

KIC 010668233

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})
010668233-01	OBS	No	1.192640	131.748499	33.2	5.193	9.9	10.9	2.19	7744	1.30	21339.13
010668233-02	OBS	No	1.192606	132.361083	30.6	6.959	9.1	11.2	2.19	7744	1.40	21339.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010668233-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010668233-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

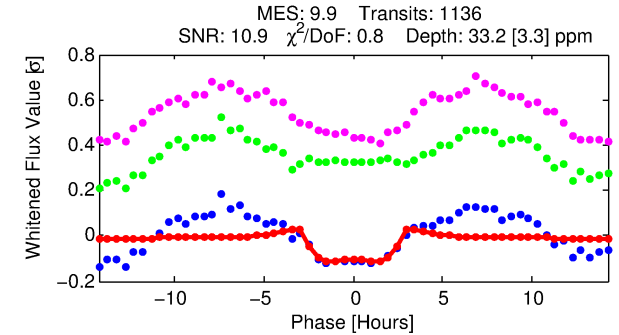
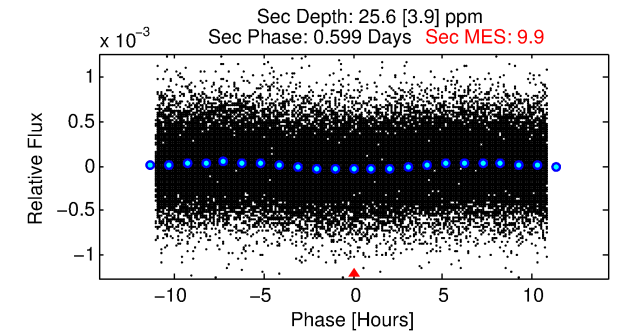
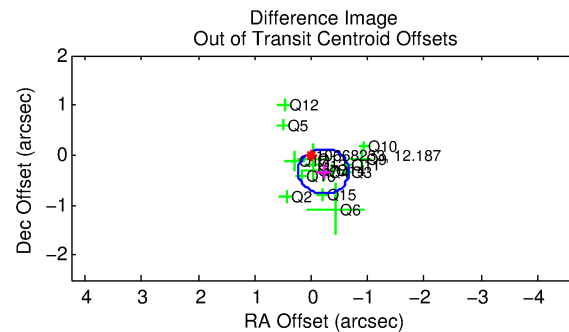
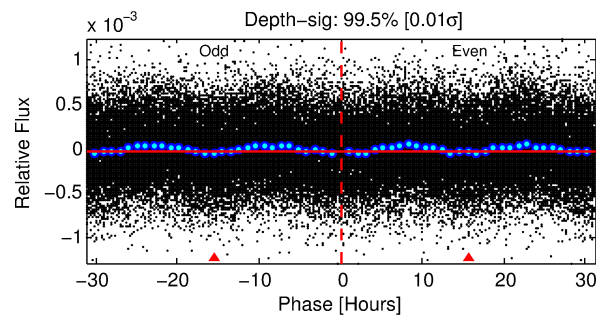
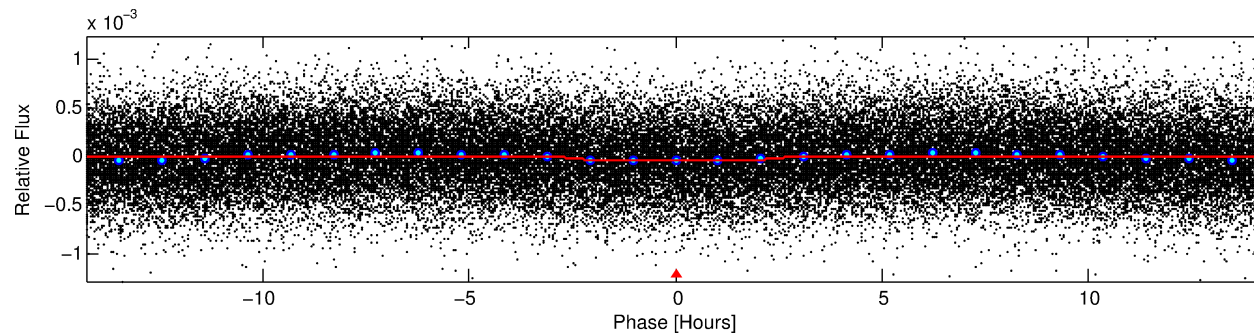
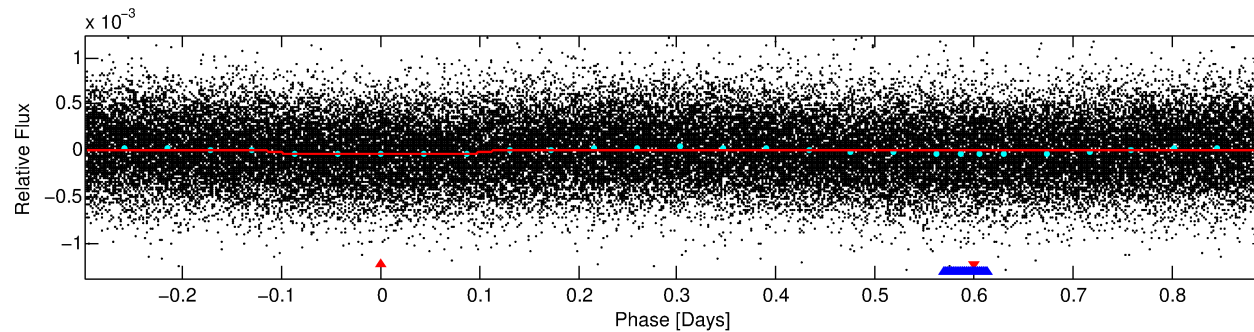
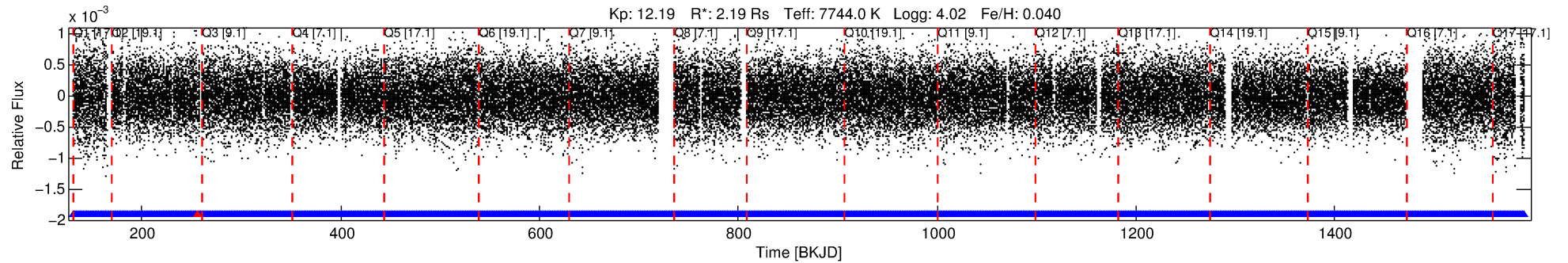
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010668233-01

No Significant Match Found

DV One-Page Summary

KIC: 10668233 Candidate: 1 of 2 Period: 1.193 d



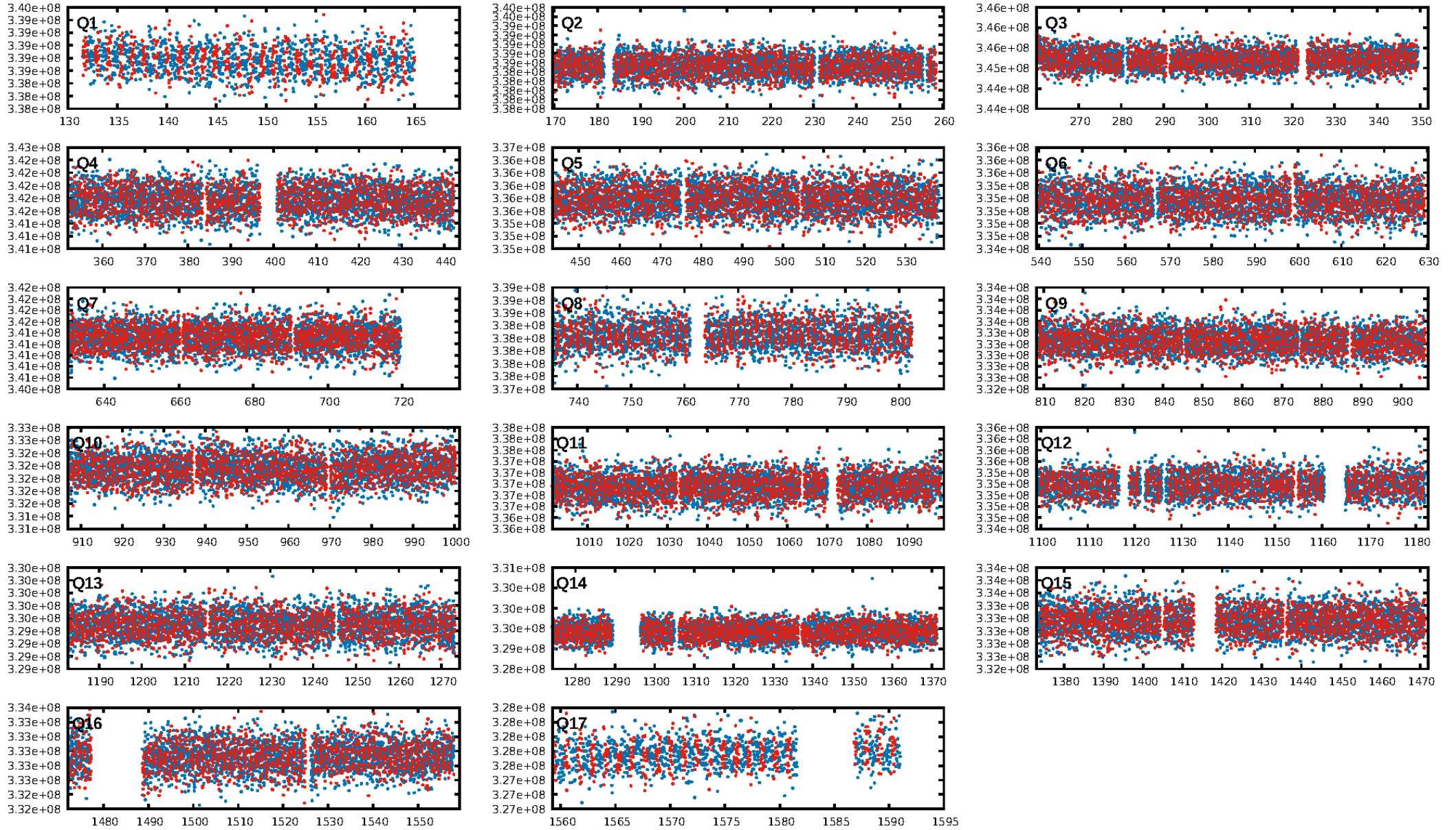
DV Fit Results:

Period = 1.19264 [0.00001] d
Epoch = 131.7485 [0.0045] BKJD
Rp/R* = 0.0054 [0.0023]
a/R* = 1.75 [3.02]
b = 0.41 [5.28]
Seff = 21339.13 [7716.65]
Teff = 3082 [279] K
Rp = 1.30 [0.63] Re
a = 0.0269 [0.0057] AU
Ag = 6.03 [5.56] [0.90 σ]
Teffp = 7466 [1643] K [2.63 σ]

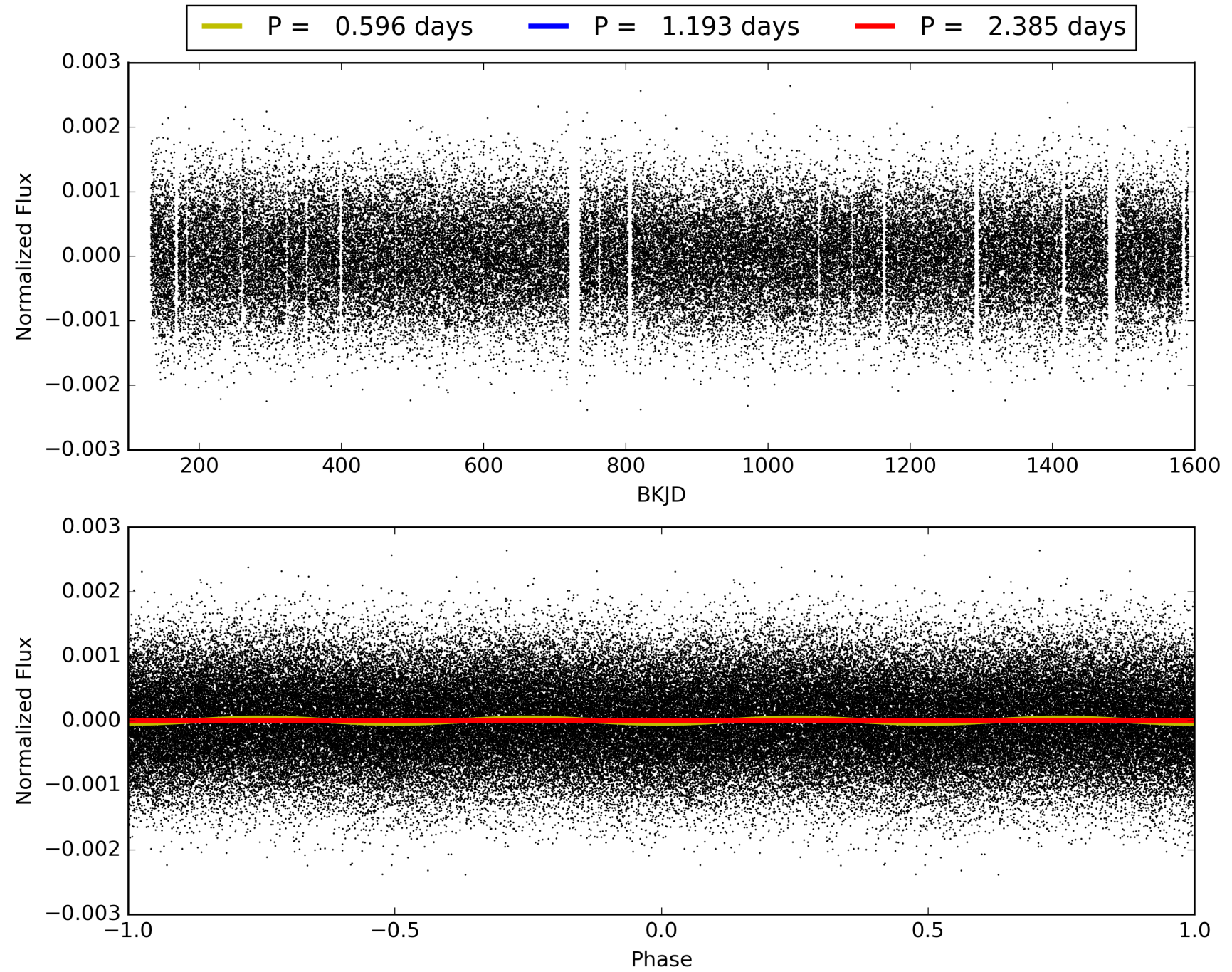
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1084/1085]
GhostDiagnostic-chr: 2.452
Centroid-sig: 0.0%
Centroid-so: 0.649 arcsec [2.48 σ]
OotOffset-rm: 0.393 arcsec [2.62 σ]
KicOffset-rm: 0.507 arcsec [3.63 σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.18 [3/17]

TCE 010668233-01, PDC Light Curves

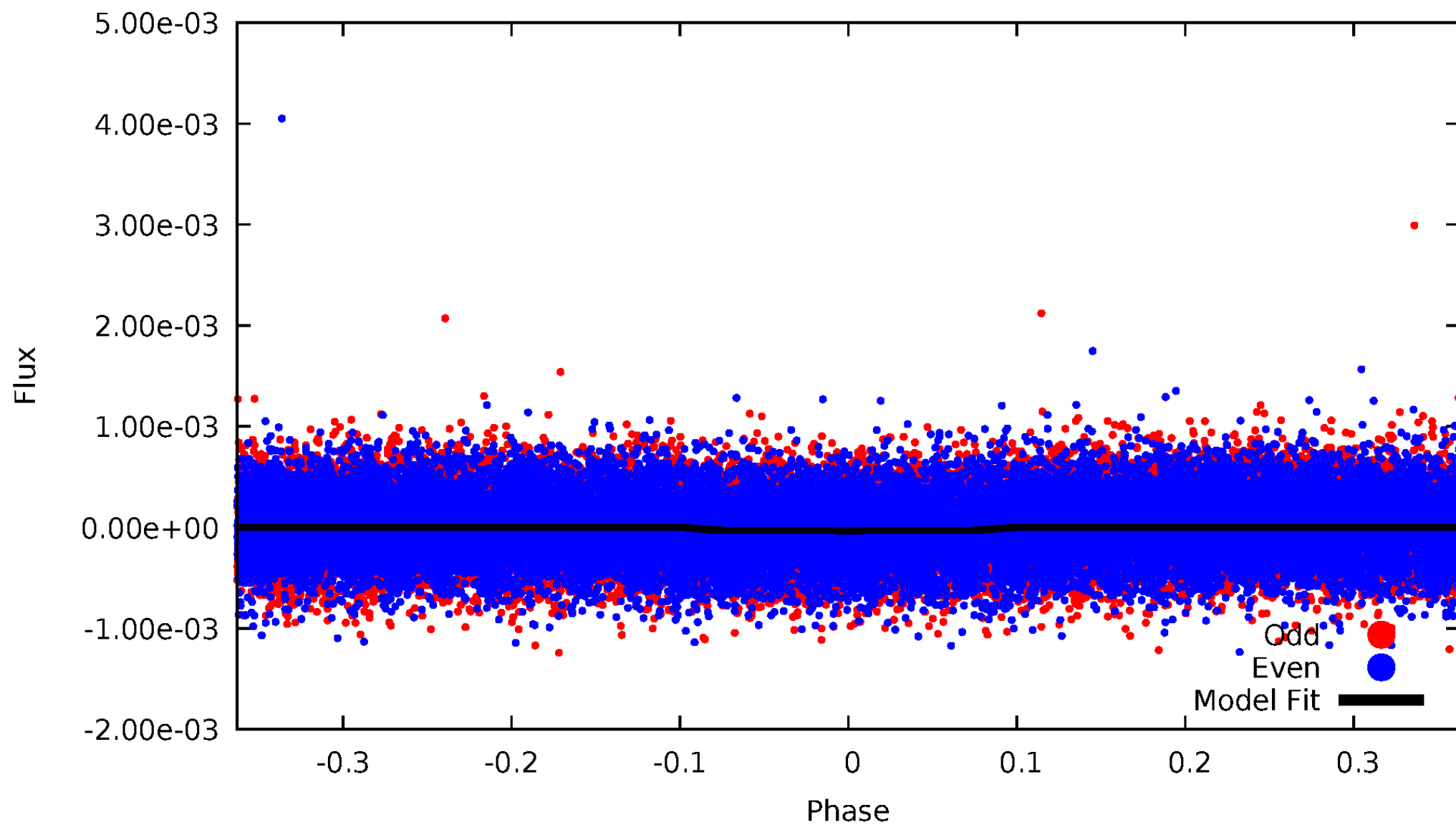


TCE 010668233-01



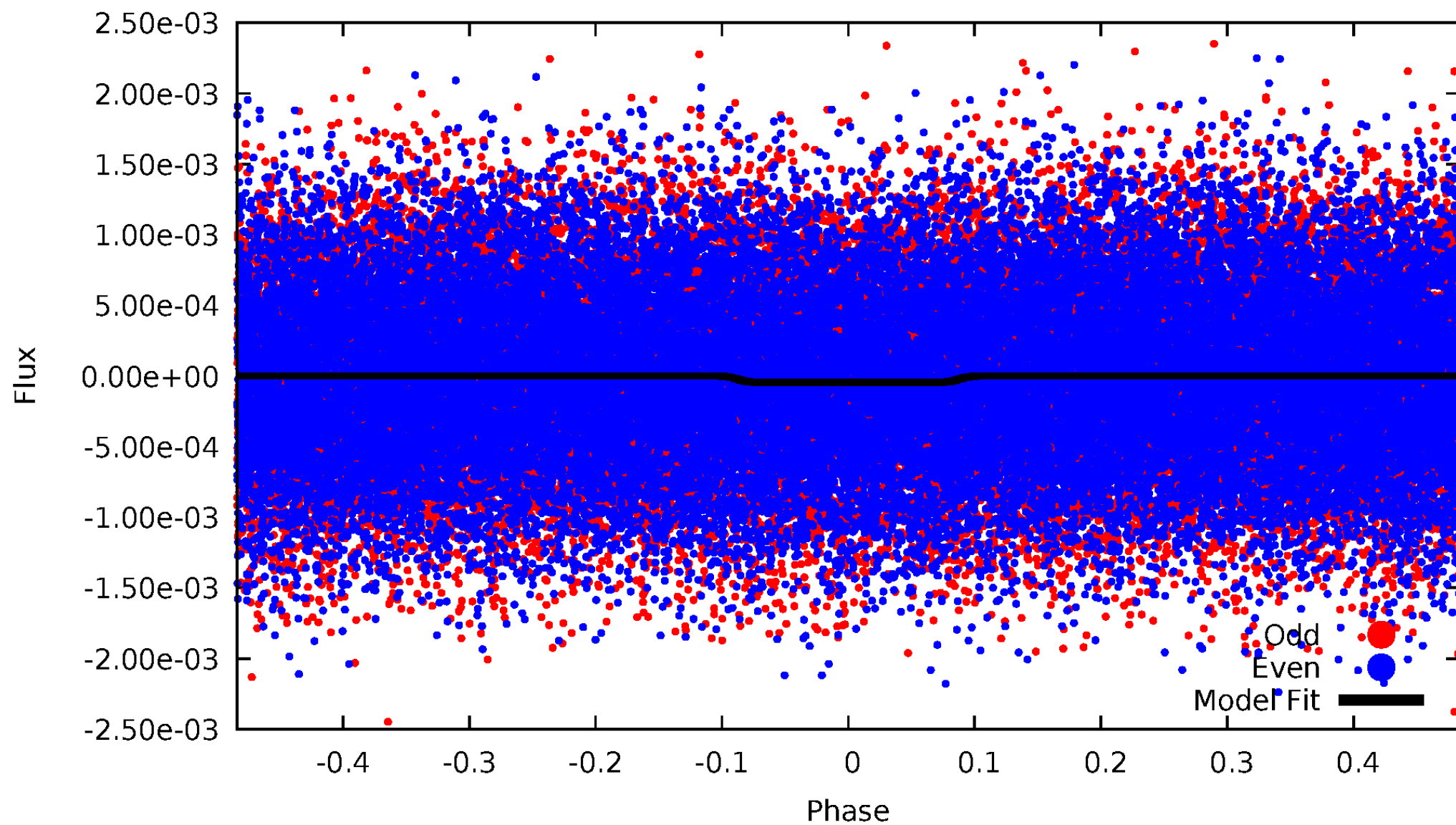
DV Odd/Even

TCE 010668233-01

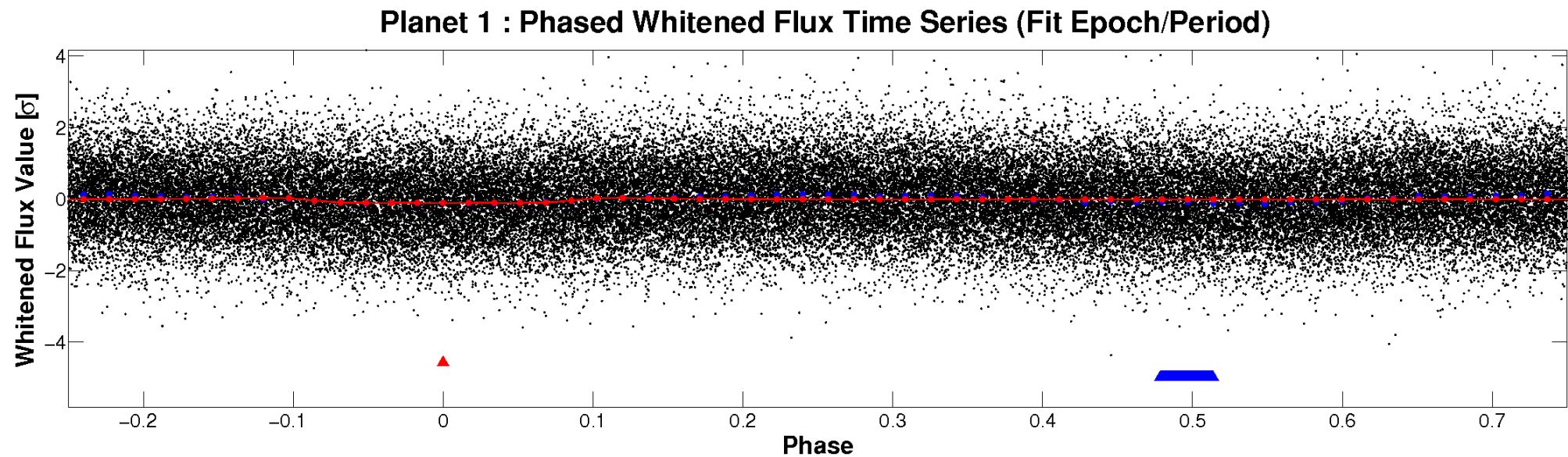
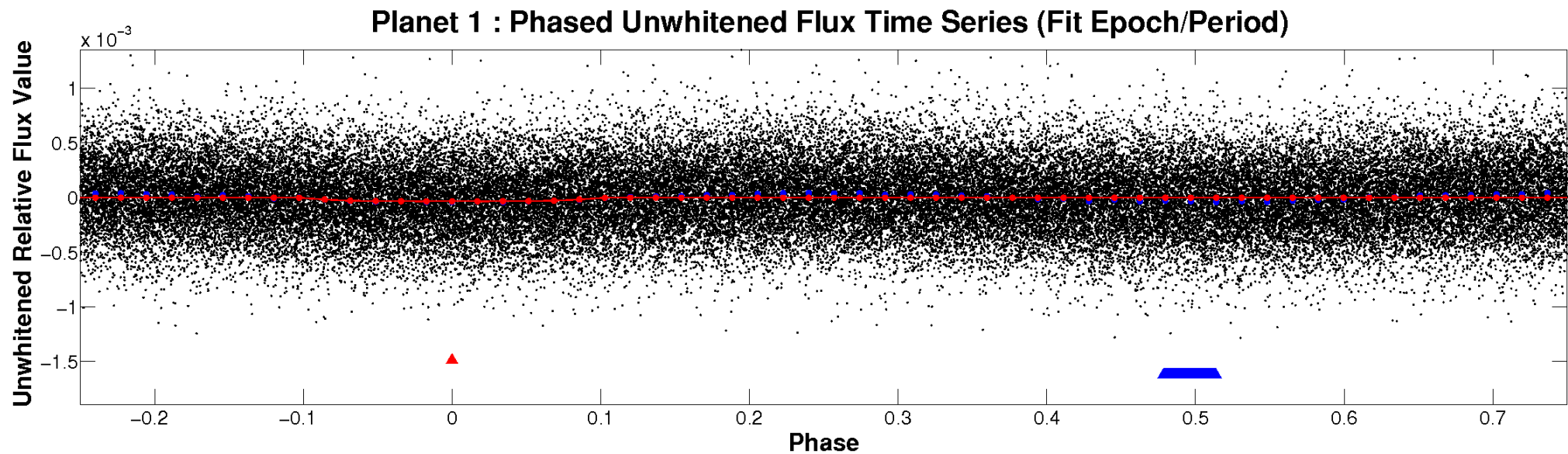


ALT Odd/Even

TCE 010668233-01

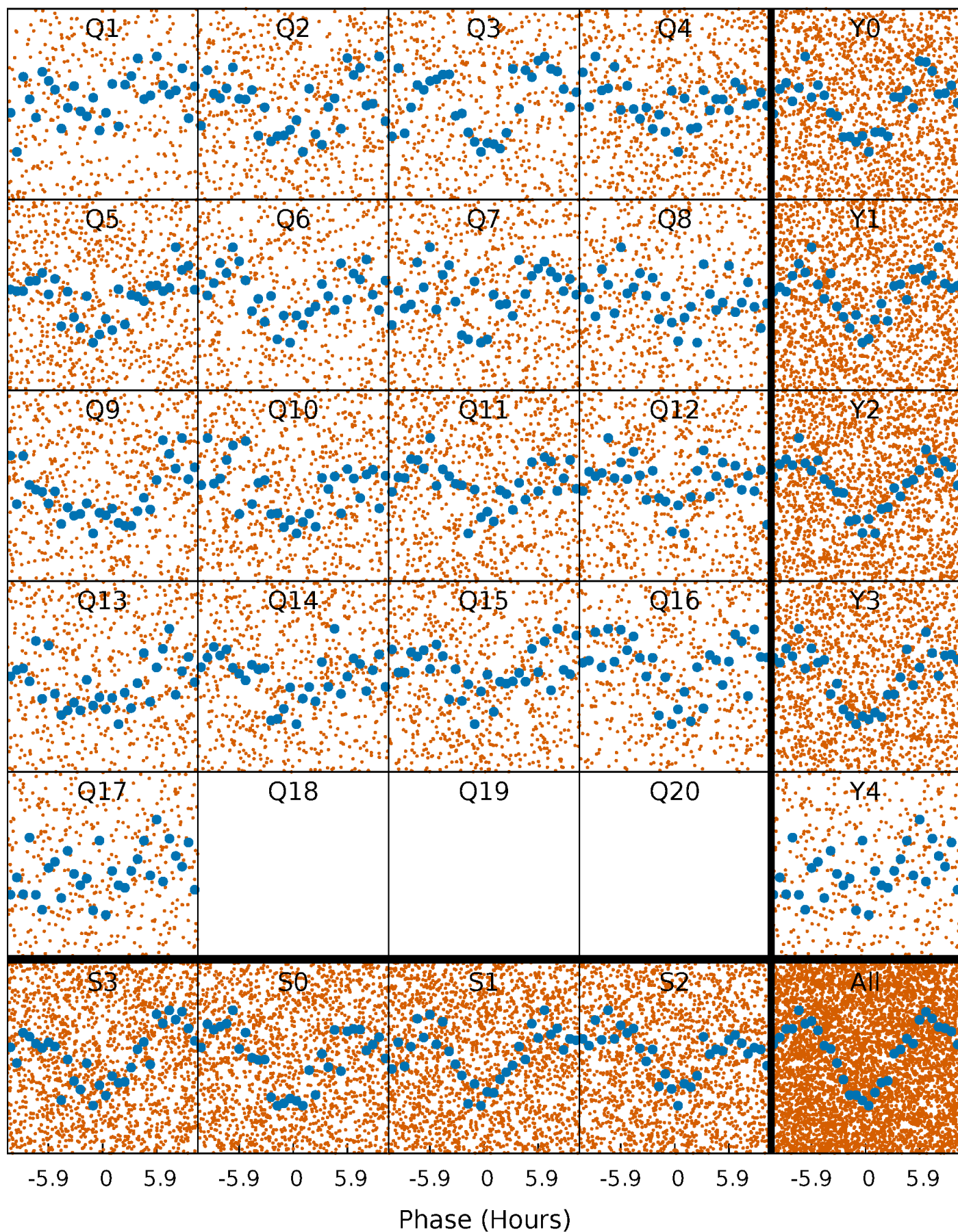


Non-Whitened Vs. Whitened Light Curve



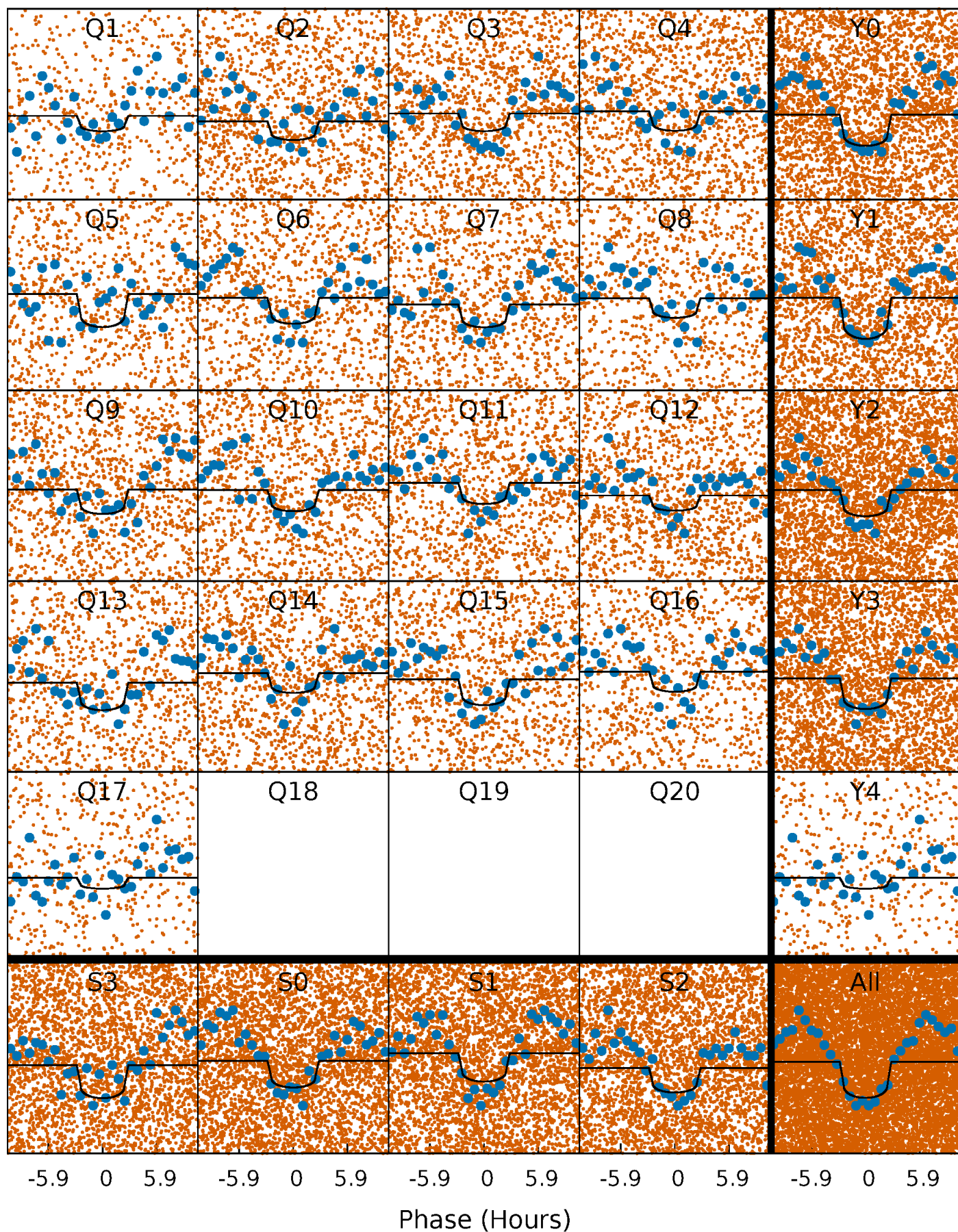
PDC Quarter-Phased Transit Curves

TCE 010668233-01 P= 1.192640 Days $T_0=131.748499$ (BKJD)



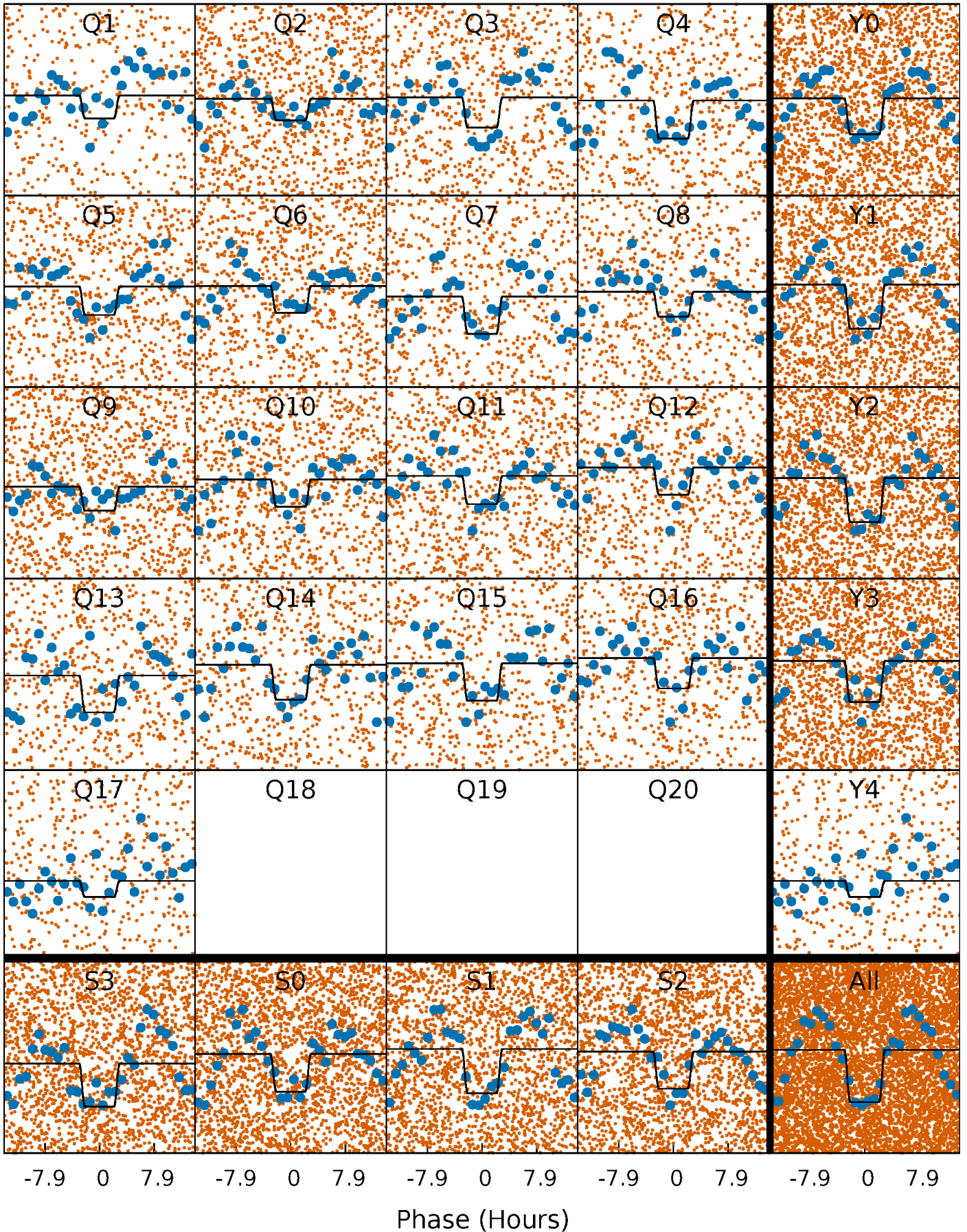
DV Quarter-Phased Transit Curves

TCE 010668233-01 P= 1.192640 Days $T_0=131.748499$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

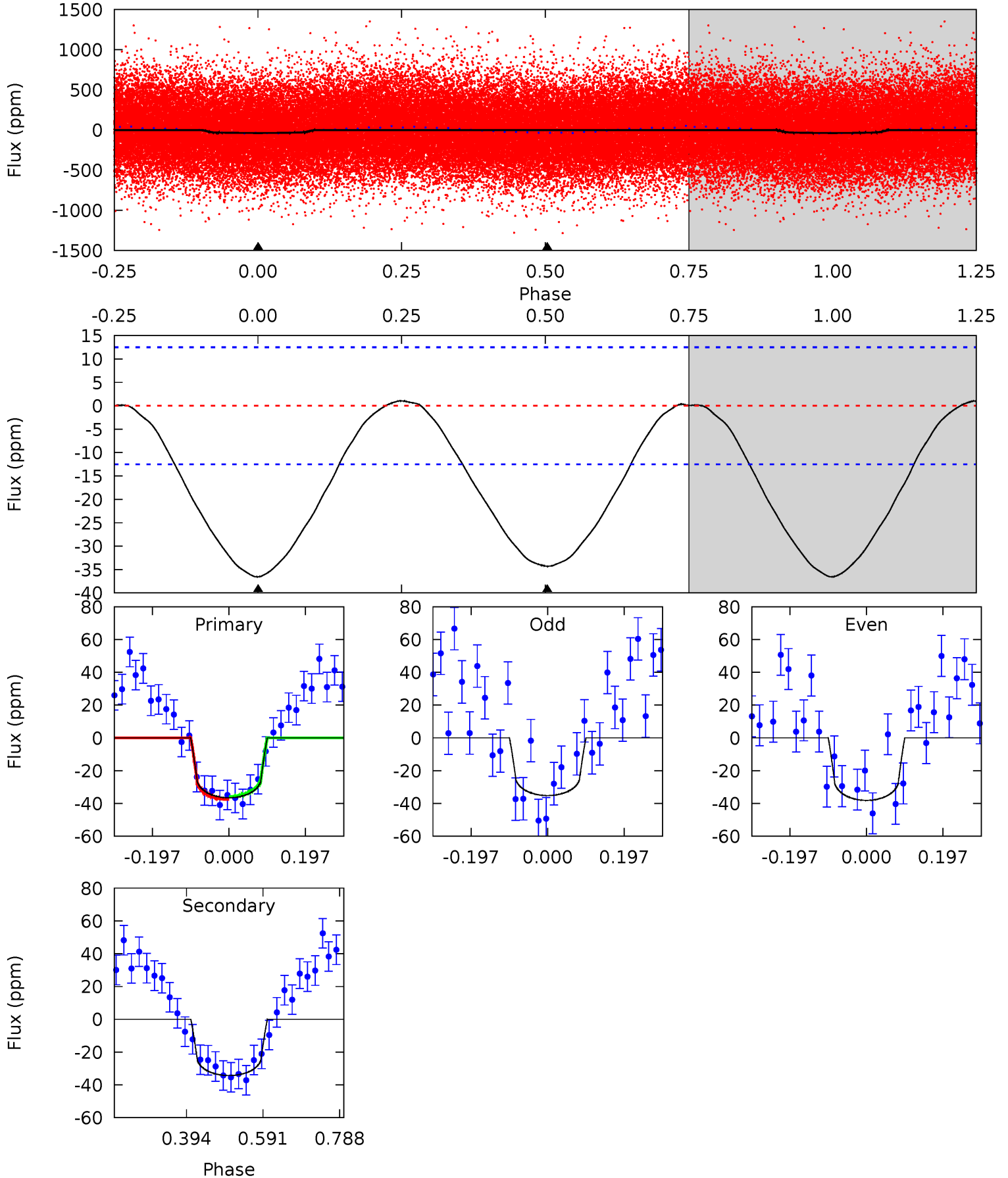
TCE 010668233-01 P= 1.192643 Days $T_0=131.742335$ (BKJD)



DV Model-Shift Uniqueness Test

010668233-01, P = 1.192640 Days, E = 130.555859 Days

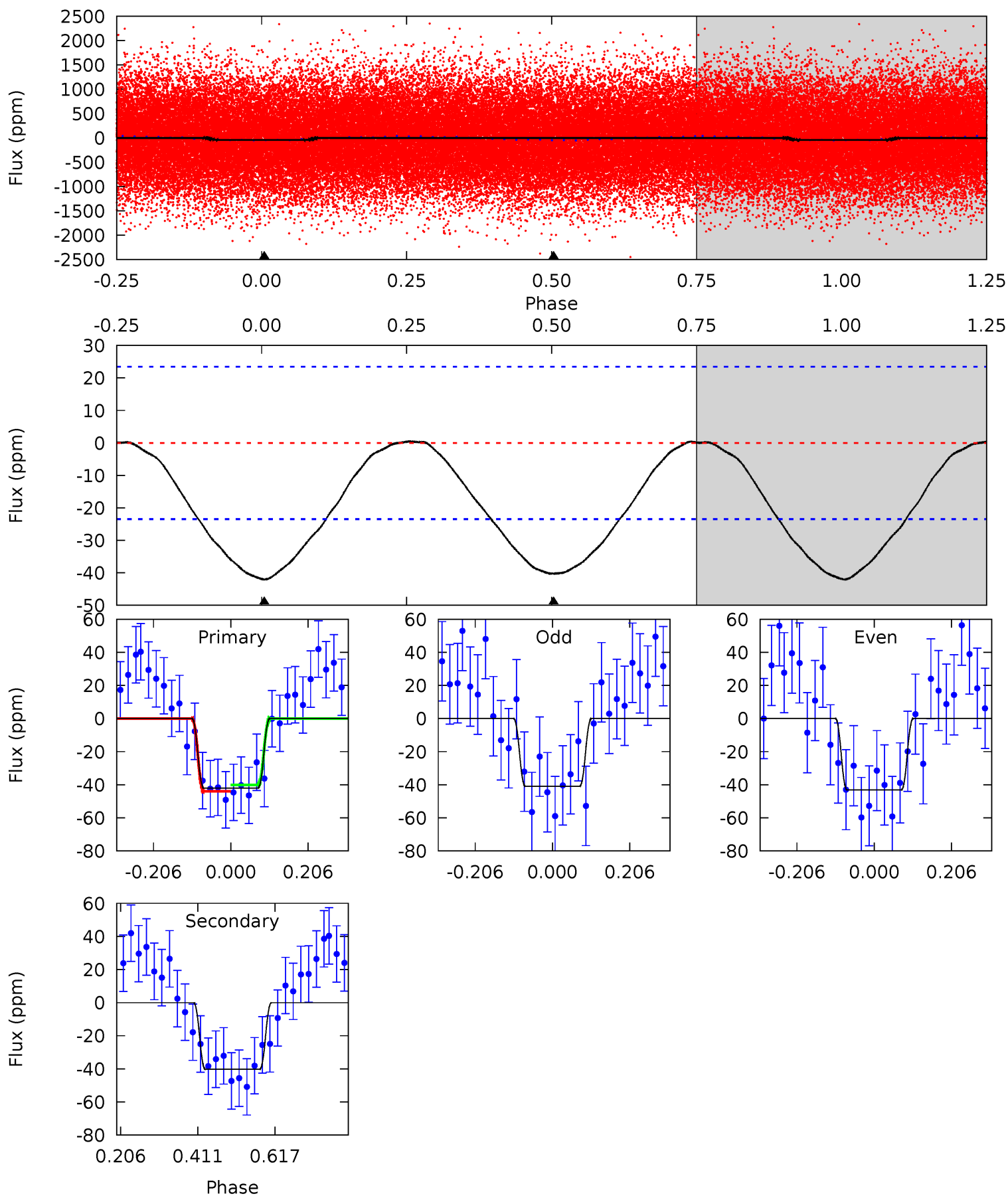
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	12.1	0	0	4.42	1.29	0.36	12.9	12.9	12.1	12.1	0.52	0.95	0.03	0.32



Alt Model-Shift Uniqueness Test

010668233-01, P = 1.192643 Days, E = 130.549692 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.91	7.57	0	0	4.41	1.27	0.15	7.91	7.91	7.57	7.57	0.20	0.96	0.01	0.35



Stellar Parameters For KIC 010668233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7744^{+214}_{-322}	$4.018^{+0.182}_{-0.149}$	$0.040^{+0.150}_{-0.400}$	$2.186^{+0.519}_{-0.519}$	$1.815^{+0.145}_{-0.339}$	$0.245^{+0.239}_{-0.104}$
	+3%/-4%	+5%/-4%	+375%/-1000%	+24%/-24%	+8%/-19%	+98%/-43%
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 010668233-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-34 ± 3	$1.26^{+0.57}_{-0.55}$	4313^{+303}_{-319}	8117^{+4085}_{-1637}	$8.671^{+17.838}_{-4.675}$
Alt.	-40 ± 5	$1.57^{+0.63}_{-0.58}$	4251^{+318}_{-305}	7351^{+2240}_{-1240}	$6.404^{+9.367}_{-3.173}$

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

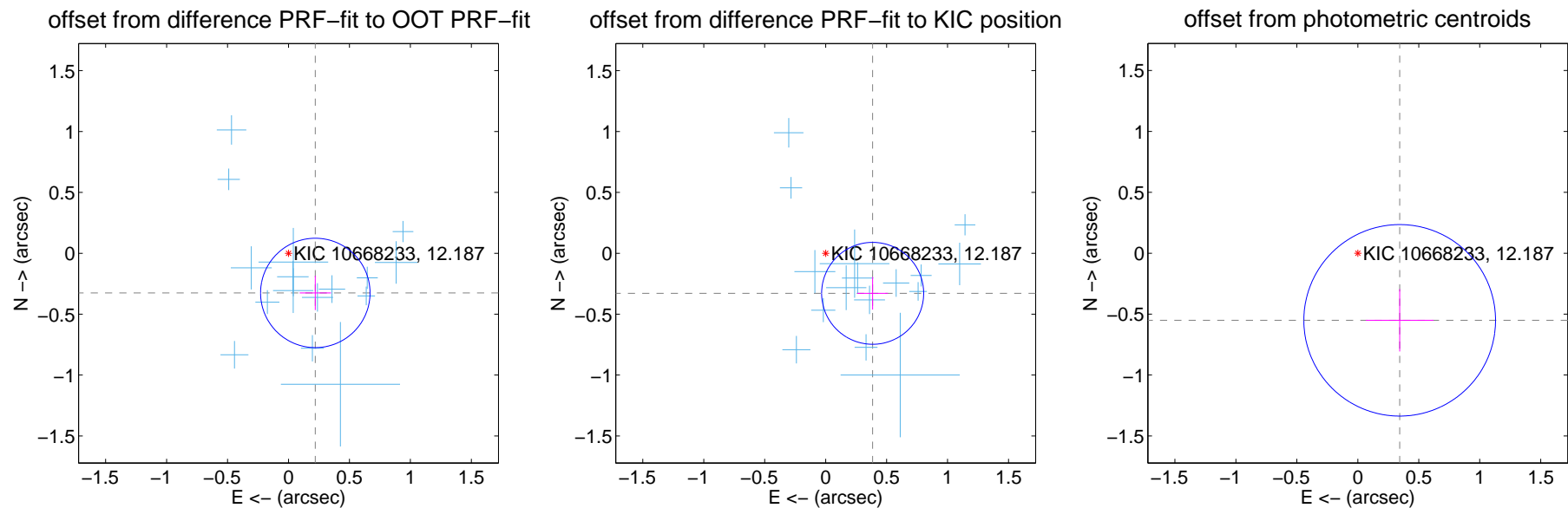
DV Centroid Data

Supplemental centroid analysis for 010668233-01. Kepler magnitude: 12.19. Transit SNR 10.86

There are 16 quarters with good PRF difference image offsets

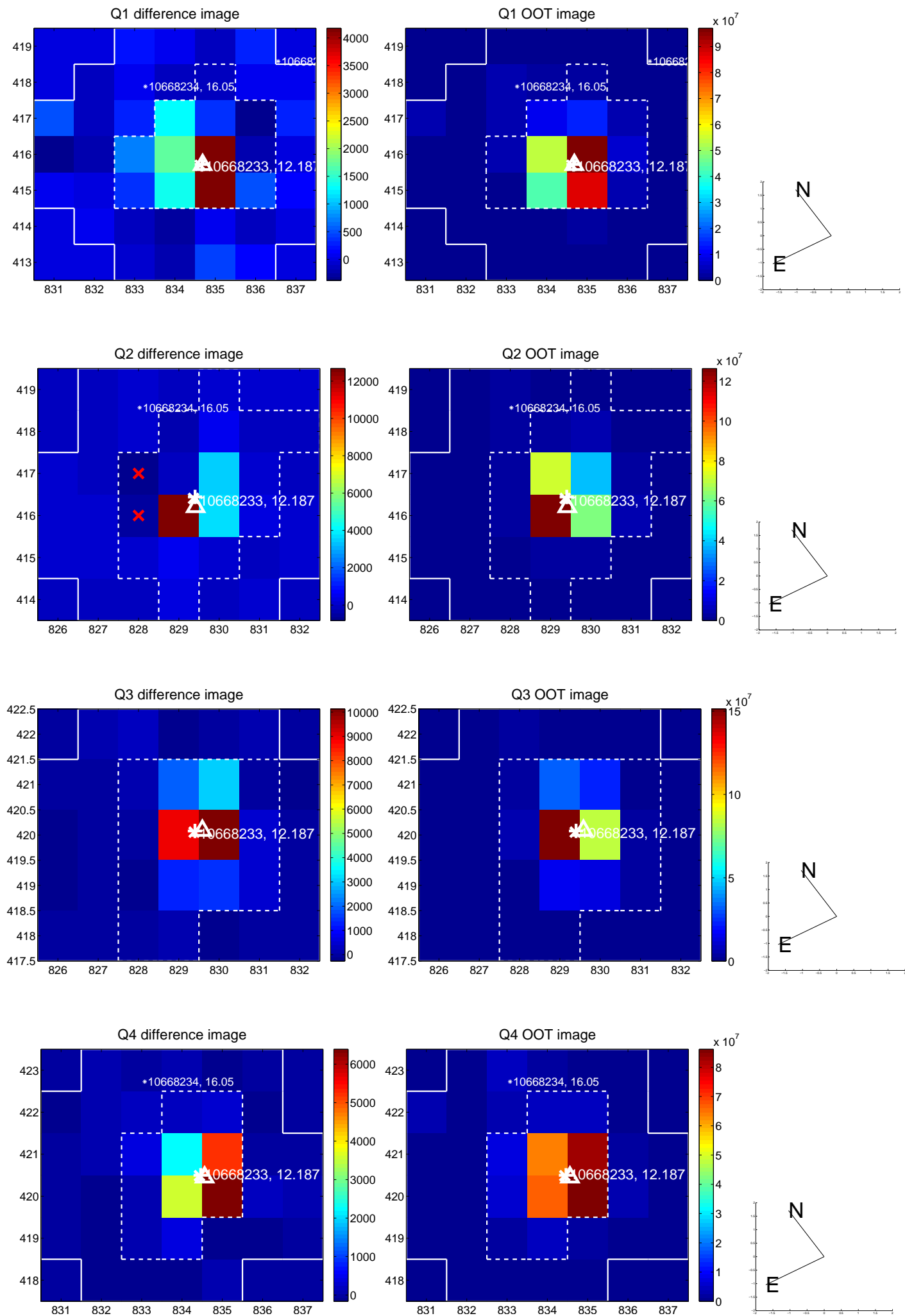
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.393 ± 0.150	2.62	-0.220 ± 0.129	-0.326 ± 0.141
PRF-fit source offset from KIC position	0.507 ± 0.139	3.63	-0.385 ± 0.126	-0.329 ± 0.134
photometric centroid source offset	0.65 ± 0.26	2.48	-0.34 ± 0.28	-0.55 ± 0.26

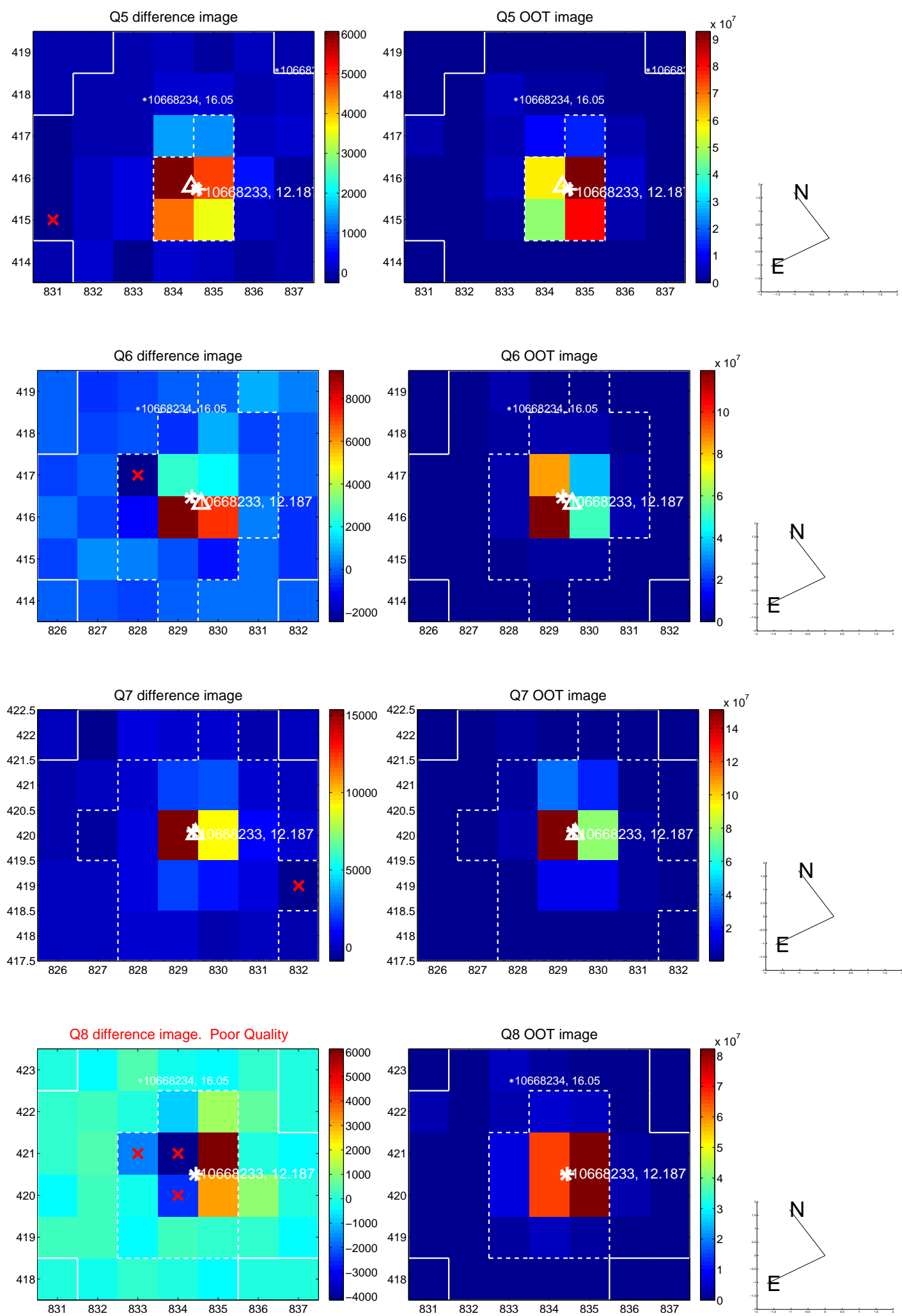


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

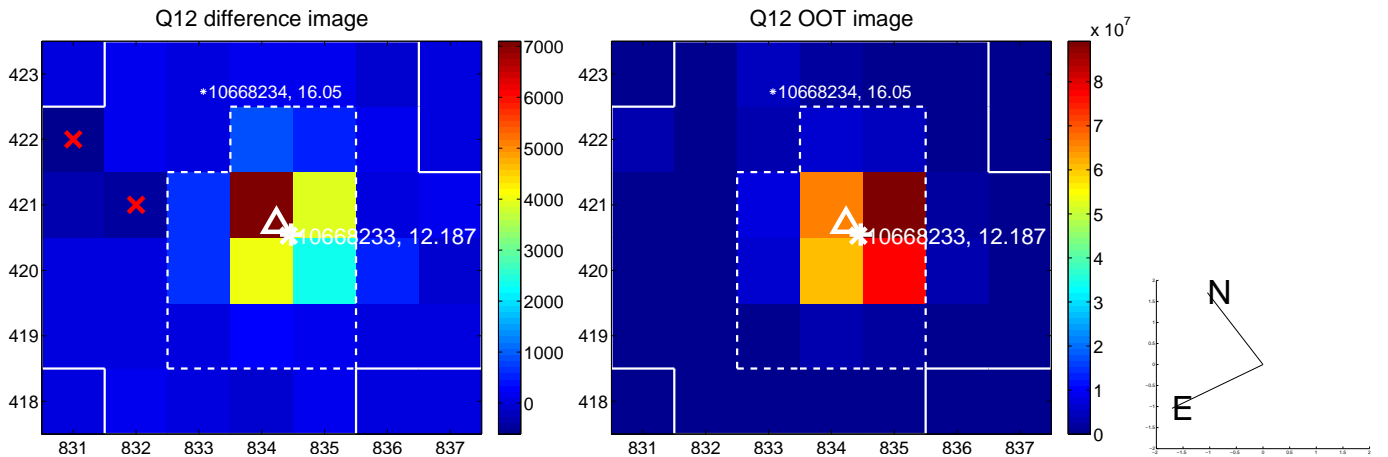
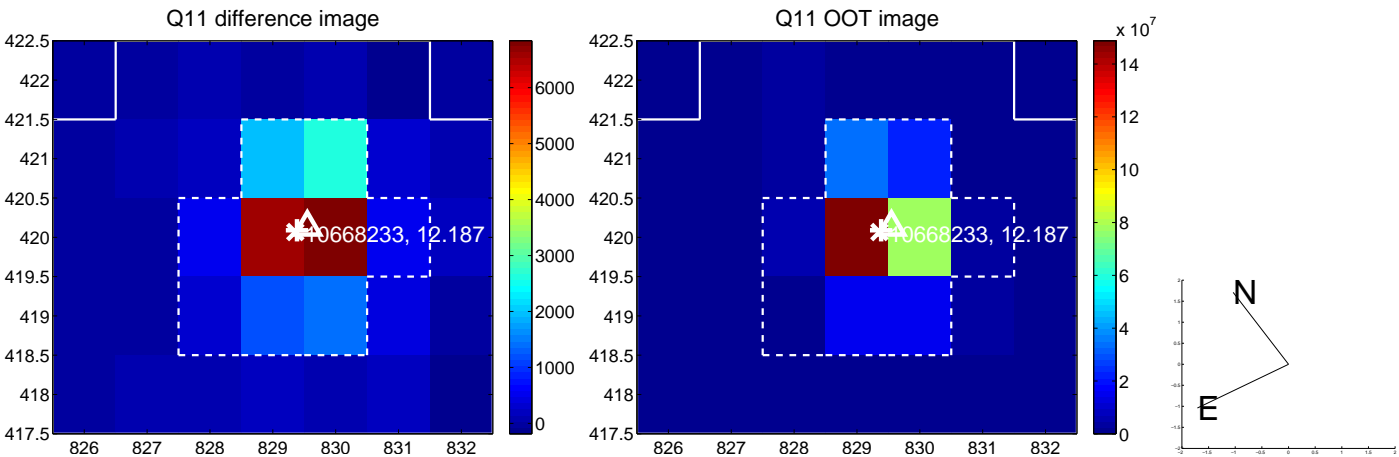
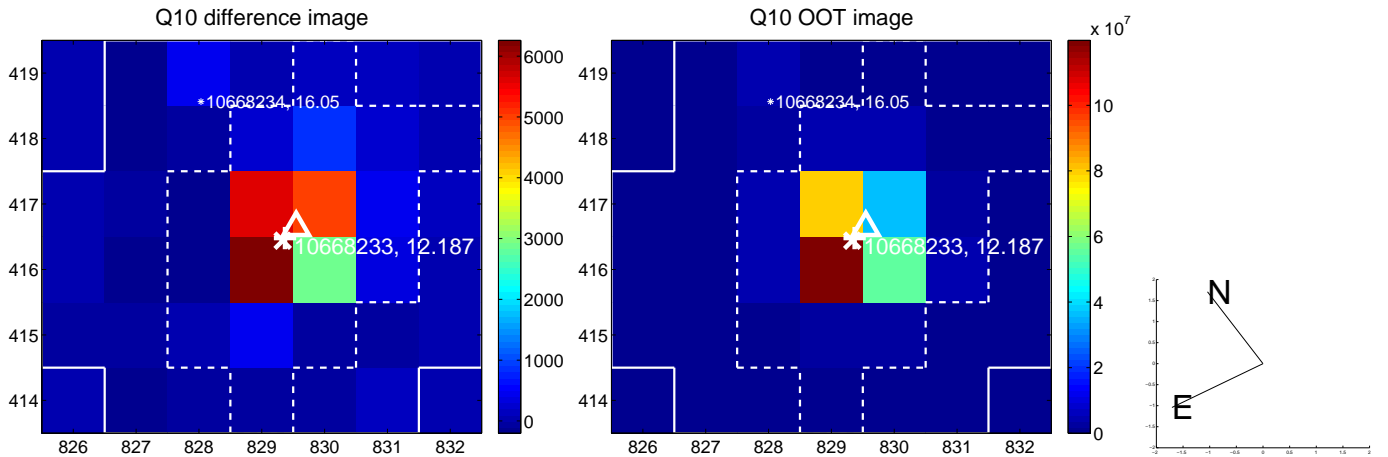
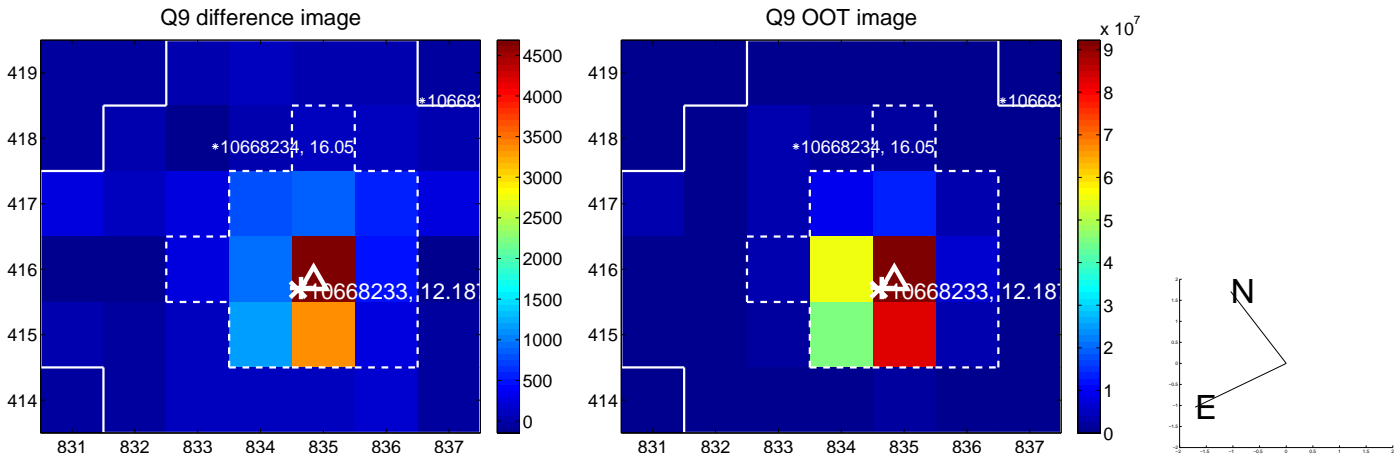
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



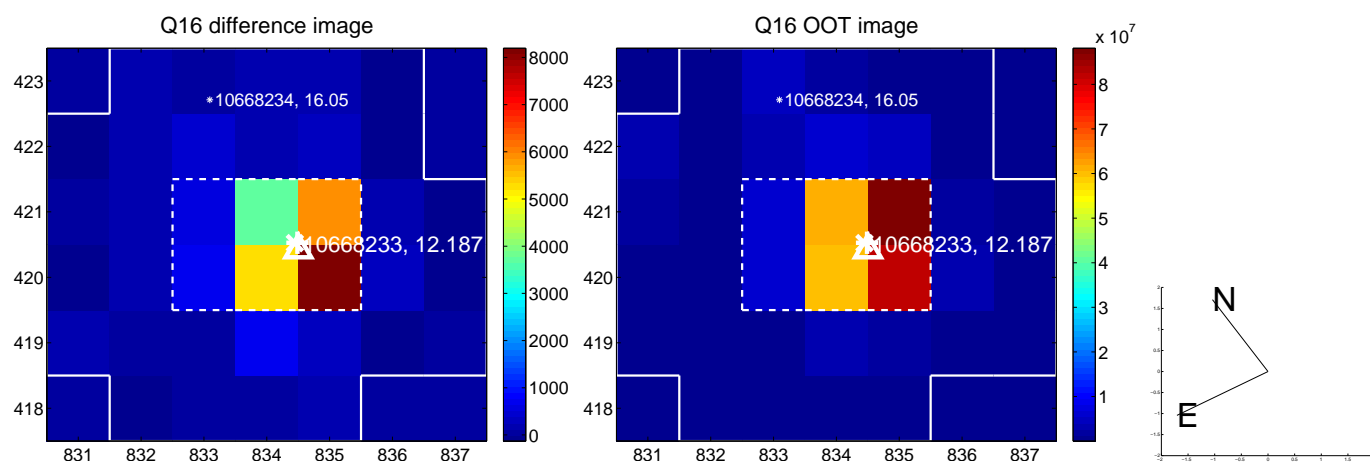
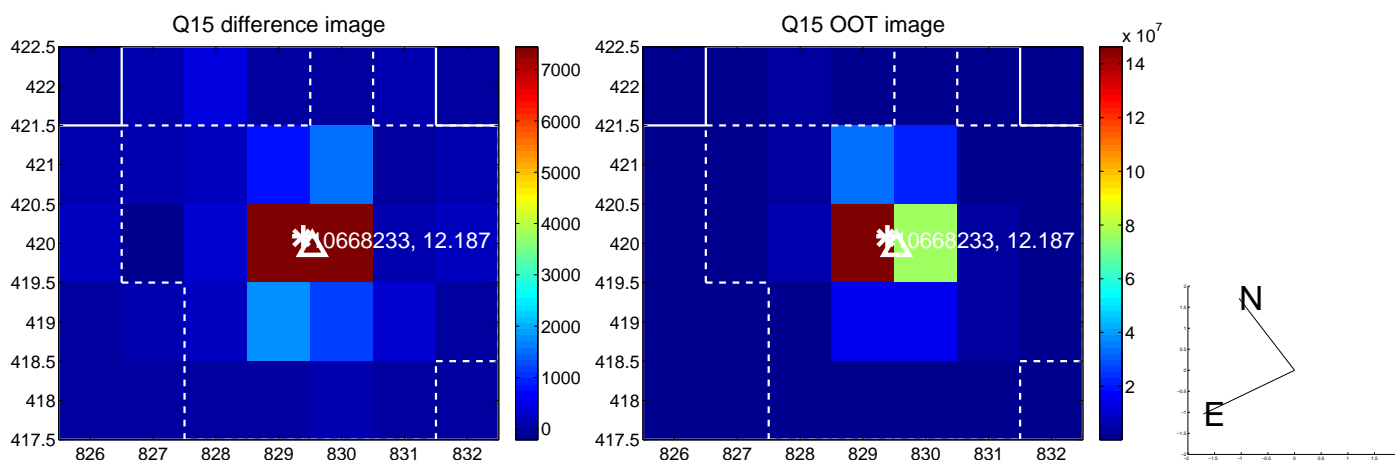
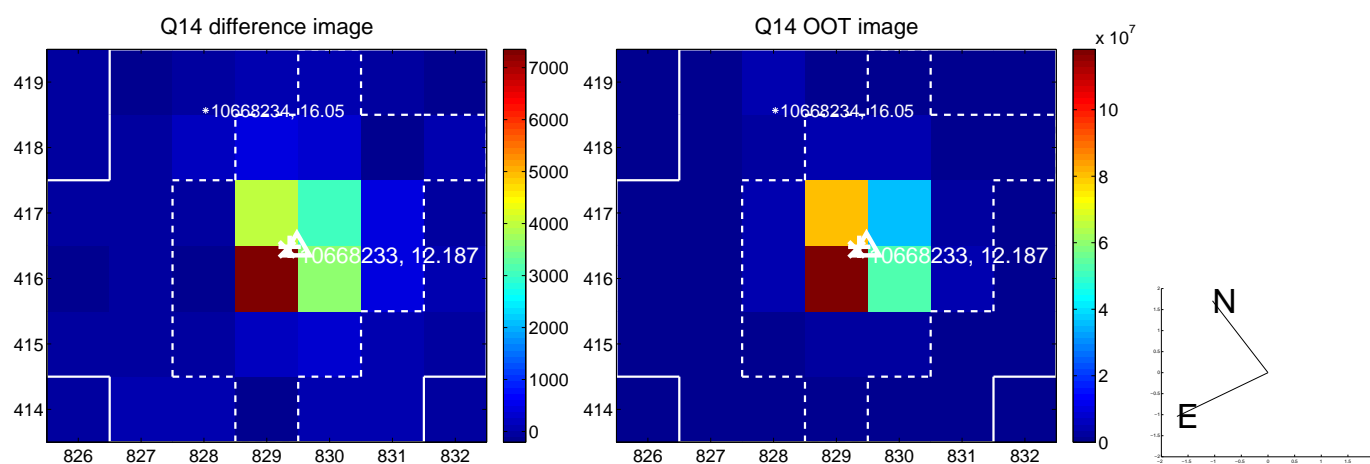
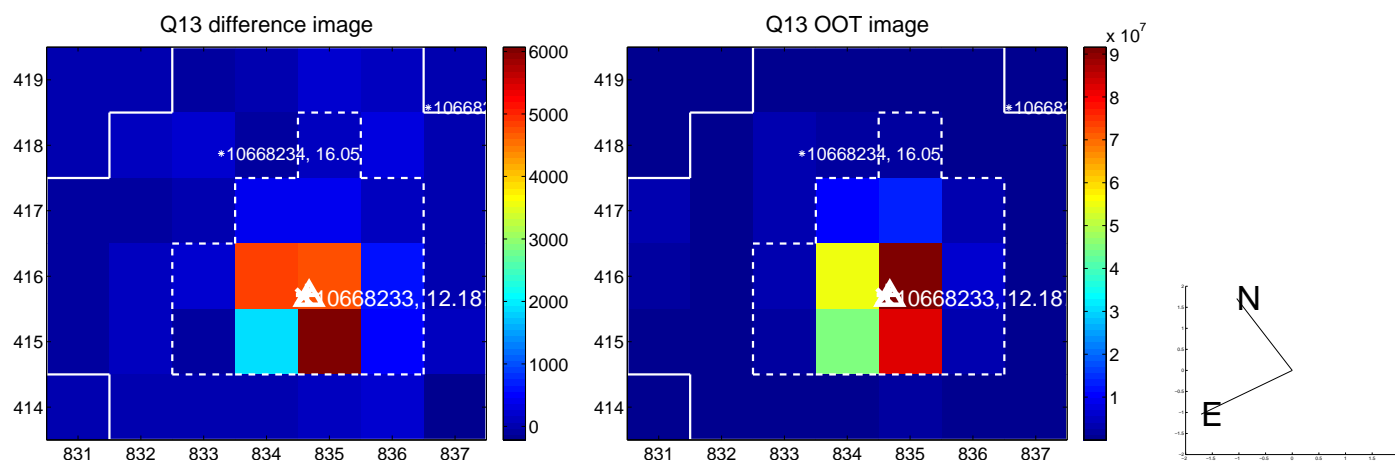
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



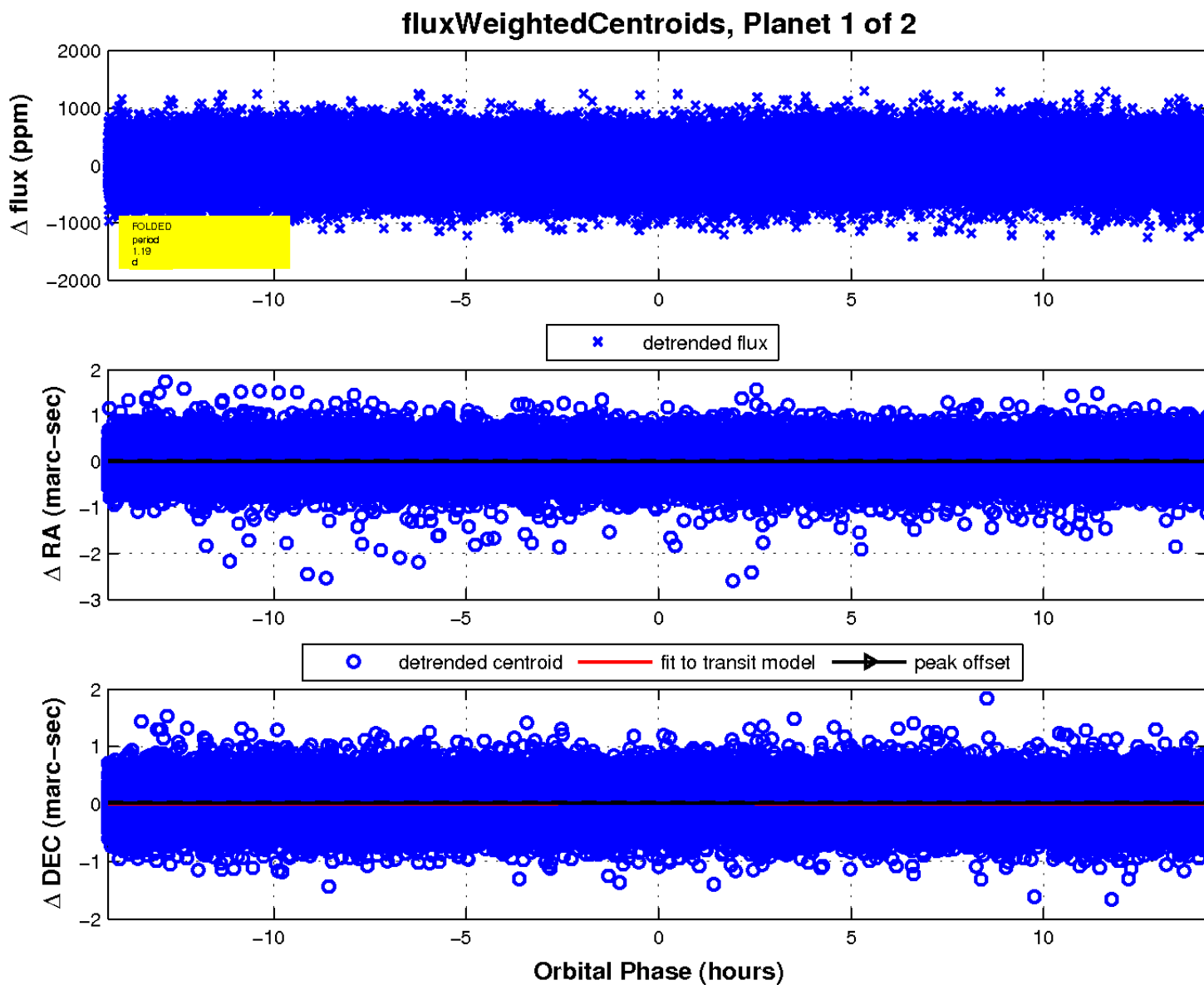
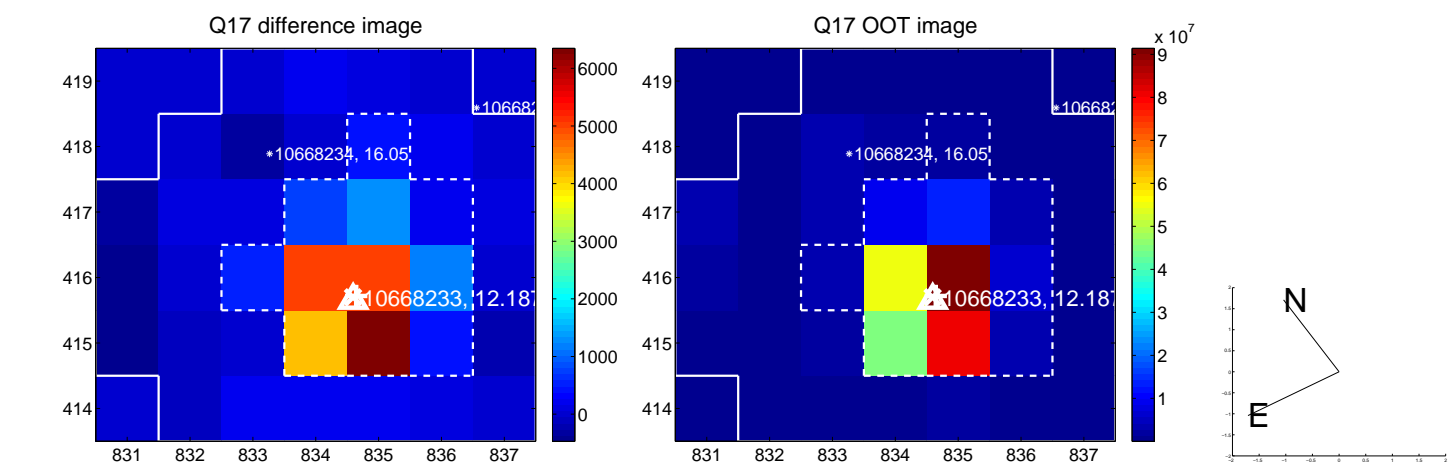
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



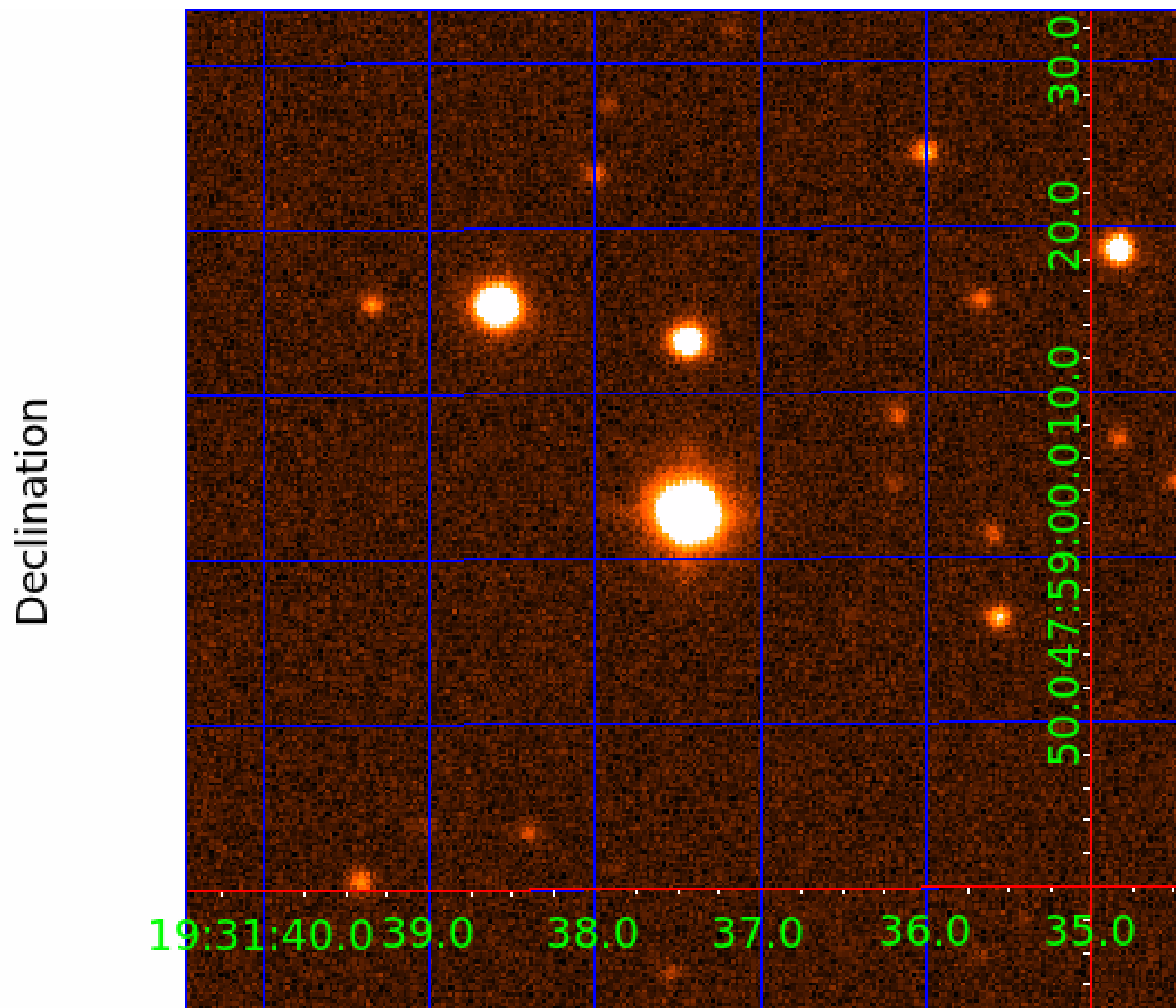
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010668233

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})
010668233-01	OBS	No	1.192640	131.748499	33.2	5.193	9.9	10.9	2.19	7744	1.30	21339.13
010668233-02	OBS	No	1.192606	132.361083	30.6	6.959	9.1	11.2	2.19	7744	1.40	21339.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010668233-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010668233-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

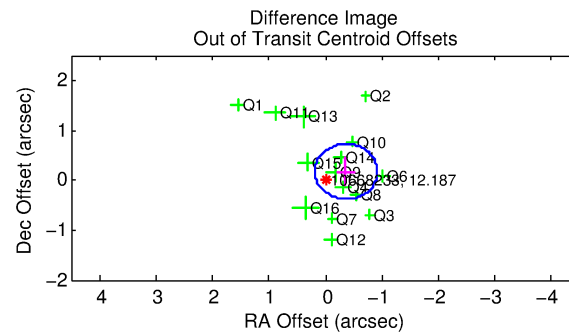
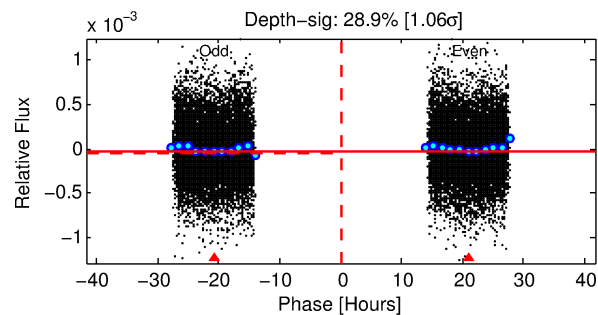
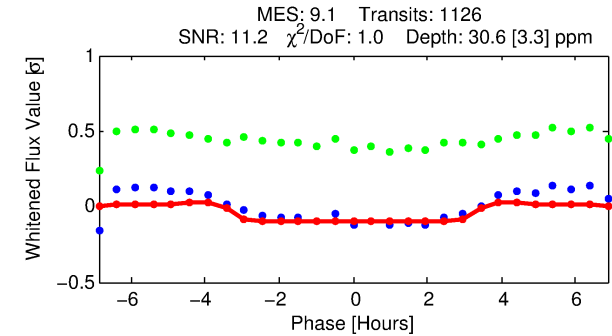
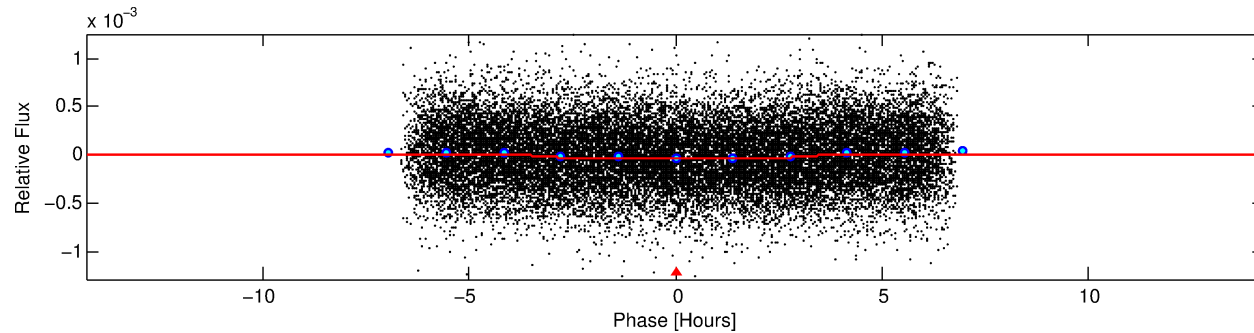
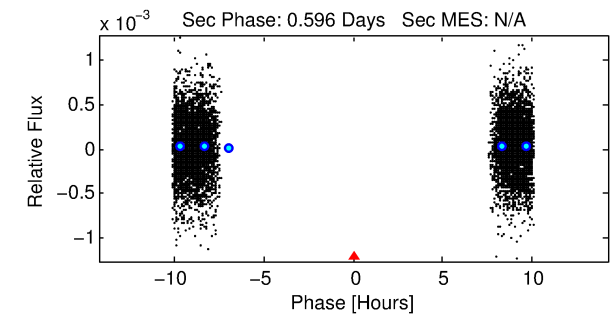
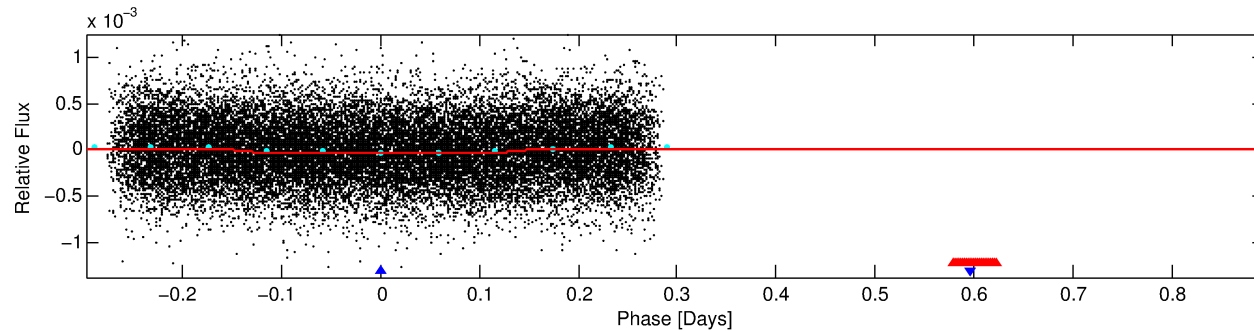
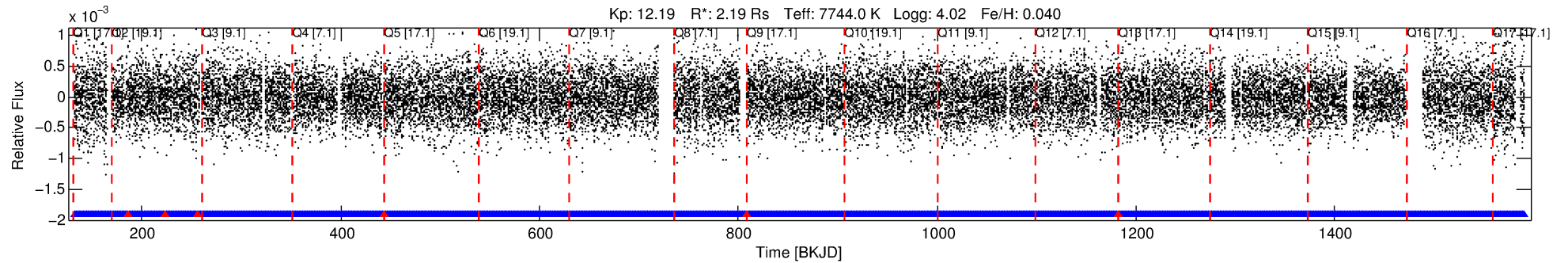
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010668233-02

No Significant Match Found

DV One-Page Summary

KIC: 10668233 Candidate: 2 of 2 Period: 1.193 d



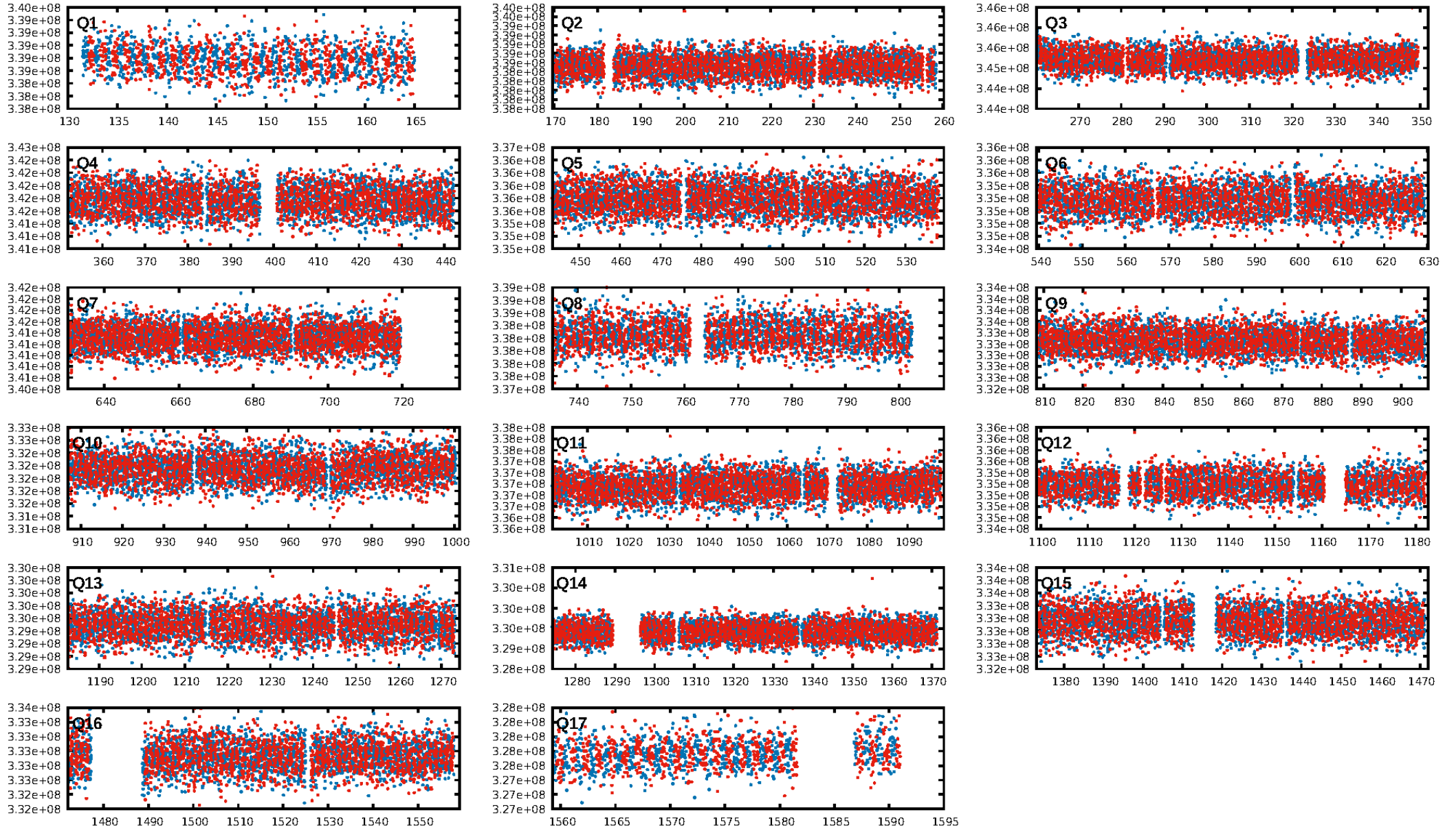
DV Fit Results:

Period = 1.19261 [0.00002] d
Epoch = 132.3611 [0.0059] BKJD
Rp/R* = 0.0058 [0.0025]
a/R* = 1.11 [0.59]
b = 0.90 [0.61]
Seff = 21339.94 [7716.95]
Teq = 3082 [279] K
Rp = 1.39 [0.67] Re
a = 0.0269 [0.0057] AU

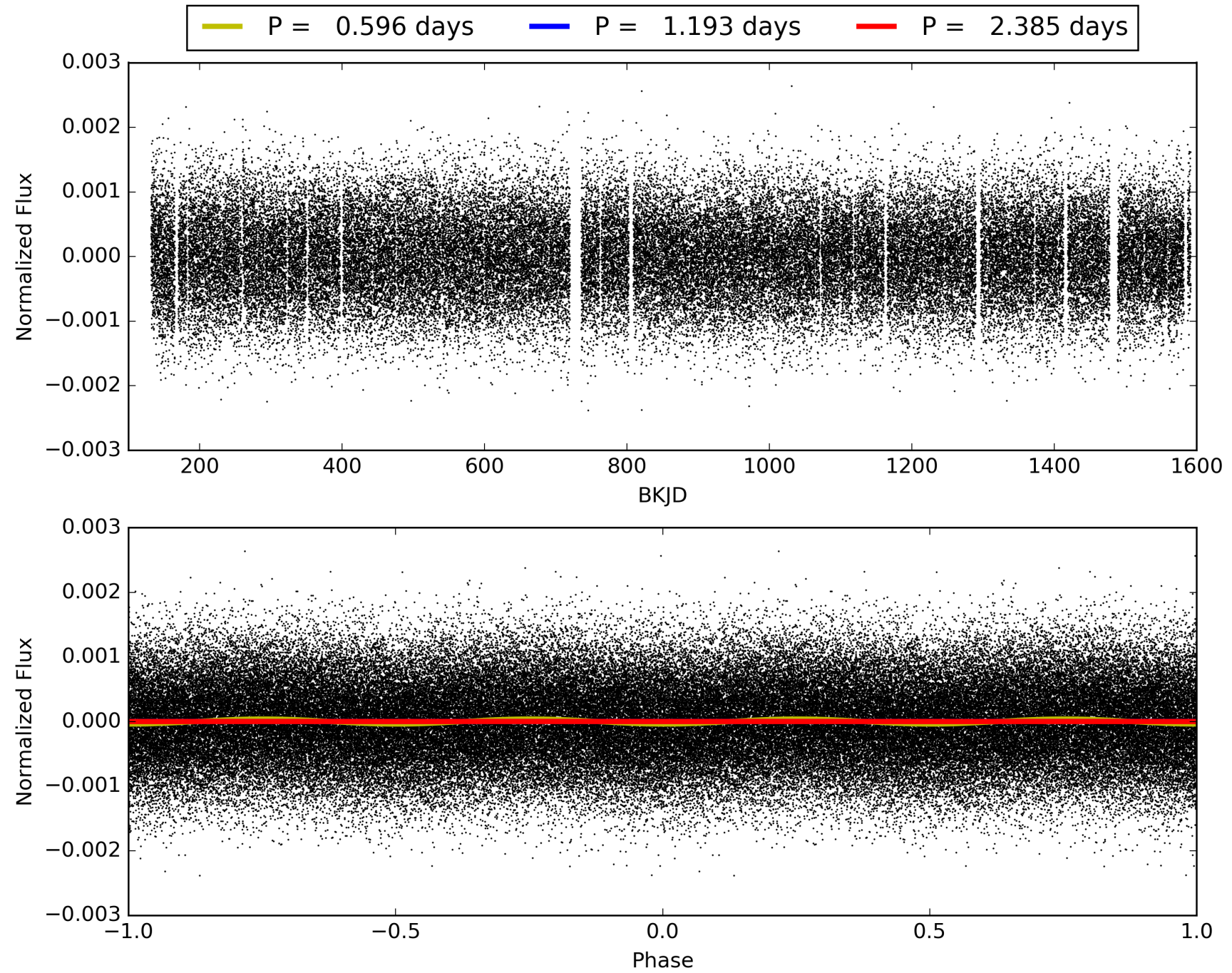
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1069/1075]
GhostDiagnostic-chr: 2.135
Centroid-sig: 0.0%
Centroid-so: 0.695 arcsec [2.80 σ]
OotOffset-rm: 0.402 arcsec [2.18 σ]
KicOffset-rm: 0.557 arcsec [3.13 σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 010668233-02, PDC Light Curves

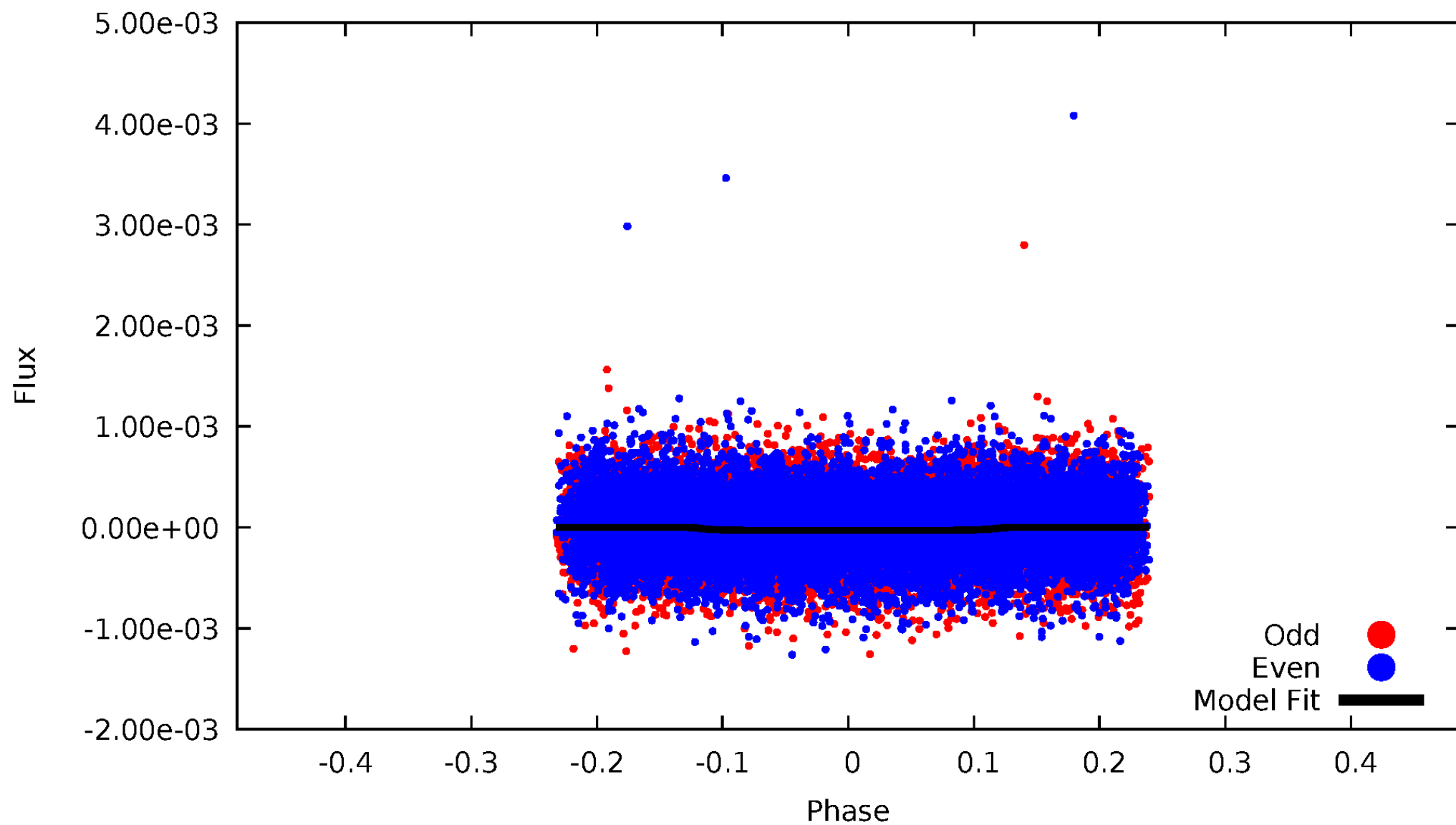


TCE 010668233-02



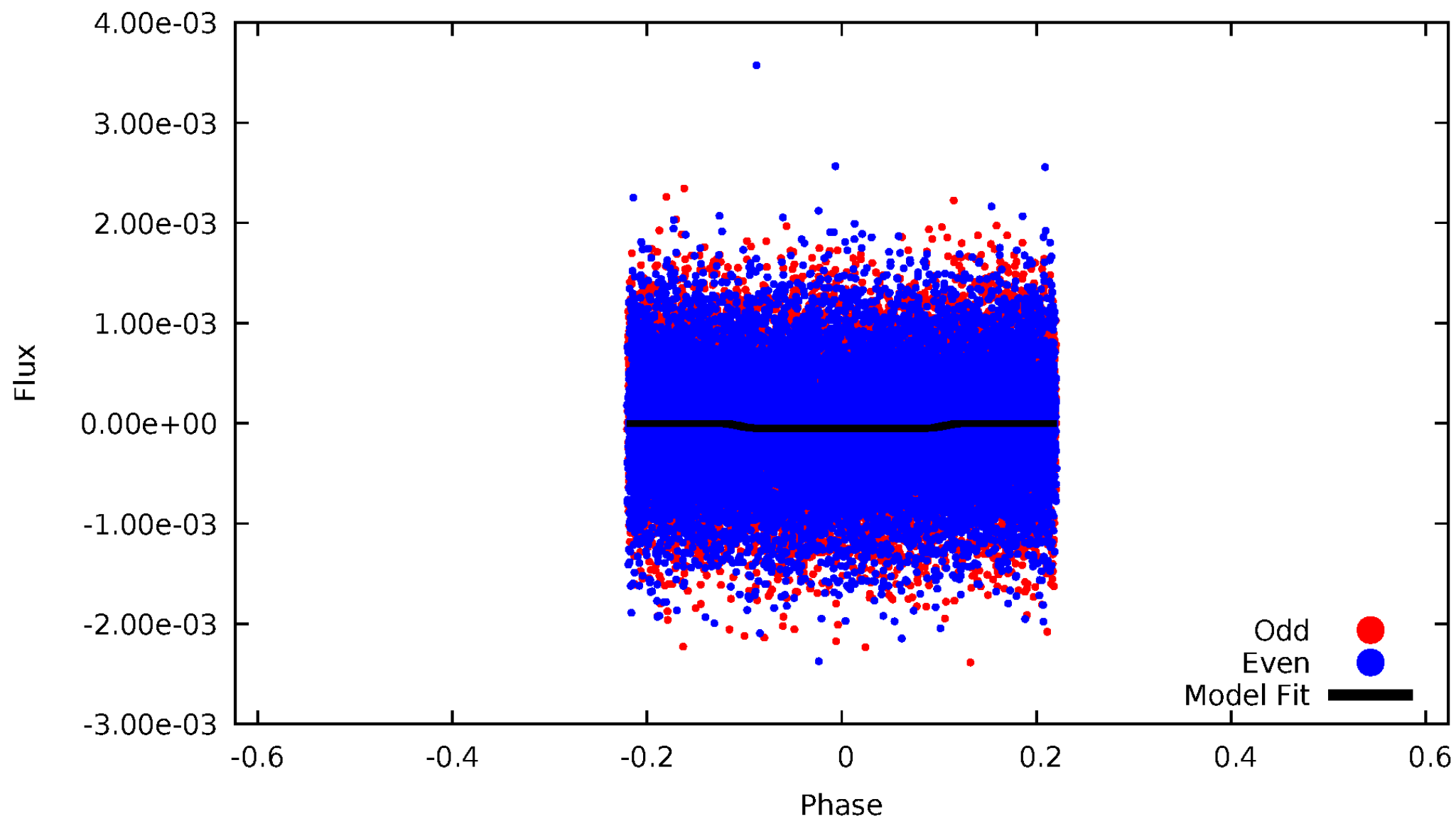
DV Odd/Even

TCE 010668233-02



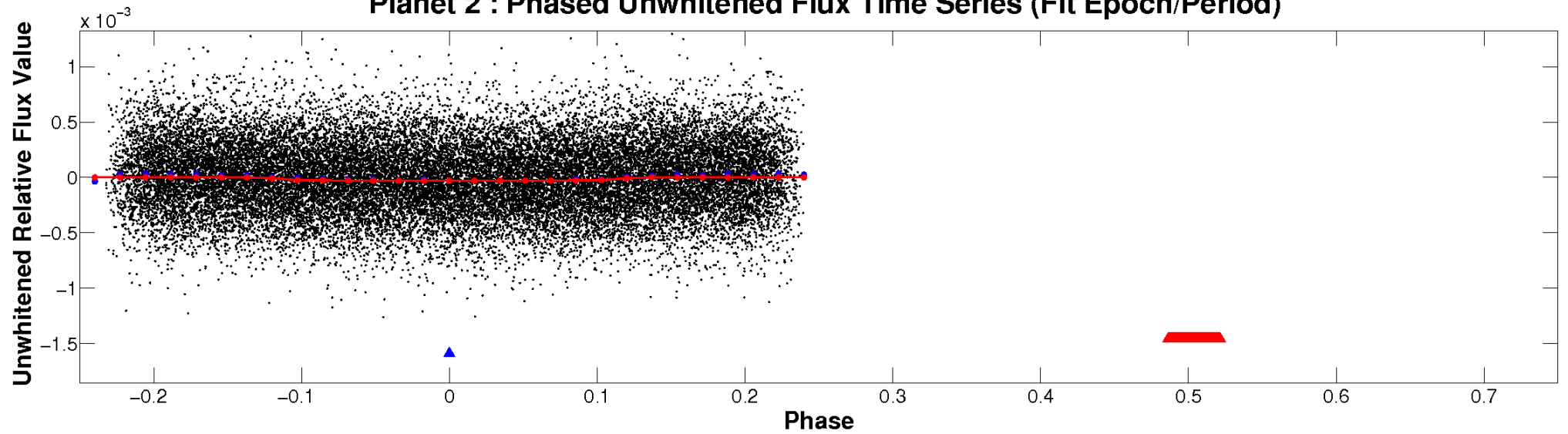
ALT Odd/Even

TCE 010668233-02

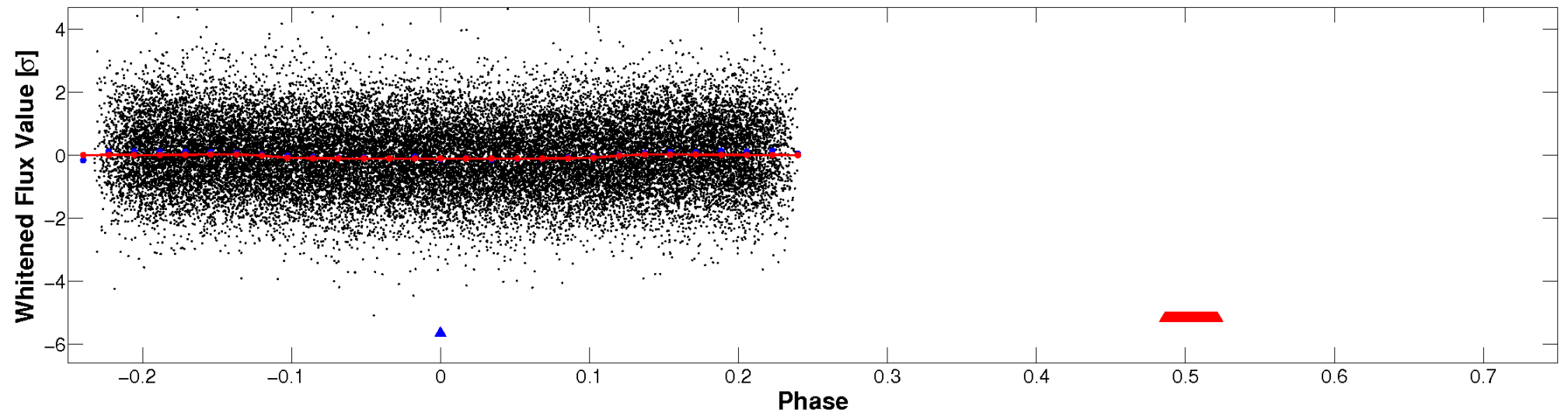


Non-Whitened Vs. Whitened Light Curve

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

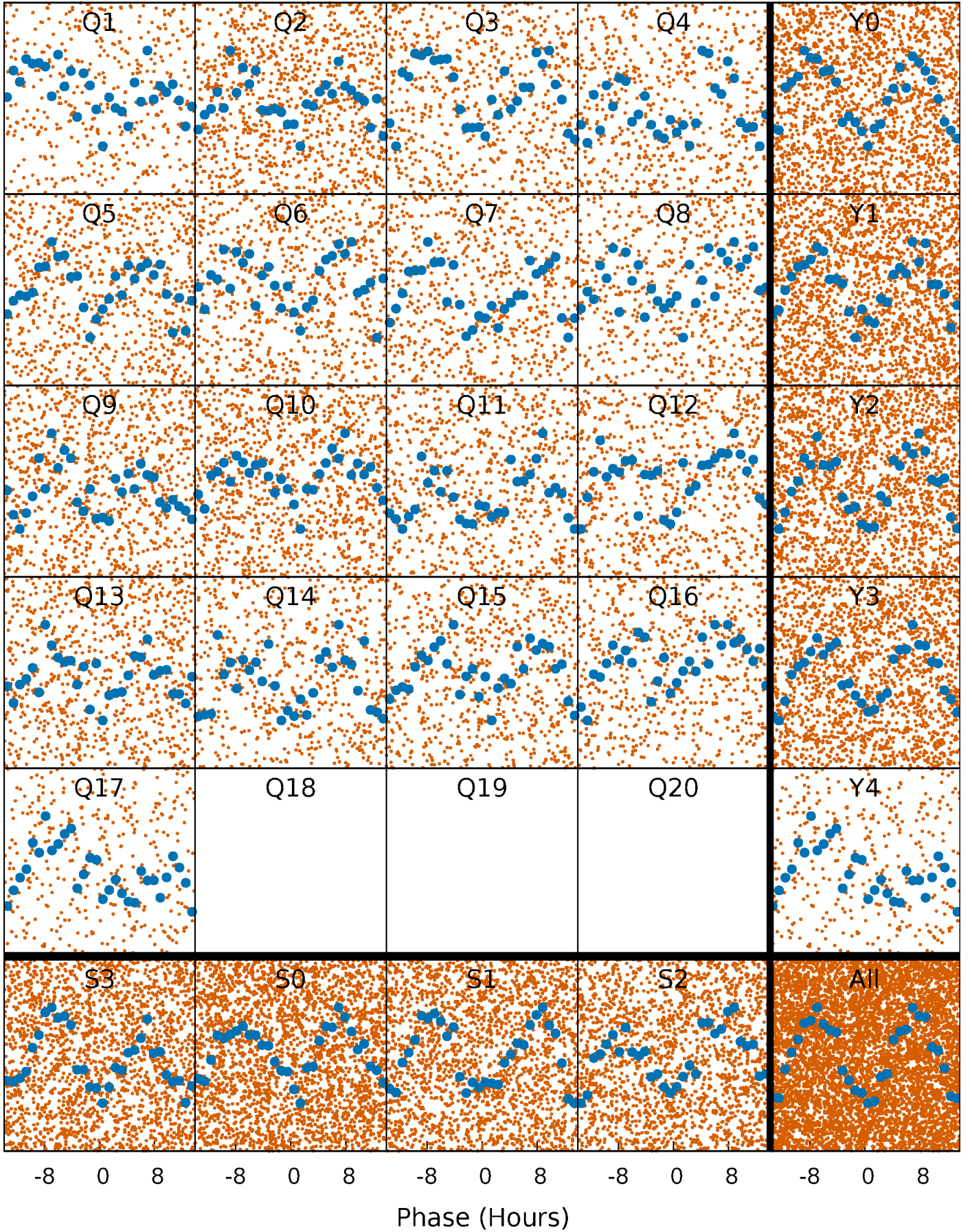


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



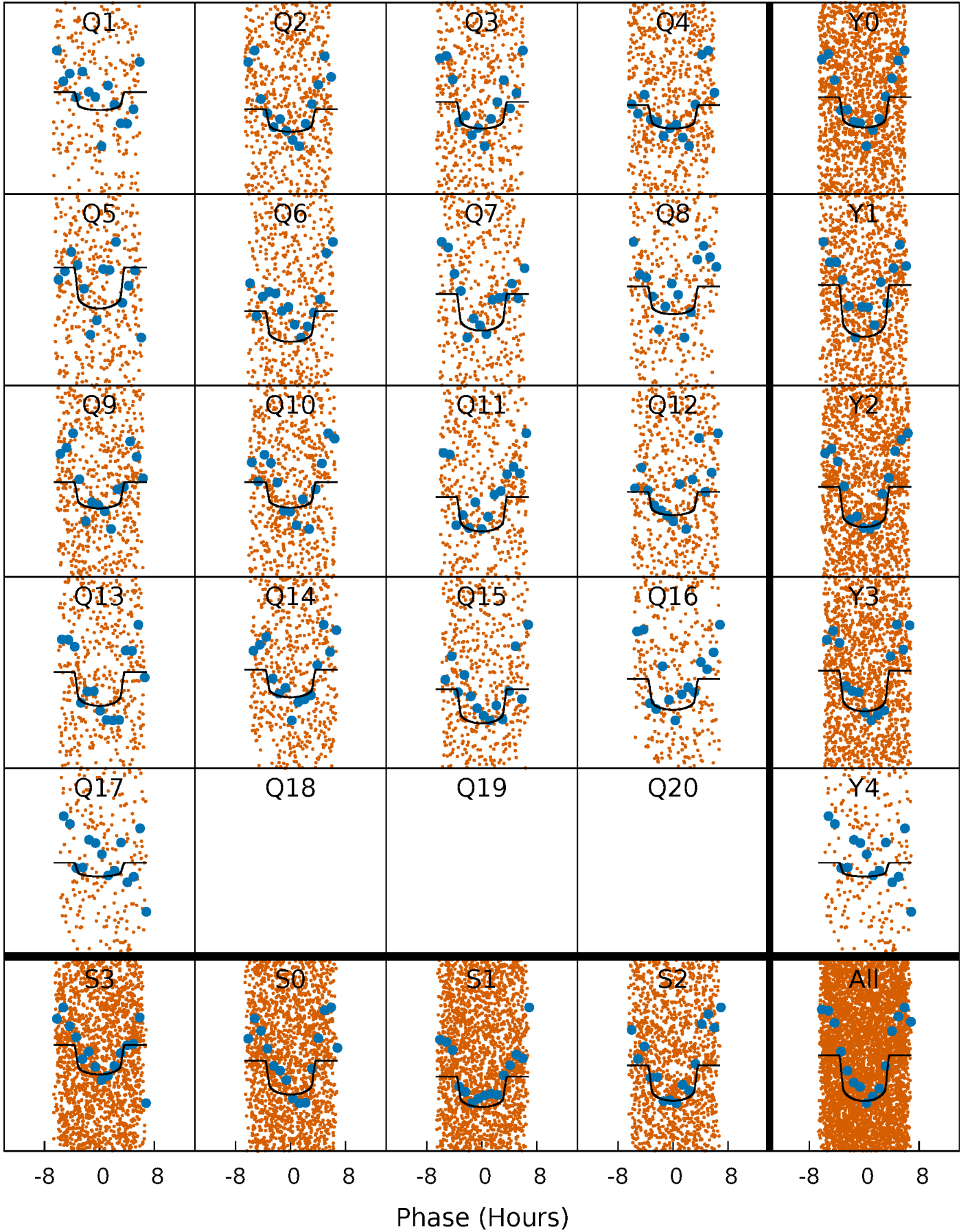
PDC Quarter-Phased Transit Curves

TCE 010668233-02 P= 1.192606 Days $T_0=132.361083$ (BKJD)



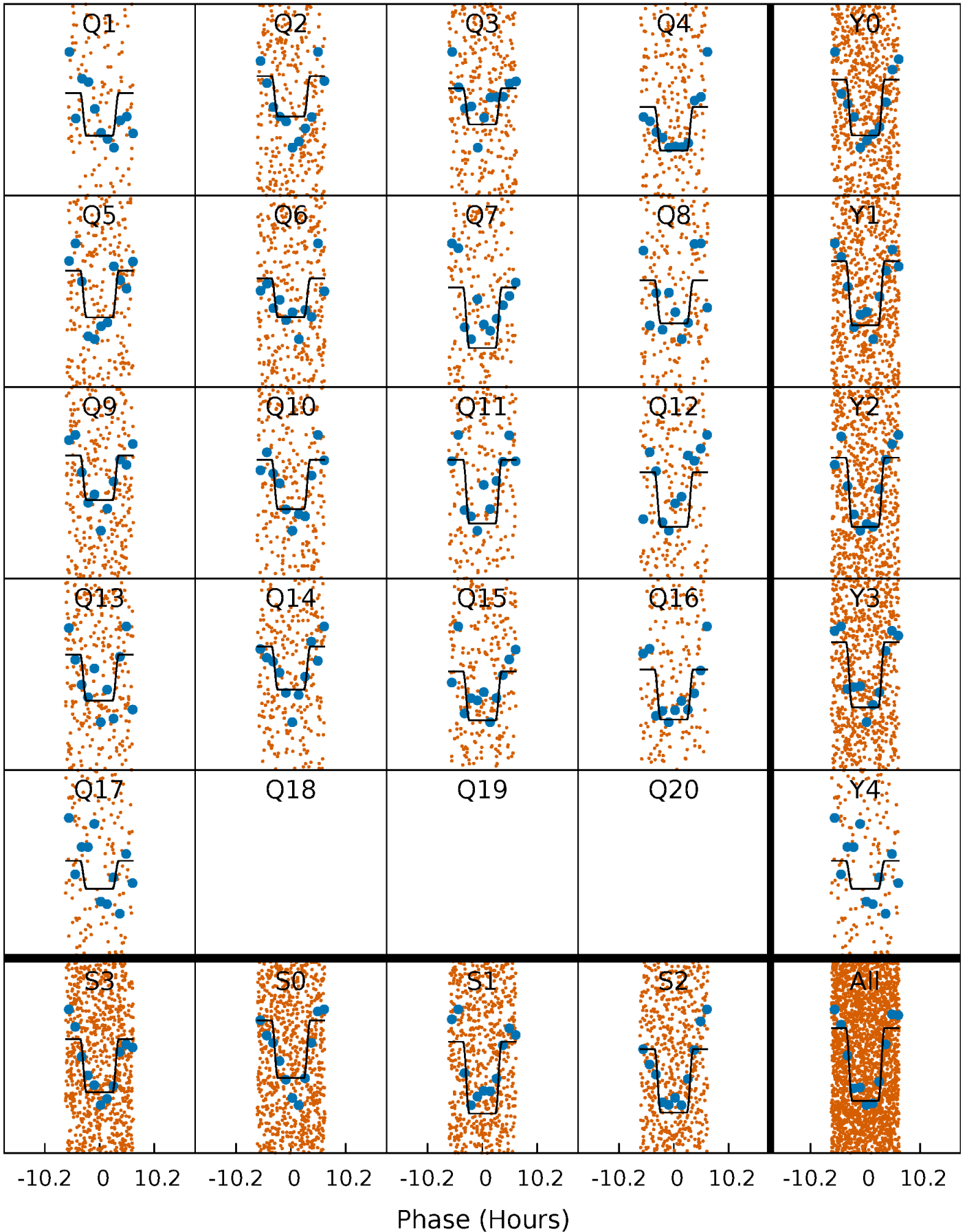
DV Quarter-Phased Transit Curves

TCE 010668233-02 P= 1.192606 Days $T_0=132.361083$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

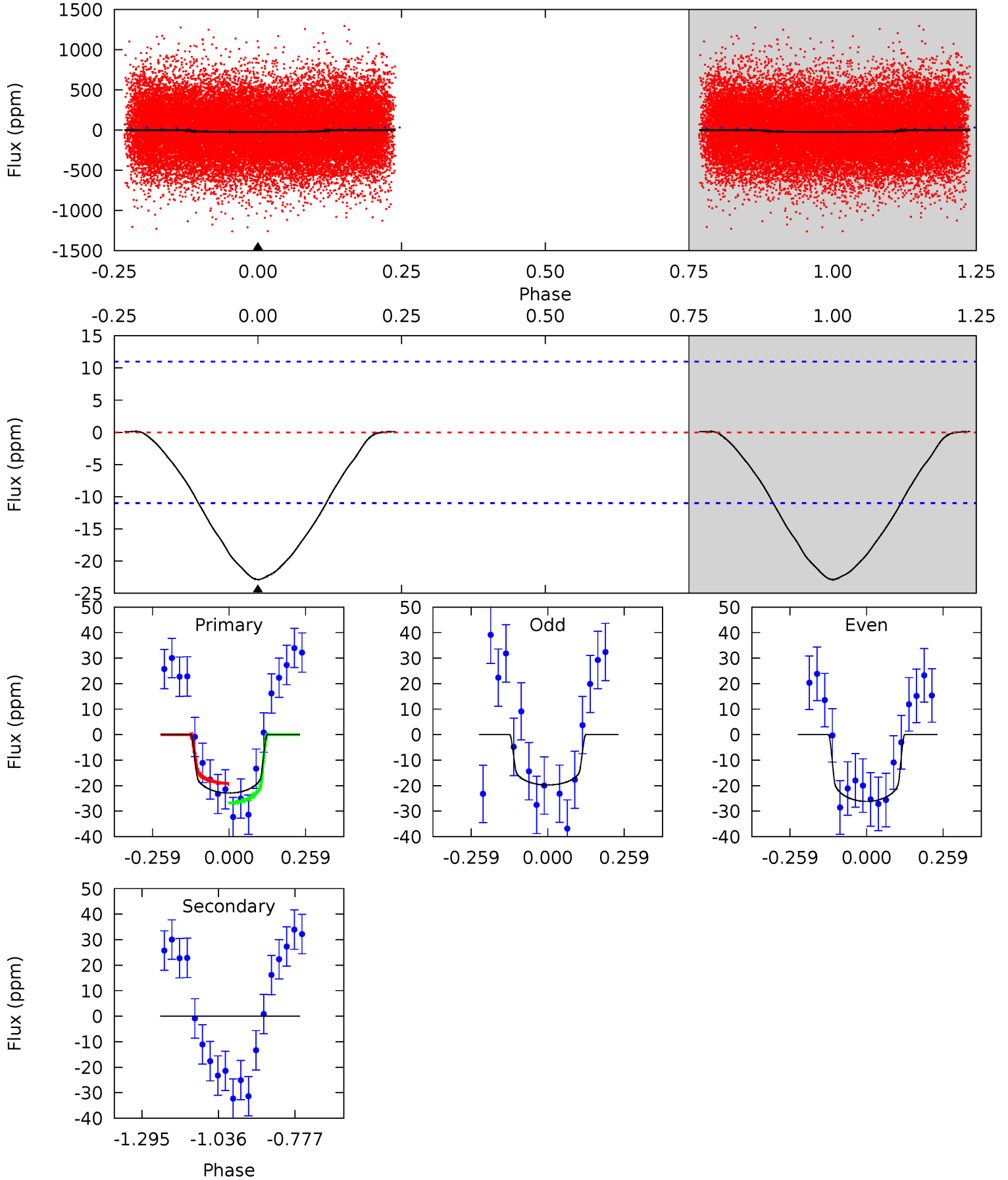
TCE 010668233-02 P= 1.192643 Days $T_0=132.342686$ (BKJD)



DV Model-Shift Uniqueness Test

010668233-02, P = 1.192606 Days, E = 131.168477 Days

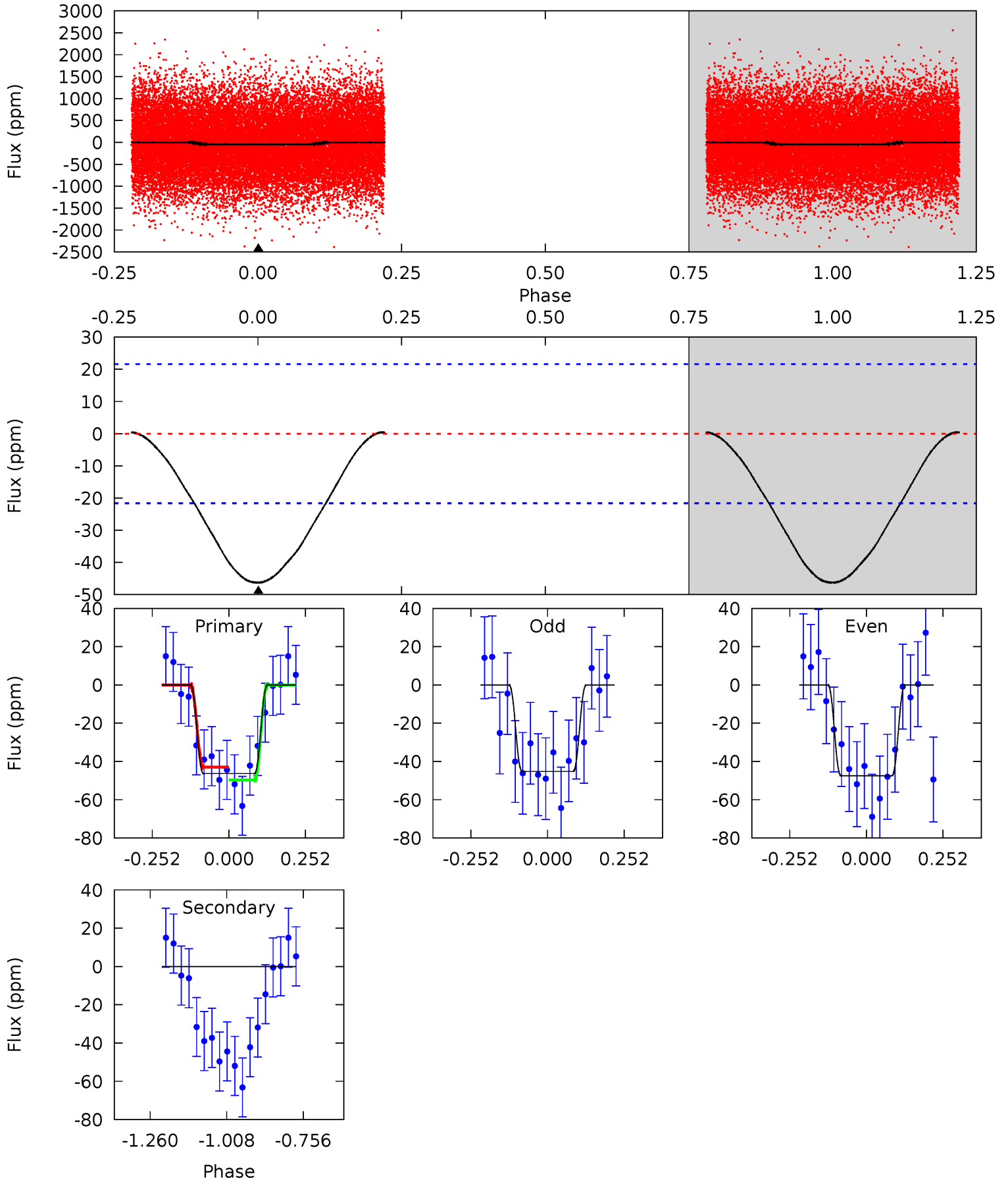
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.07	0	0	0	4.36	1.13	0.08	9.07	9.07	0	0	1.28	0.90	0.01	1.54



Alt Model-Shift Uniqueness Test

010668233-02, P = 1.192643 Days, E = 131.150043 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.36	0	0	0	4.37	1.15	0.09	9.36	9.36	0	0	0.22	1.06	0.01	0.69



Stellar Parameters For KIC 010668233

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7744^{+214}_{-322}	$4.018^{+0.182}_{-0.149}$	$0.040^{+0.150}_{-0.400}$	$2.186^{+0.519}_{-0.519}$	$1.815^{+0.145}_{-0.339}$	$0.245^{+0.239}_{-0.104}$
	+3%/-4%	+5%/-4%	+375%/-1000%	+24%/-24%	+8%/-19%	+98%/-43%
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 010668233-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 3	$1.36^{+0.62}_{-0.57}$	4284^{+296}_{-310}	-3812^{+7478}_{-886}	$-0.007^{+0.568}_{-0.582}$
Alt.	0 ± 5	$1.63^{+0.62}_{-0.60}$	4256^{+321}_{-313}	-3824^{+8014}_{-1129}	$-0.004^{+0.813}_{-0.943}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

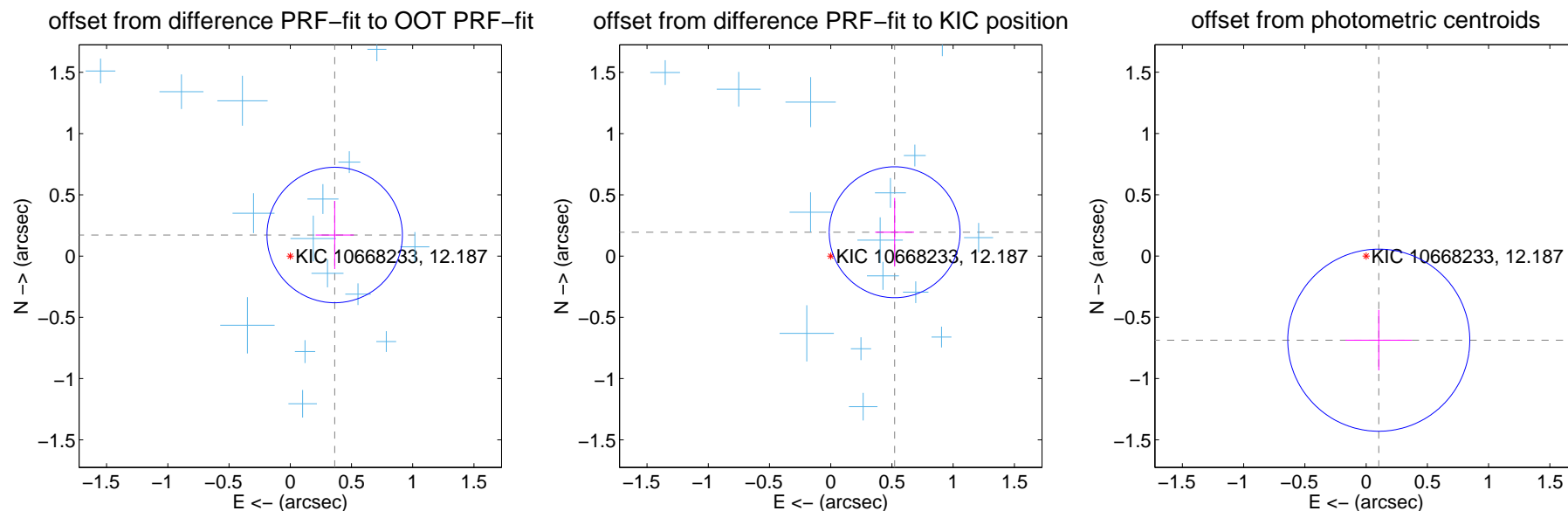
DV Centroid Data

Supplemental centroid analysis for 010668233-02. Kepler magnitude: 12.19. Transit SNR 11.23

There are 15 quarters with good PRF difference image offsets

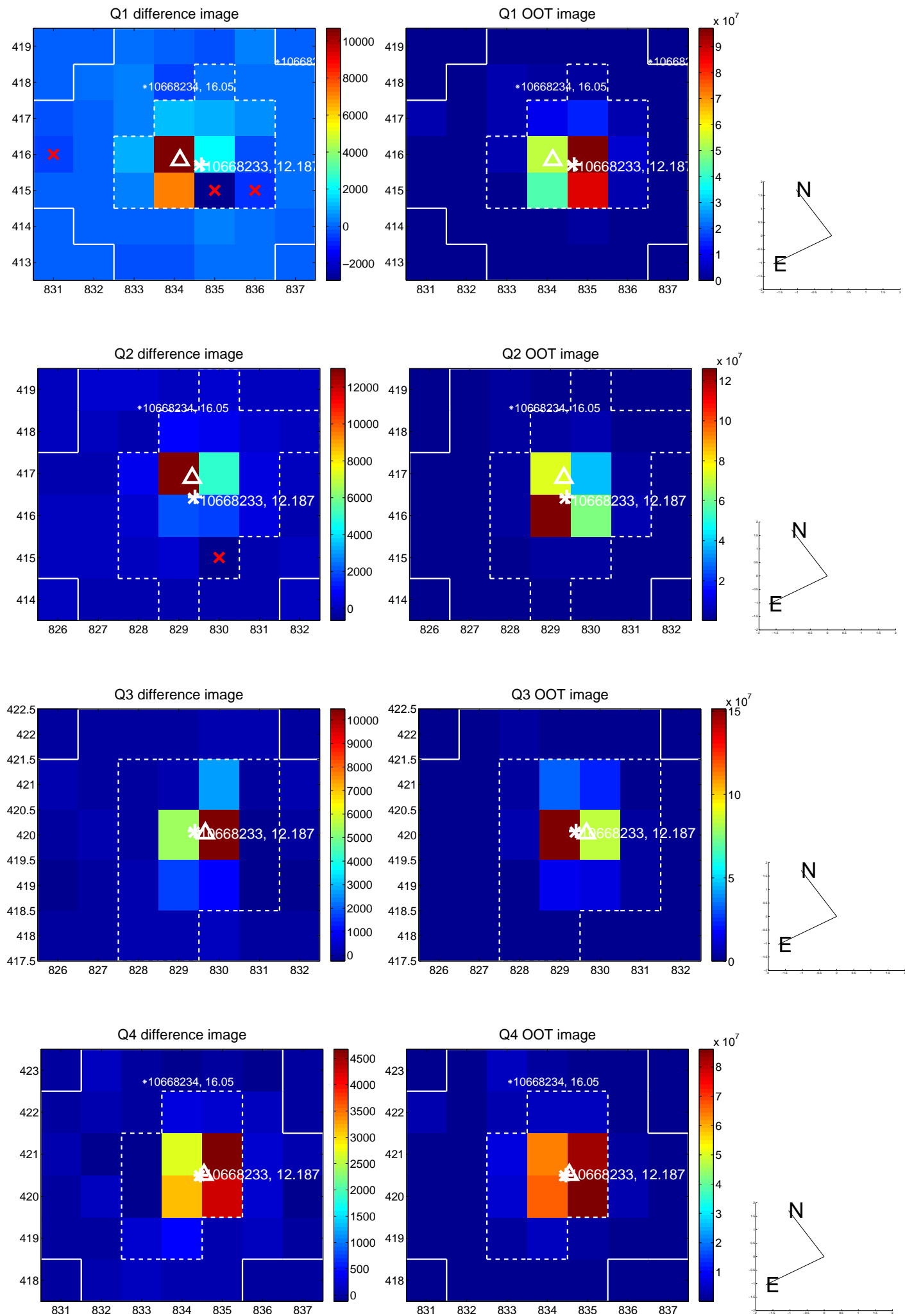
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.402 ± 0.184	2.18	-0.363 ± 0.156	0.172 ± 0.278
PRF-fit source offset from KIC position	0.557 ± 0.178	3.13	-0.522 ± 0.159	0.195 ± 0.280
photometric centroid source offset	0.69 ± 0.25	2.80	-0.10 ± 0.27	-0.69 ± 0.25

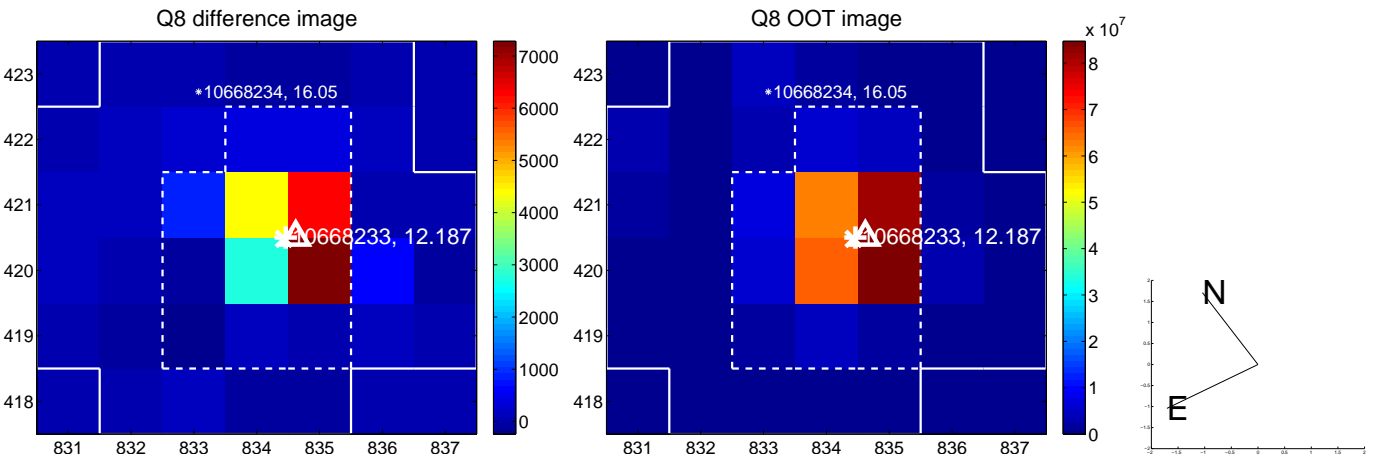
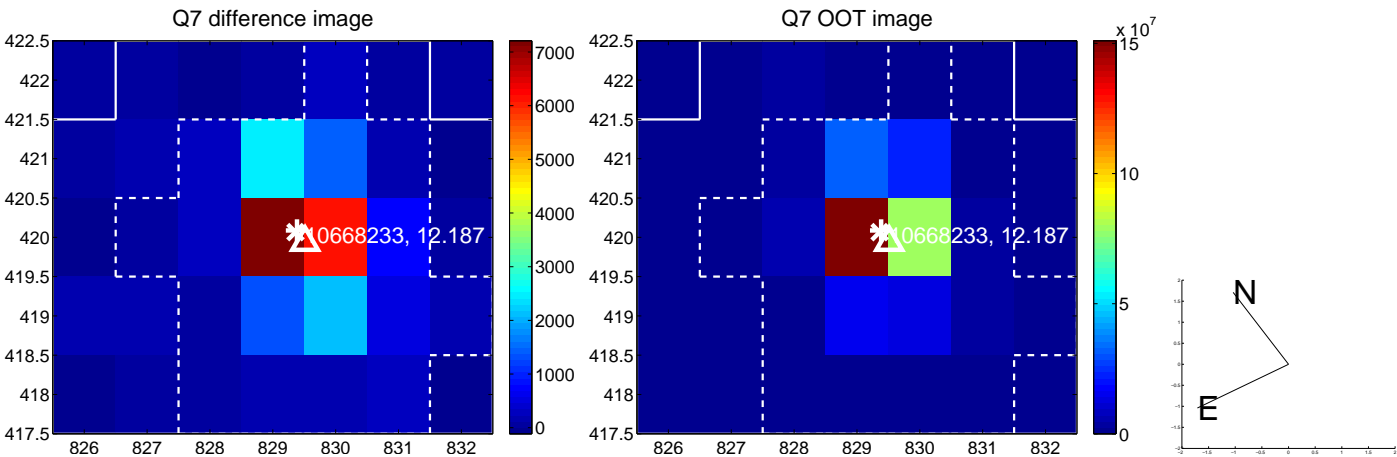
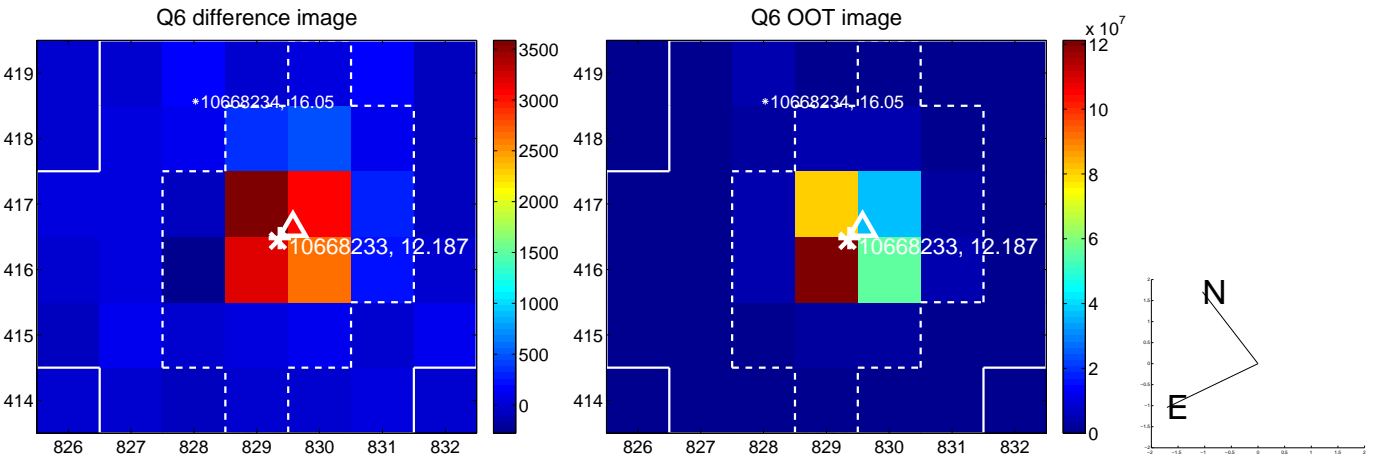
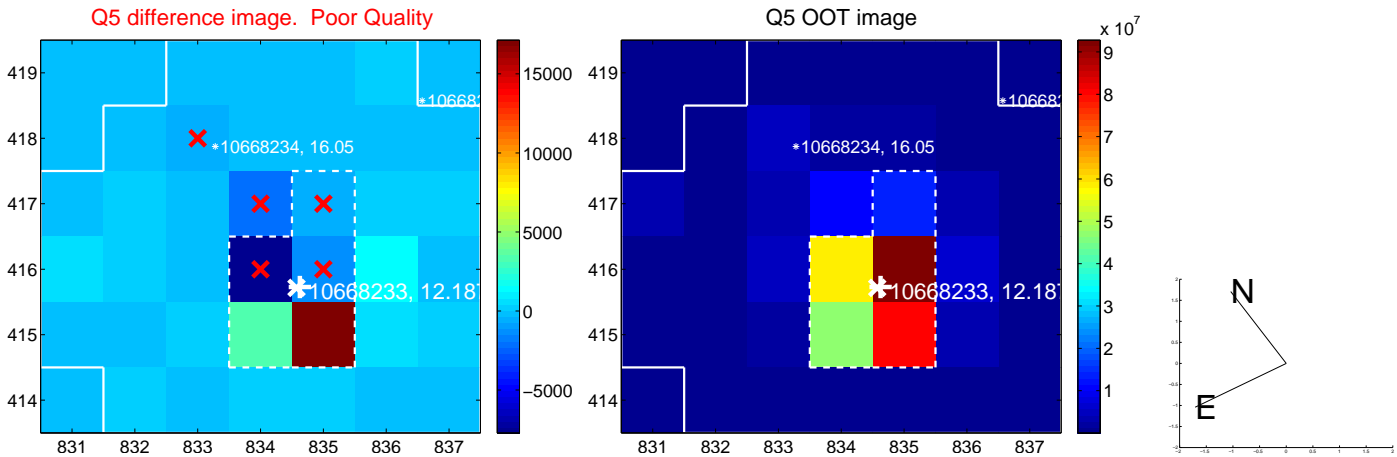


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

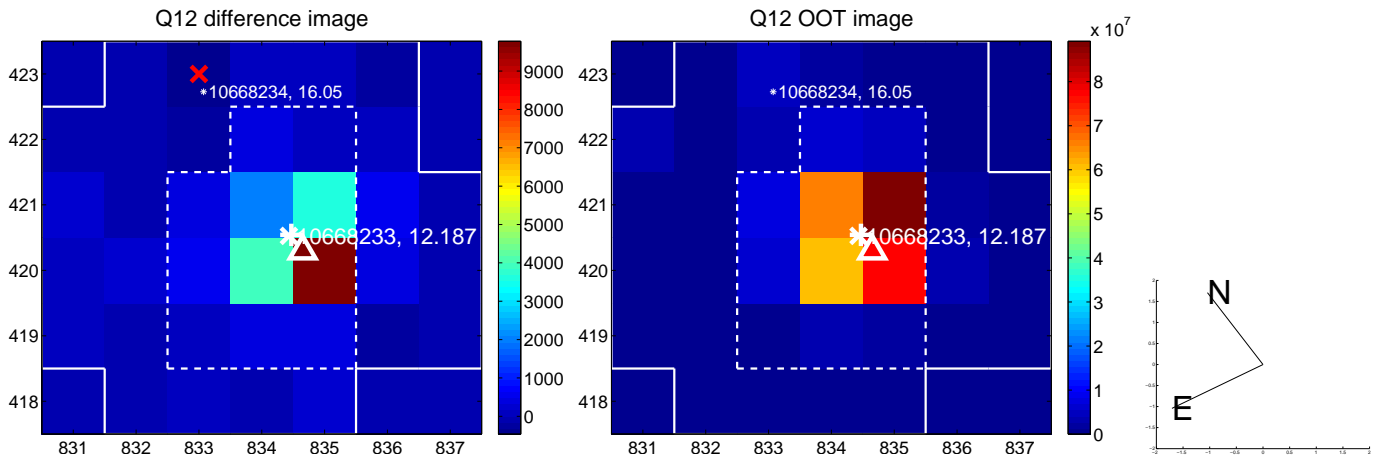
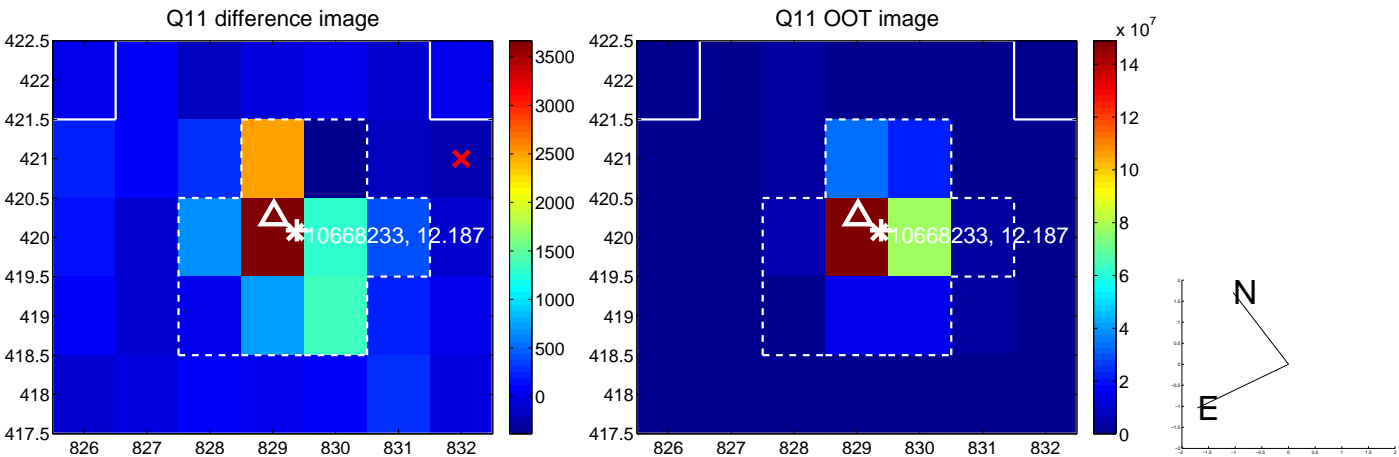
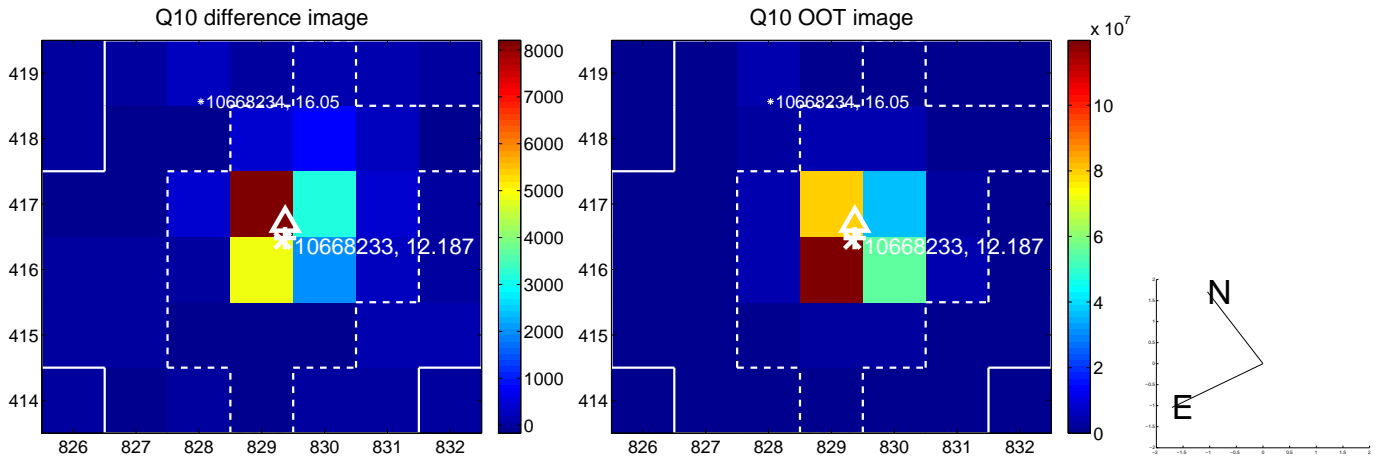
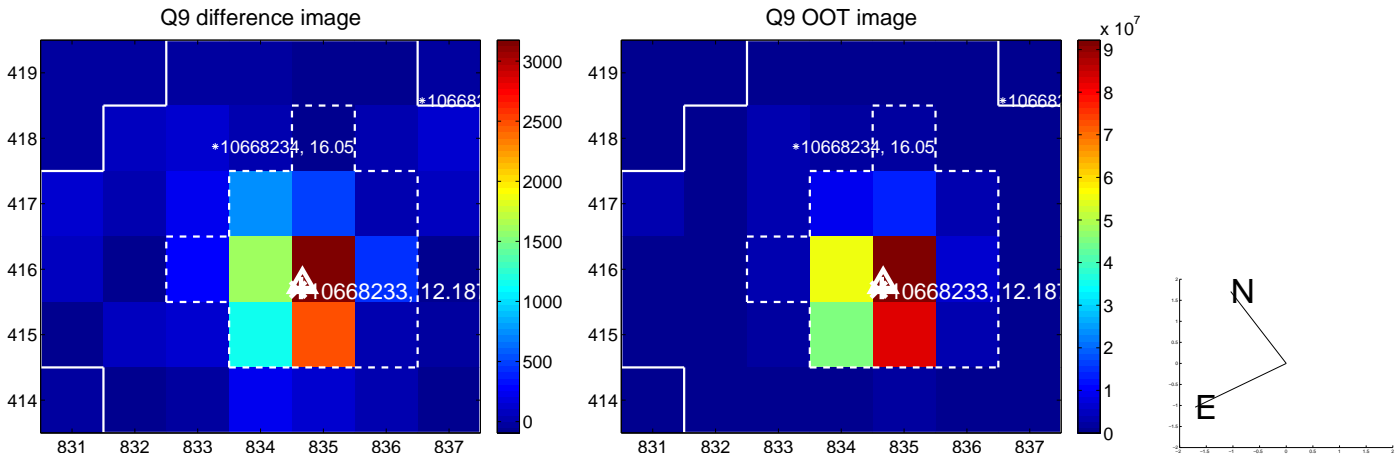
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



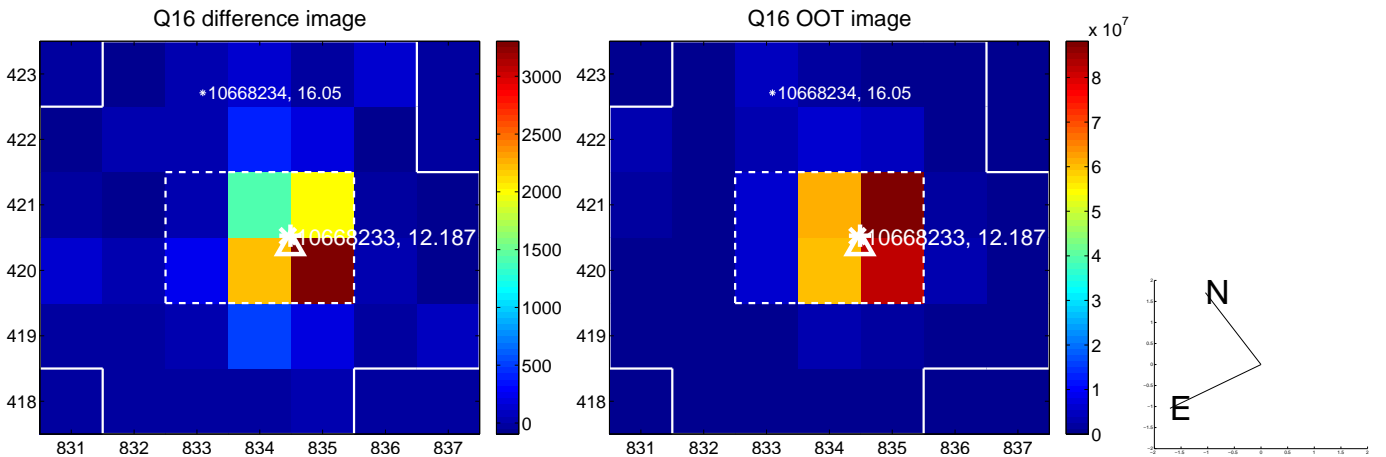
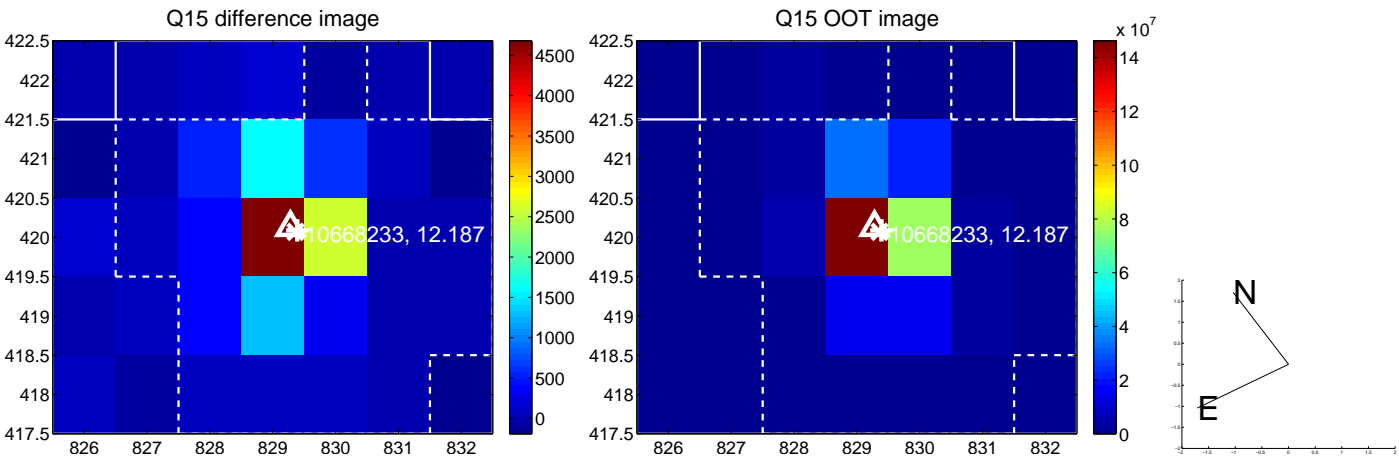
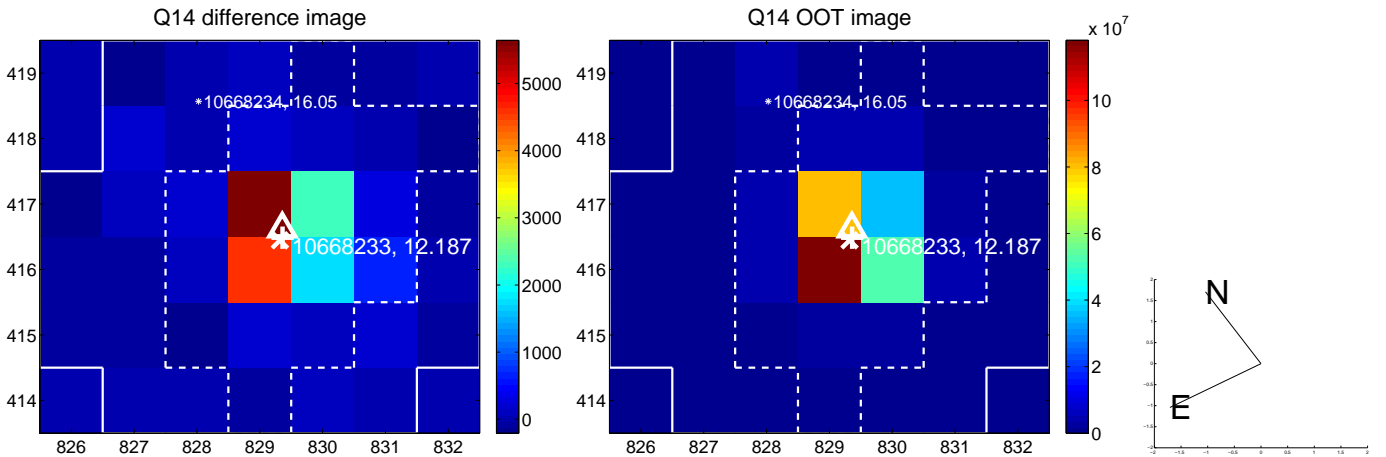
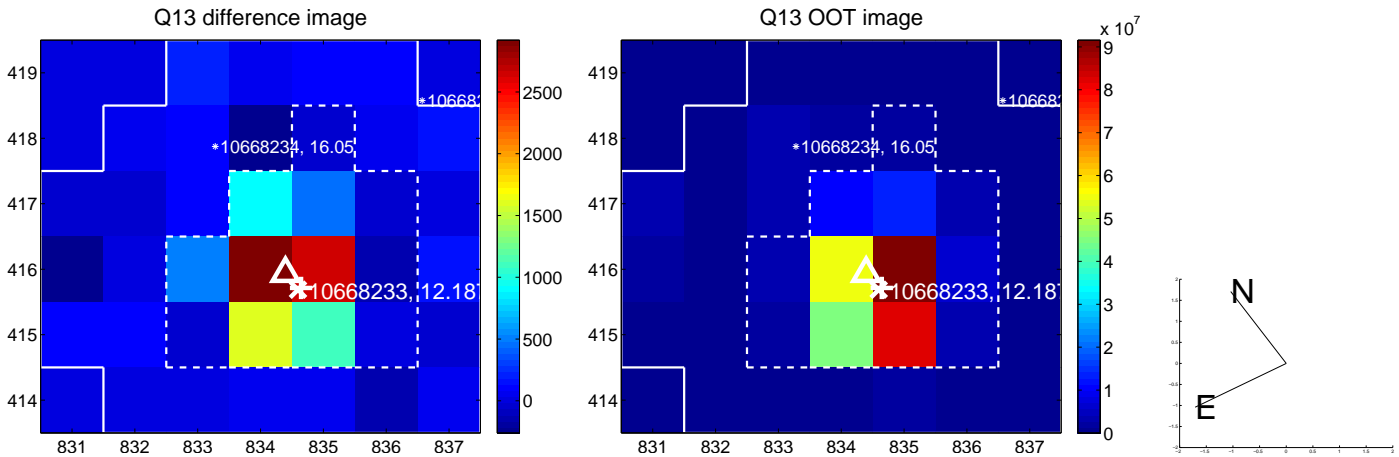
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



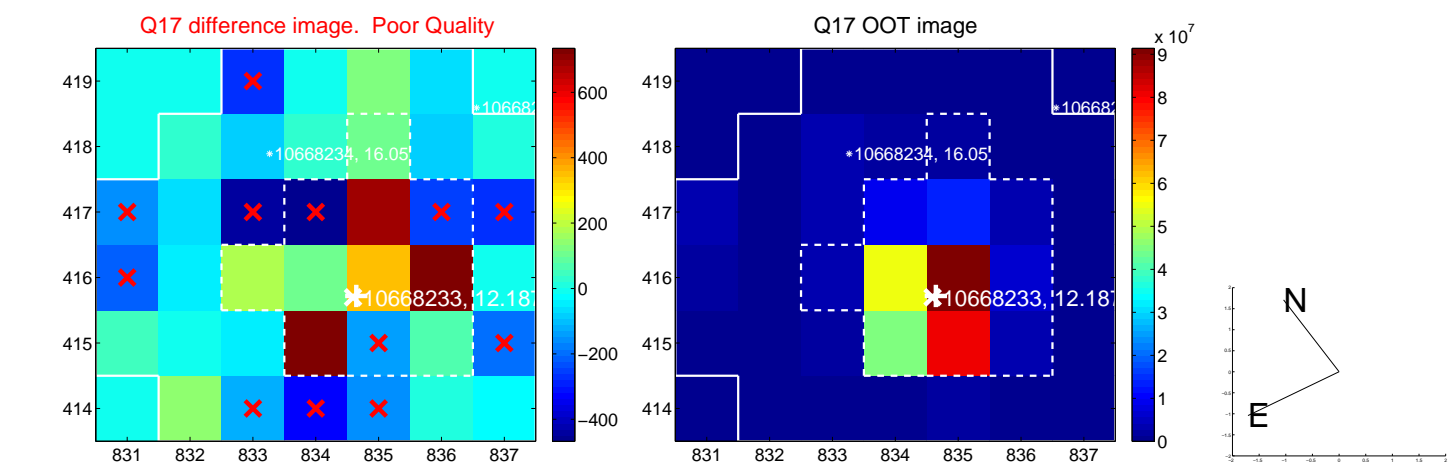
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



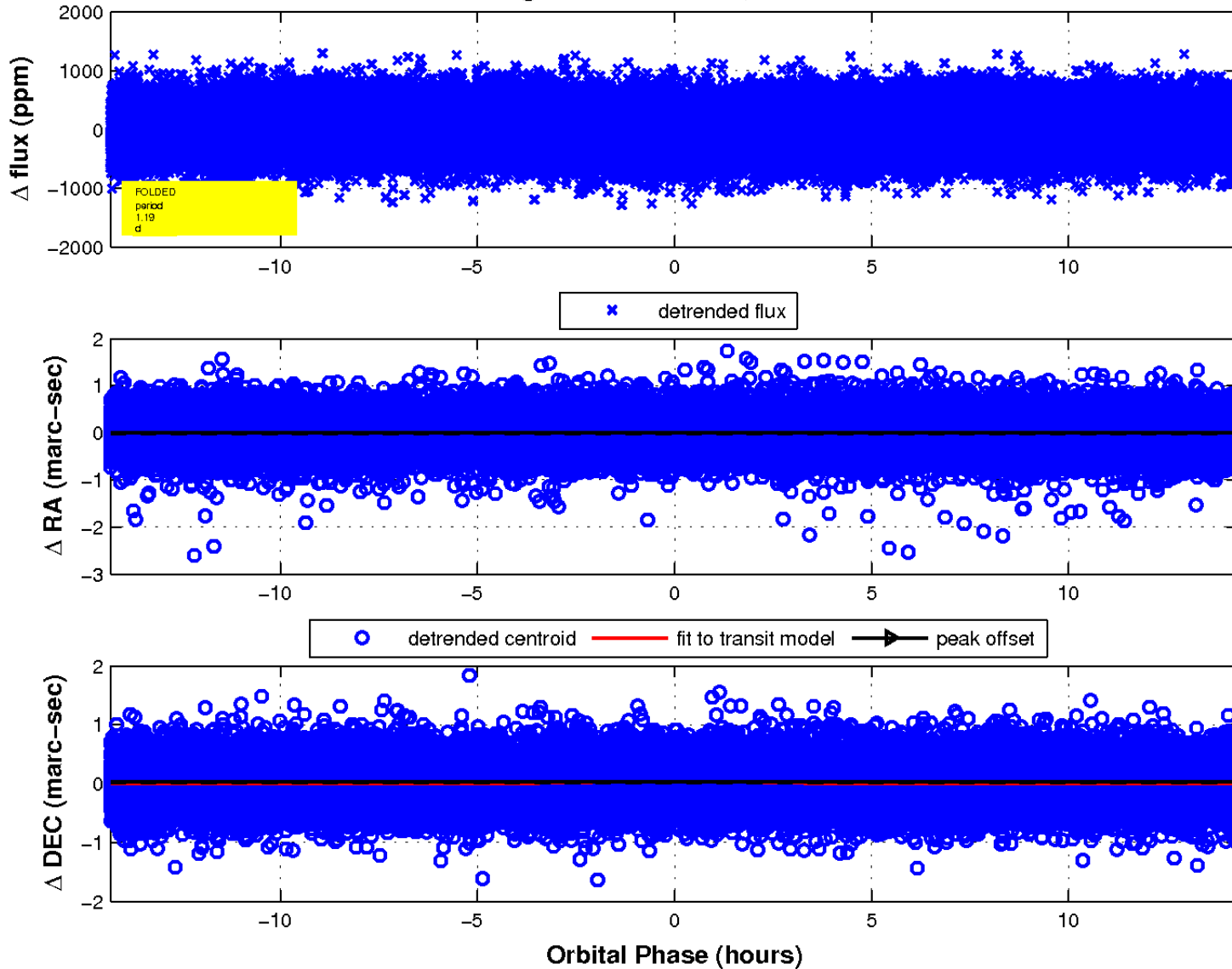
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

