± 0.104
photometric centroid source offset	0.10 ± 0.13	0.72	-0.05 ± 0.14	0.08 ± 0.13

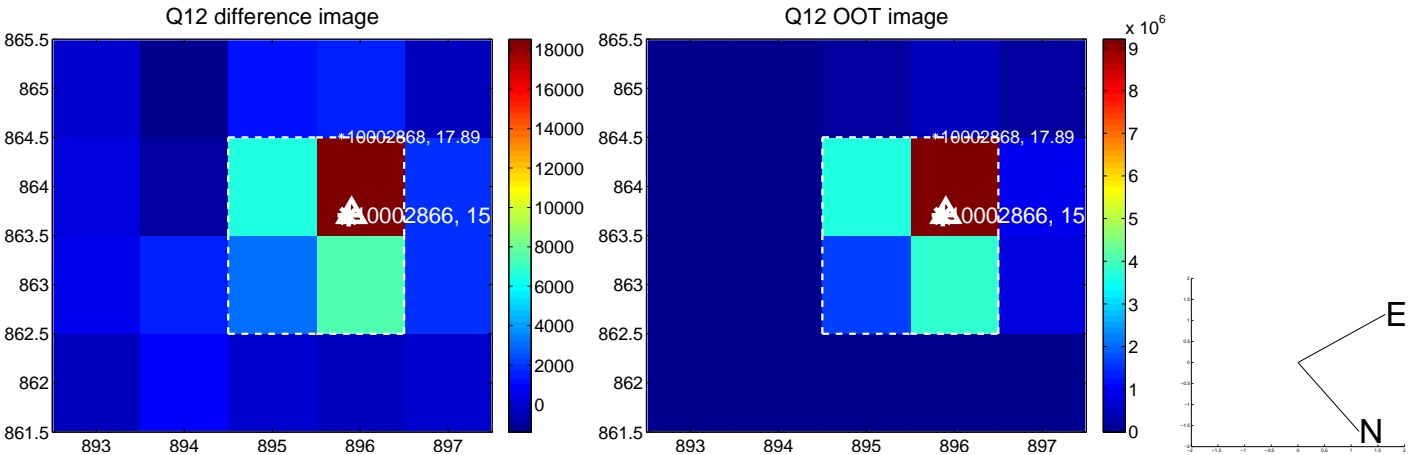
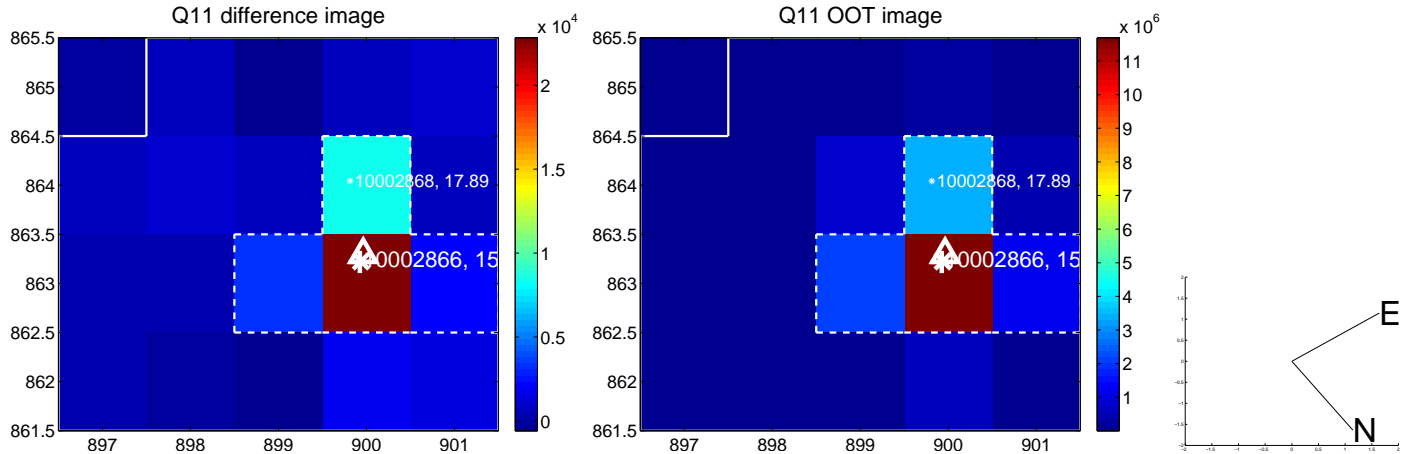
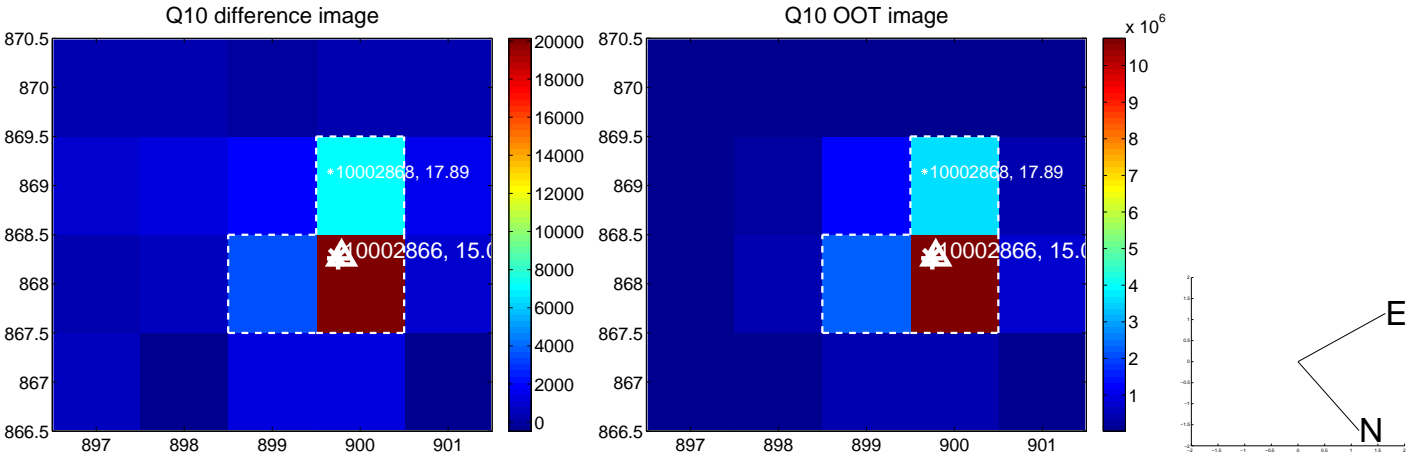
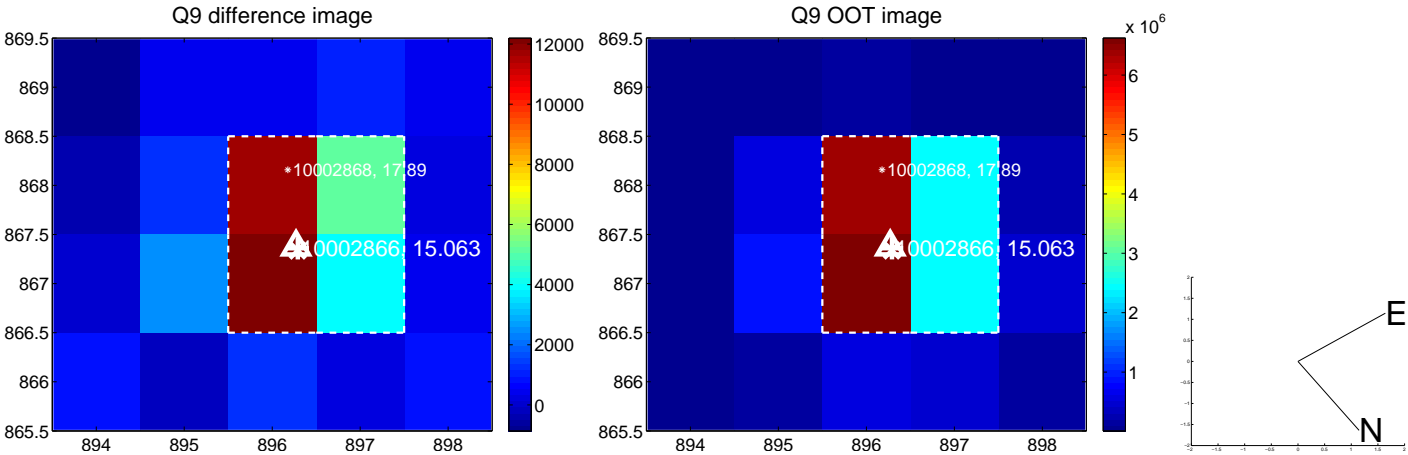


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

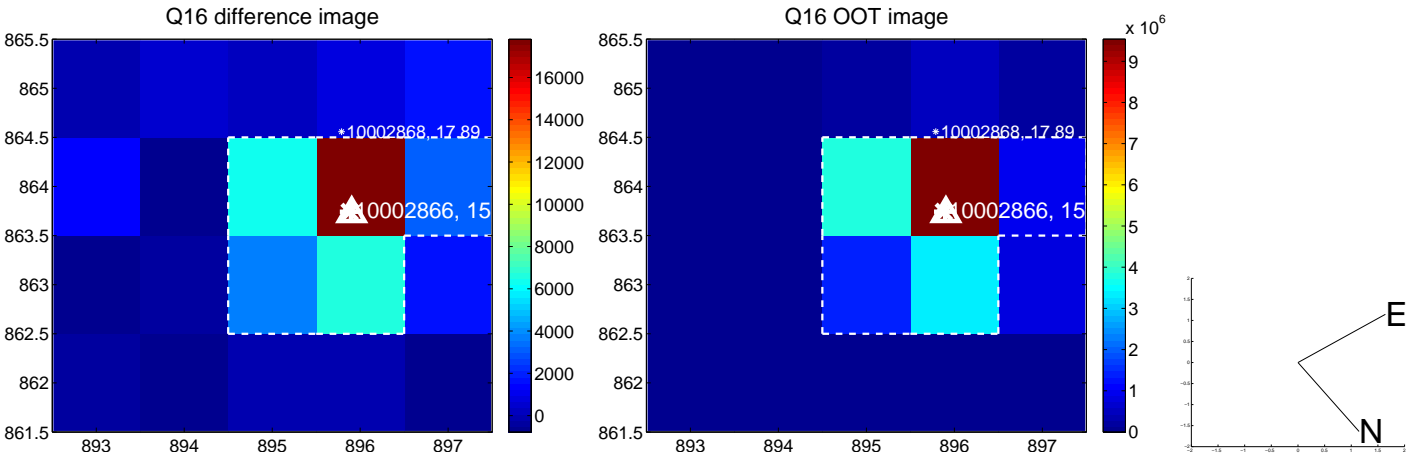
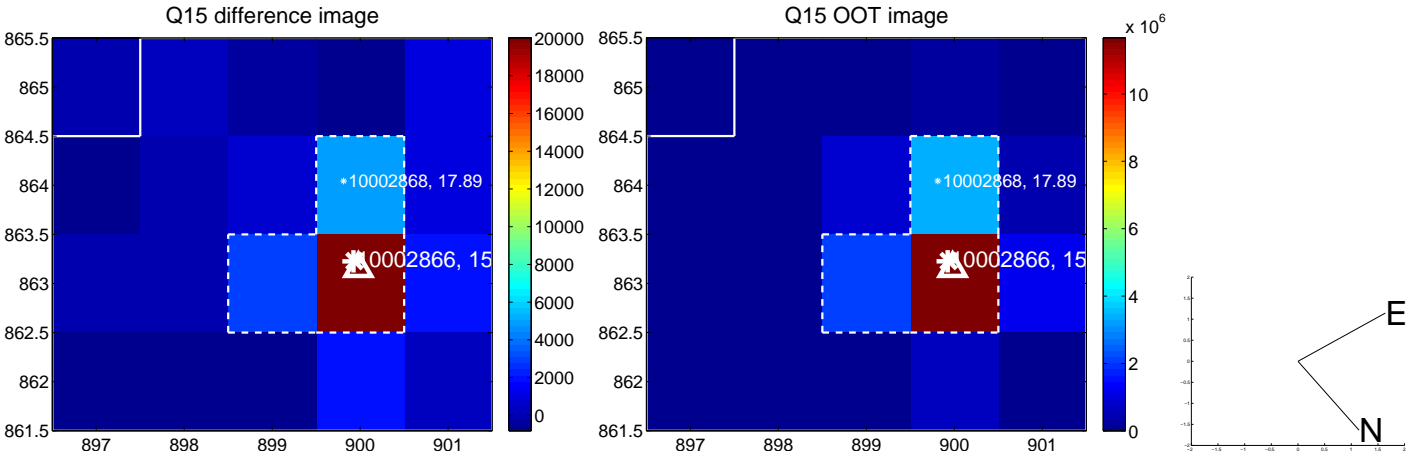
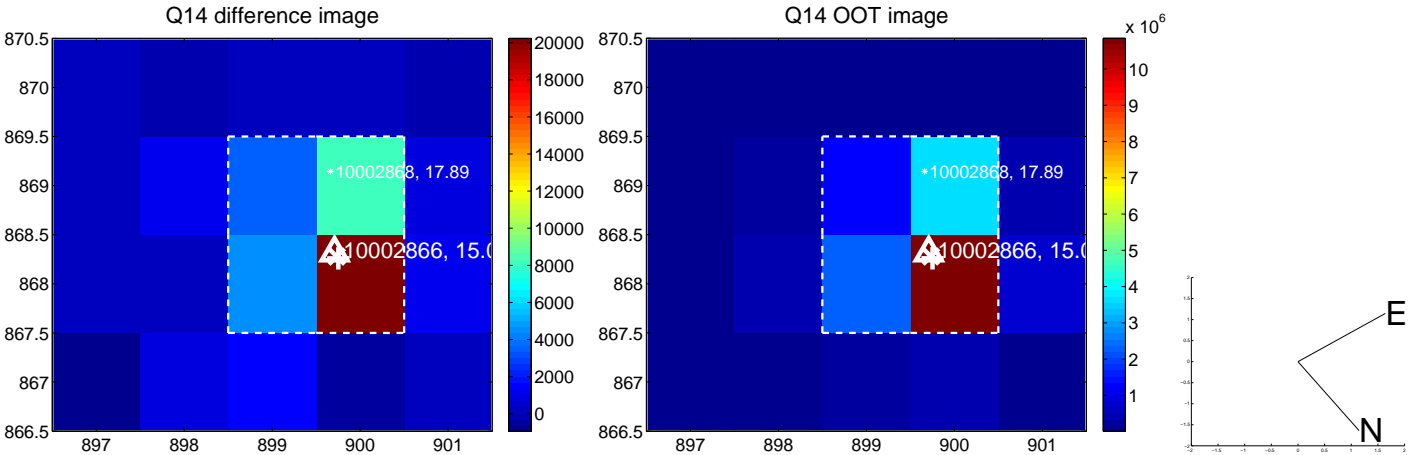
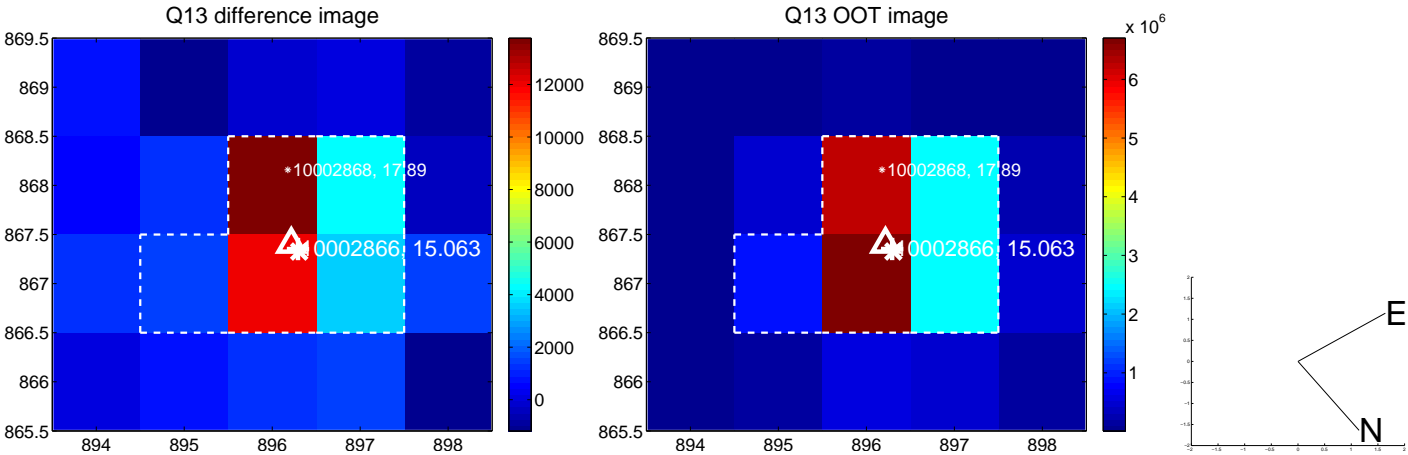
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



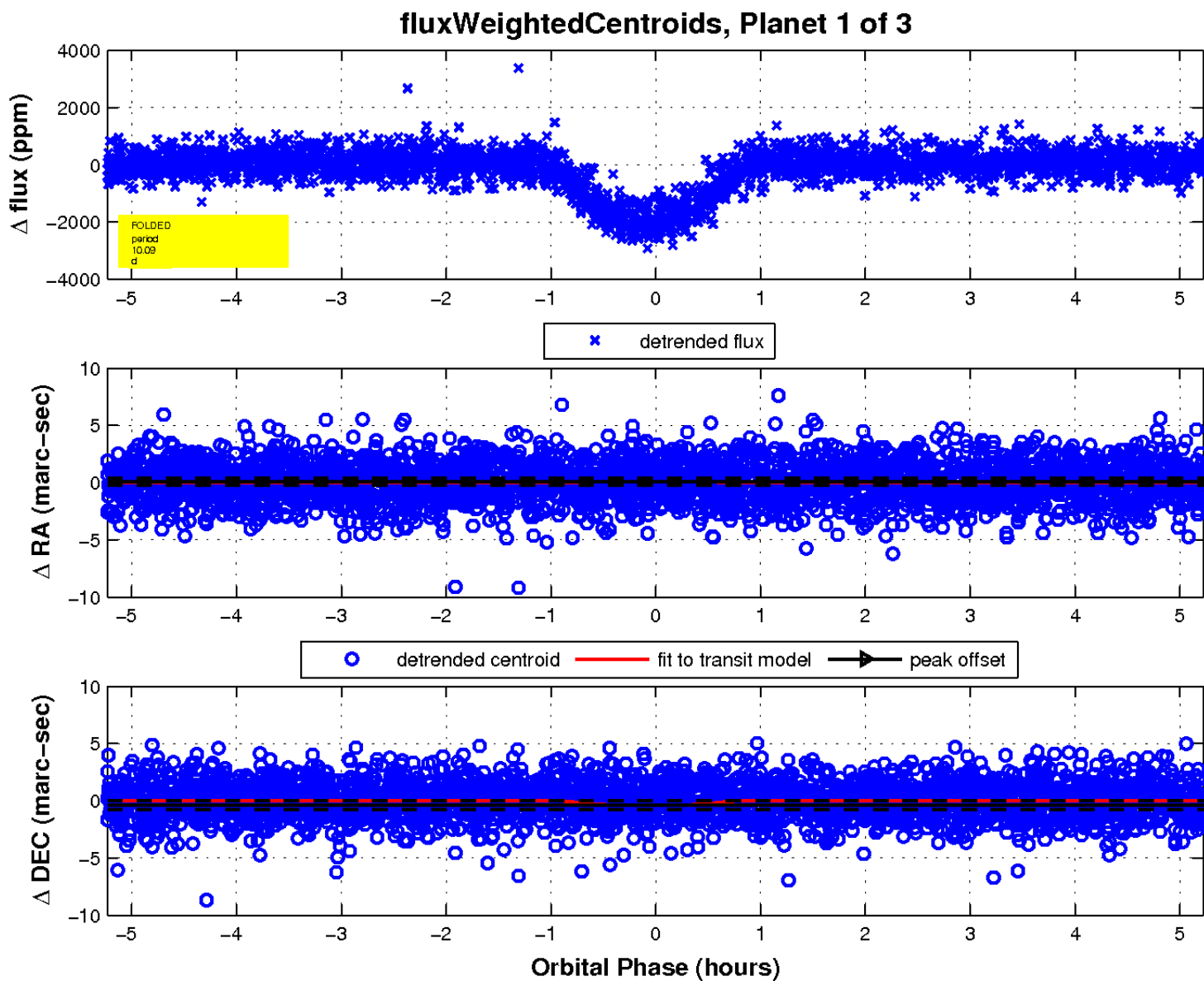
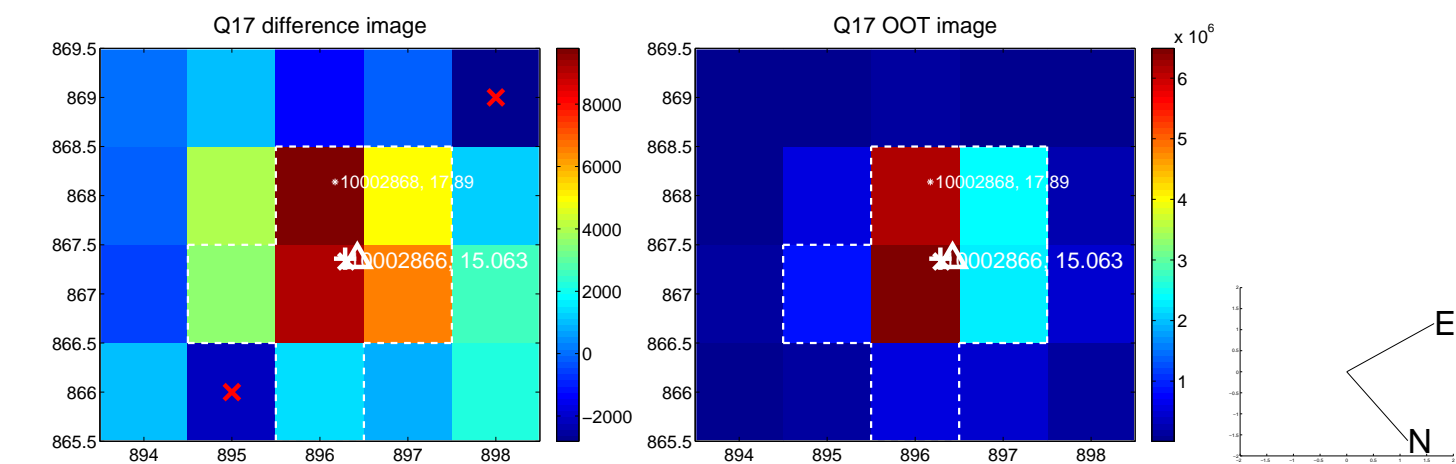
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



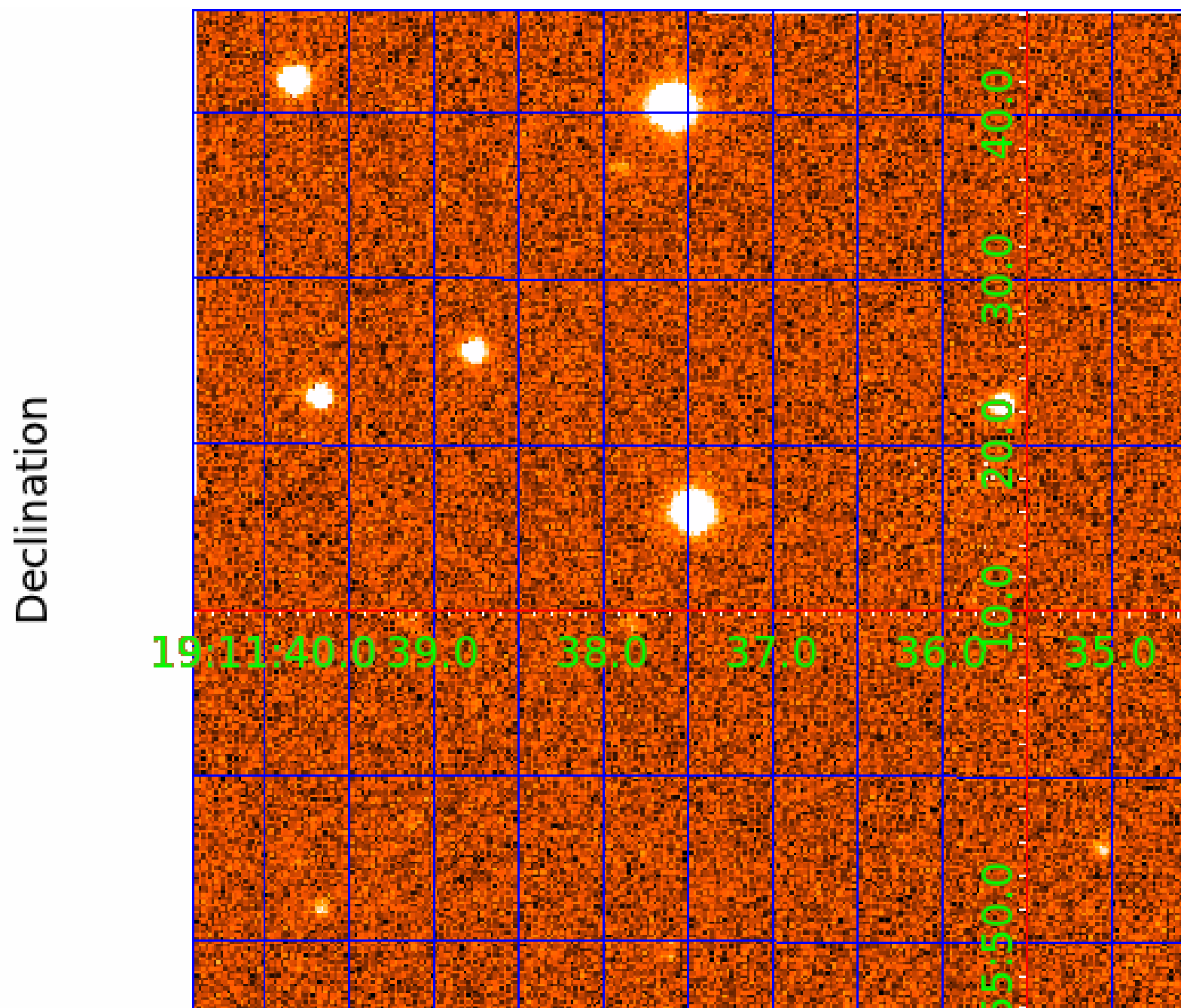
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010002866

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})
010002866-01	OBS	0723.03	10.088800	132.728828	2021.5	1.744	83.0	79.5	0.84	5431	4.65	68.73
010002866-02	OBS	0723.01	3.936998	134.216461	1252.0	1.937	76.3	85.8	0.84	5431	3.47	241.03
010002866-03	OBS	0723.02	28.081909	138.751693	1788.3	4.601	58.2	57.7	0.84	5431	3.74	17.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010002866-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010002866-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010002866-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

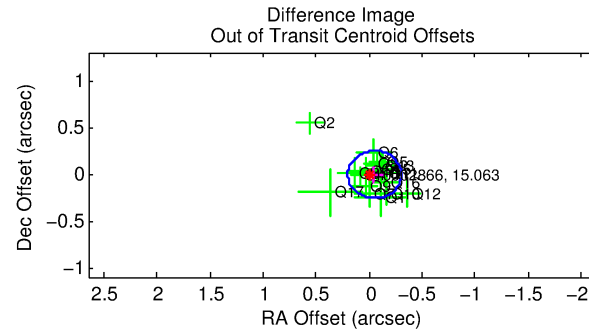
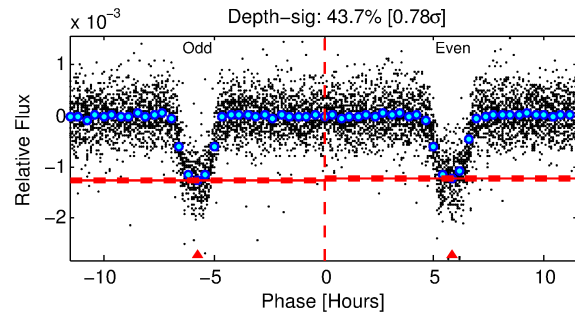
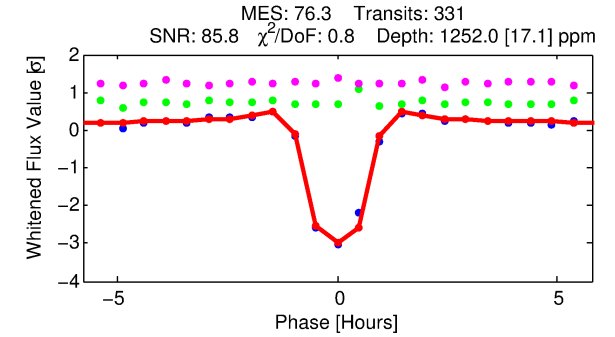
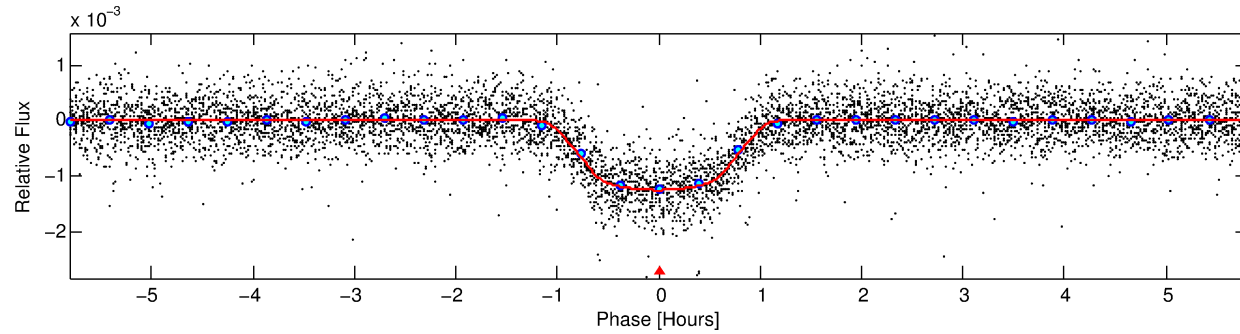
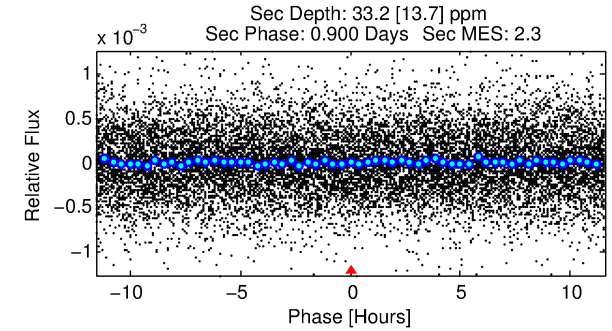
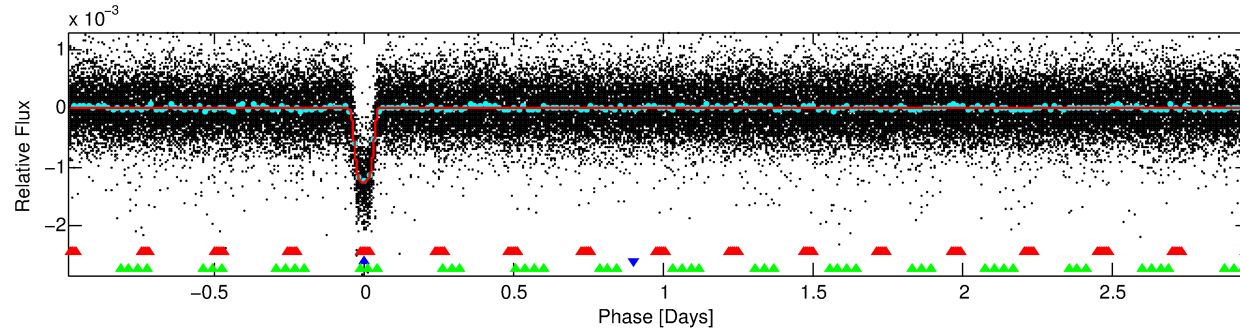
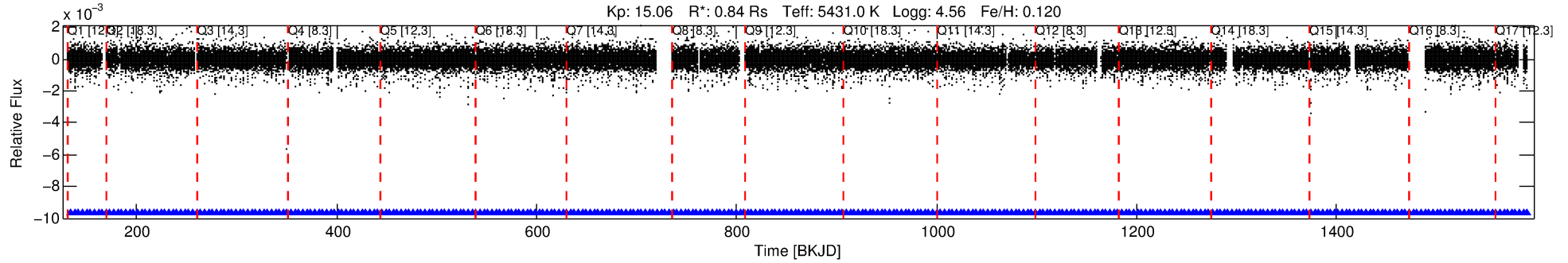
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010002866-02

No Significant Match Found

DV One-Page Summary

KIC: 10002866 Candidate: 2 of 3 Period: 3.937 d
KOI: K00723.01 Name: Kepler-222b Corr: 0.970



DV Fit Results:

Period = 3.93700 [0.00000] d
Epoch = 134.2165 [0.0004] BKJD
Rp/R* = 0.0378 [0.0021]
a/R* = 9.05 [1.91]
b = 0.86 [0.07]
Seff = 241.03 [72.58]
Teq = 1005 [76] K
Rp = 3.47 [0.79] Re
a = 0.0479 [0.0090] AU
Ag = 3.47 [1.77] [1.40σ]
Teffp = 2121 [235] K [4.52σ]

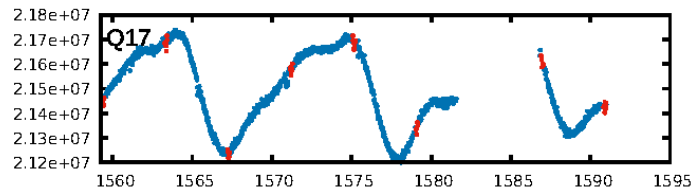
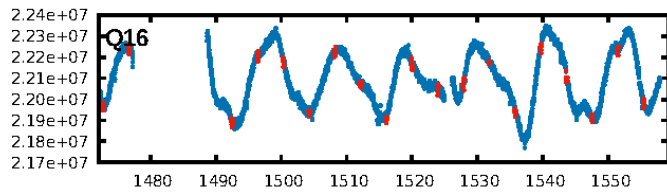
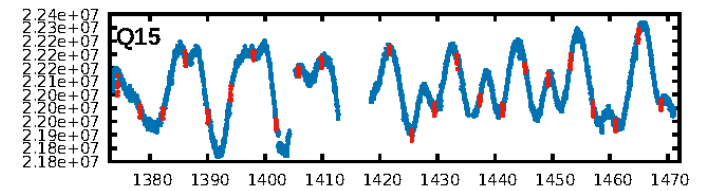
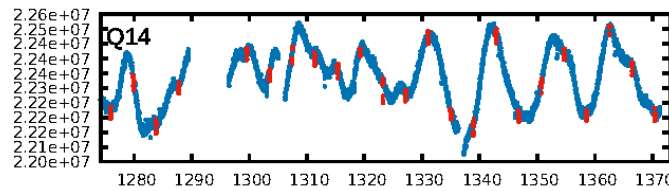
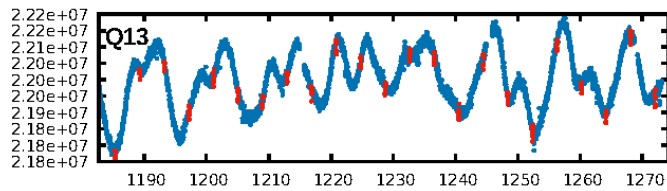
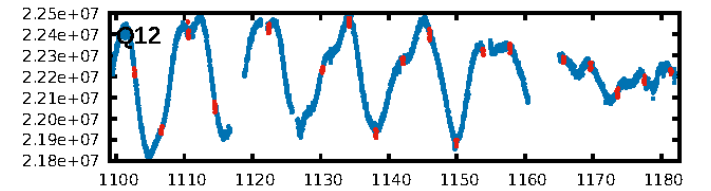
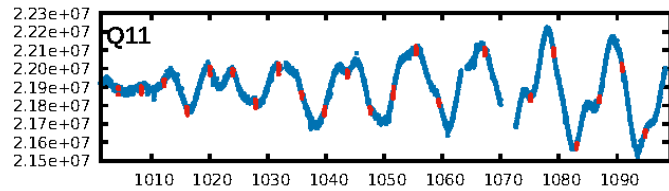
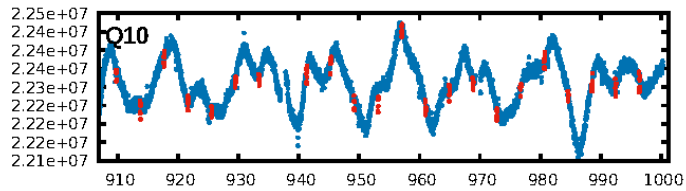
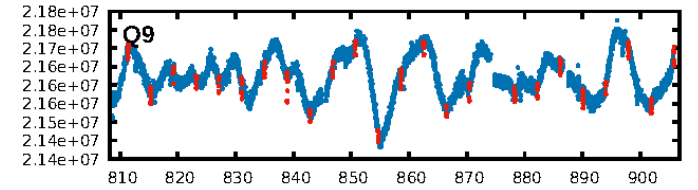
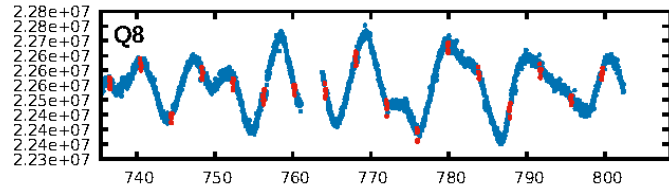
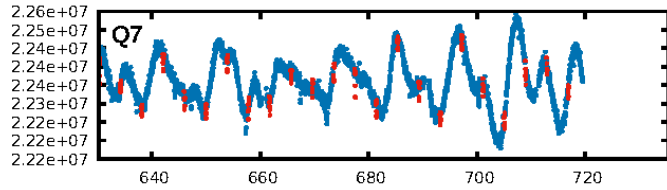
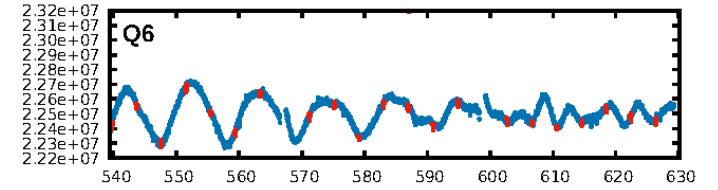
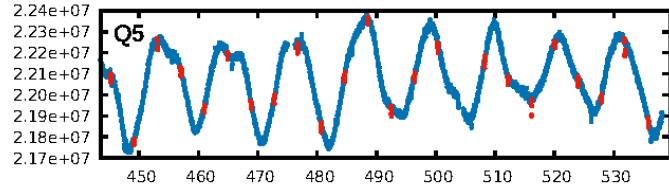
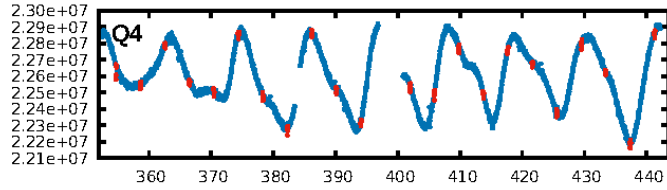
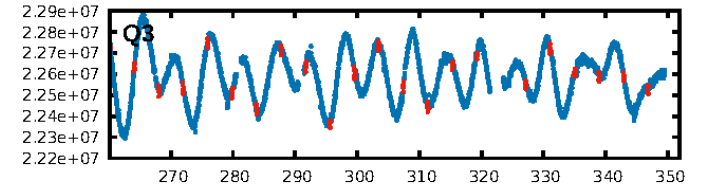
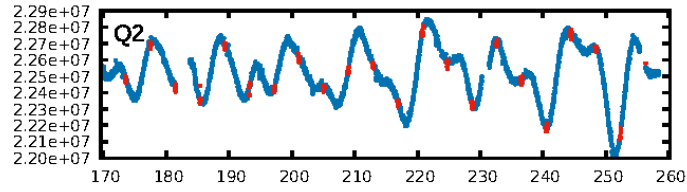
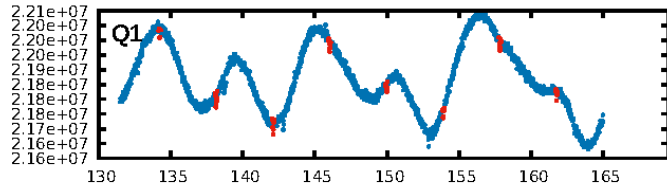
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [56.65σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [315/315]
GhostDiagnostic-chr: 3.453
Centroid-sig: 8.2%
Centroid-so: 0.138 arcsec [1.07σ]
OotOffset-rm: 0.050 arcsec [0.60σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.037 arcsec [0.40σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

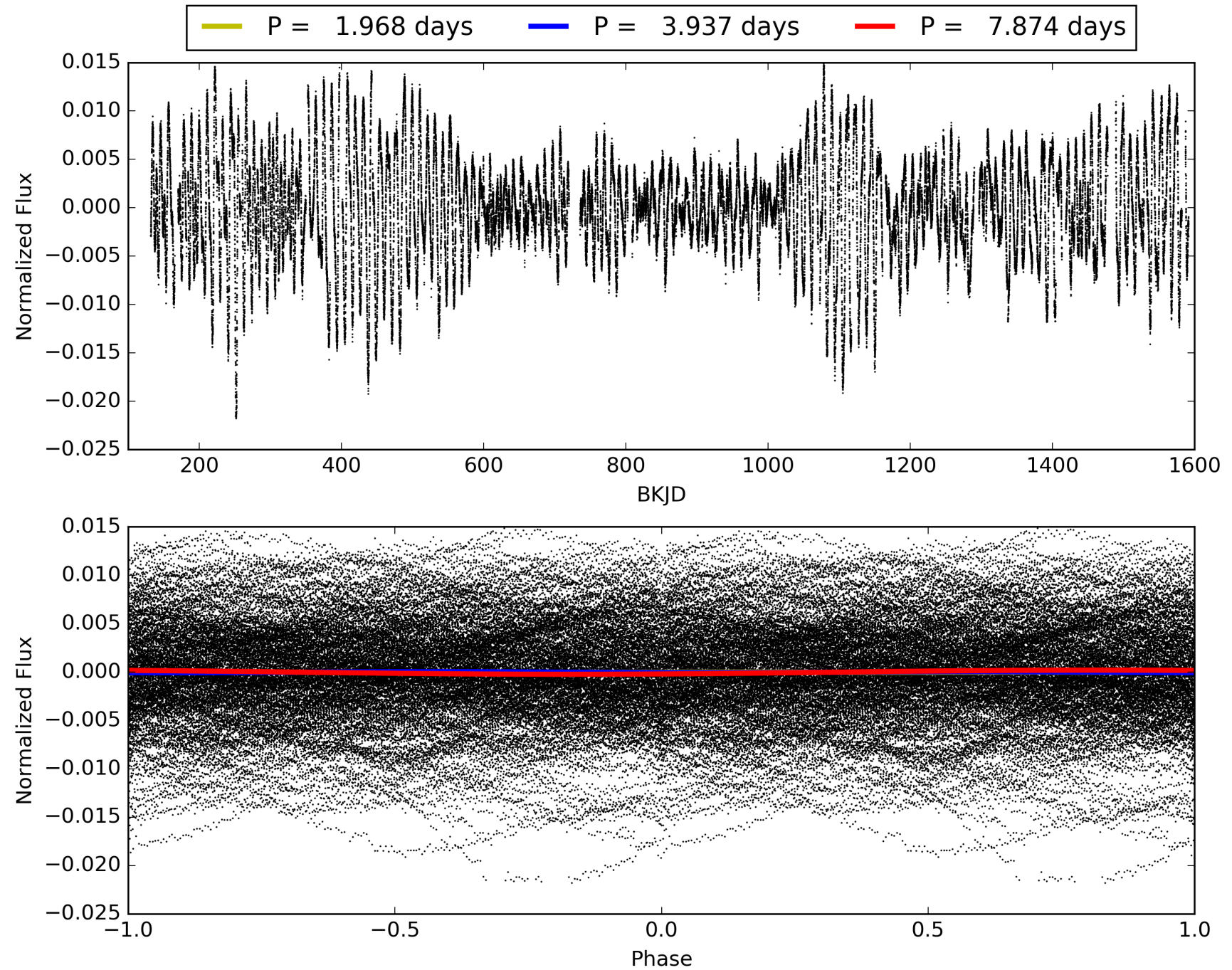
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:41:59 Z

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

TCE 010002866-02, PDC Light Curves

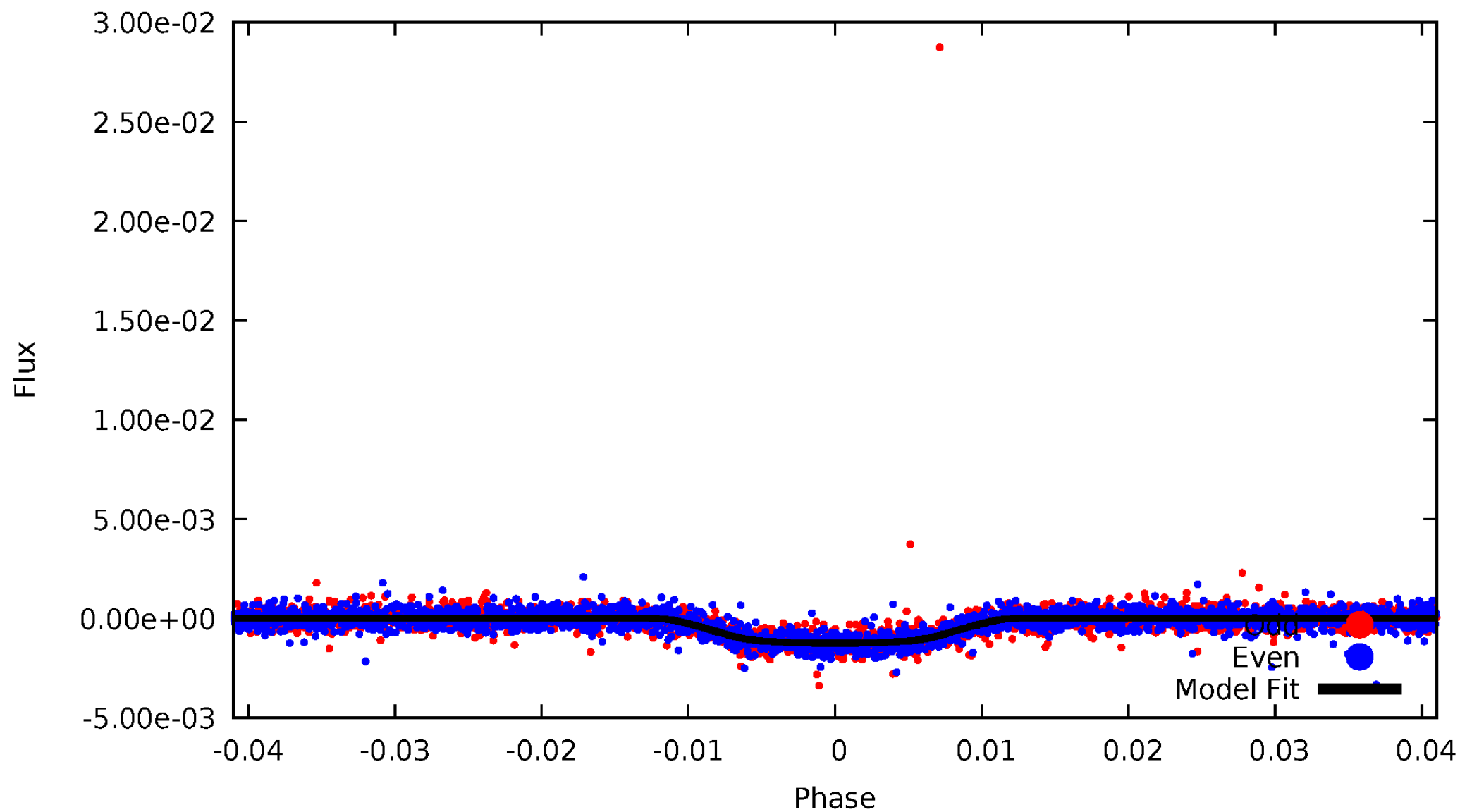


TCE 010002866-02



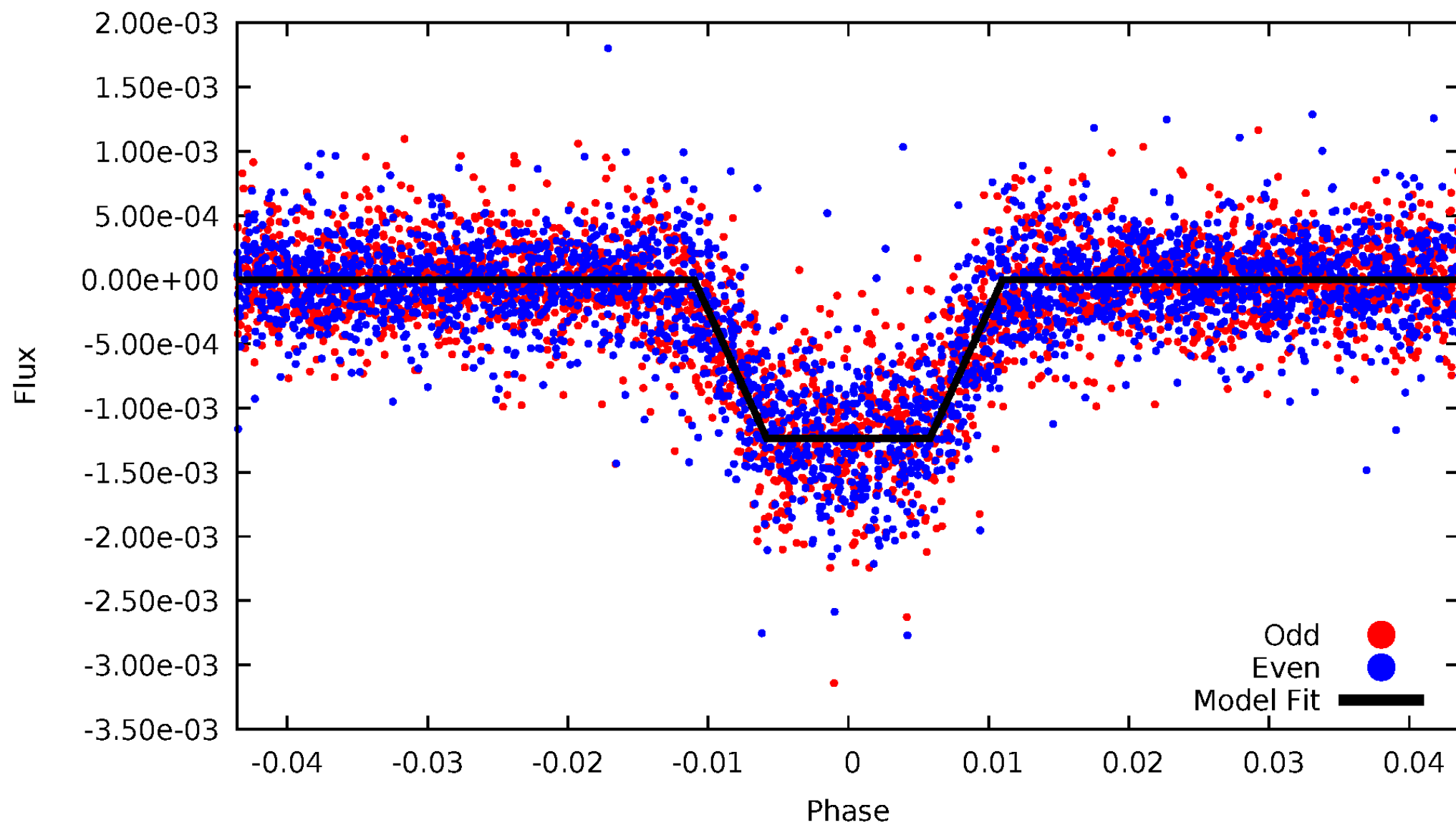
DV Odd/Even

TCE 010002866-02



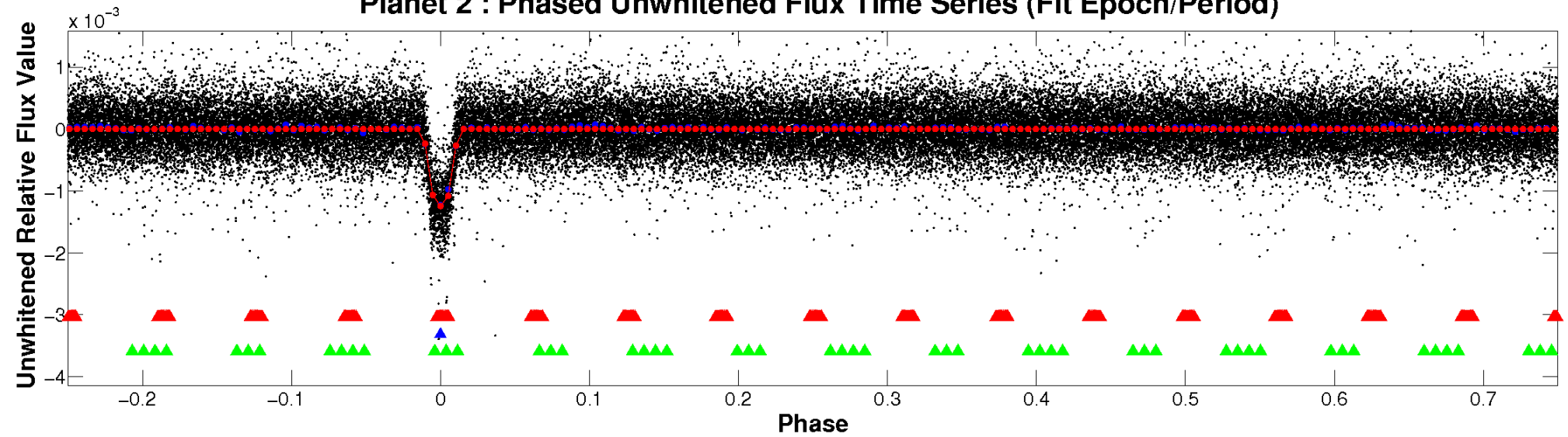
ALT Odd/Even

TCE 010002866-02

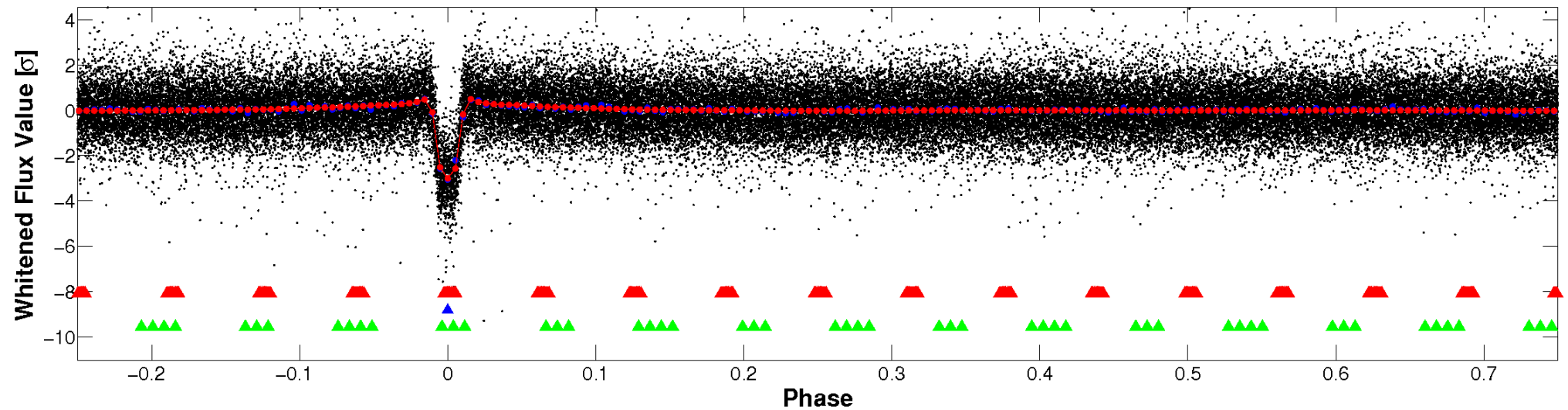


Non-Whitened Vs. Whitened Light Curve

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

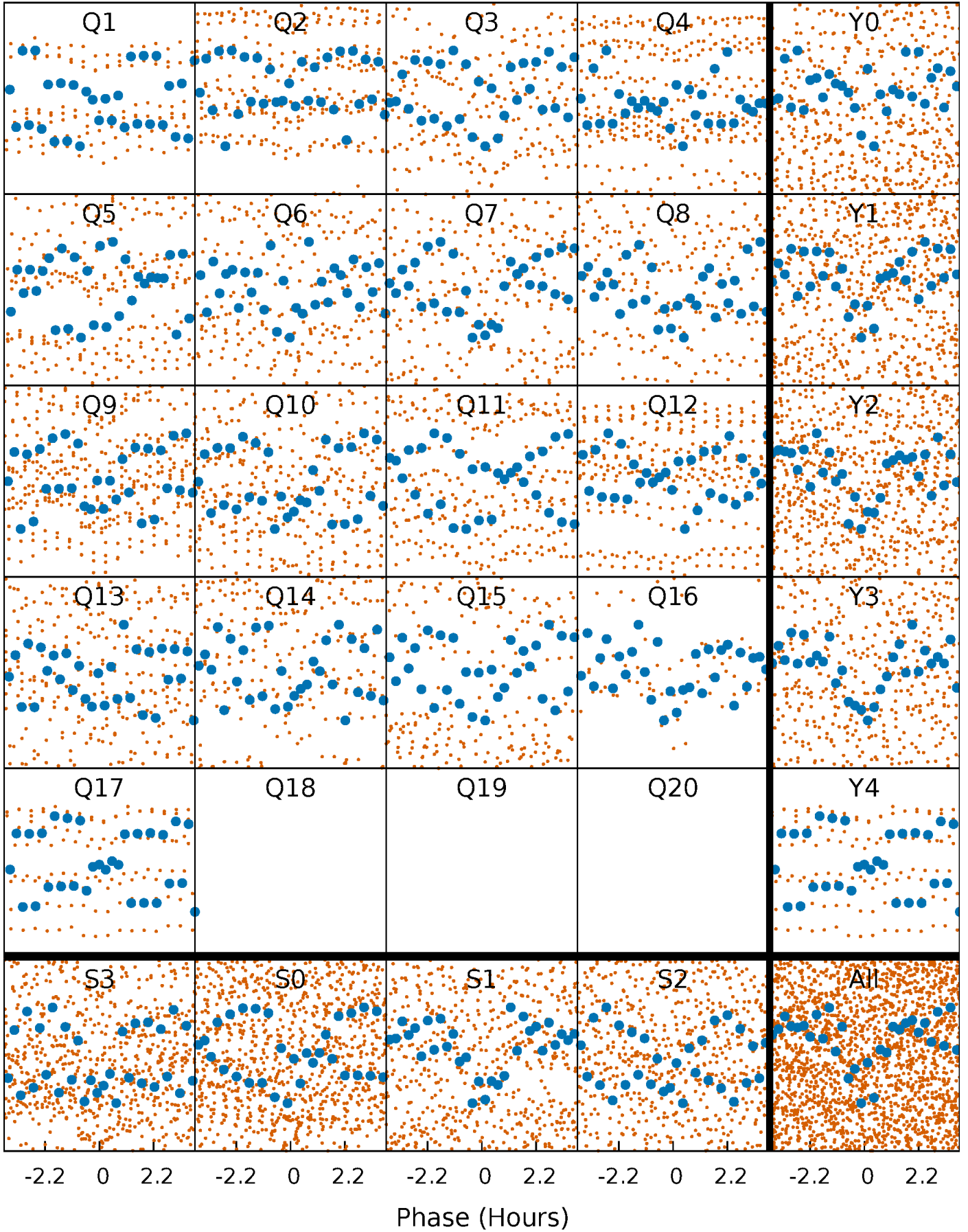


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



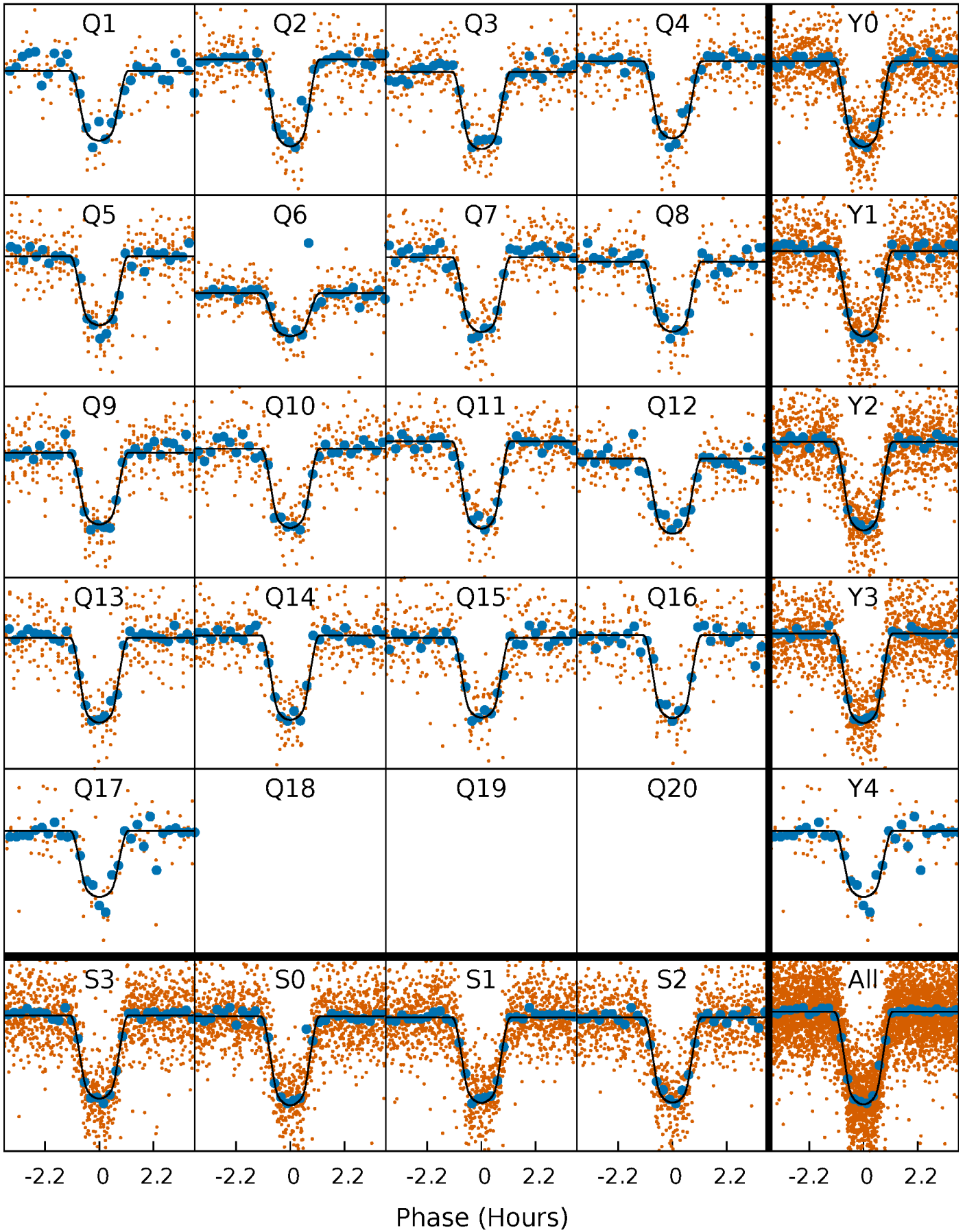
PDC Quarter-Phased Transit Curves

TCE 010002866-02 $P = 3.936998$ Days $T_0 = 134.216461$ (BKJD)



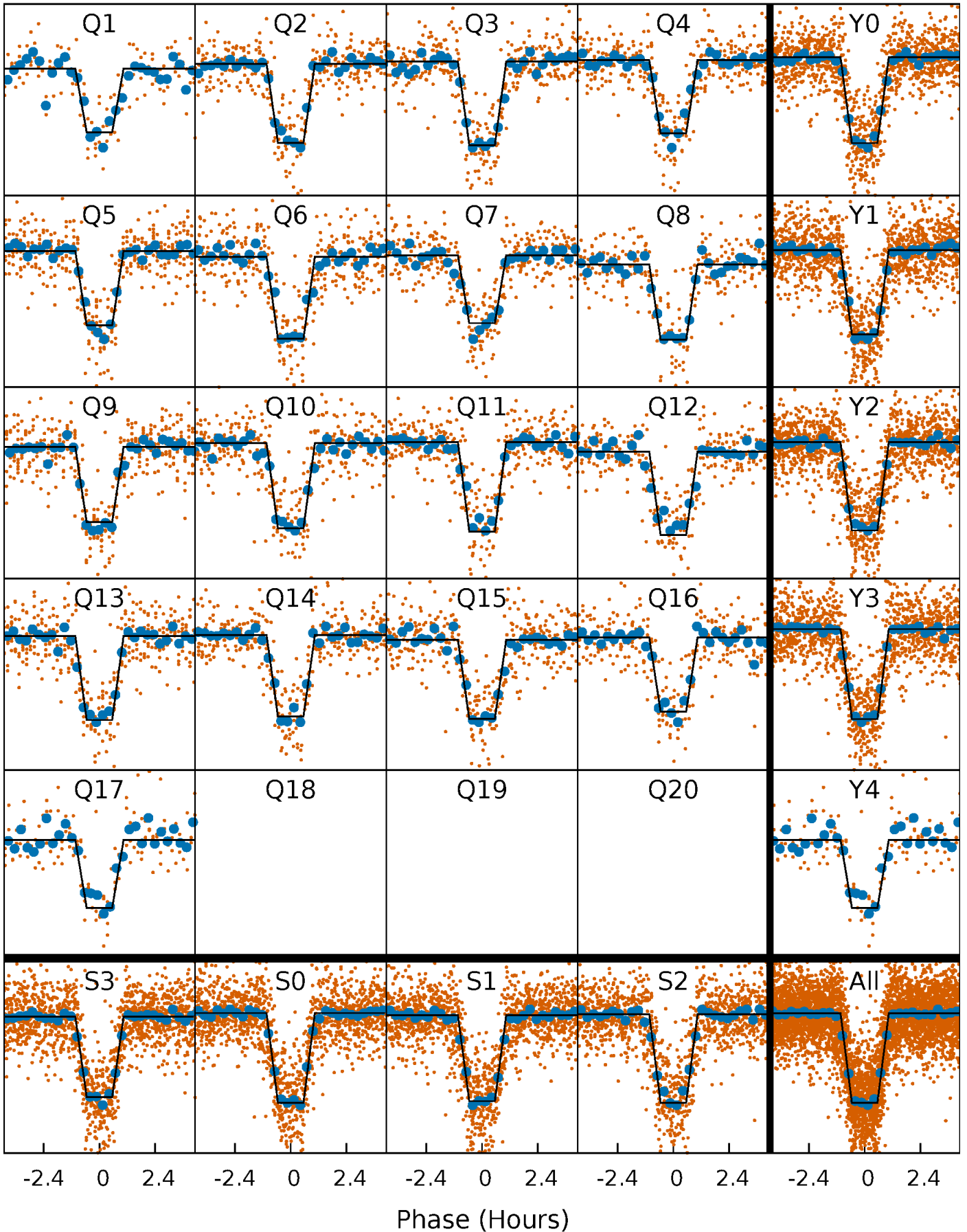
DV Quarter-Phased Transit Curves

TCE 010002866-02 $P = 3.936998$ Days $T_0 = 134.216461$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

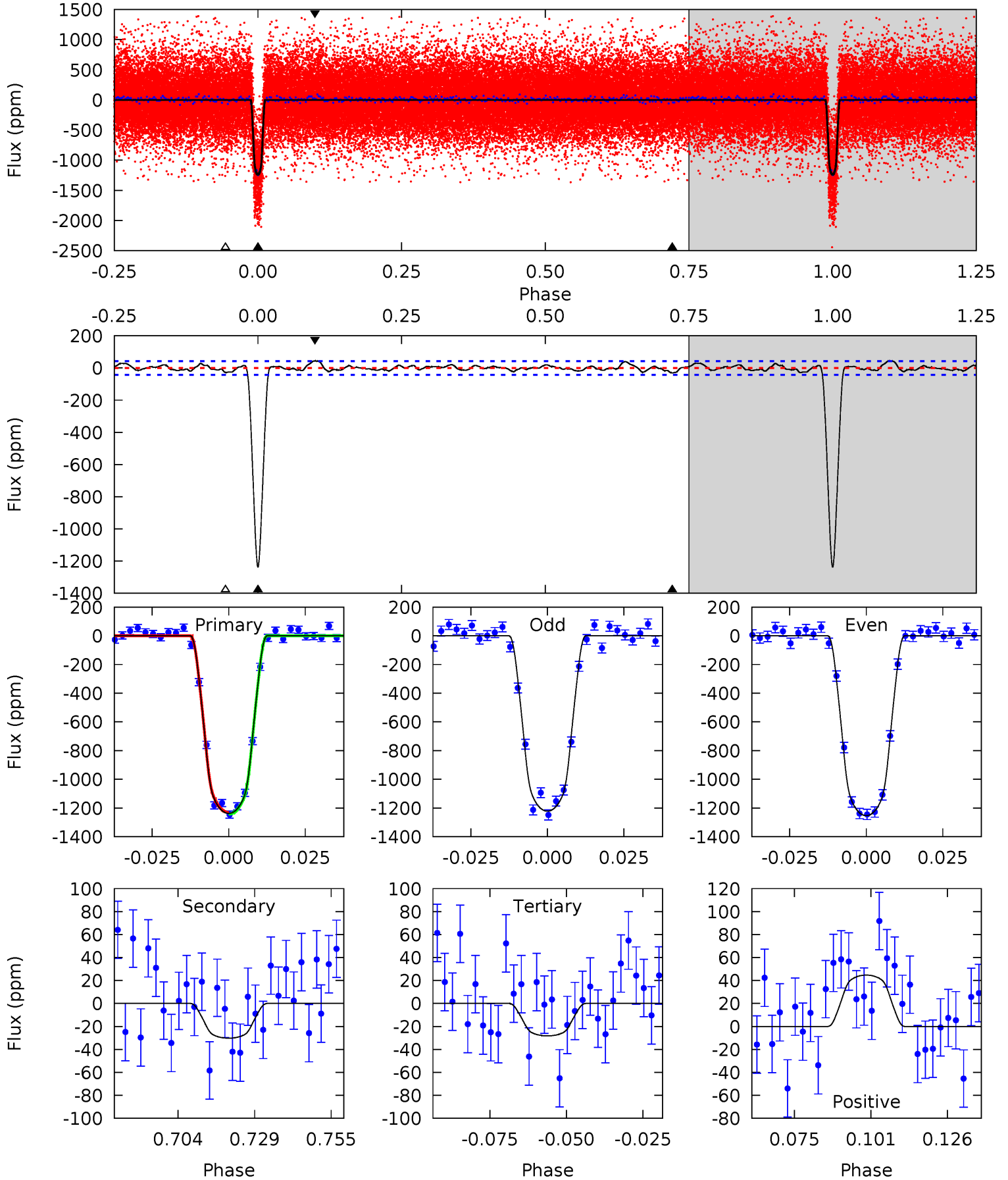
TCE 010002866-02 $P = 3.936996$ Days $T_0 = 134.216821$ (BKJD)



DV Model-Shift Uniqueness Test

010002866-02, P = 3.936998 Days, E = 130.279463 Days

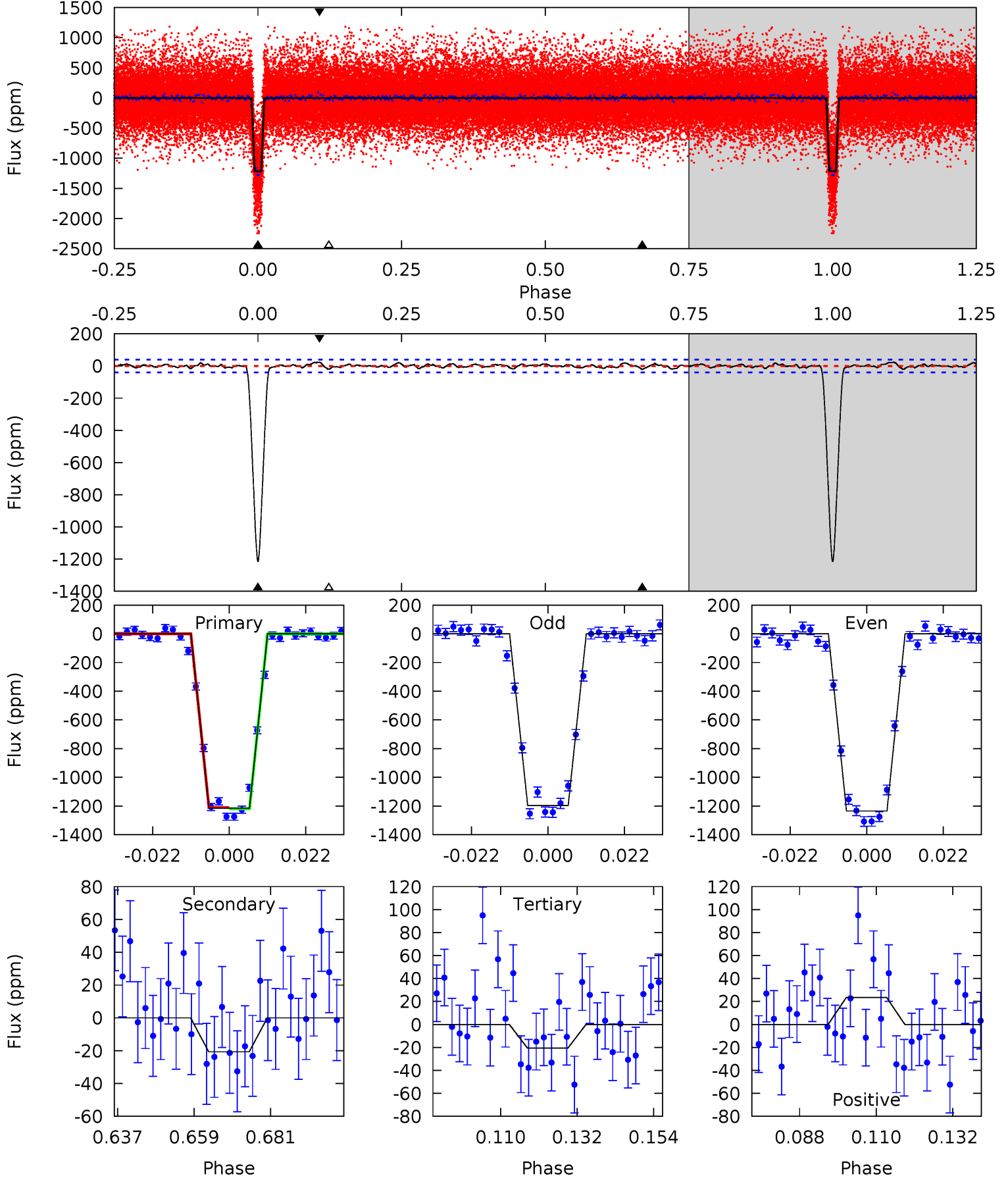
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
141.2	3.45	3.22	5.10	4.85	2.24	1.57	138.0	136.1	0.23	-1.65	1.79	0.99	0.03	0.63



Alt Model-Shift Uniqueness Test

010002866-02, P = 3.936996 Days, E = 130.279825 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
149.5	2.54	2.53	2.88	4.87	2.29	0.98	146.9	146.6	0.01	-0.33	2.32	1.03	0.02	0.58



Stellar Parameters For KIC 010002866

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5431^{+164}_{-164}	$4.563^{+0.029}_{-0.152}$	$0.120^{+0.250}_{-0.250}$	$0.843^{+0.186}_{-0.062}$	$0.945^{+0.065}_{-0.098}$	$2.223^{+0.346}_{-0.935}$
	+3%/-3%	+1%/-3%	+208%/-208%	+22%/-7%	+7%/-10%	+16%/-42%
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 010002866-02 / KOI 0723.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-30 ± 9	$3.58^{+0.43}_{-0.30}$	1435^{+78}_{-59}	2758^{+128}_{-151}	$2.822^{+1.086}_{-0.920}$
Alt.	-21 ± 8	$3.33^{+0.40}_{-0.31}$	1435^{+77}_{-62}	2677^{+137}_{-203}	$2.320^{+1.007}_{-0.972}$

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

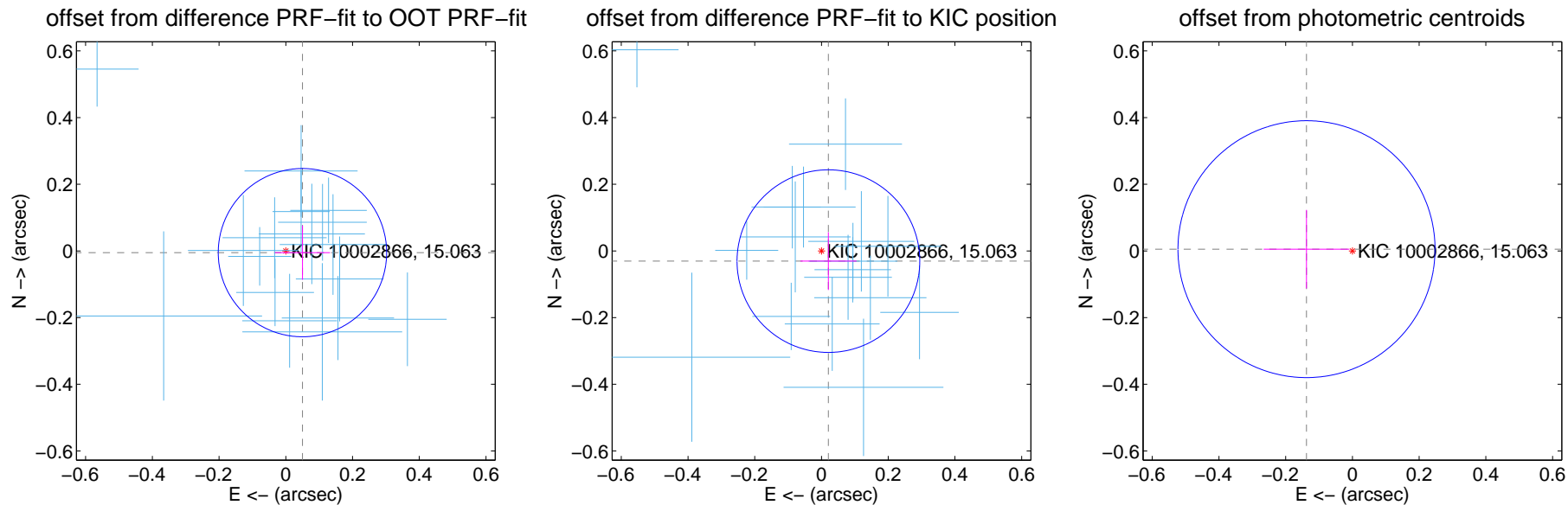
DV Centroid Data

Supplemental centroid analysis for 010002866-02. Kepler magnitude: 15.06. Transit SNR 85.84

There are 17 quarters with good PRF difference image offsets

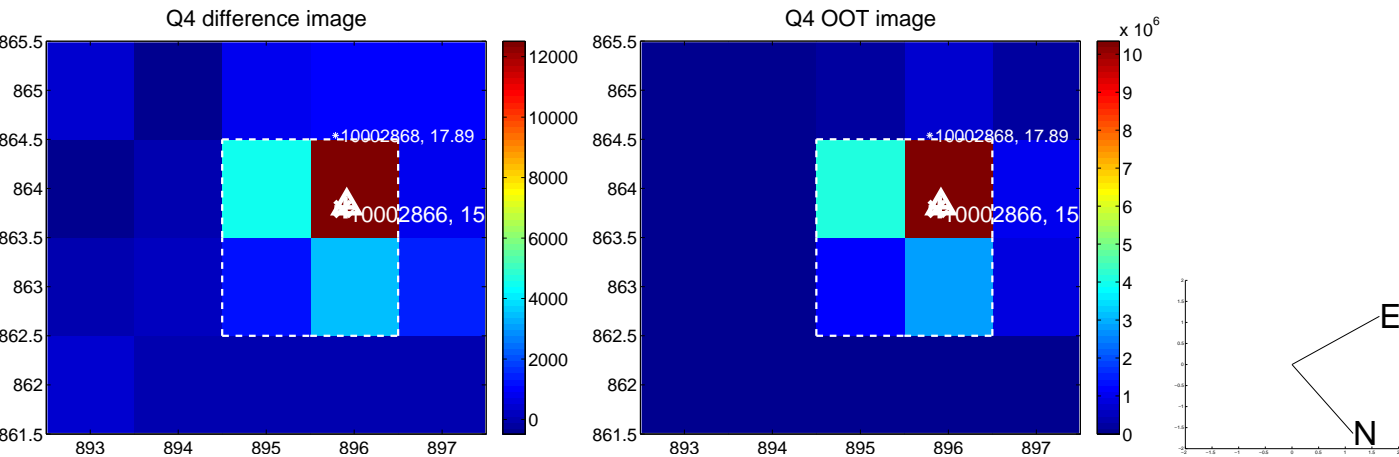
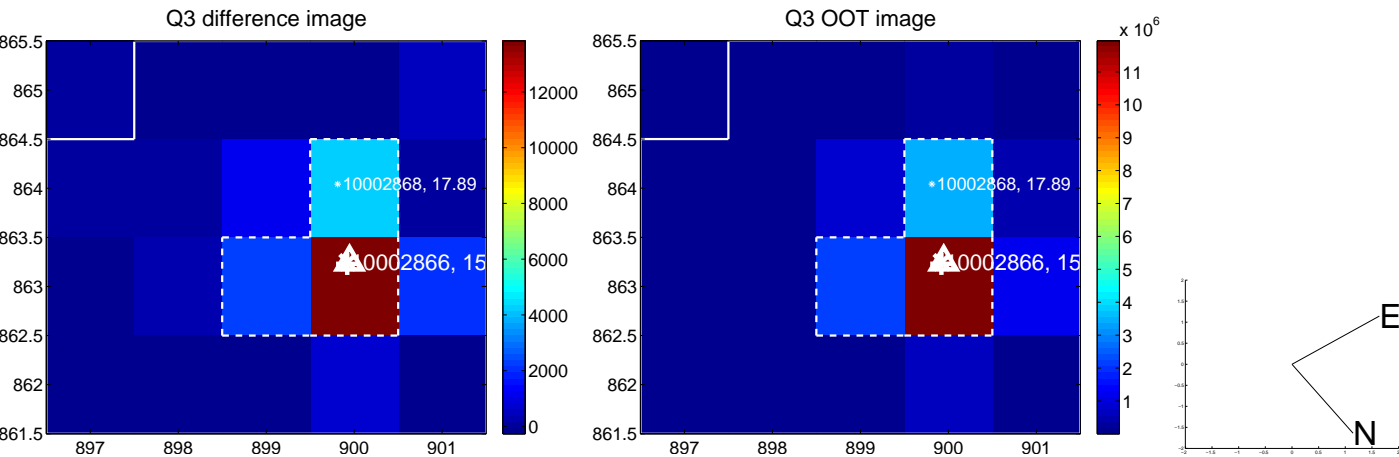
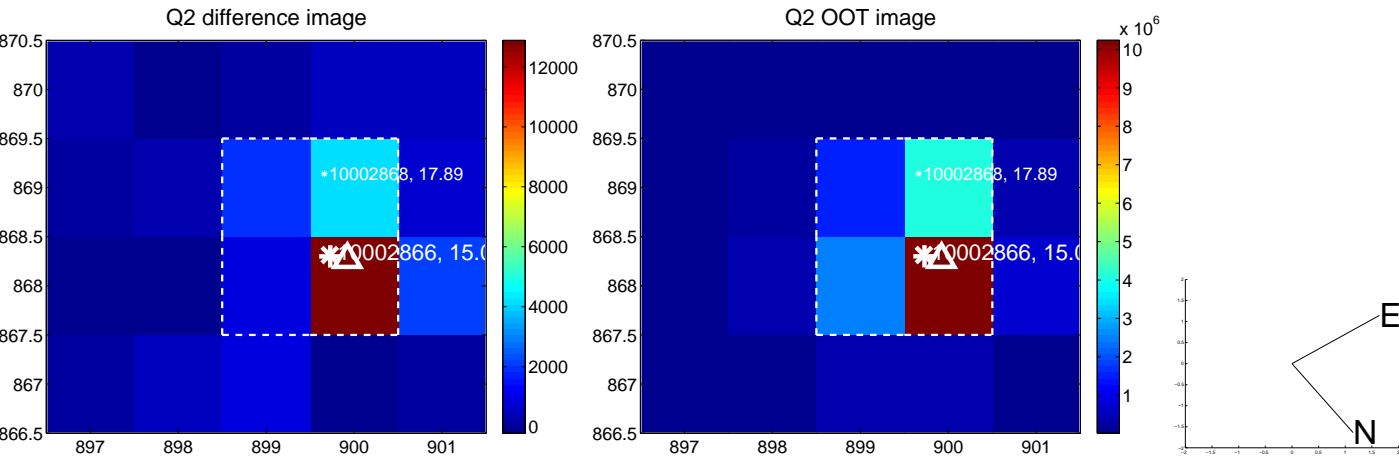
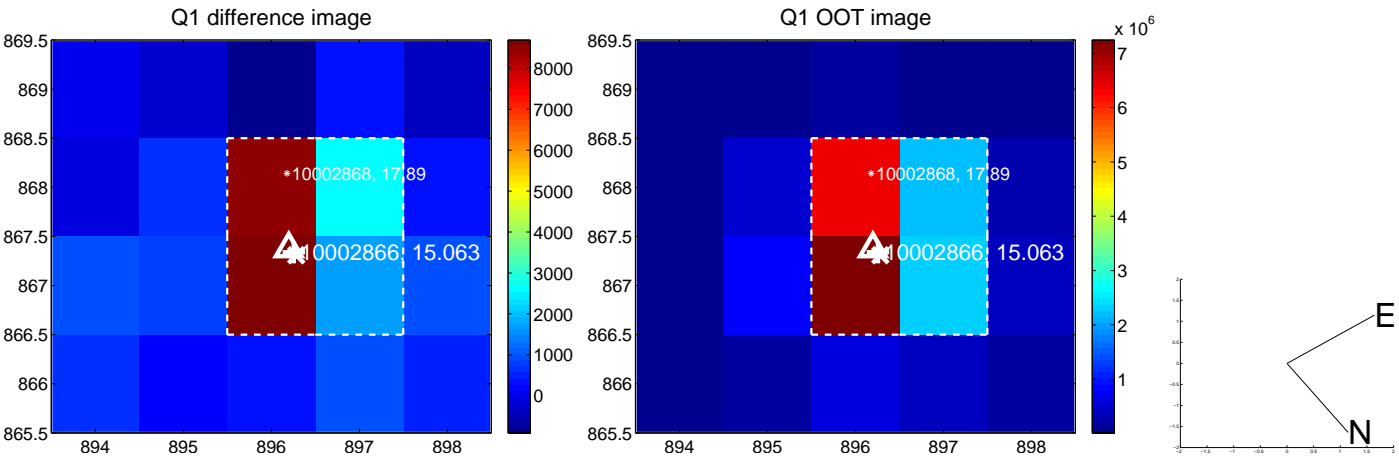
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.084	0.60	-0.050 ± 0.083	-0.005 ± 0.081
PRF-fit source offset from KIC position	0.037 ± 0.091	0.40	-0.021 ± 0.084	-0.031 ± 0.087
photometric centroid source offset	0.14 ± 0.13	1.07	0.14 ± 0.13	0.01 ± 0.12

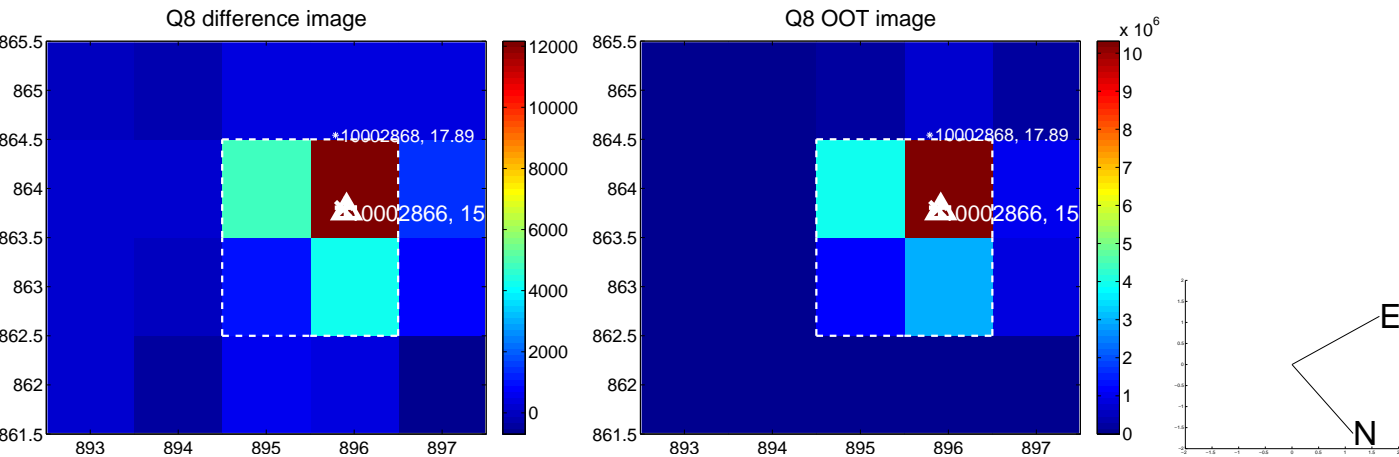
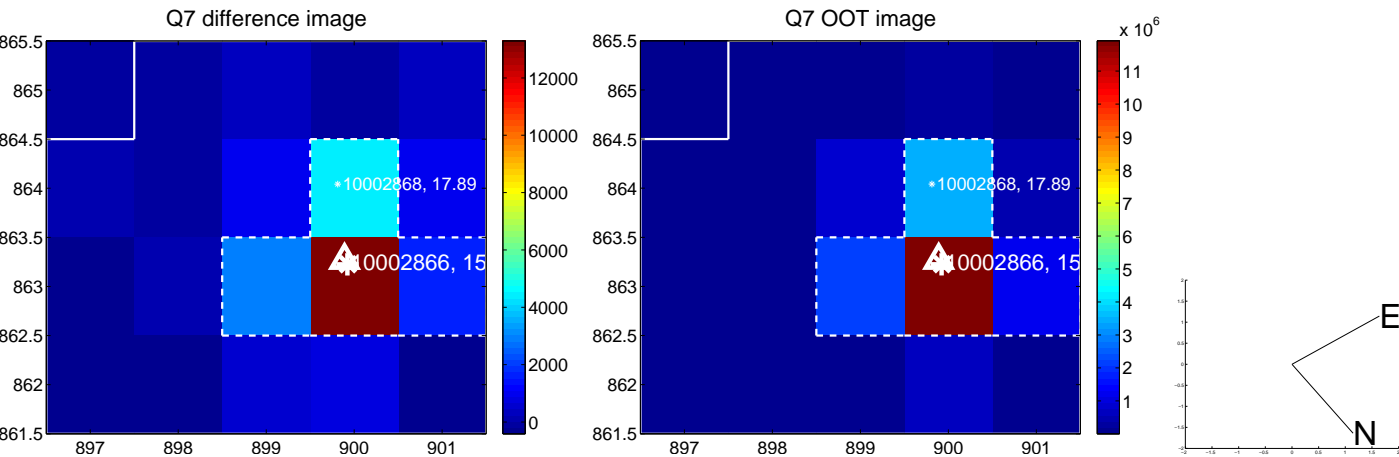
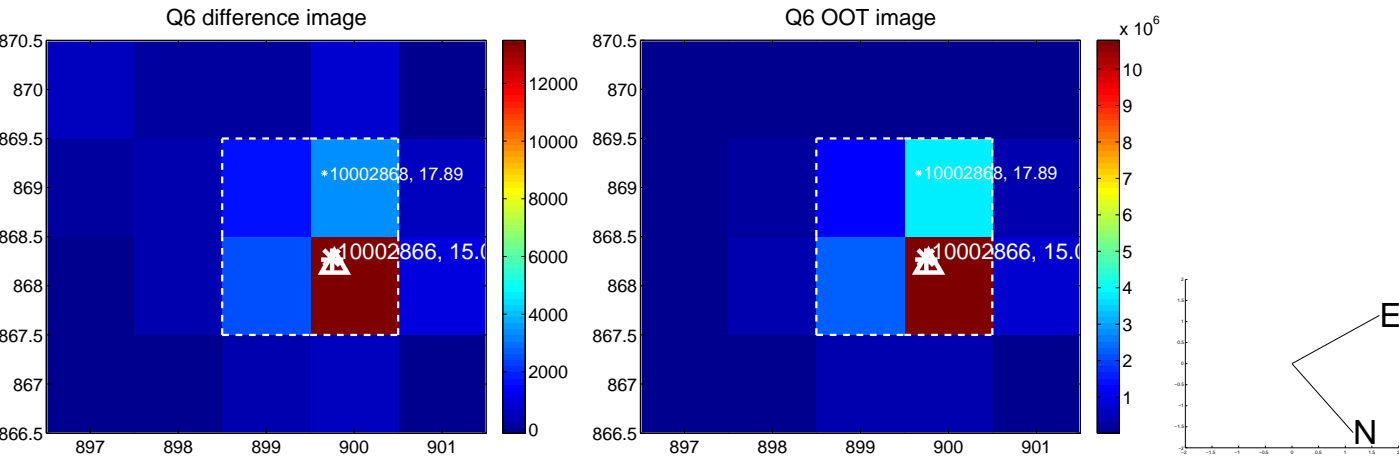
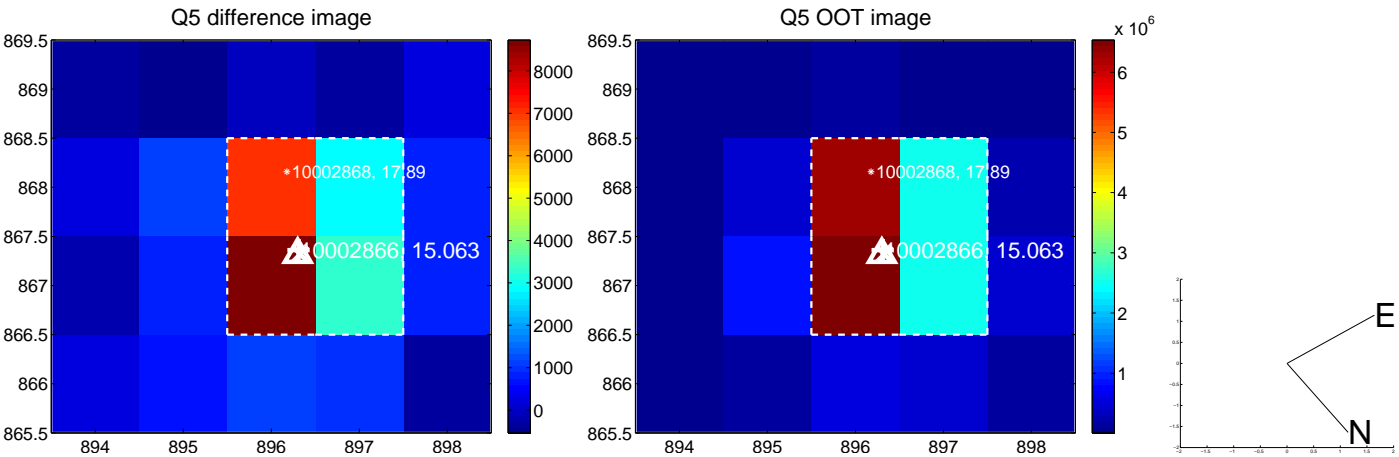


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

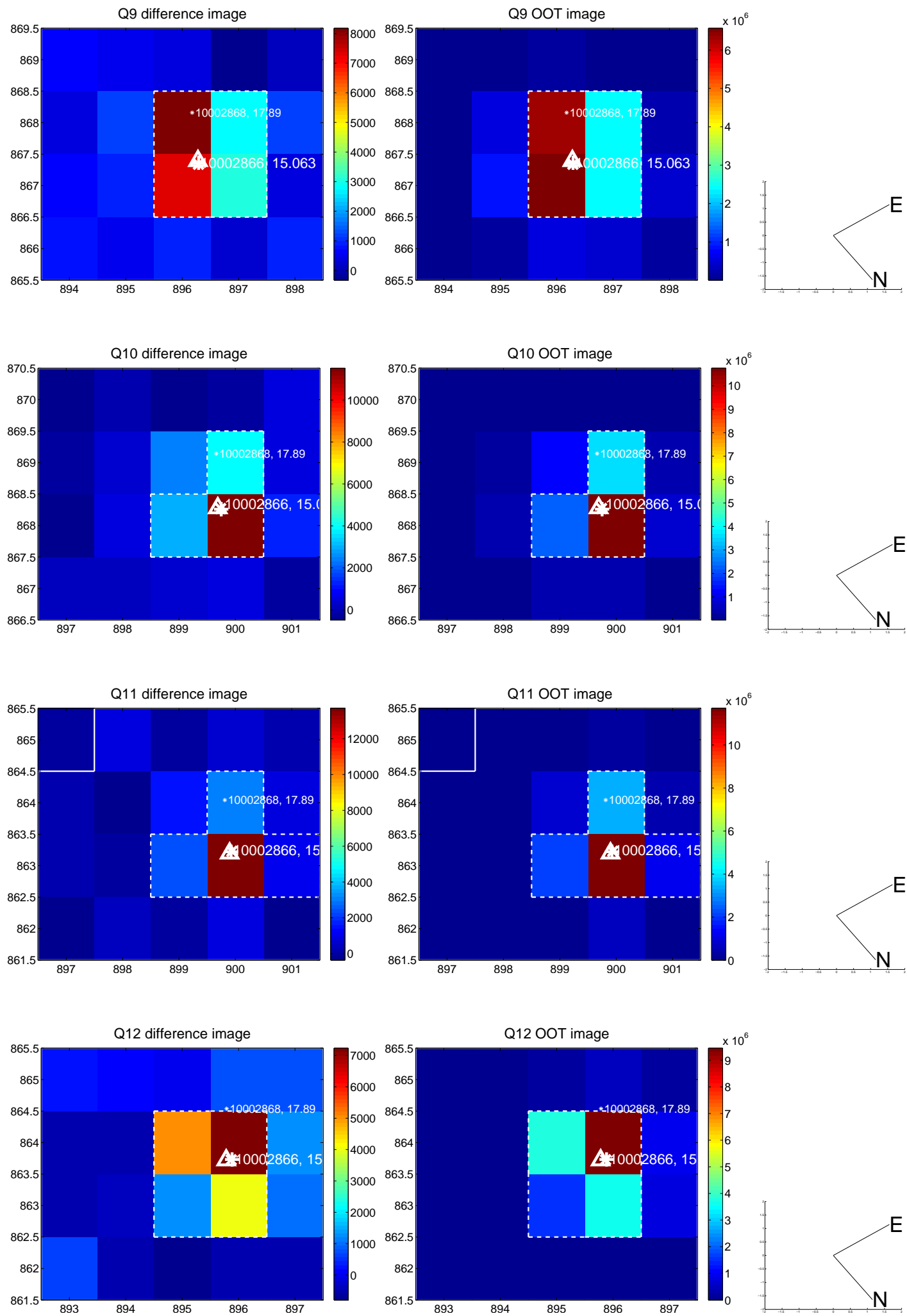
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



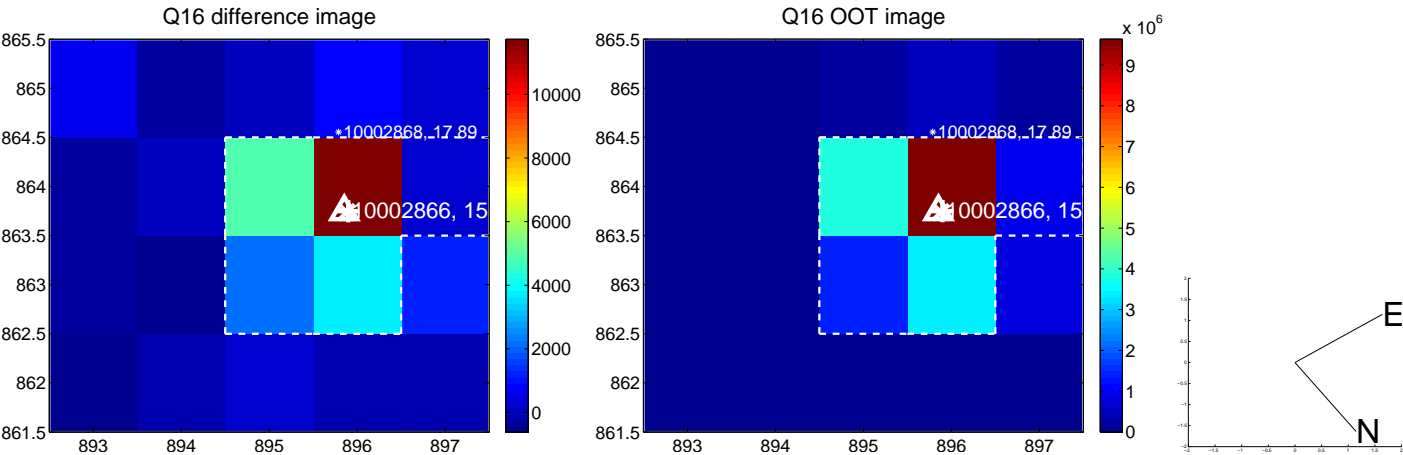
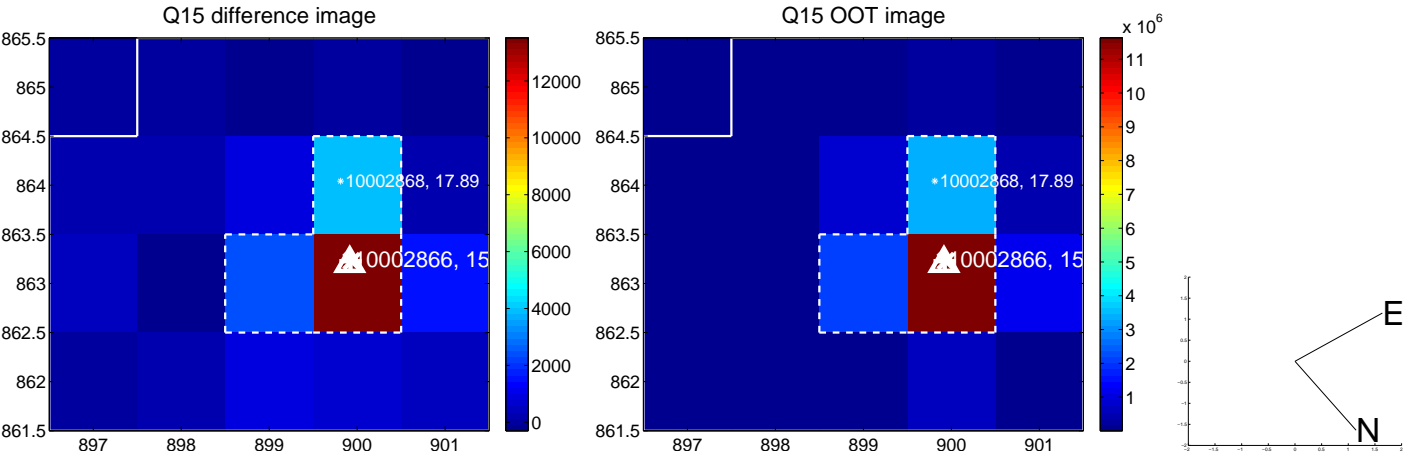
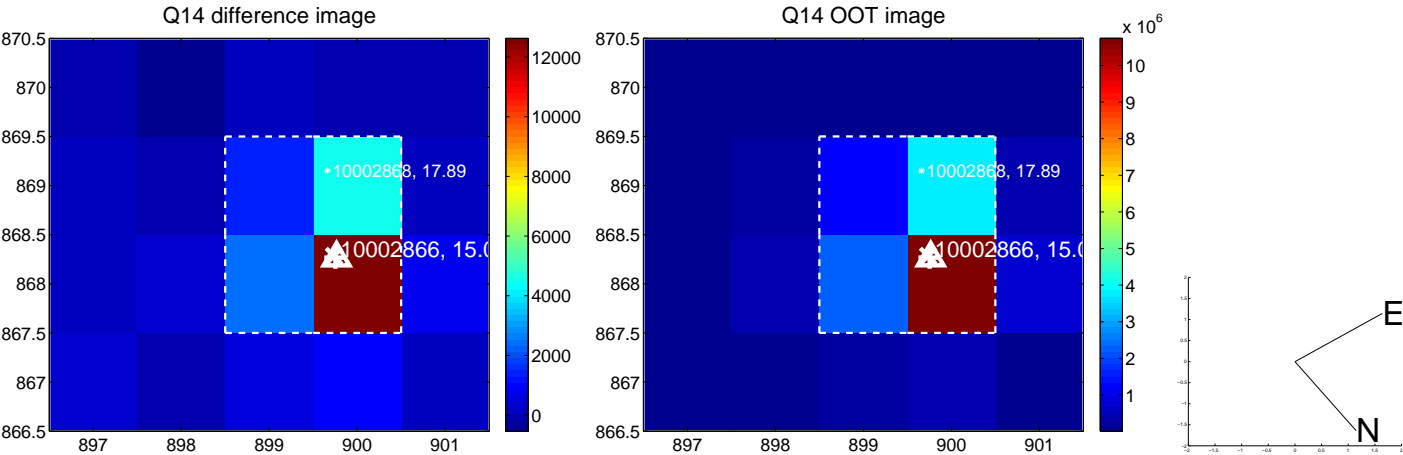
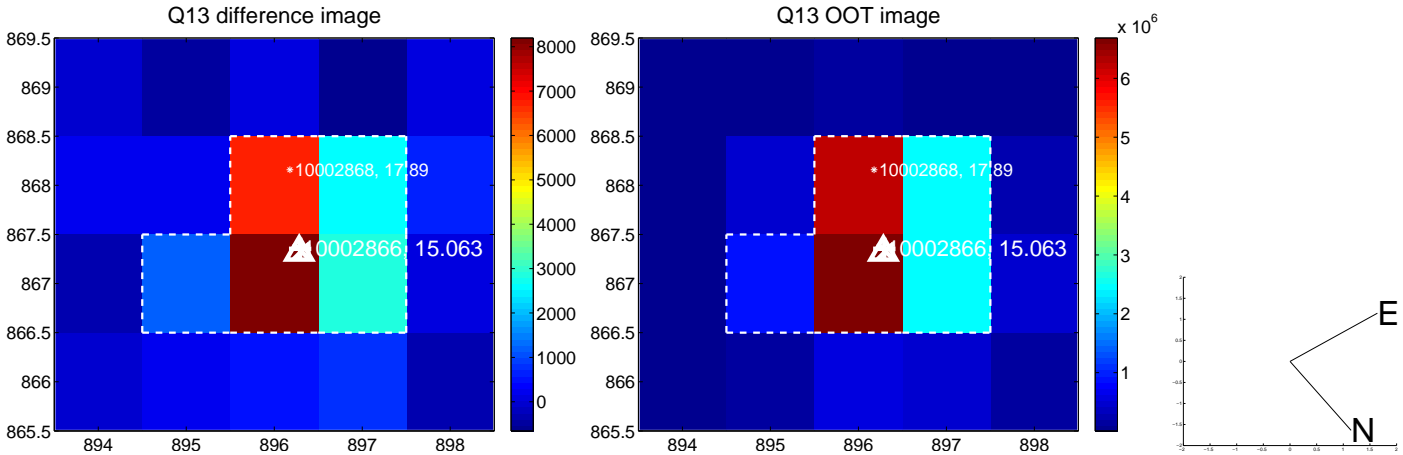
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



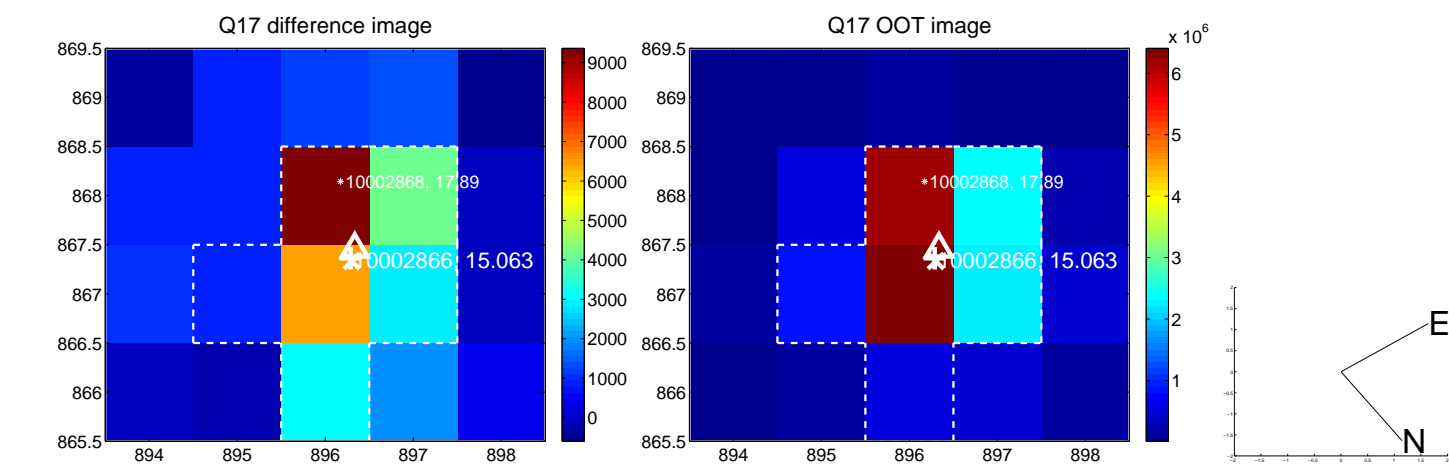
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



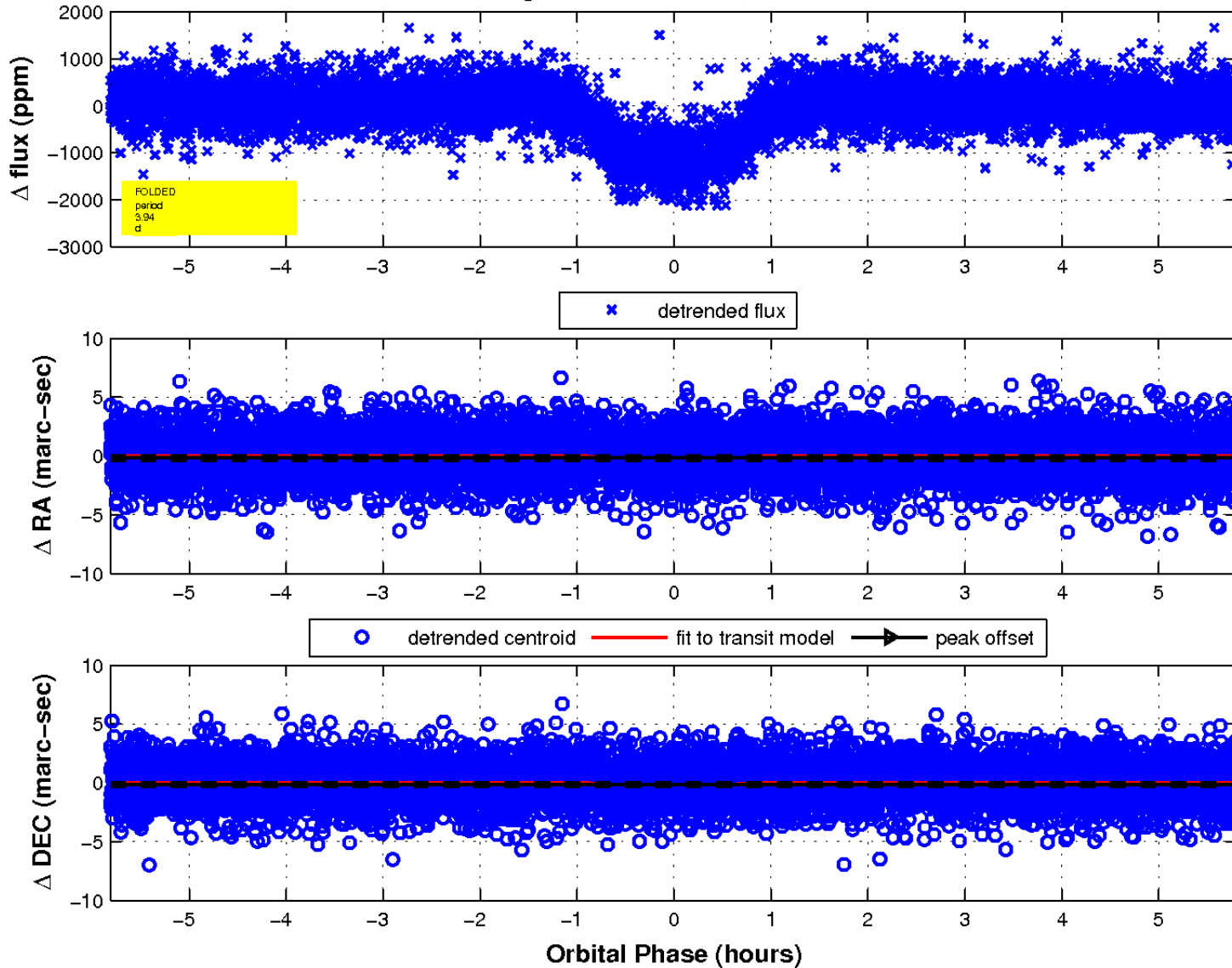
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



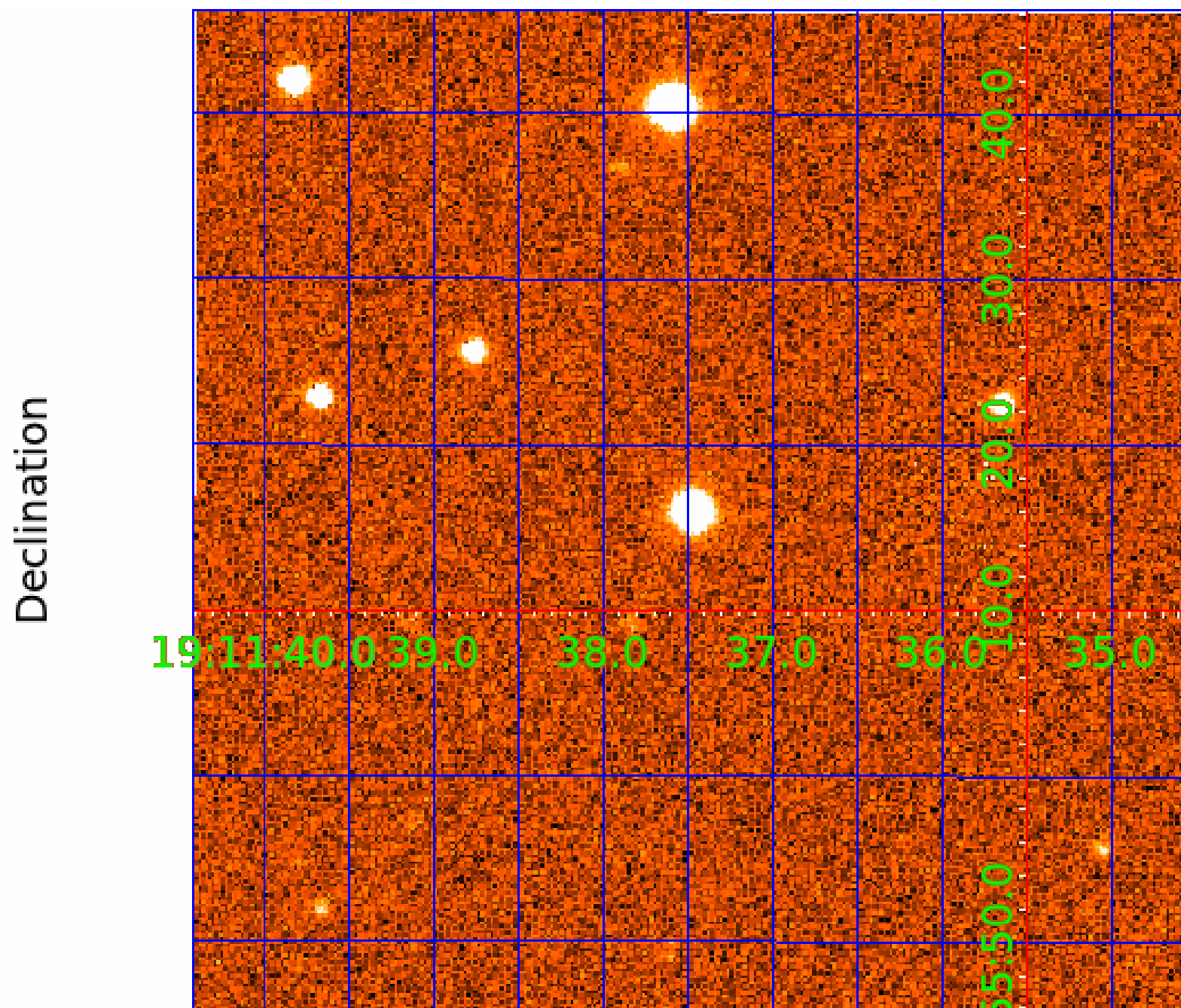
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 3



UKIRT Image



KIC 010002866

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})
010002866-01	OBS	0723.03	10.088800	132.728828	2021.5	1.744	83.0	79.5	0.84	5431	4.65	68.73
010002866-02	OBS	0723.01	3.936998	134.216461	1252.0	1.937	76.3	85.8	0.84	5431	3.47	241.03
010002866-03	OBS	0723.02	28.081909	138.751693	1788.3	4.601	58.2	57.7	0.84	5431	3.74	17.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010002866-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010002866-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010002866-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

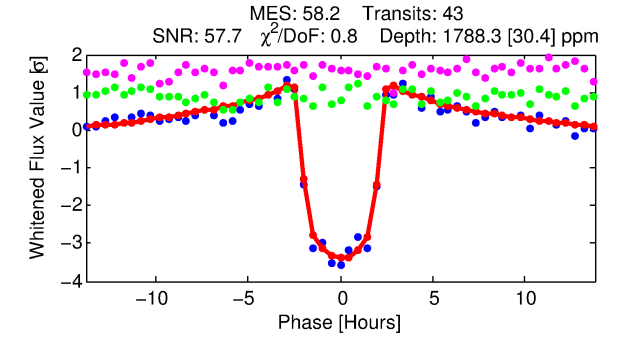
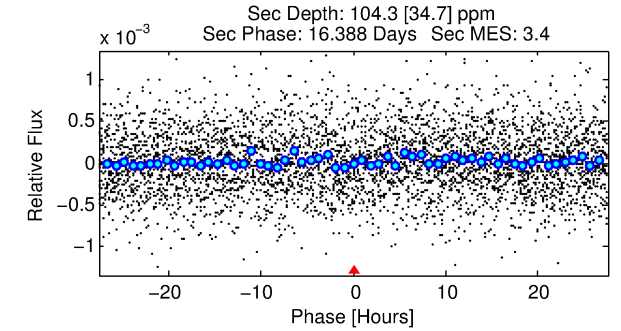
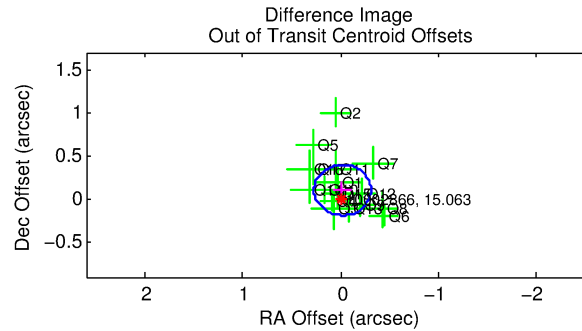
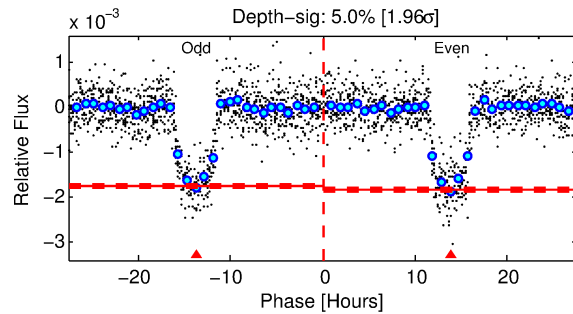
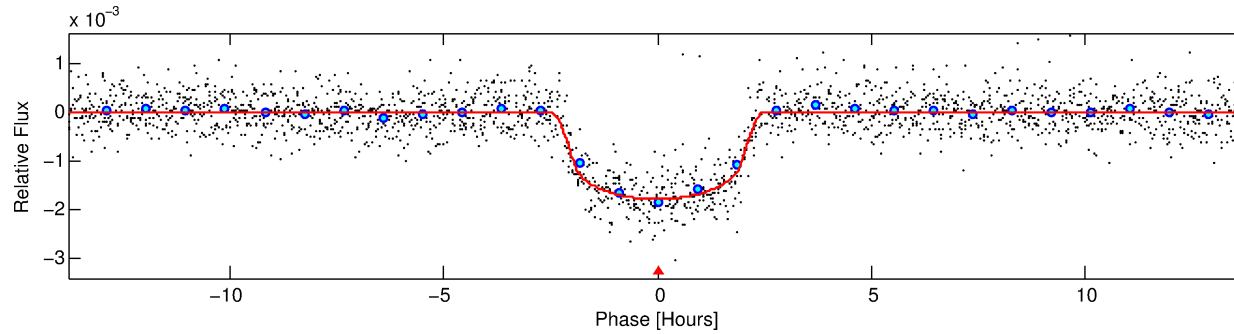
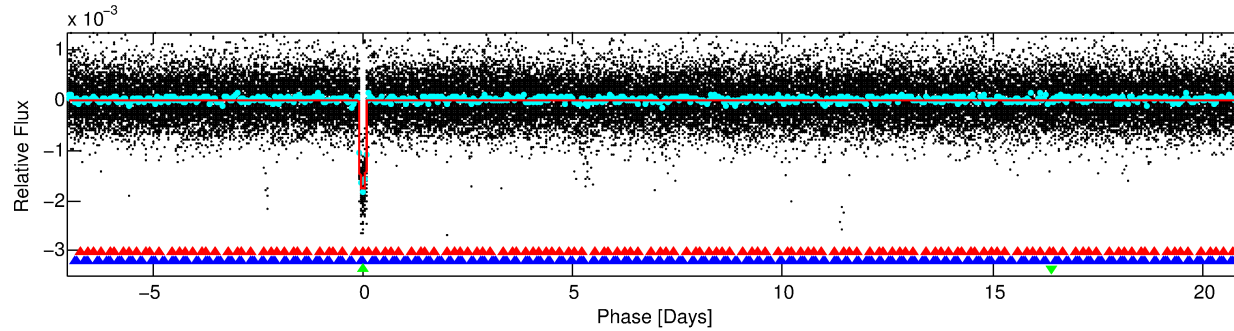
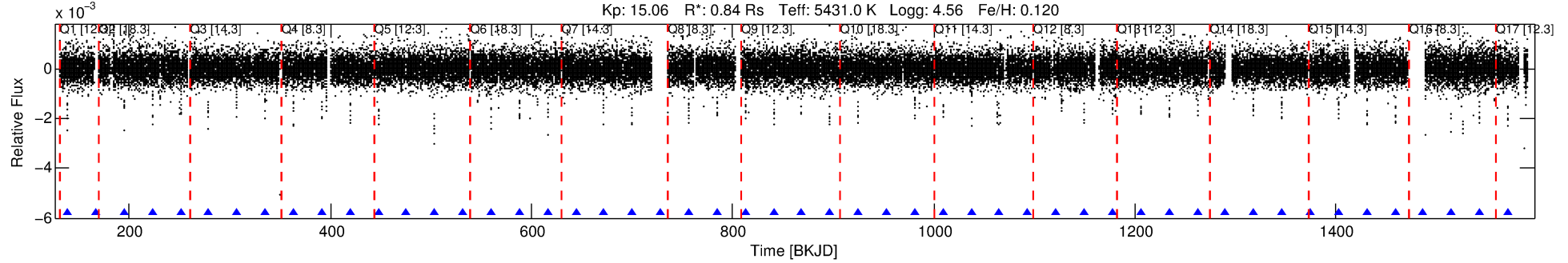
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010002866-03

No Significant Match Found

DV One-Page Summary

KIC: 10002866 Candidate: 3 of 3 Period: 28.082 d
KOI: K00723.02 Name: Kepler-222d Corr: 0.992



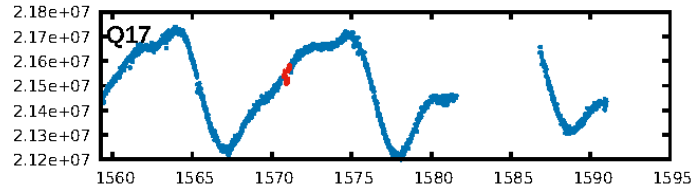
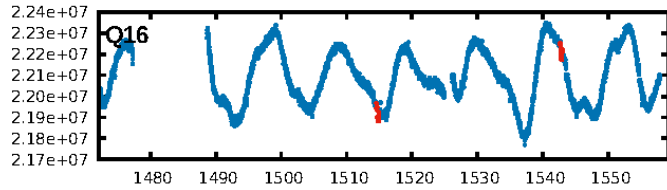
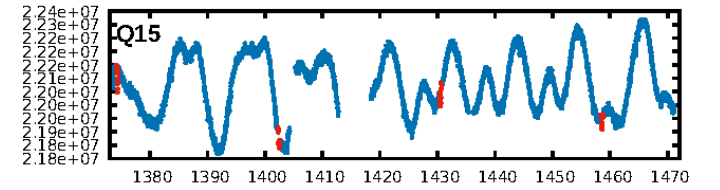
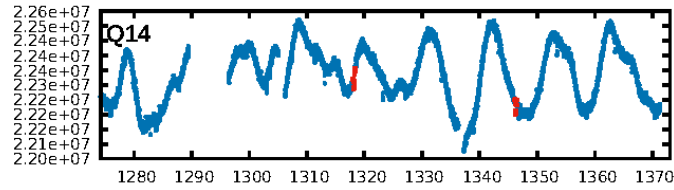
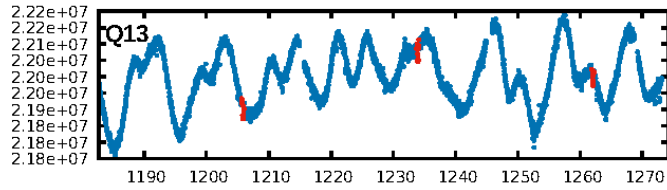
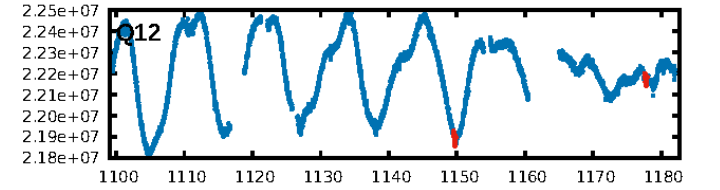
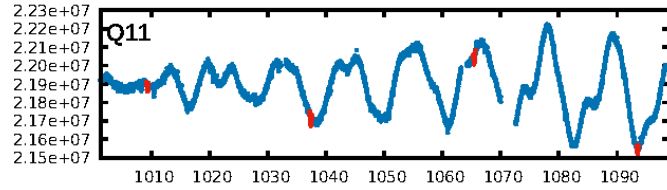
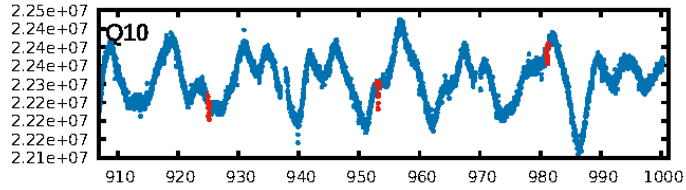
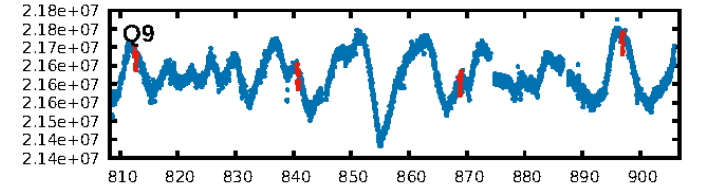
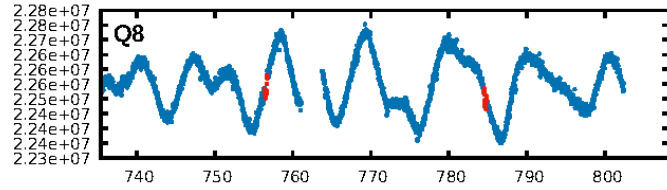
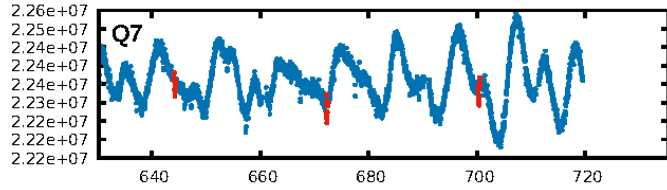
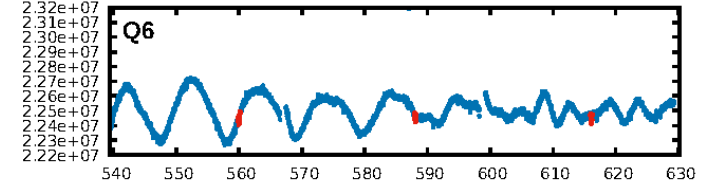
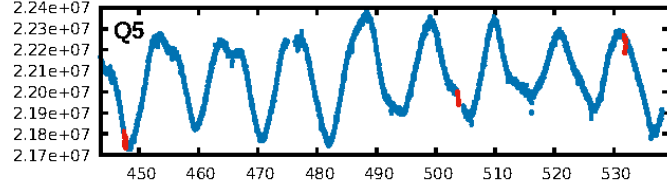
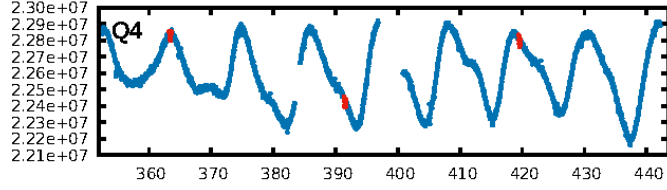
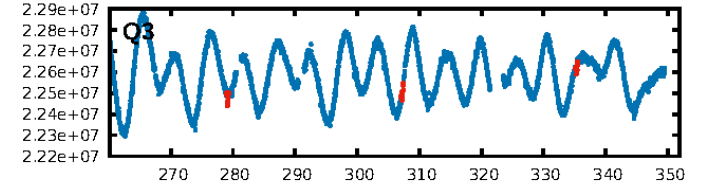
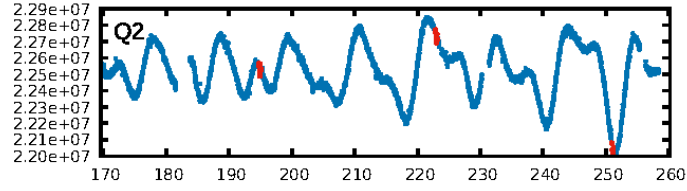
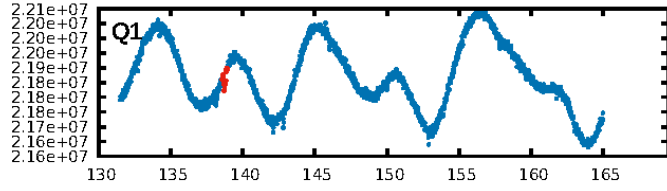
DV Fit Results:

Period = 28.08191 [0.00004] d
Epoch = 138.7517 [0.0013] BKJD
Rp/R* = 0.0406 [0.0044]
a/R* = 38.09 [15.56]
b = 0.65 [0.38]
Seff = 17.55 [5.29]
Teq = 522 [39] K
Rp = 3.74 [0.92] Re
a = 0.1776 [0.0333] AU
Ag = 129.47 [62.62] [2.05 σ]
Teffp = 2722 [283] K [7.71 σ]

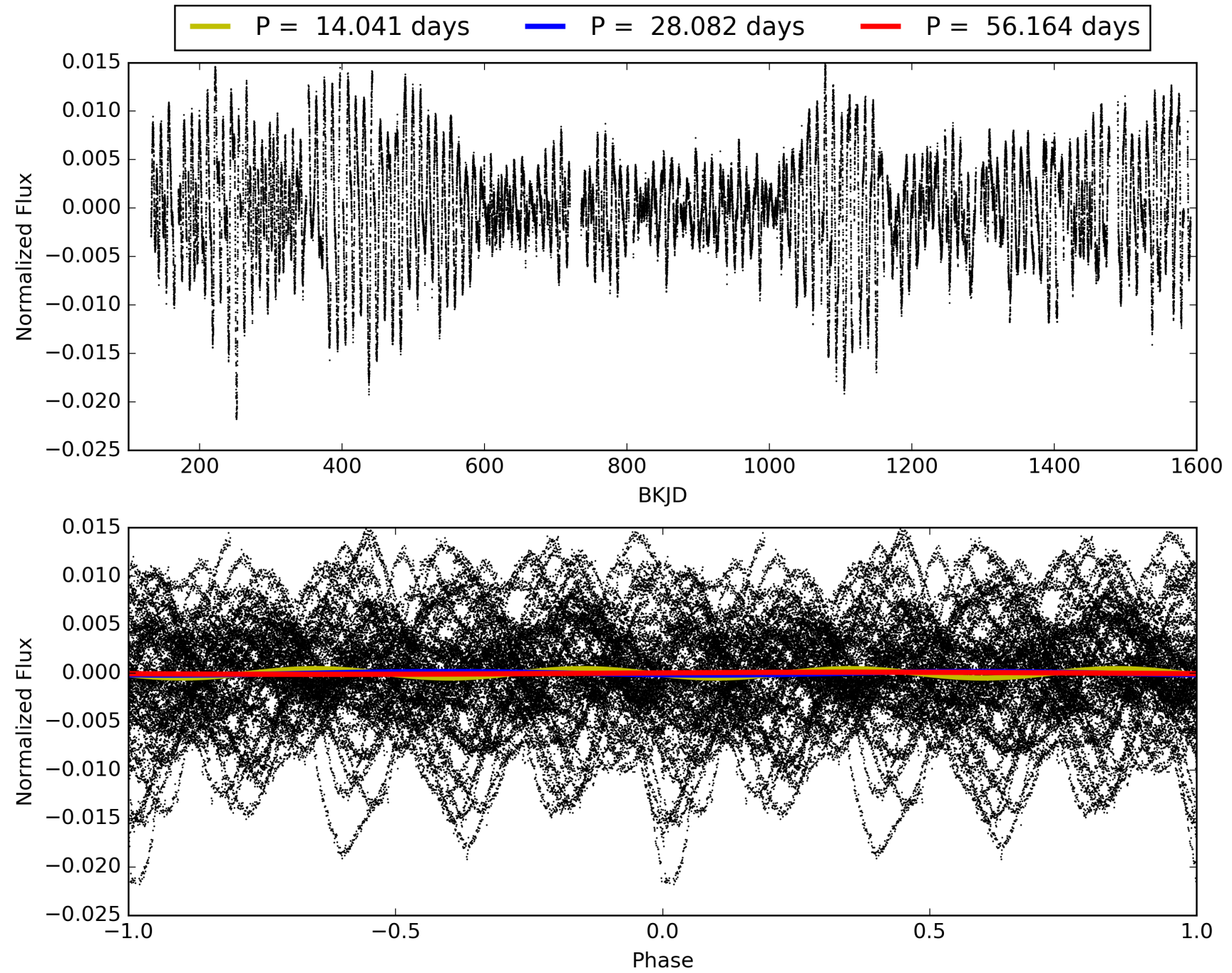
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [87.77 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 67.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [41/41]
GhostDiagnostic-chr: 3.029
Centroid-sig: 59.8%
Centroid-so: 0.190 arcsec [1.33 σ]
OotOffset-rm: 0.106 arcsec [1.09 σ]
KicOffset-rm: 0.088 arcsec [0.90 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.88 [15/17]

TCE 010002866-03, PDC Light Curves

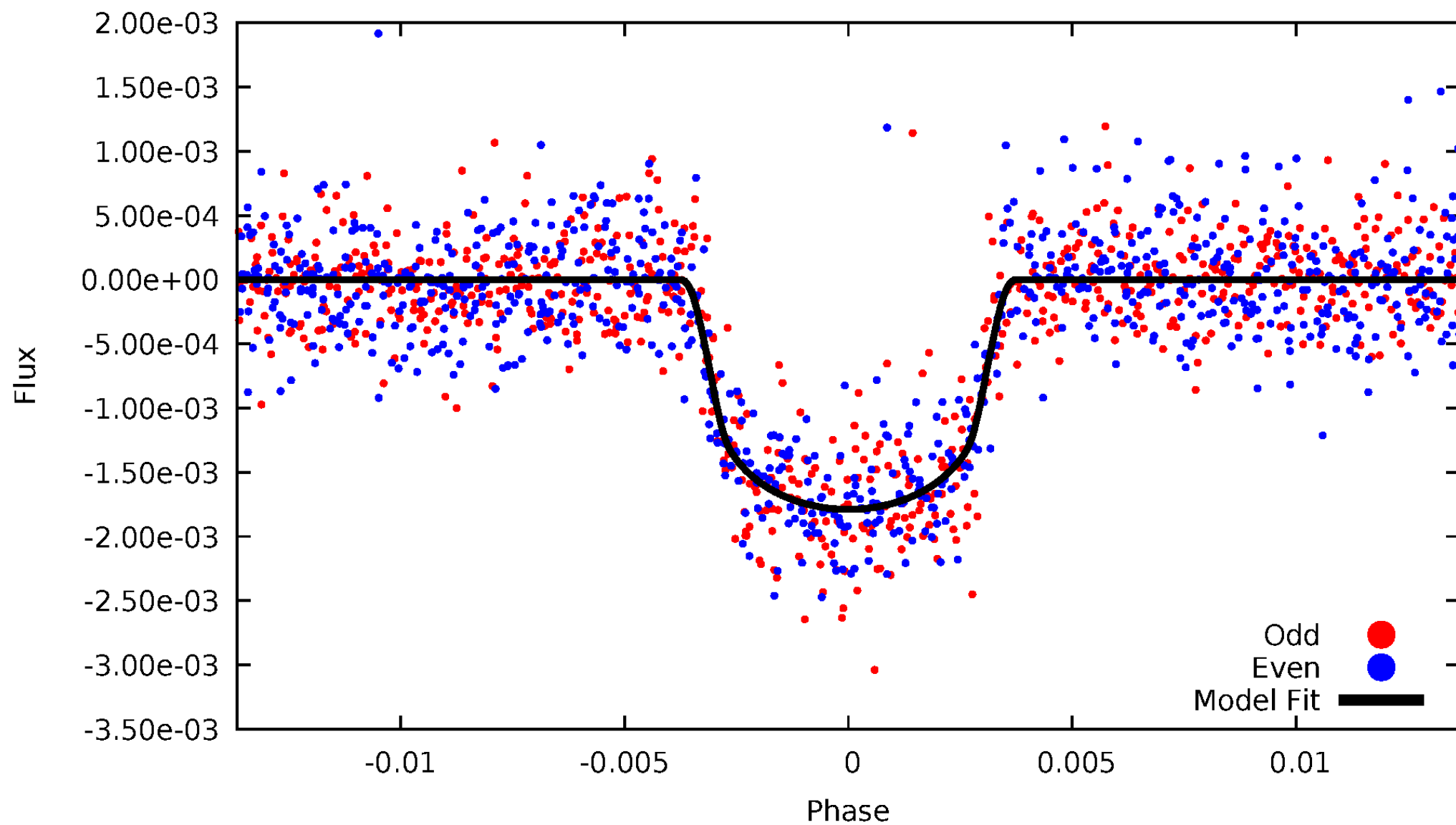


TCE 010002866-03



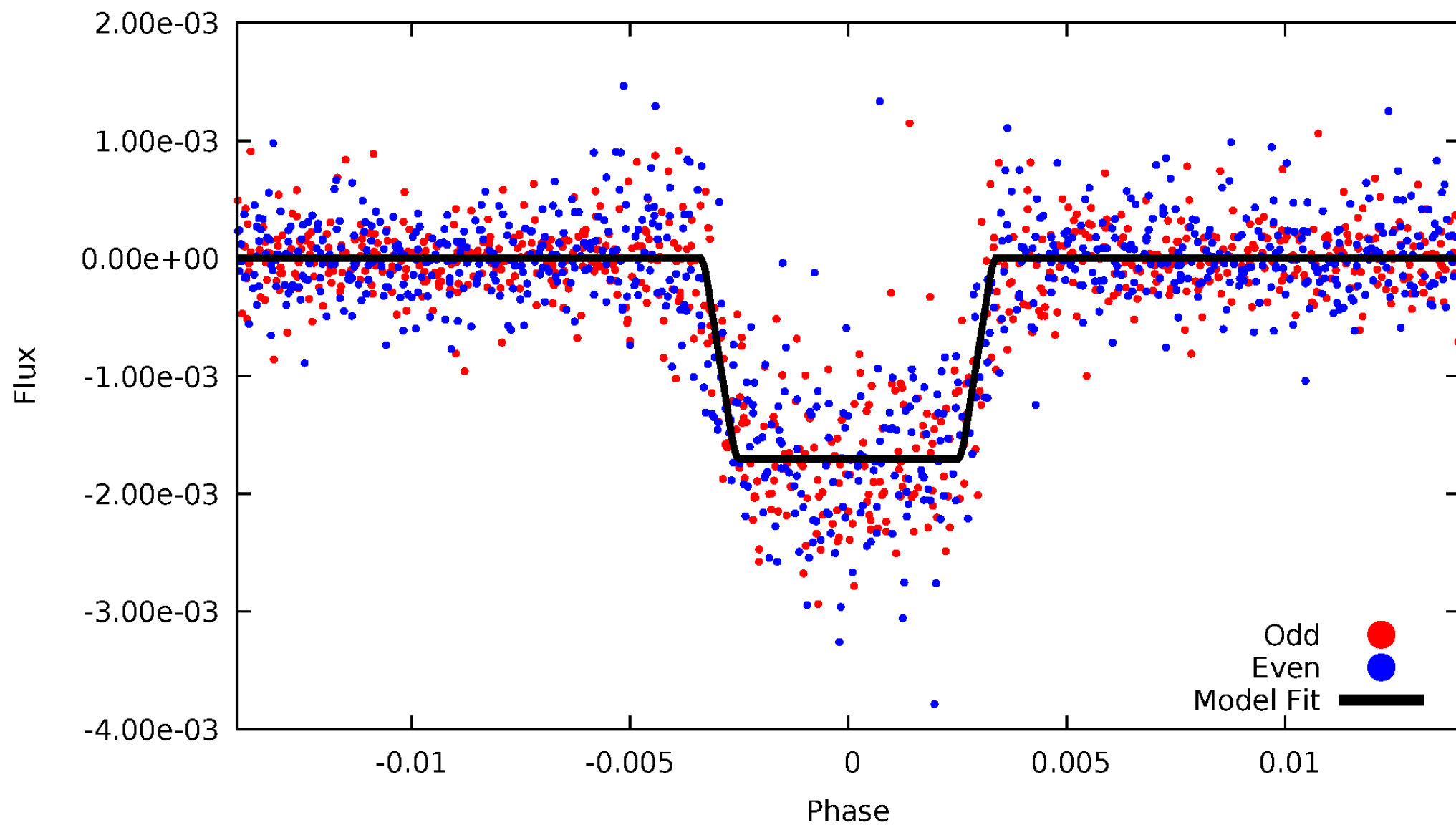
DV Odd/Even

TCE 010002866-03



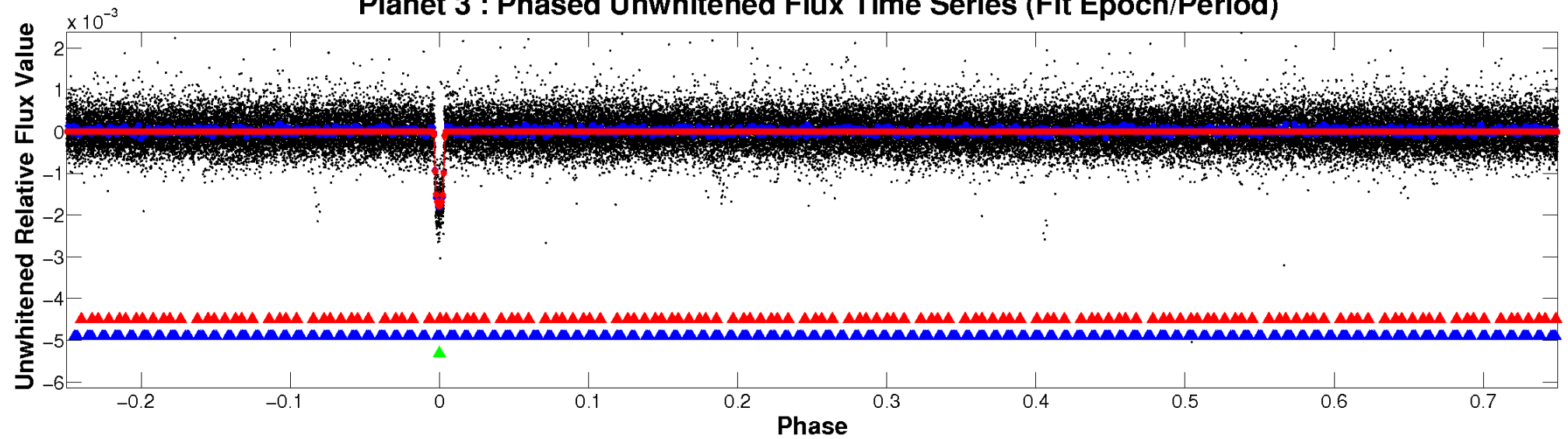
ALT Odd/Even

TCE 010002866-03

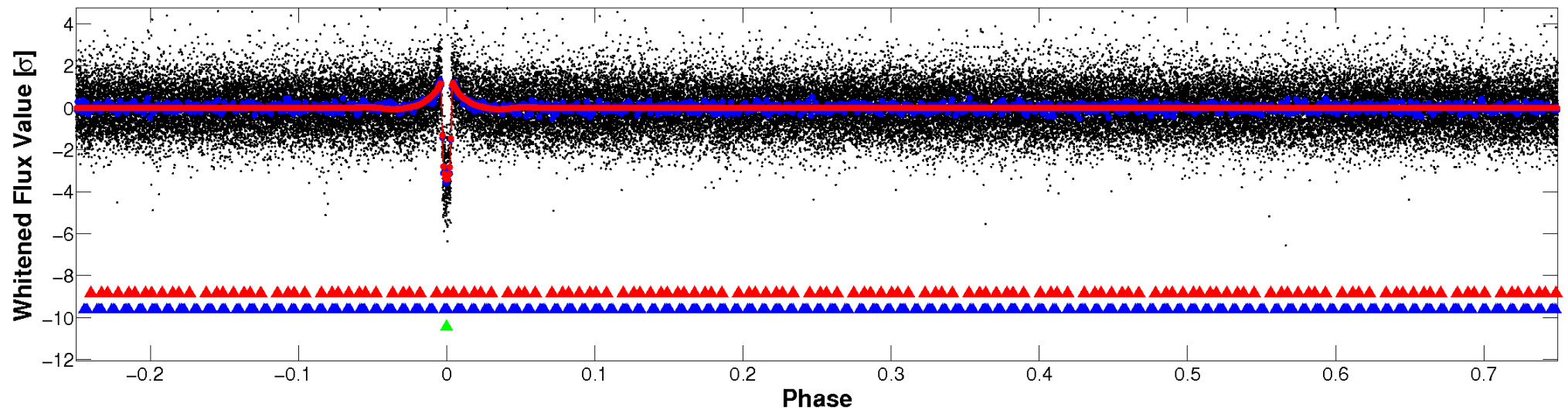


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

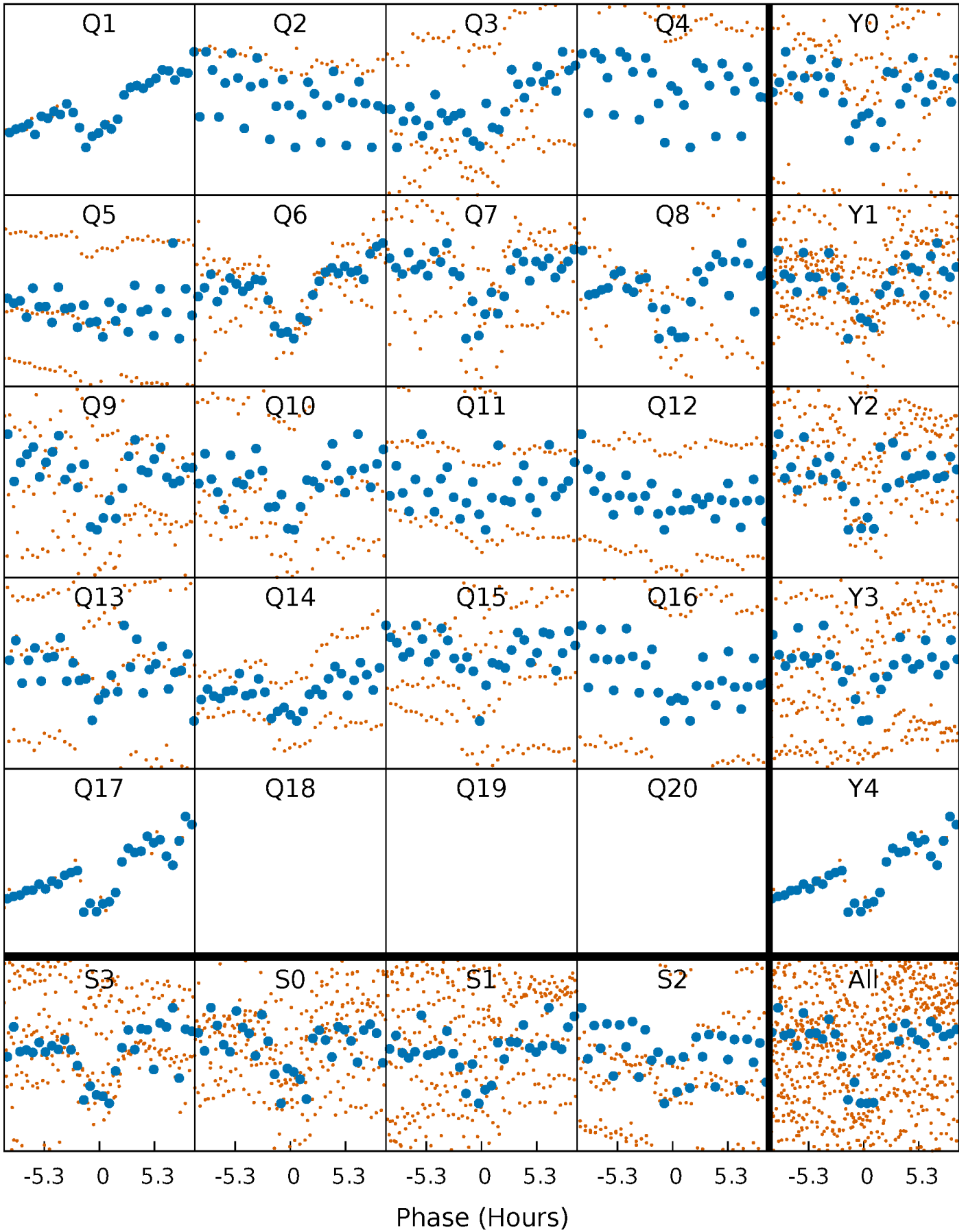


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



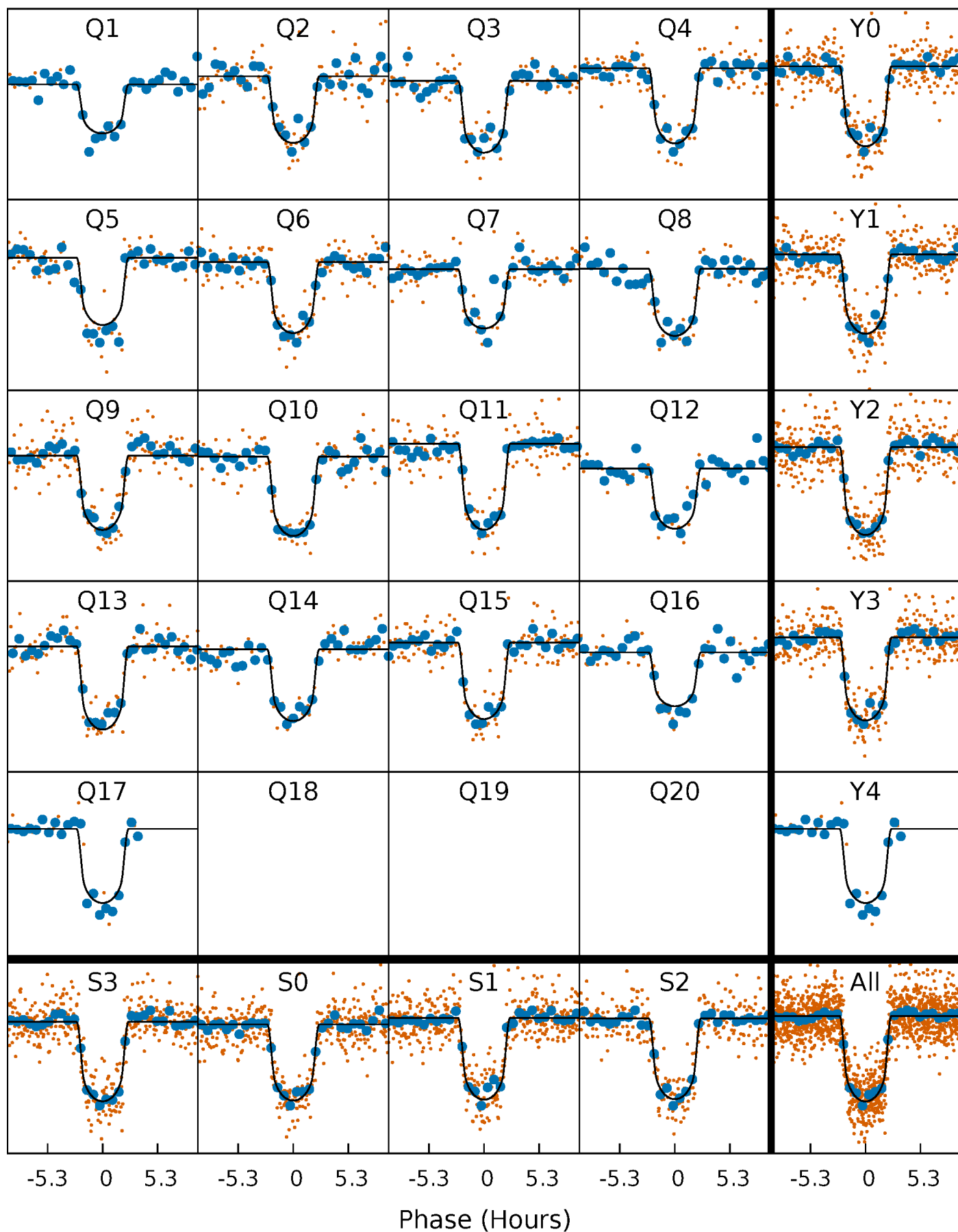
PDC Quarter-Phased Transit Curves

TCE 010002866-03 P= 28.081909 Days $T_0=138.751693$ (BKJD)



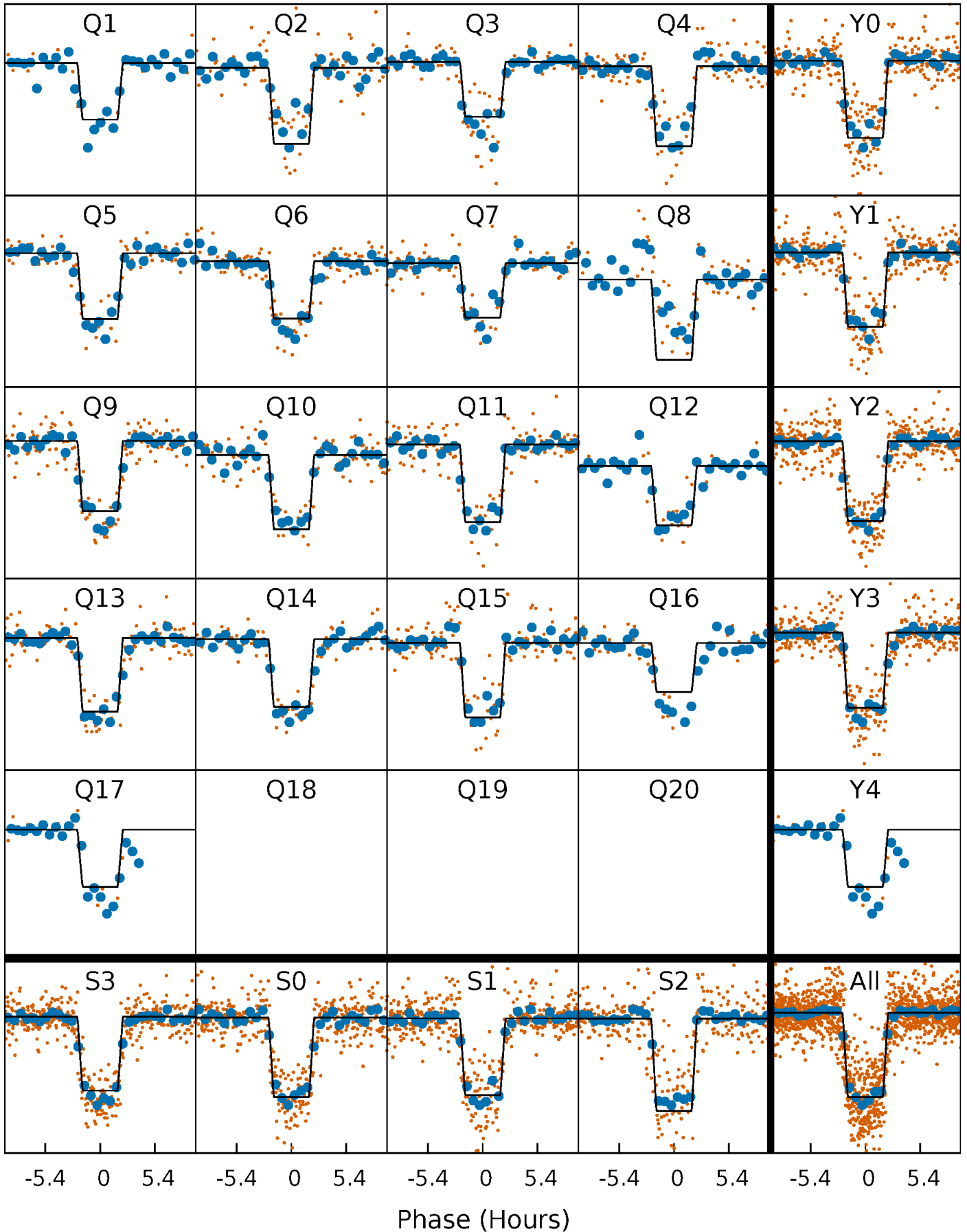
DV Quarter-Phased Transit Curves

TCE 010002866-03 P= 28.081909 Days $T_0=138.751693$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

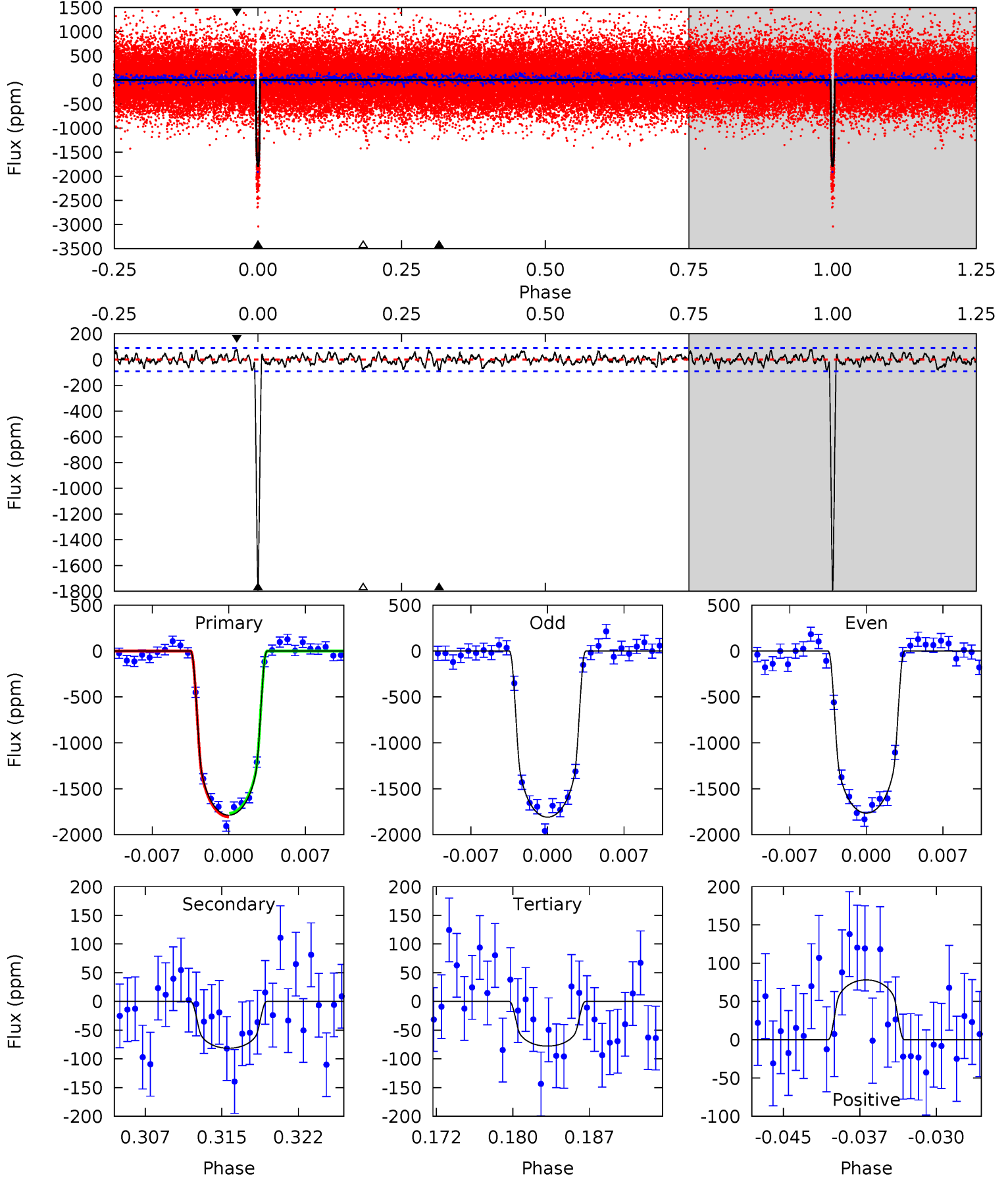
TCE 010002866-03 P= 28.081740 Days $T_0=138.756015$ (BKJD)



DV Model-Shift Uniqueness Test

010002866-03, P = 28.081909 Days, E = 110.669784 Days

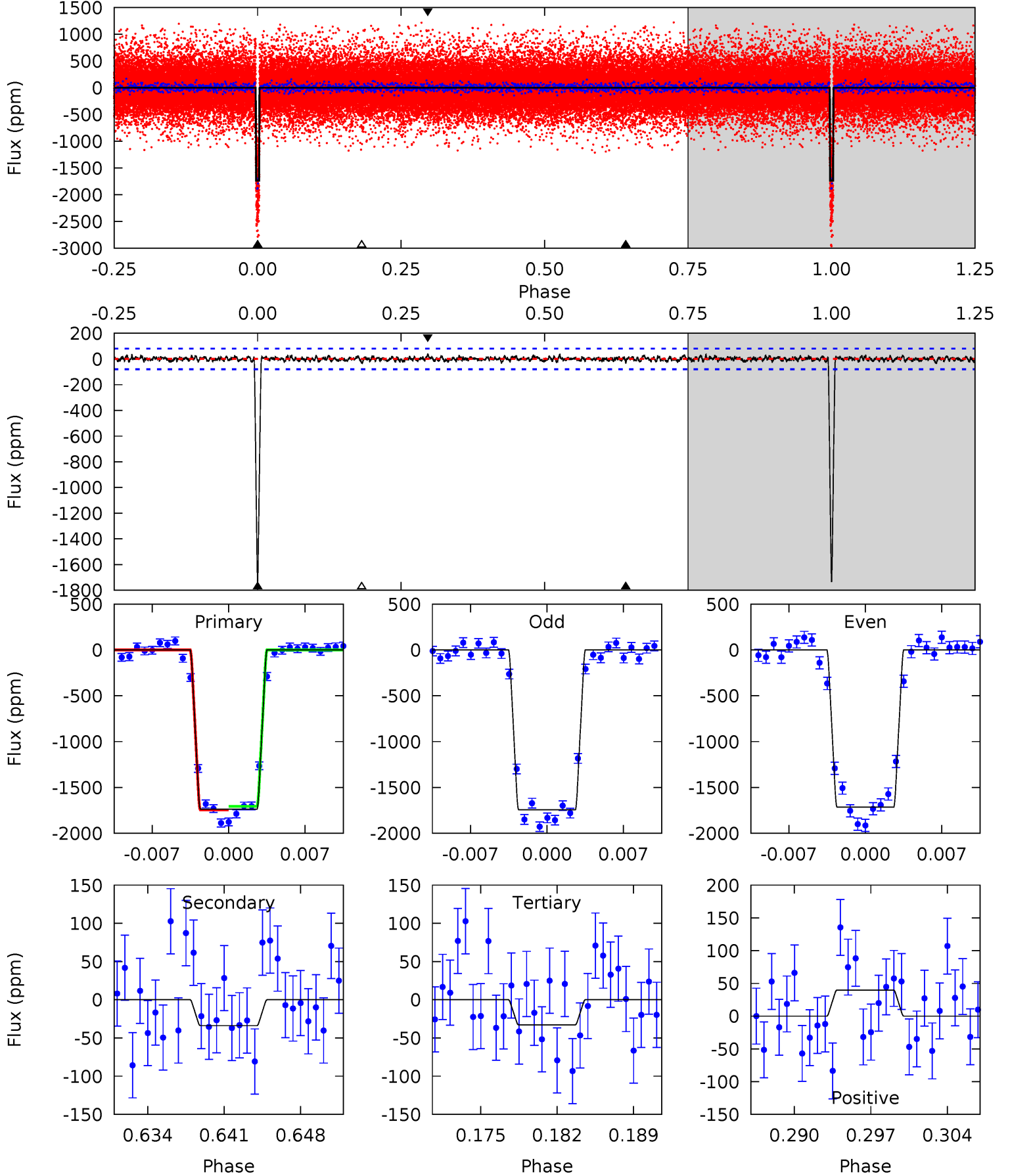
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
100.1	4.57	4.36	4.38	5.08	2.67	1.52	95.8	95.8	0.21	0.19	1.24	1.00	0.04	1.09



Alt Model-Shift Uniqueness Test

010002866-03, P = 28.081740 Days, E = 110.674275 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
110.1	2.15	2.08	2.52	5.10	2.71	0.69	108.0	107.6	0.07	-0.37	0.92	0.95	0.02	1.26



Stellar Parameters For KIC 010002866

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5431^{+164}_{-164}	$4.563^{+0.029}_{-0.152}$	$0.120^{+0.250}_{-0.250}$	$0.843^{+0.186}_{-0.062}$	$0.945^{+0.065}_{-0.098}$	$2.223^{+0.346}_{-0.935}$
	+3%/-3%	+1%/-3%	+208%/-208%	+22%/-7%	+7%/-10%	+16%/-42%
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 010002866-03 / KOI 0723.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 18	$3.89^{+0.58}_{-0.51}$	745^{+37}_{-32}	3150^{+157}_{-146}	92^{+34}_{-28}
Alt.	-34 ± 16	$3.94^{+0.54}_{-0.48}$	746^{+40}_{-31}	2782^{+182}_{-236}	38^{+21}_{-19}

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

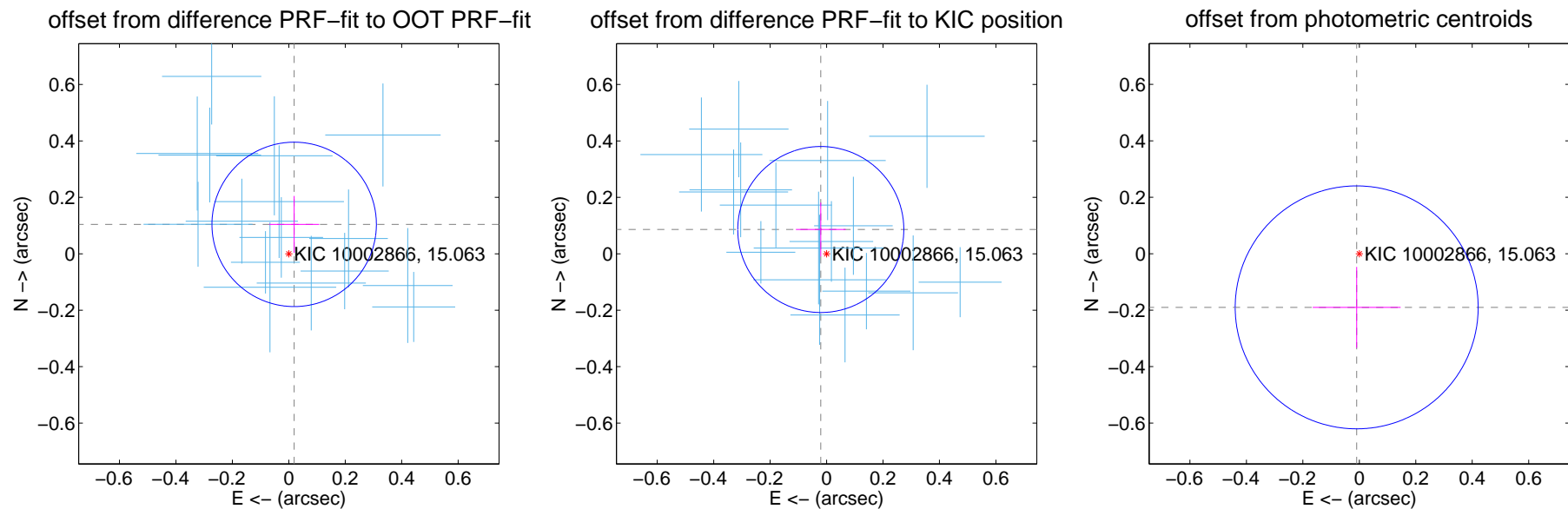
DV Centroid Data

Supplemental centroid analysis for 010002866-03. Kepler magnitude: 15.06. Transit SNR 57.67

There are 17 quarters with good PRF difference image offsets

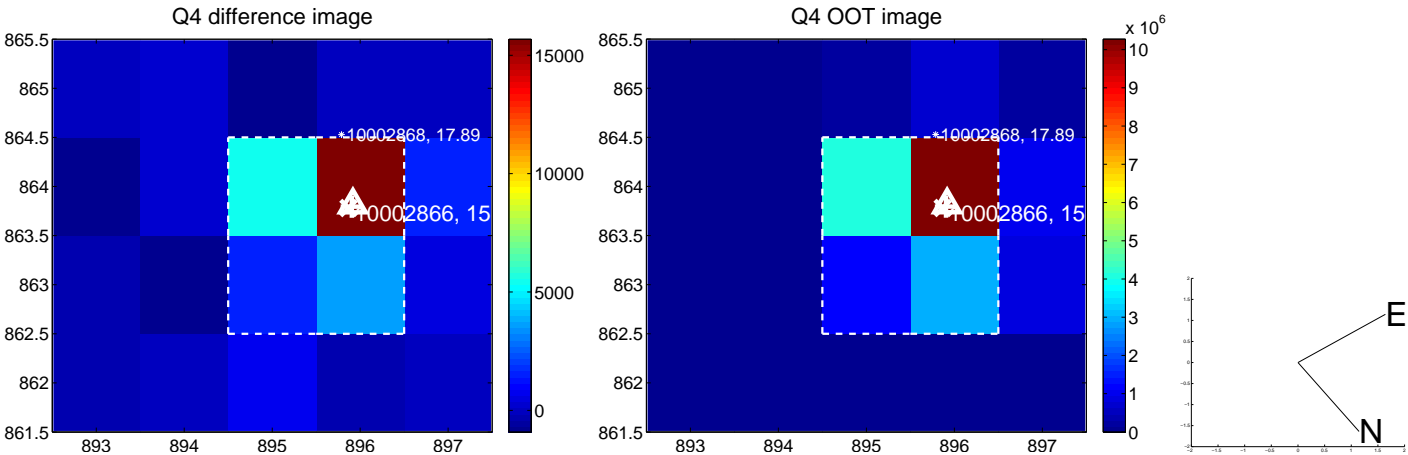
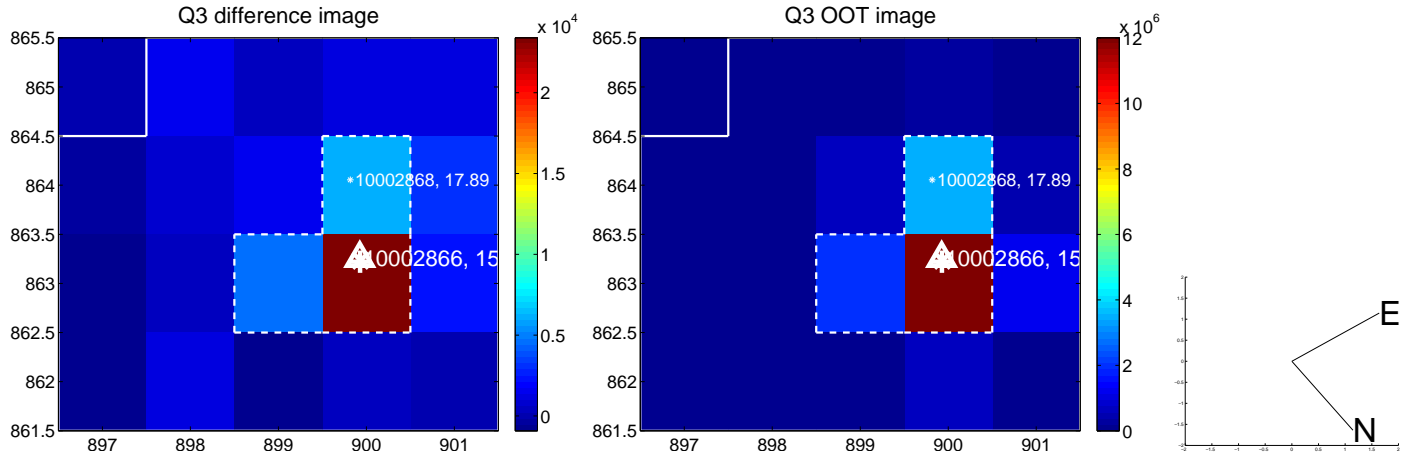
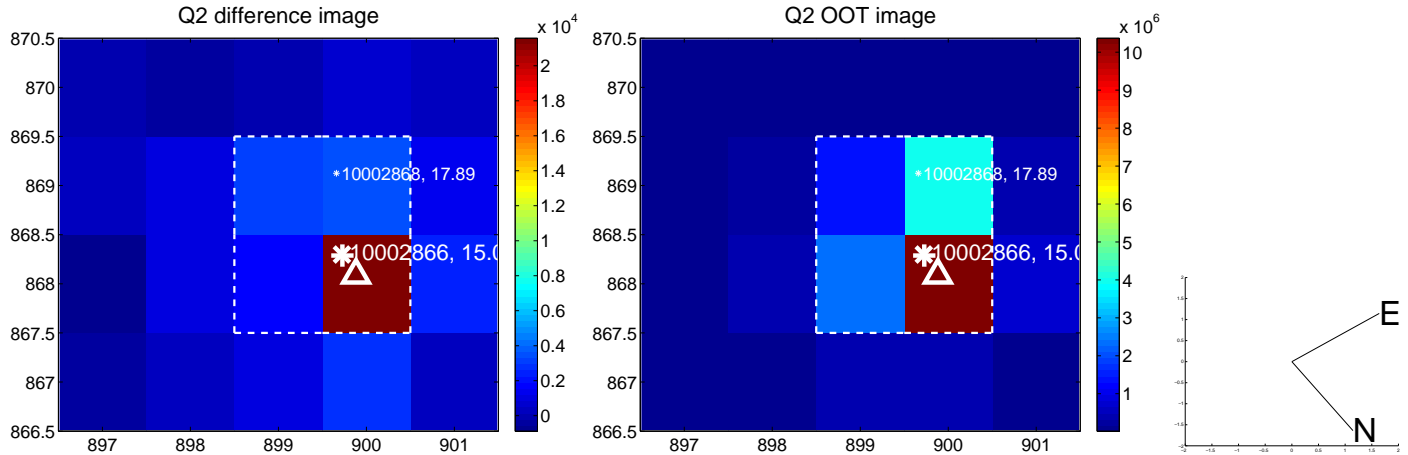
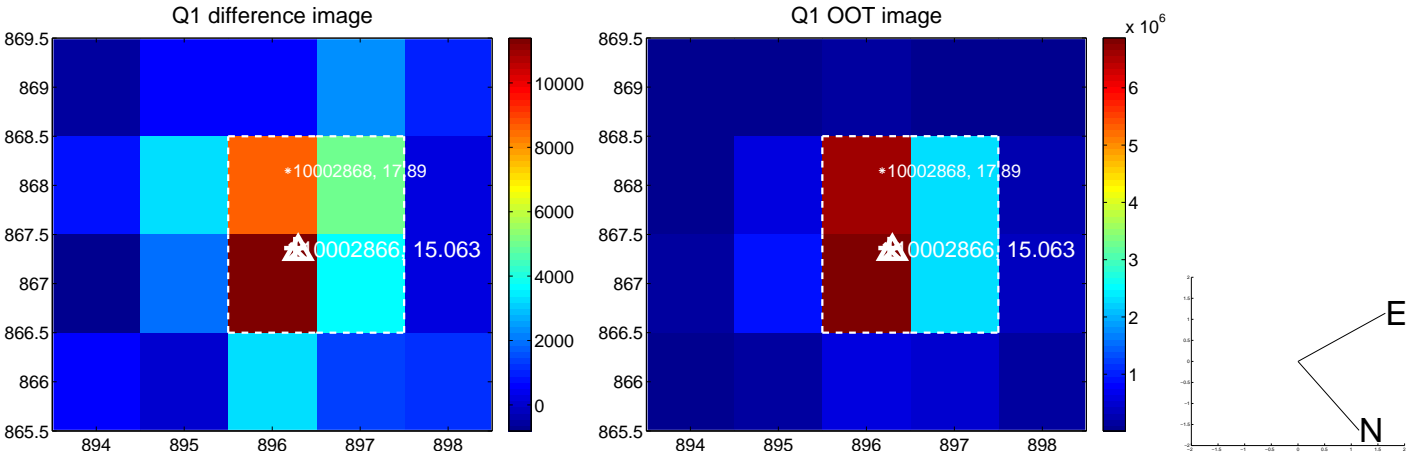
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.106 ± 0.097	1.09	-0.019 ± 0.089	0.104 ± 0.101
PRF-fit source offset from KIC position	0.088 ± 0.098	0.90	0.021 ± 0.088	0.086 ± 0.095
photometric centroid source offset	0.19 ± 0.14	1.33	0.01 ± 0.16	-0.19 ± 0.14

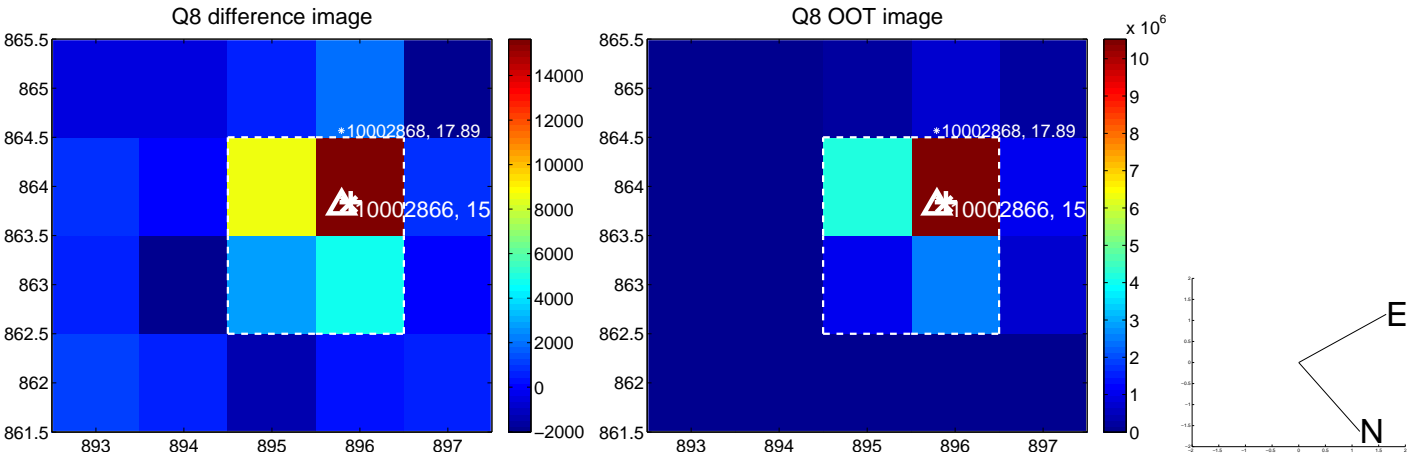
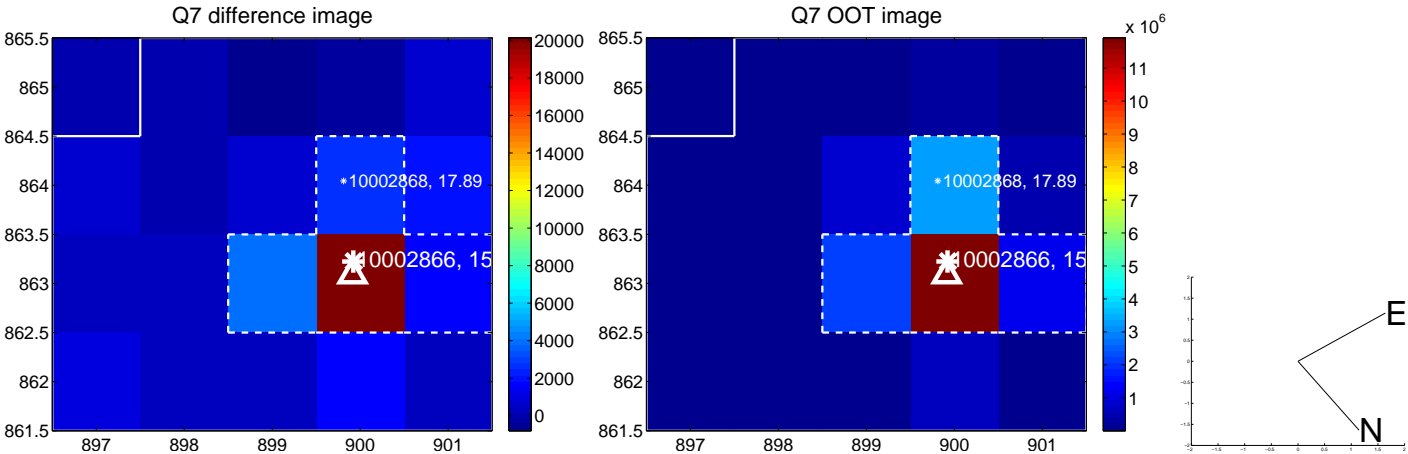
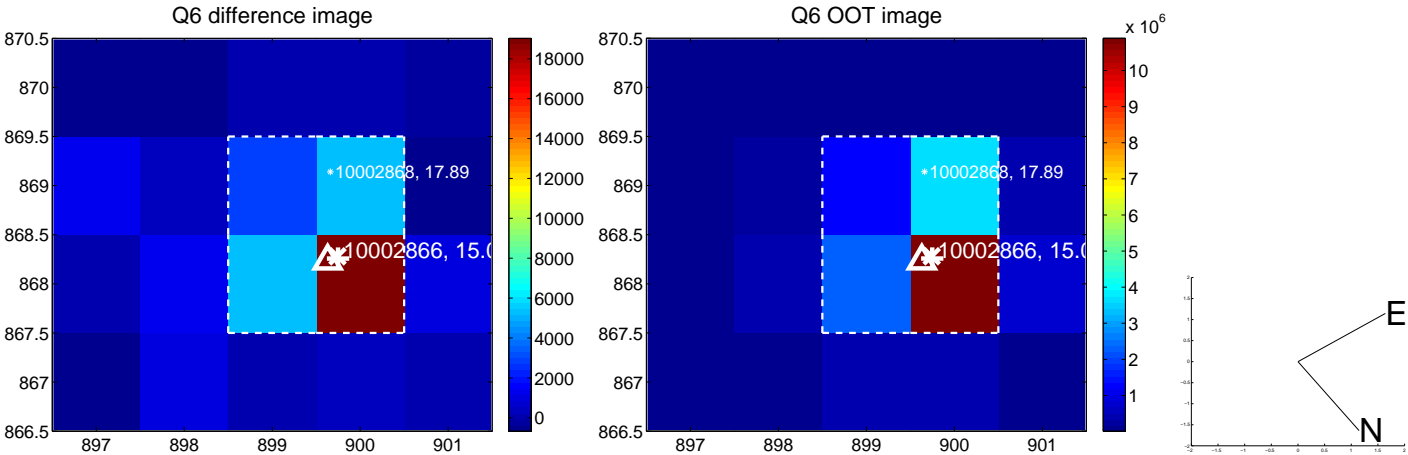
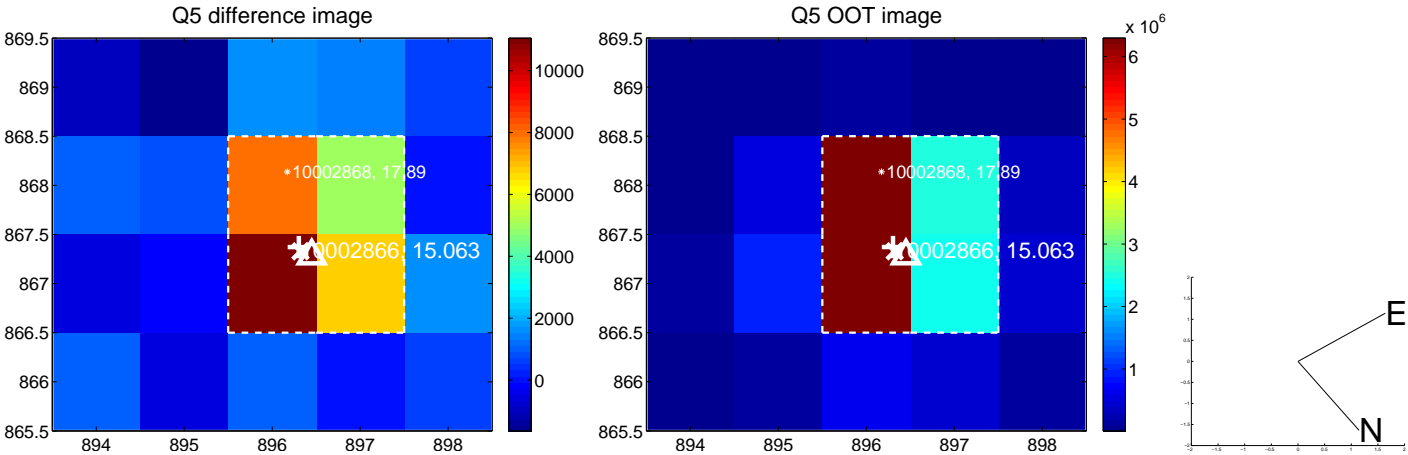


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

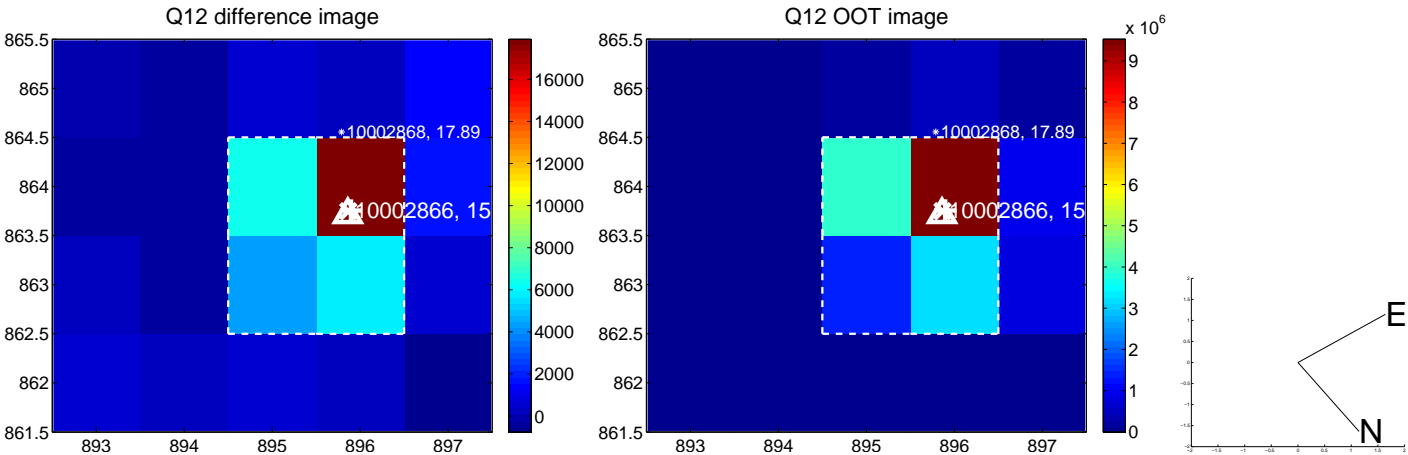
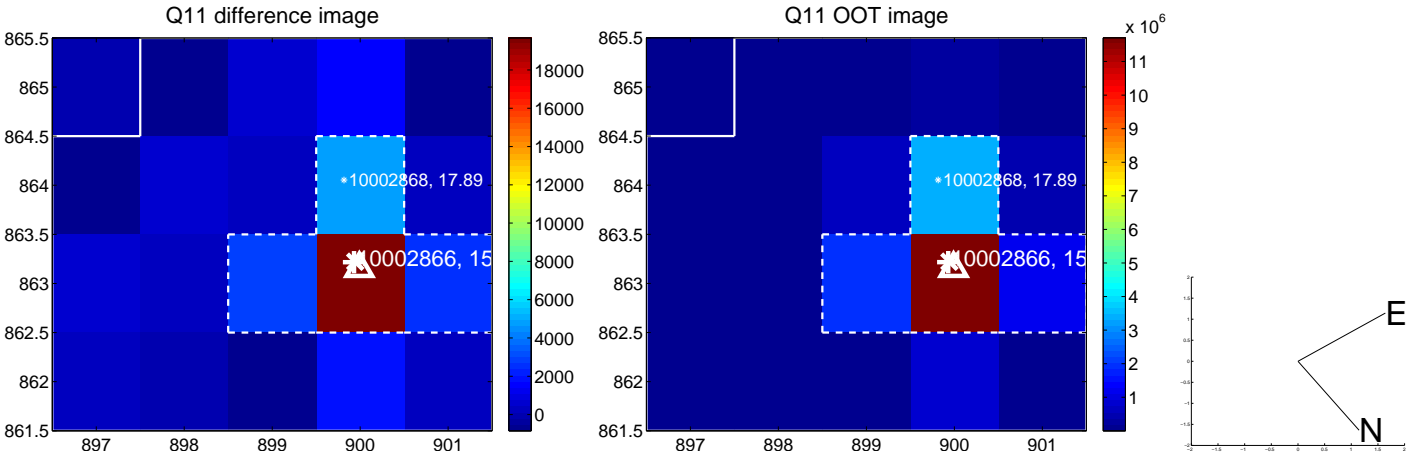
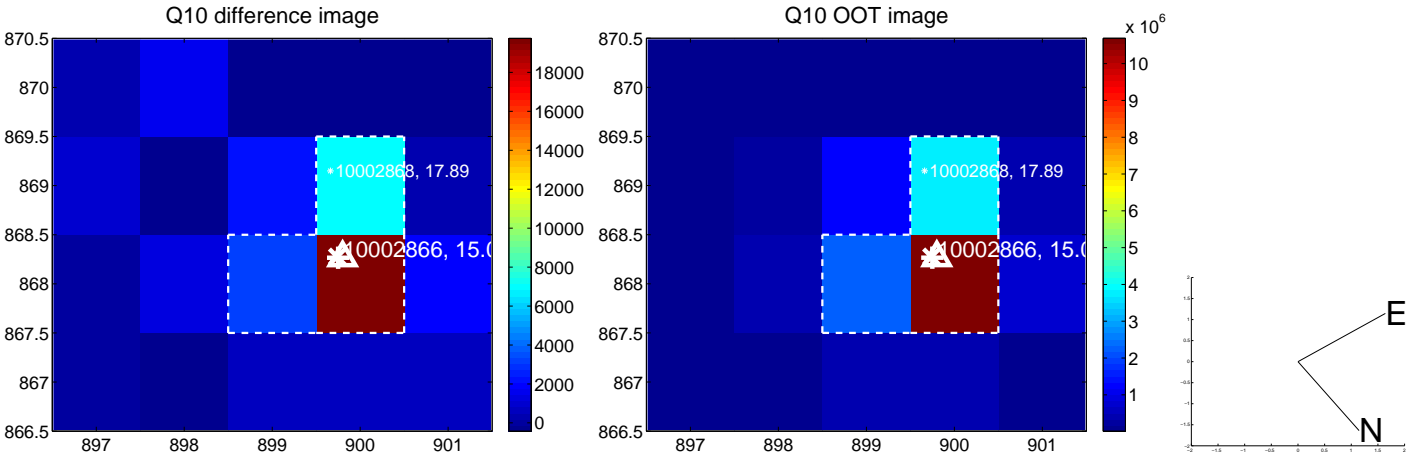
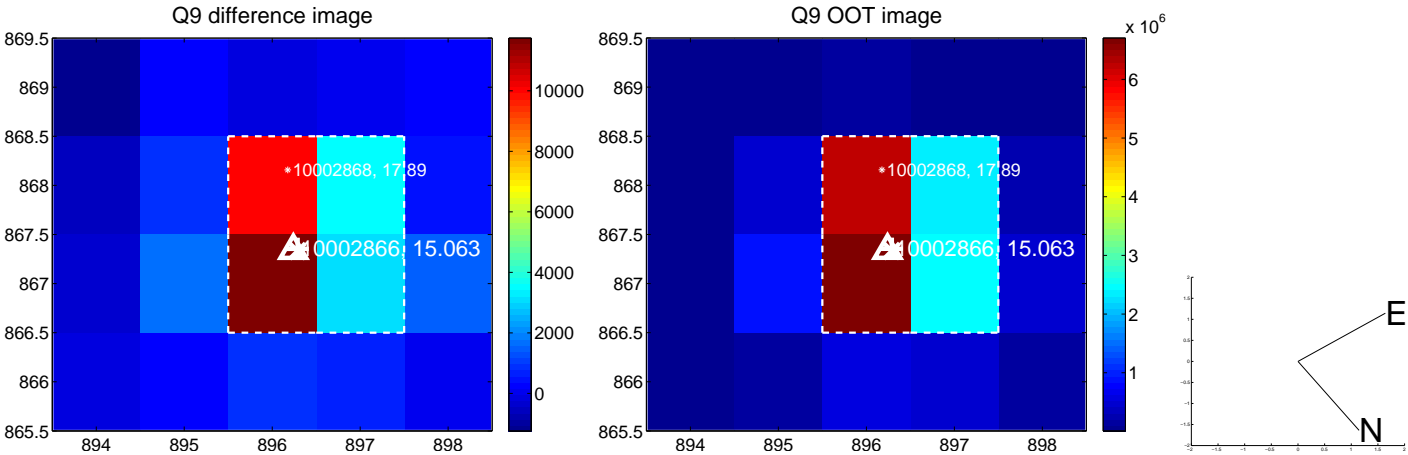
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



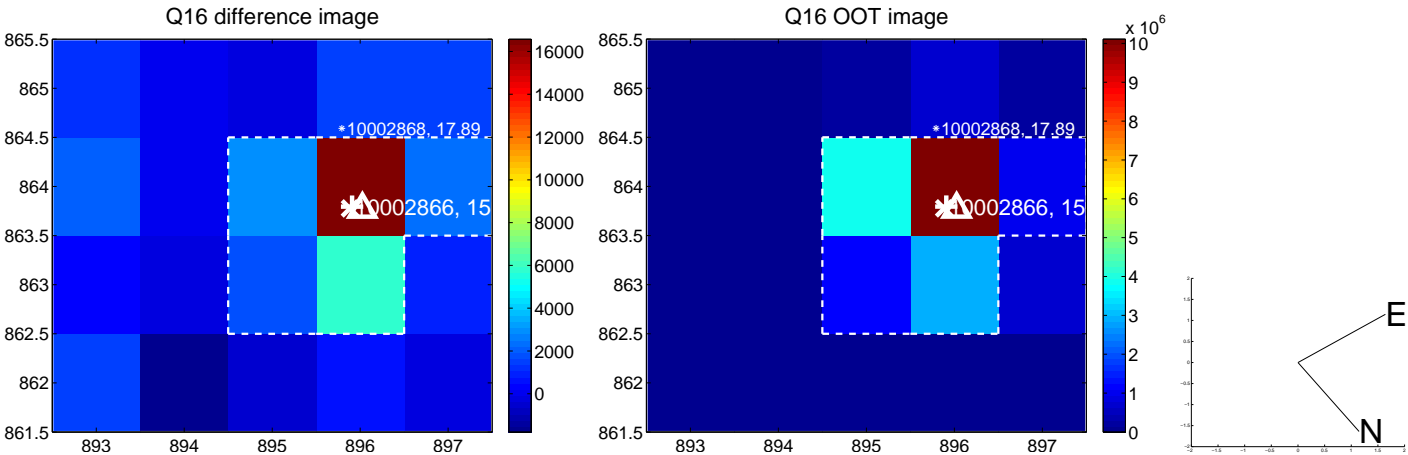
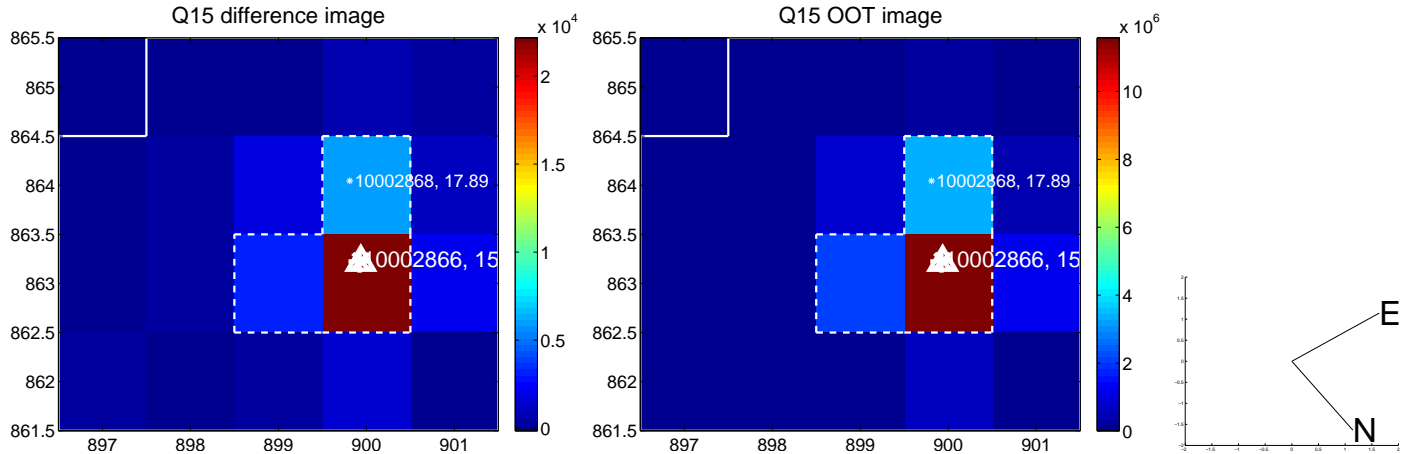
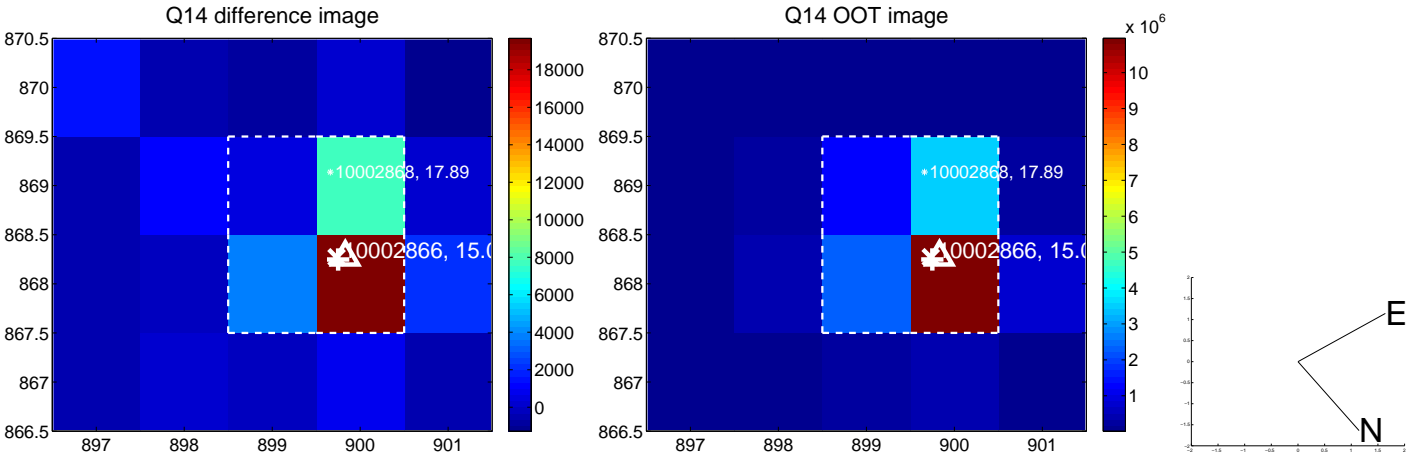
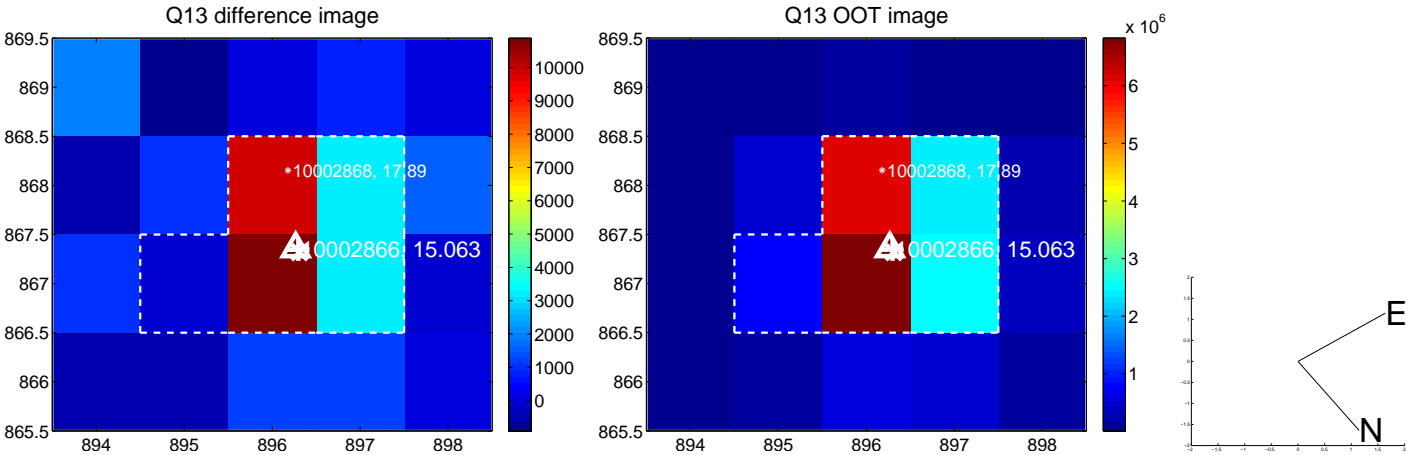
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



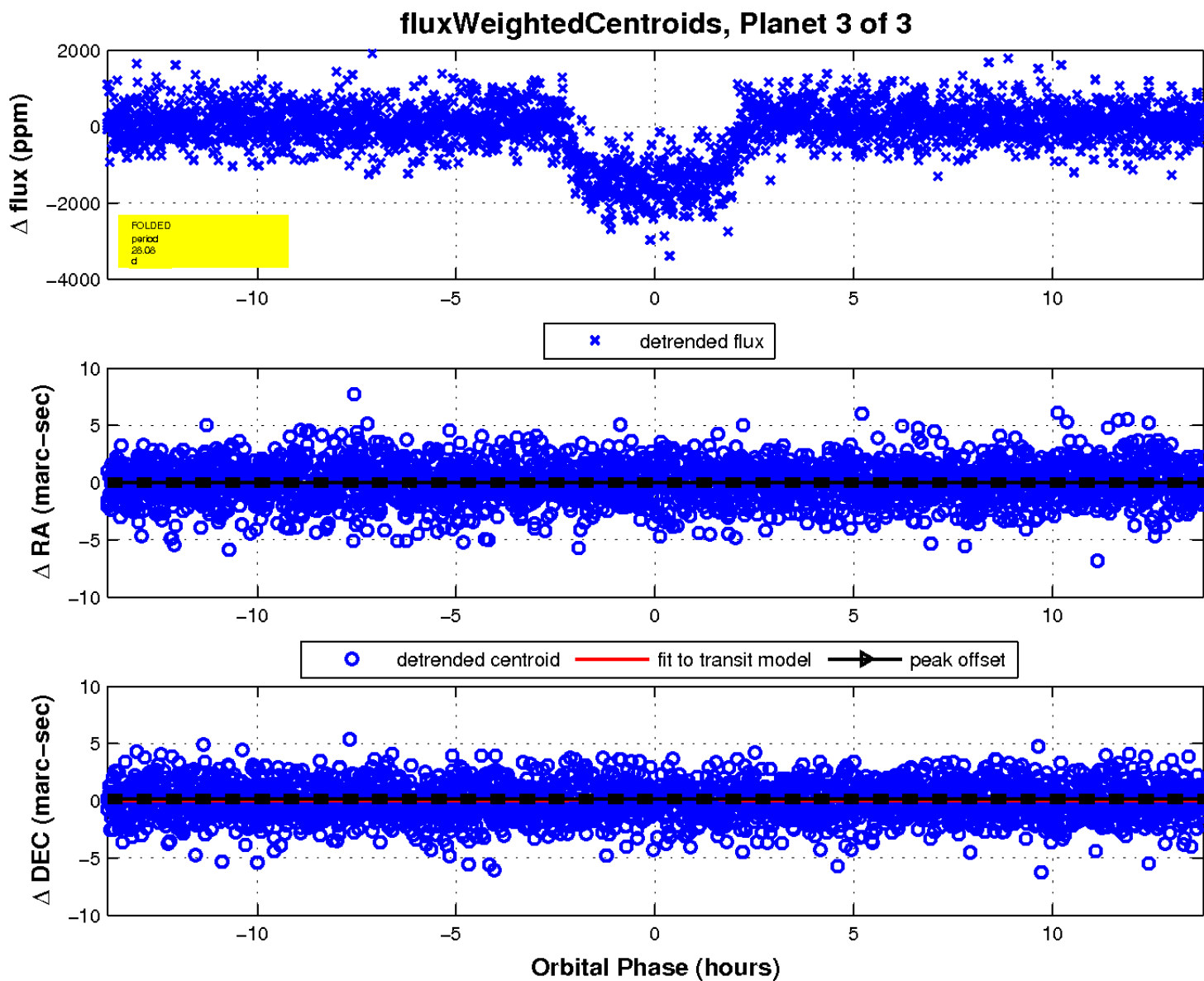
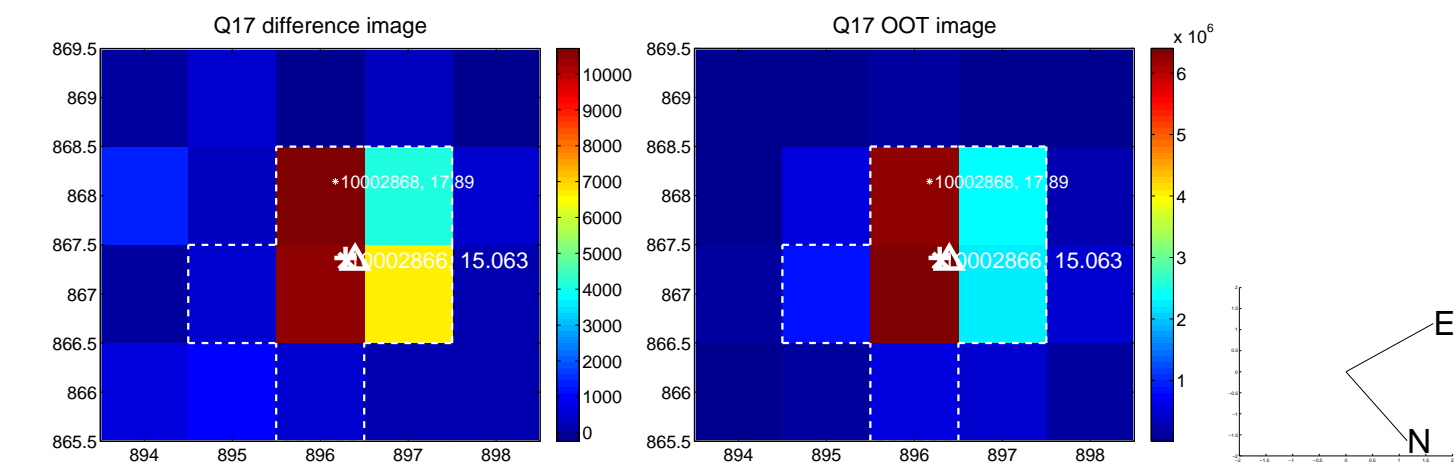
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

