

KIC 007733685

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})
007733685-01	OBS	No	0.803971	131.908488	90.2	3.880	15.6	6.1	1.72	7098	1.89	17658.93
007733685-02	OBS	No	1.211780	132.615968	506.1	10.795	11.0	17.2	1.72	7098	5.29	10218.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007733685-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
007733685-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV

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

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

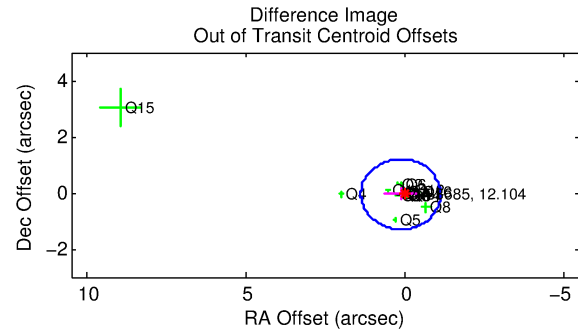
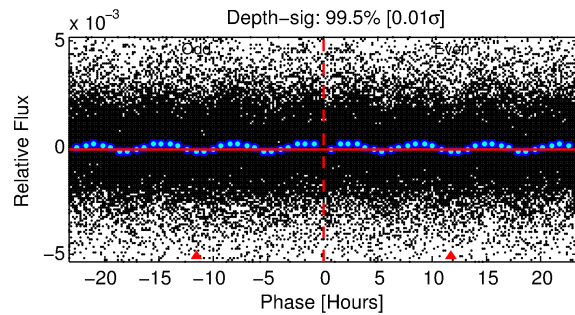
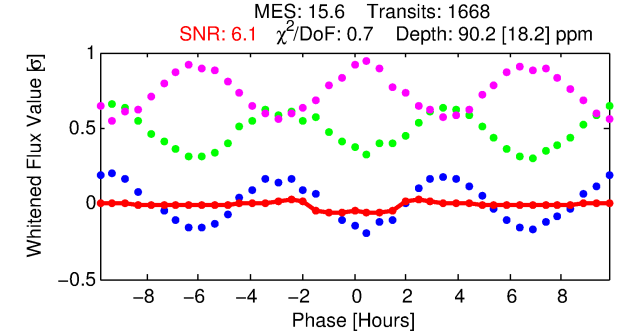
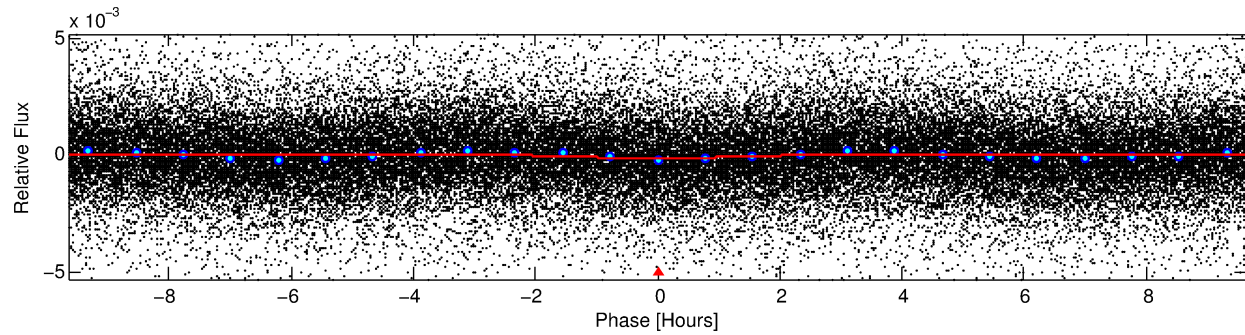
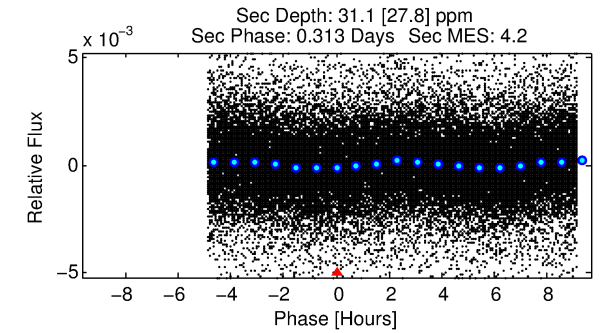
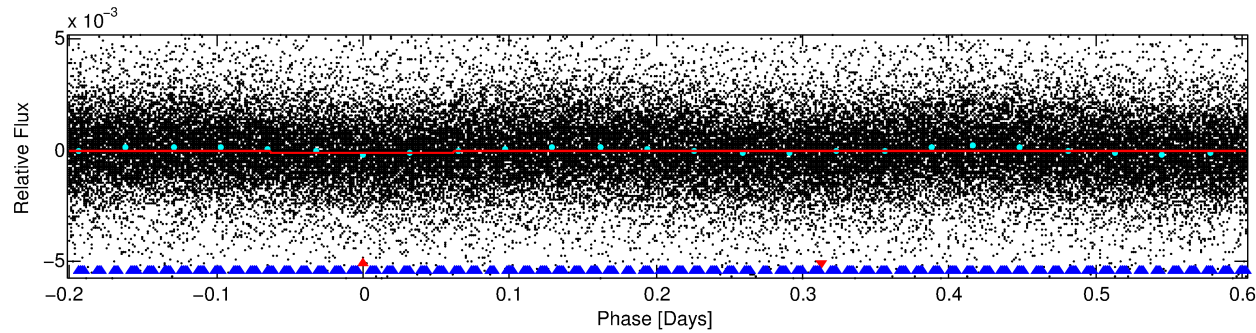
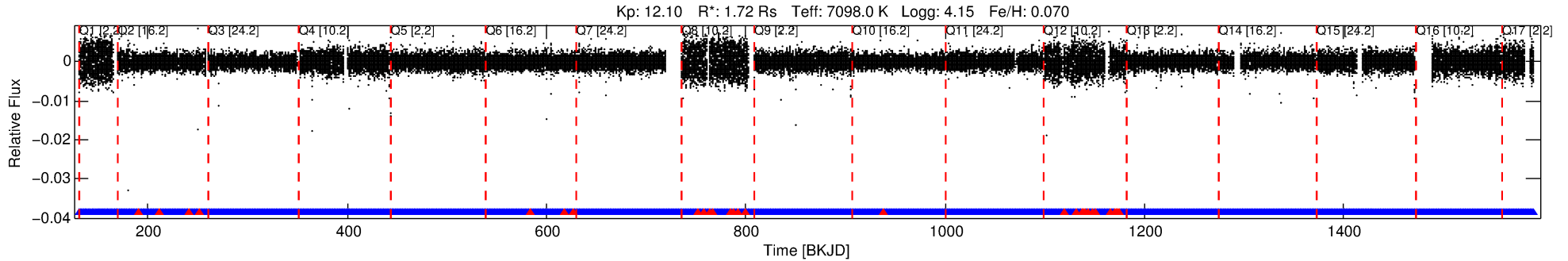
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007733685-01

No Significant Match Found

DV One-Page Summary

KIC: 7733685 Candidate: 1 of 2 Period: 0.804 d



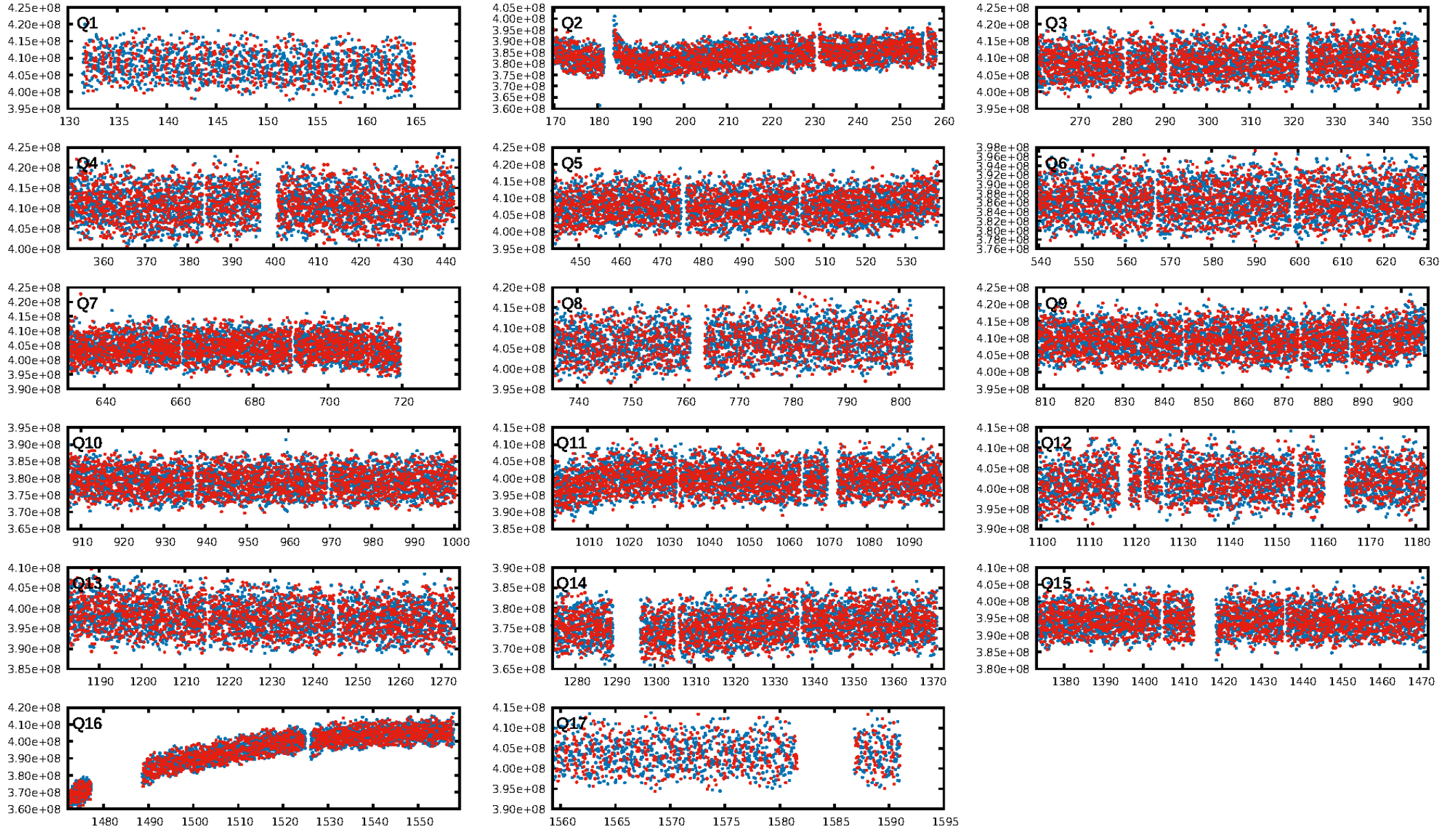
DV Fit Results:

Period = 0.80397 [0.00002] d
Epoch = 131.9085 [0.0045] BKJD
Rp/R* = 0.0101 [0.0049]
a/R* = 1.19 [1.02]
b = 0.90 [0.63]
Seff = 17658.93 [7459.15]
Teq = 2939 [310] K
Rp = 1.89 [1.11] Re
a = 0.0195 [0.0052] AU
Ag = 1.81 [2.49] [0.33σ]
Teffp = 5272 [1761] K [1.30σ]

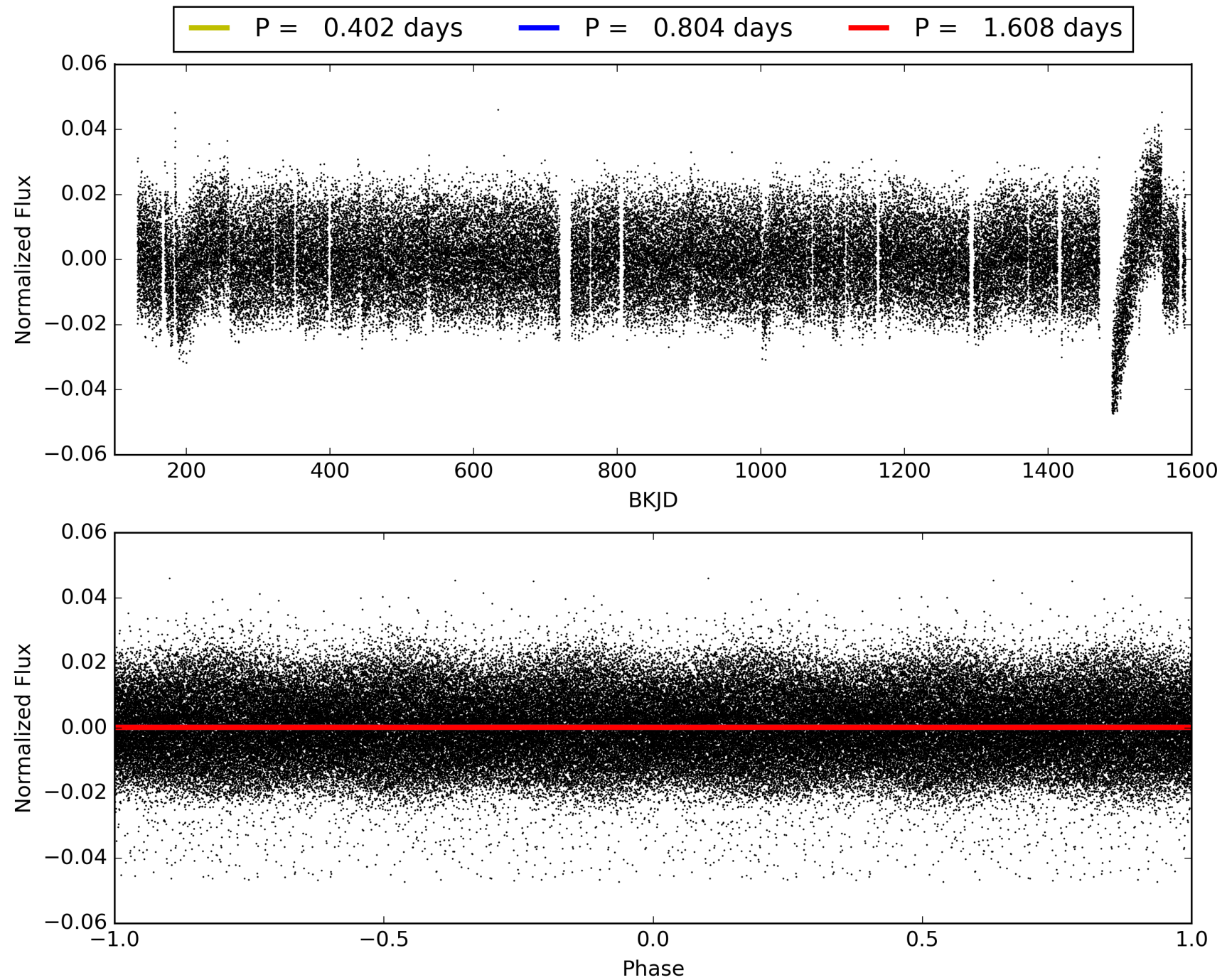
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 60.6% [0.85σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1558/1593]
GhostDiagnostic-chr: 1.059
Centroid-sig: 8.3%
Centroid-so: 0.155 arcsec [1.53σ]
OotOffset-rm: 0.149 arcsec [0.36σ]
KicOffset-rm: 0.183 arcsec [0.31σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 0.41 [7/17]

TCE 007733685-01, PDC Light Curves

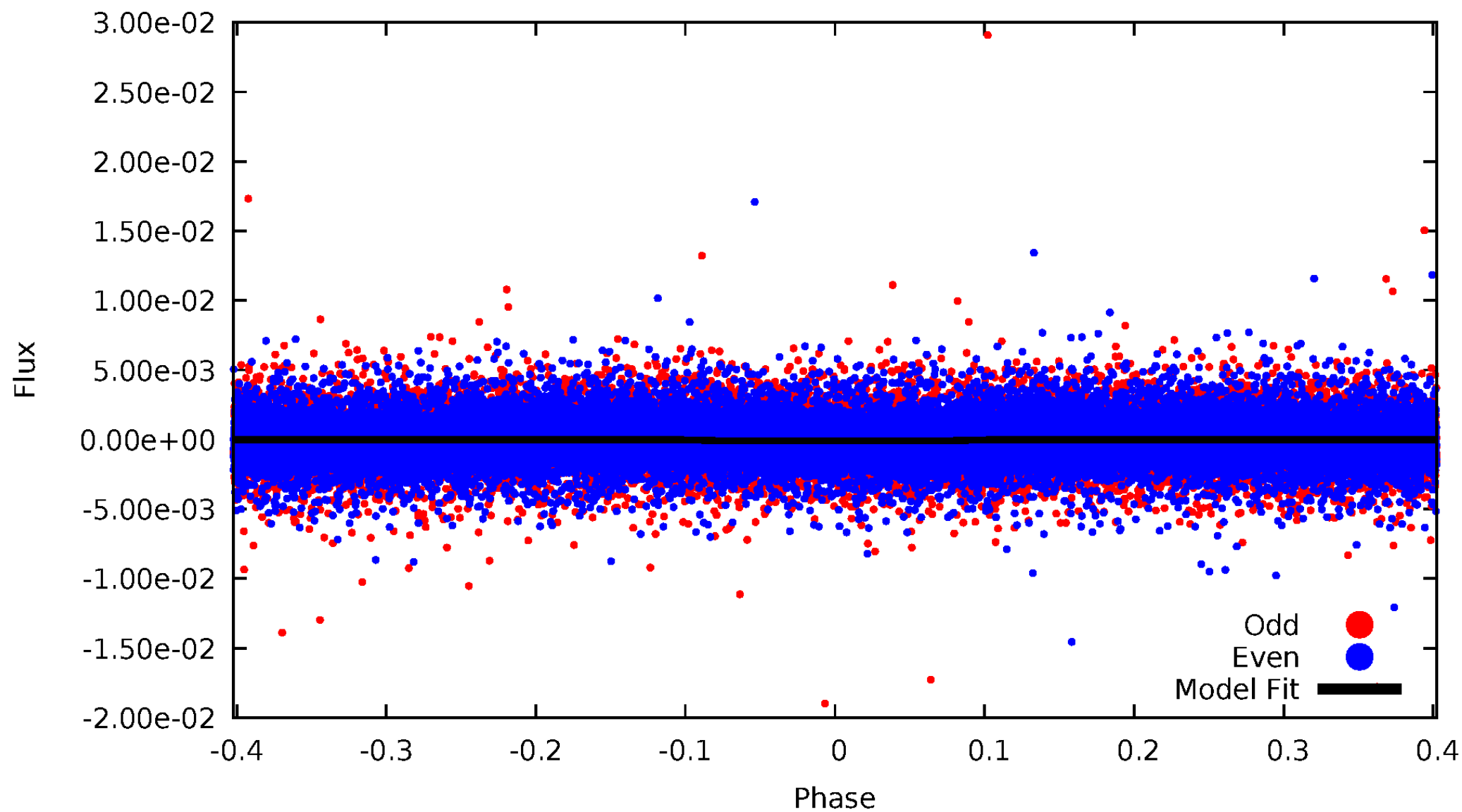


TCE 007733685-01



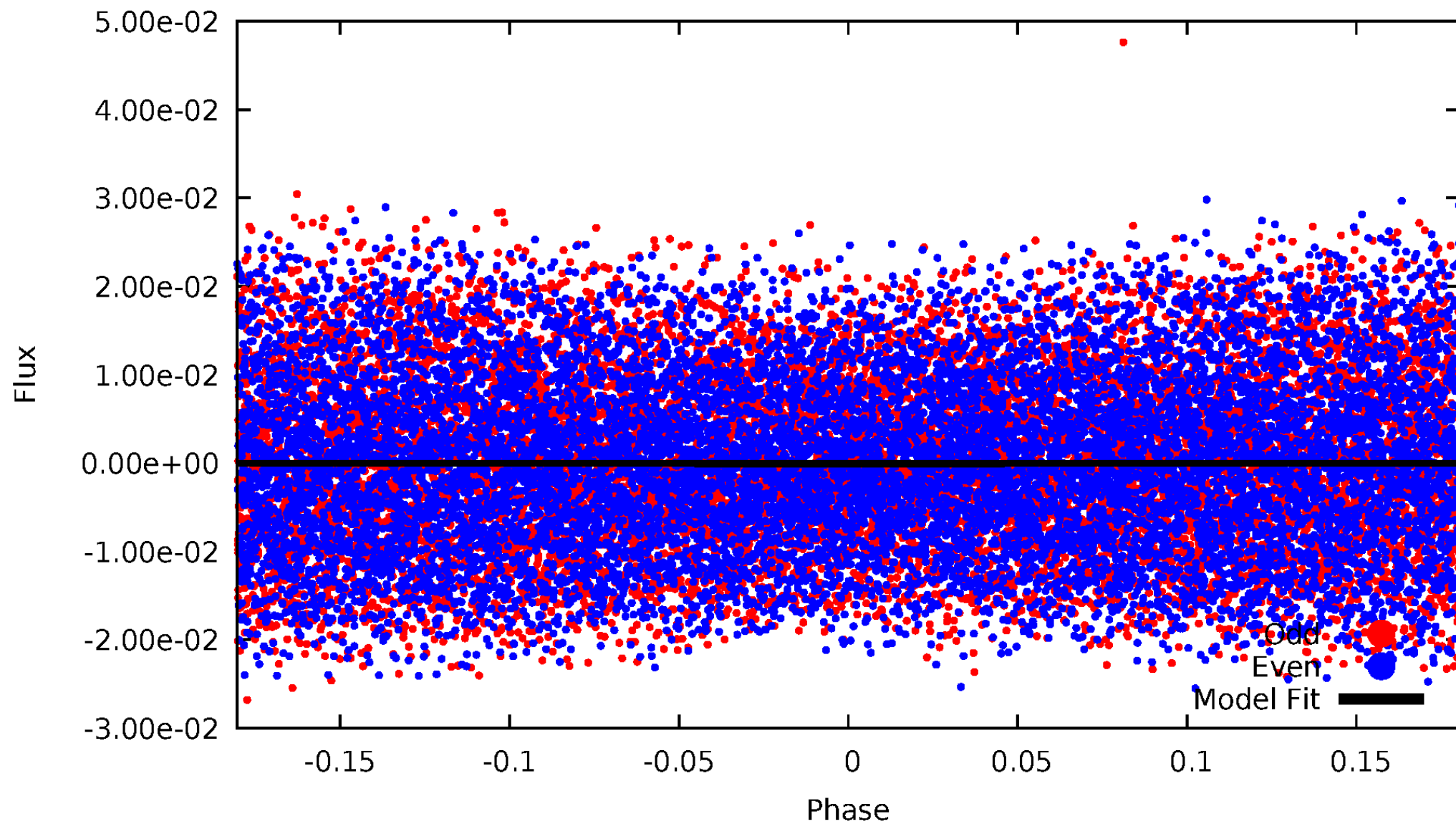
DV Odd/Even

TCE 007733685-01



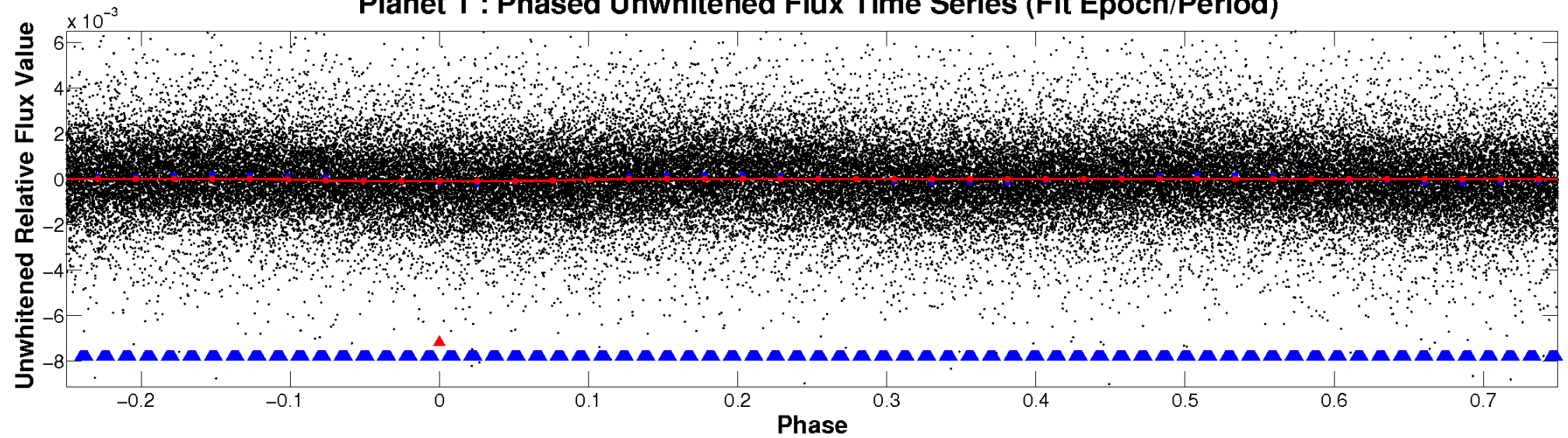
ALT Odd/Even

TCE 007733685-01

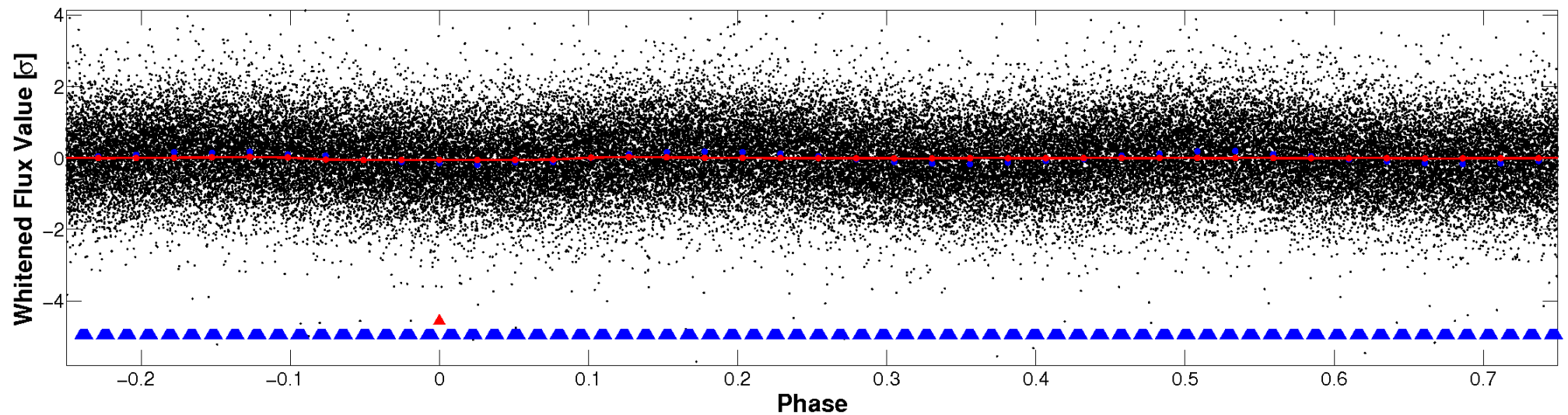


Non-Whitened Vs. Whitened Light Curve

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

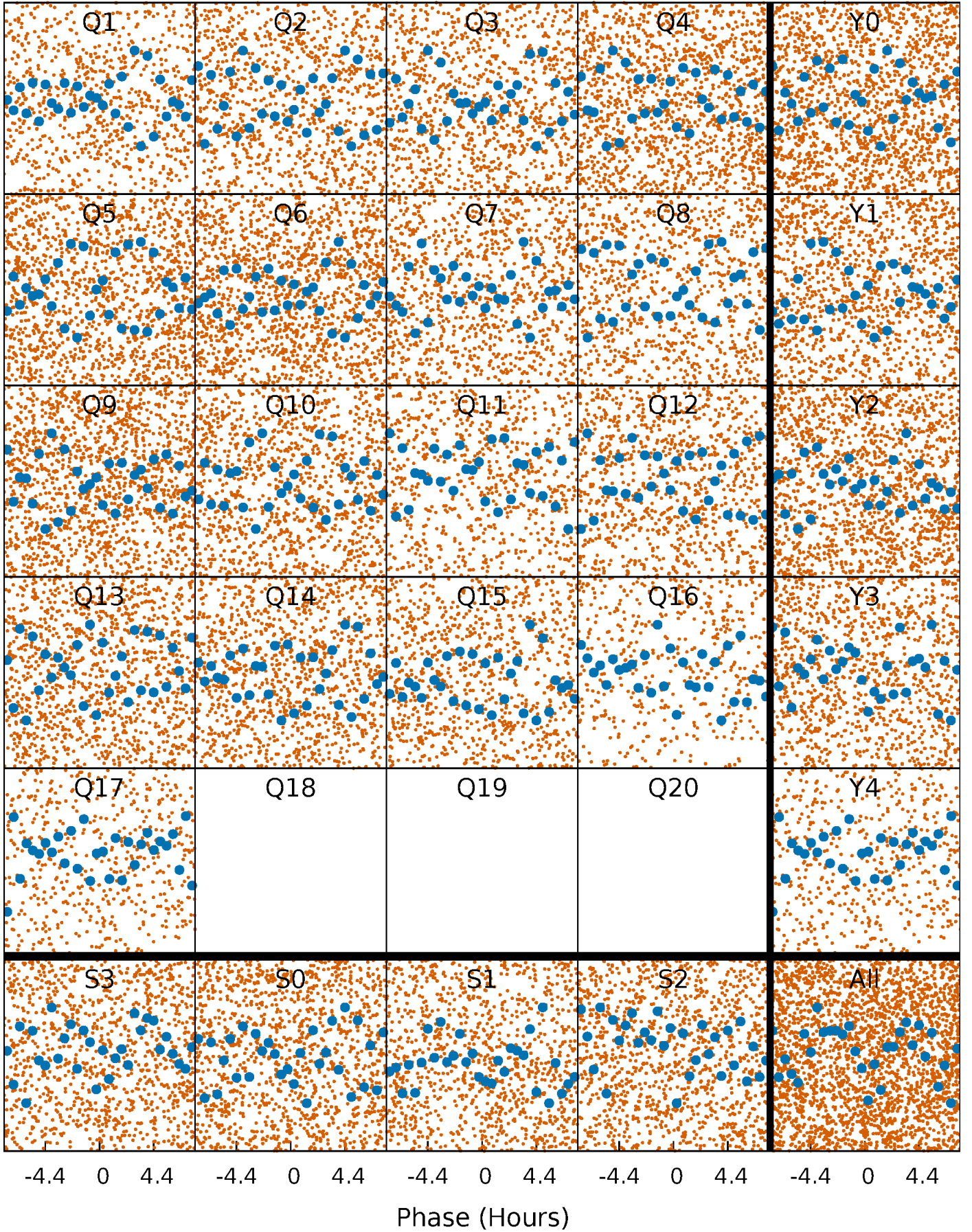


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



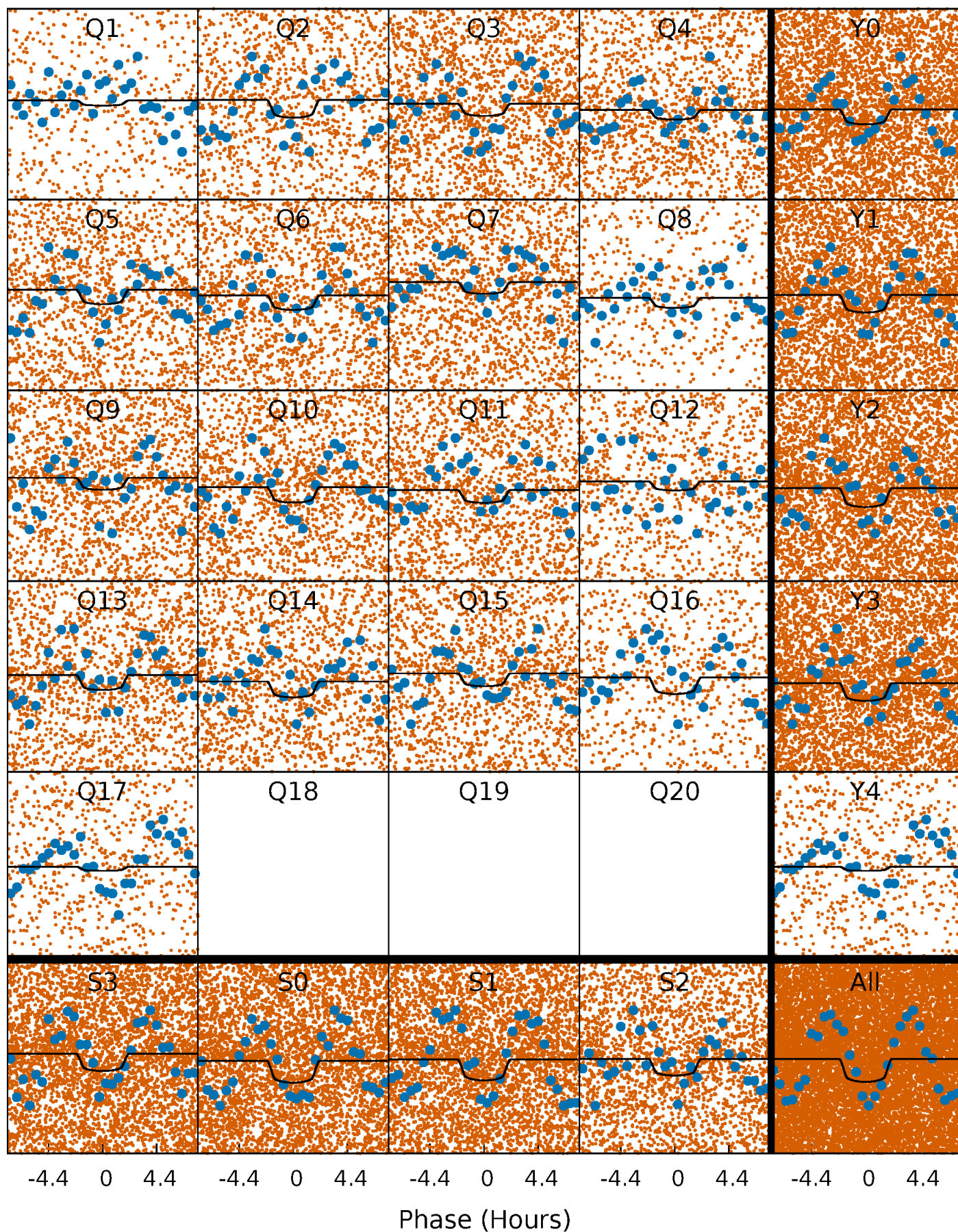
PDC Quarter-Phased Transit Curves

TCE 007733685-01 P= 0.803971 Days $T_0=131.908488$ (BKJD)



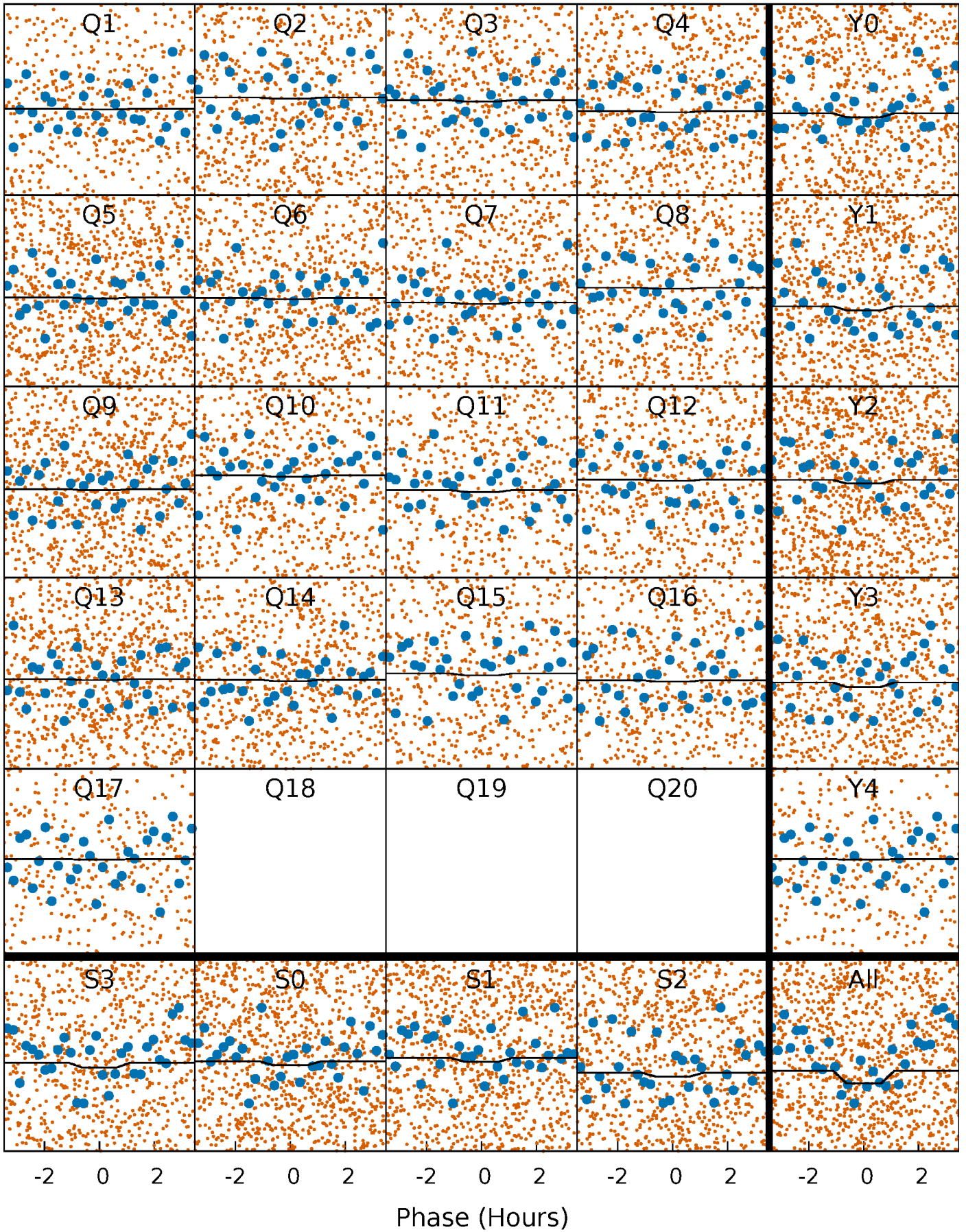
DV Quarter-Phased Transit Curves

TCE 007733685-01 P= 0.803971 Days $T_0=131.908488$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

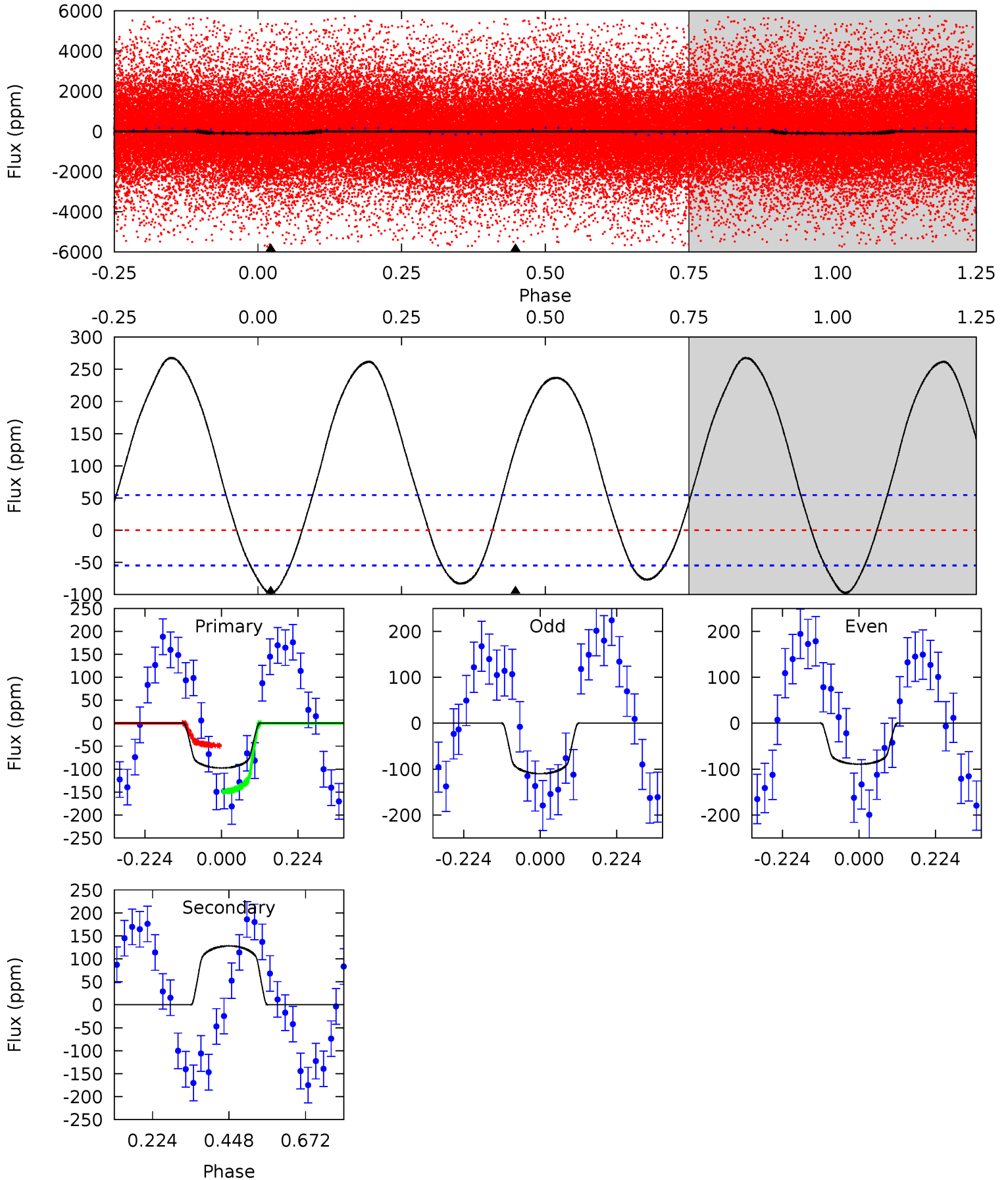
TCE 007733685-01 P= 0.803997 Days $T_0=131.909263$ (BKJD)



DV Model-Shift Uniqueness Test

007733685-01, P = 0.803971 Days, E = 131.104517 Days

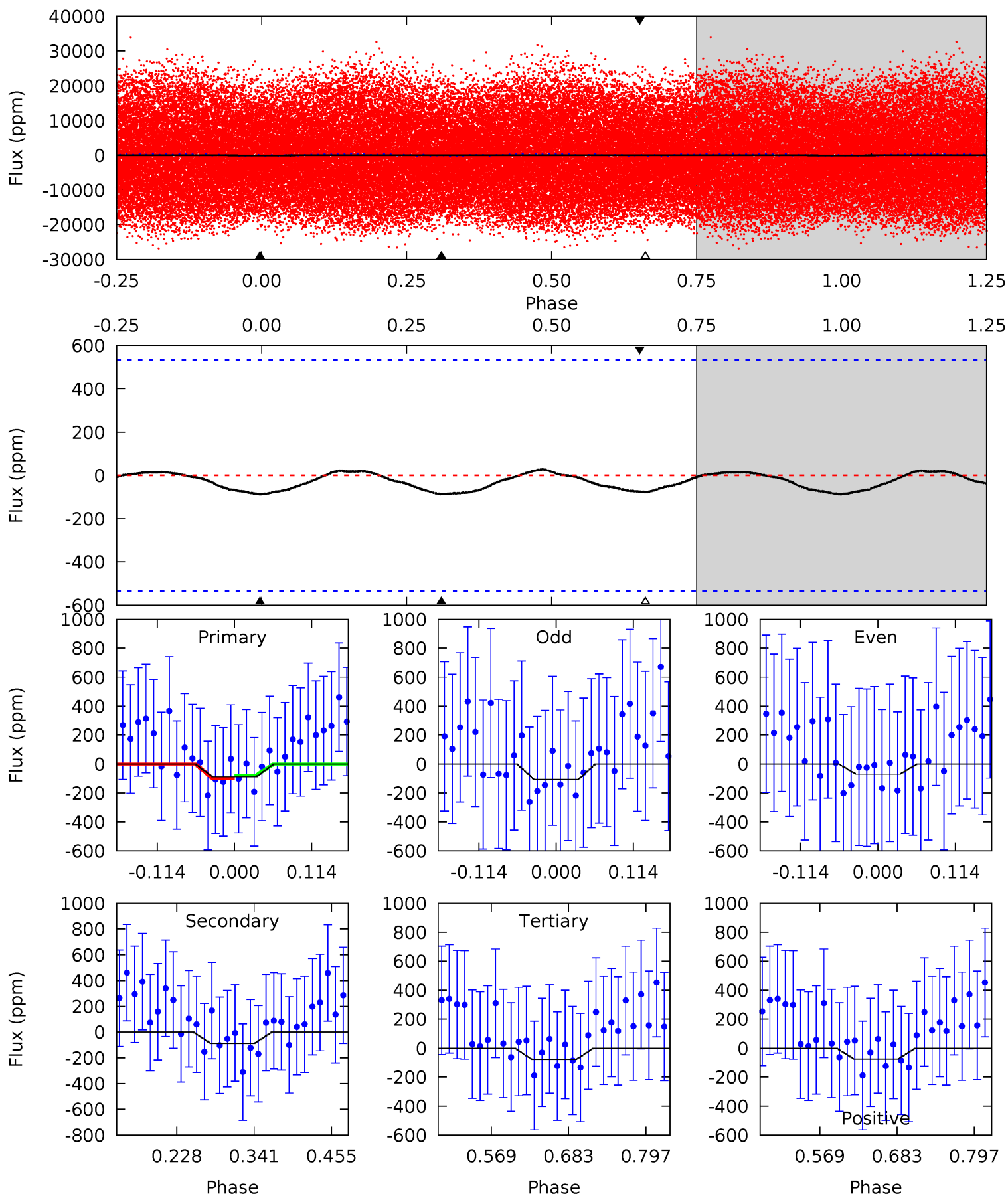
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.83	-10.3	0	0	4.39	1.22	6.84	7.83	7.83	-10.3	-10.3	0.83	0.95	0.73	4.10



Alt Model-Shift Uniqueness Test

007733685-01, P = 0.803997 Days, E = 131.105266 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.75	0.74	0.66	-0.63	4.54	1.58	0.27	0.08	1.38	0.08	1.37	0.16	0.44	0.24	0.10



Stellar Parameters For KIC 007733685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7098^{+197}_{-338}	$4.152^{+0.108}_{-0.201}$	$0.070^{+0.200}_{-0.350}$	$1.717^{+0.558}_{-0.300}$	$1.527^{+0.229}_{-0.229}$	$0.425^{+0.264}_{-0.220}$
	+3%/-5%	+3%/-5%	+286%/-500%	+32%/-17%	+15%/-15%	+62%/-52%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007733685-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	128 ± 12	$2.01^{+1.01}_{-0.88}$	4132^{+333}_{-256}	-7454^{+1277}_{-3157}	$-6.505^{+3.648}_{-13.659}$
Alt.	-88 ± 118	$1.80^{+1.01}_{-0.89}$	4138^{+317}_{-265}	6418^{+4979}_{-12096}	$4.387^{+19.169}_{-6.371}$

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

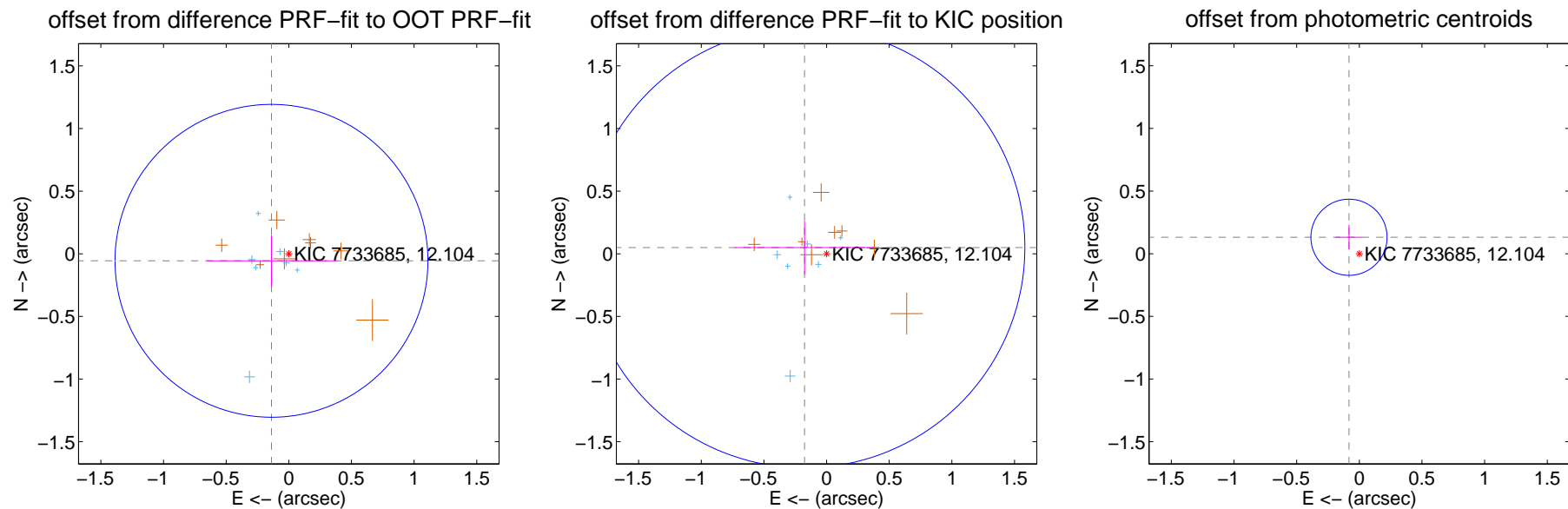
DV Centroid Data

Supplemental centroid analysis for 007733685-01. Kepler magnitude: 12.10. Transit SNR 6.13

There are 8 quarters with good PRF difference image offsets

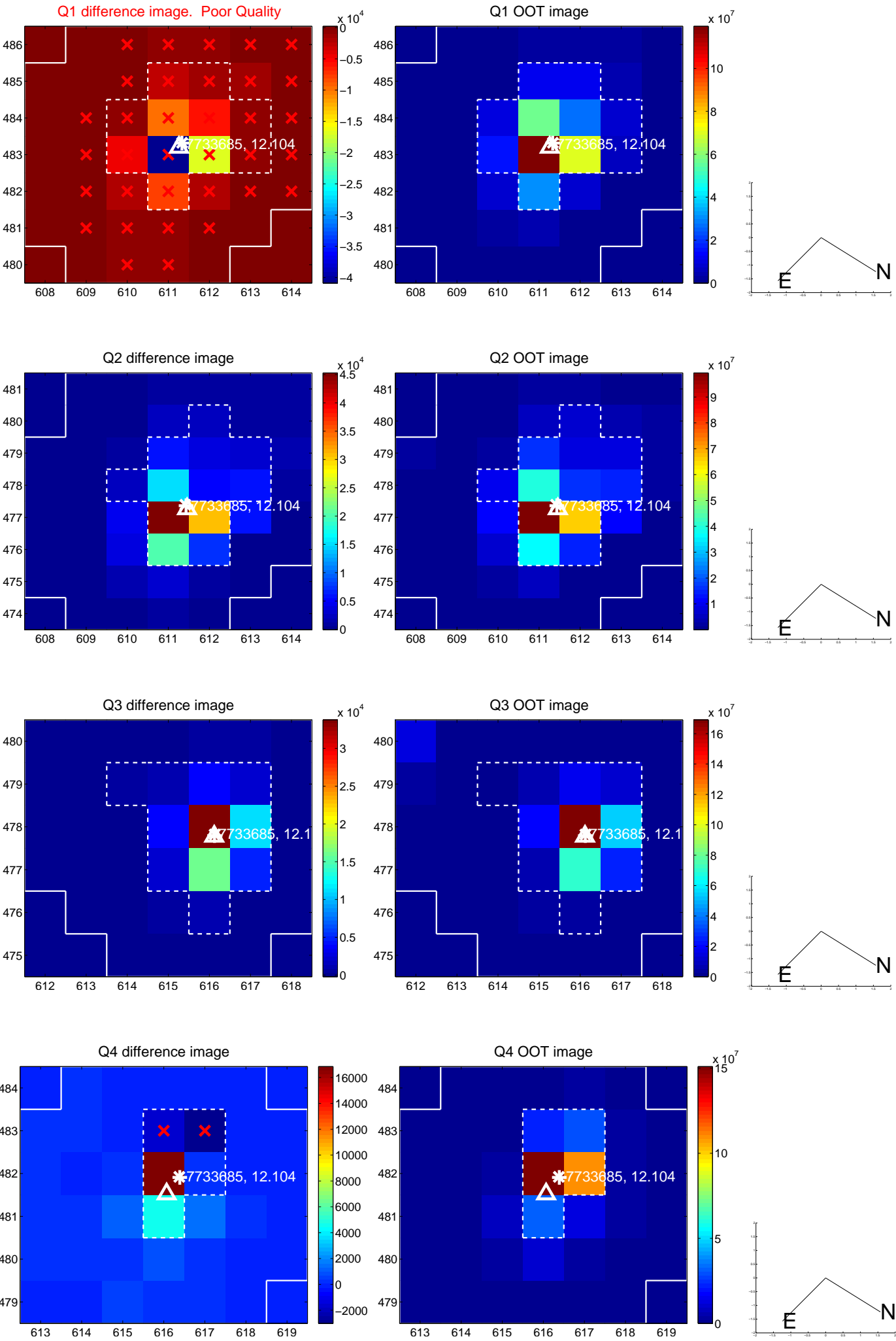
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.149 ± 0.416	0.36	0.138 ± 0.518	-0.056 ± 0.204
PRF-fit source offset from KIC position	0.183 ± 0.586	0.31	0.176 ± 0.557	0.049 ± 0.213
photometric centroid source offset	0.16 ± 0.10	1.53	0.08 ± 0.11	0.13 ± 0.10

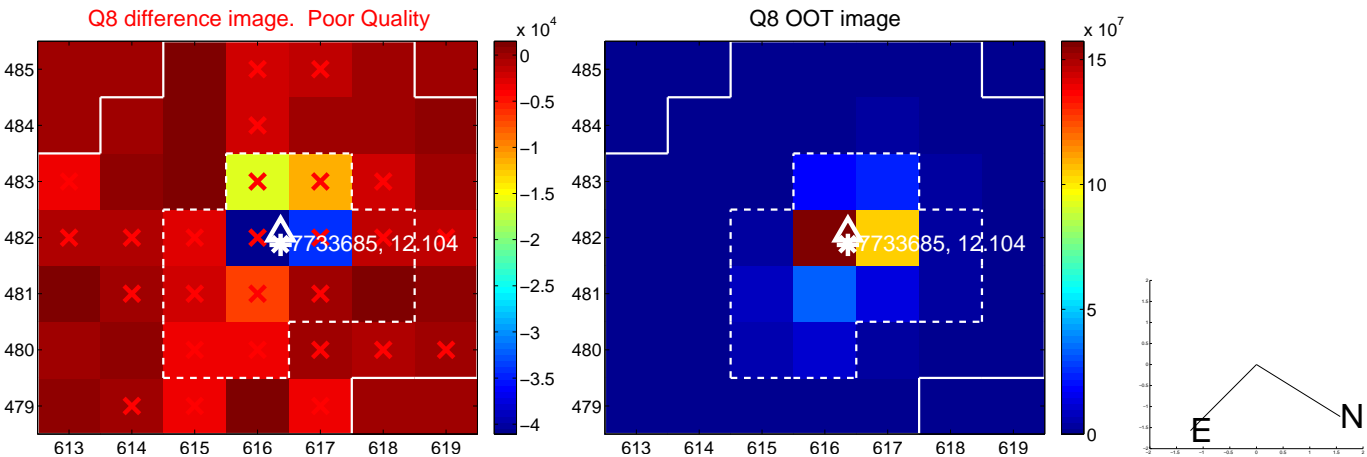
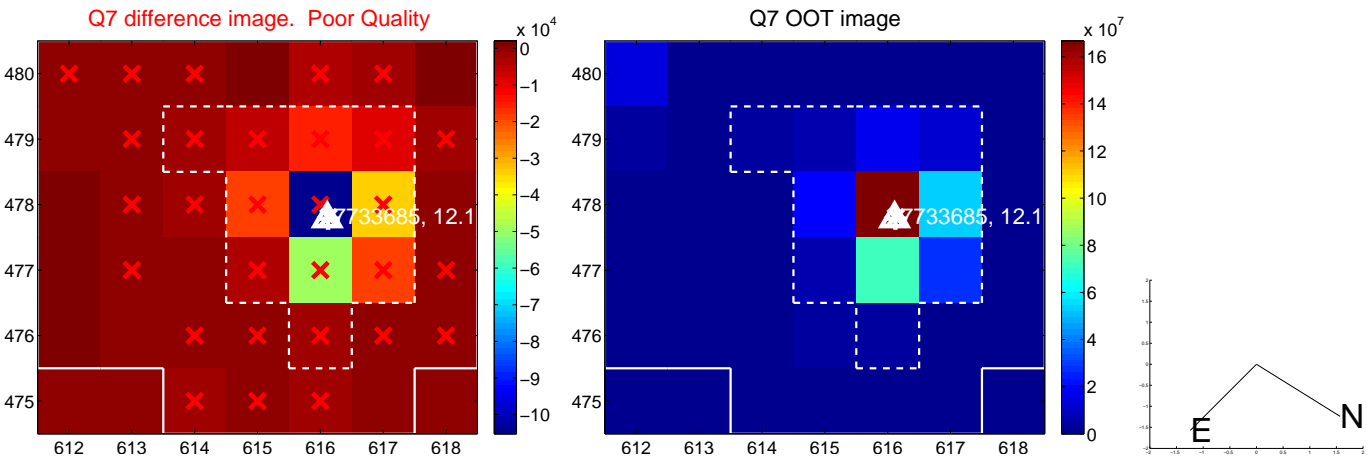
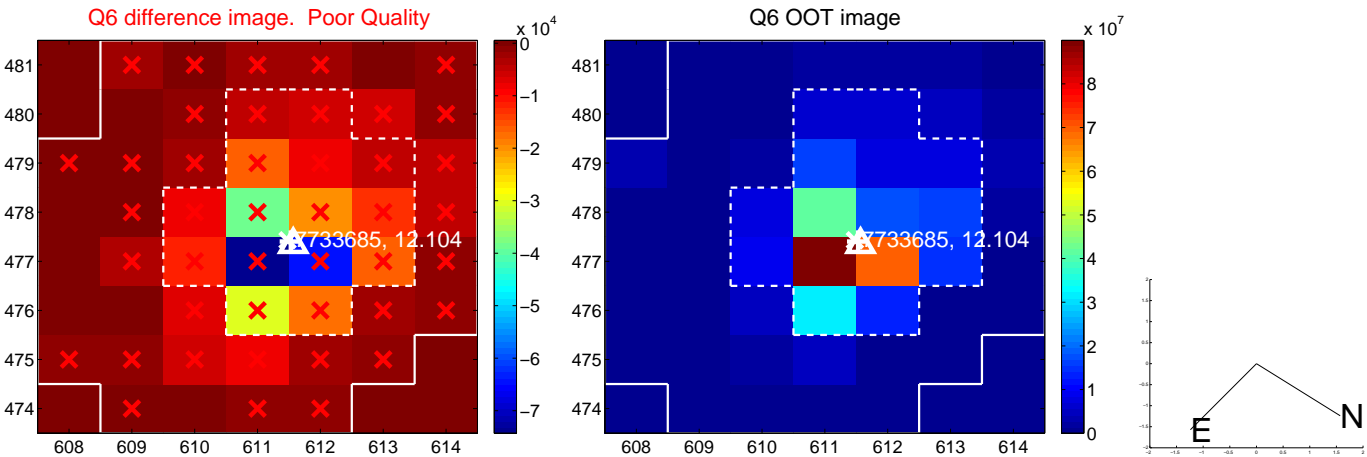
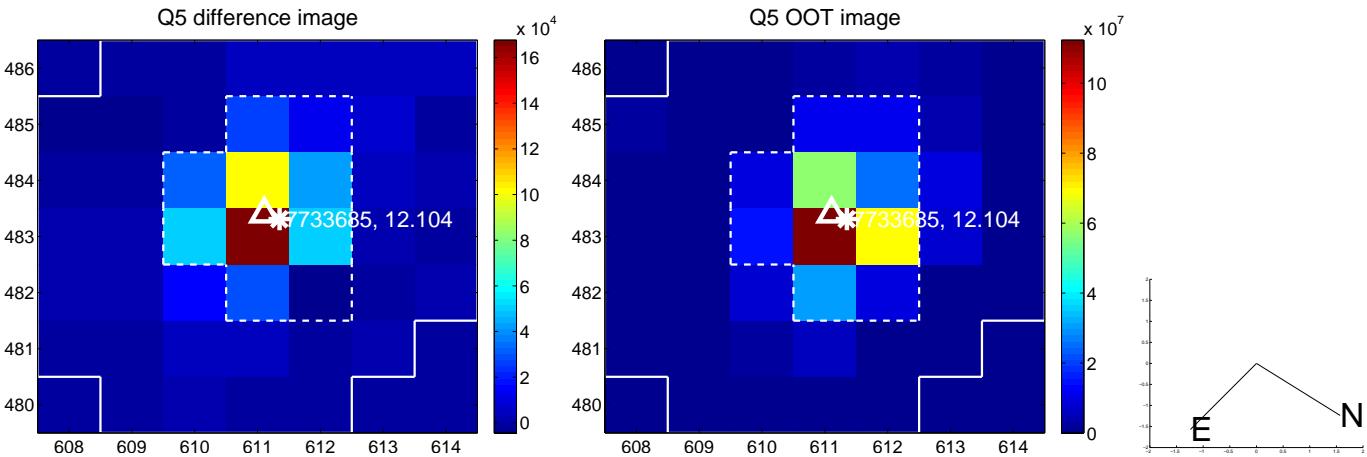


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

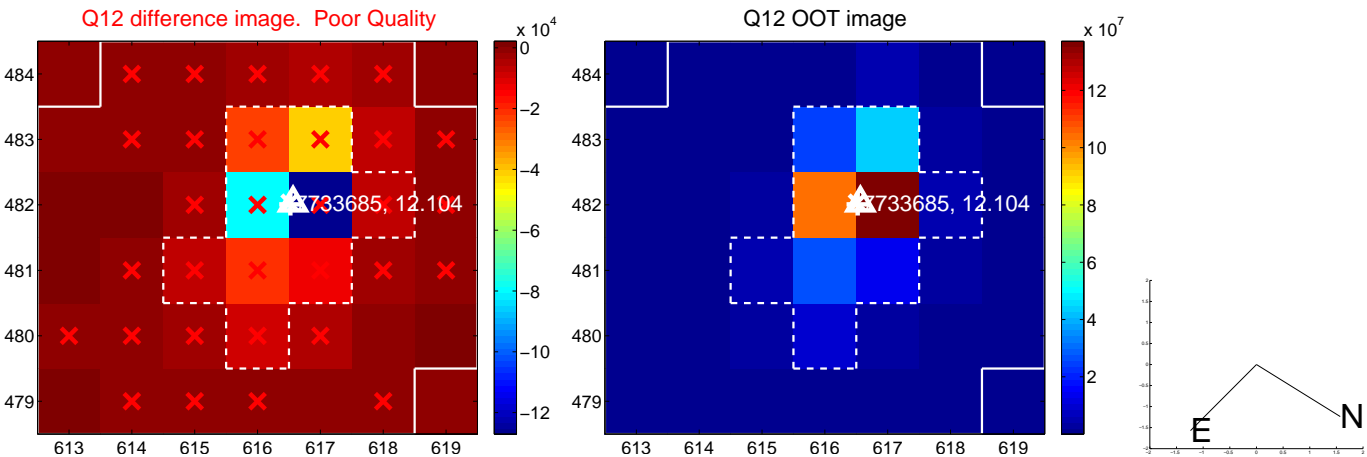
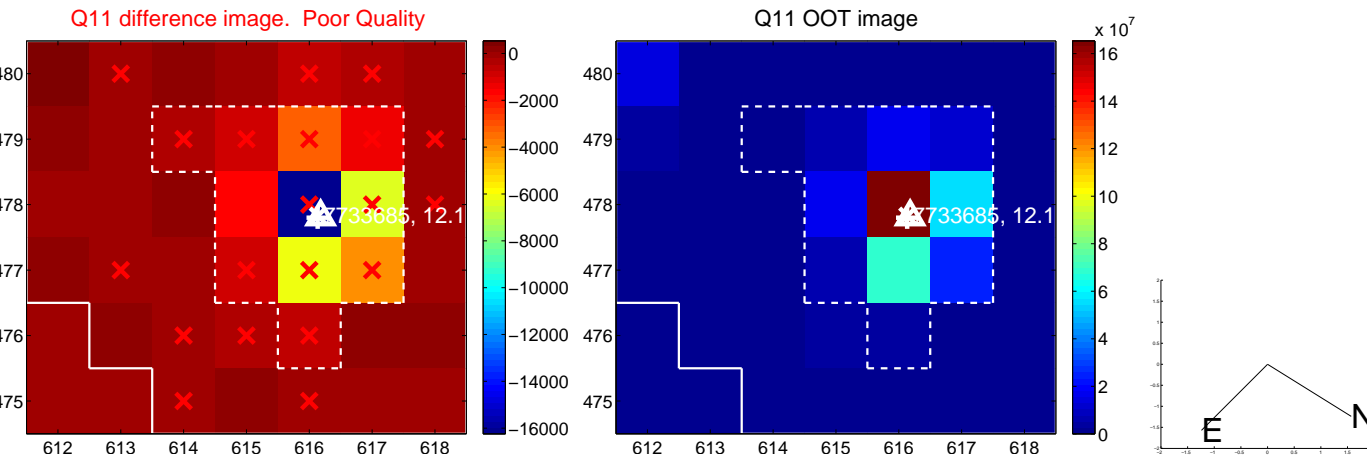
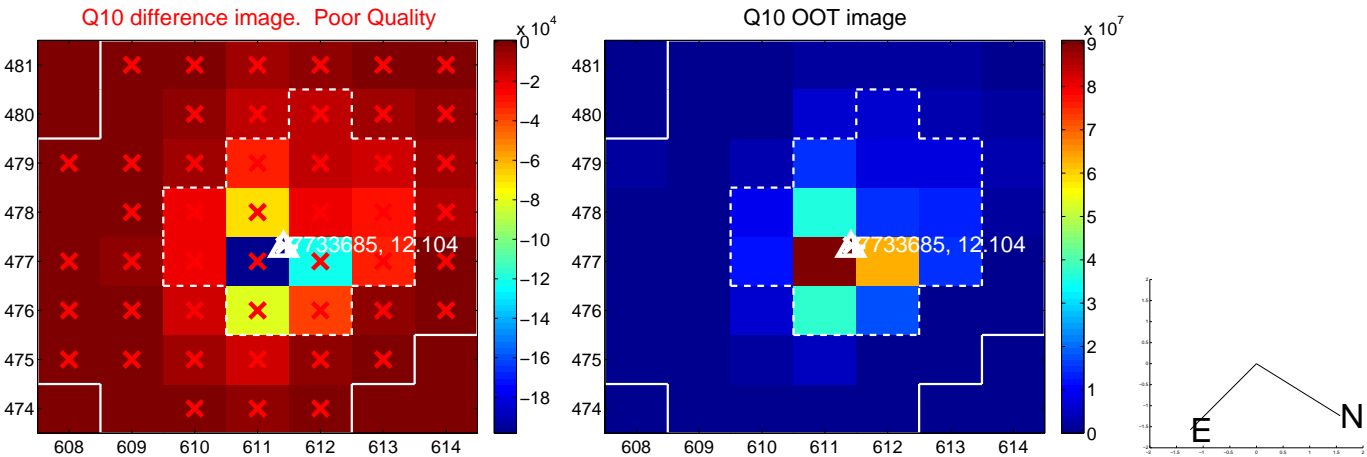
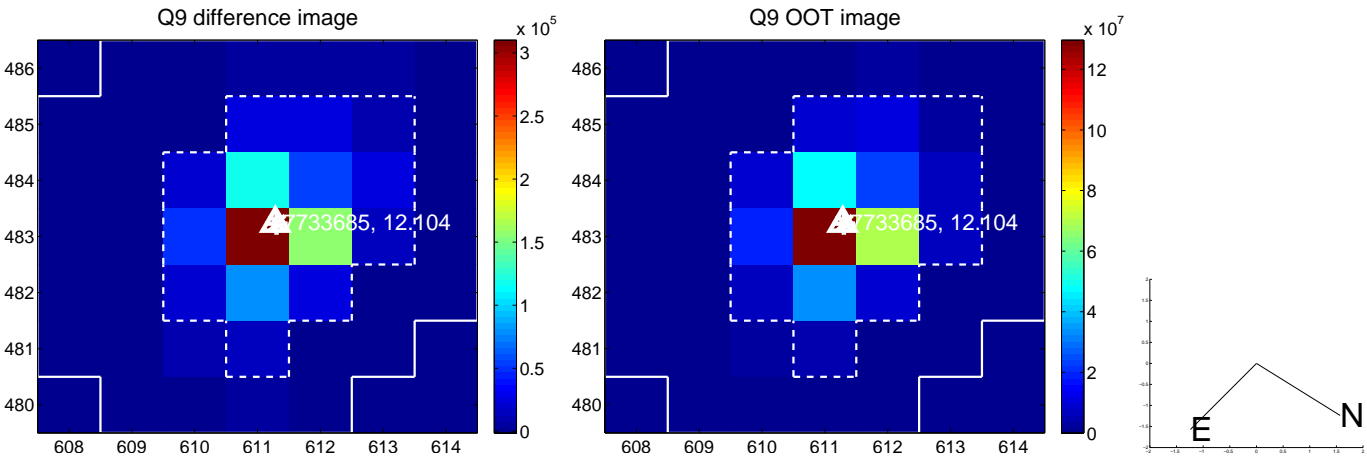
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



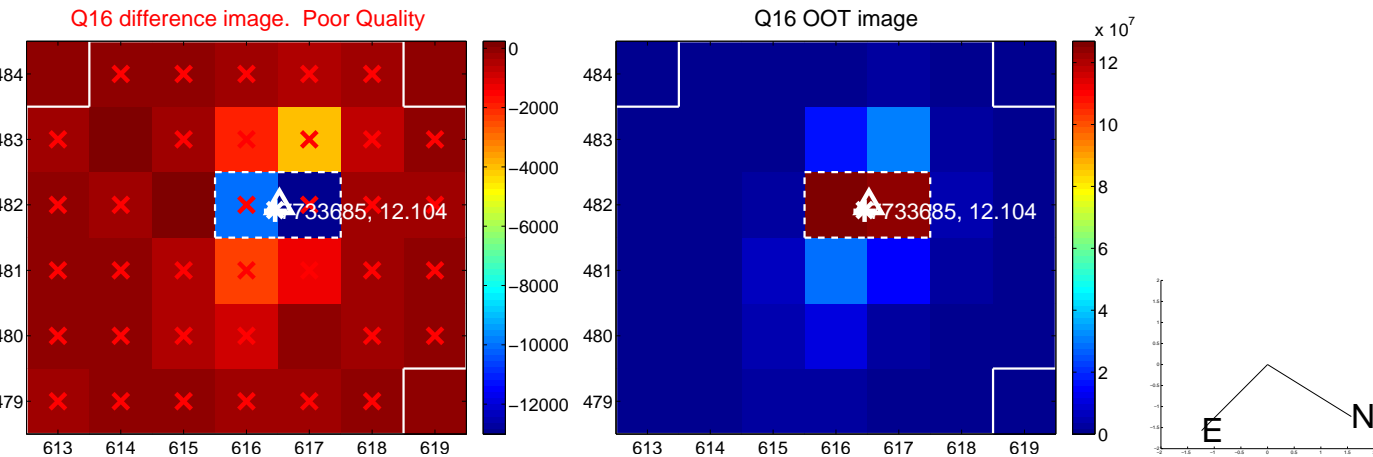
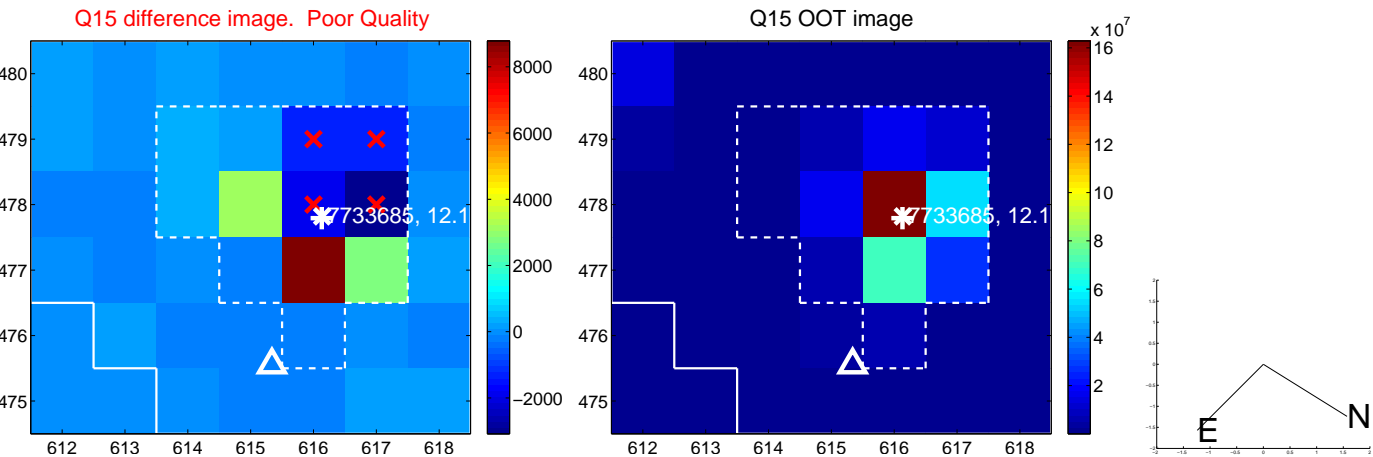
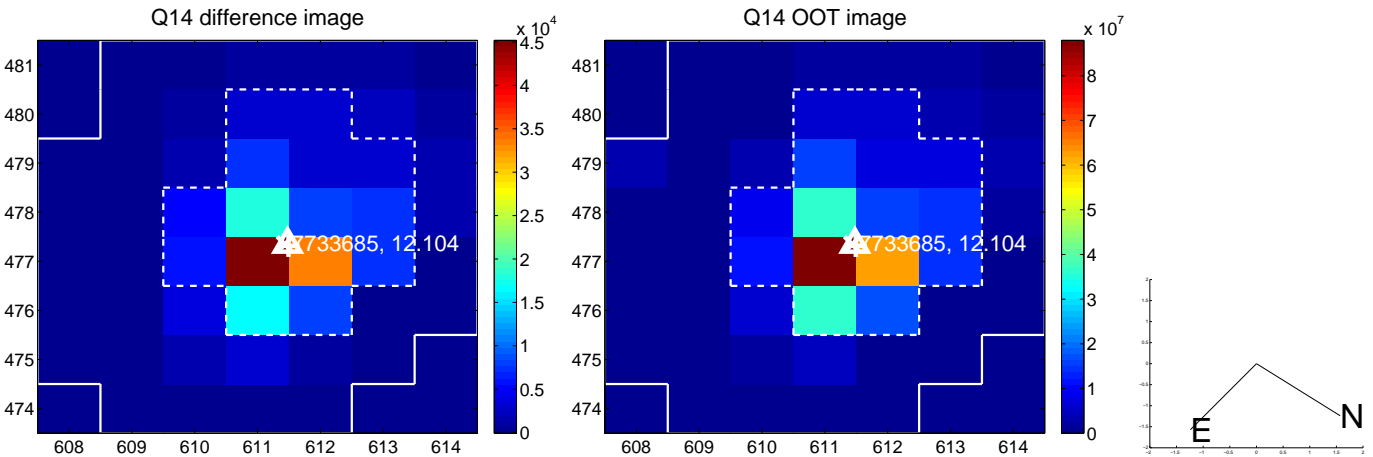
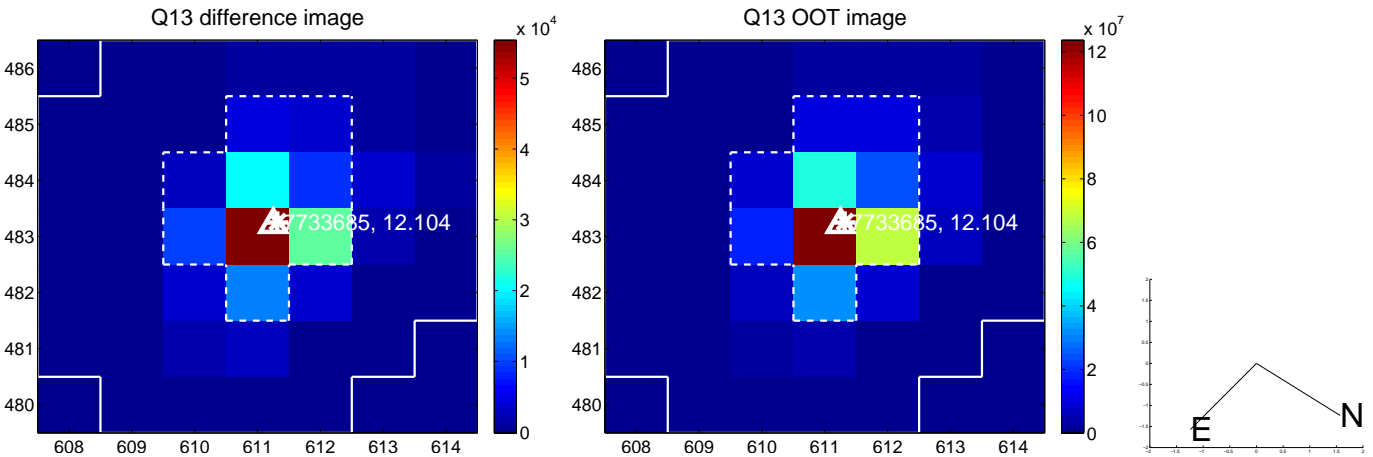
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



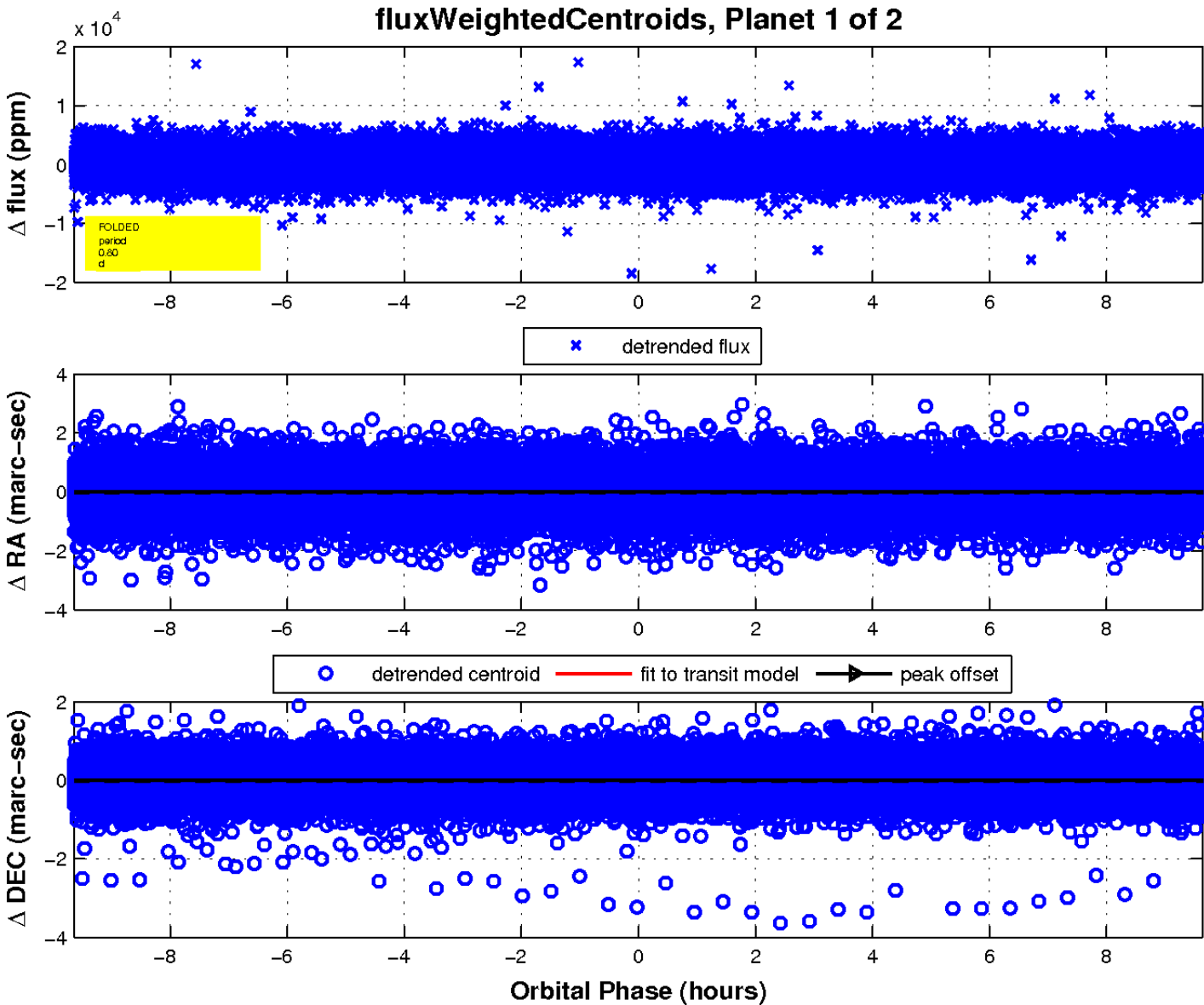
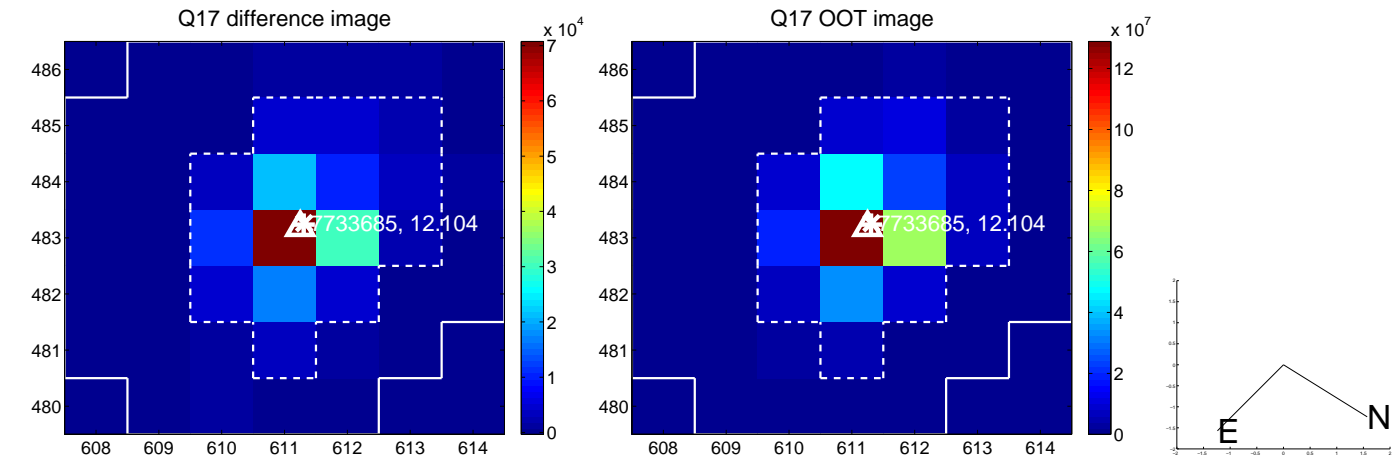
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

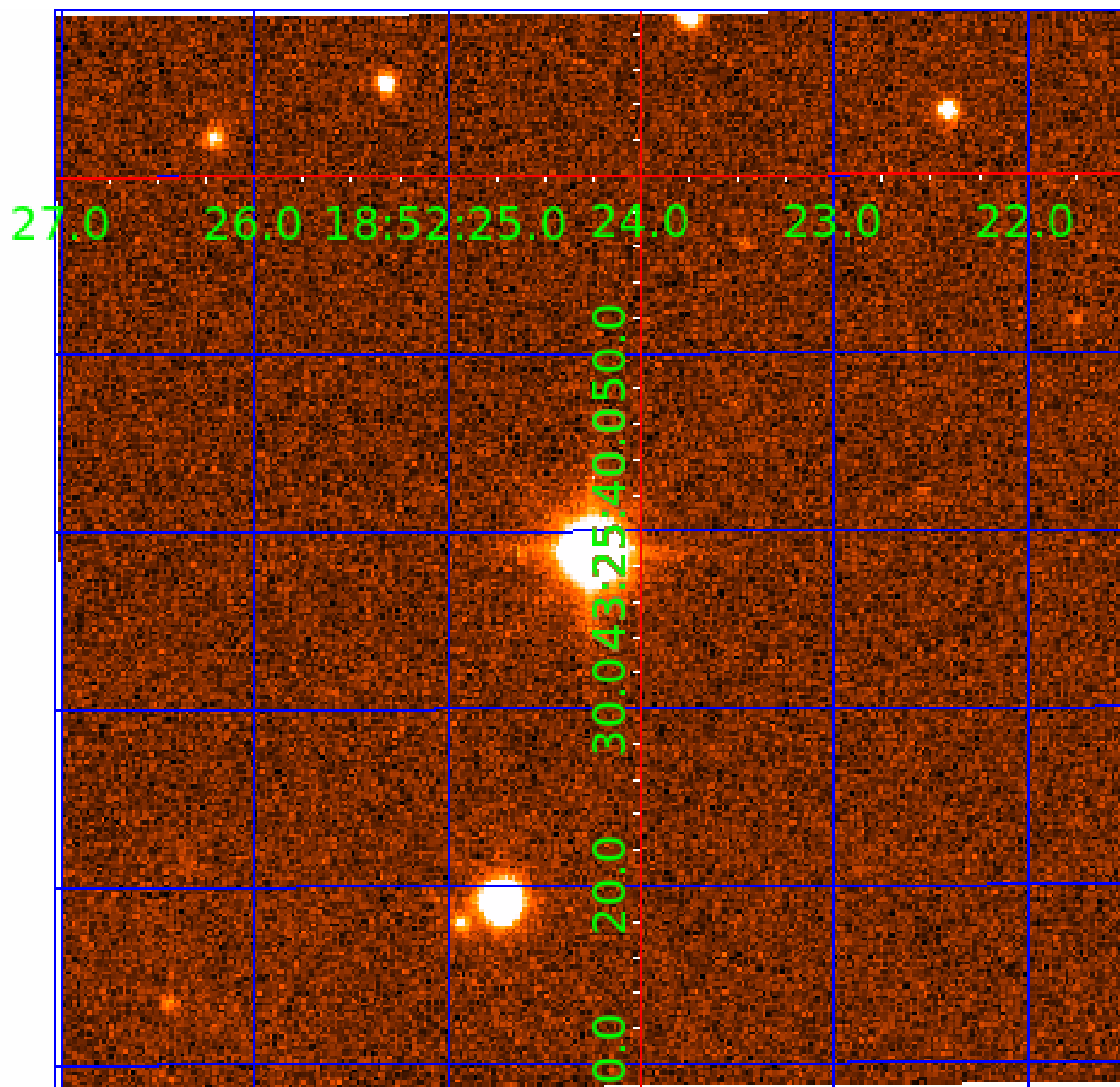


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007733685

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})
007733685-01	OBS	No	0.803971	131.908488	90.2	3.880	15.6	6.1	1.72	7098	1.89	17658.93
007733685-02	OBS	No	1.211780	132.615968	506.1	10.795	11.0	17.2	1.72	7098	5.29	10218.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007733685-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
007733685-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV

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

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

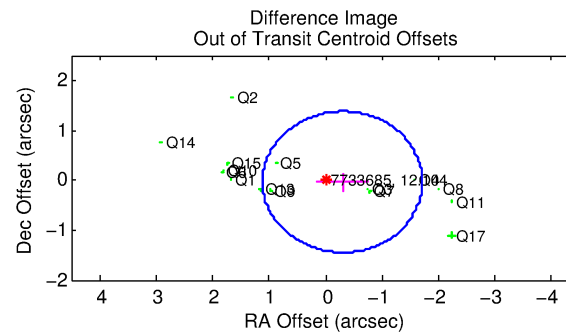
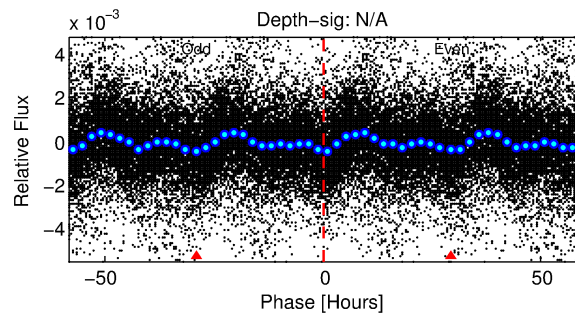
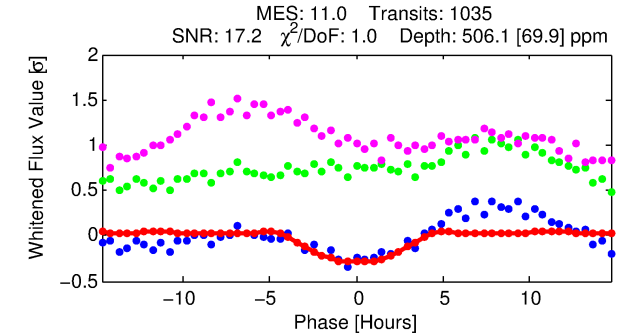
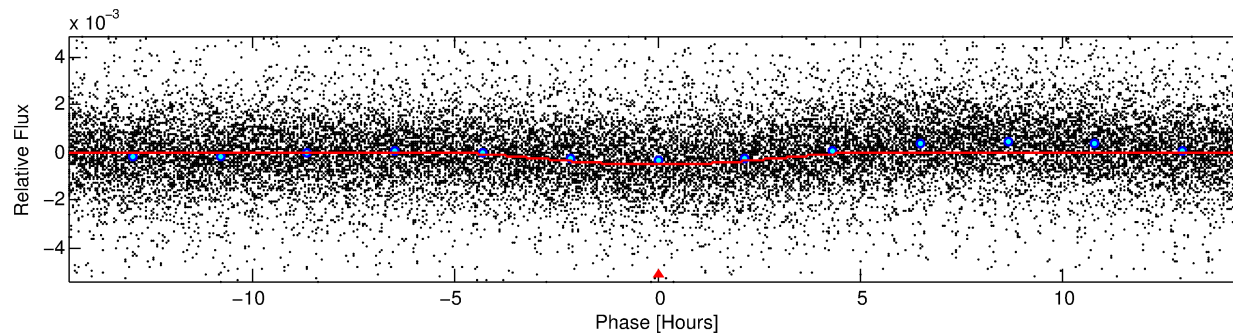
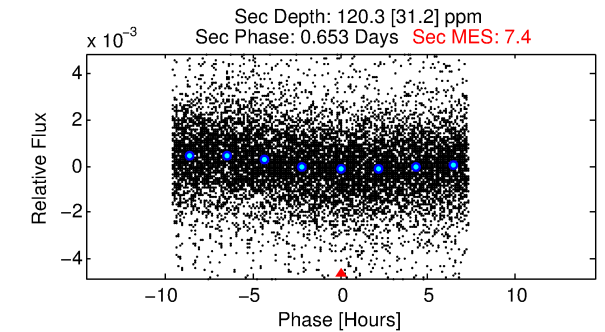
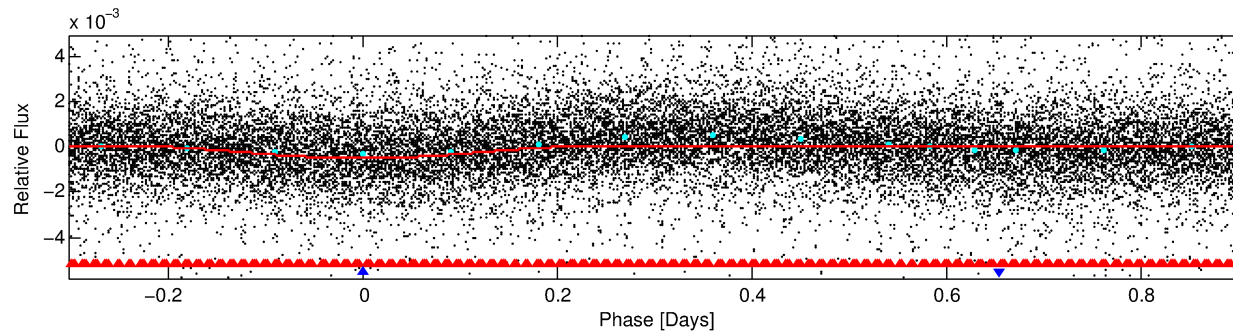
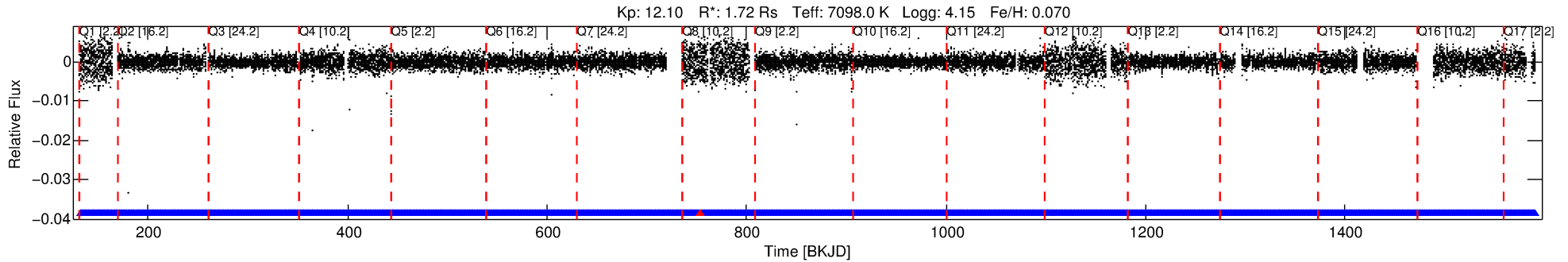
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007733685-02

No Significant Match Found

DV One-Page Summary

KIC: 7733685 Candidate: 2 of 2 Period: 1.212 d



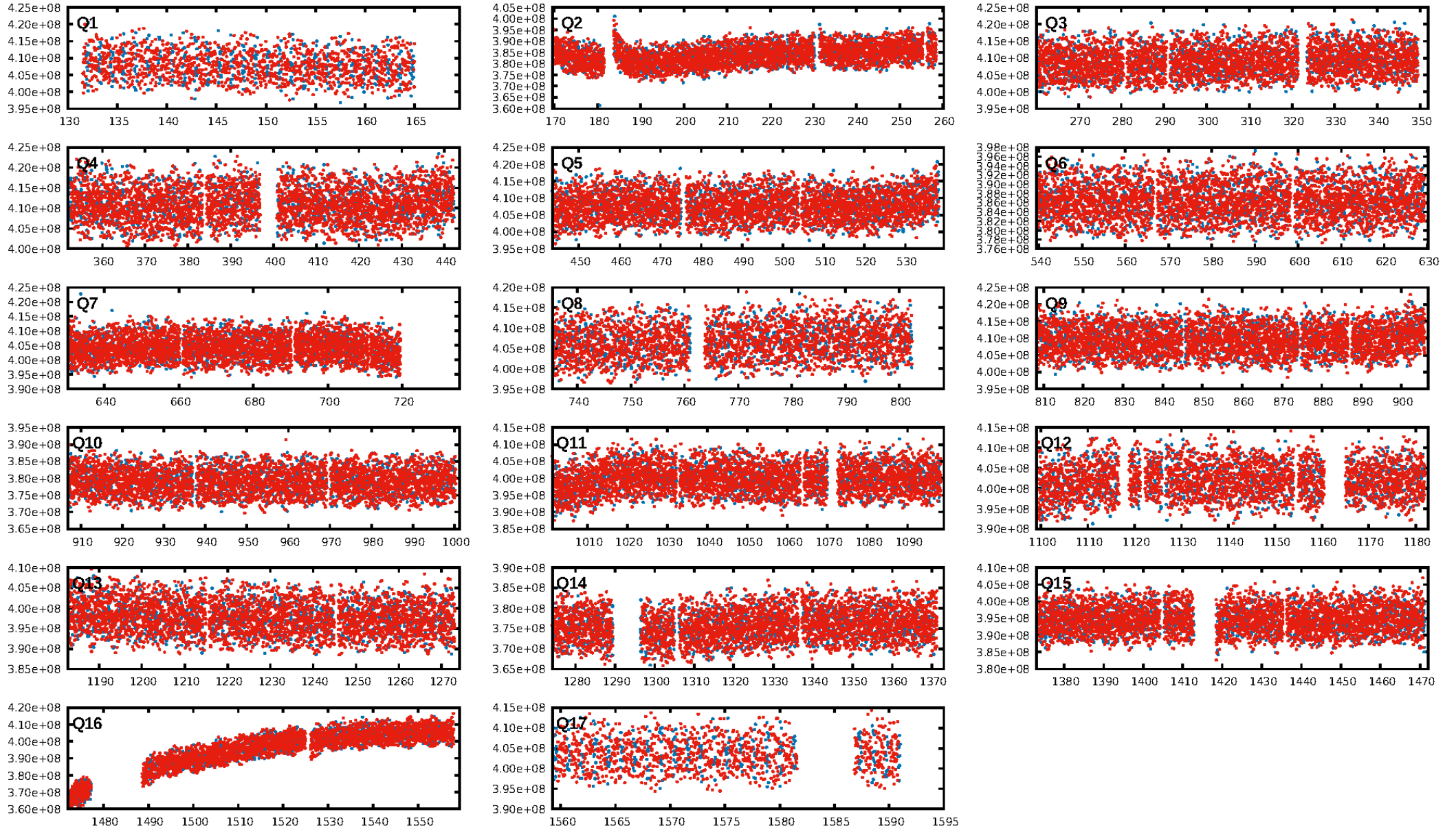
DV Fit Results:

Period = 1.21178 [0.00002] d
Epoch = 132.6160 [0.0108] BKJD
Rp/R* = 0.0282 [0.0059]
a/R* = 1.04 [0.01]
b = 0.98 [0.01]
Seff = 10218.50 [4316.30]
Teff = 2564 [271] K
Rp = 5.29 [2.04] Re
a = 0.0256 [0.0068] AU
Ag = 1.55 [0.96] [0.58σ]
Teffp = 4424 [580] K [2.91σ]

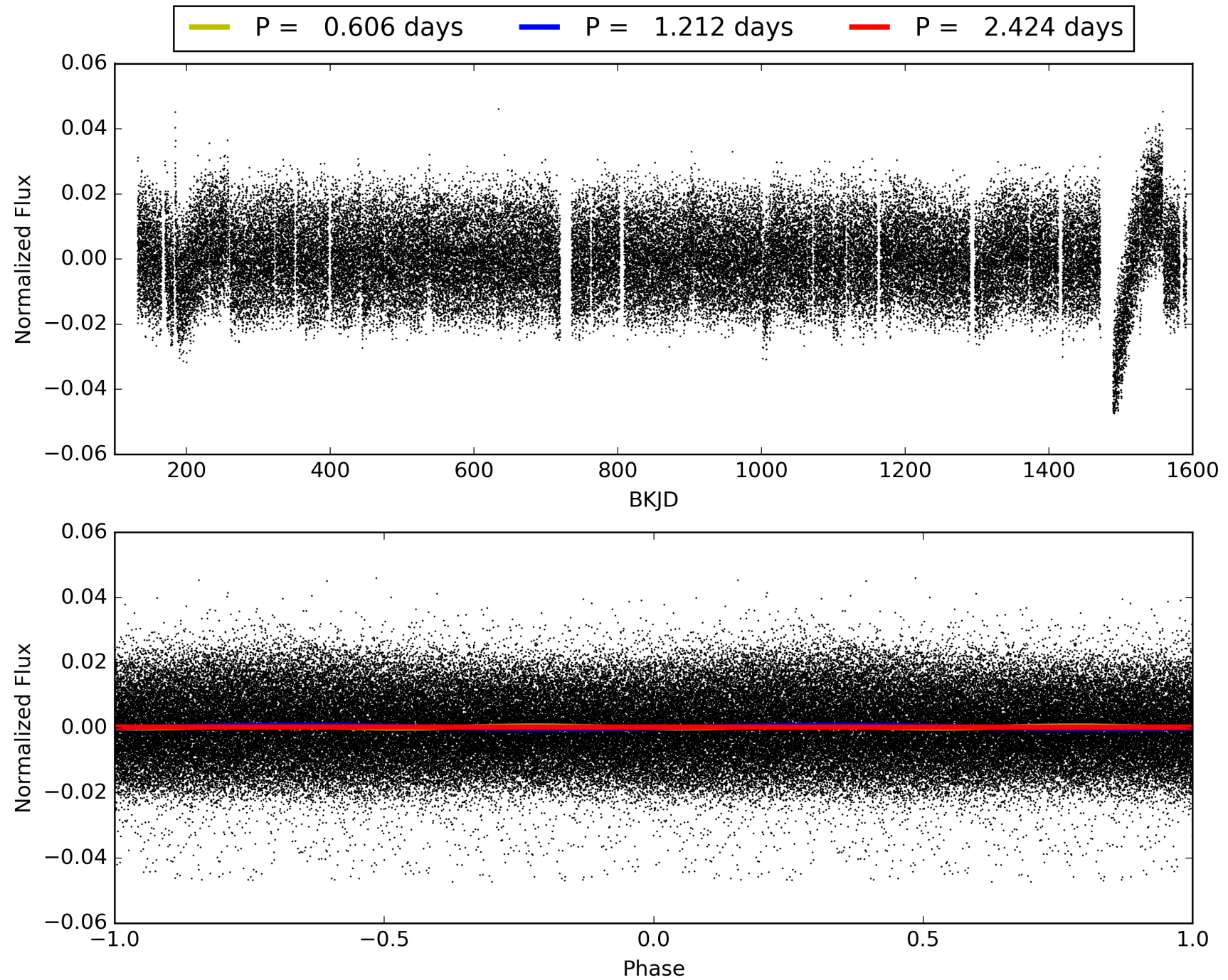
DV Diagnostic Results:

ShortPeriod-sig: 60.6% [0.85σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [994/995]
GhostDiagnostic-chr: 1.855
Centroid-sig: 0.0%
Centroid-so: 0.111 arcsec [5.52σ]
OotOffset-rm: 0.301 arcsec [0.64σ]
KicOffset-rm: 0.246 arcsec [0.57σ]
OotOffset-st: 4/4/2/5 [15]
KicOffset-st: 4/4/2/5 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 007733685-02, PDC Light Curves

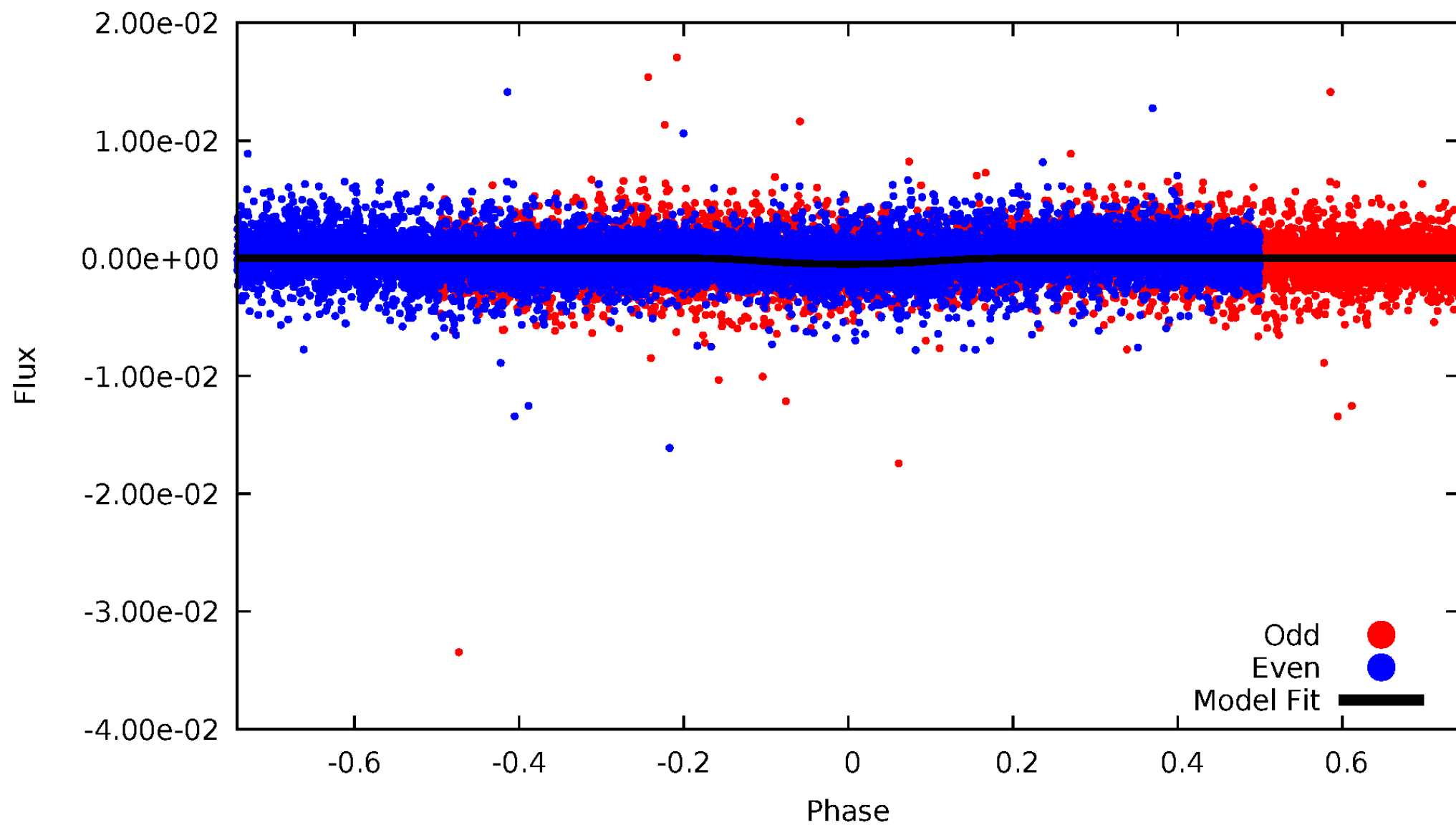


TCE 007733685-02



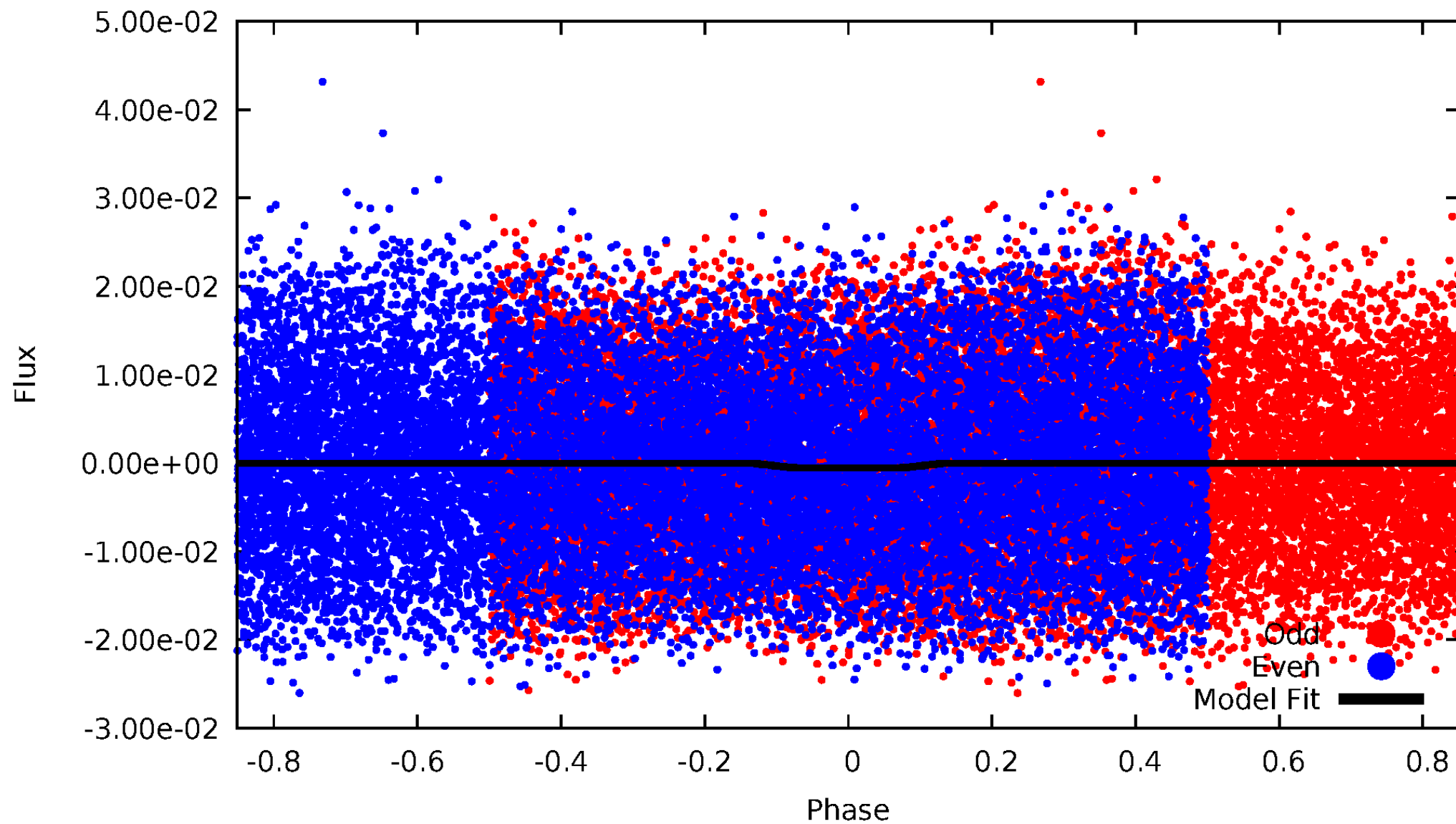
DV Odd/Even

TCE 007733685-02



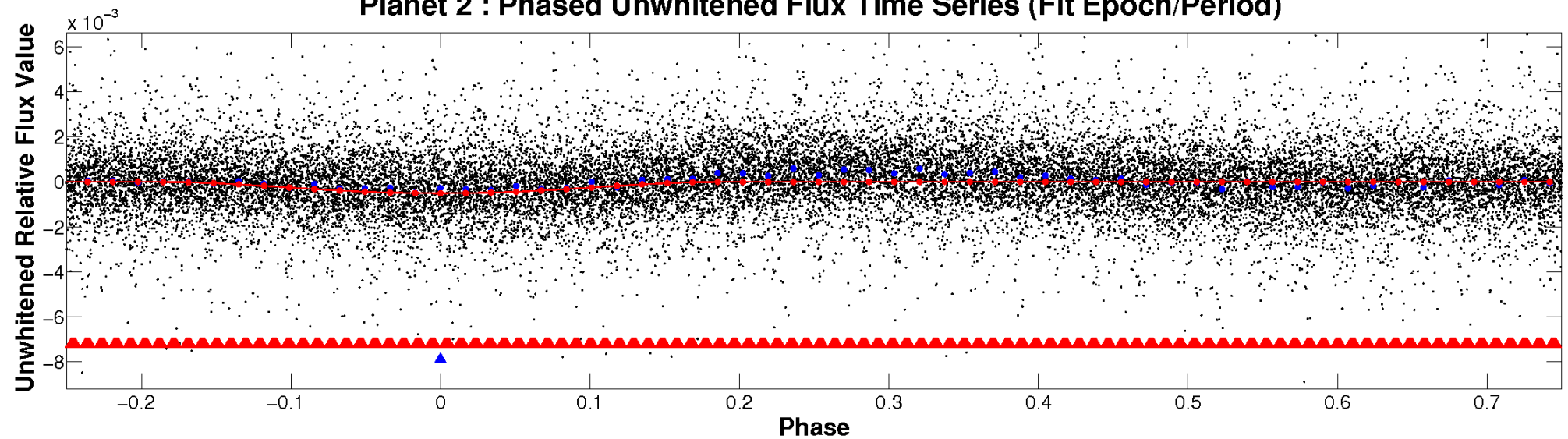
ALT Odd/Even

TCE 007733685-02

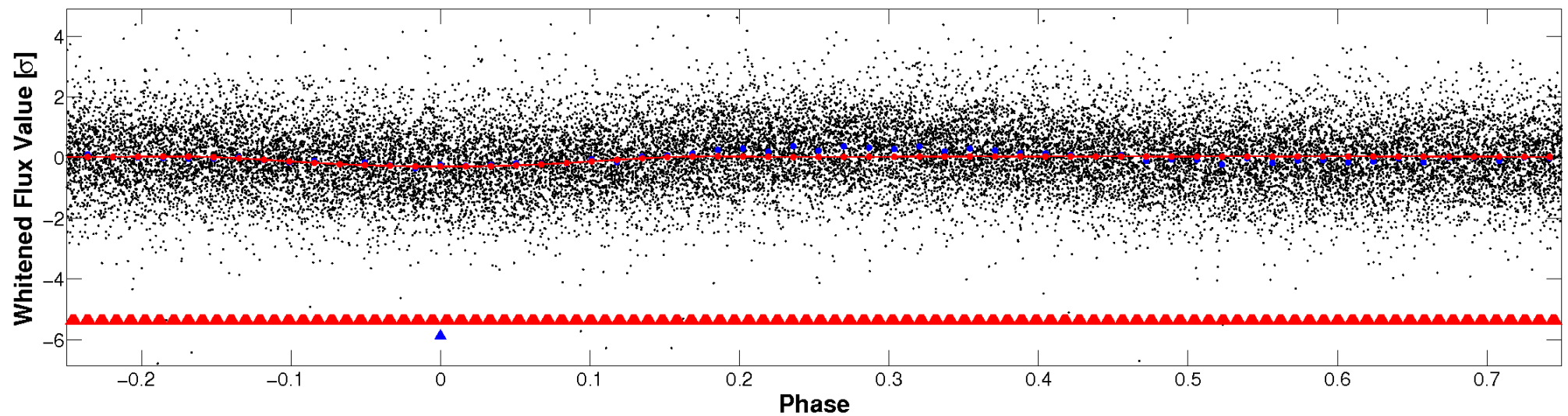


Non-Whitened Vs. Whitened Light Curve

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

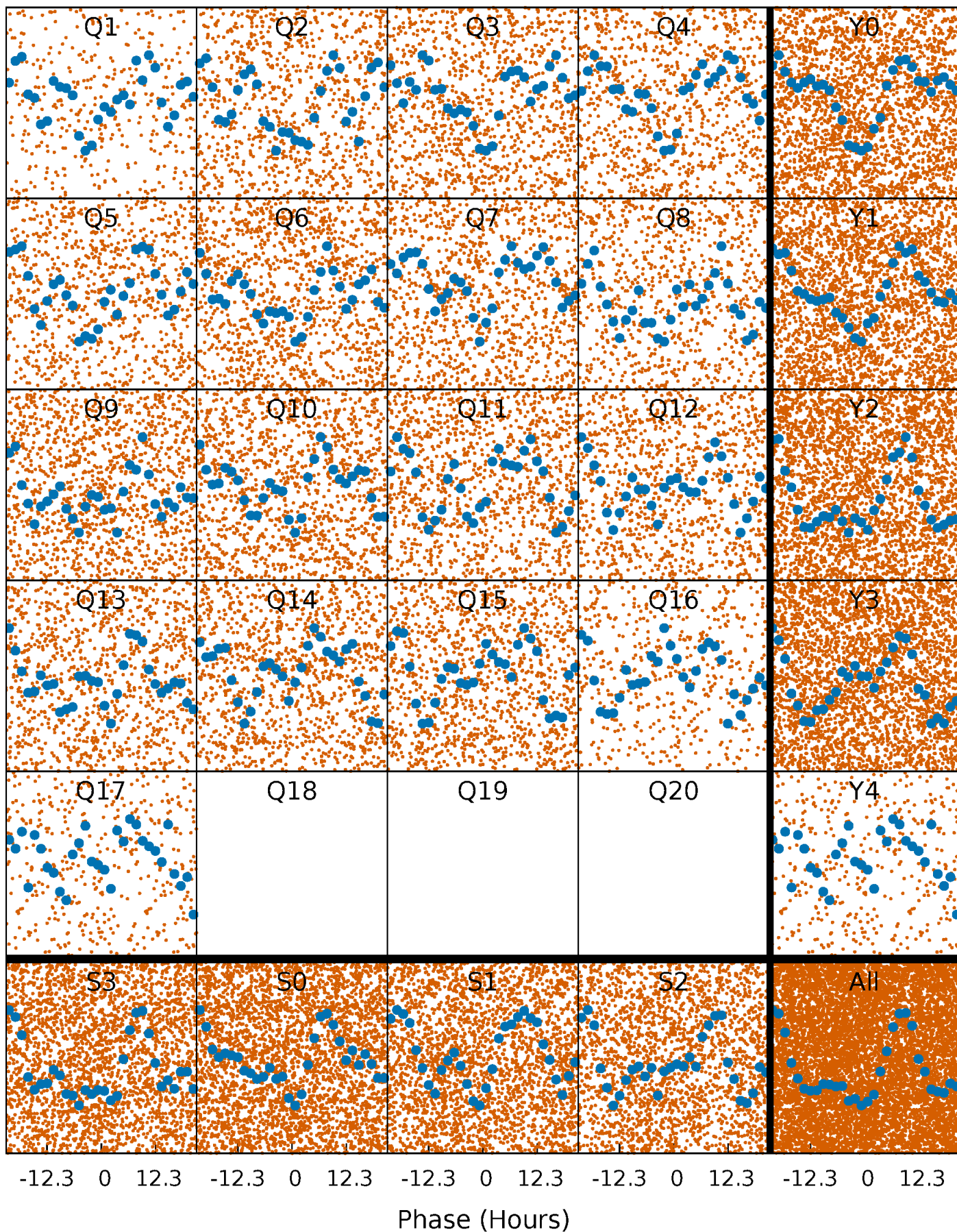


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



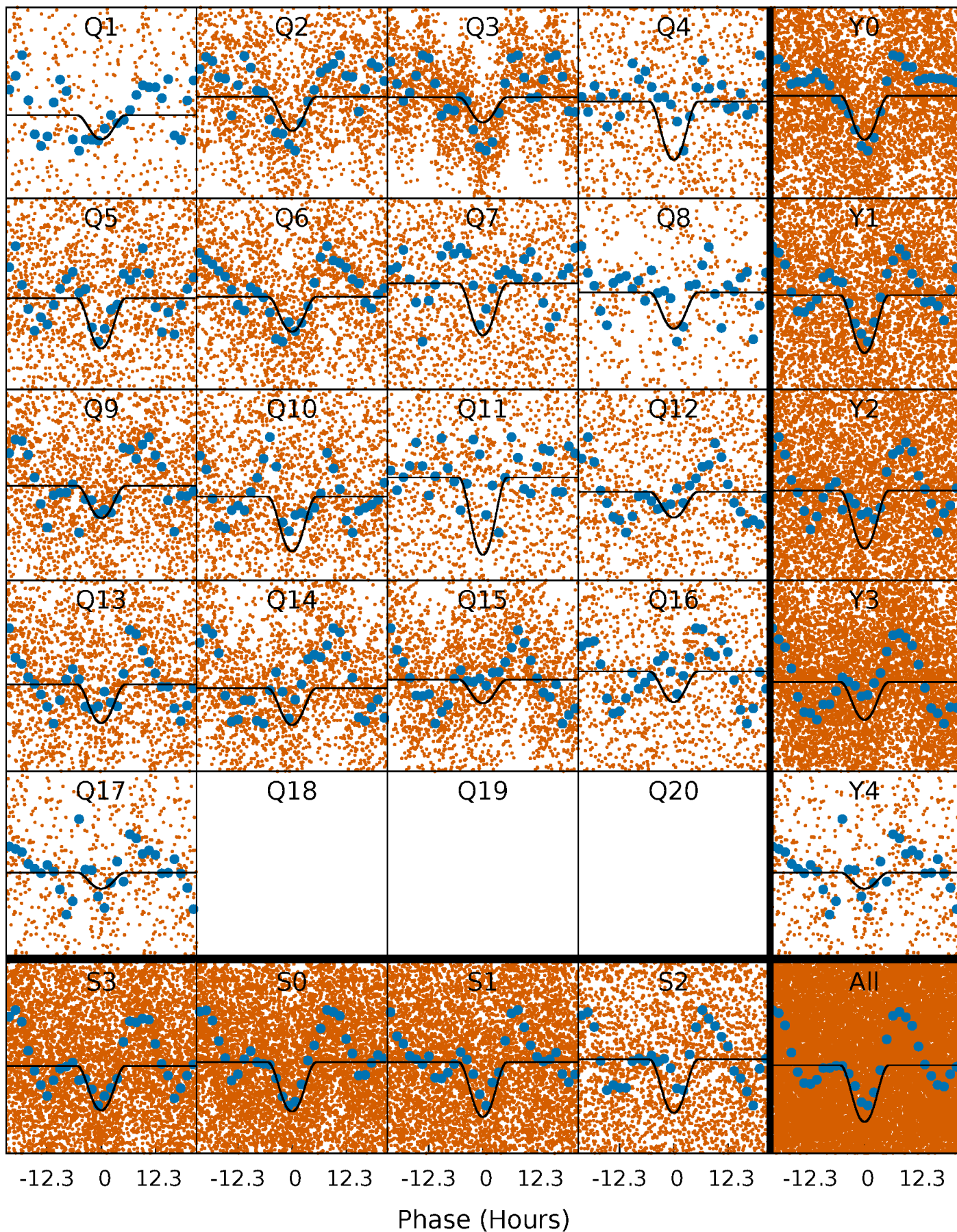
PDC Quarter-Phased Transit Curves

TCE 007733685-02 P= 1.211780 Days $T_0=132.615968$ (BKJD)



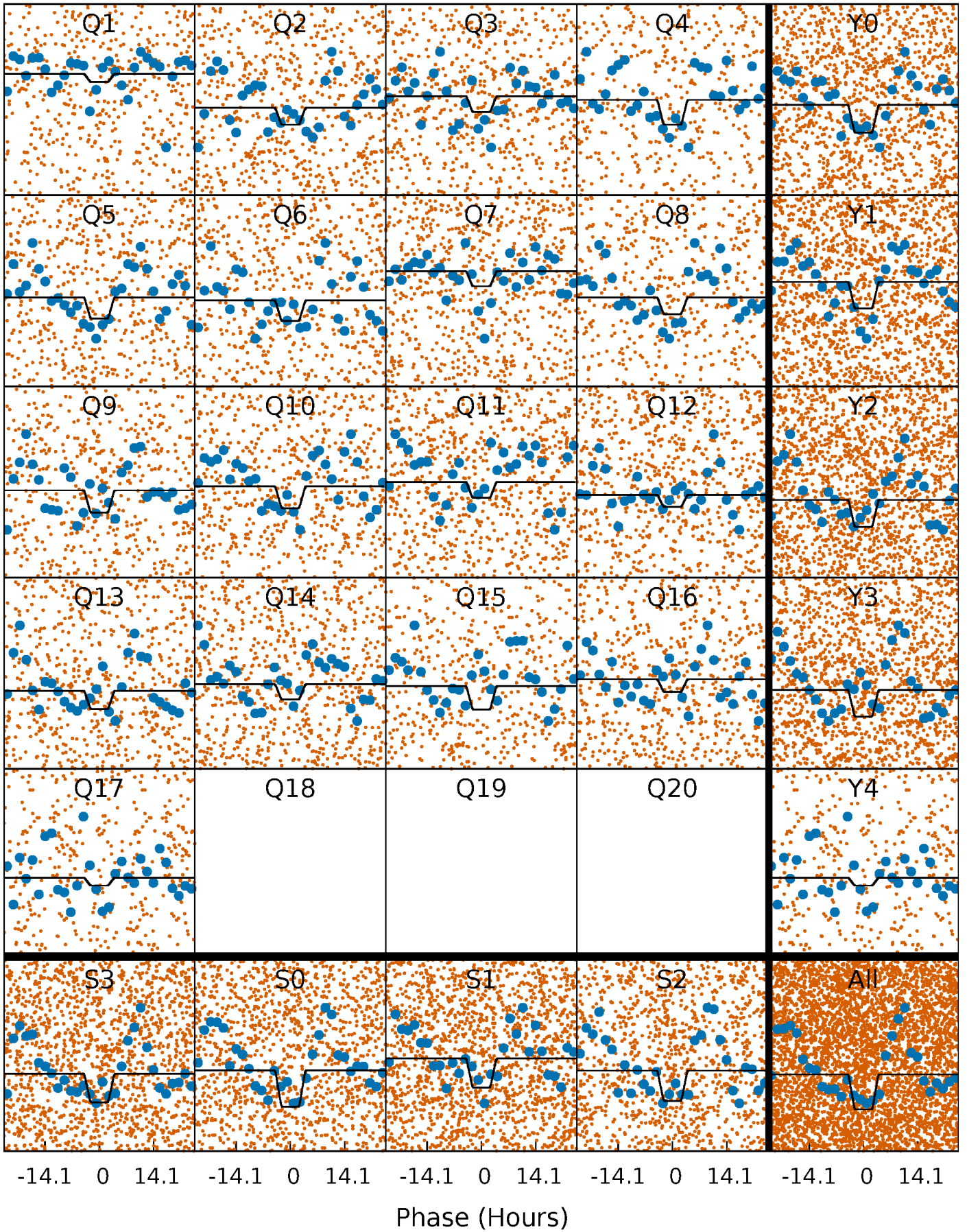
DV Quarter-Phased Transit Curves

TCE 007733685-02 P= 1.211780 Days $T_0=132.615968$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

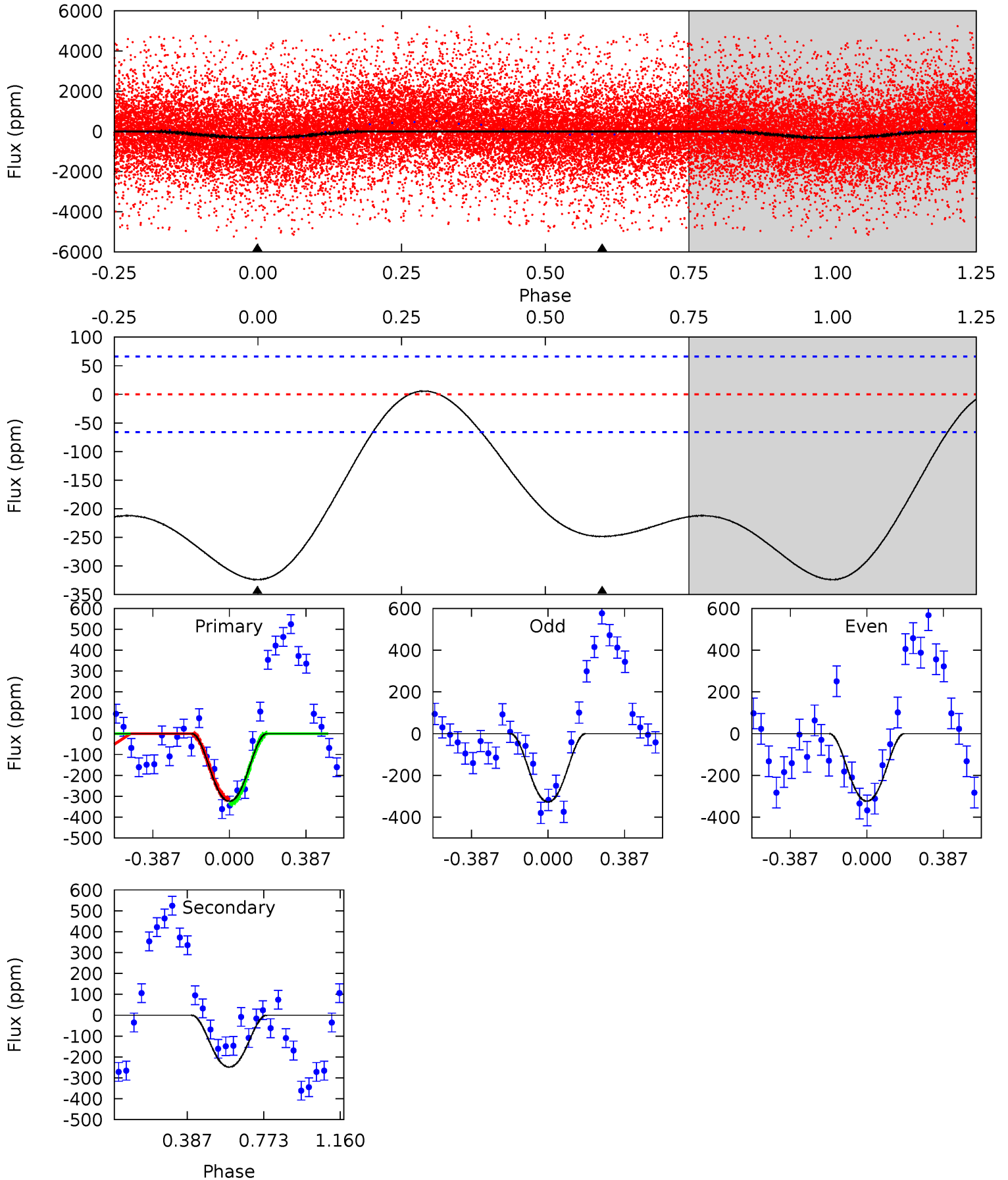
TCE 007733685-02 P= 1.211817 Days $T_0=132.542311$ (BKJD)



DV Model-Shift Uniqueness Test

007733685-02, P = 1.211780 Days, E = 131.404188 Days

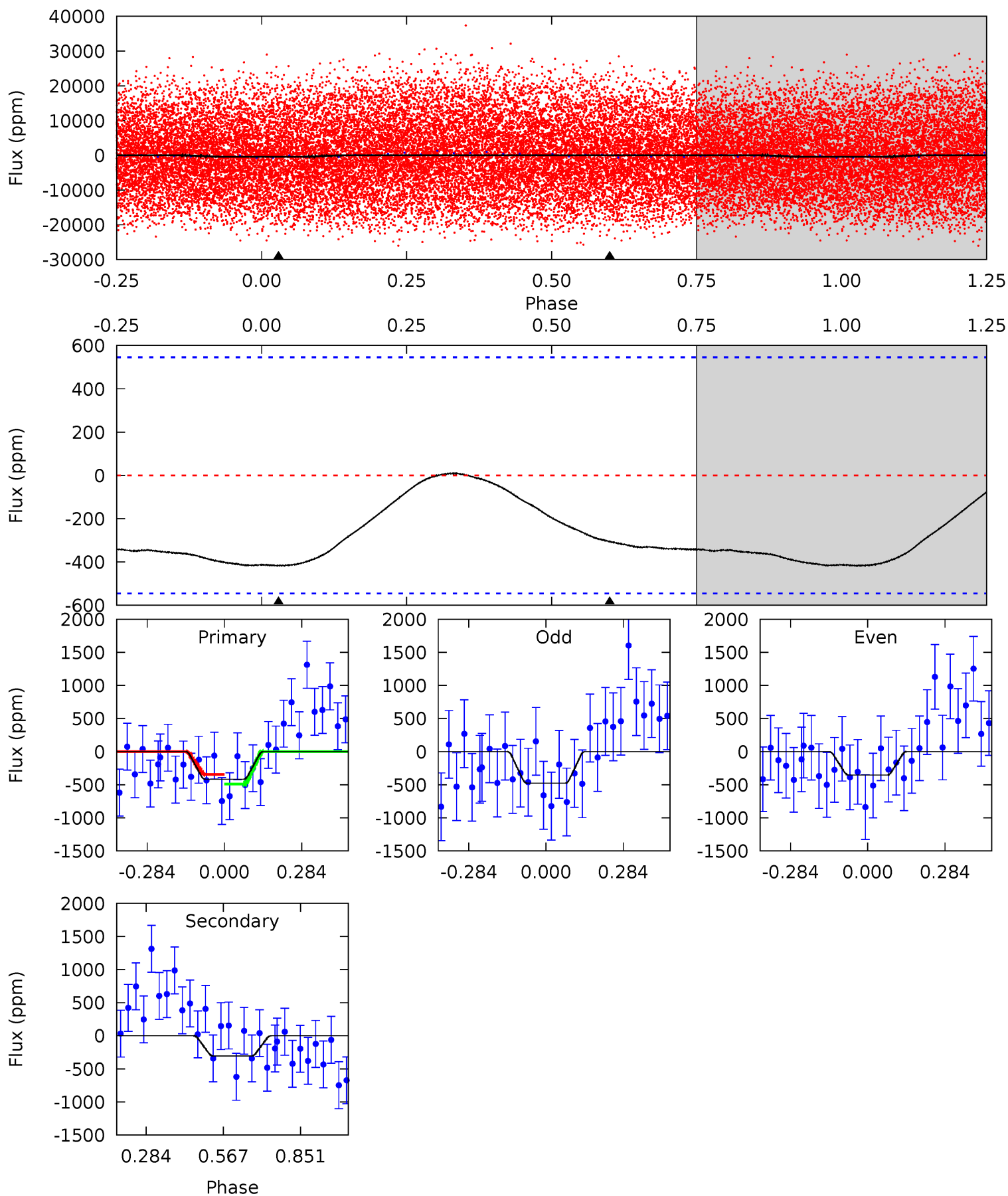
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	16.1	0	0	4.27	0.87	0.50	21.0	21.0	16.1	16.1	0.12	1.07	0.02	0.81



Alt Model-Shift Uniqueness Test

007733685-02, P = 1.211817 Days, E = 131.330494 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.32	2.43	0	0	4.34	1.07	0.12	3.32	3.32	2.43	2.43	0.49	0.55	0.02	0.64



Stellar Parameters For KIC 007733685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7098^{+197}_{-338}	$4.152^{+0.108}_{-0.201}$	$0.070^{+0.200}_{-0.350}$	$1.717^{+0.558}_{-0.300}$	$1.527^{+0.229}_{-0.229}$	$0.425^{+0.264}_{-0.220}$
	+3%/-5%	+3%/-5%	+286%/-500%	+32%/-17%	+15%/-15%	+62%/-52%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007733685-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-248 ± 15	$5.42^{+1.46}_{-1.27}$	3615^{+268}_{-235}	5187^{+628}_{-504}	$3.067^{+1.951}_{-1.175}$
Alt.	-305 ± 126	$4.36^{+1.33}_{-1.14}$	3589^{+273}_{-226}	5959^{+1341}_{-1030}	$5.388^{+6.170}_{-2.799}$

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 $A_{obs} \gg 1.0$

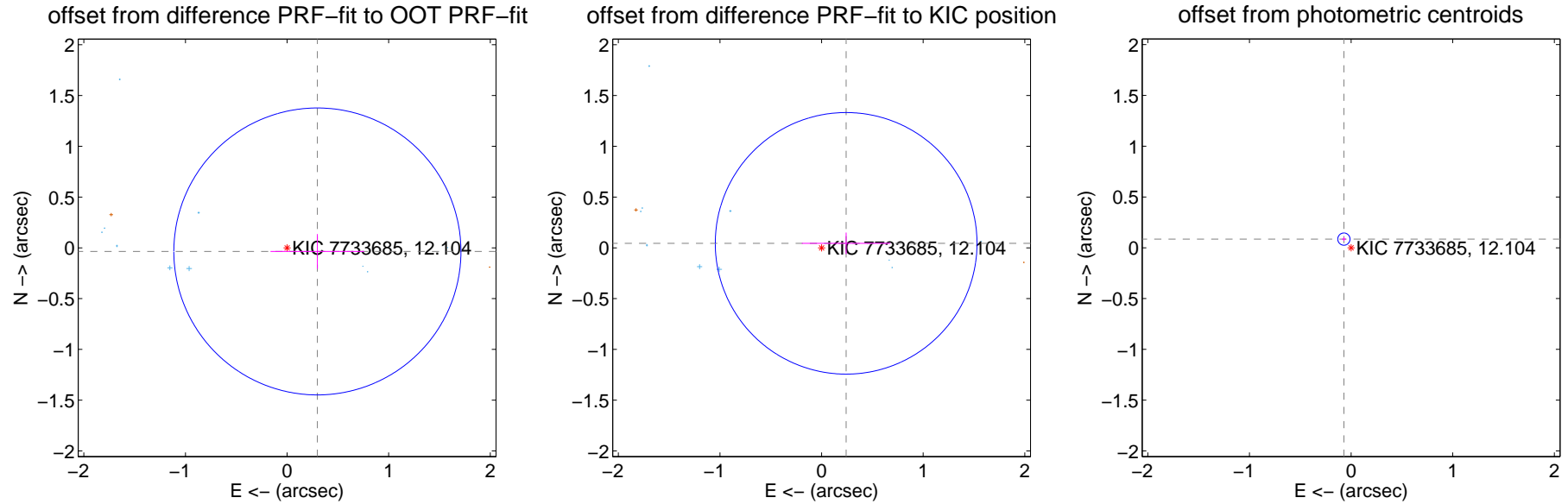
DV Centroid Data

Supplemental centroid analysis for 007733685-02. Kepler magnitude: 12.10. Transit SNR 17.25

There are 13 quarters with good PRF difference image offsets

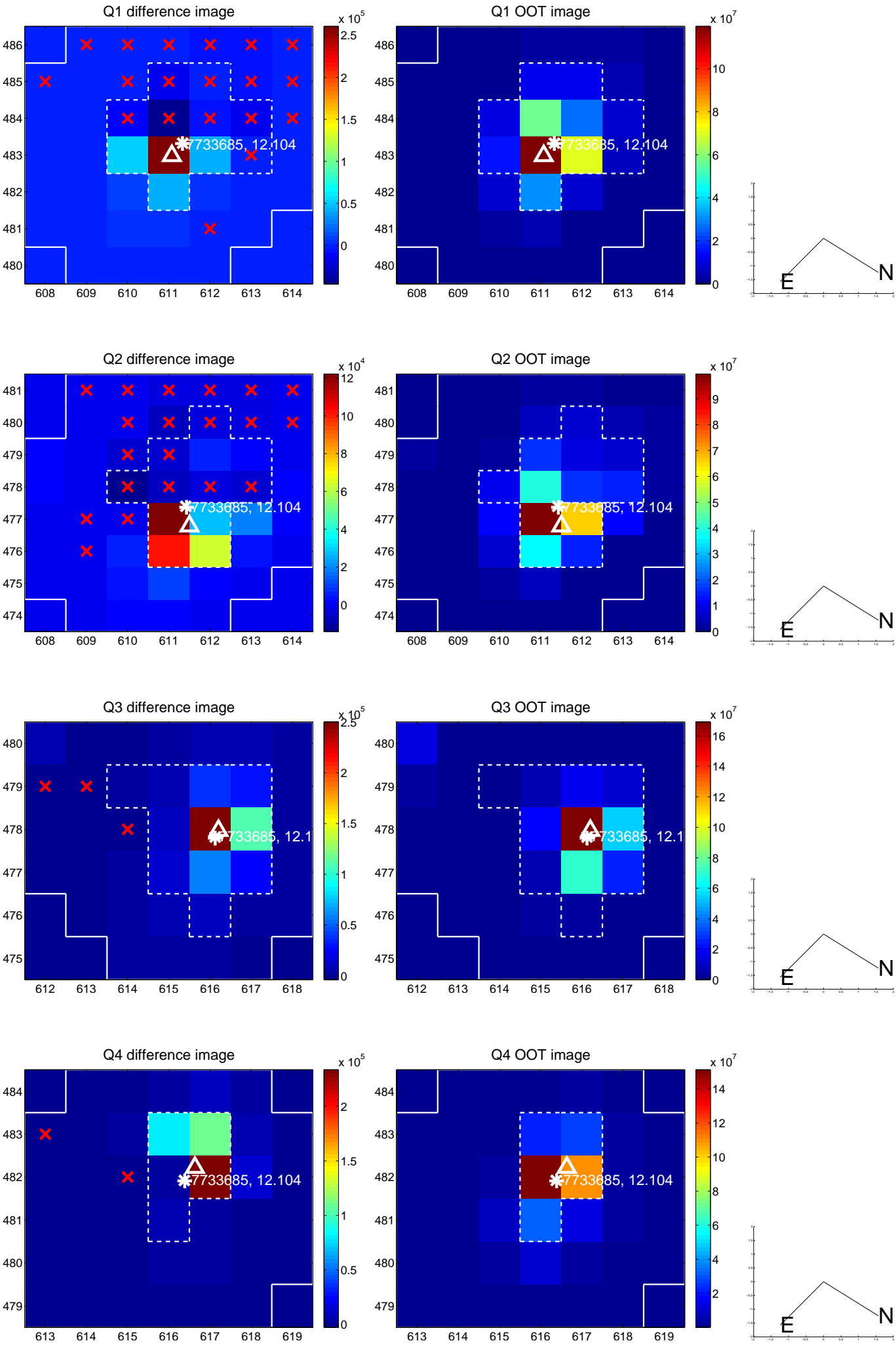
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.301 ± 0.471	0.64	-0.298 ± 0.461	-0.036 ± 0.171
PRF-fit source offset from KIC position	0.246 ± 0.429	0.57	-0.242 ± 0.436	0.044 ± 0.106
photometric centroid source offset	0.11 ± 0.02	5.52	0.07 ± 0.02	0.09 ± 0.02

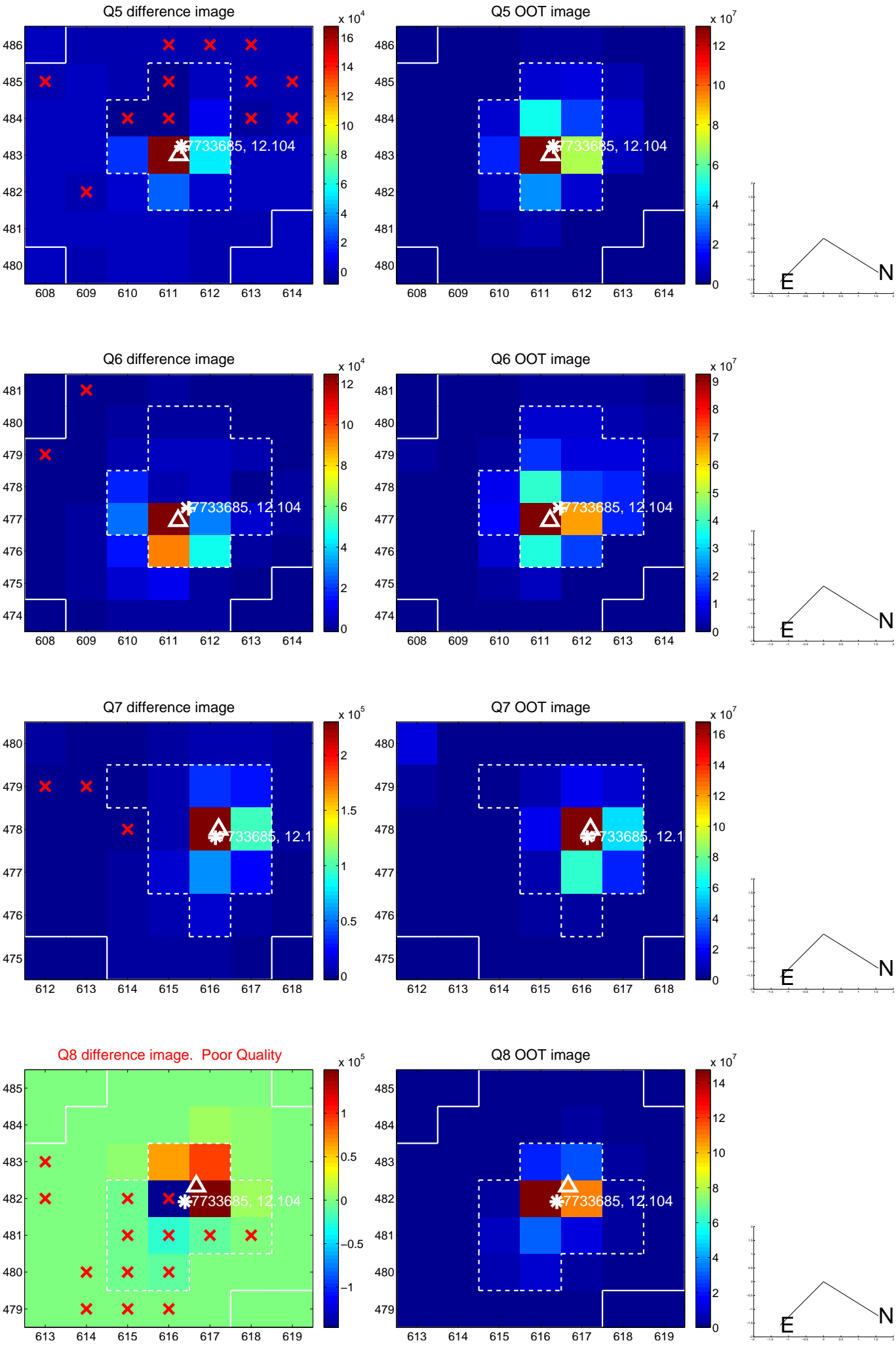


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

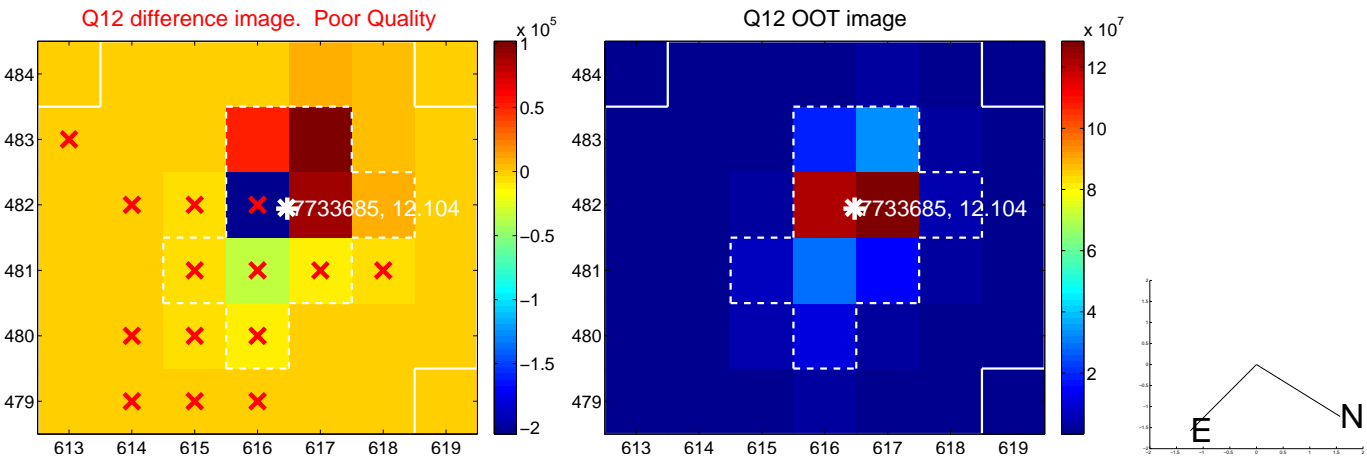
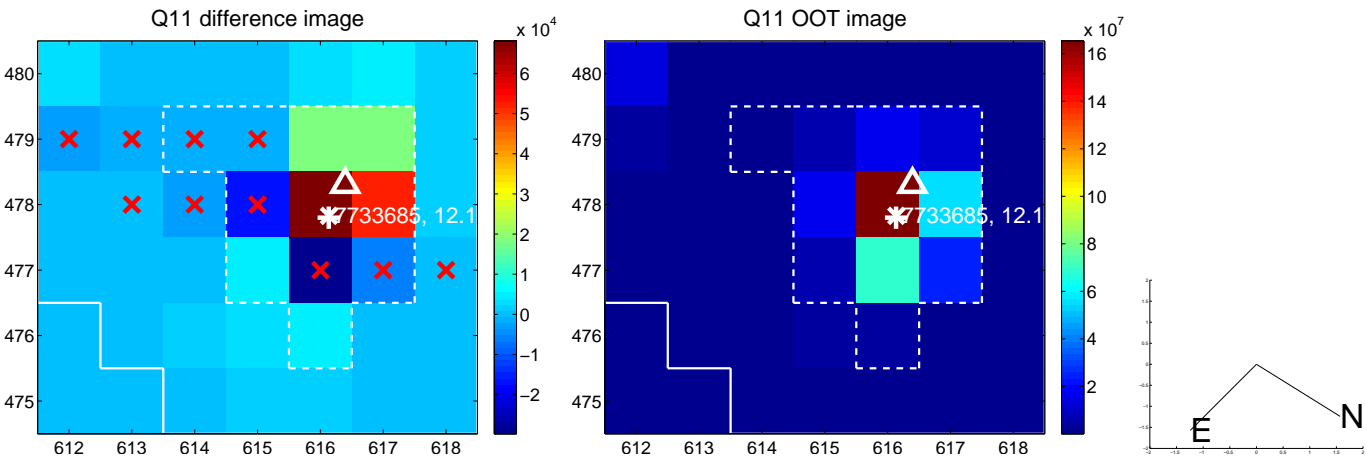
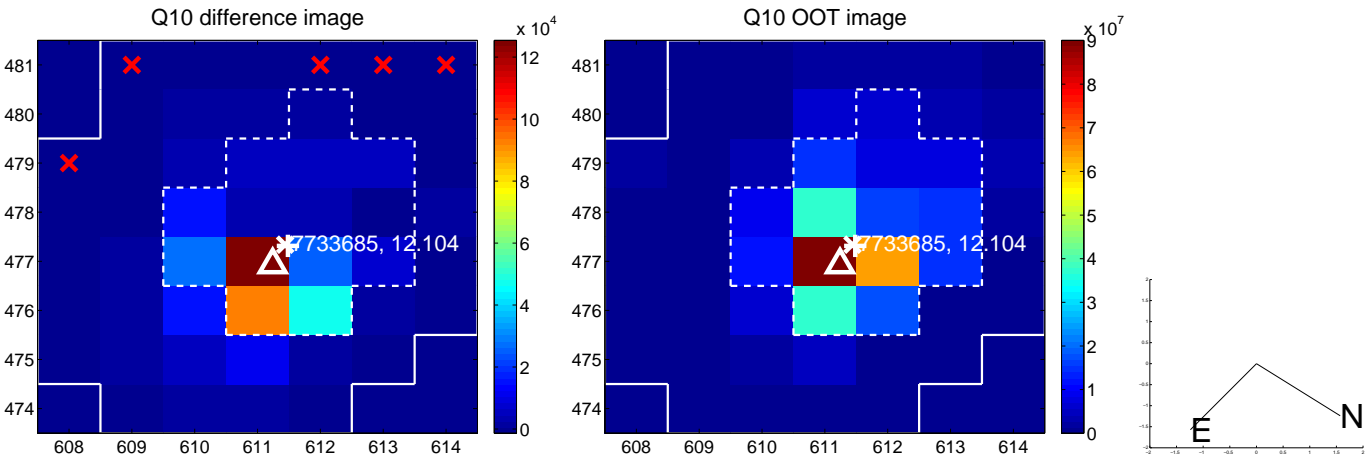
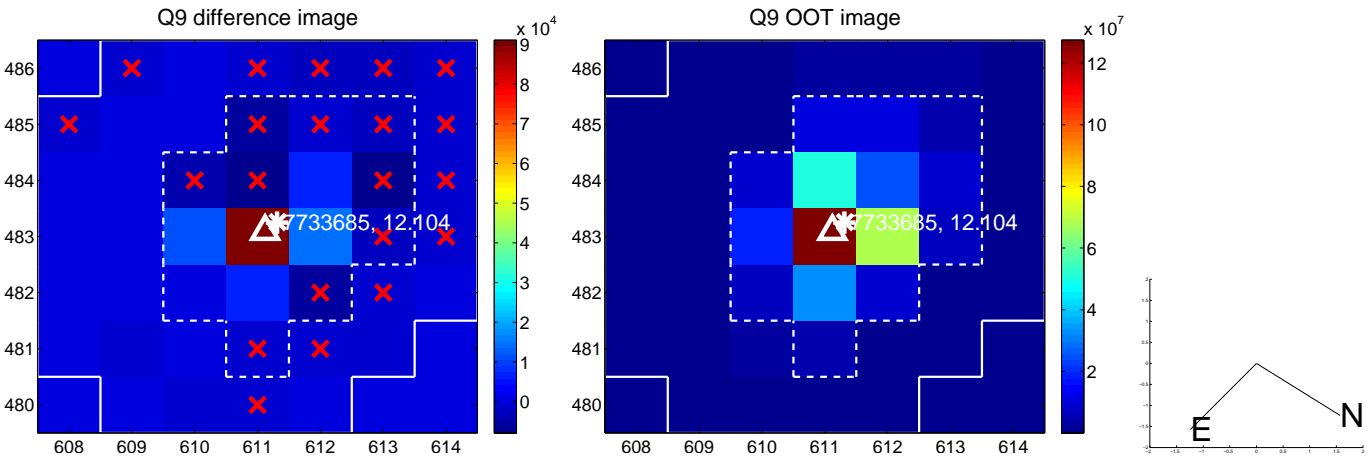
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



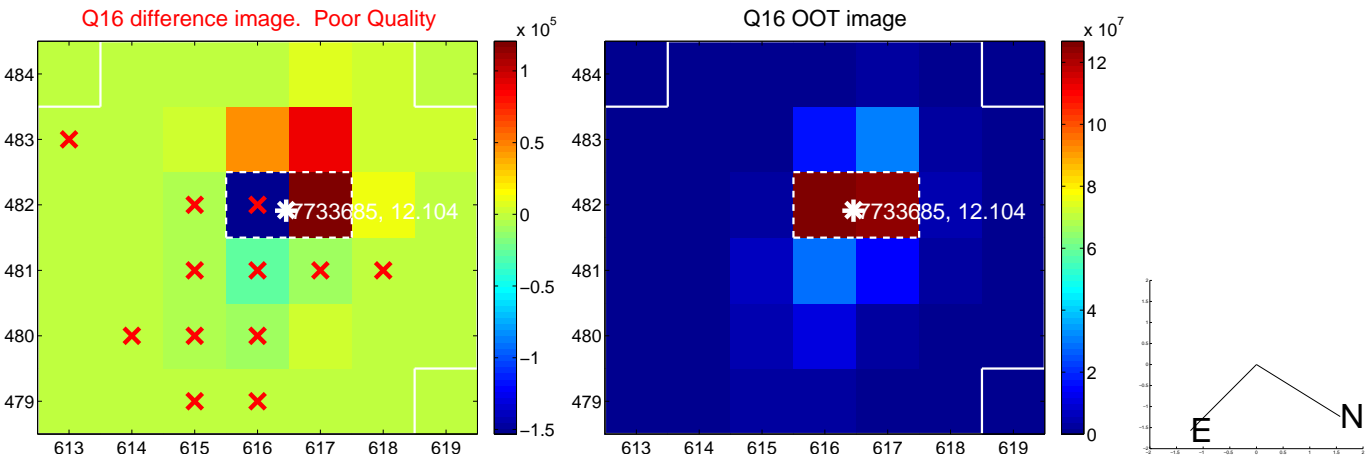
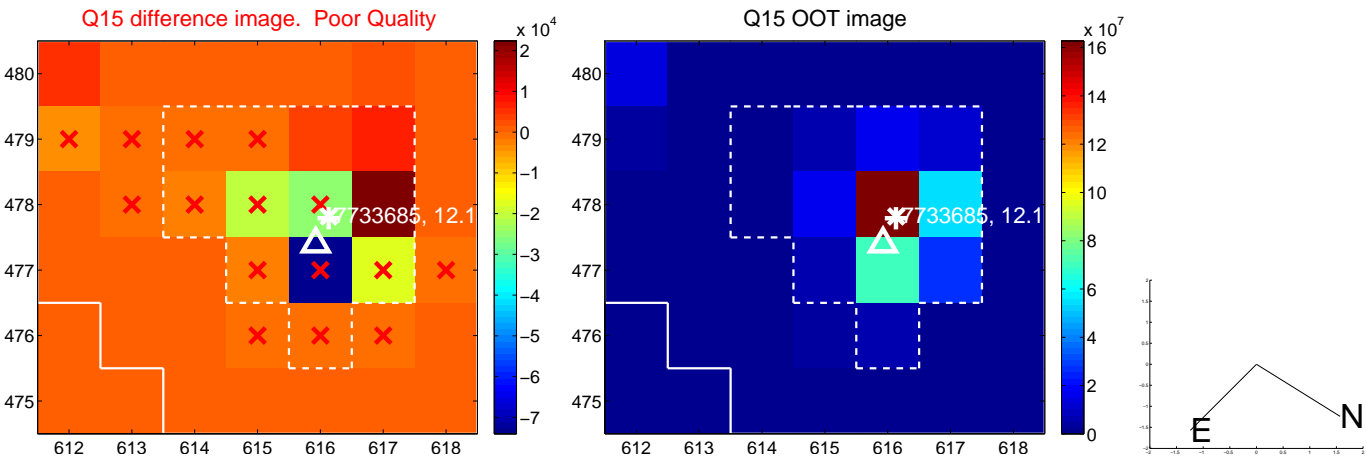
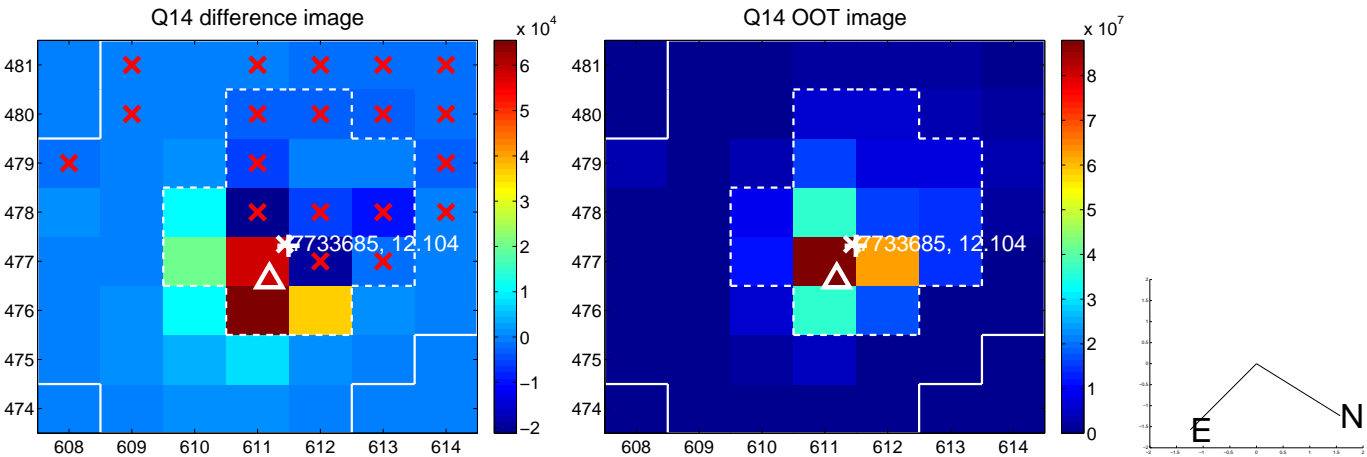
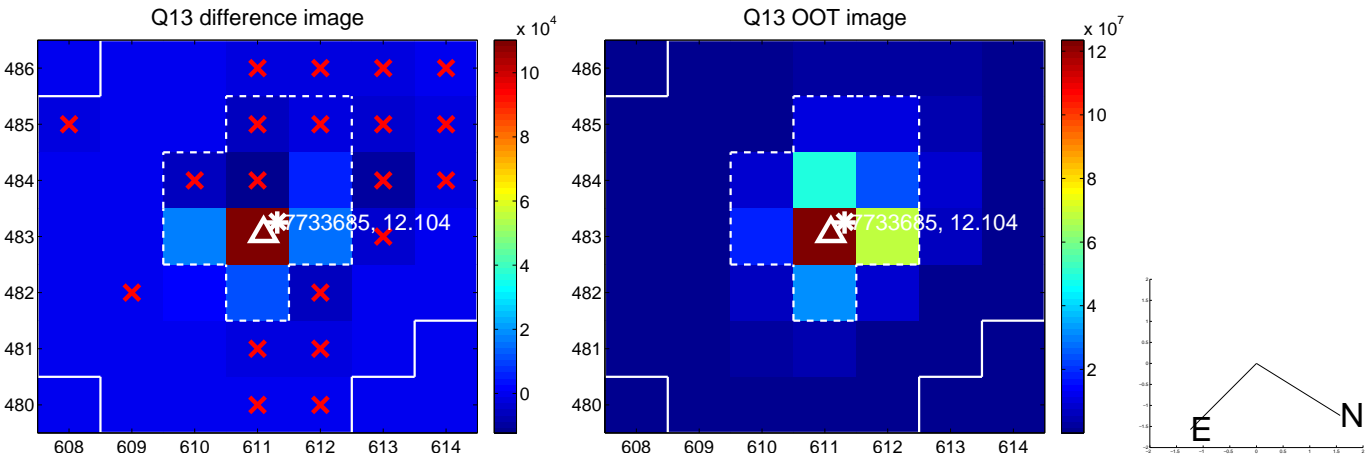
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



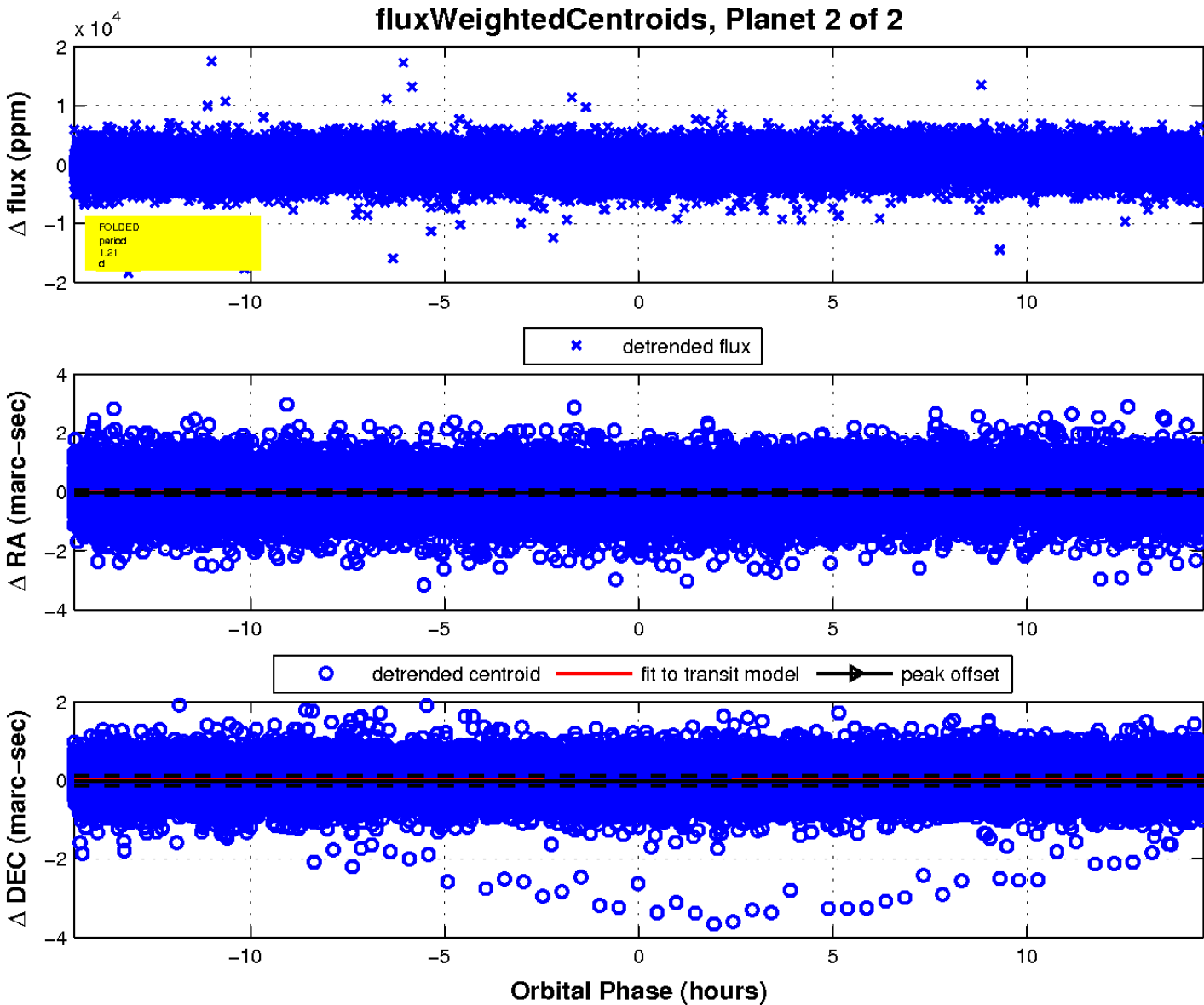
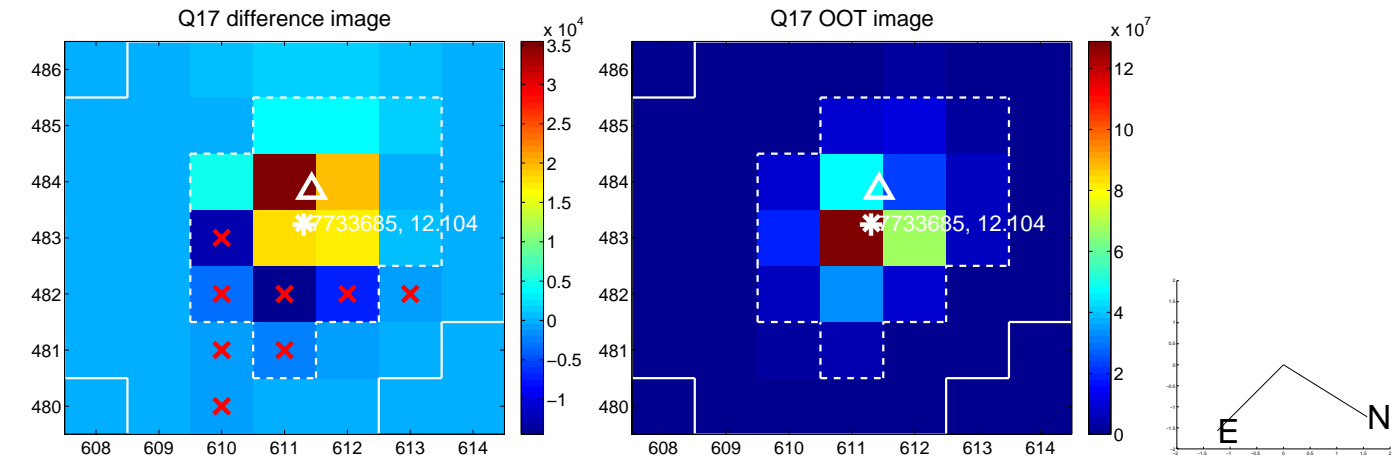
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

