

KIC 012011851

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})
012011851-01	OBS	No	1.011881	132.296873	16.7	3.082	10.7	8.7	3.33	7985	1.60	64397.80
012011851-02	OBS	No	1.011827	131.825761	31.9	4.745	14.8	16.6	3.33	7985	1.93	64402.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012011851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
012011851-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

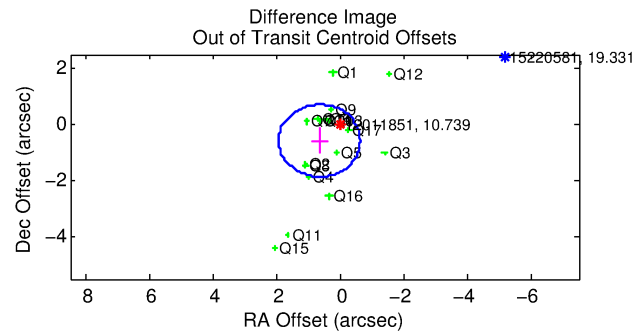
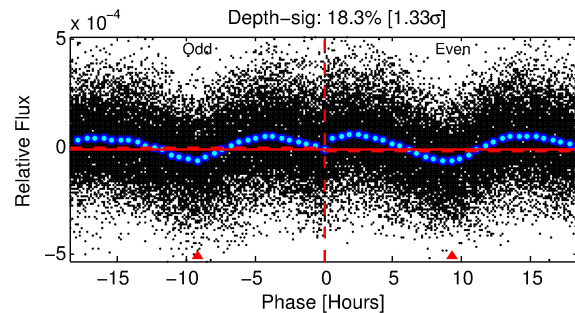
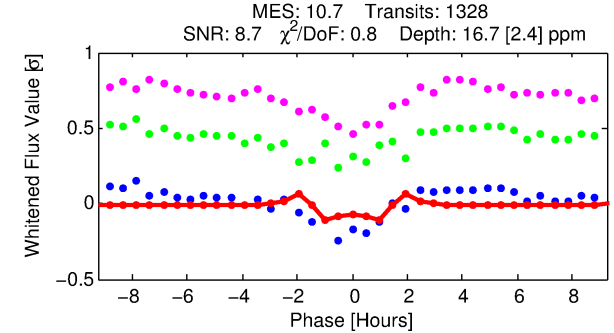
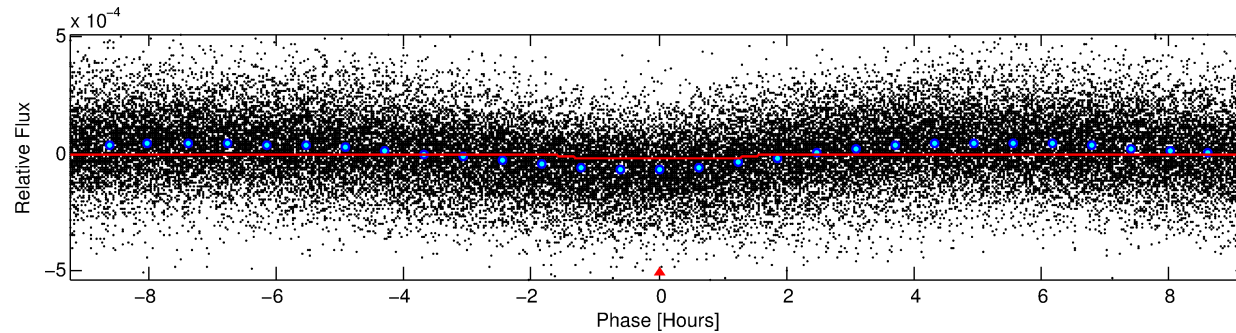
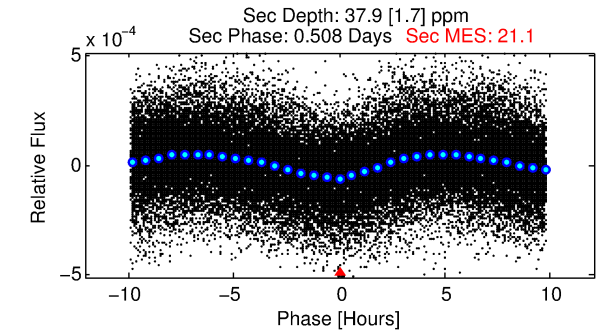
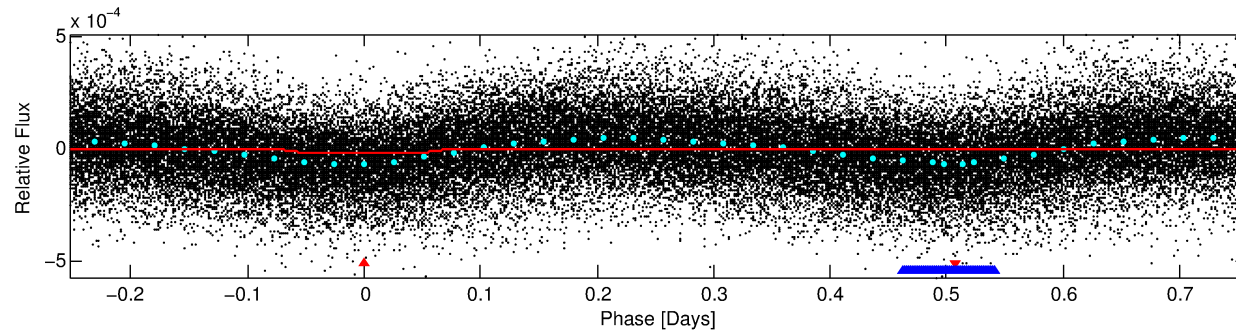
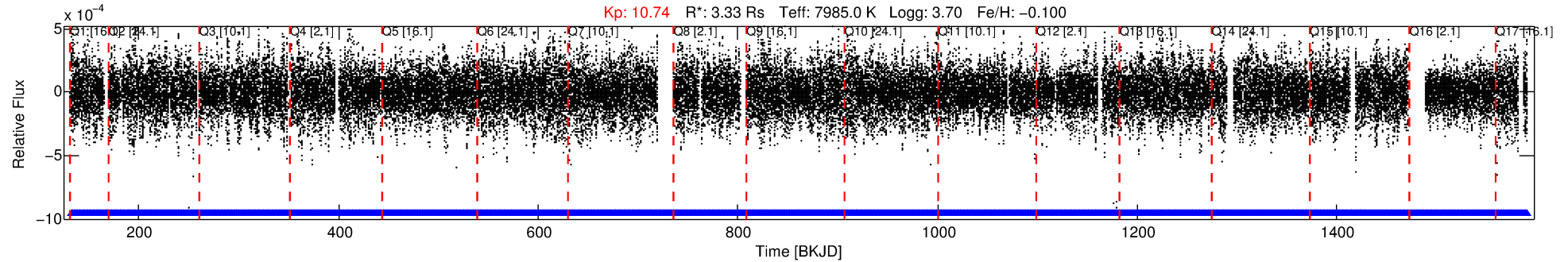
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012011851-01

No Significant Match Found

DV One-Page Summary

KIC: 12011851 Candidate: 1 of 2 Period: 1.012 d



DV Fit Results:

Period = 1.01188 [0.00001] d
Epoch = 132.2969 [0.0018] BKJD
Rp/R* = 0.0044 [0.0006]
a/R* = 1.43 [0.57]
b = 0.91 [0.15]
Seff = 64397.80 [48592.10]
Teq = 4062 [766] K
Rp = 1.60 [0.80] Re
a = 0.0251 [0.0115] AU
Ag = 5.12 [4.05] [1.02 σ]
Teffp = 9449 [786] K [4.91 σ]

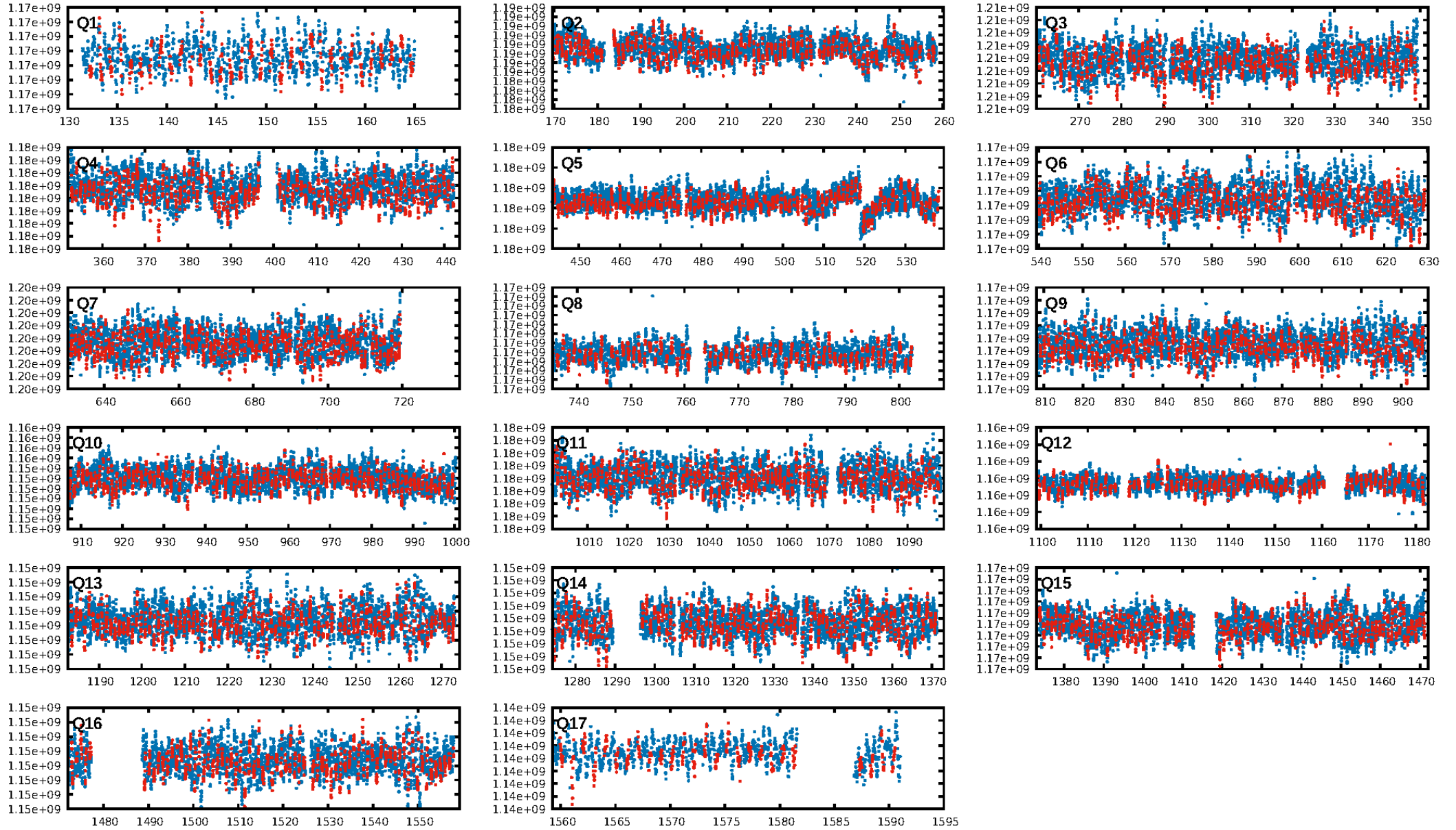
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 9.77e-34
RollingBand-fgt: 1.00 [1269/1269]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.7%
Centroid-so: 1.334 arcsec [2.02 σ]
OotOffset-rm: 0.879 arcsec [2.05 σ]
KicOffset-rm: 1.143 arcsec [2.81 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 1.00 [17/17]

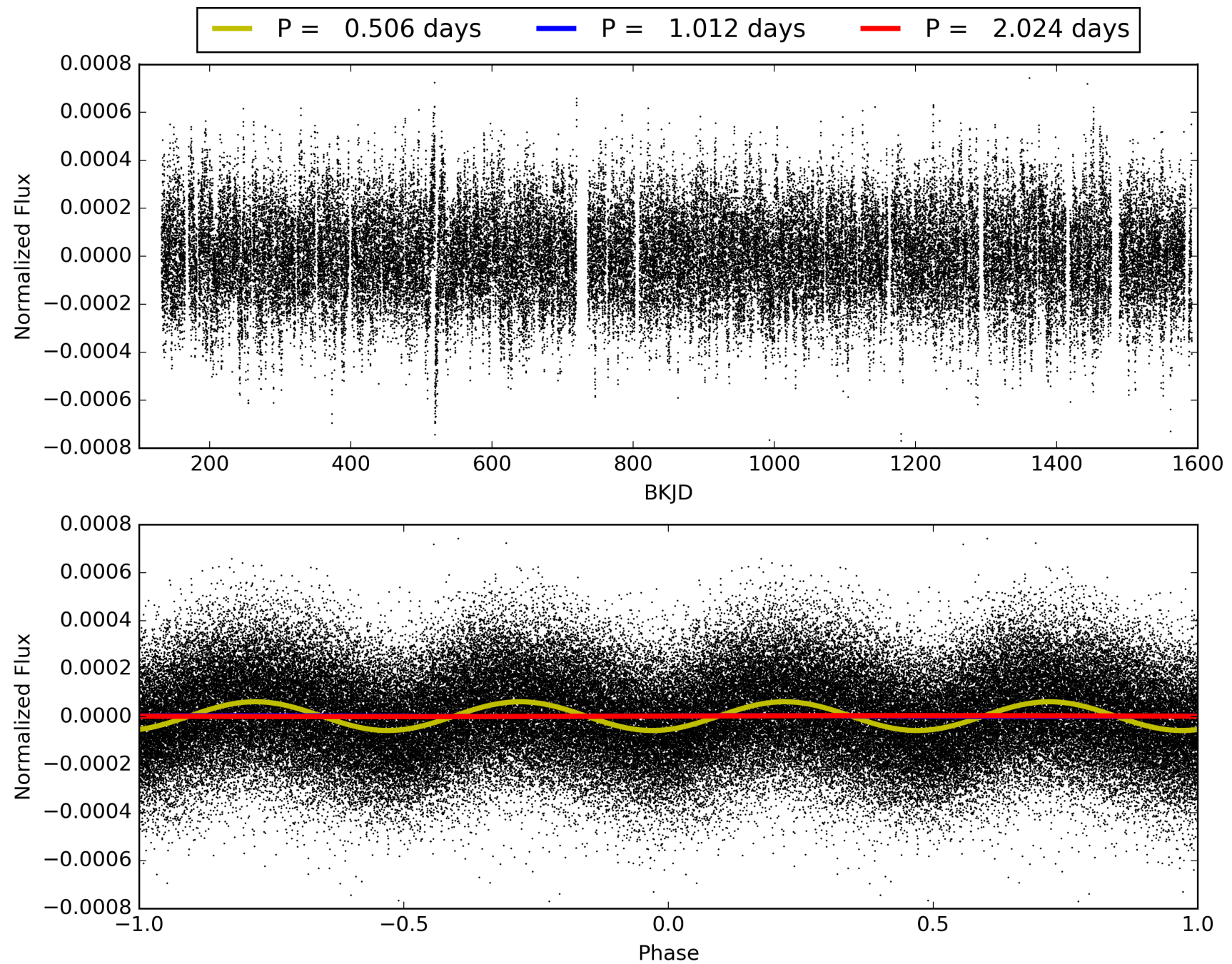
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:38:07 Z

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

TCE 012011851-01, PDC Light Curves

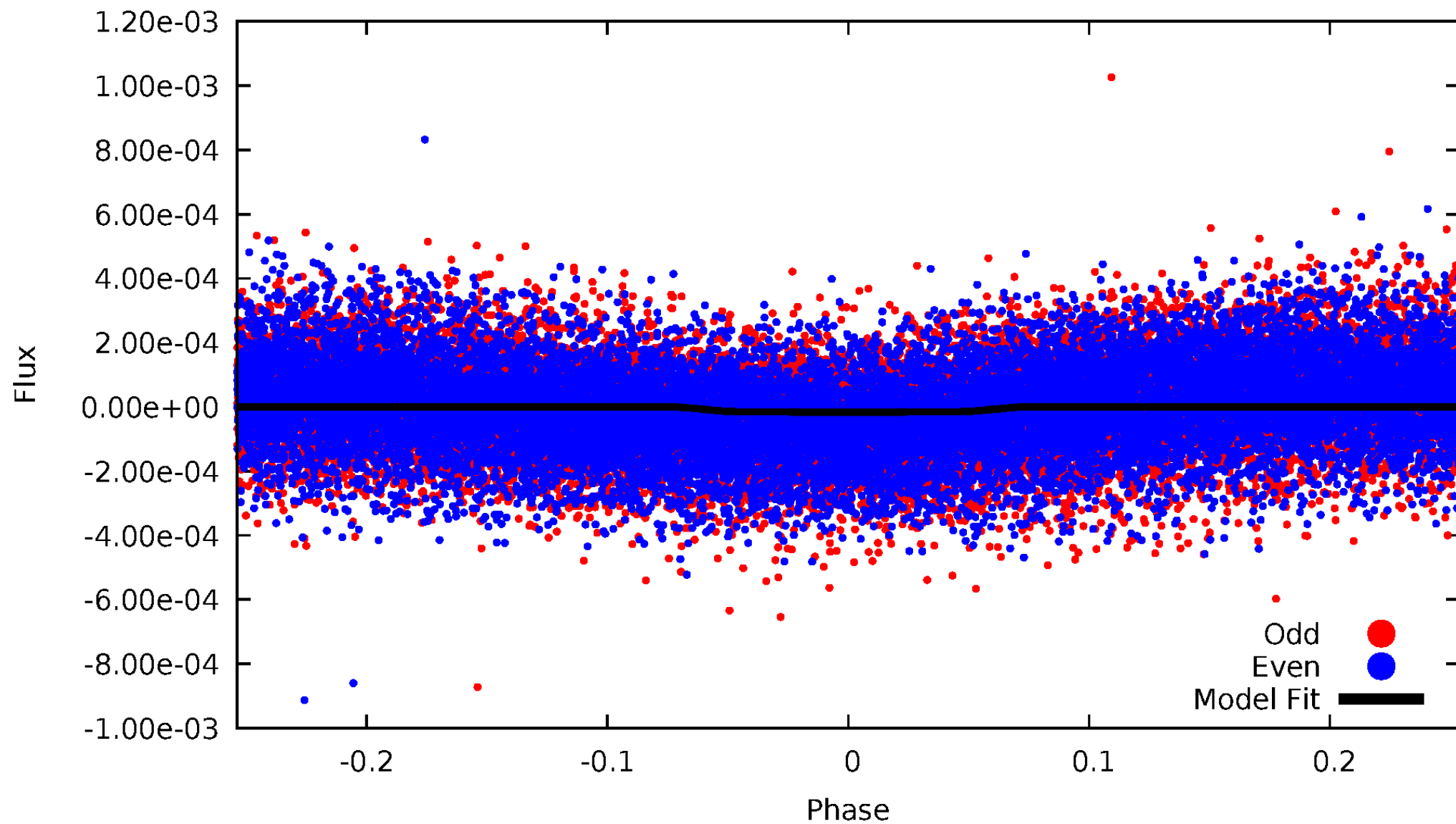


TCE 012011851-01



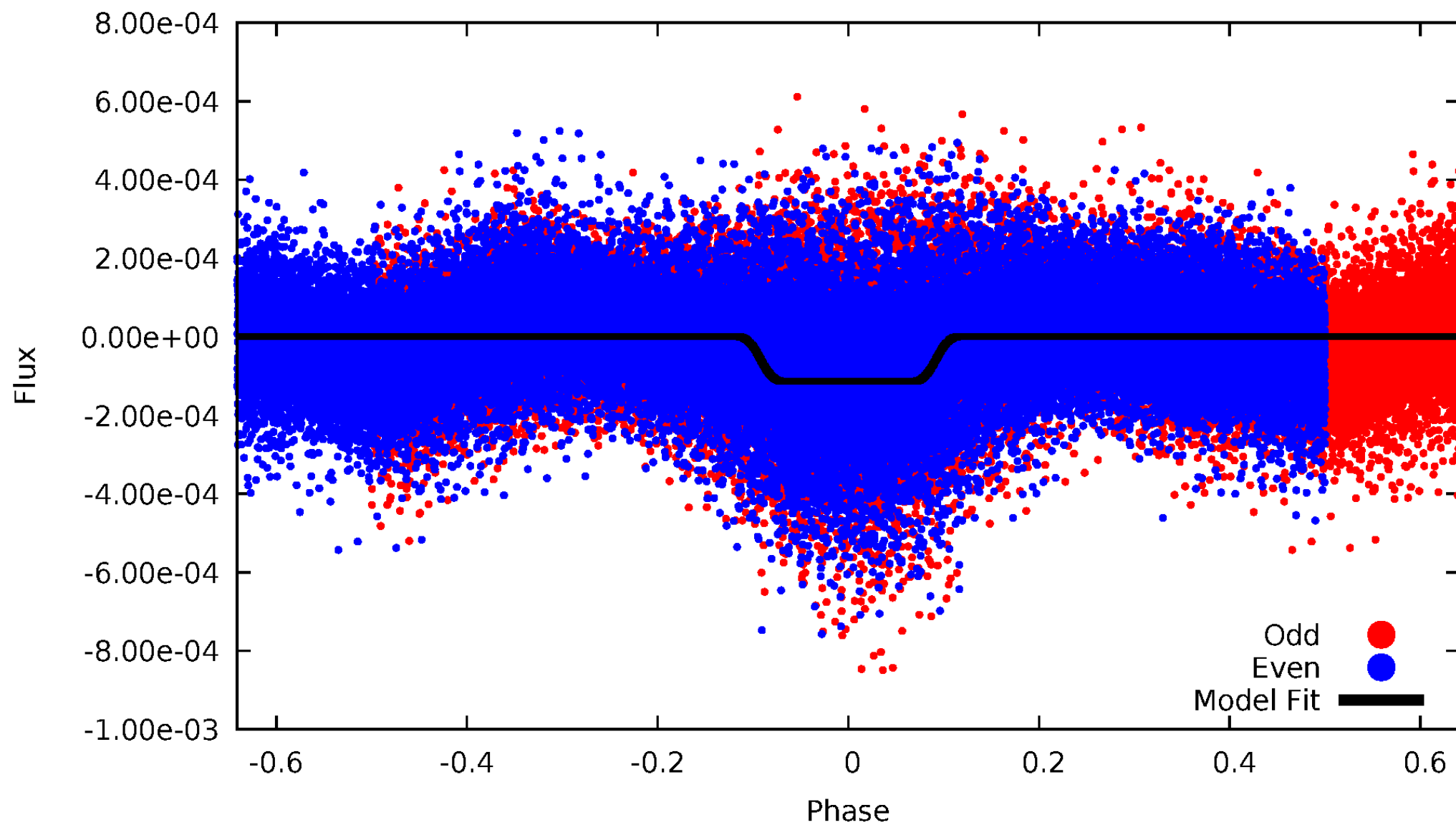
DV Odd/Even

TCE 012011851-01



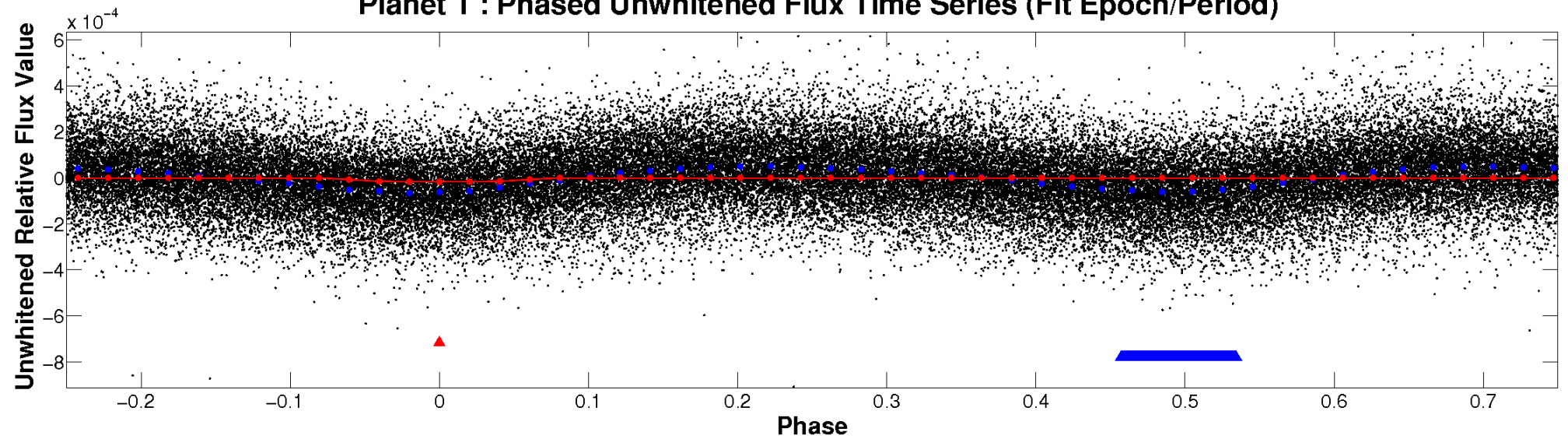
ALT Odd/Even

TCE 012011851-01

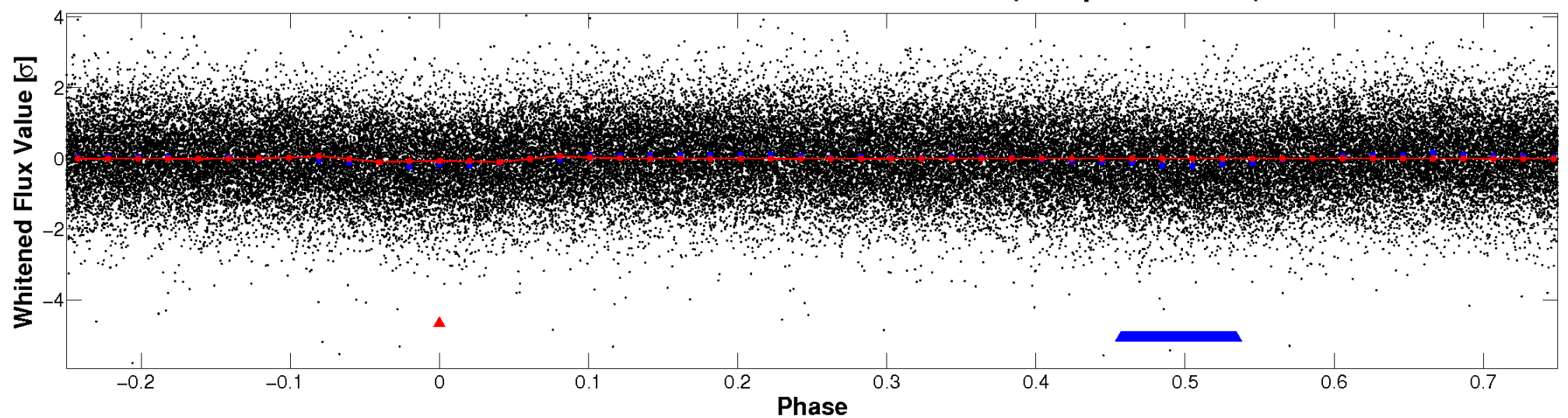


Non-Whitened Vs. Whitened Light Curve

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

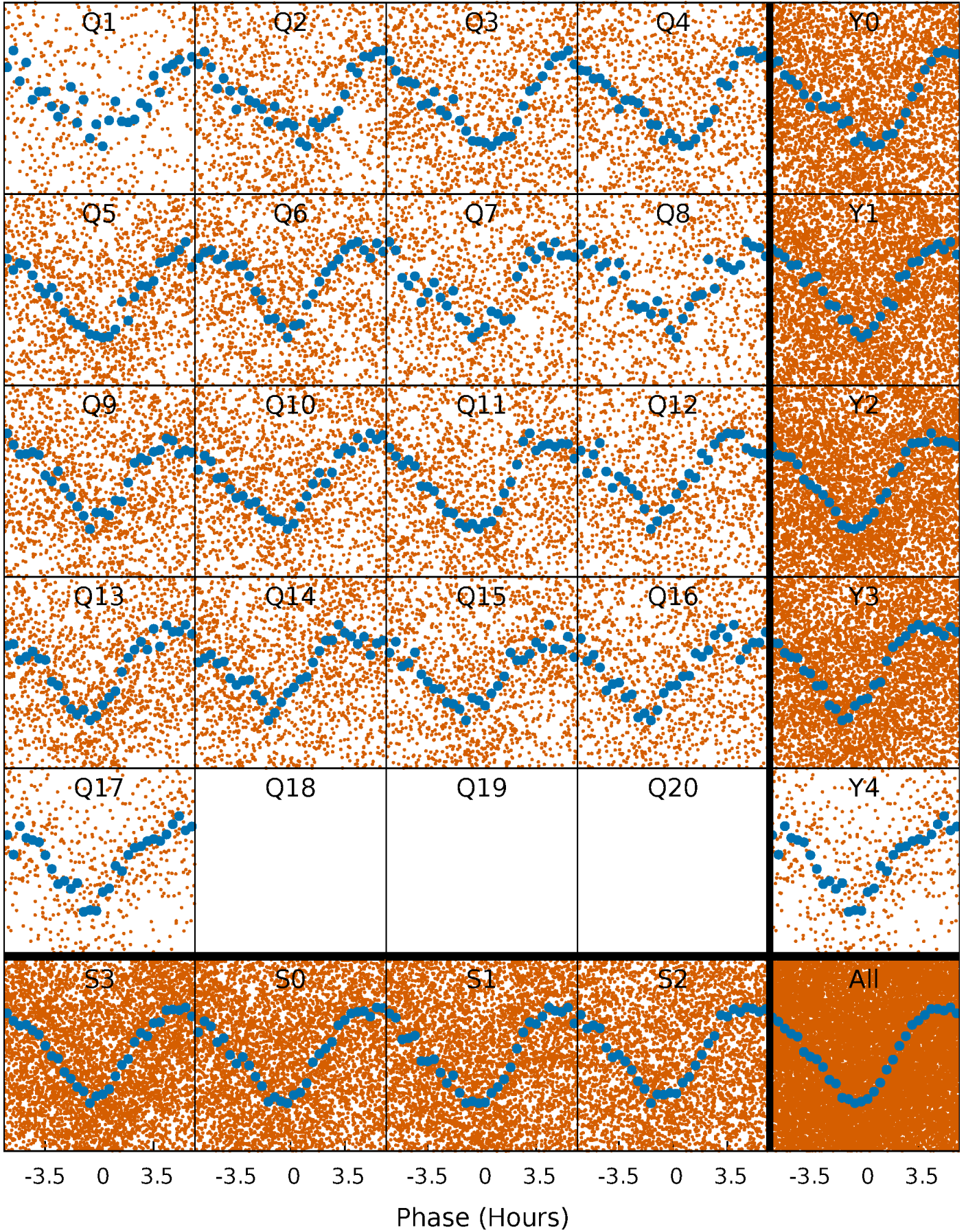


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



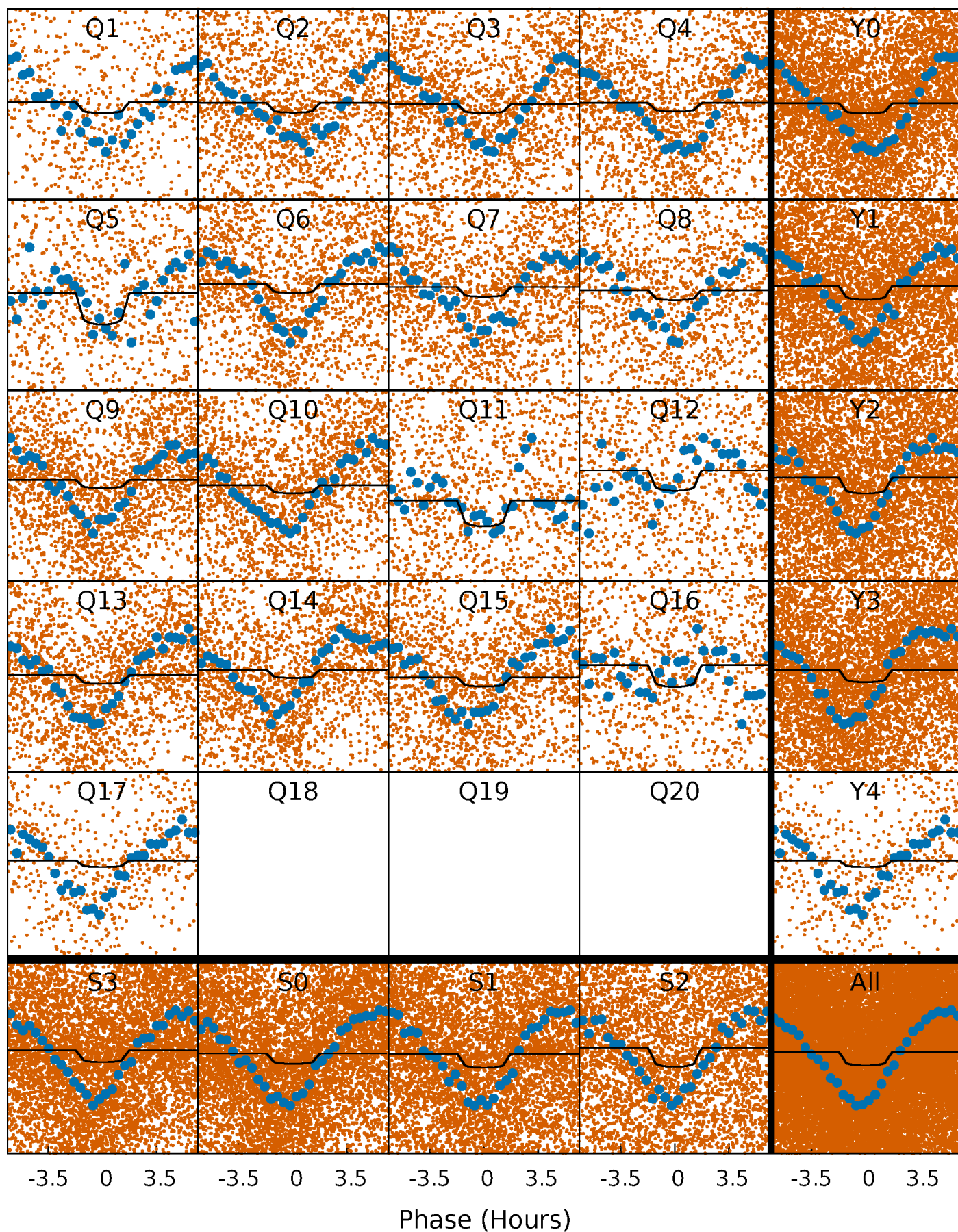
PDC Quarter-Phased Transit Curves

TCE 012011851-01 P= 1.011881 Days $T_0=132.296873$ (BKJD)



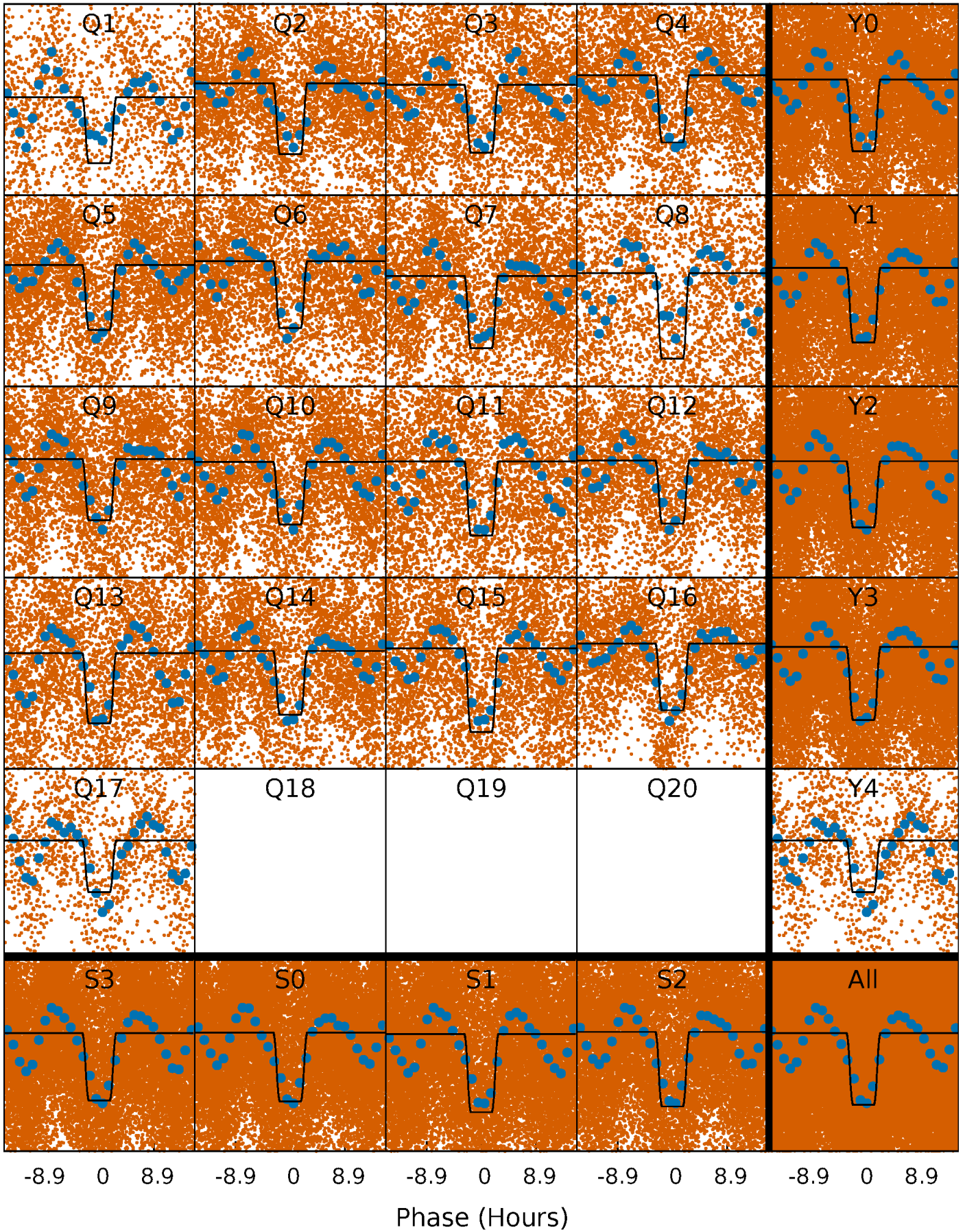
DV Quarter-Phased Transit Curves

TCE 012011851-01 P= 1.011881 Days $T_0=132.296873$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

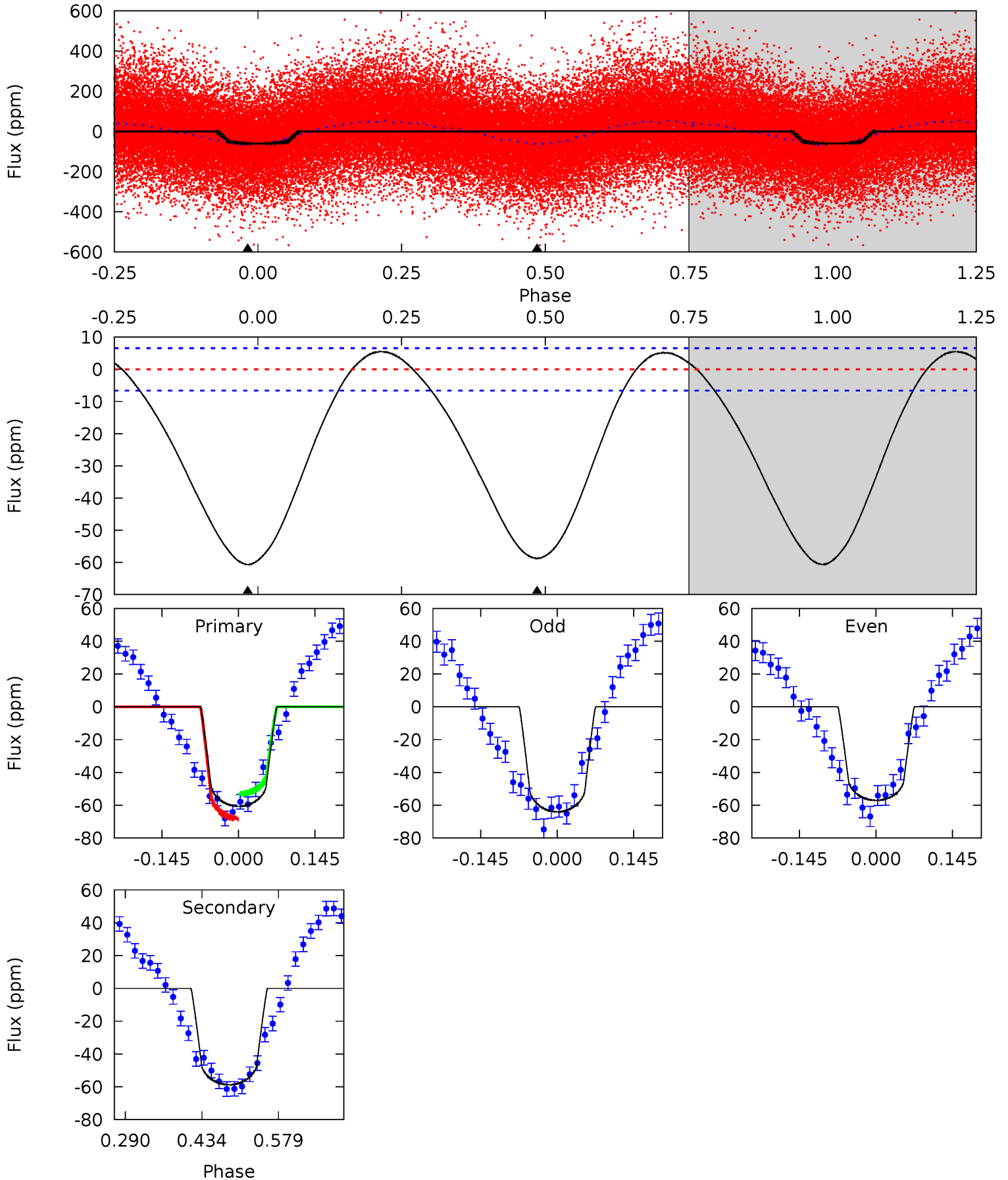
TCE 012011851-01 P= 1.011820 Days $T_0=132.317793$ (BKJD)



DV Model-Shift Uniqueness Test

012011851-01, P = 1.011881 Days, E = 131.284992 Days

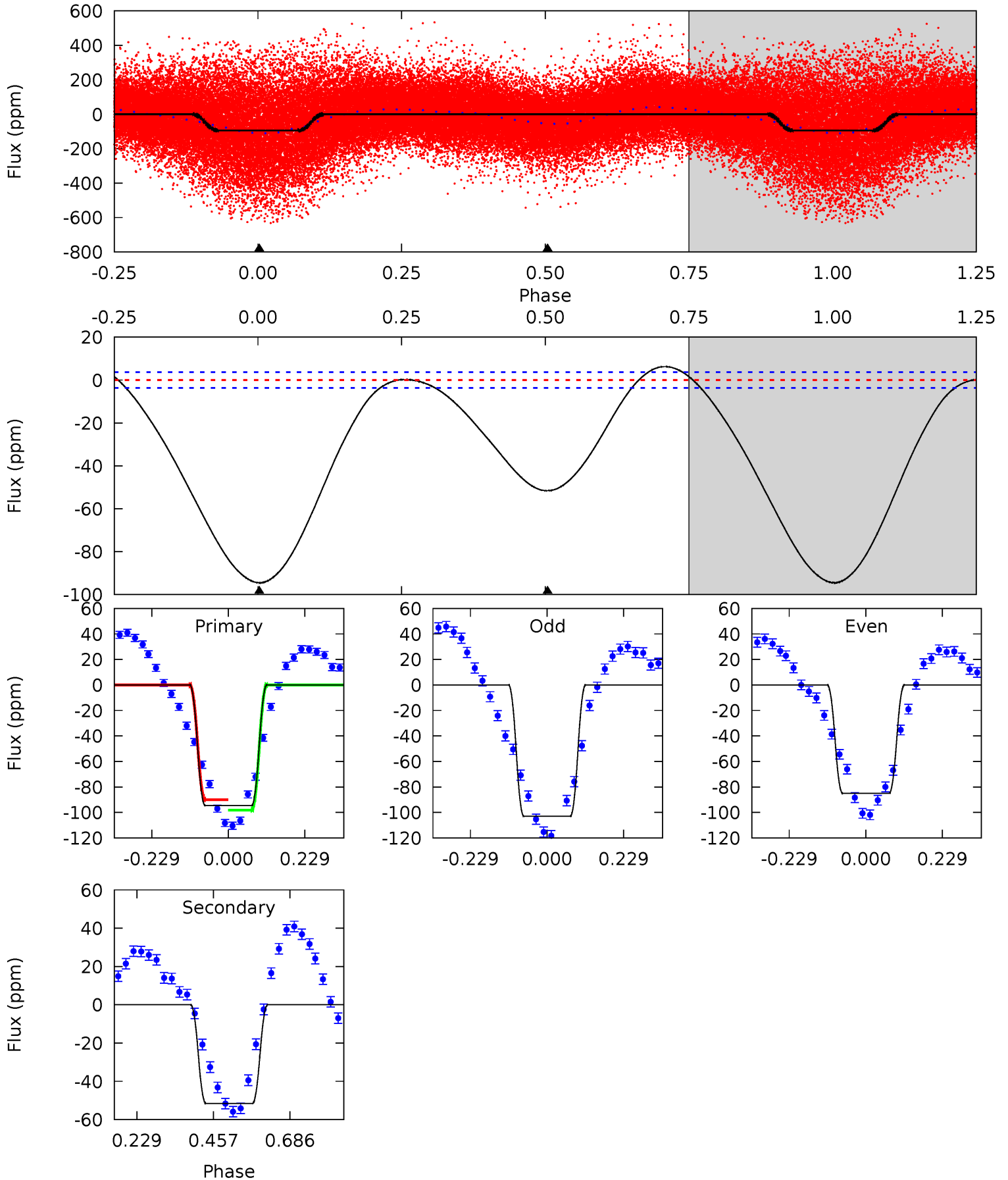
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.3	40.0	0	0	4.49	1.46	4.39	41.3	41.3	40.0	40.0	2.39	1.13	0.08	5.13



Alt Model-Shift Uniqueness Test

012011851-01, P = 1.011820 Days, E = 131.305973 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
112.6	61.5	0	0	4.39	1.20	2.79	112.6	112.6	61.5	61.5	10.7	0.95	0.06	4.80



Stellar Parameters For KIC 012011851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7985^{+222}_{-333}	$3.704^{+0.432}_{-0.108}$	$-0.100^{+0.200}_{-0.350}$	$3.331^{+0.797}_{-1.594}$	$2.046^{+0.347}_{-0.478}$	$0.078^{+0.329}_{-0.027}$
	+3%/-4%	+12%/-3%	+200%/-350%	+24%/-48%	+17%/-23%	+422%/-34%
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 012011851-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-59 ± 1	$1.50^{+0.37}_{-0.39}$	5503^{+397}_{-650}	11560^{+1755}_{-1288}	$8.956^{+6.794}_{-2.938}$
Alt.	-52 ± 1	$3.60^{+0.73}_{-0.75}$	5466^{+437}_{-640}	5990^{+331}_{-325}	$1.376^{+0.819}_{-0.384}$

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

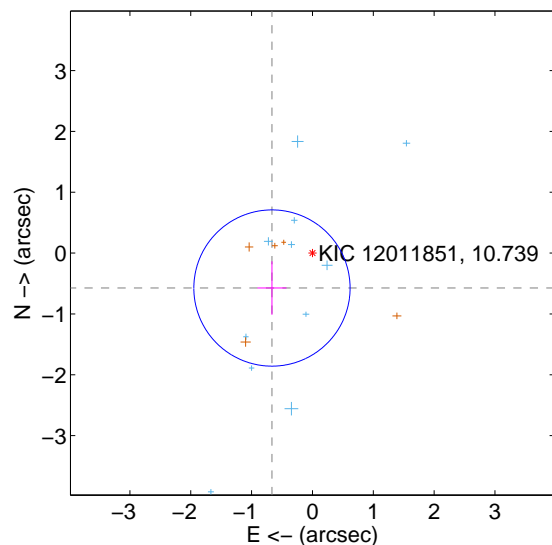
Supplemental centroid analysis for 012011851-01. **Kepler magnitude: 10.74.** Transit SNR 8.66

There are 12 quarters with good PRF difference image offsets

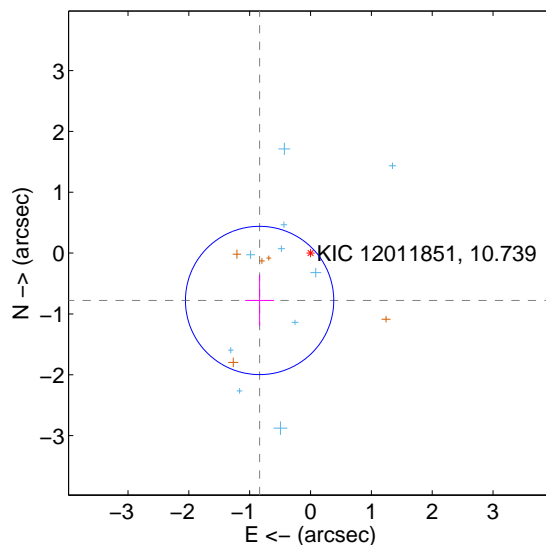
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.879 ± 0.428	2.05	0.665 ± 0.240	-0.574 ± 0.440
PRF-fit source offset from KIC position	1.143 ± 0.406	2.81	0.837 ± 0.238	-0.778 ± 0.420
photometric centroid source offset	1.33 ± 0.66	2.02	-1.08 ± 0.52	-0.78 ± 0.87

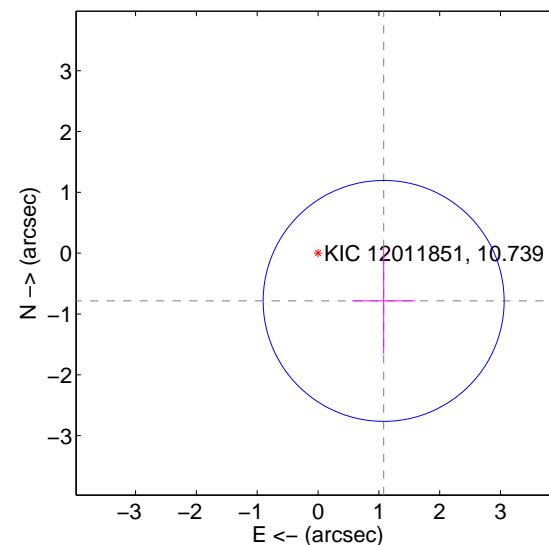
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

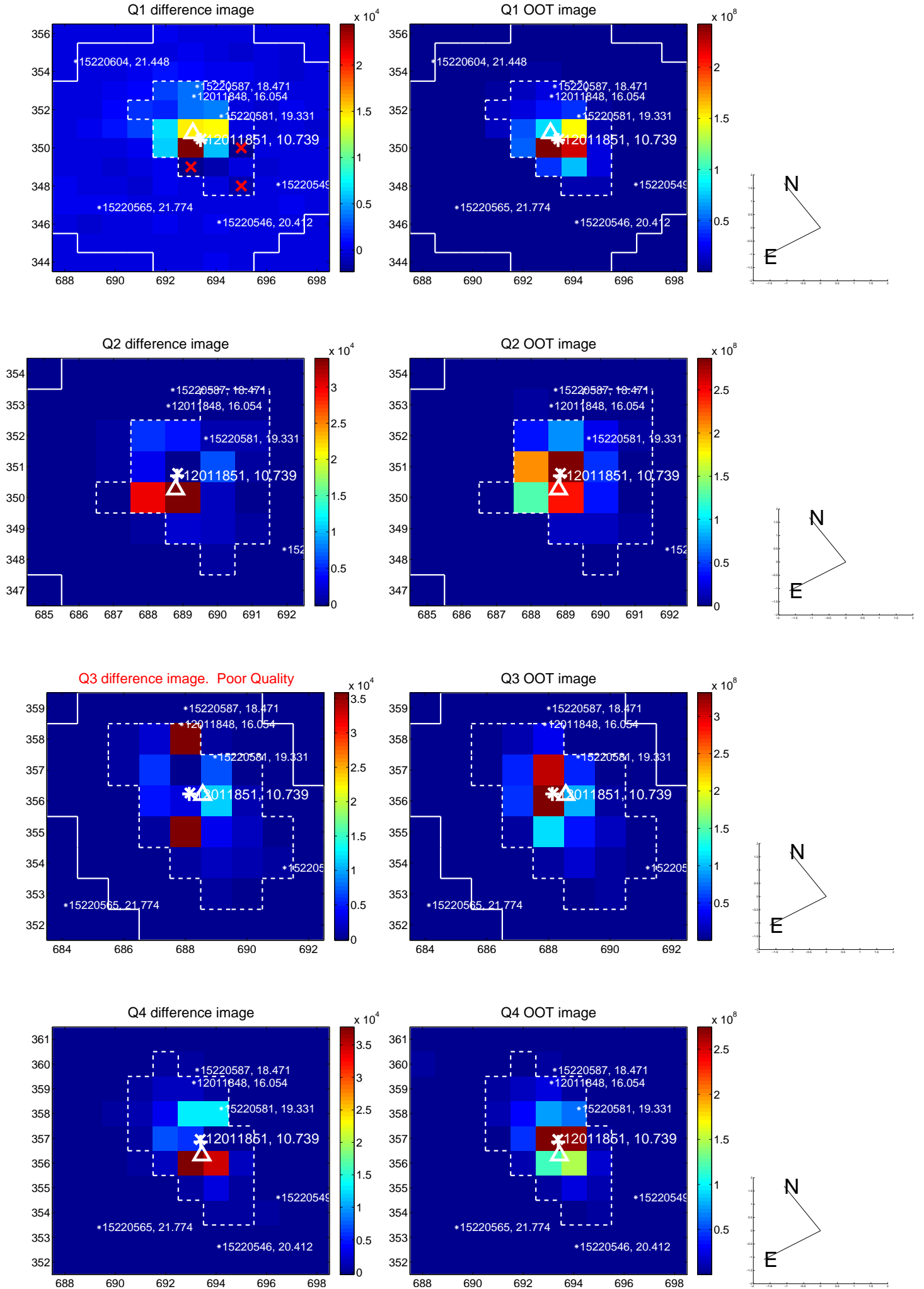


offset from photometric centroids

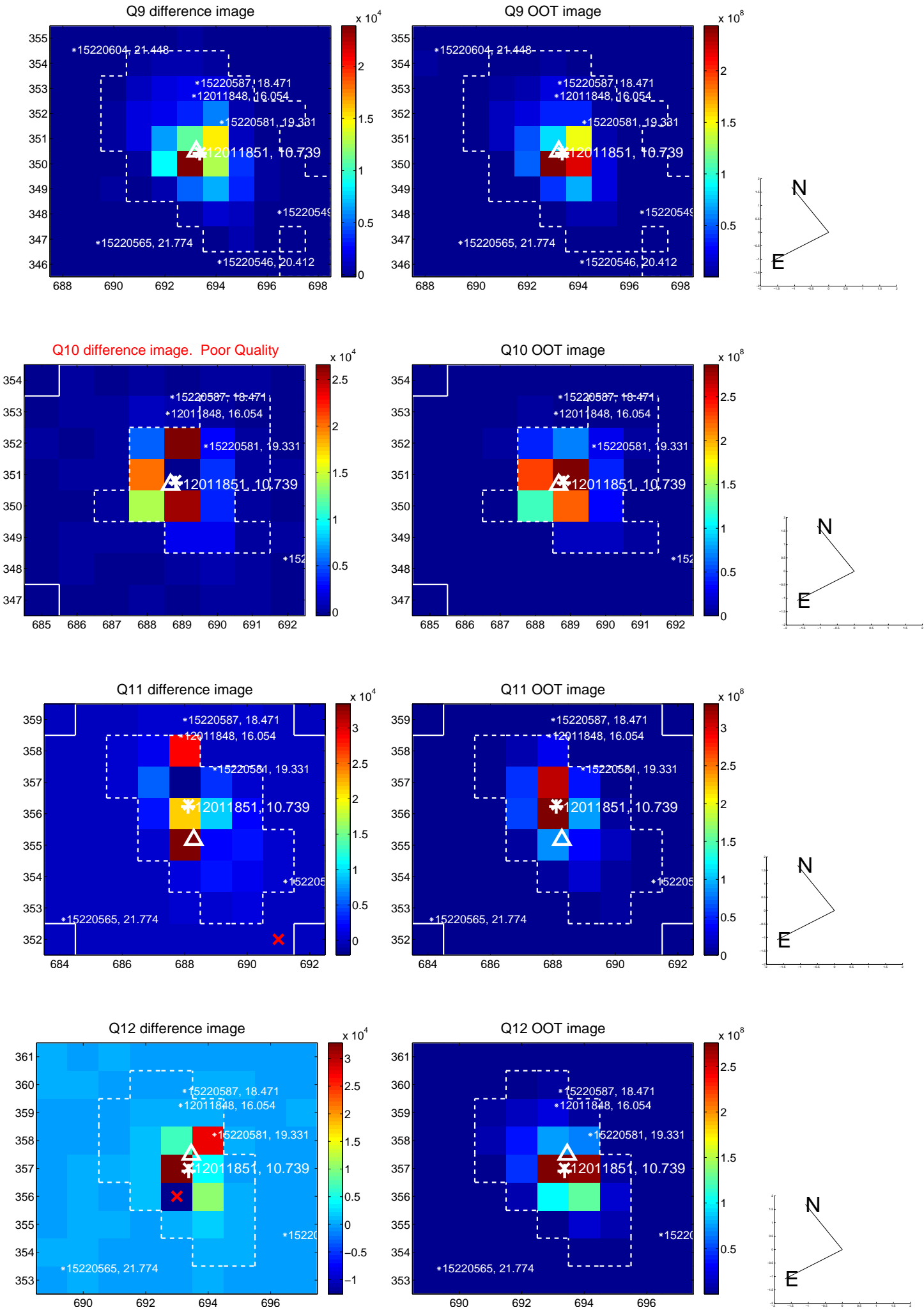


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

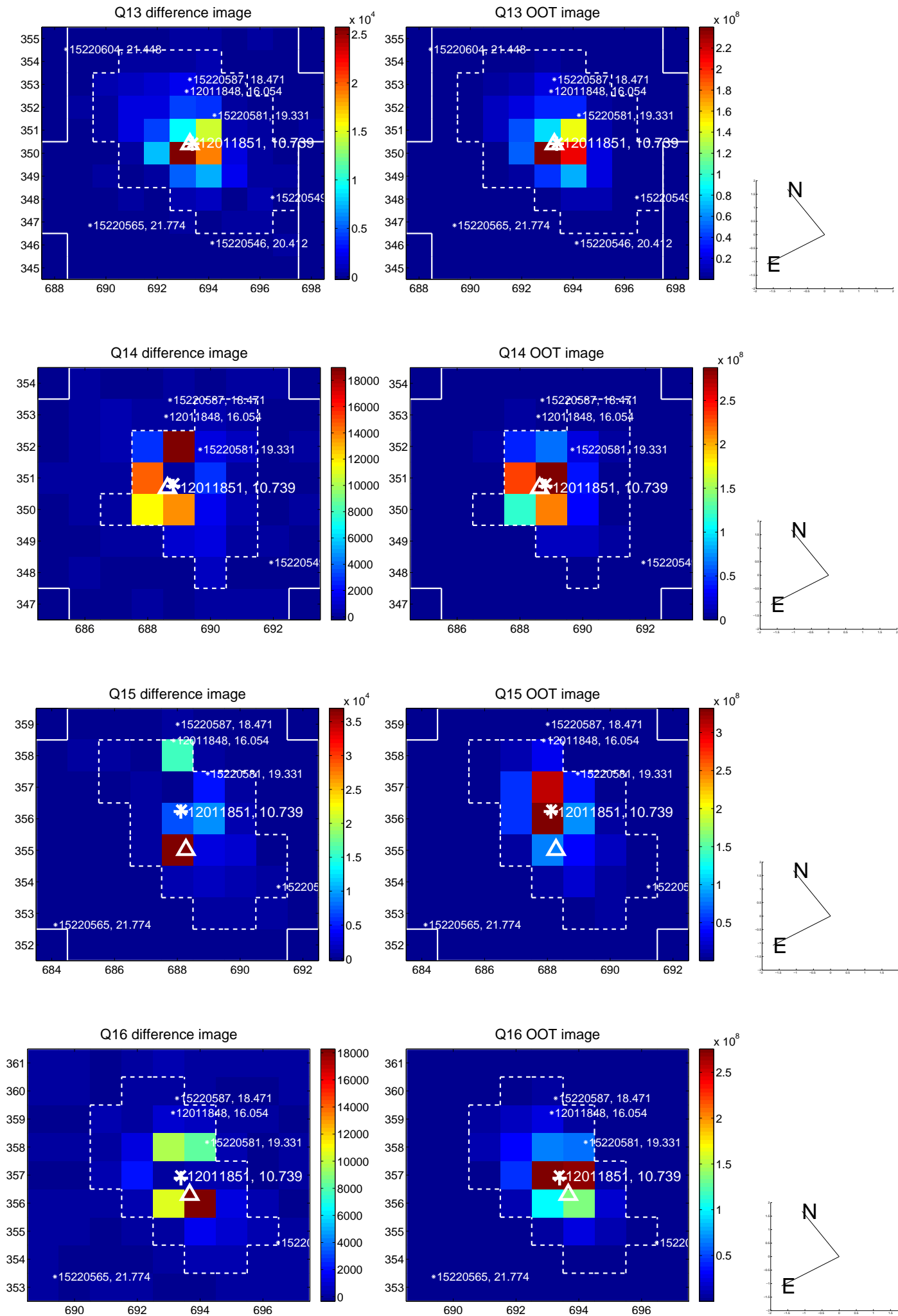
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



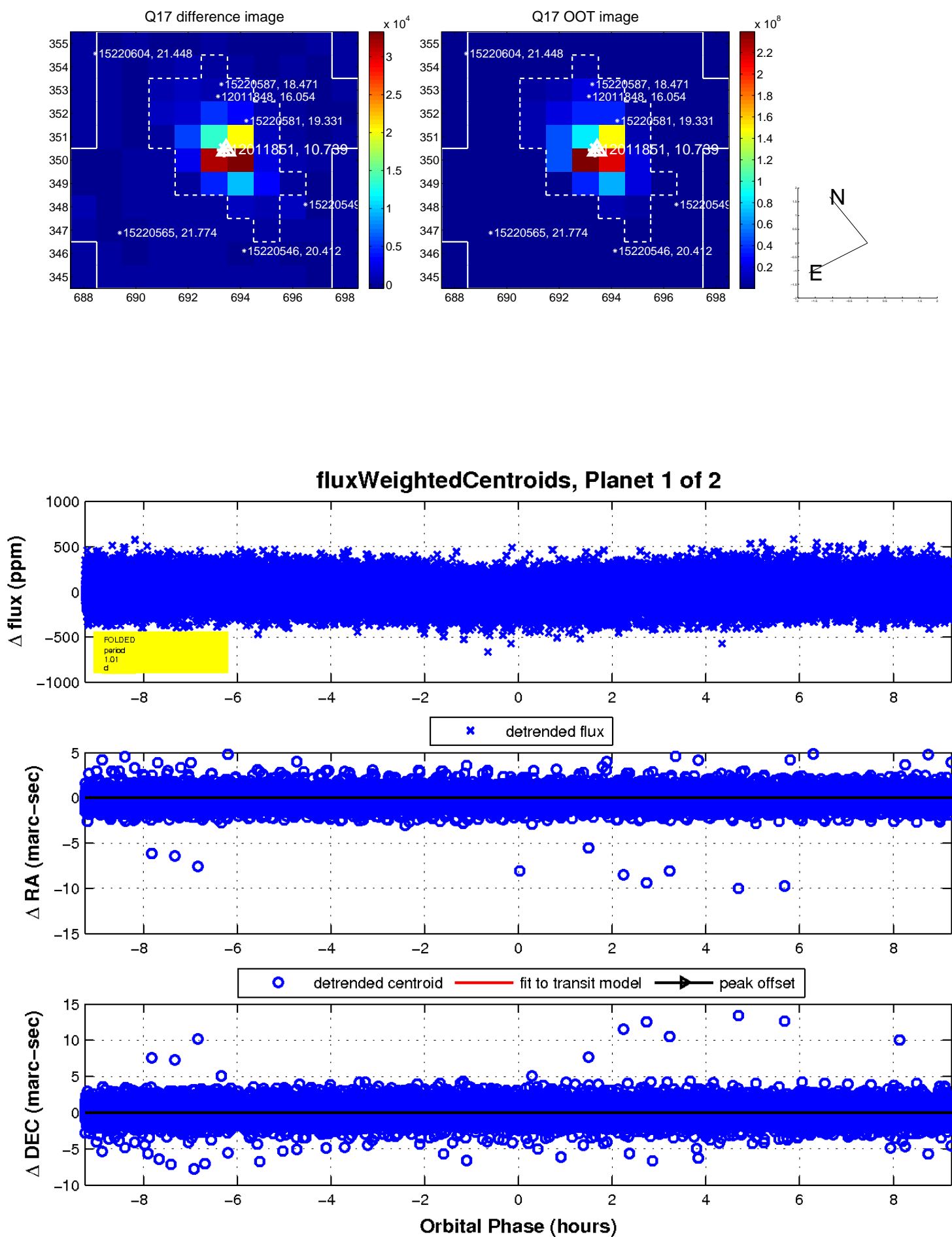
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



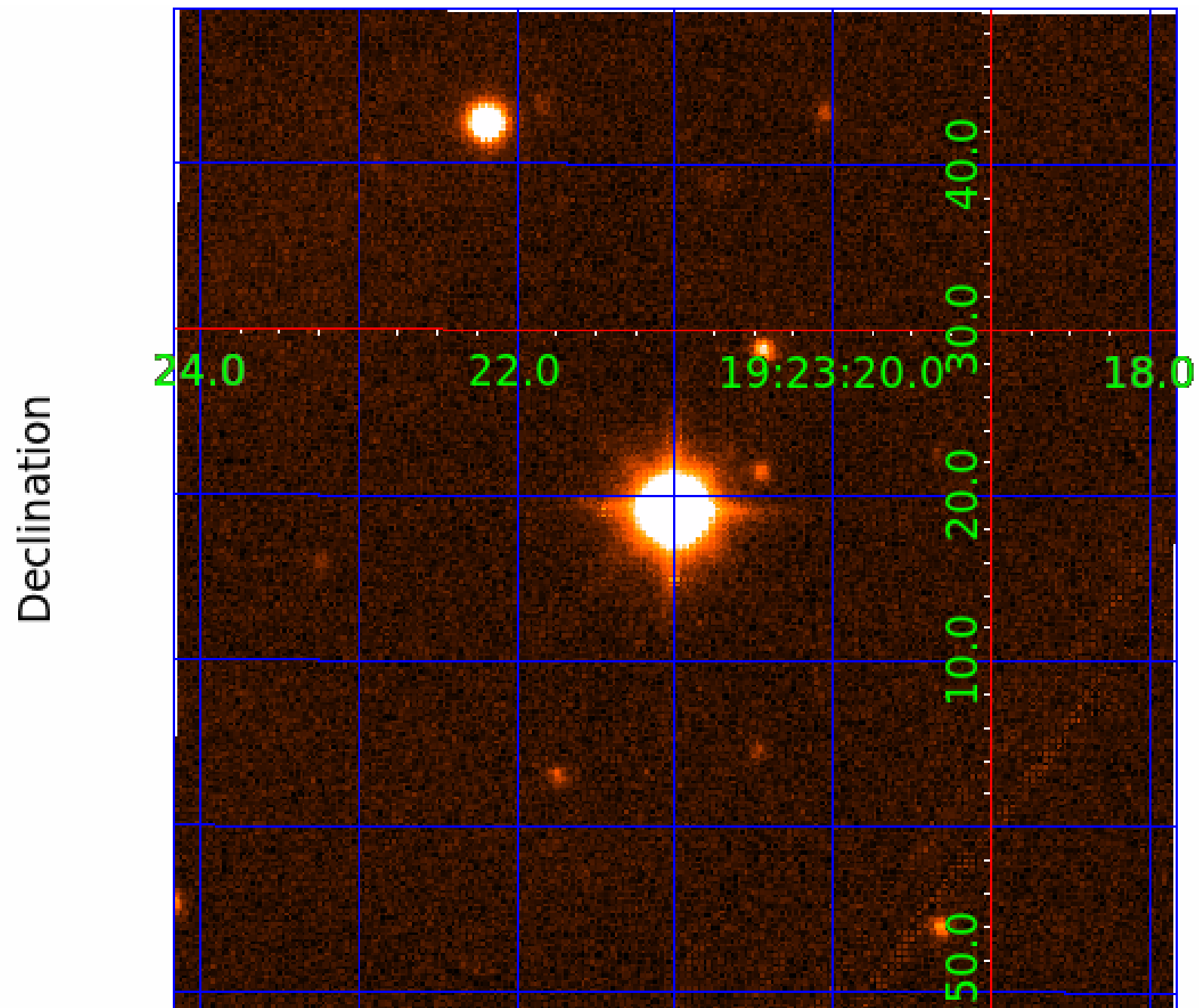
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 012011851

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})
012011851-01	OBS	No	1.011881	132.296873	16.7	3.082	10.7	8.7	3.33	7985	1.60	64397.80
012011851-02	OBS	No	1.011827	131.825761	31.9	4.745	14.8	16.6	3.33	7985	1.93	64402.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012011851-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
012011851-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

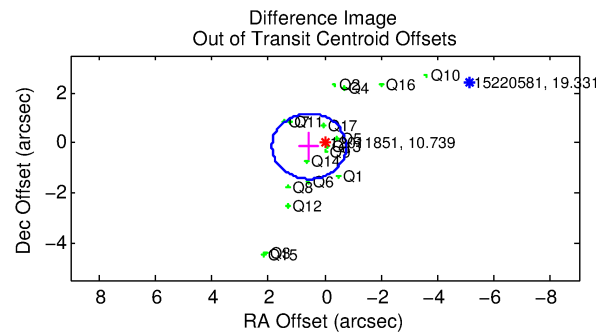
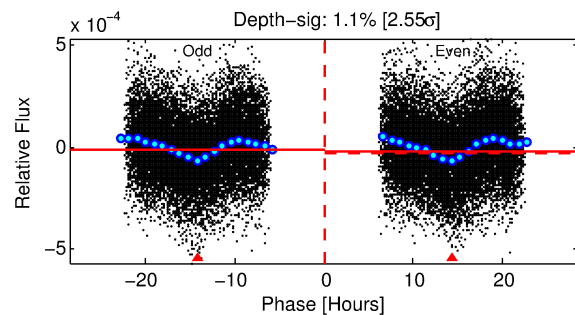
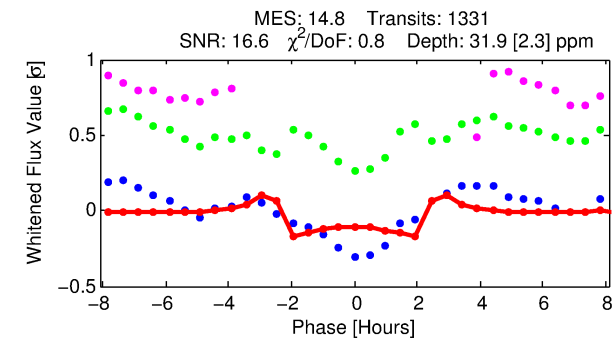
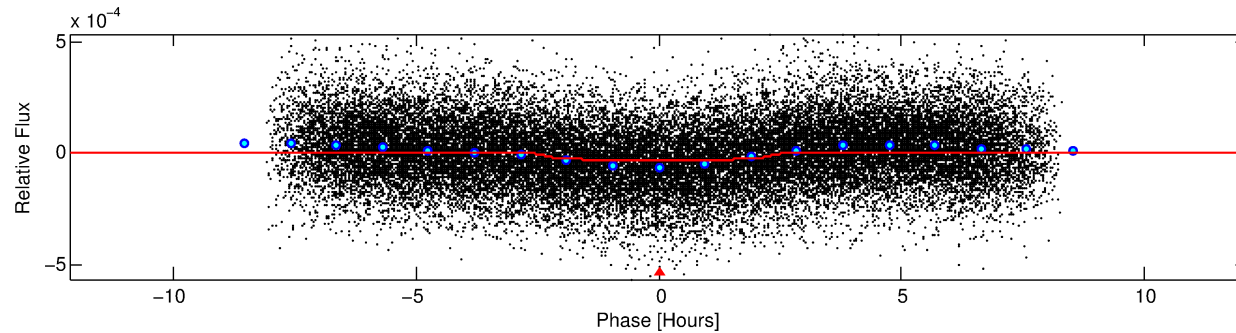
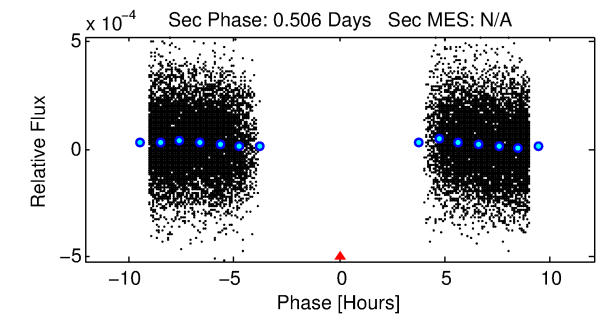
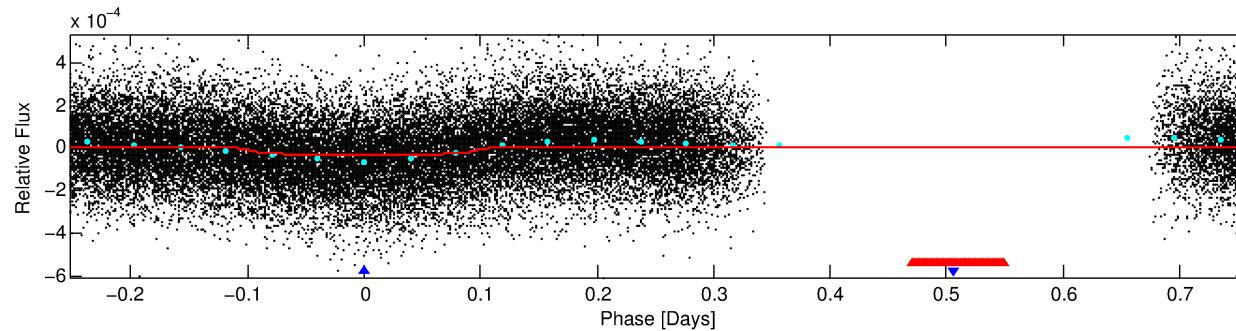
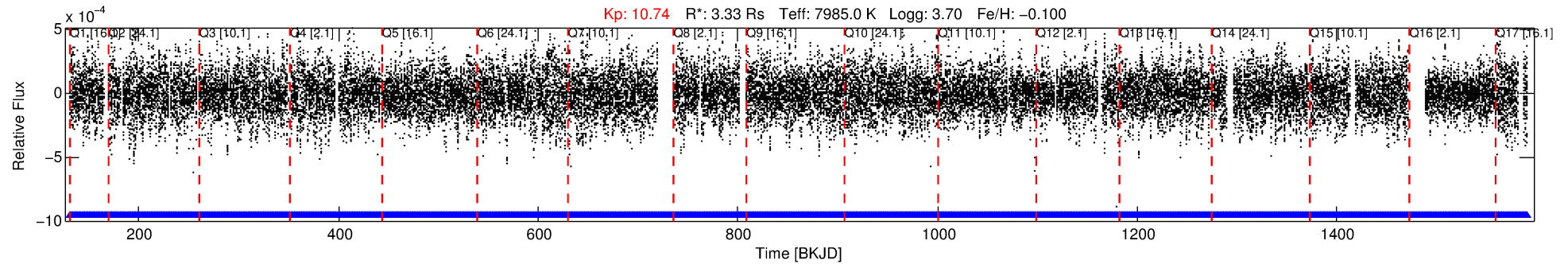
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012011851-02

No Significant Match Found

DV One-Page Summary

KIC: 12011851 Candidate: 2 of 2 Period: 1.012 d



DV Fit Results:

Period = 1.01183 [0.00001] d
Epoch = 131.8258 [0.0012] BKJD
Rp/R* = 0.0053 [0.0007]
a/R* = 1.66 [0.83]
b = 0.37 [1.84]
Seff = 64402.41 [48595.58]
Teq = 4062 [766] K
Rp = 1.92 [0.96] Re
a = 0.0251 [0.0115] AU

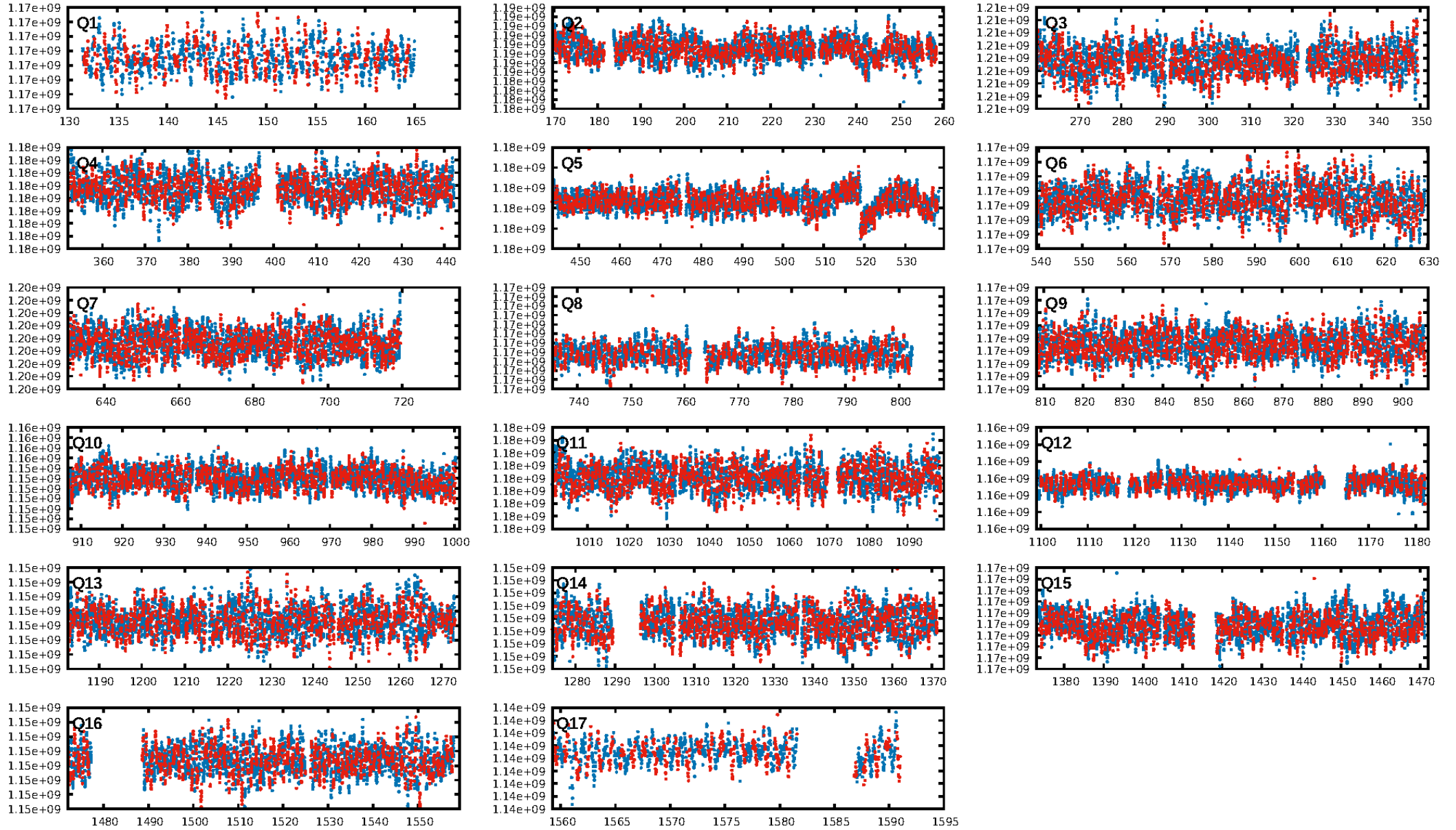
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.47e-66
RollingBand-fgt: 1.00 [1271/1271]
GhostDiagnostic-chr: N/A
Centroid-sig: 63.8%
Centroid-so: 0.025 arcsec [0.10σ]
OotOffset-rm: 0.574 arcsec [1.32σ]
KicOffset-rm: 0.813 arcsec [1.58σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.53 [9/17]

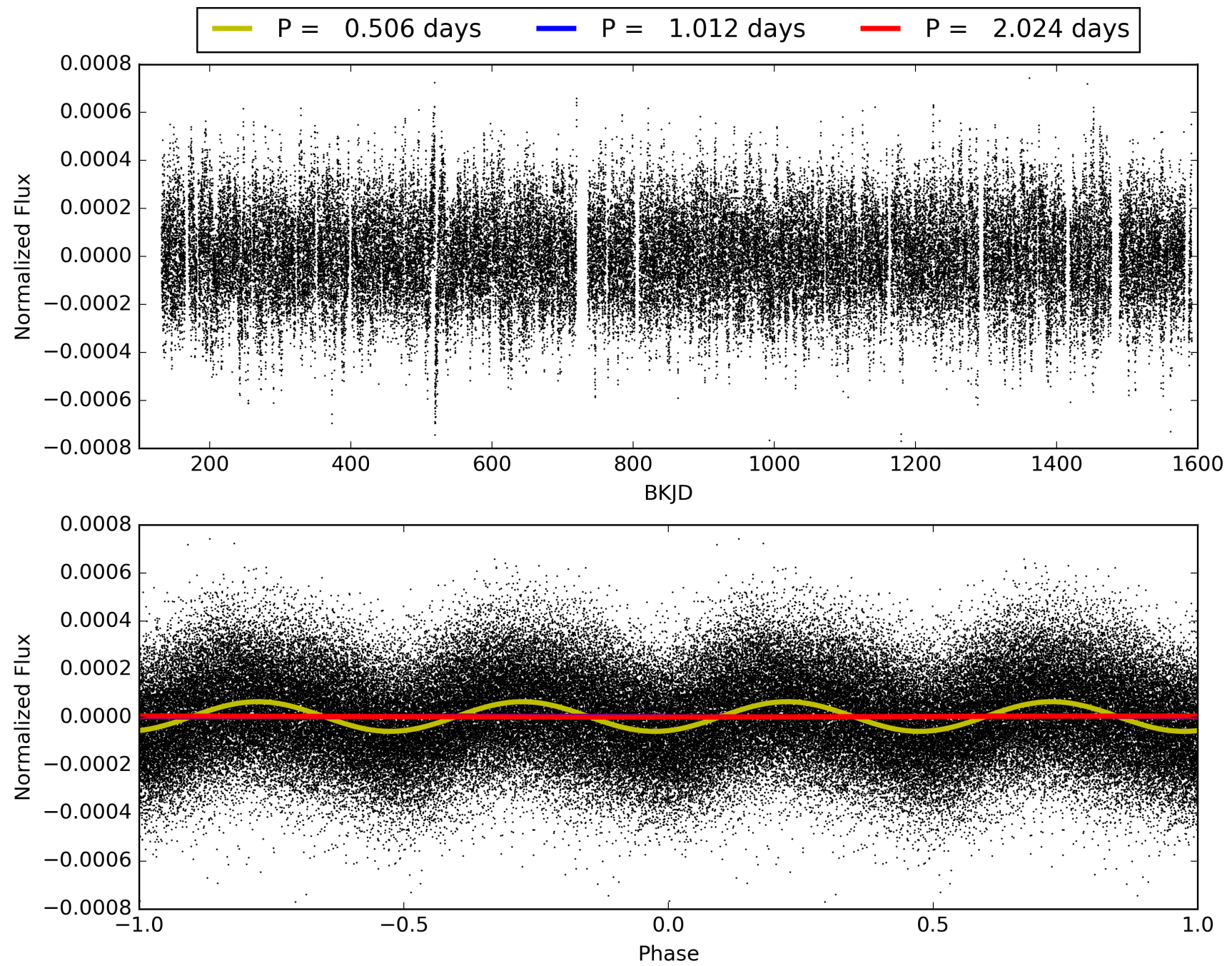
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:38:19 Z

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

TCE 012011851-02, PDC Light Curves

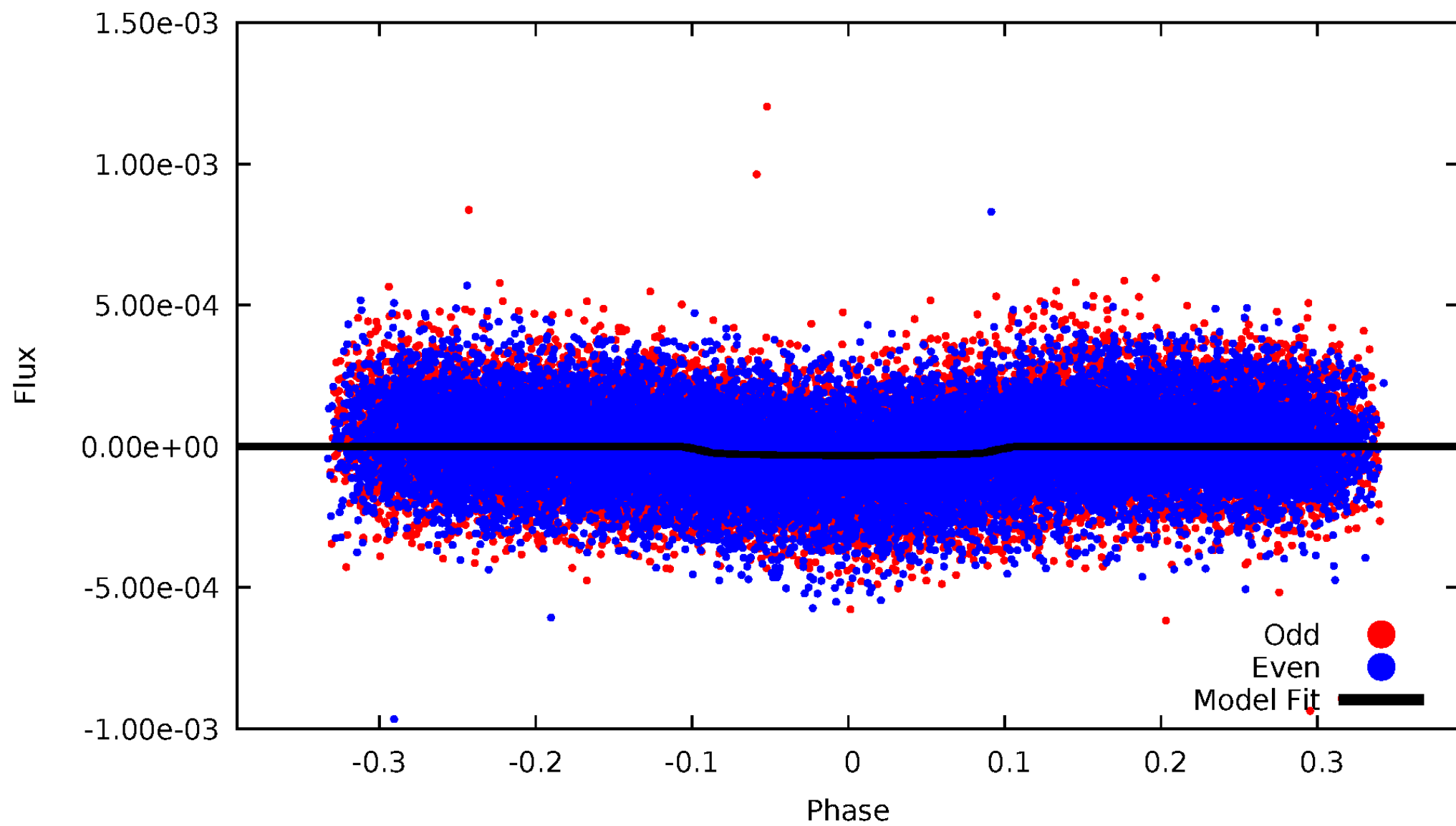


TCE 012011851-02



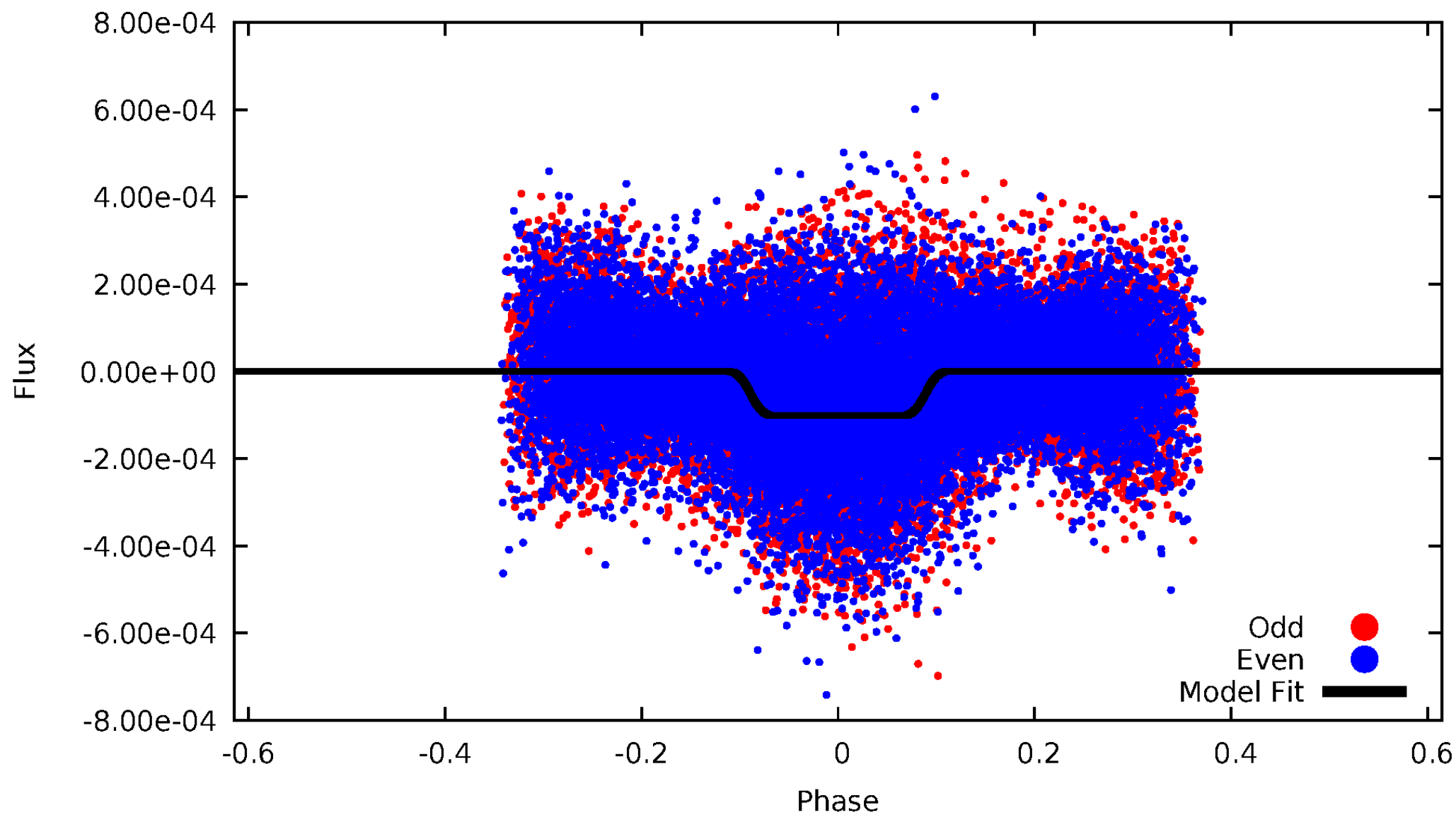
DV Odd/Even

TCE 012011851-02



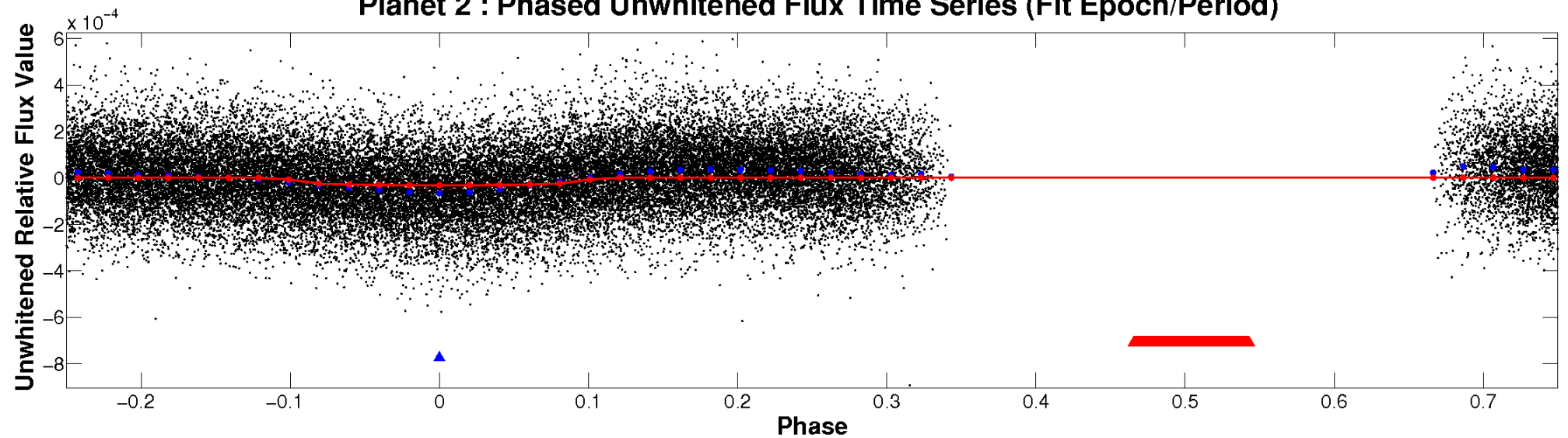
ALT Odd/Even

TCE 012011851-02

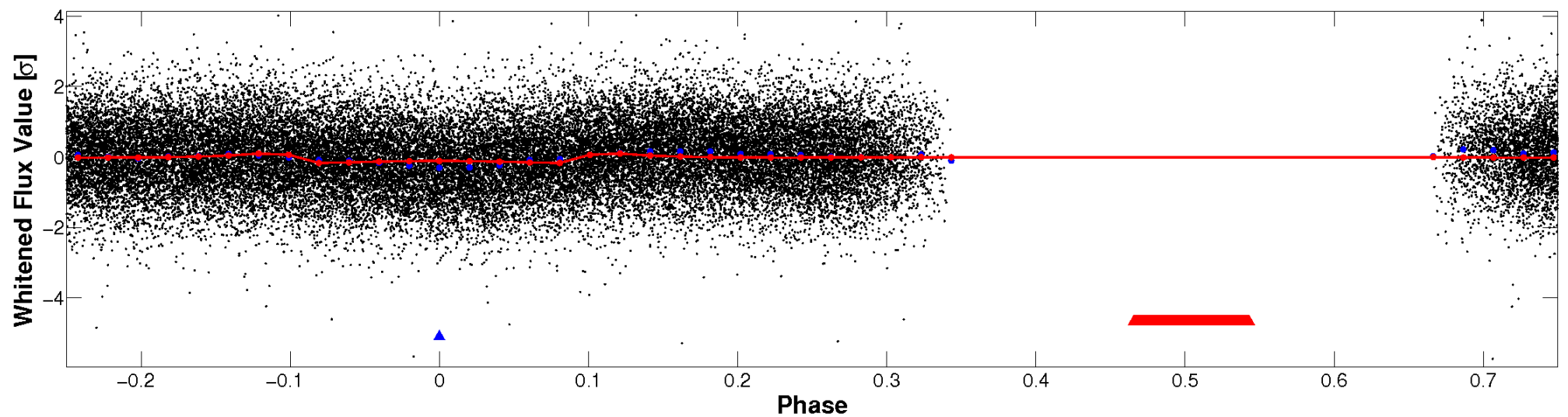


Non-Whitened Vs. Whitened Light Curve

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

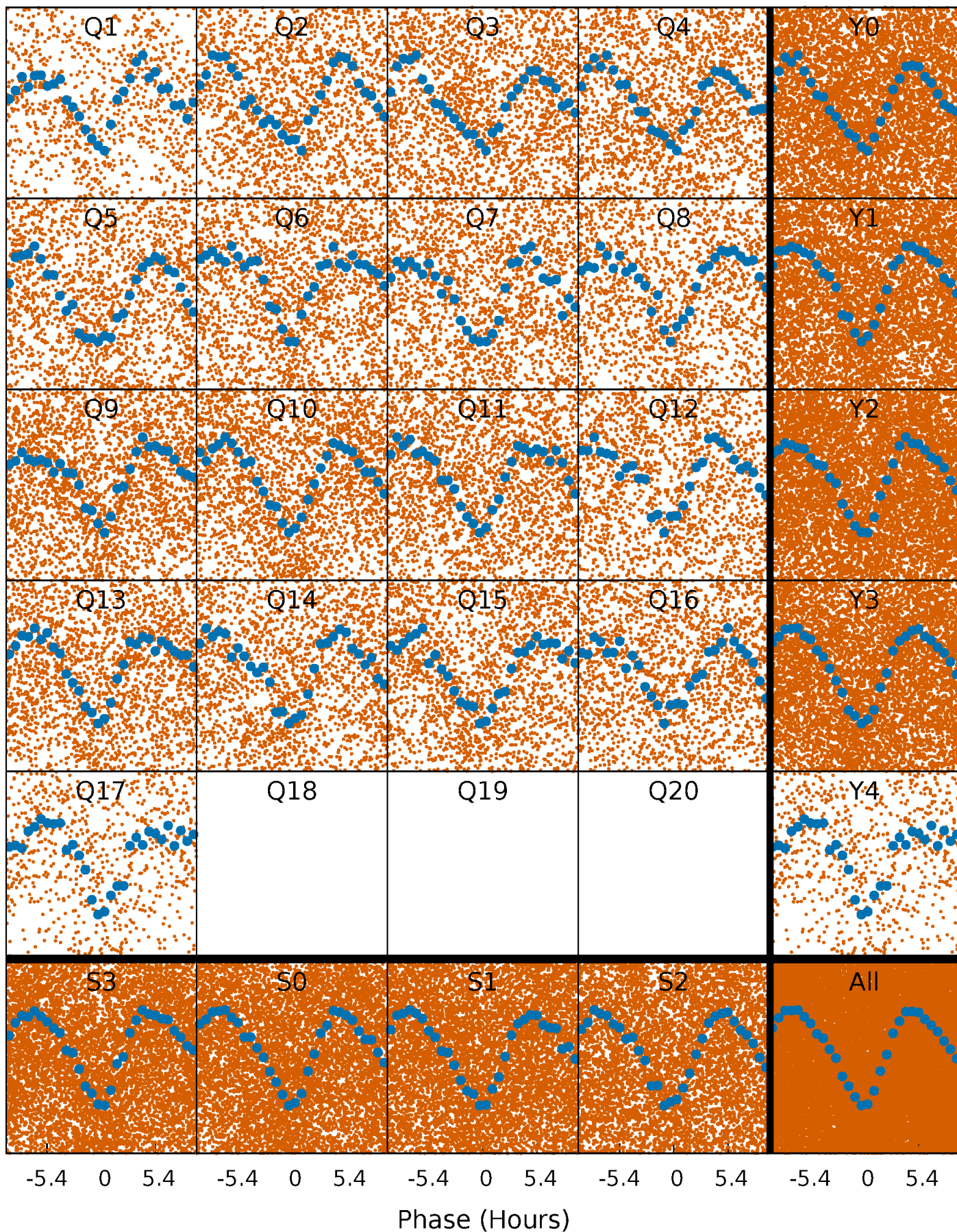


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



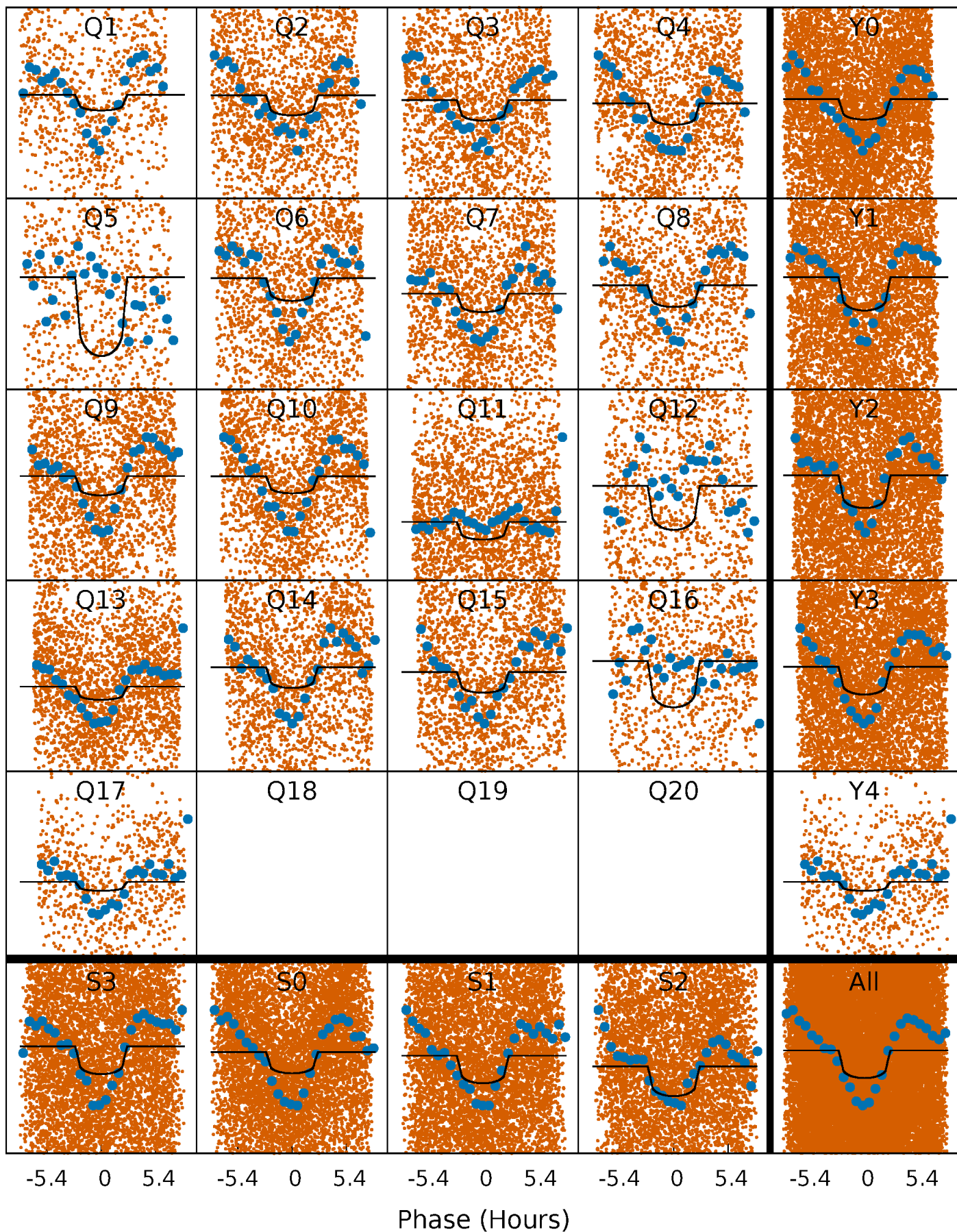
PDC Quarter-Phased Transit Curves

TCE 012011851-02 P= 1.011827 Days $T_0=131.825761$ (BKJD)



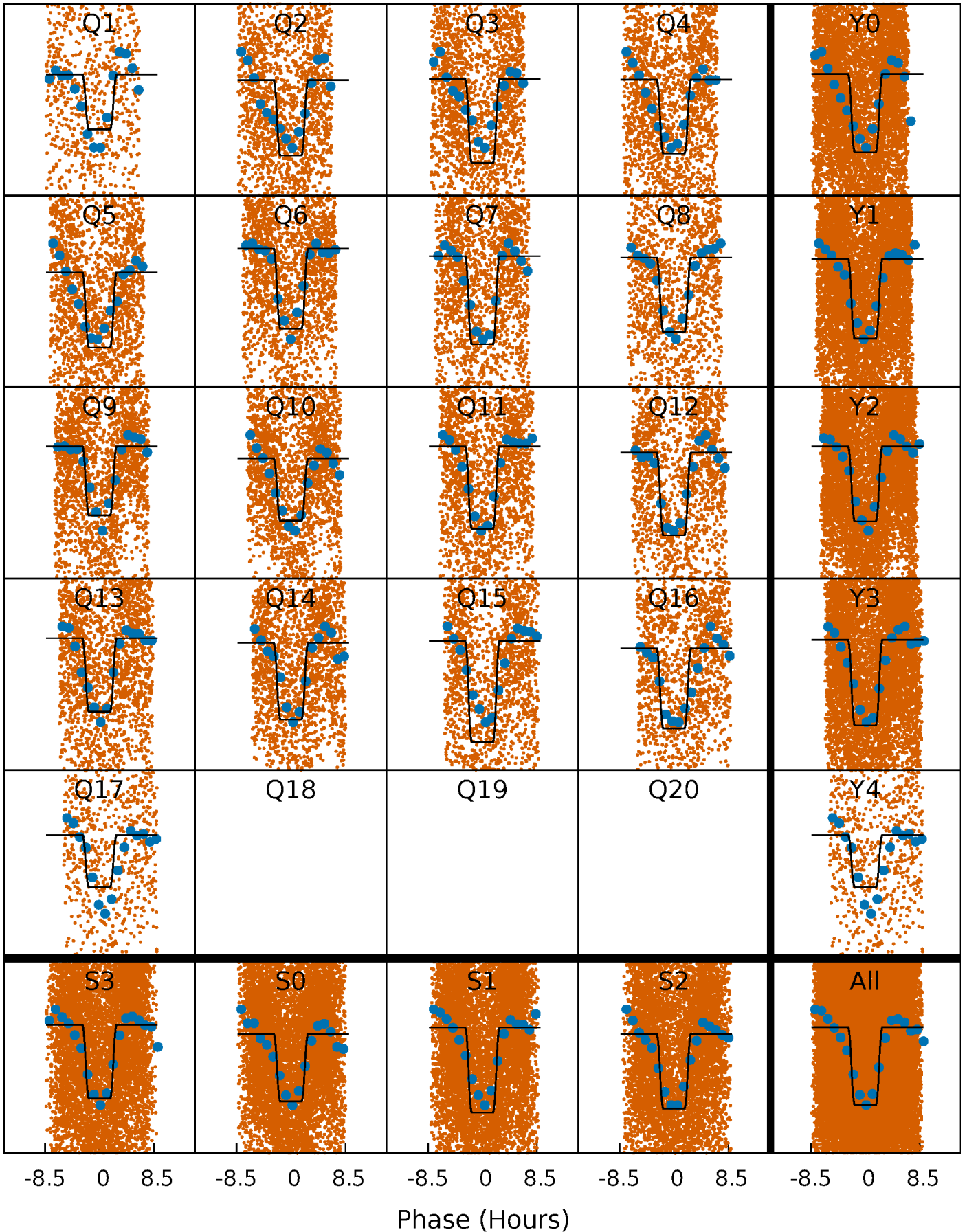
DV Quarter-Phased Transit Curves

TCE 012011851-02 P= 1.011827 Days $T_0=131.825761$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

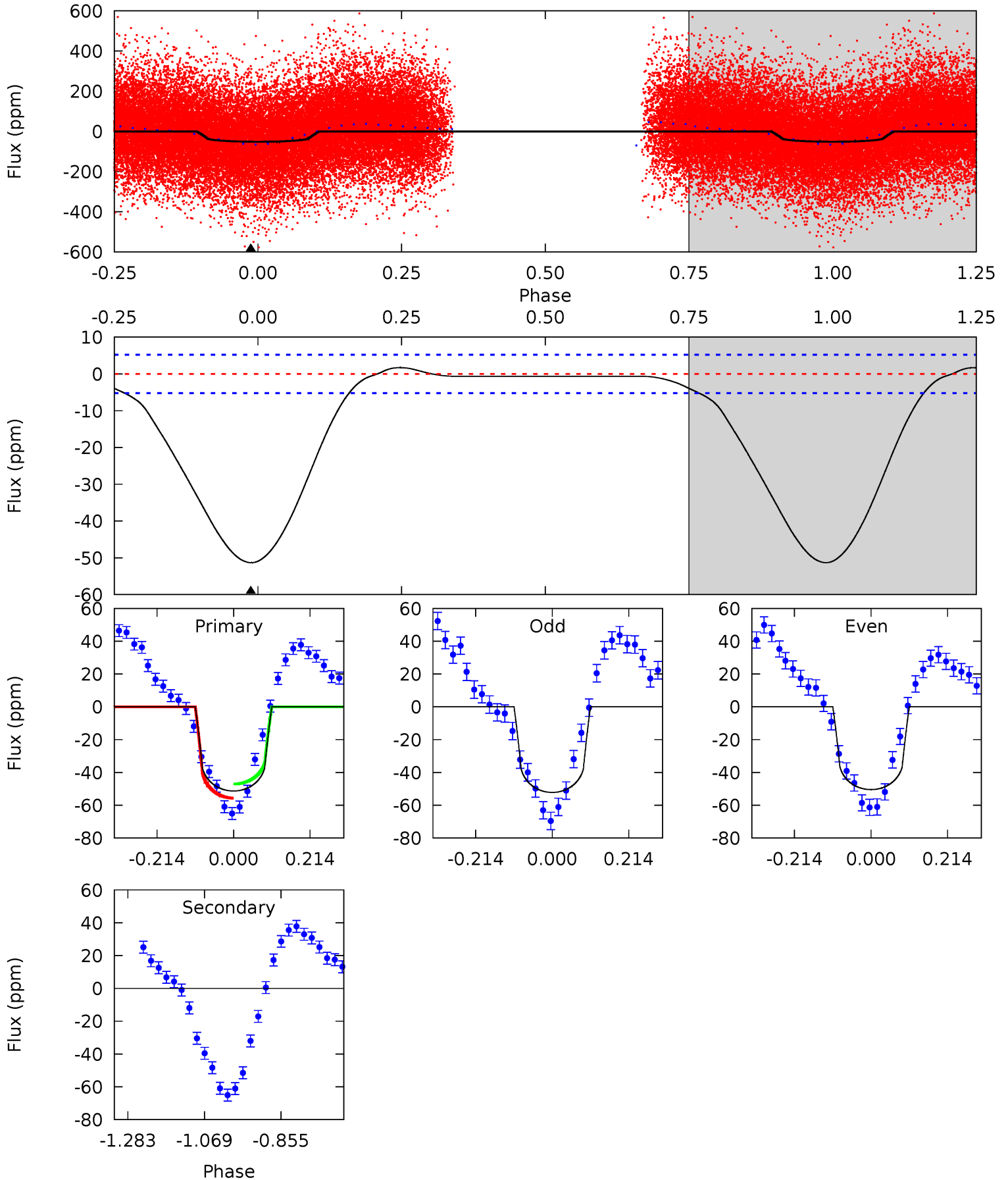
TCE 012011851-02 $P = 1.011800$ Days $T_0 = 131.835758$ (BKJD)



DV Model-Shift Uniqueness Test

012011851-02, P = 1.011827 Days, E = 130.813934 Days

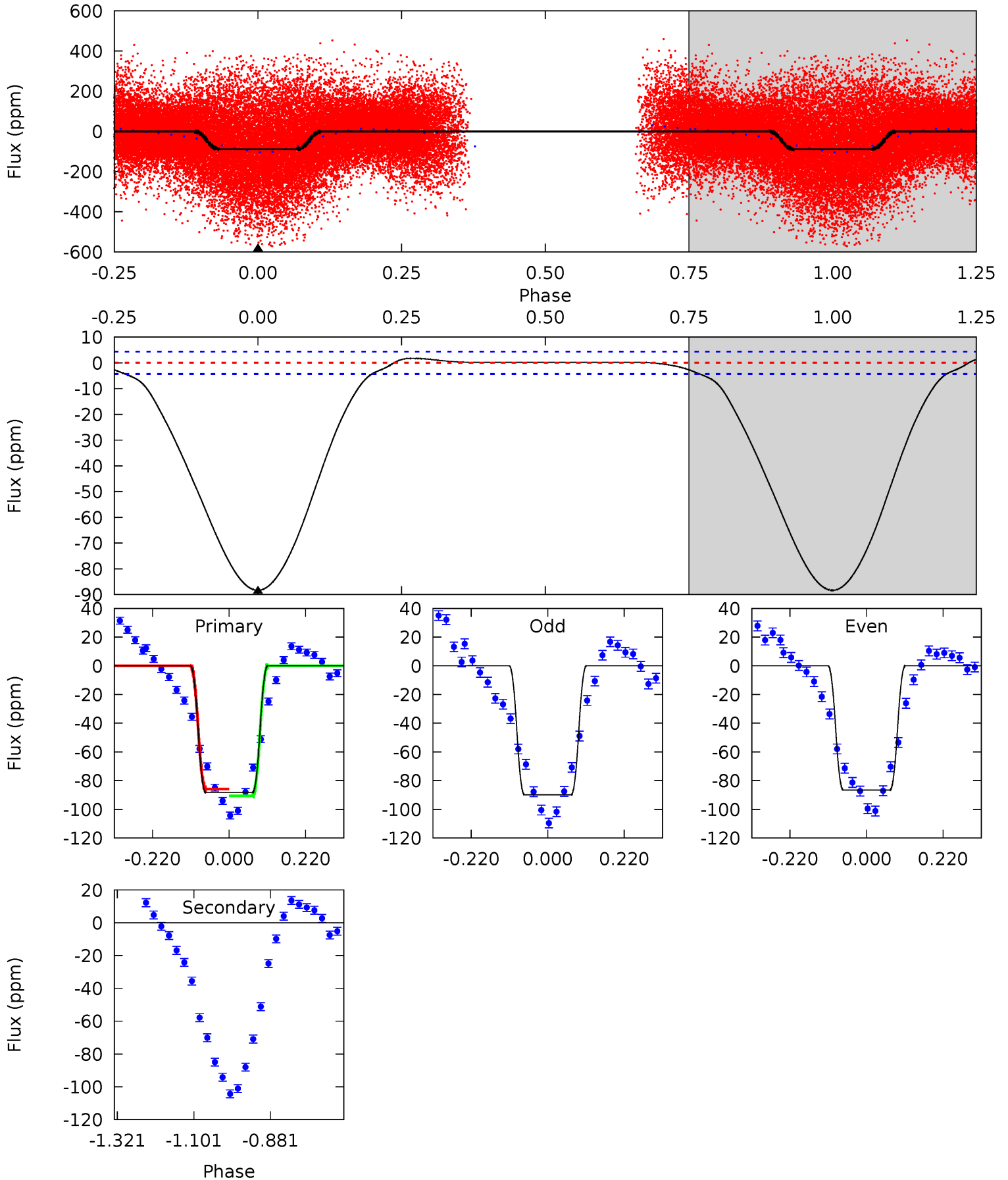
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.3	0	0	0	4.40	1.24	1.90	43.3	43.3	0	0	0.73	1.09	0.03	3.64



Alt Model-Shift Uniqueness Test

012011851-02, P = 1.011800 Days, E = 130.823958 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.0	0	0	0	4.40	1.23	2.07	89.0	89.0	0	0	1.69	1.01	0.02	1.90



Stellar Parameters For KIC 012011851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7985^{+222}_{-333}	$3.704^{+0.432}_{-0.108}$	$-0.100^{+0.200}_{-0.350}$	$3.331^{+0.797}_{-1.594}$	$2.046^{+0.347}_{-0.478}$	$0.078^{+0.329}_{-0.027}$
	+3%/-4%	+12%/-3%	+200%/-350%	+24%/-48%	+17%/-23%	+422%/-34%
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 012011851-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1	$1.78^{+0.45}_{-0.49}$	5477^{+436}_{-740}	-4532^{+687}_{-448}	$-0.001^{+0.142}_{-0.138}$
Alt.	0 ± 1	$3.48^{+0.65}_{-0.86}$	5481^{+448}_{-646}	-4559^{+435}_{-308}	$0.000^{+0.034}_{-0.030}$

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 $A_{obs} \gg 1.0$

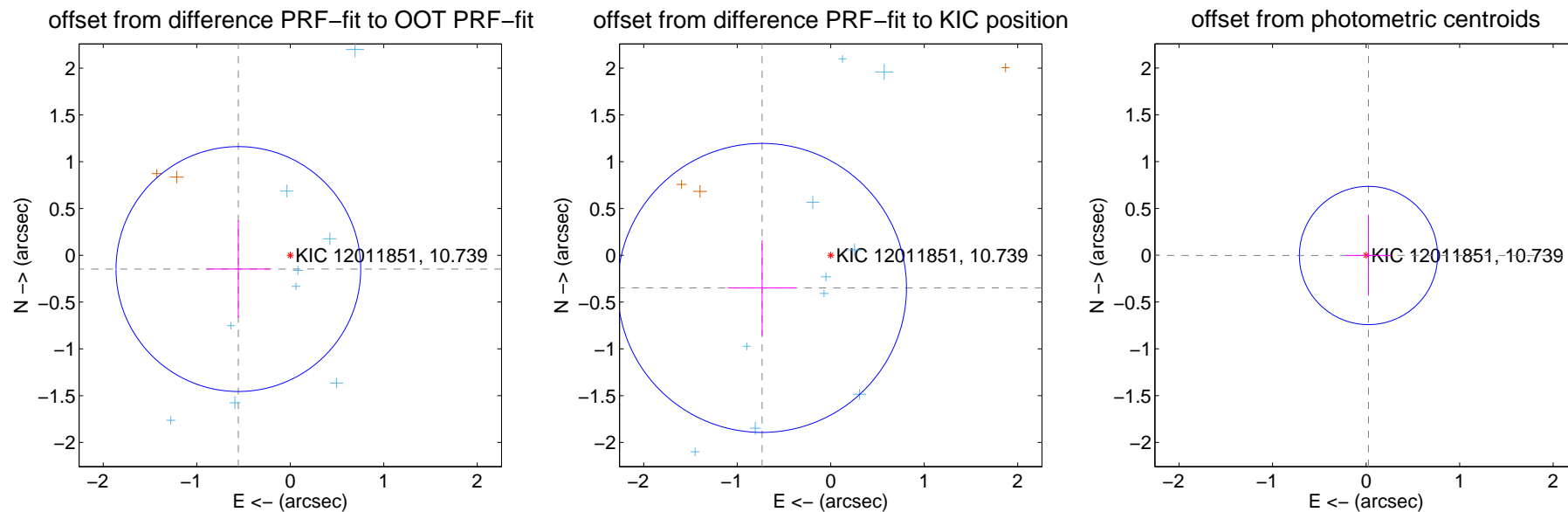
DV Centroid Data

Supplemental centroid analysis for 012011851-02. **Kepler magnitude: 10.74.** Transit SNR 16.56

There are 13 quarters with good PRF difference image offsets

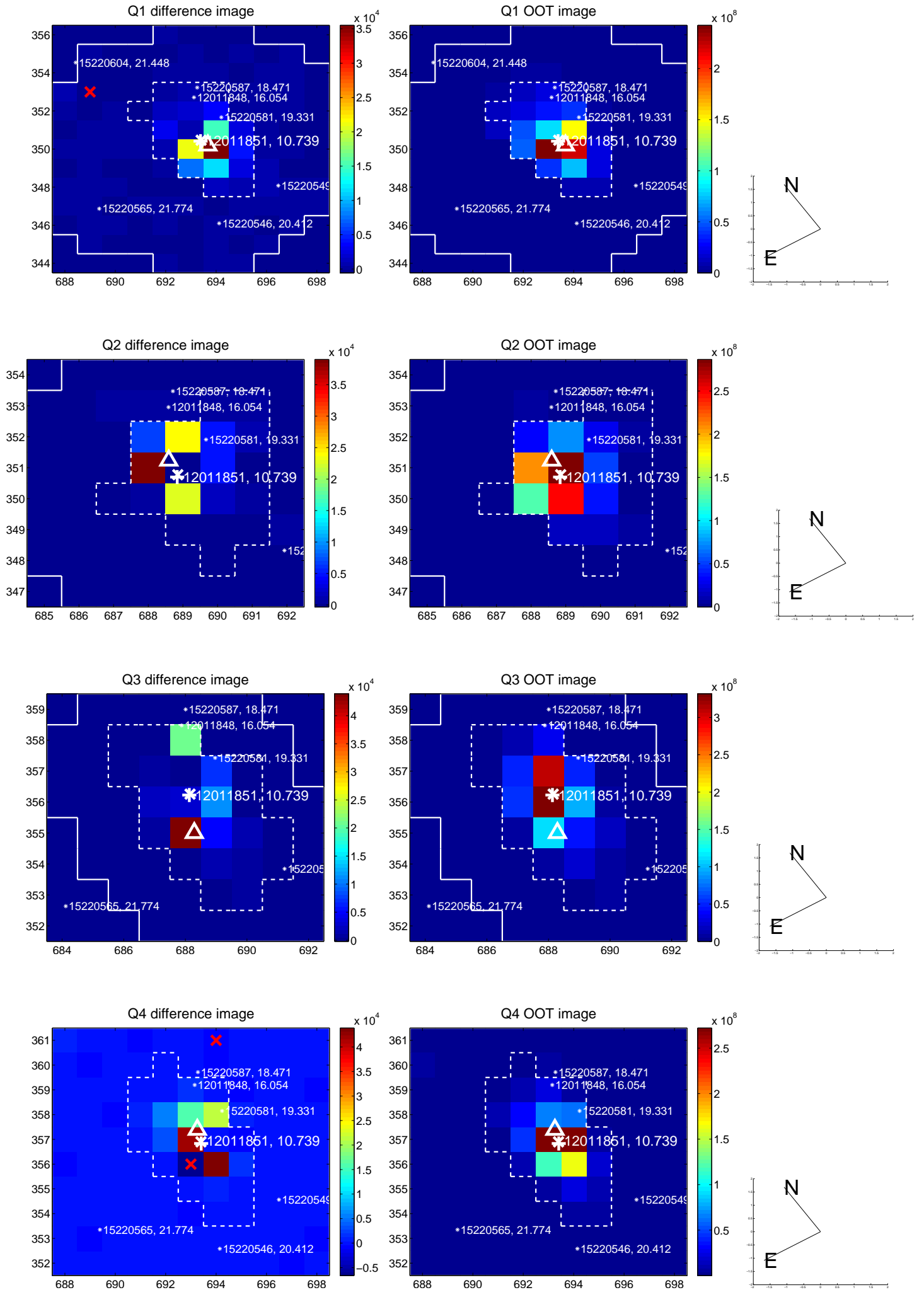
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.574 ± 0.436	1.32	0.555 ± 0.342	-0.147 ± 0.519
PRF-fit source offset from KIC position	0.813 ± 0.515	1.58	0.734 ± 0.367	-0.349 ± 0.510
photometric centroid source offset	0.03 ± 0.25	0.10	-0.03 ± 0.24	-0.00 ± 0.43

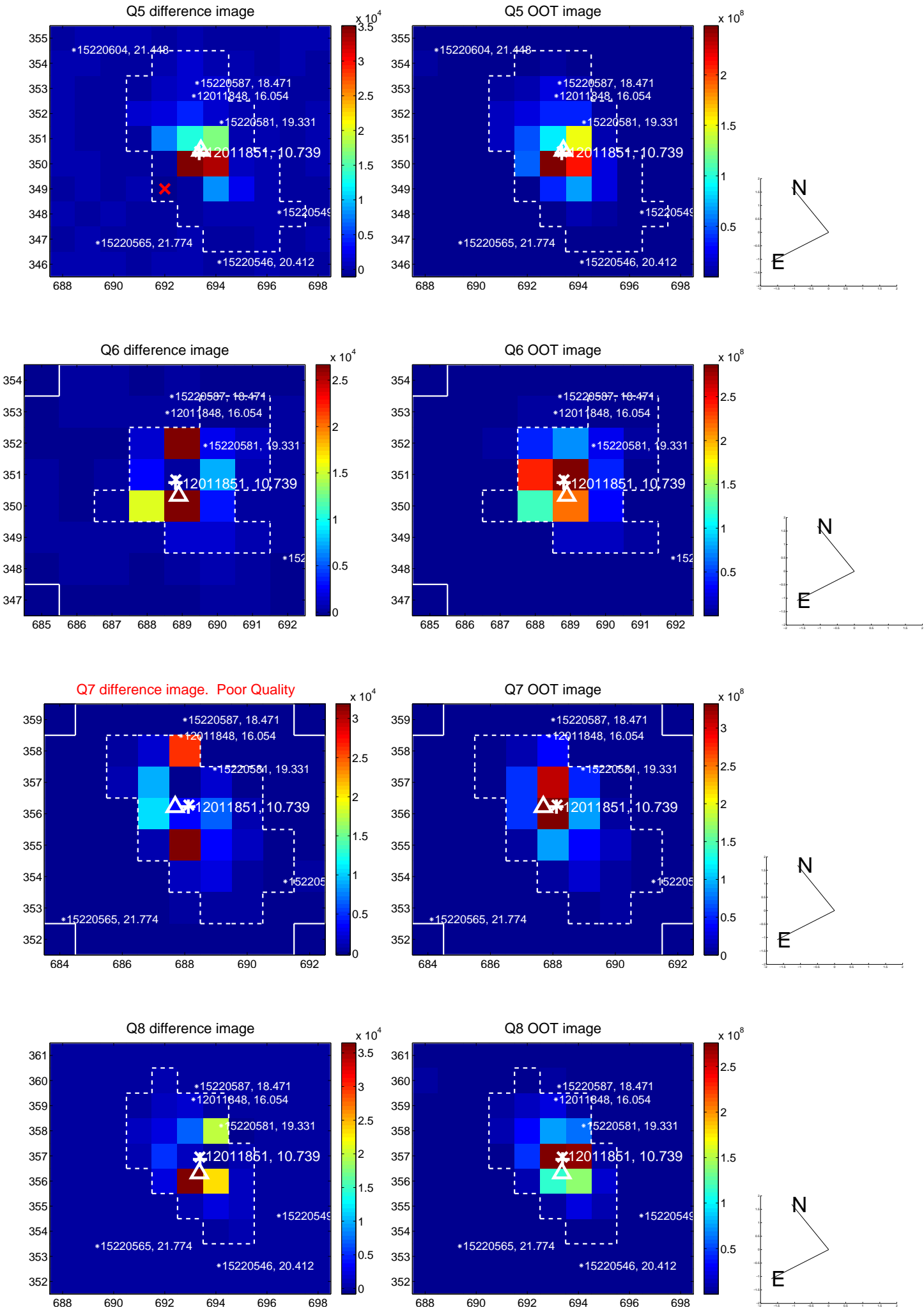


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

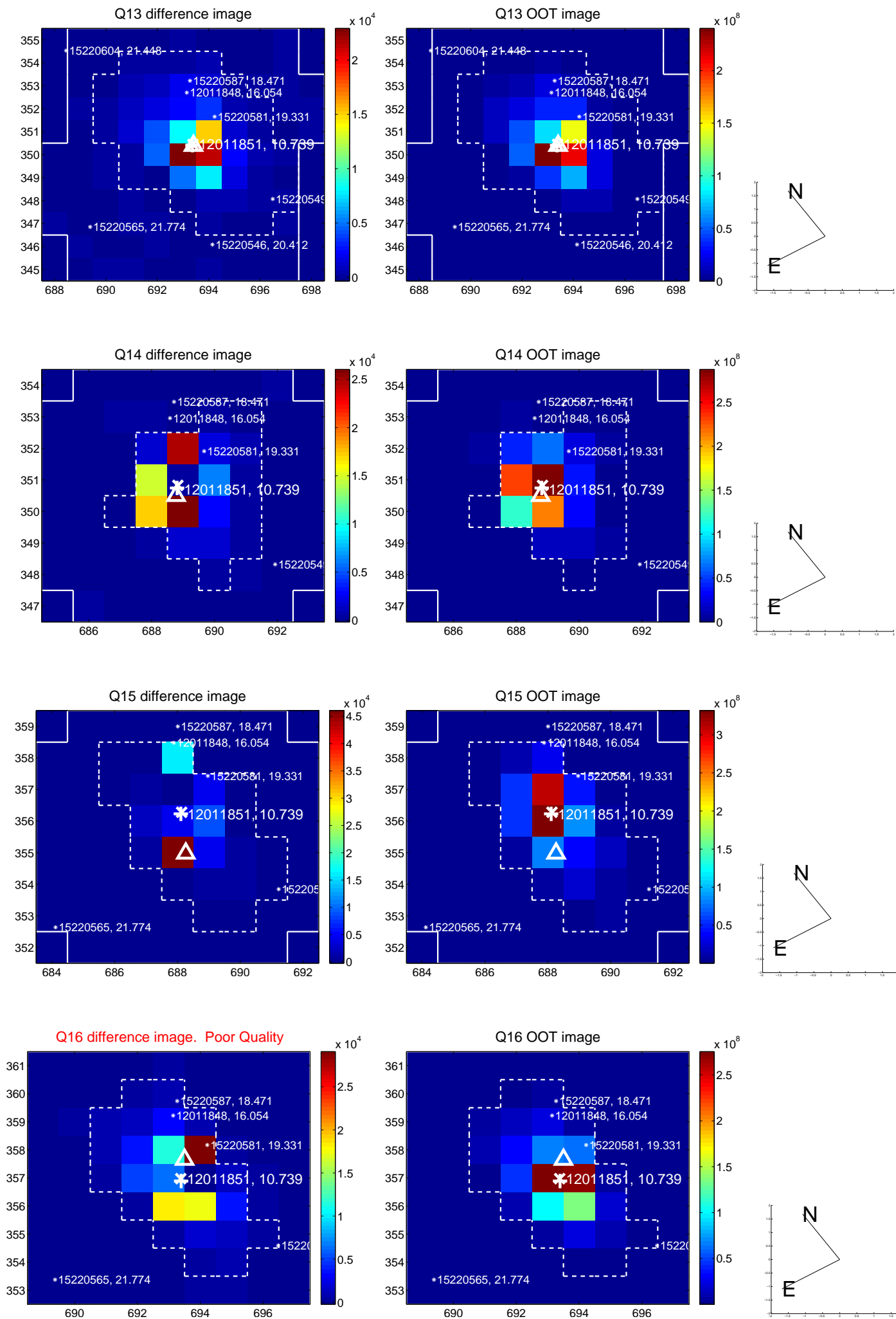
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



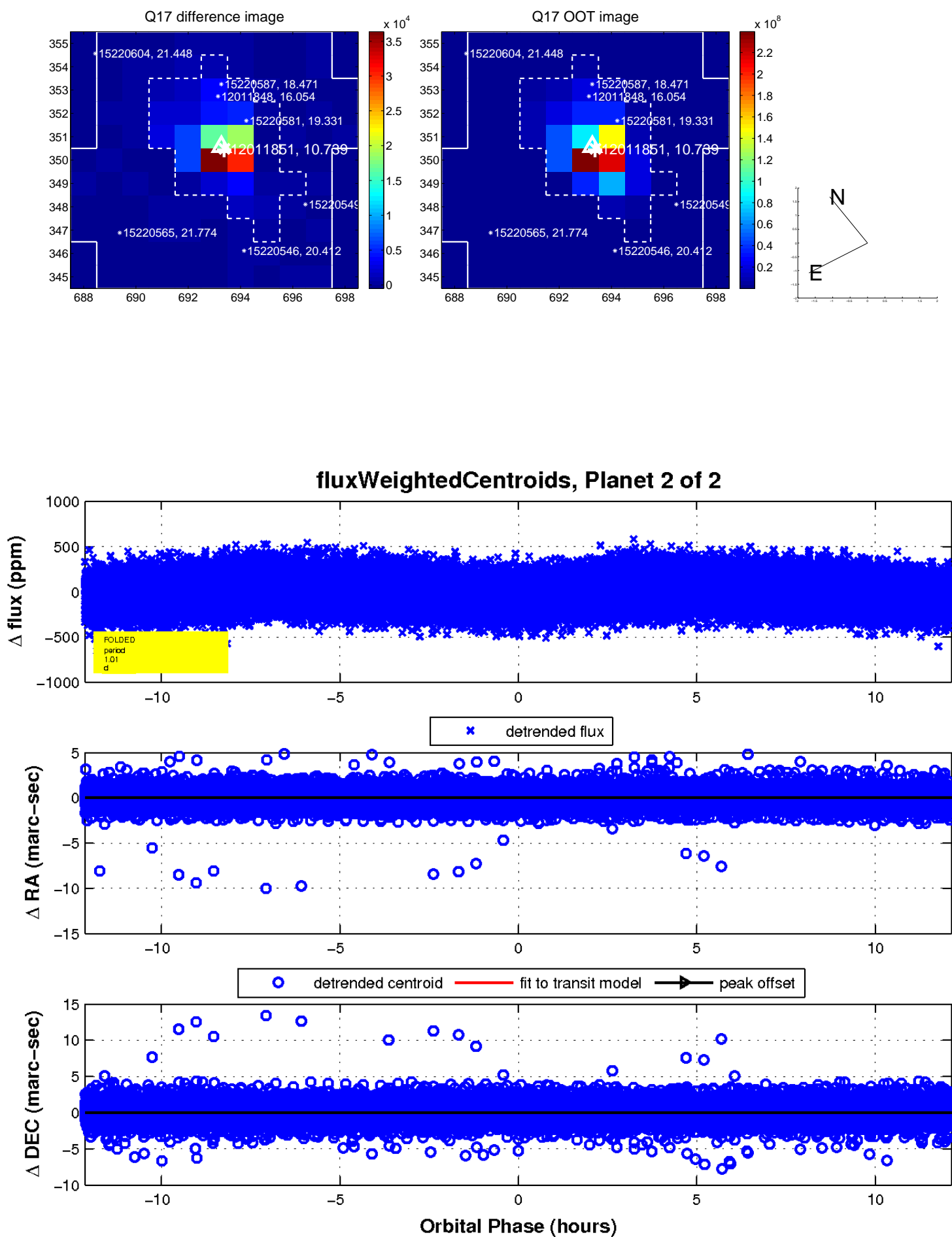
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

