

KIC 004446411

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})
004446411-01	OBS	6415.01	0.629281	132.014835	461.8	0.867	23.0	75.8	0.98	5628	2.54	4621.87
004446411-02	OBS	No	0.629293	131.795369	483.3	1.500	9.2	-1.0	0.98	5628	2.13	4621.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004446411-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—CENT_KIC_POS
004446411-02	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS—HALO_GHOST

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

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

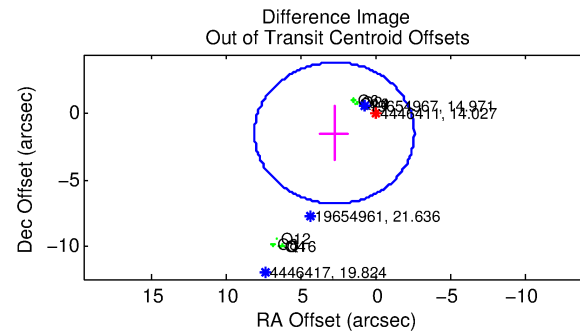
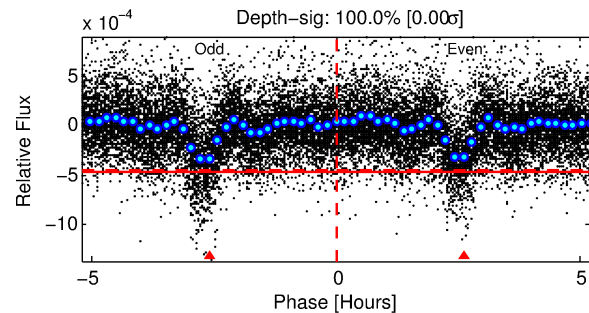
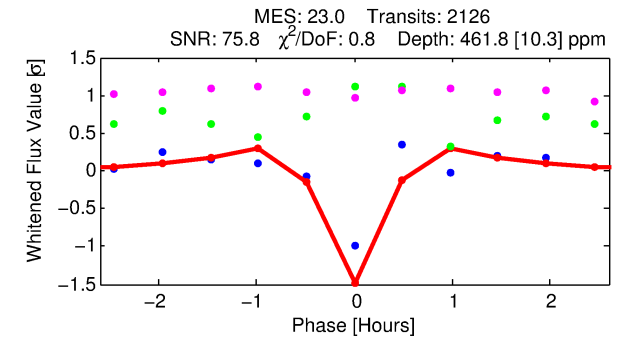
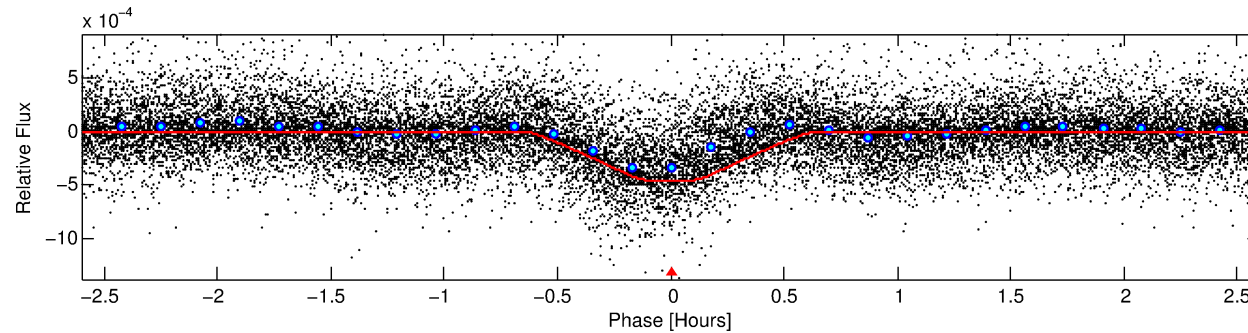
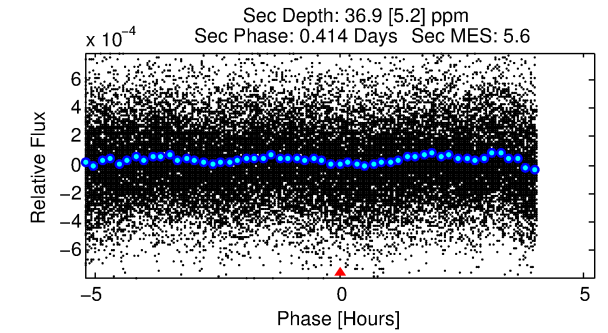
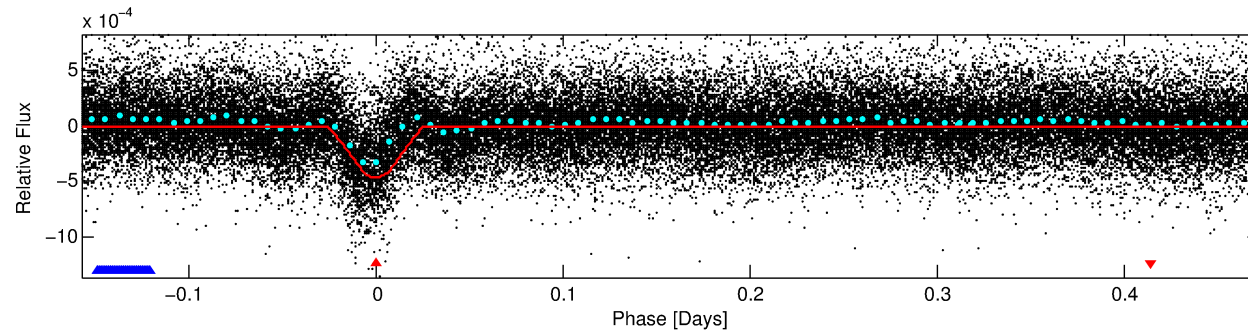
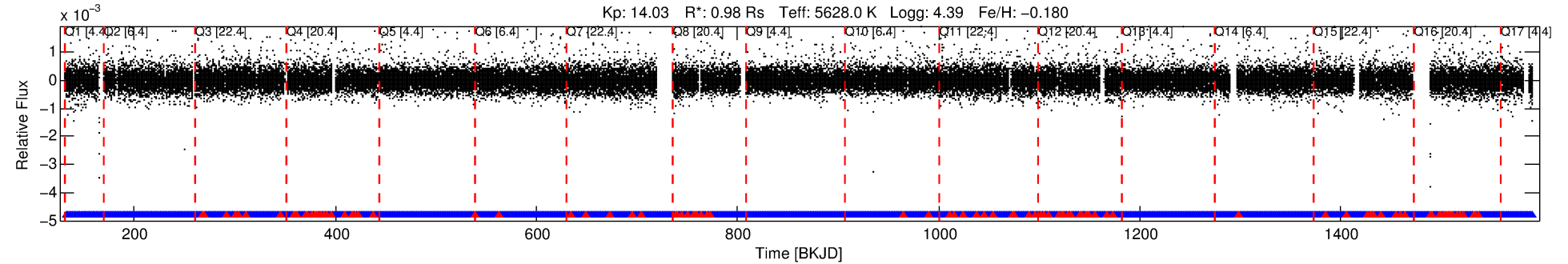
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004446411-01

No Significant Match Found

DV One-Page Summary

KIC: 4446411 Candidate: 1 of 2 Period: 0.629 d
KOI: K06415.01 Corr: 0.852



DV Fit Results:

Period = 0.62928 [0.00000] d
Epoch = 132.0148 [0.0002] BKJD
Rp/R* = 0.0238 [0.0018]
a/R* = 2.87 [0.87]
b = 0.90 [0.07]
Seff = 4621.87 [1740.03]
Teq = 2102 [198] K
Rp = 2.54 [0.73] Re
a = 0.0136 [0.0032] AU
Ag = 0.58 [0.23] [-1.77σ]
Teffp = 2843 [187] K [2.72σ]

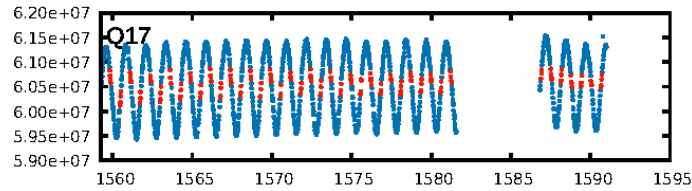
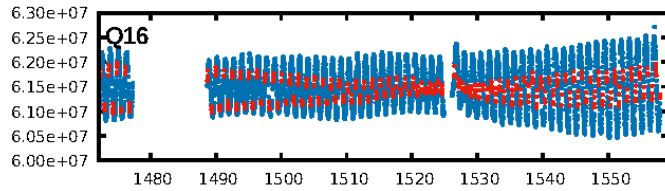
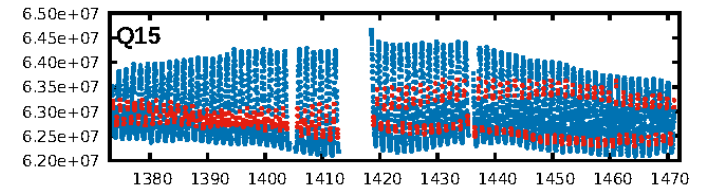
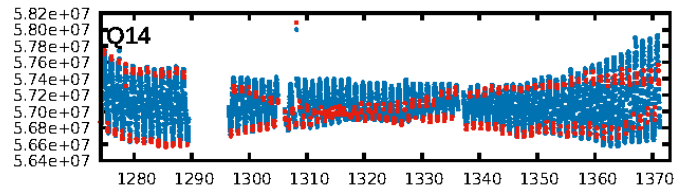
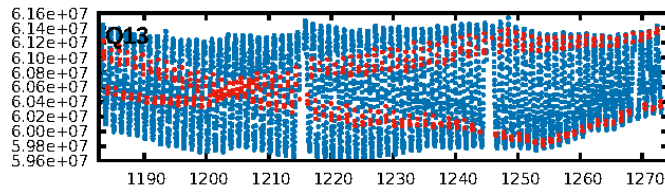
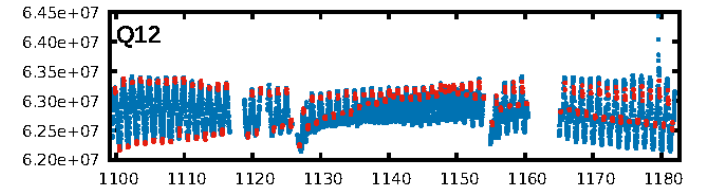
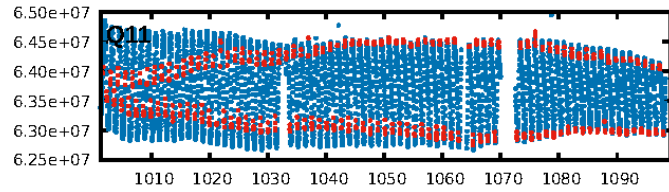
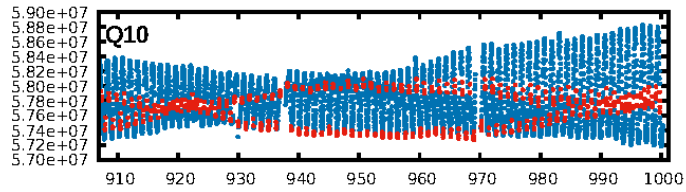
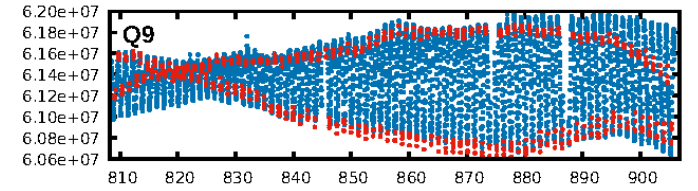
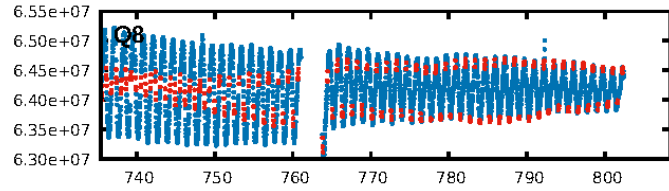
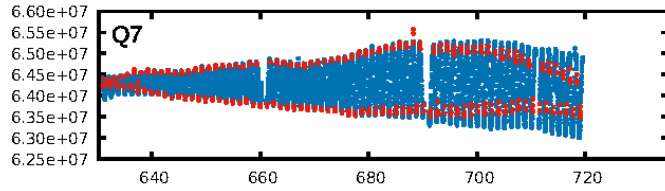
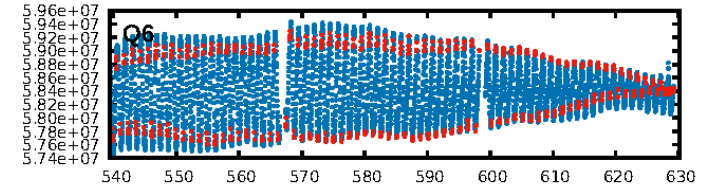
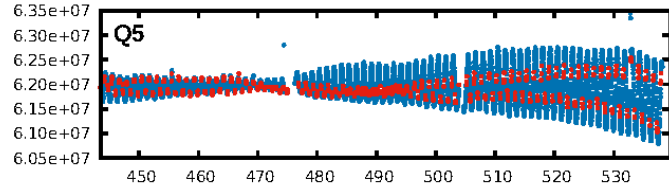
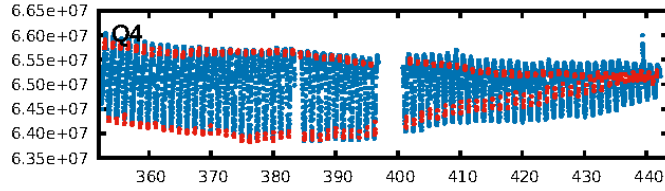
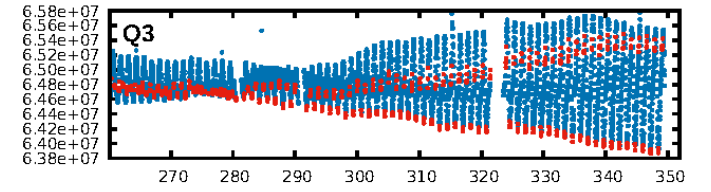
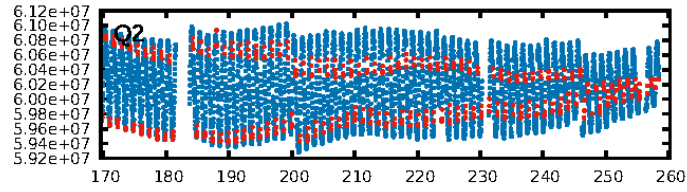
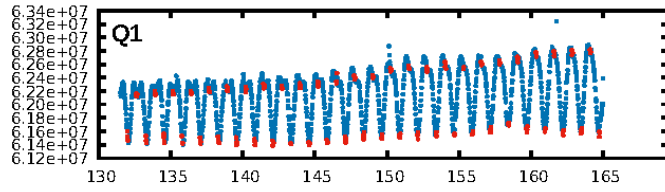
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.12e-117
RollingBand-fgt: 0.95 [1926/2030]
GhostDiagnostic-chr: 2.118
Centroid-sig: 0.0%
Centroid-so: 0.929 arcsec [5.49σ]
OotOffset-rm: 3.077 arcsec [1.73σ]
KicOffset-rm: 0.993 arcsec [7.28σ]
OotOffset-st: 4/0/4/0 [8]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 0.00 [0/17]

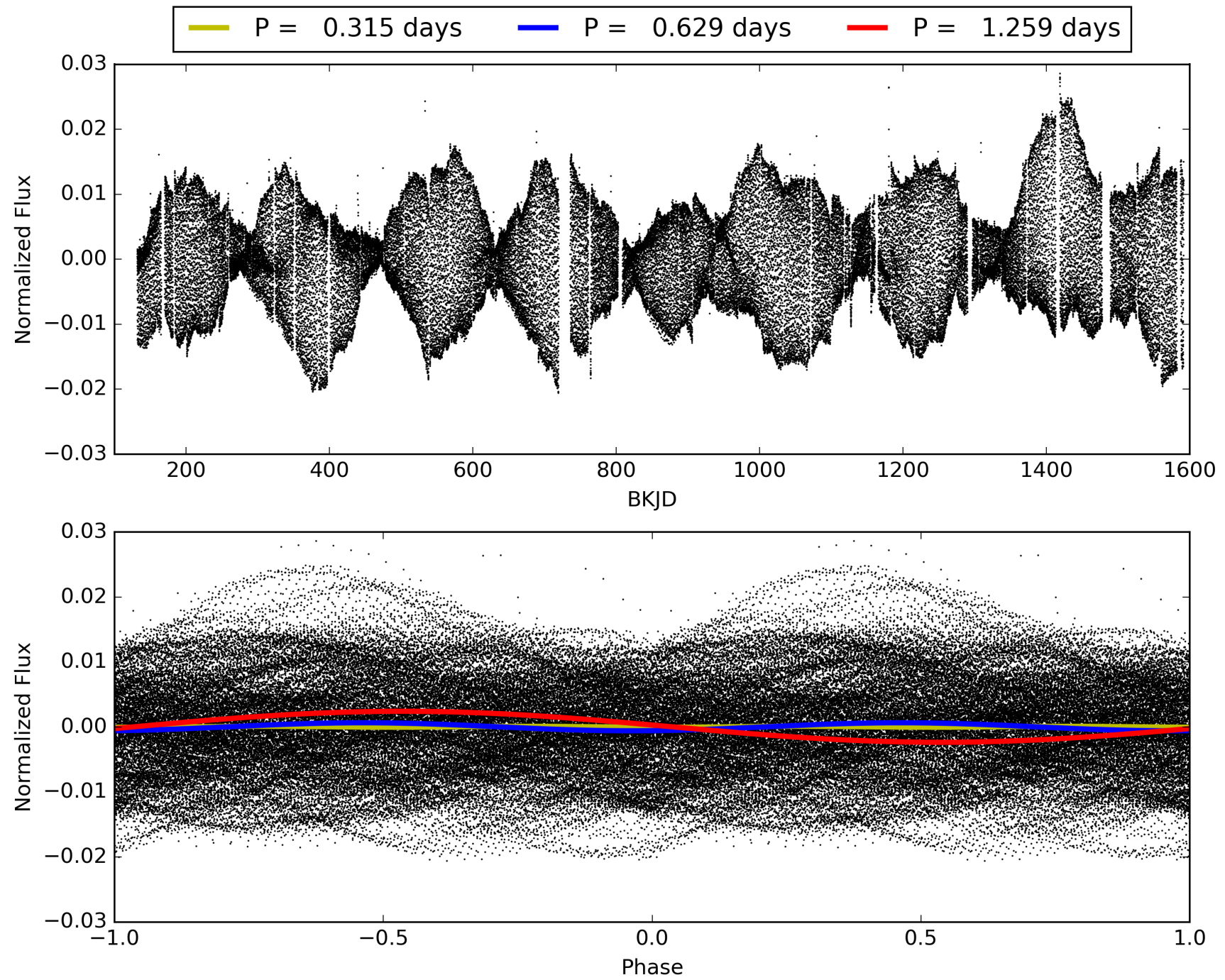
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:23:49 Z

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

TCE 004446411-01, PDC Light Curves

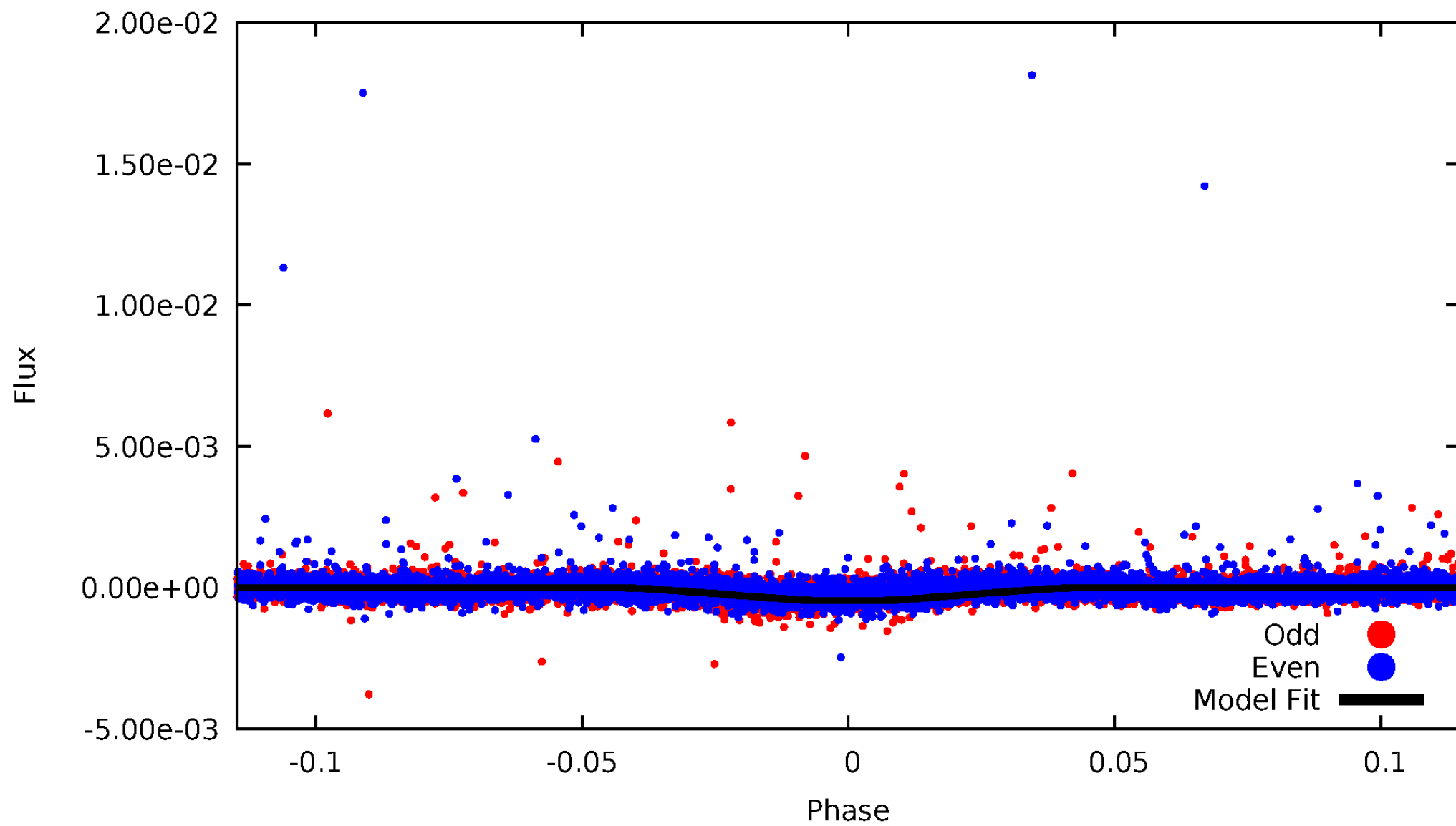


TCE 004446411-01



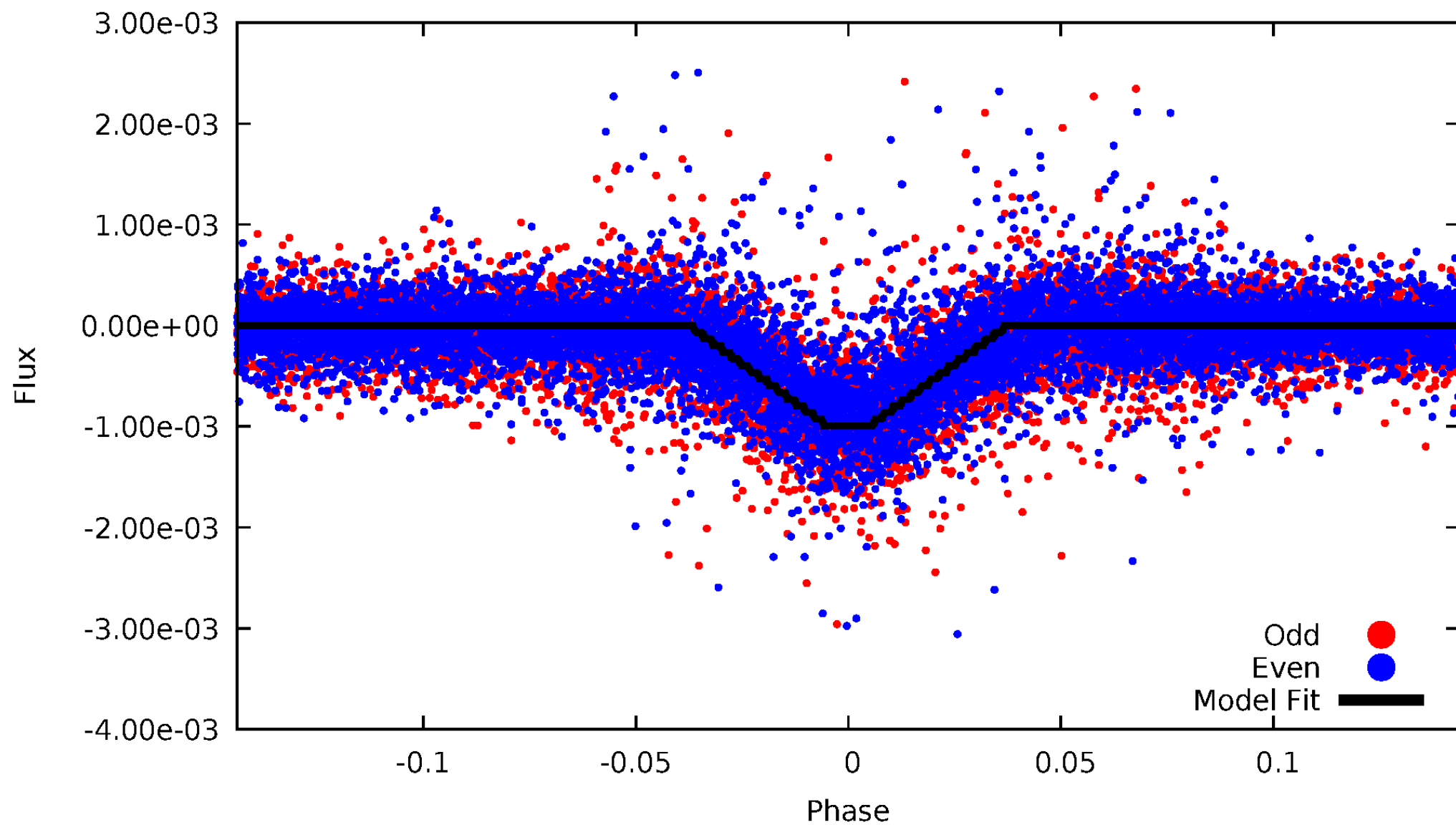
DV Odd/Even

TCE 004446411-01



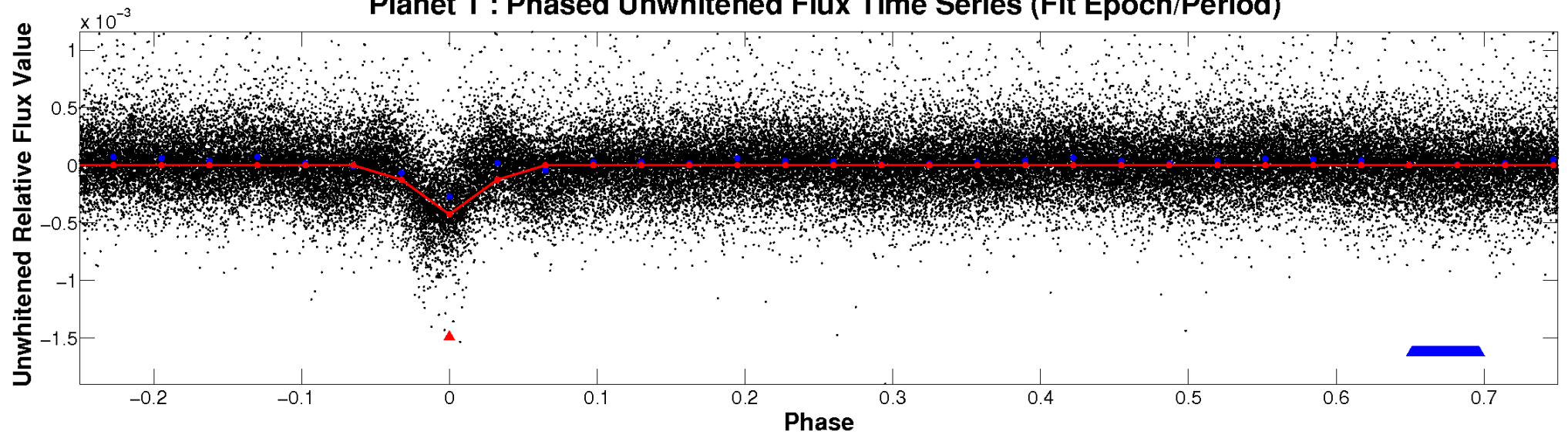
ALT Odd/Even

TCE 004446411-01

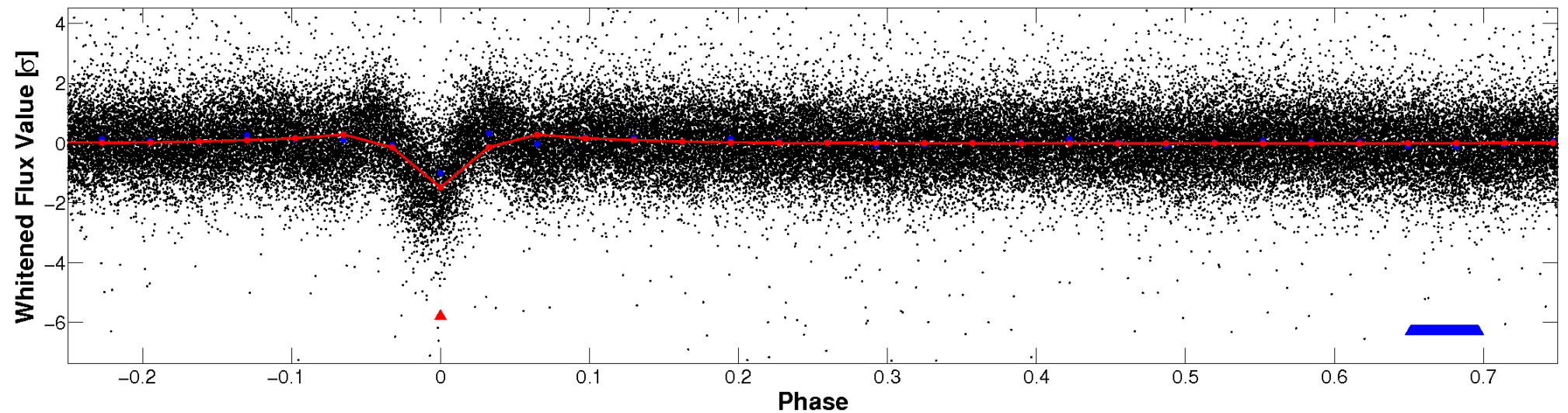


Non-Whitened Vs. Whitened Light Curve

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

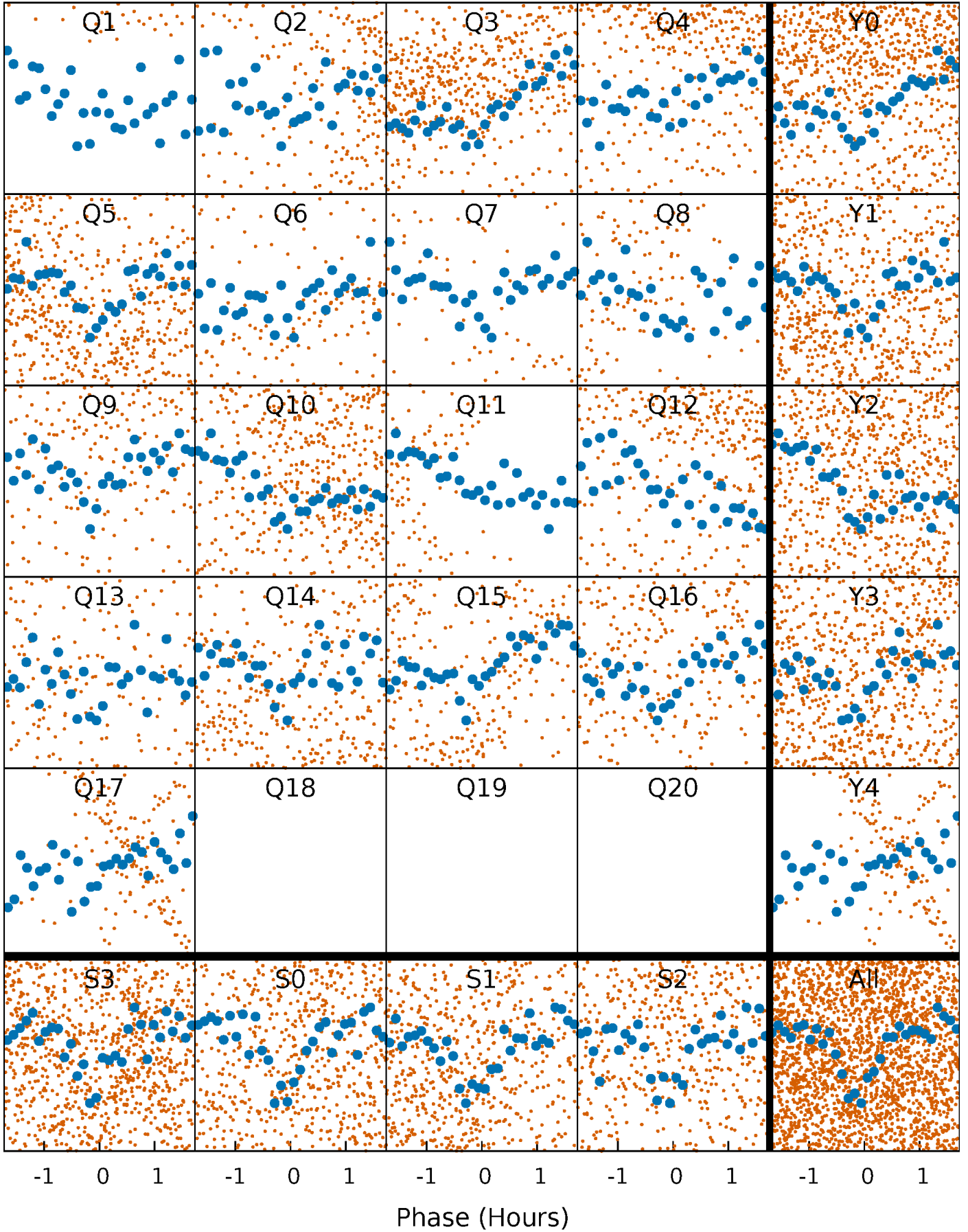


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



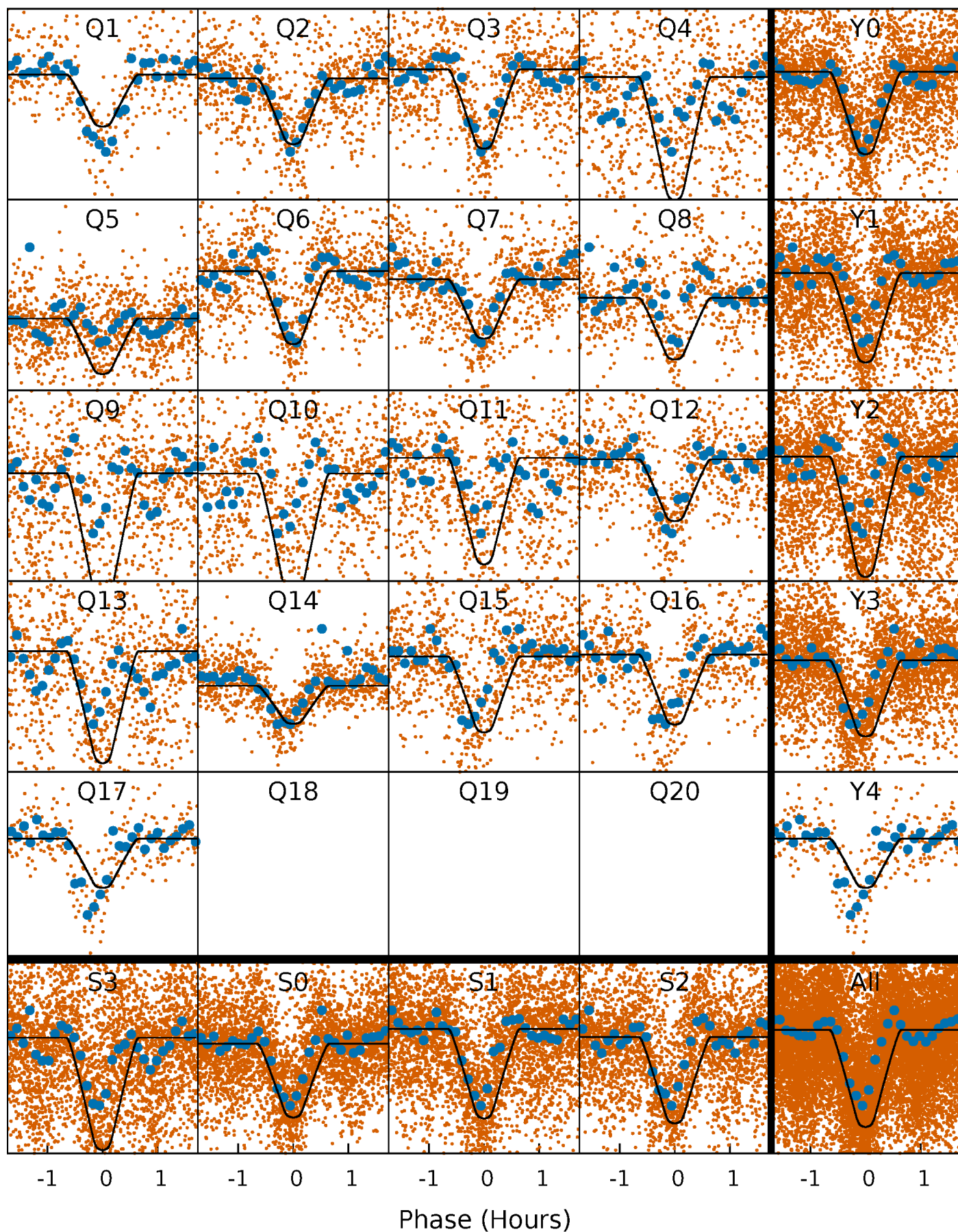
PDC Quarter-Phased Transit Curves

TCE 004446411-01 P= 0.629281 Days $T_0=132.014835$ (BKJD)



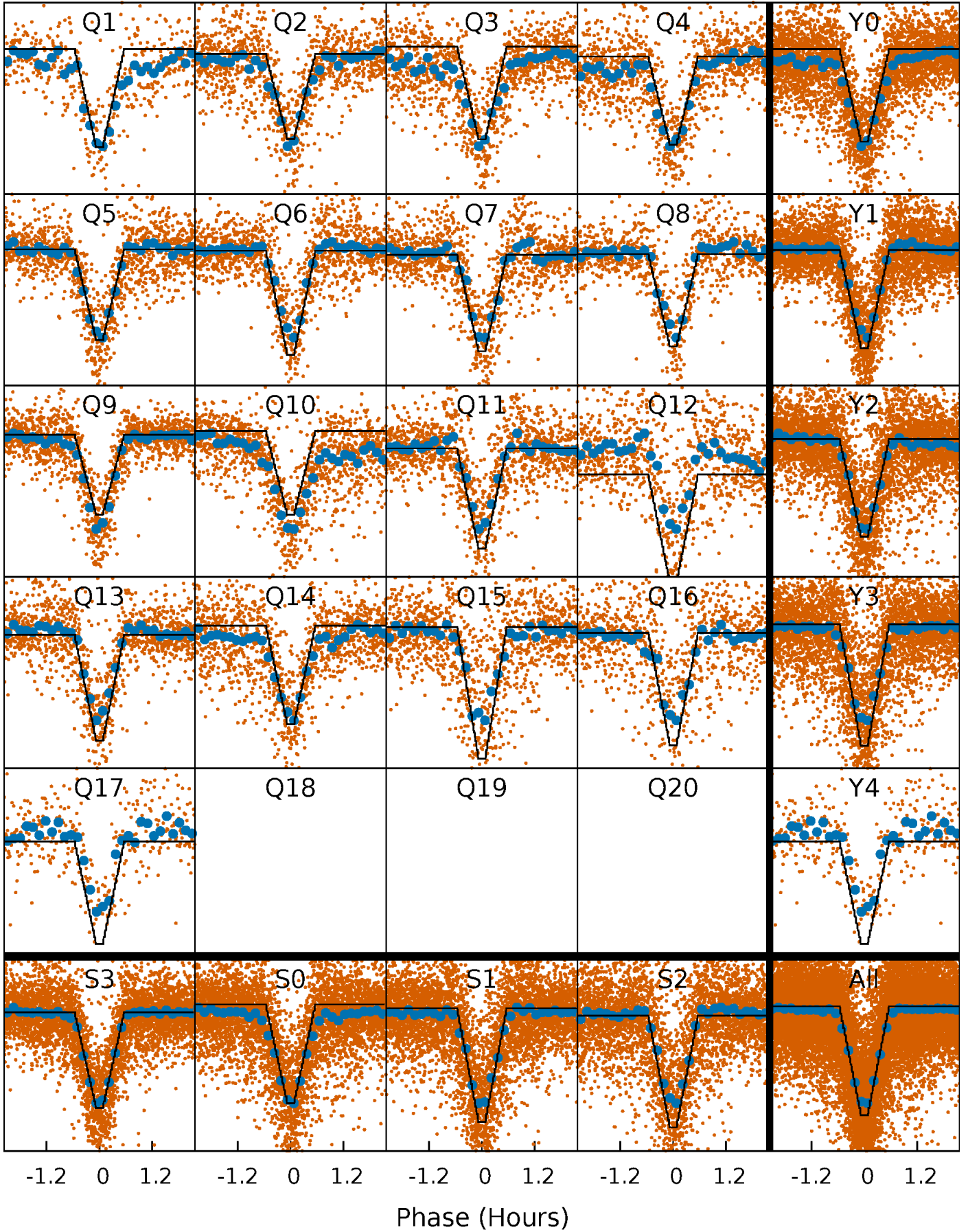
DV Quarter-Phased Transit Curves

TCE 004446411-01 P= 0.629281 Days $T_0=132.014835$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

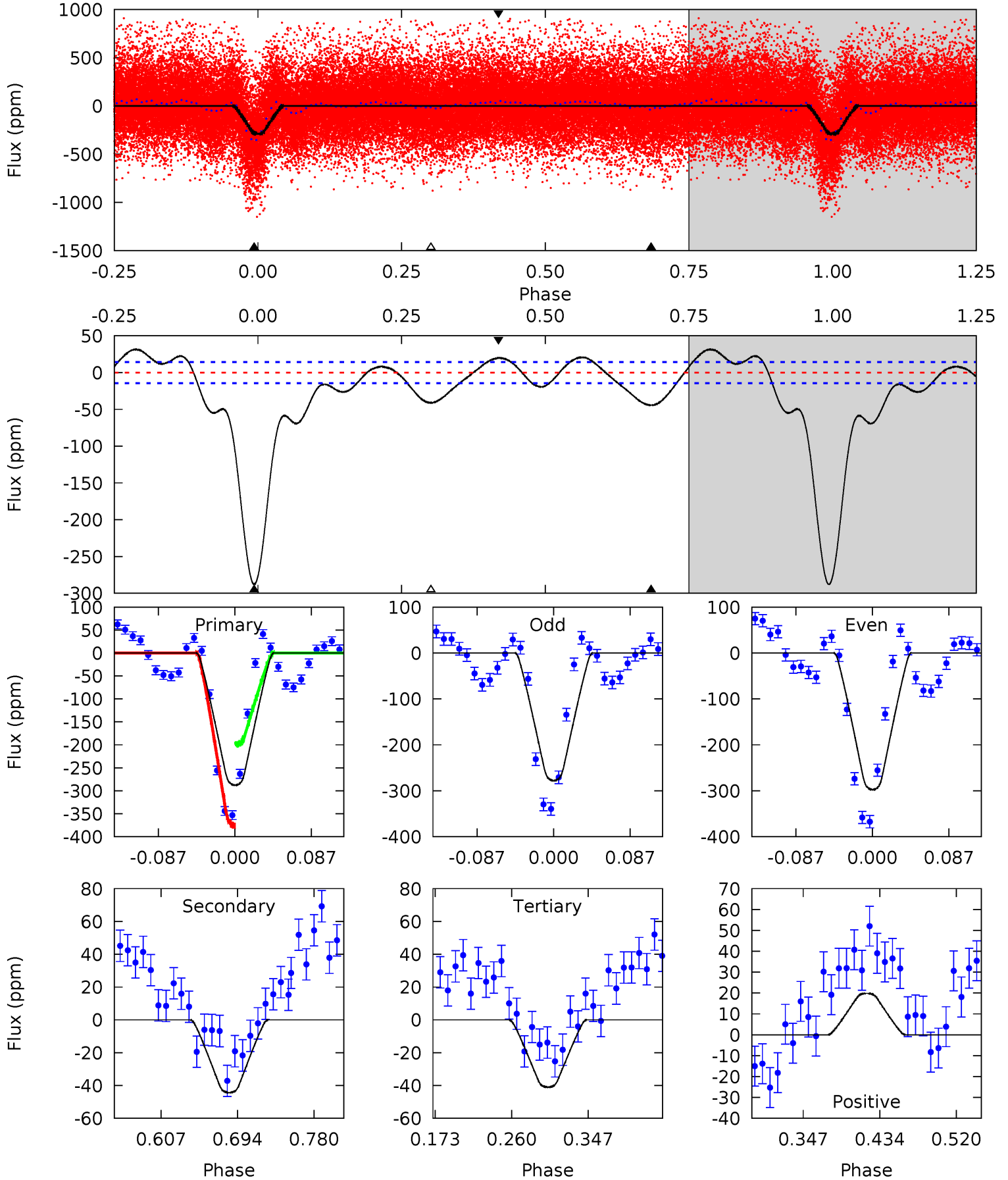
TCE 004446411-01 P= 0.629277 Days $T_0=132.014897$ (BKJD)



DV Model-Shift Uniqueness Test

004446411-01, P = 0.629281 Days, E = 131.385554 Days

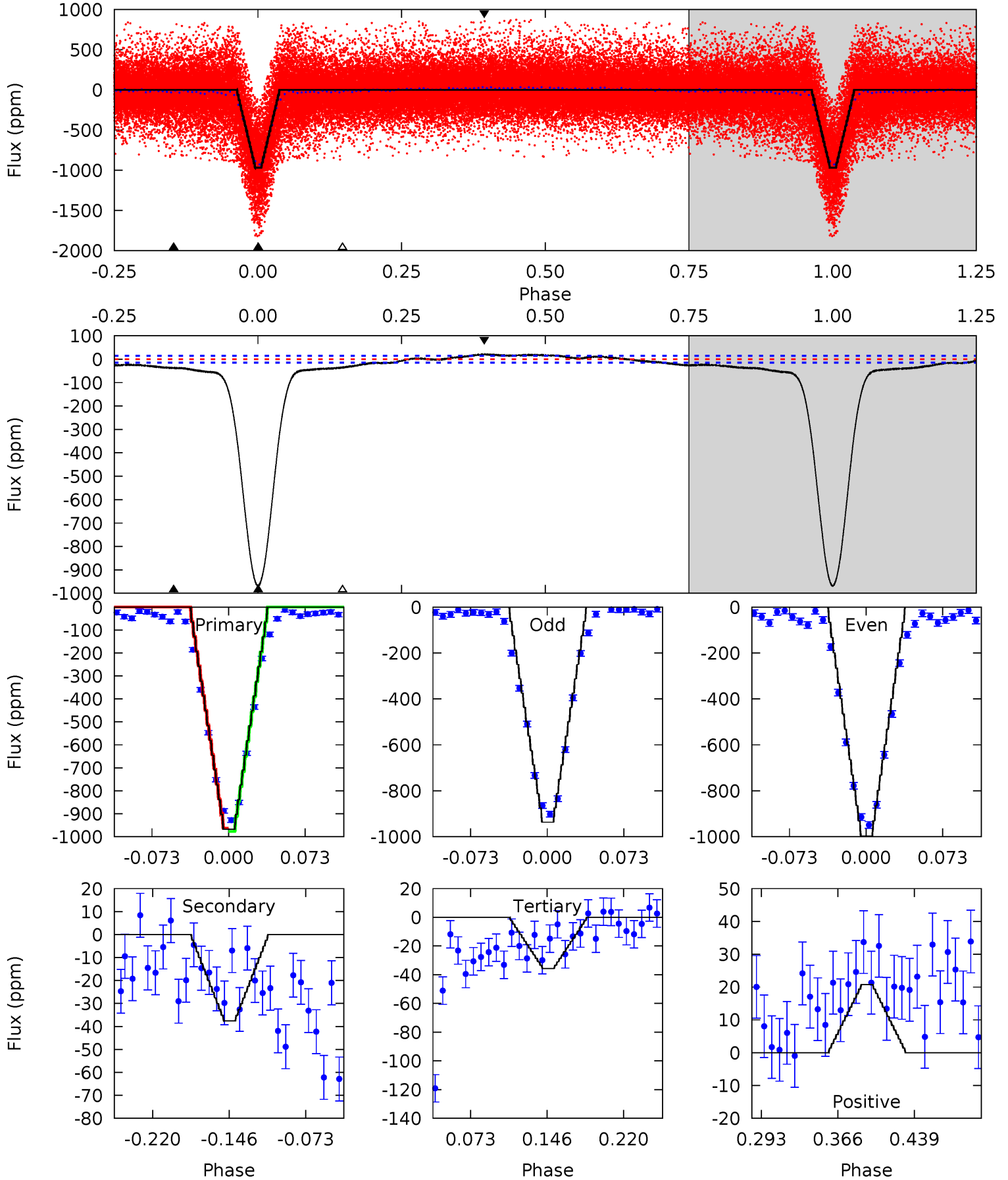
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
92.9	14.3	13.2	6.40	4.59	1.71	6.55	79.6	86.5	1.07	7.91	3.19	0.88	0.10	28.5



Alt Model-Shift Uniqueness Test

004446411-01, P = 0.629277 Days, E = 131.385620 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
309.3	12.0	11.4	6.63	4.63	1.79	6.15	297.9	302.7	0.61	5.39	9.58	0.99	0.02	2.18



Stellar Parameters For KIC 004446411

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5628^{+225}_{-225}	$4.388^{+0.153}_{-0.187}$	$-0.180^{+0.300}_{-0.300}$	$0.976^{+0.269}_{-0.157}$	$0.850^{+0.136}_{-0.073}$	$1.286^{+0.947}_{-0.626}$
	+4%/-4%	+3%/-4%	+167%/-167%	+28%/-16%	+16%/-9%	+74%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004446411-01 / KOI 6415.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-44 ± 3	$2.55^{+0.43}_{-0.32}$	2947^{+223}_{-200}	3173^{+179}_{-189}	$0.703^{+0.214}_{-0.178}$
Alt.	-38 ± 3	$3.42^{+0.56}_{-0.46}$	2961^{+234}_{-191}	2264^{+424}_{-4773}	$0.329^{+0.114}_{-0.080}$

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 $A_{obs} \gg 1.0$

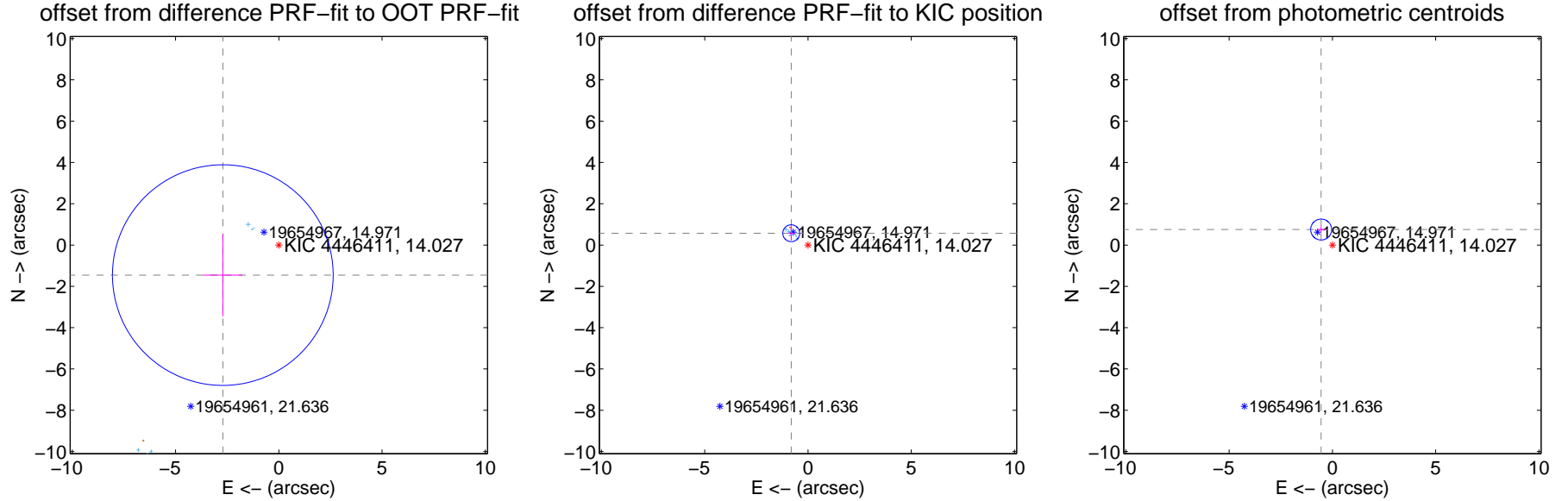
DV Centroid Data

Supplemental centroid analysis for 004446411-01. Kepler magnitude: 14.03. Transit SNR 75.80

There are 14 quarters with good PRF difference image offsets

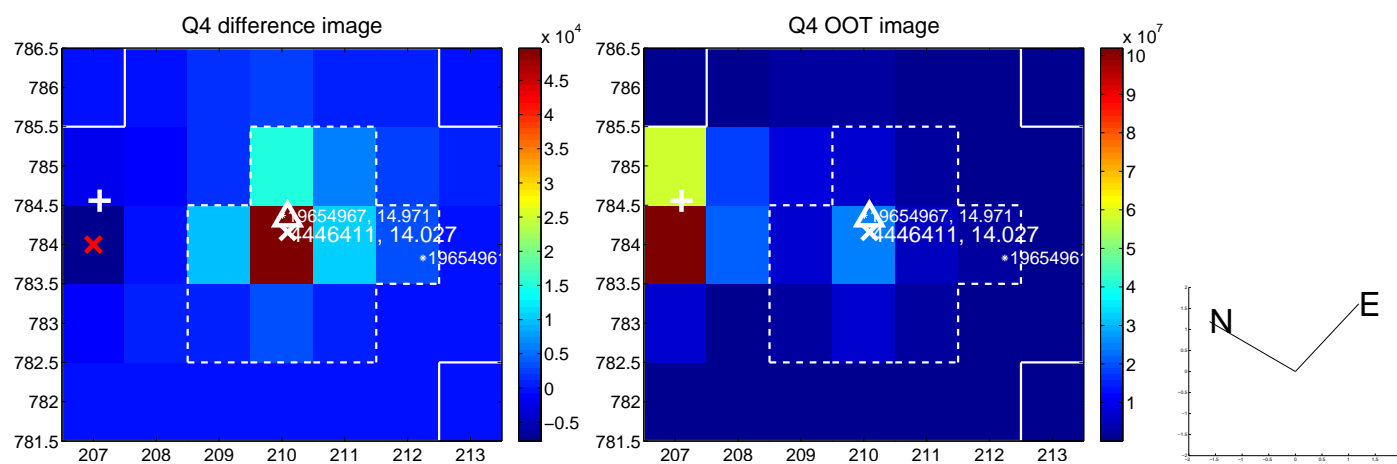
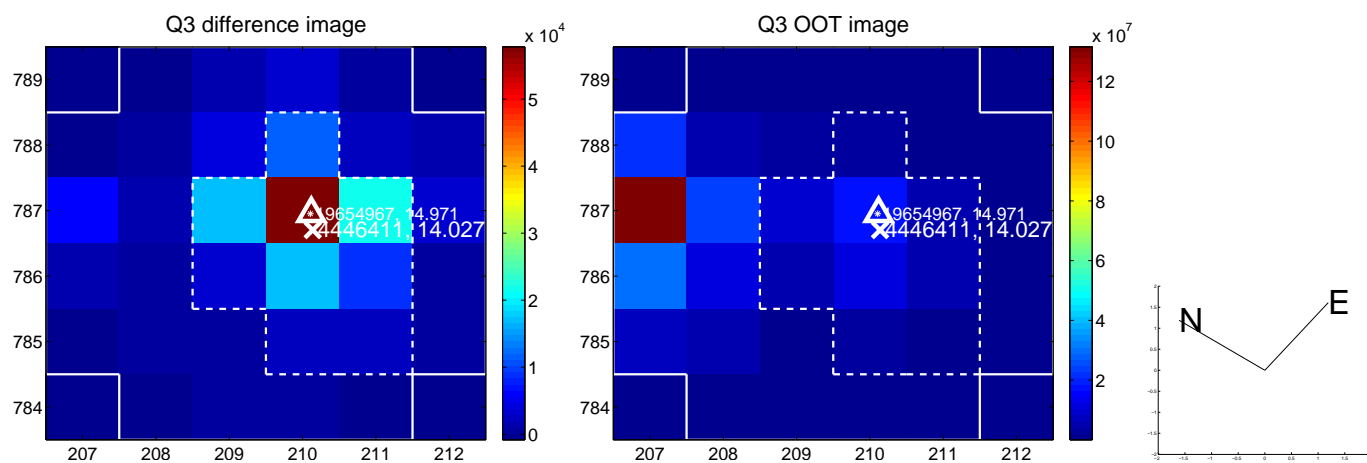
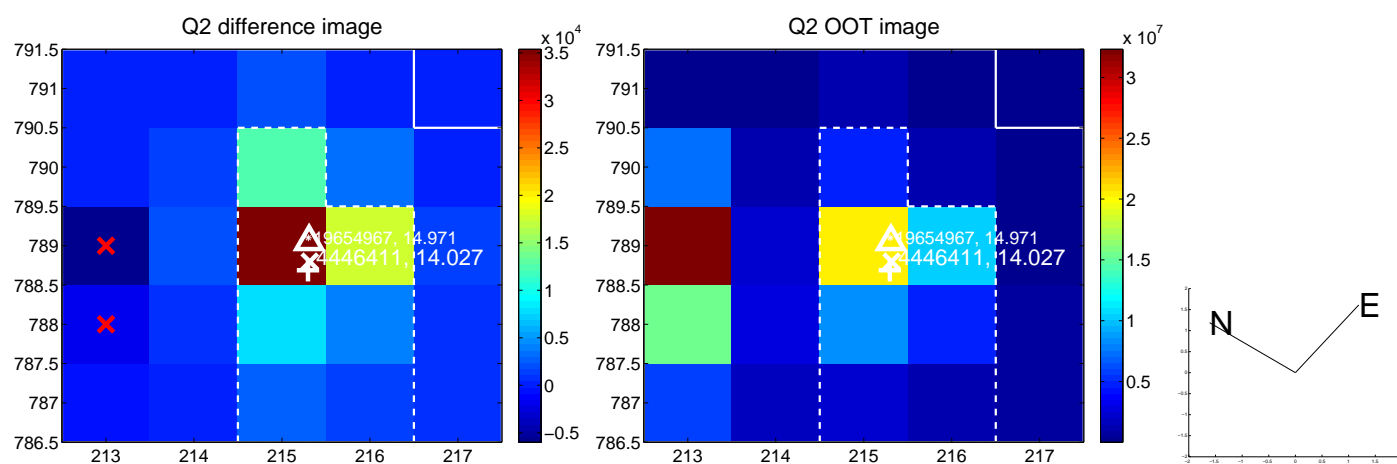
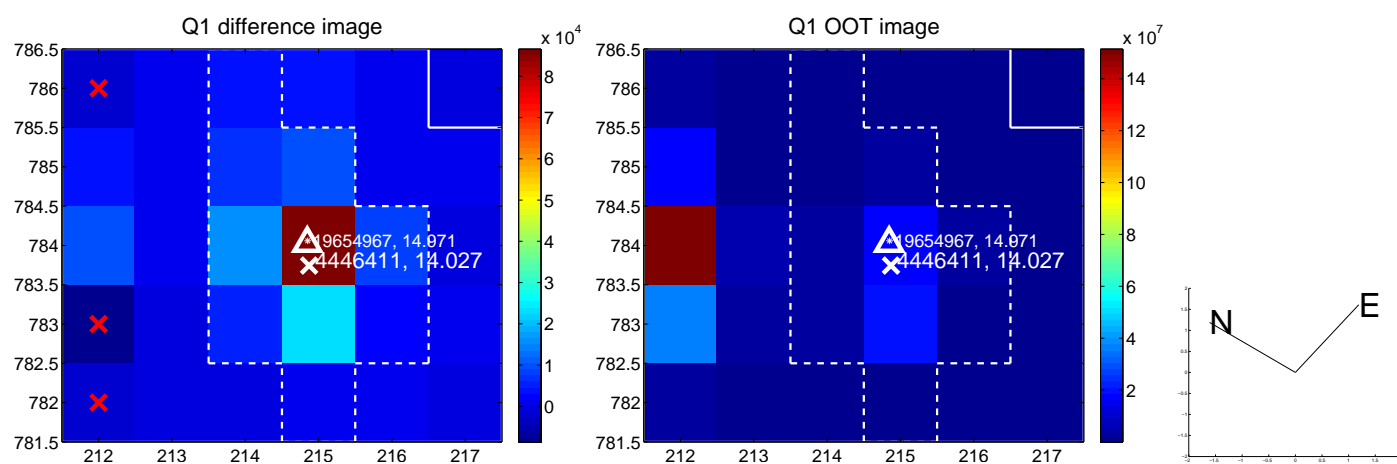
The OOT PRF centroid is offset from the target star catalog position by about 11.73 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.077 ± 1.781	1.73	2.711 ± 0.955	-1.455 ± 1.993
PRF-fit source offset from KIC position	0.993 ± 0.136	7.28	0.811 ± 0.128	0.572 ± 0.349
photometric centroid source offset	0.93 ± 0.17	5.49	0.55 ± 0.18	0.75 ± 0.16

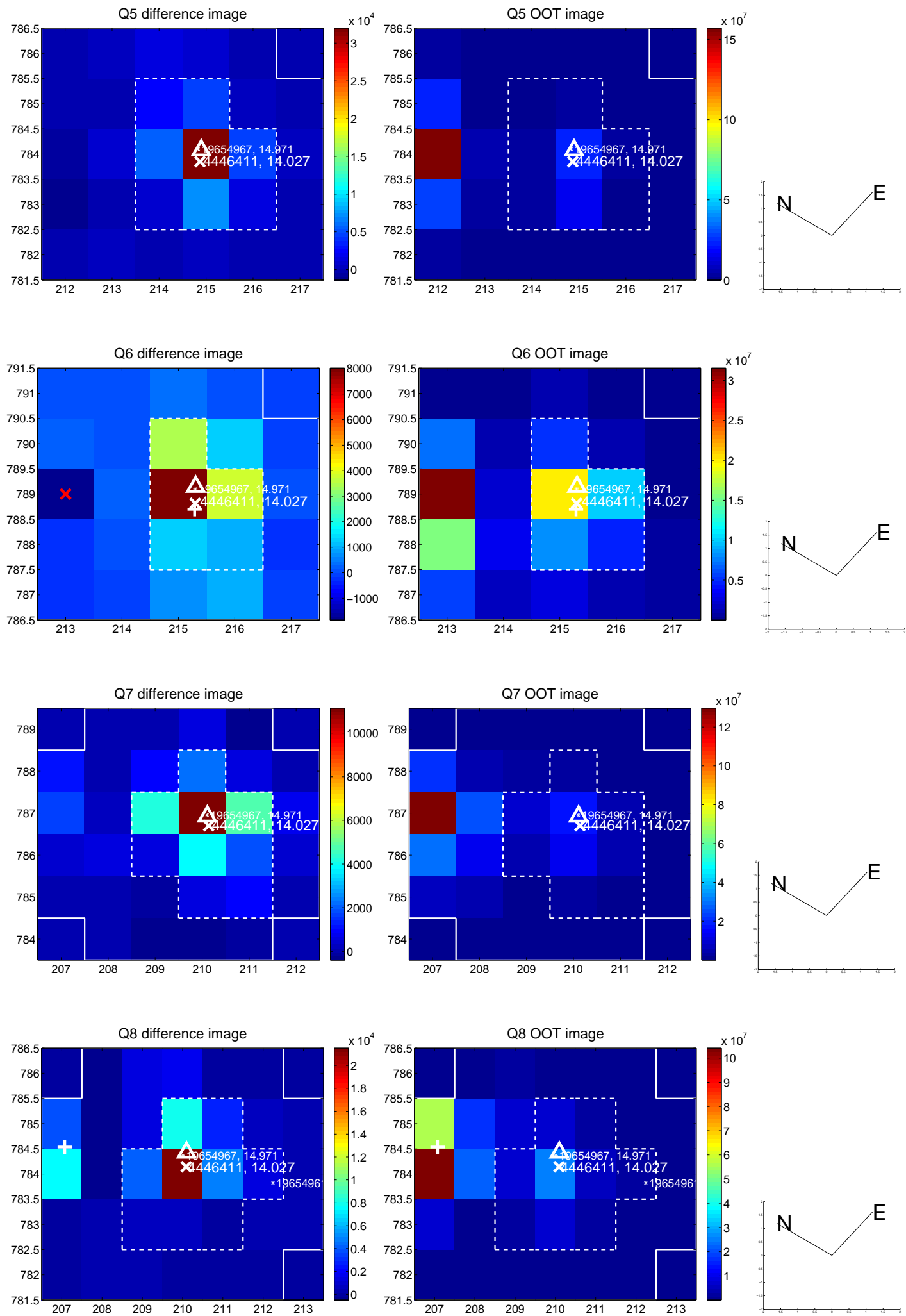


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

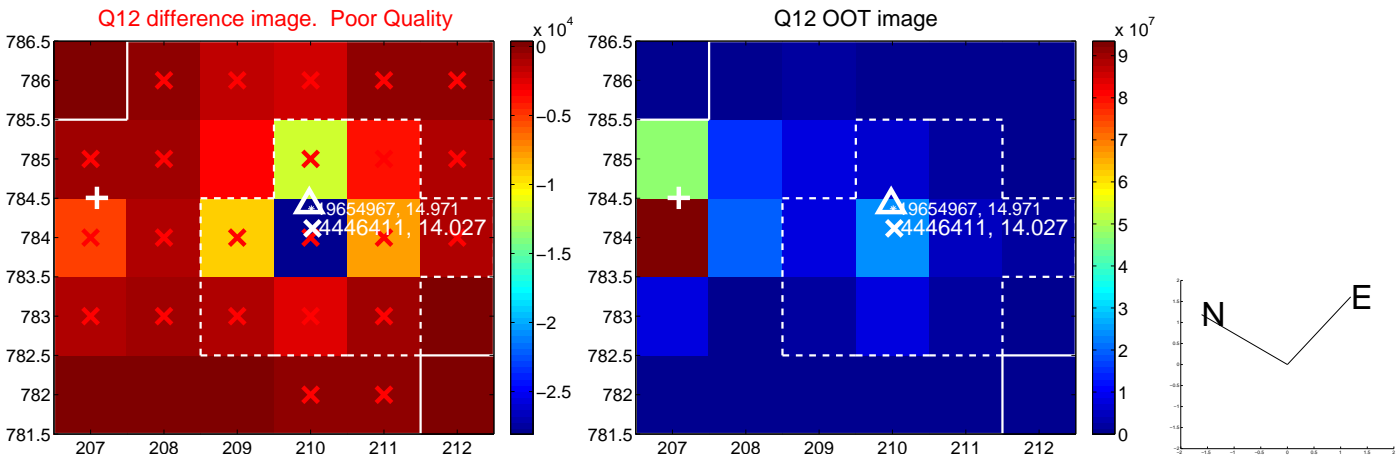
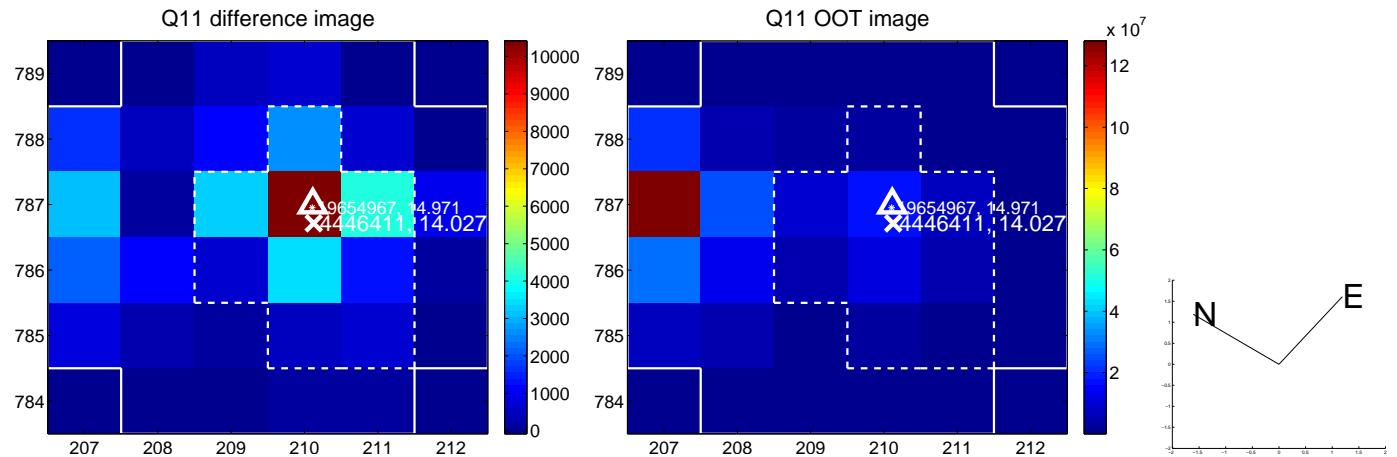
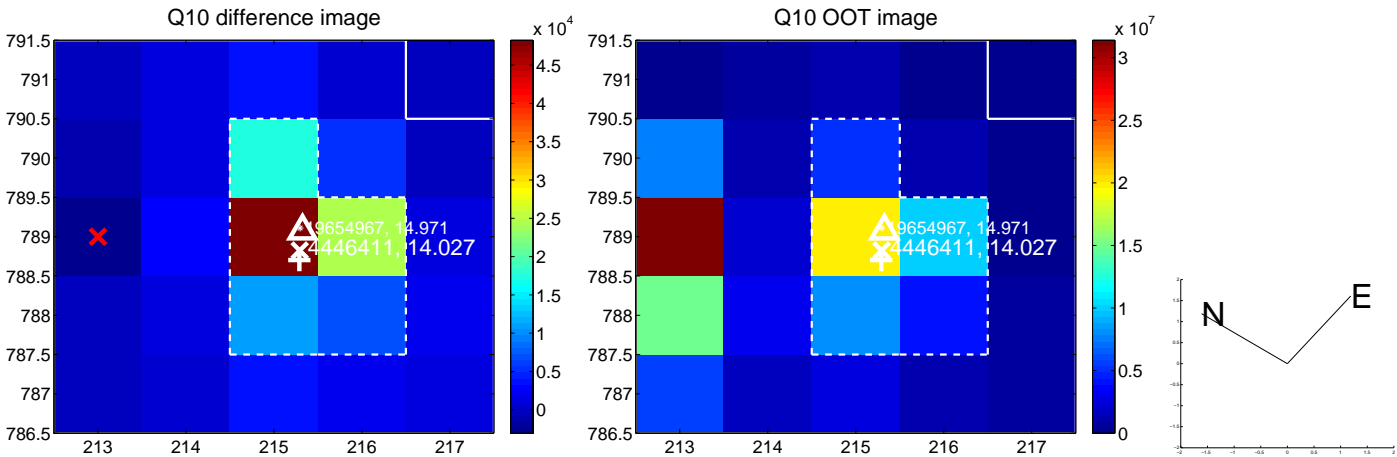
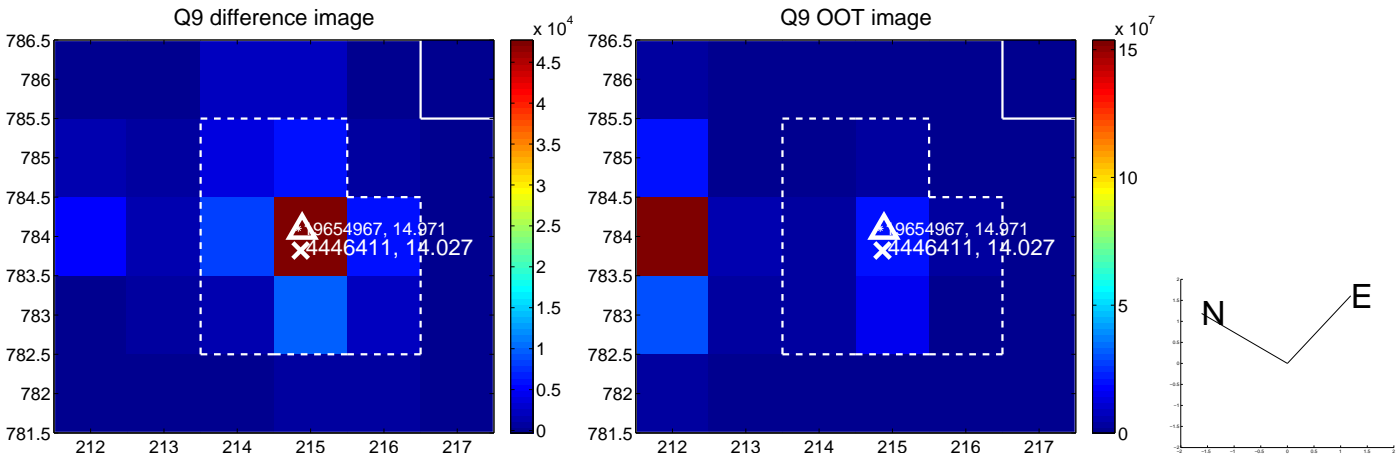
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



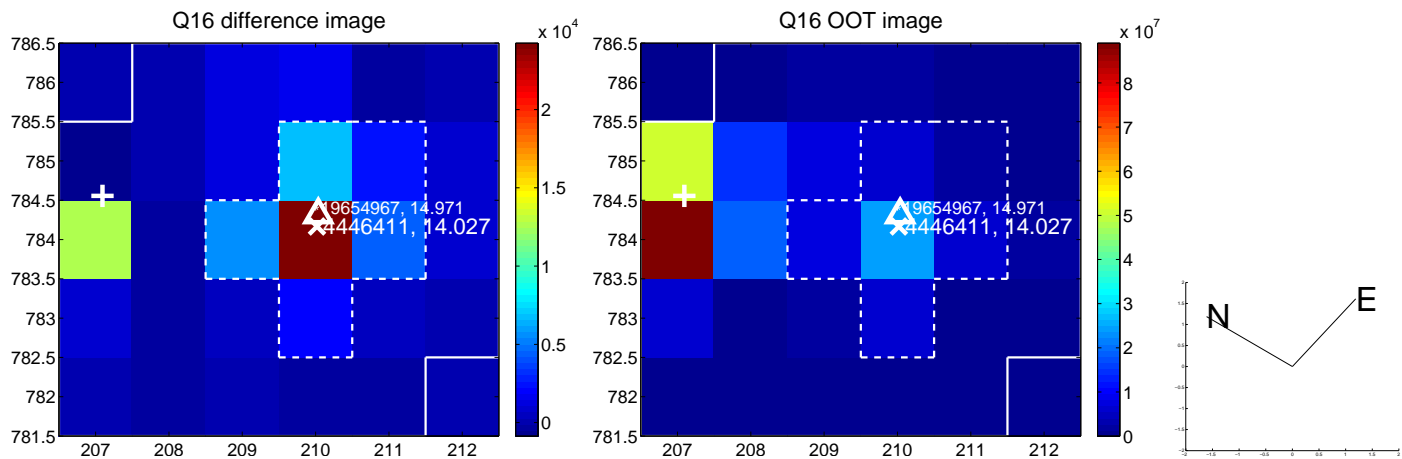
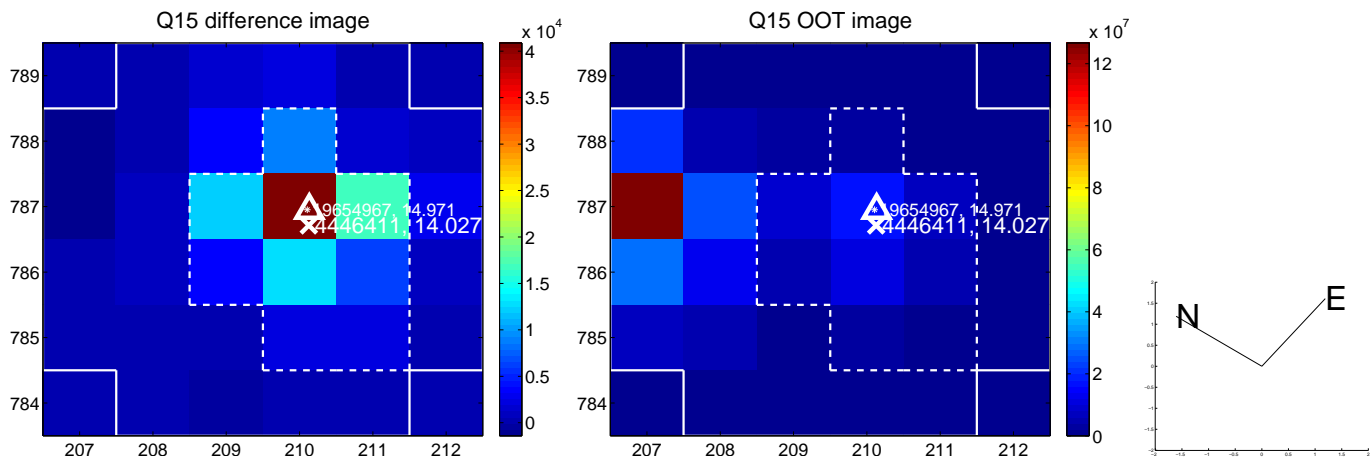
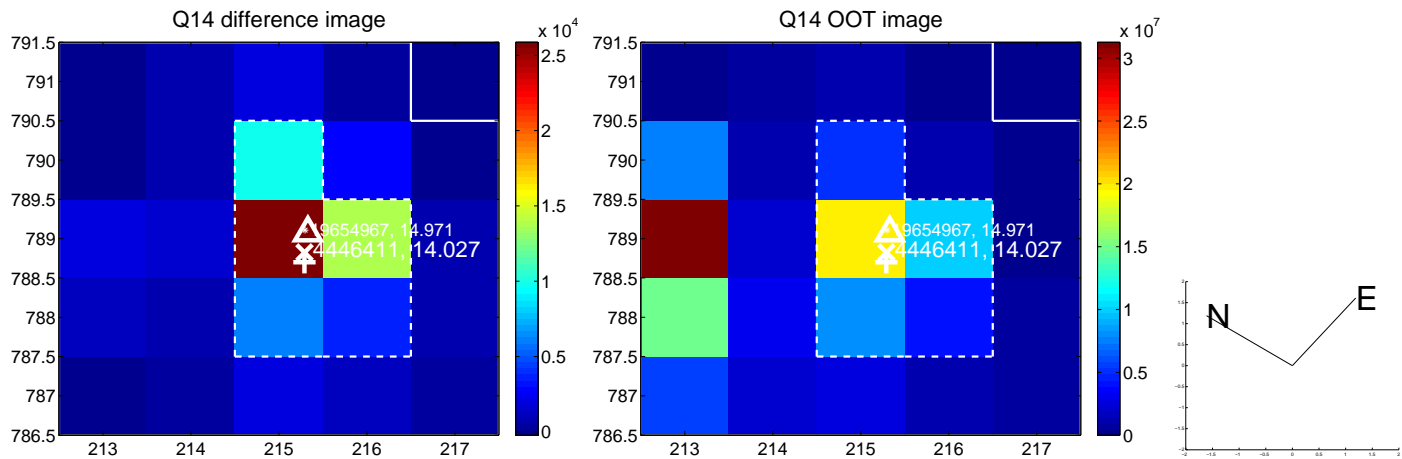
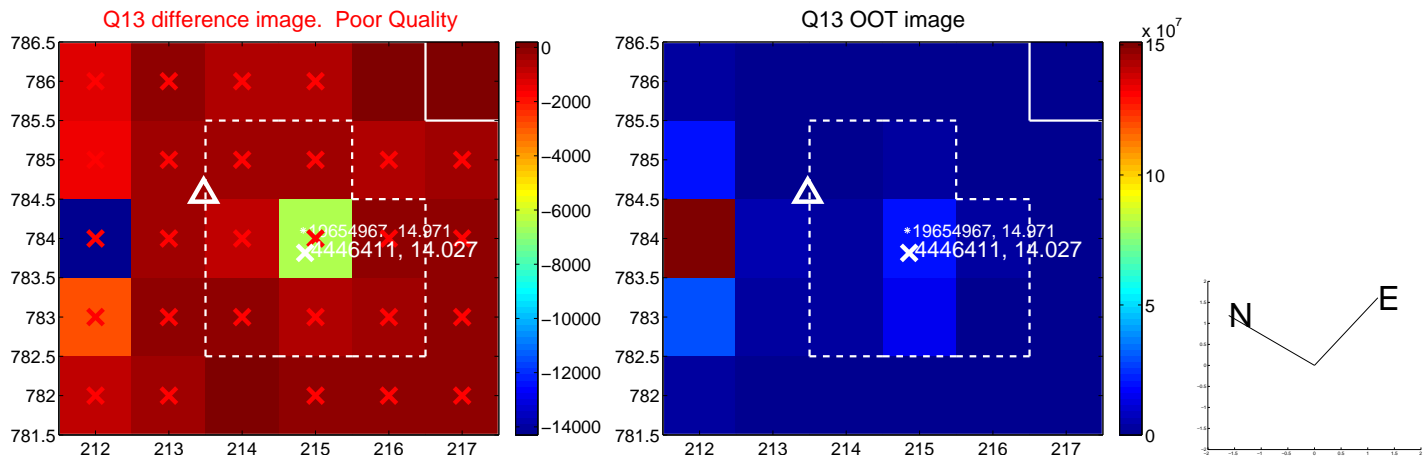
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



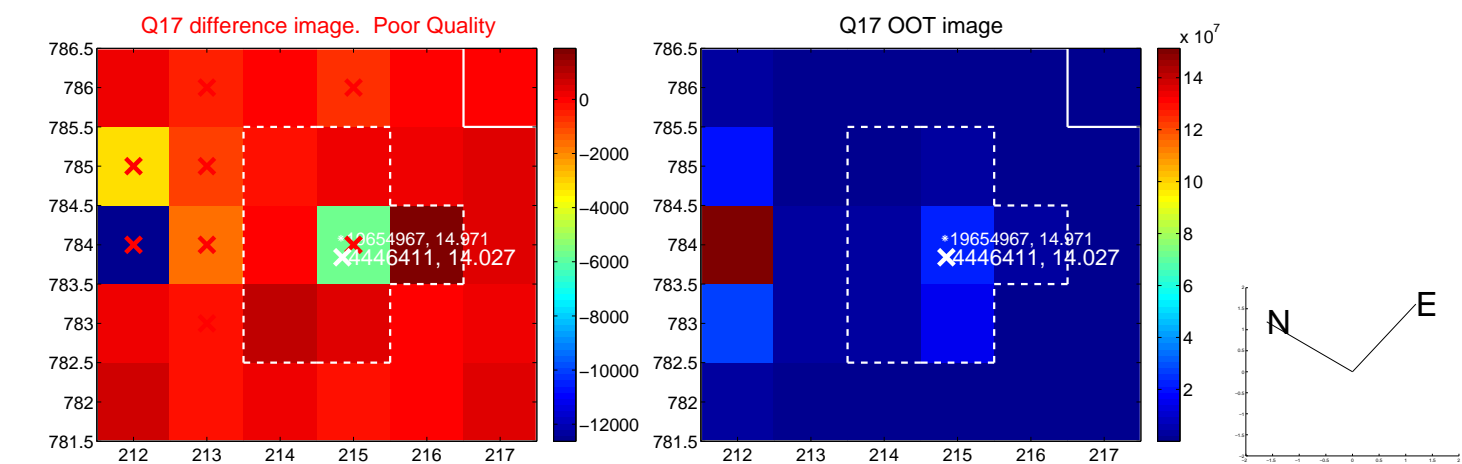
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



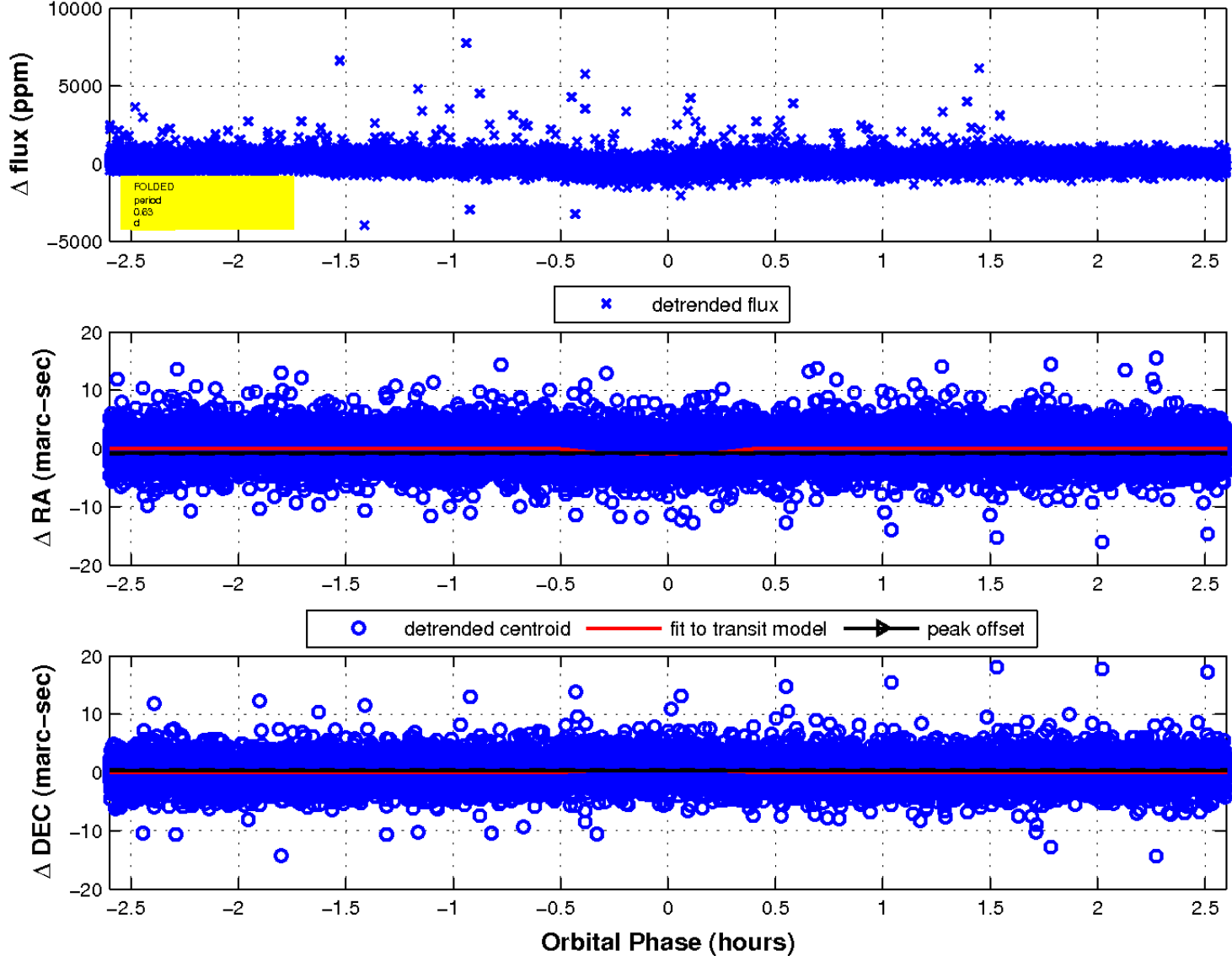
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



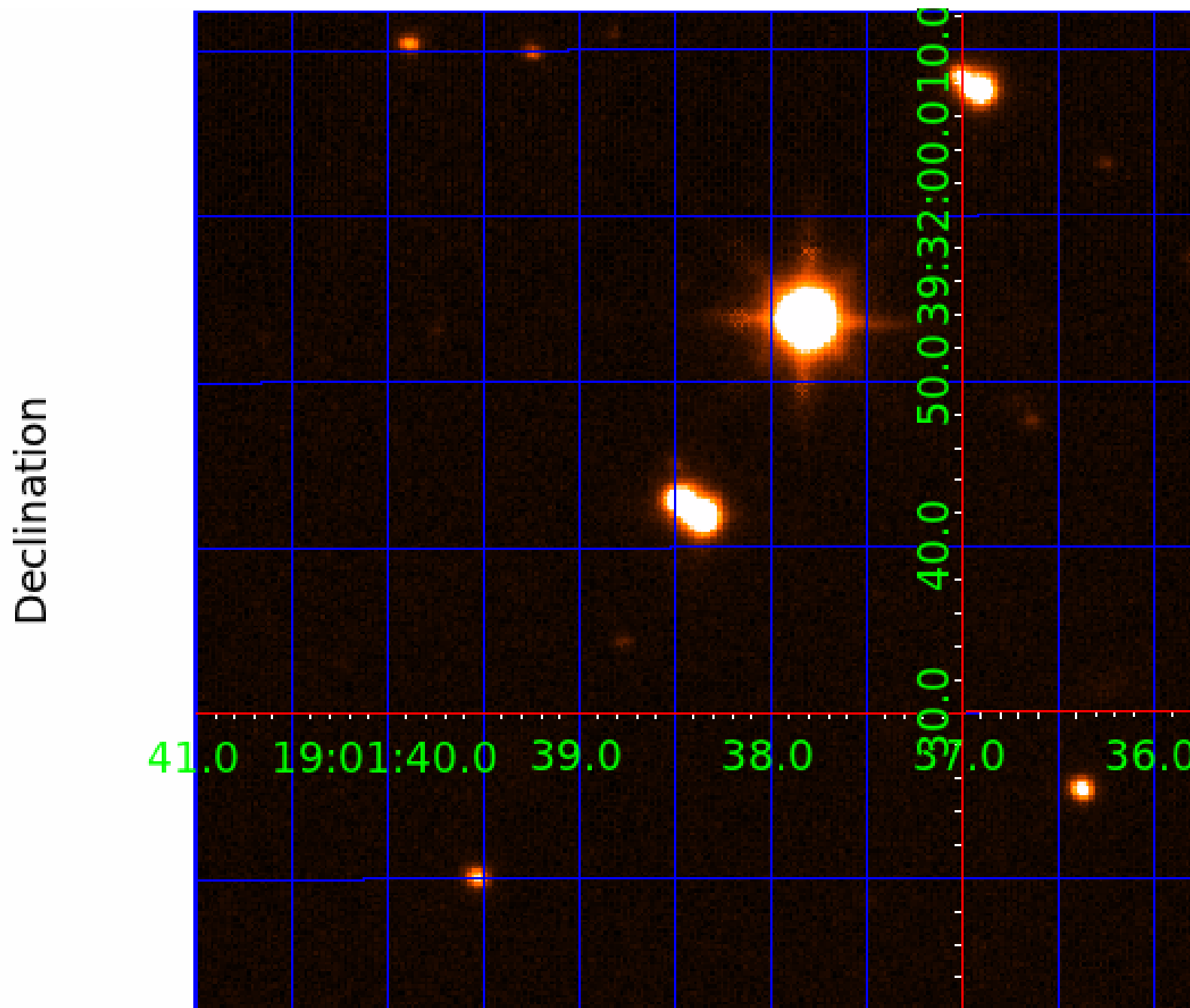
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 004446411

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})
004446411-01	OBS	6415.01	0.629281	132.014835	461.8	0.867	23.0	75.8	0.98	5628	2.54	4621.87
004446411-02	OBS	No	0.629293	131.795369	483.3	1.500	9.2	-1.0	0.98	5628	2.13	4621.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004446411-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—CENT_KIC_POS
004446411-02	OBS	FP	0.00	1	0	1	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS—HALO_GHOST

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

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

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

Ephemeris Match Information For 004446411-02

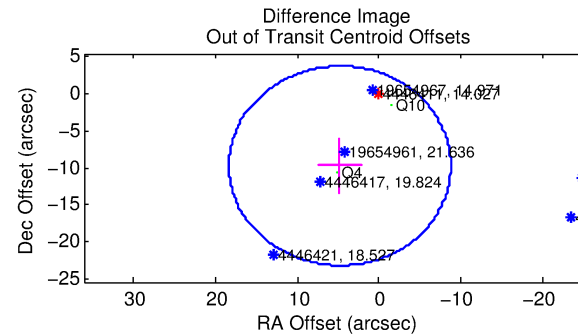
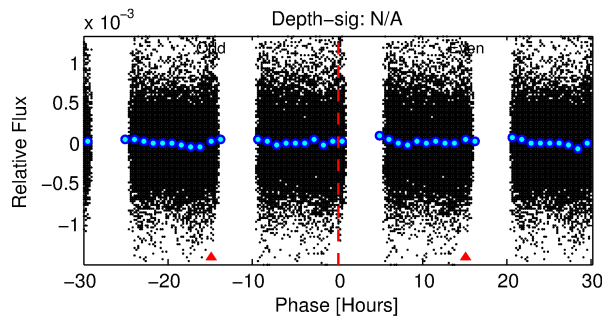
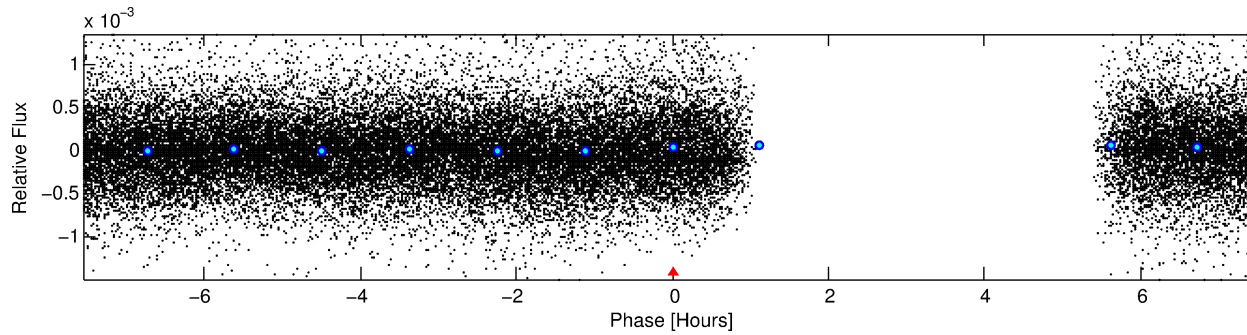
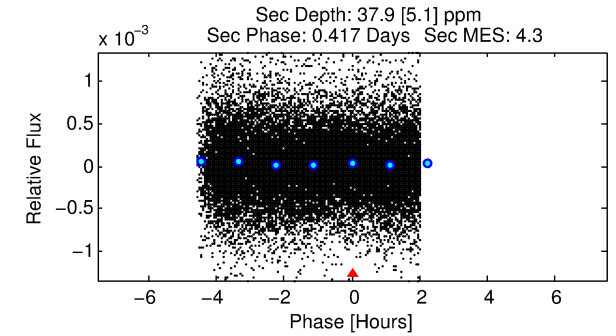
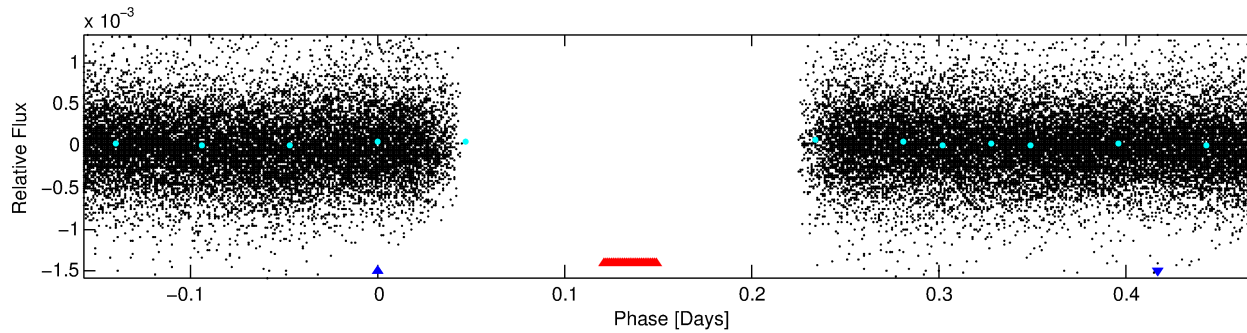
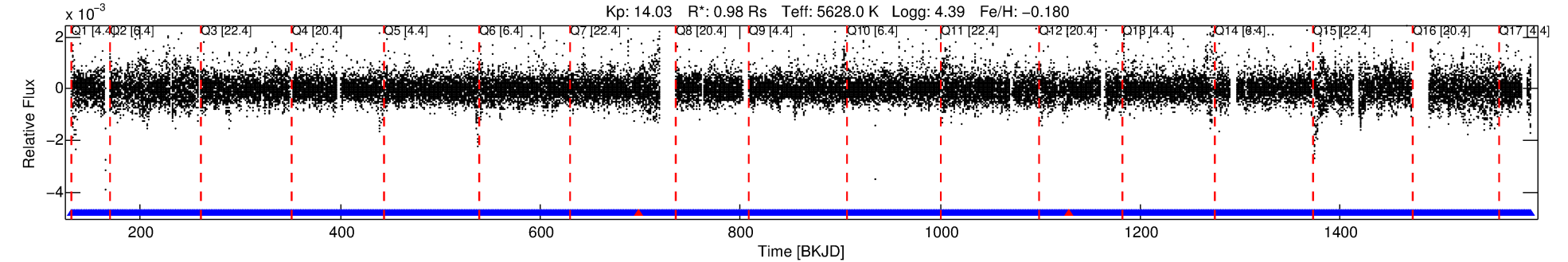
No Significant Match Found

DV One-Page Summary

KIC: 4446411 Candidate: 2 of 2 Period: 0.629 d

KOI: K06415 Corr: No Ephemeris Match

Kp: 14.03 R*: 0.98 Rs Teff: 5628.0 K Logg: 4.39 Fe/H: -0.180



TPS TCE Results:

Period = 0.62929 d
Epoch = 131.7954 BKJD

DV fit results are unavailable

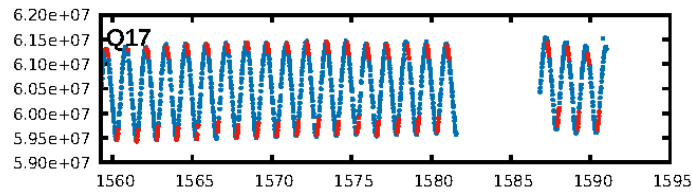
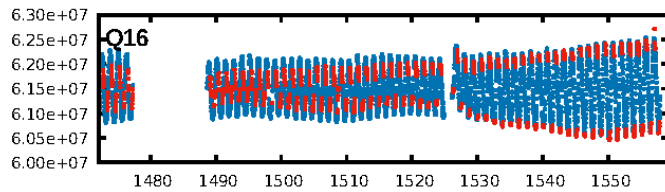
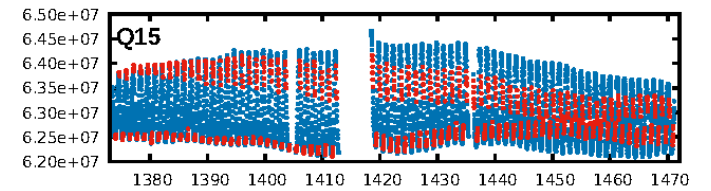
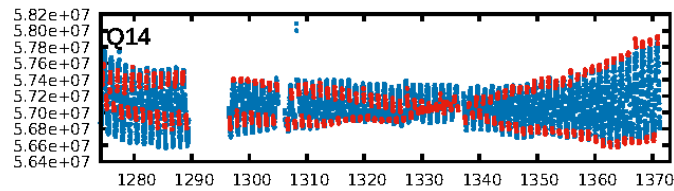
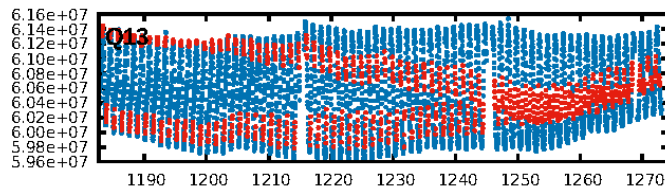
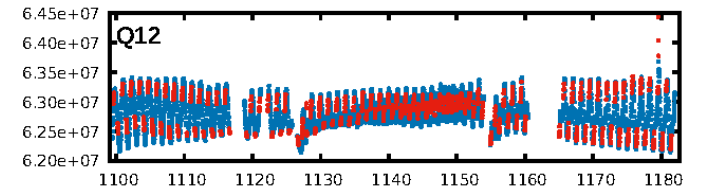
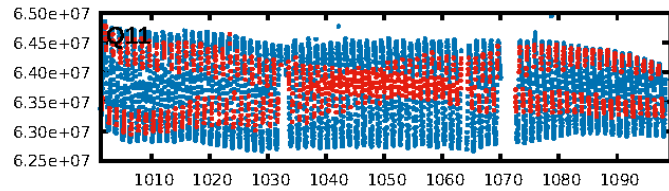
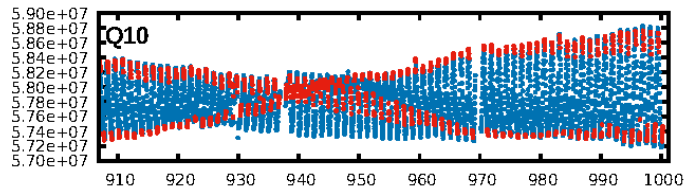
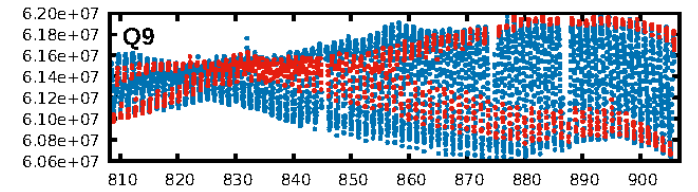
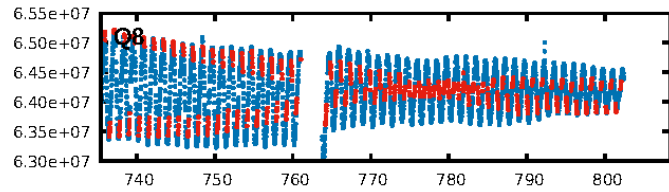
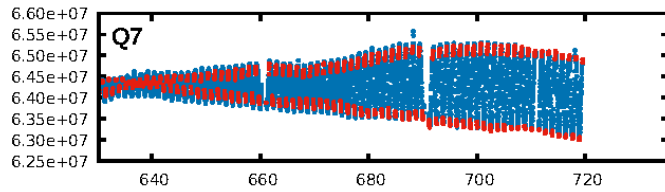
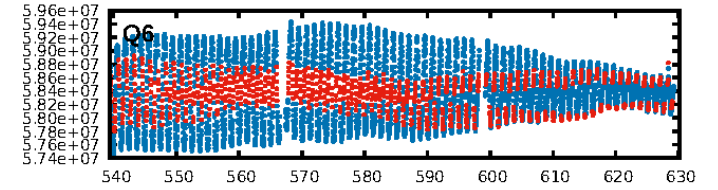
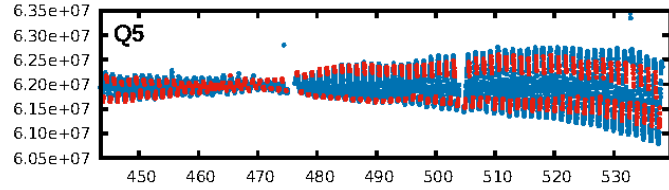
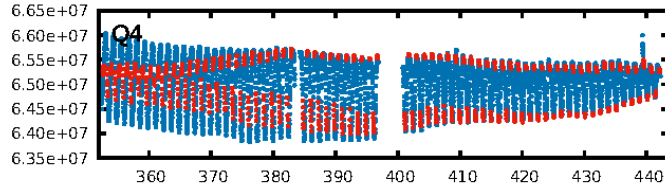
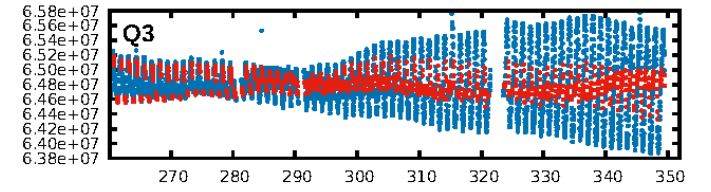
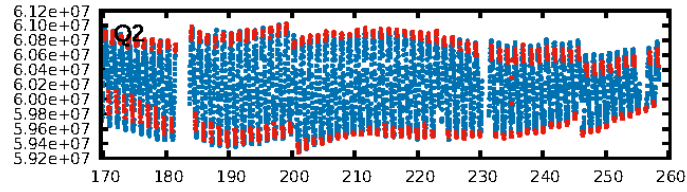
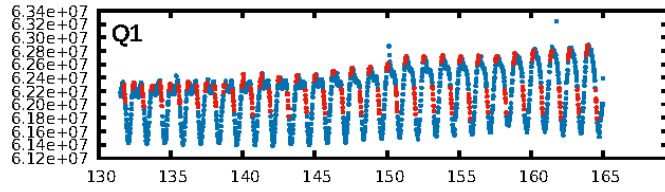
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.20e-22
RollingBand-fgt: 1.00 [2032/2034]
GhostDiagnostic-chr: -0.222
Centroid-sig: 73.4%
Centroid-so: 2.096 arcsec [7.00σ]
OotOffset-rm: 10.847 arcsec [2.41σ]
KicOffset-rm: 0.254 arcsec [0.25σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/4/1/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.00 [0/17]

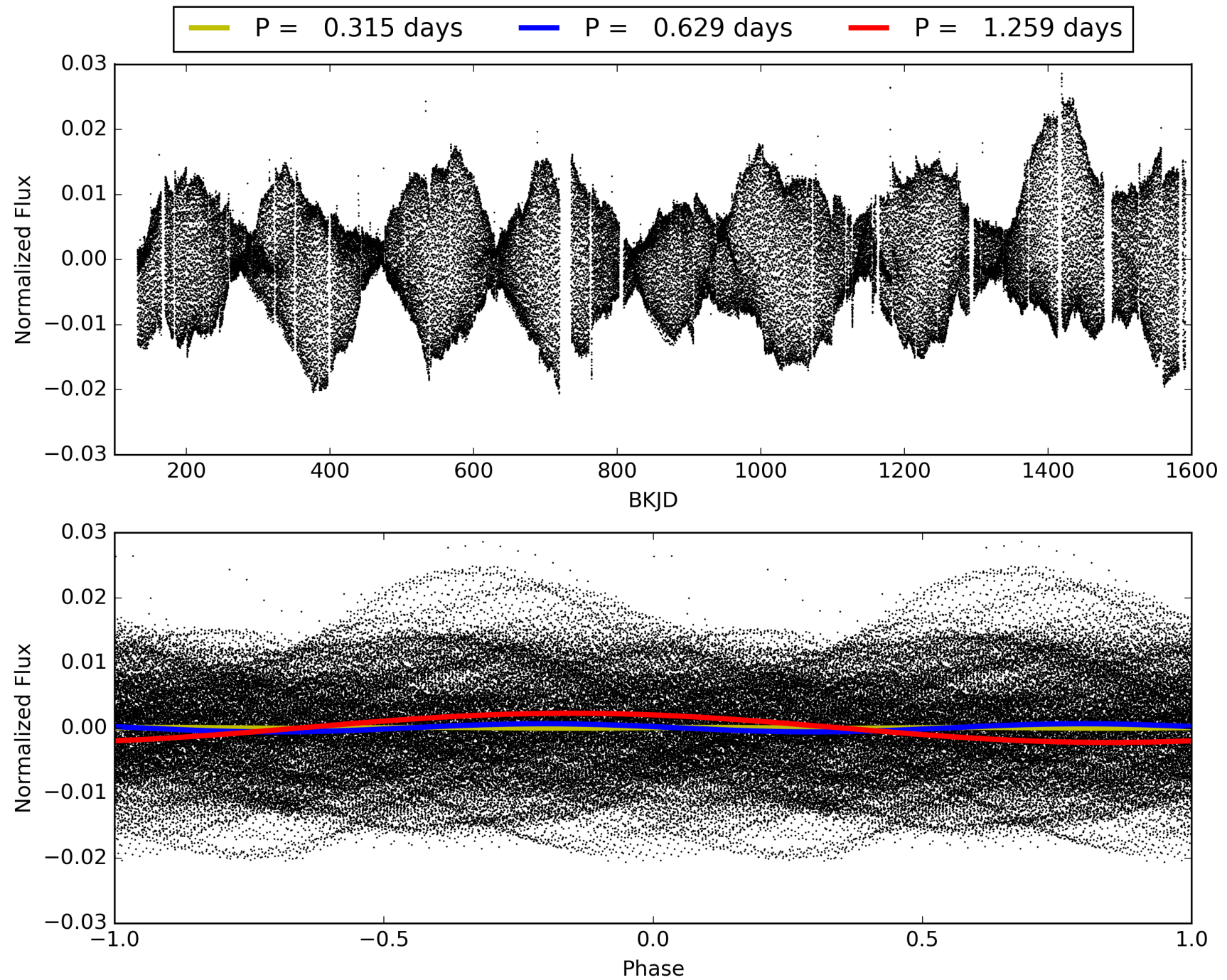
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:24:01 Z

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

TCE 004446411-02, PDC Light Curves

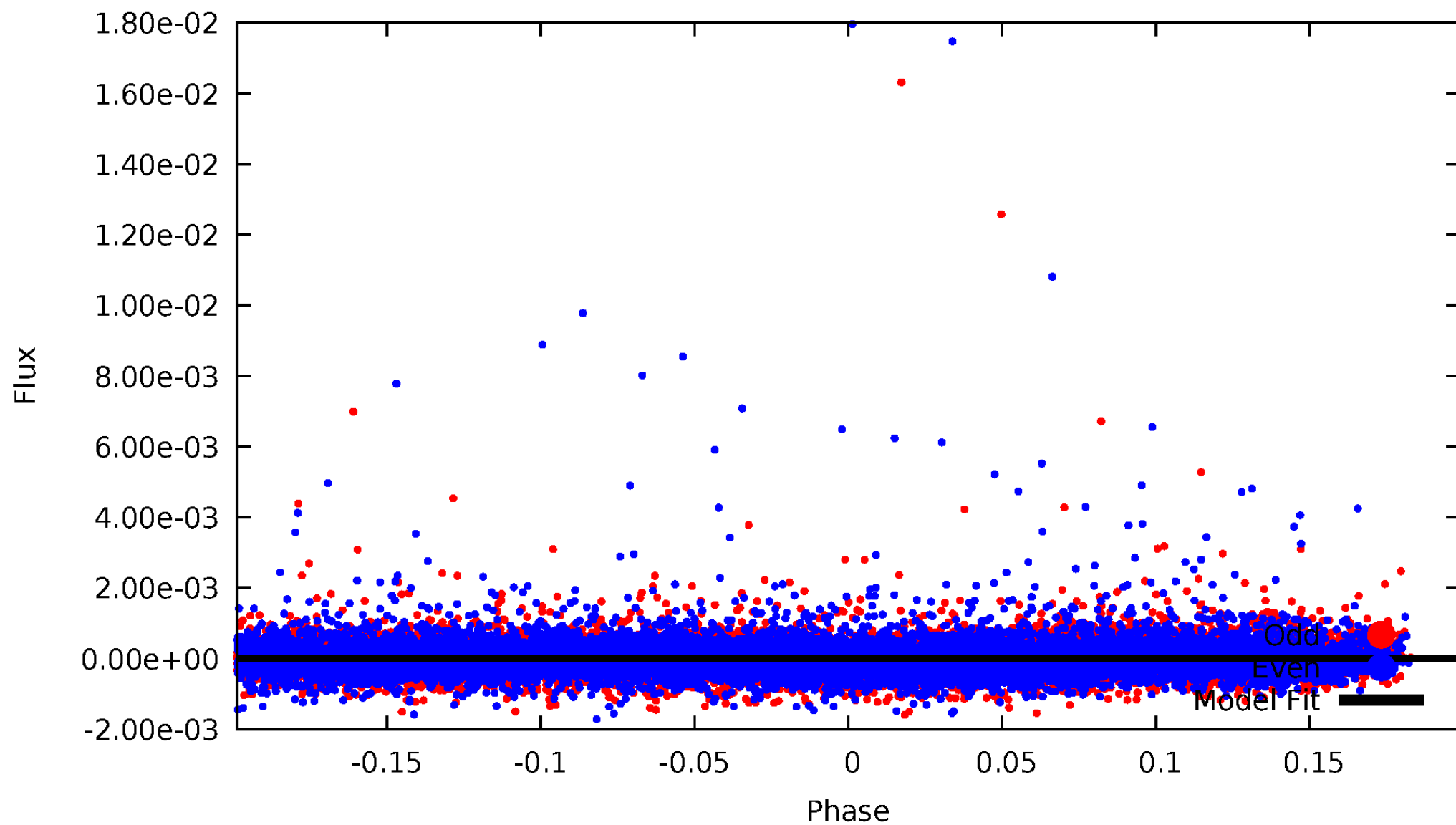


TCE 004446411-02



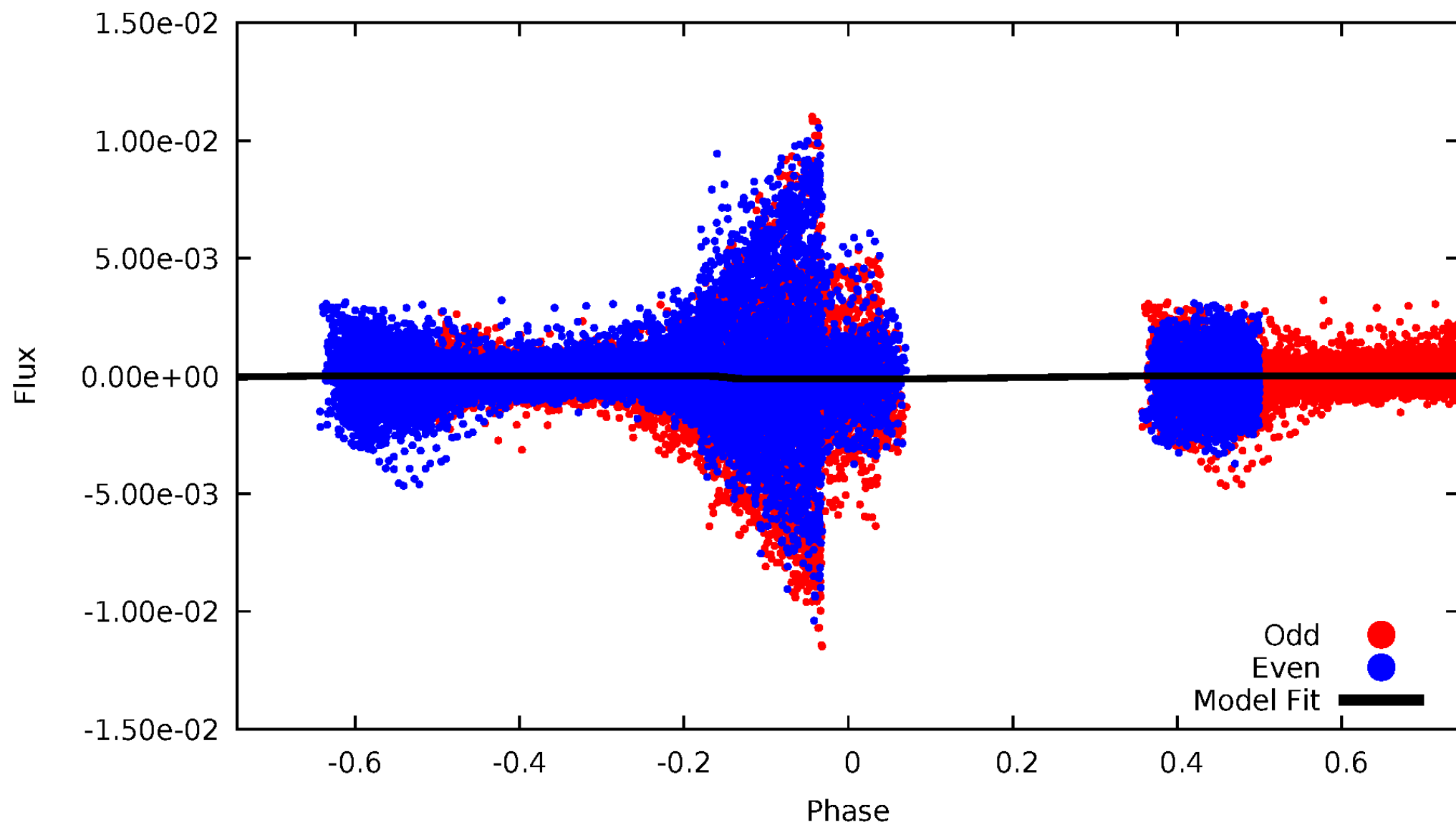
DV Odd/Even

TCE 004446411-02



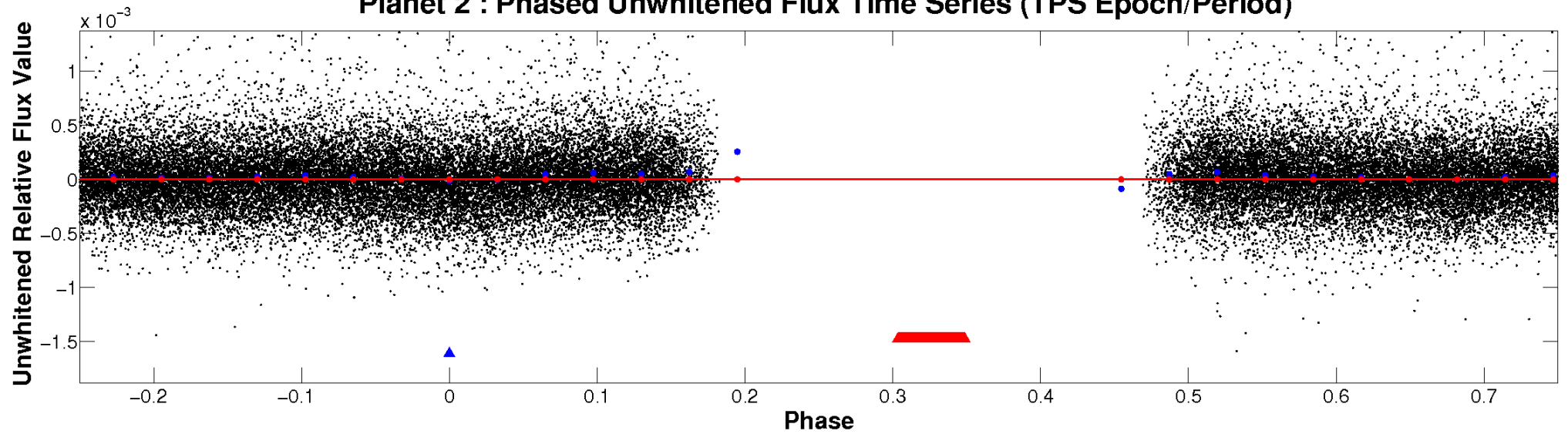
ALT Odd/Even

TCE 004446411-02

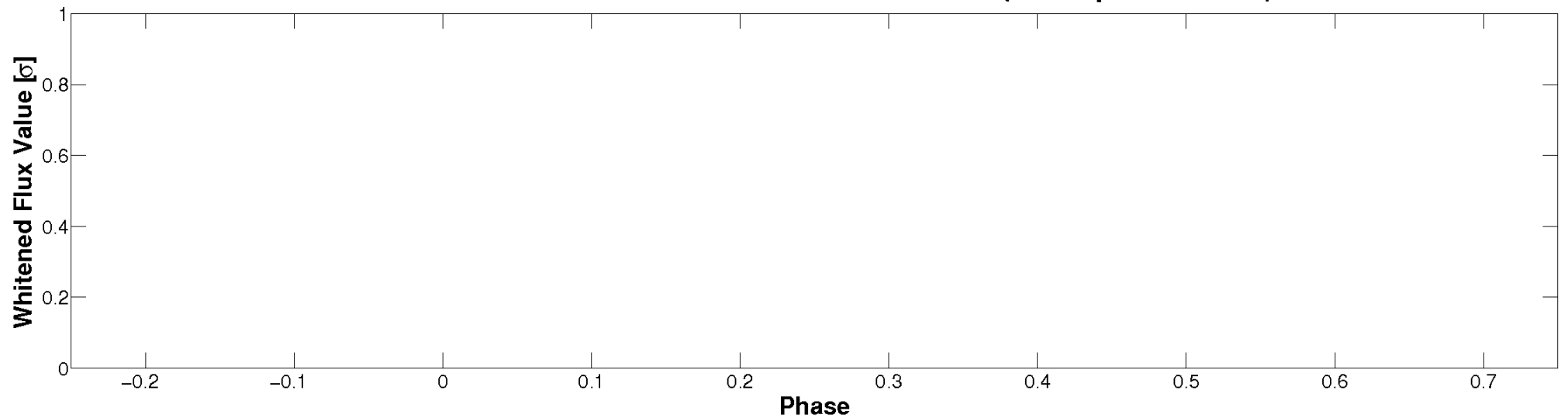


Non-Whitened Vs. Whitened Light Curve

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

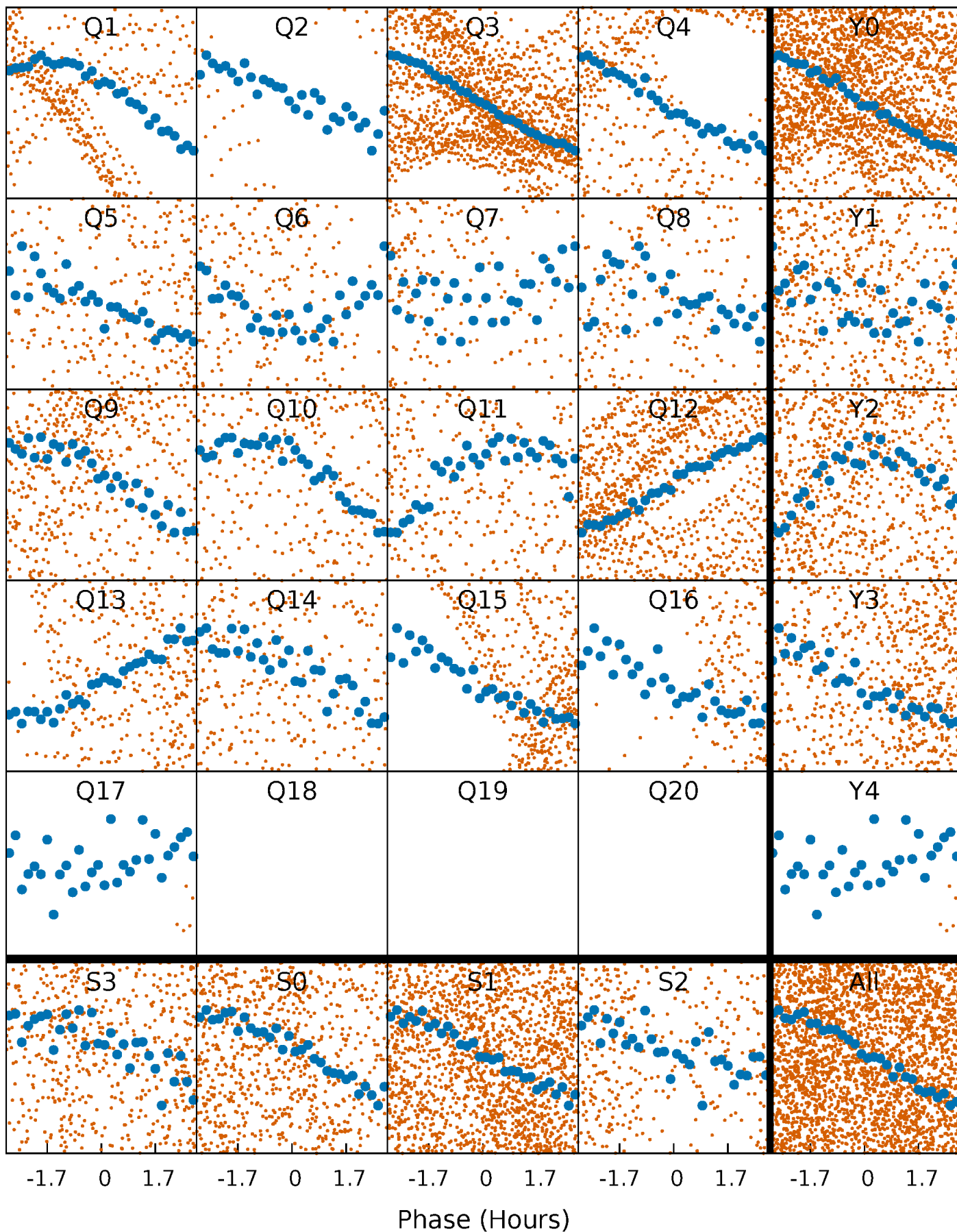


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



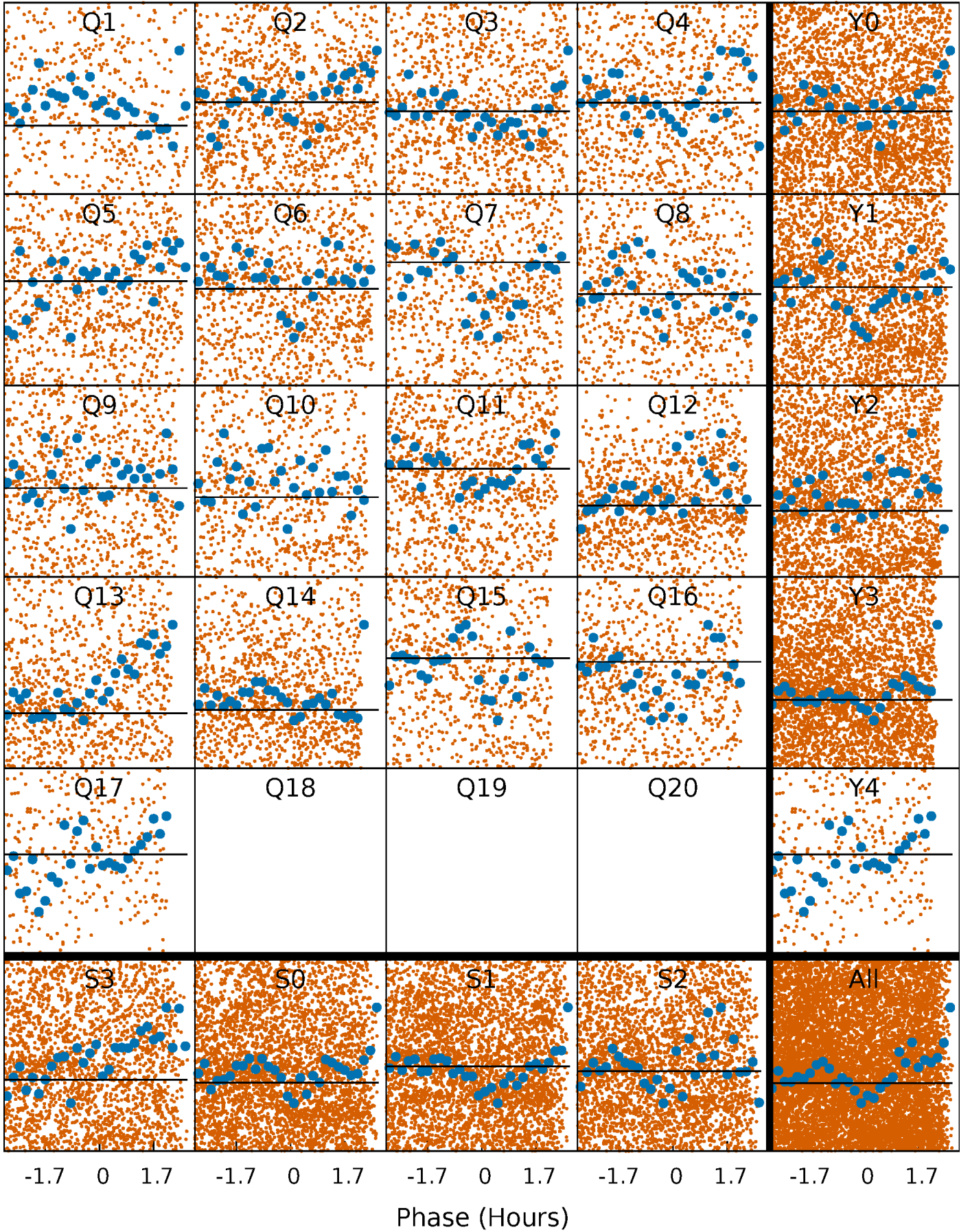
PDC Quarter-Phased Transit Curves

TCE 004446411-02 P= 0.629293 Days $T_0=131.795369$ (BKJD)



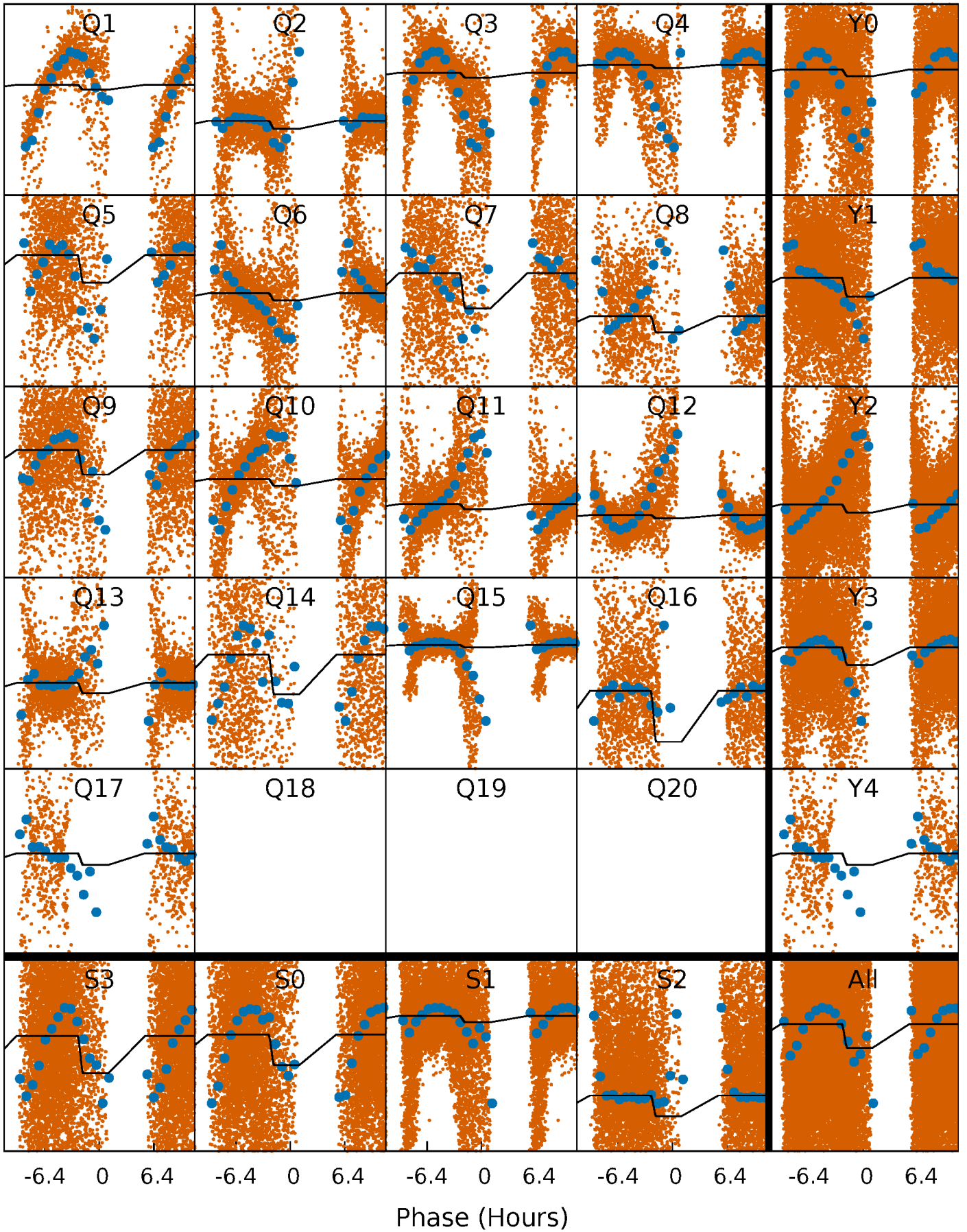
DV Quarter-Phased Transit Curves

TCE 004446411-02 P= 0.629293 Days $T_0=131.795369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

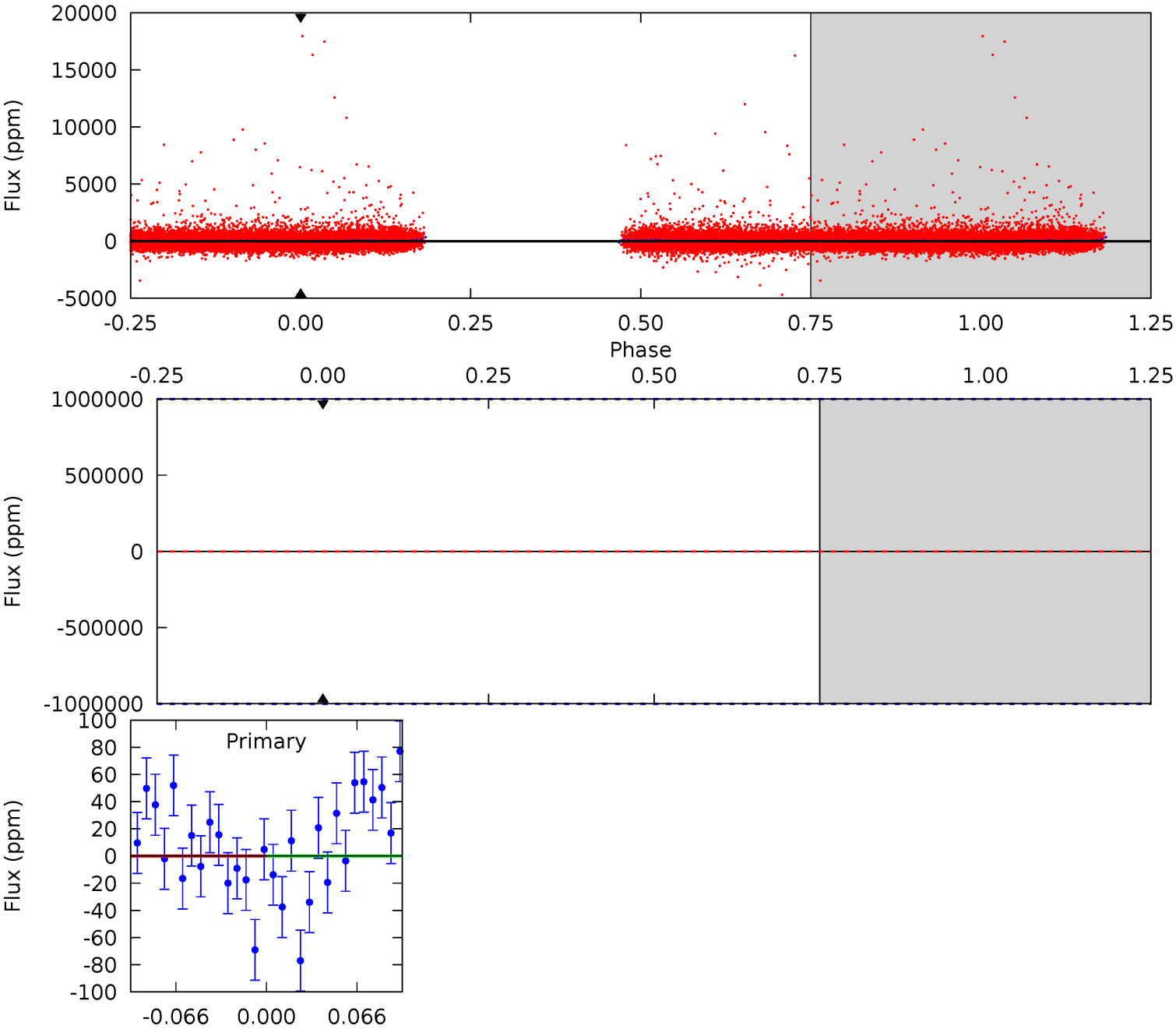
TCE 004446411-02 P= 0.629293 Days $T_0=131.865914$ (BKJD)



DV Model-Shift Uniqueness Test

004446411-02, P = 0.629293 Days, E = 131.166076 Days

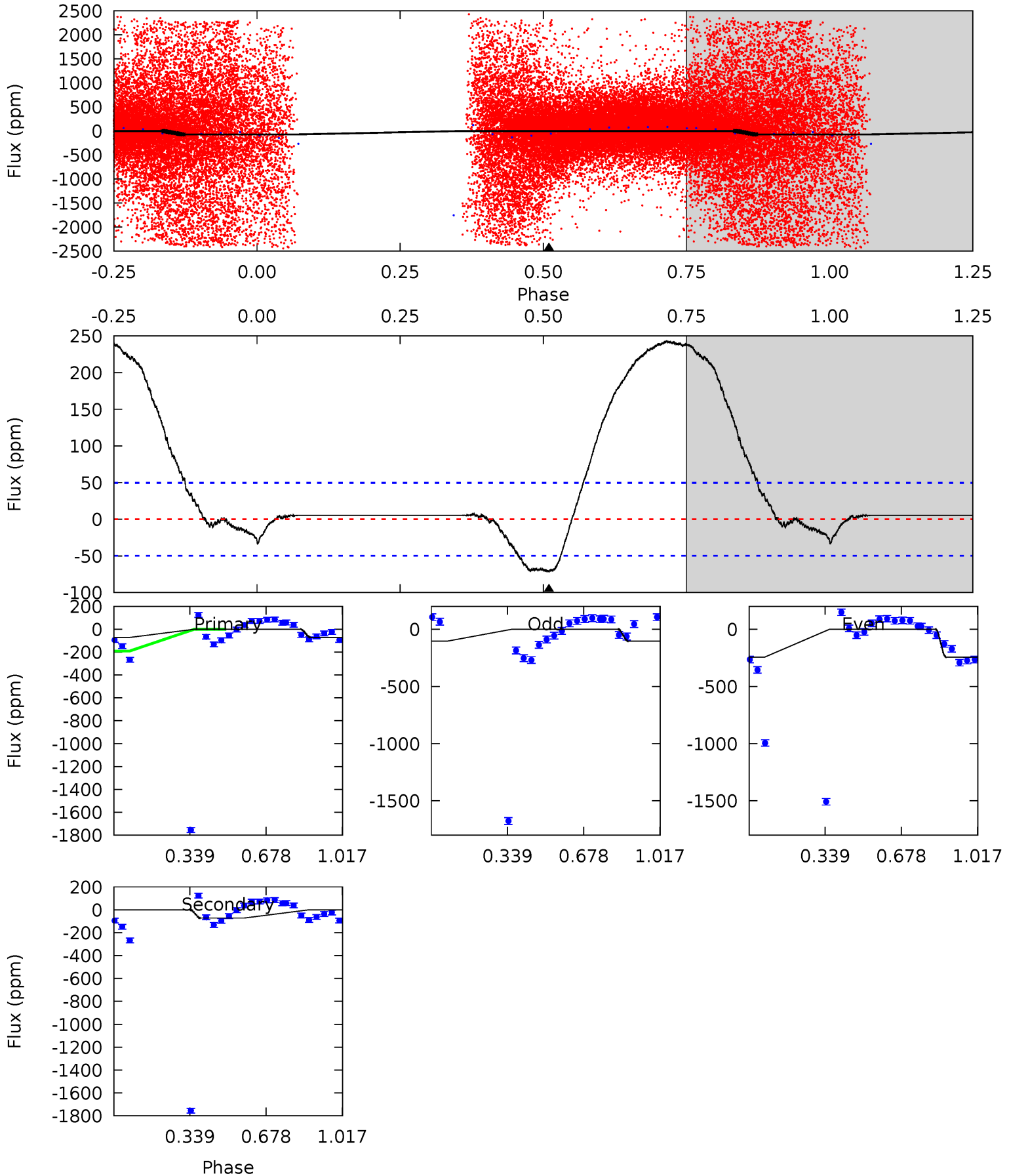
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004446411-02, P = 0.629293 Days, E = 131.236621 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.26	6.26	0	0	4.30	0.96	2.83	6.26	6.26	6.26	6.26	15.2	2.79	0.77	4.04



Stellar Parameters For KIC 004446411

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5628^{+225}_{-225}	$4.388^{+0.153}_{-0.187}$	$-0.180^{+0.300}_{-0.300}$	$0.976^{+0.269}_{-0.157}$	$0.850^{+0.136}_{-0.073}$	$1.286^{+0.947}_{-0.626}$
	+4%/-4%	+3%/-4%	+167%/-167%	+28%/-16%	+16%/-9%	+74%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004446411-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$8.08^{+8.28}_{-5.58}$	2944^{+246}_{-192}	-4059^{+23792}_{-13844}	$-1.123^{+260.639}_{-242.451}$
Alt.	-72 ± 12	$7.33^{+8.82}_{-5.17}$	2947^{+226}_{-201}	-2776^{+6561}_{-268}	$0.137^{+1.417}_{-0.109}$

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

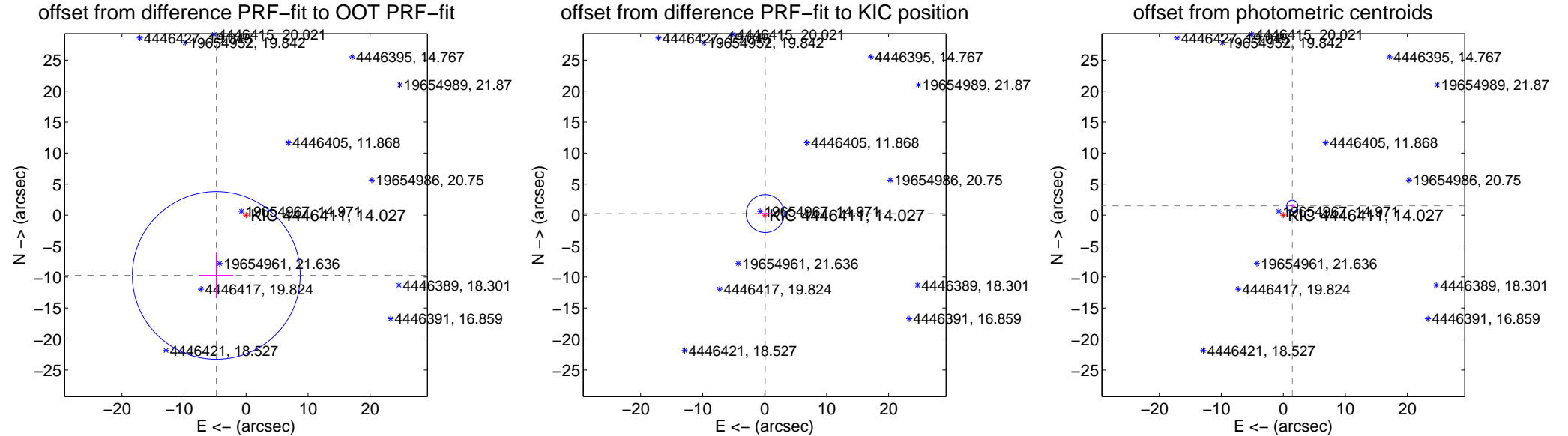
DV Centroid Data

Supplemental centroid analysis for 004446411-02. Kepler magnitude: 14.03. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

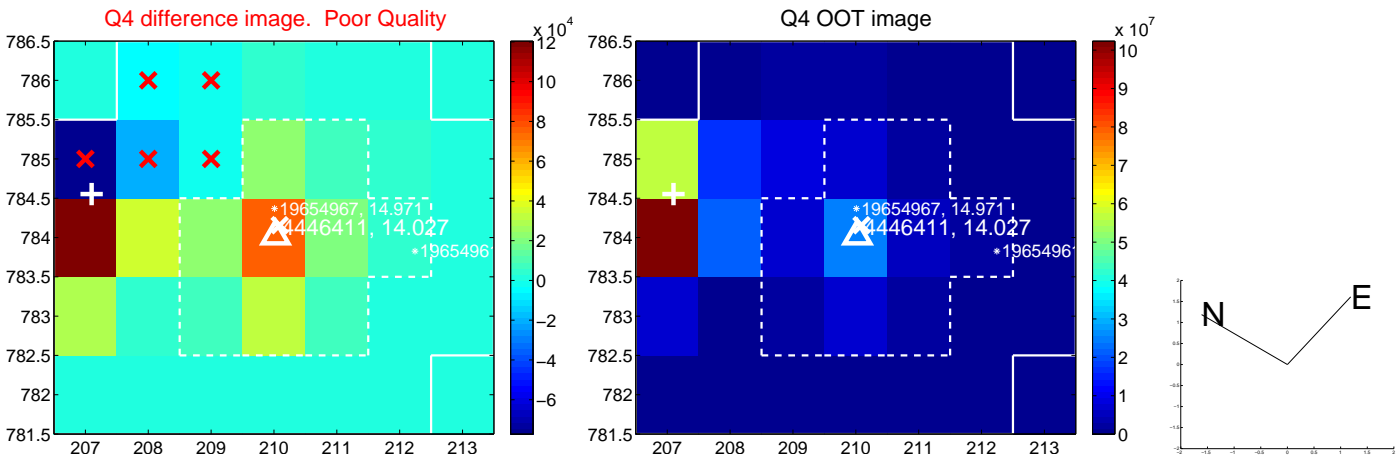
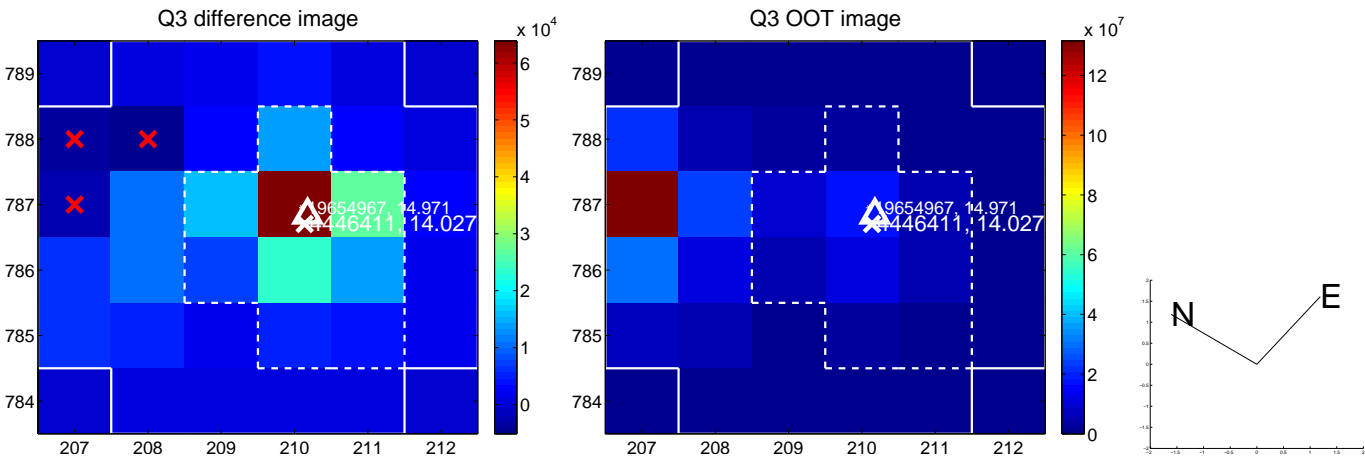
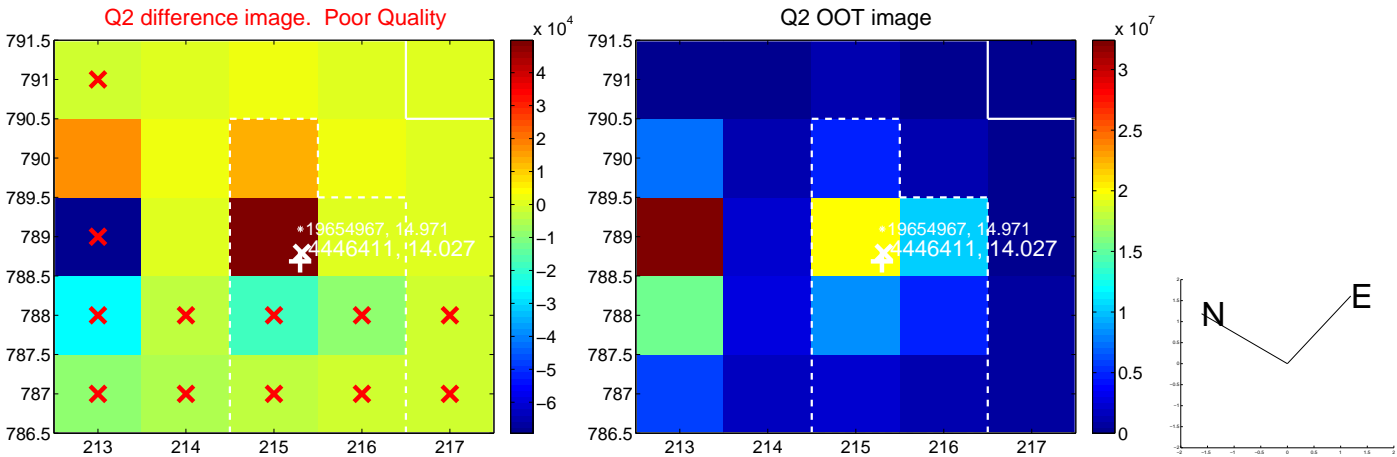
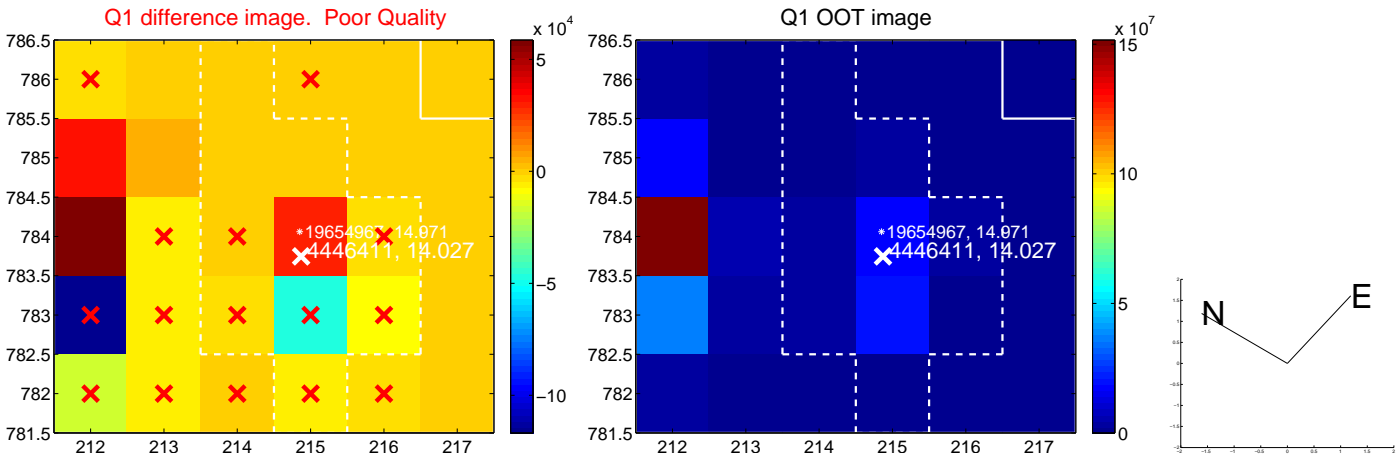
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.847 ± 4.509	2.41	4.794 ± 2.707	-9.731 ± 3.694
PRF-fit source offset from KIC position	0.254 ± 1.022	0.25	-0.087 ± 1.256	0.239 ± 0.730
photometric centroid source offset	2.10 ± 0.30	7.00	-1.45 ± 0.33	1.51 ± 0.26

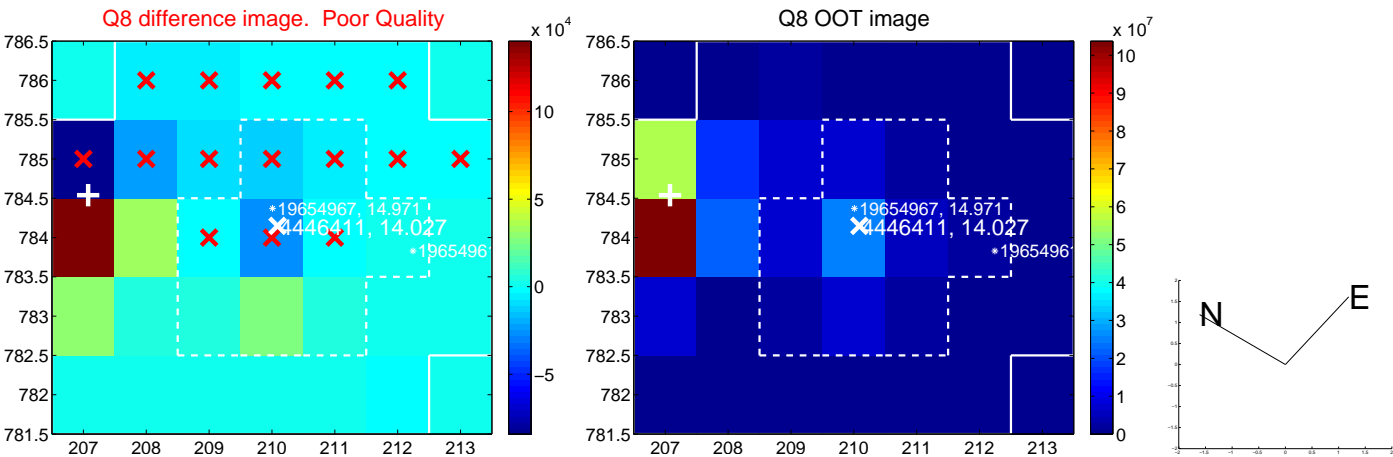
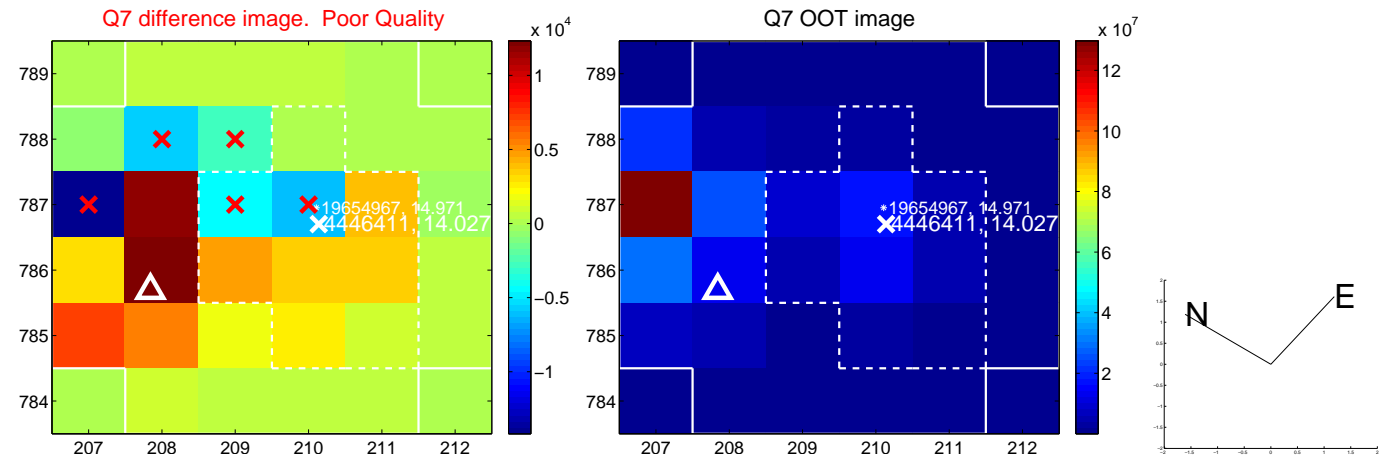
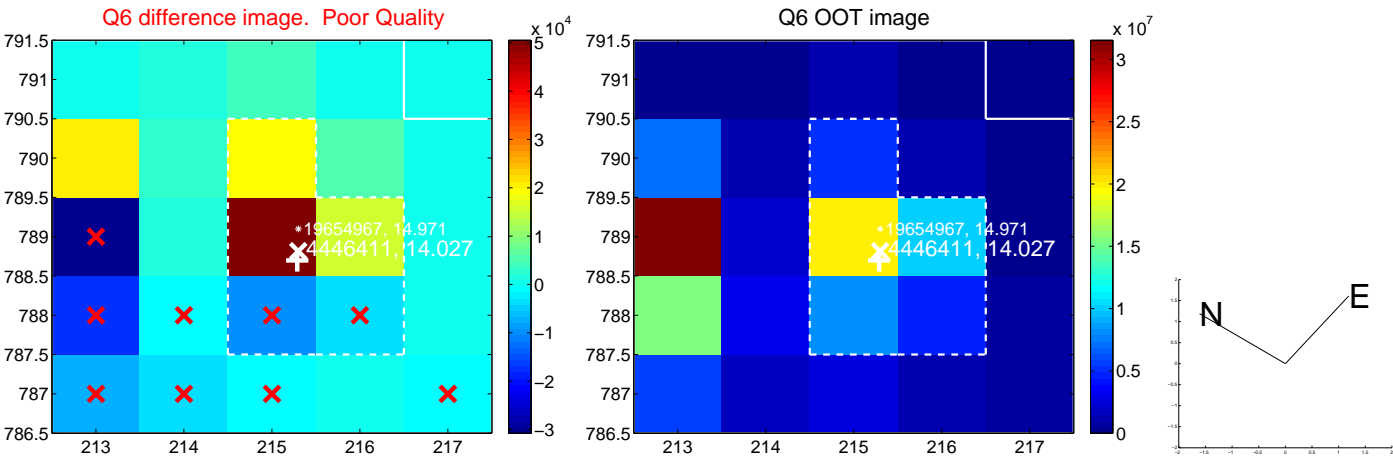
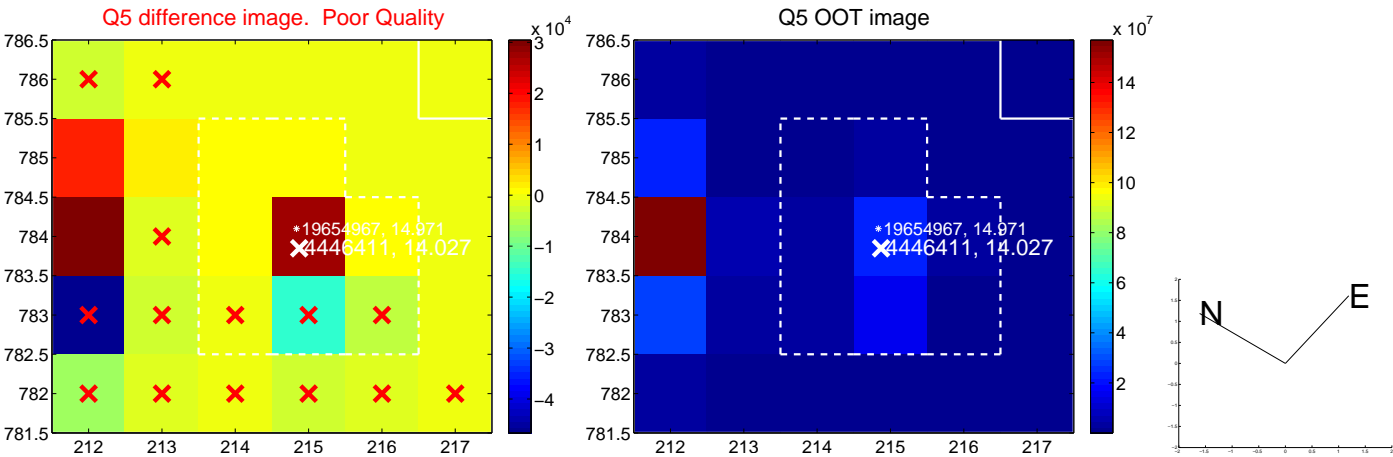


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

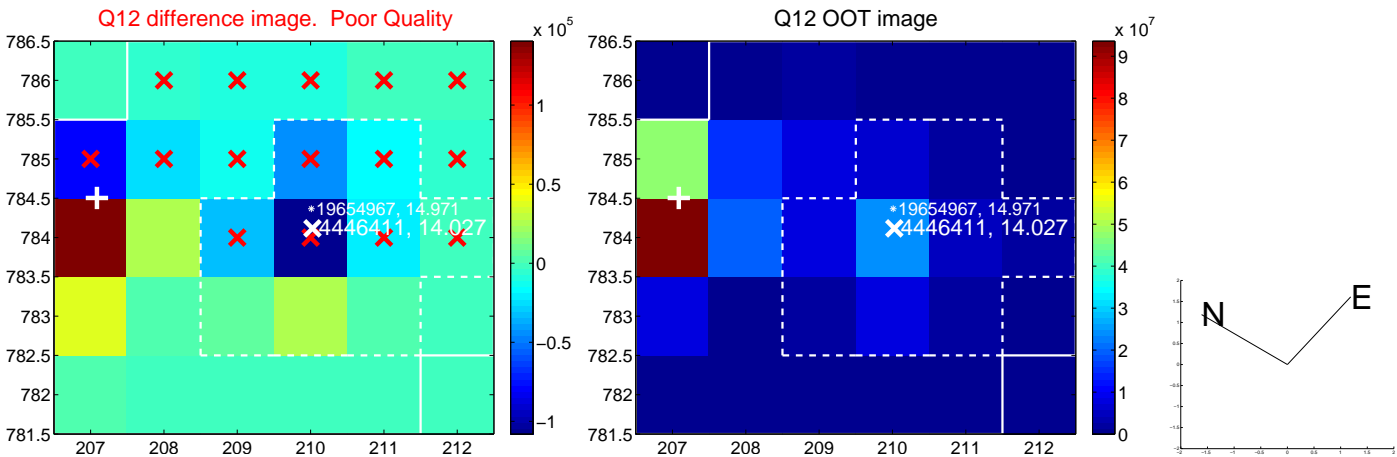
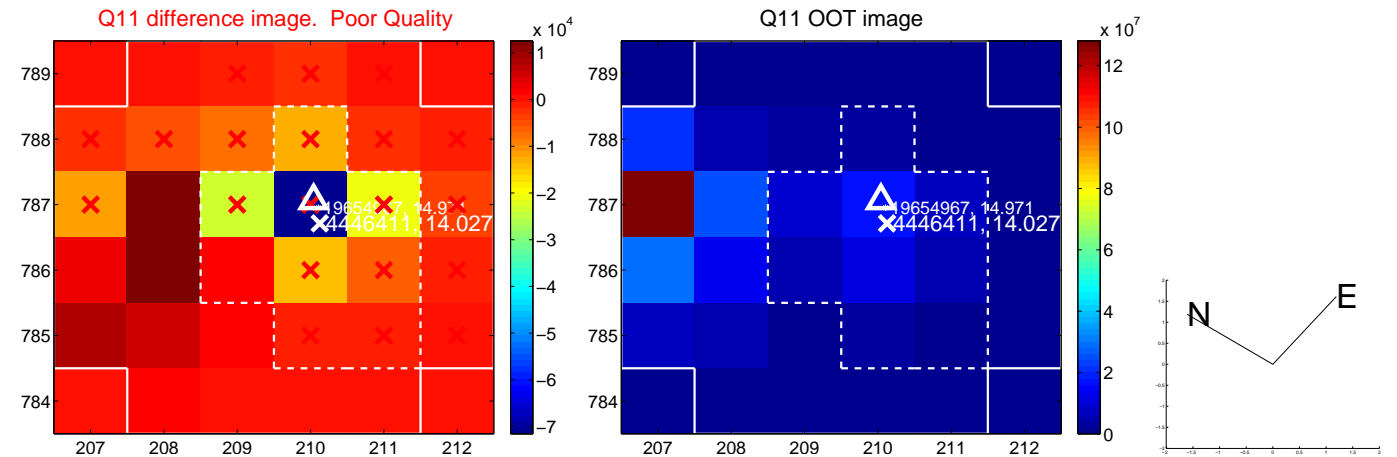
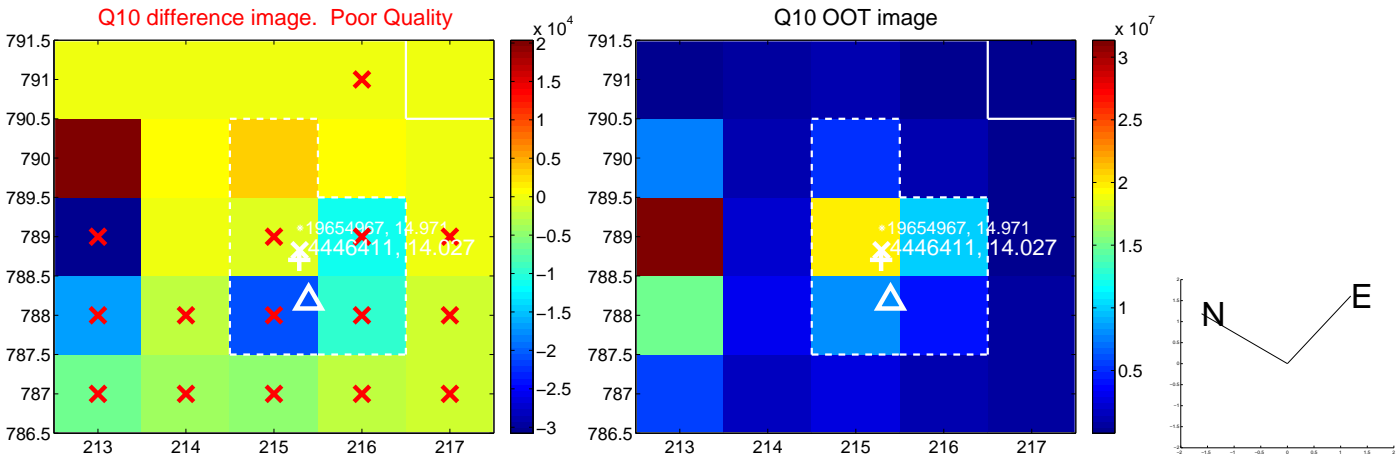
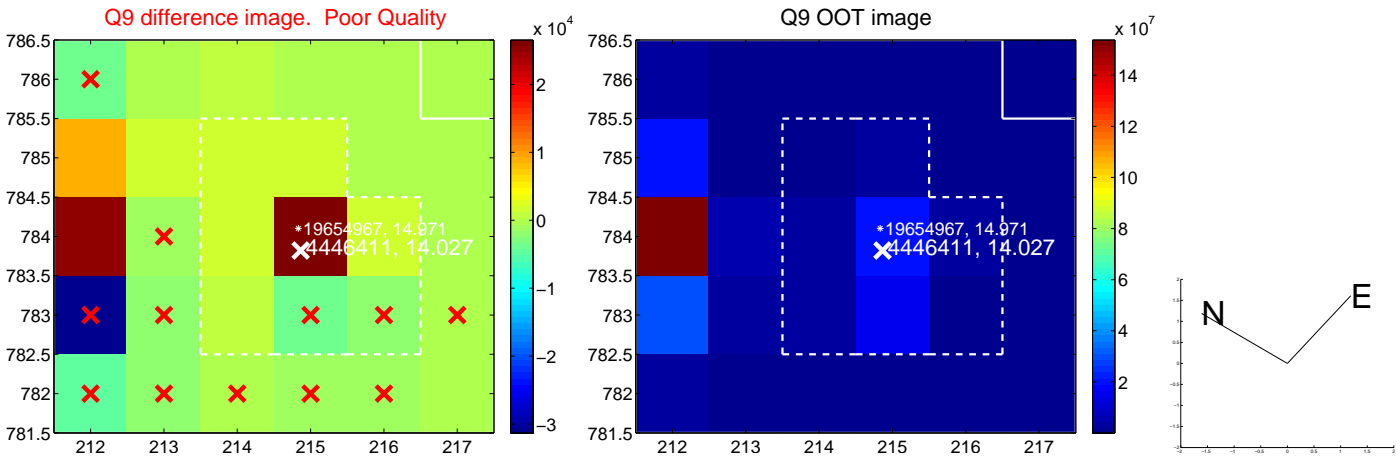
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



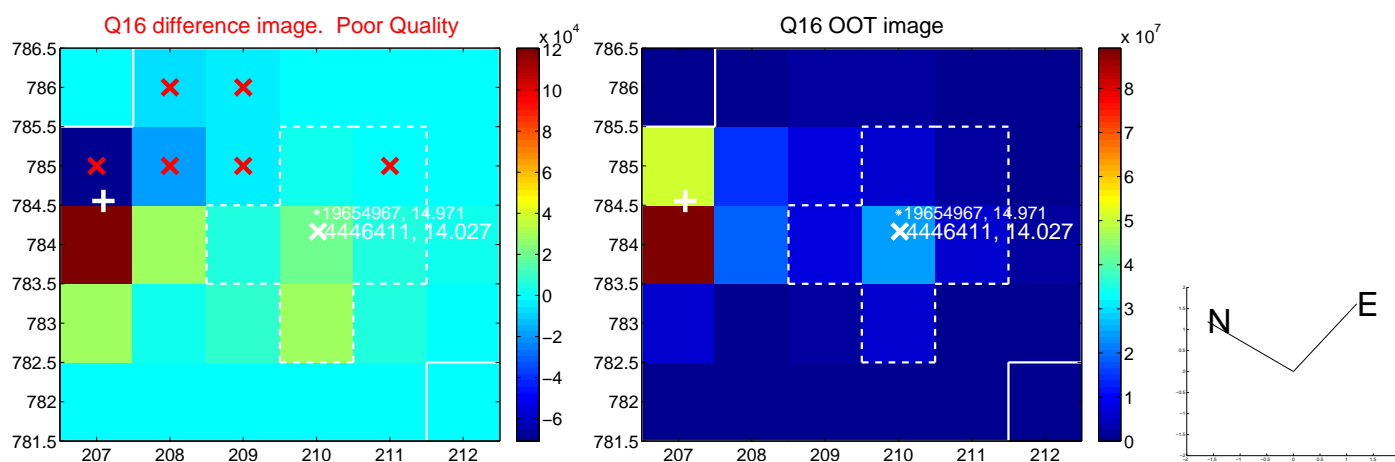
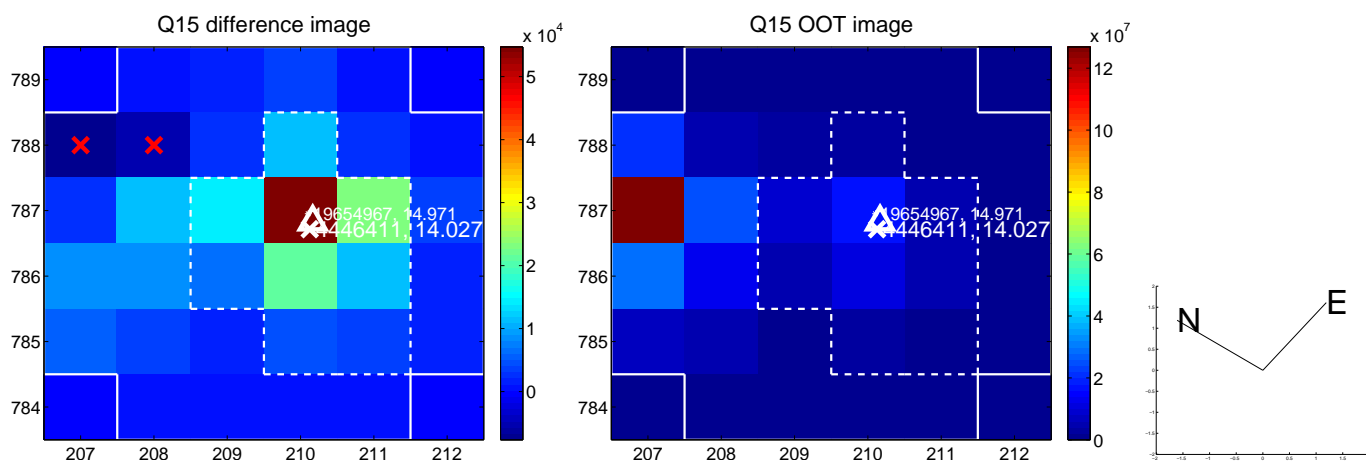
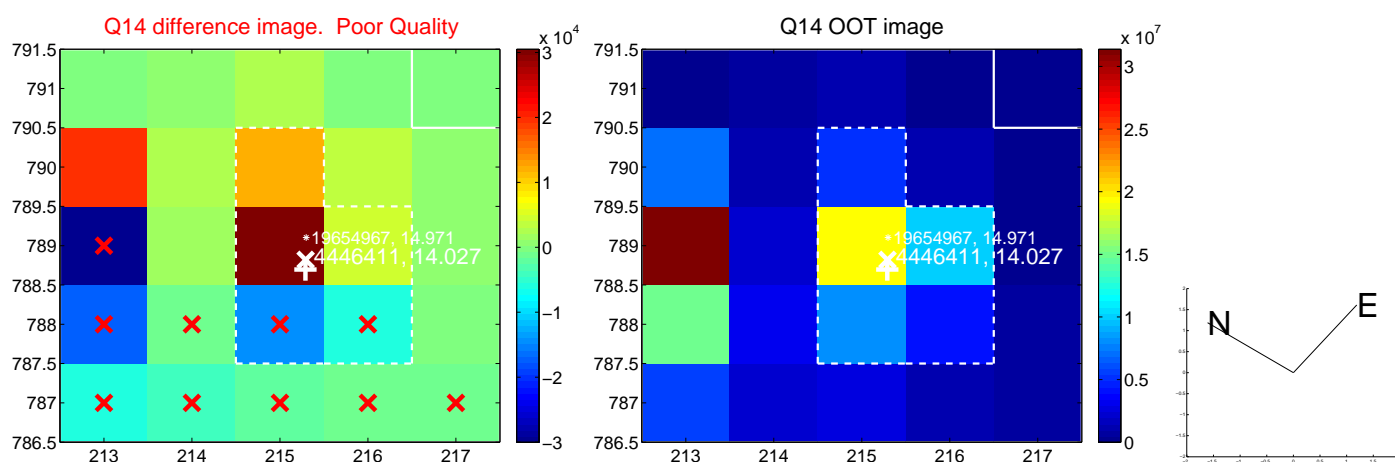
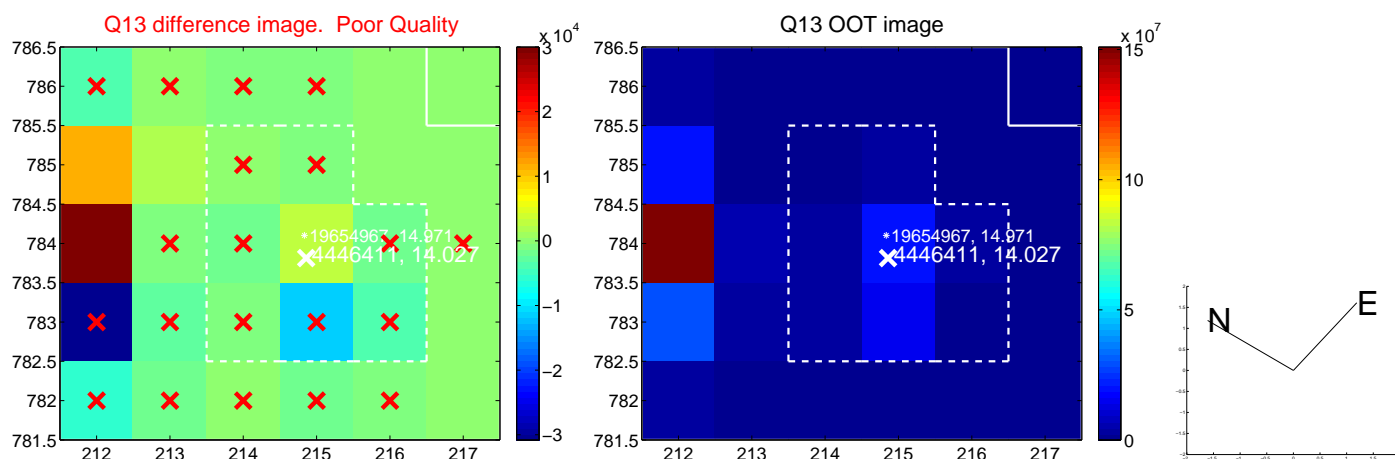
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



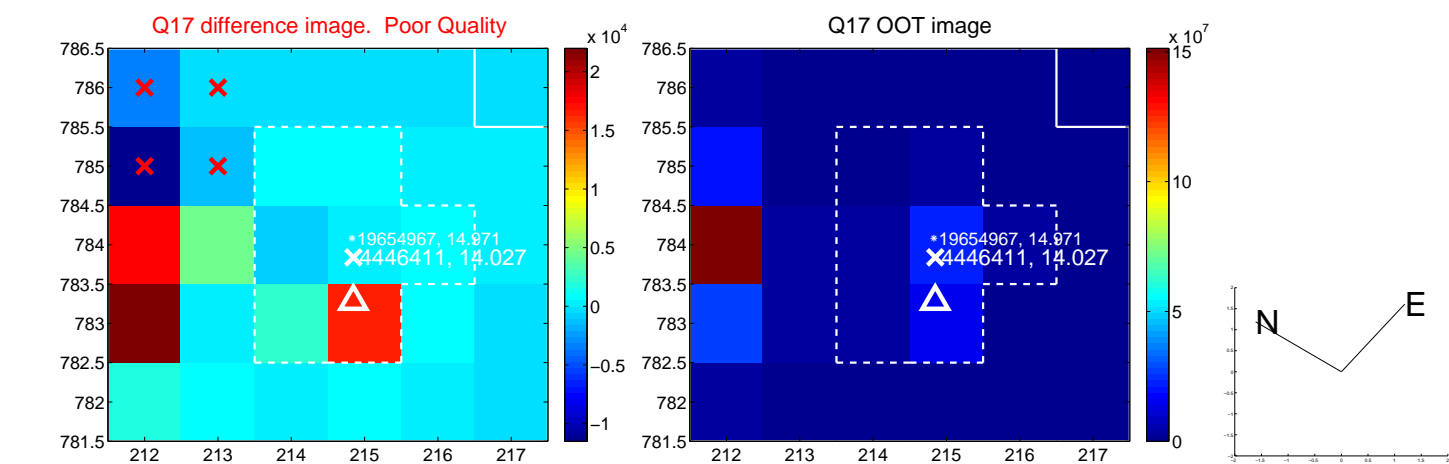
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



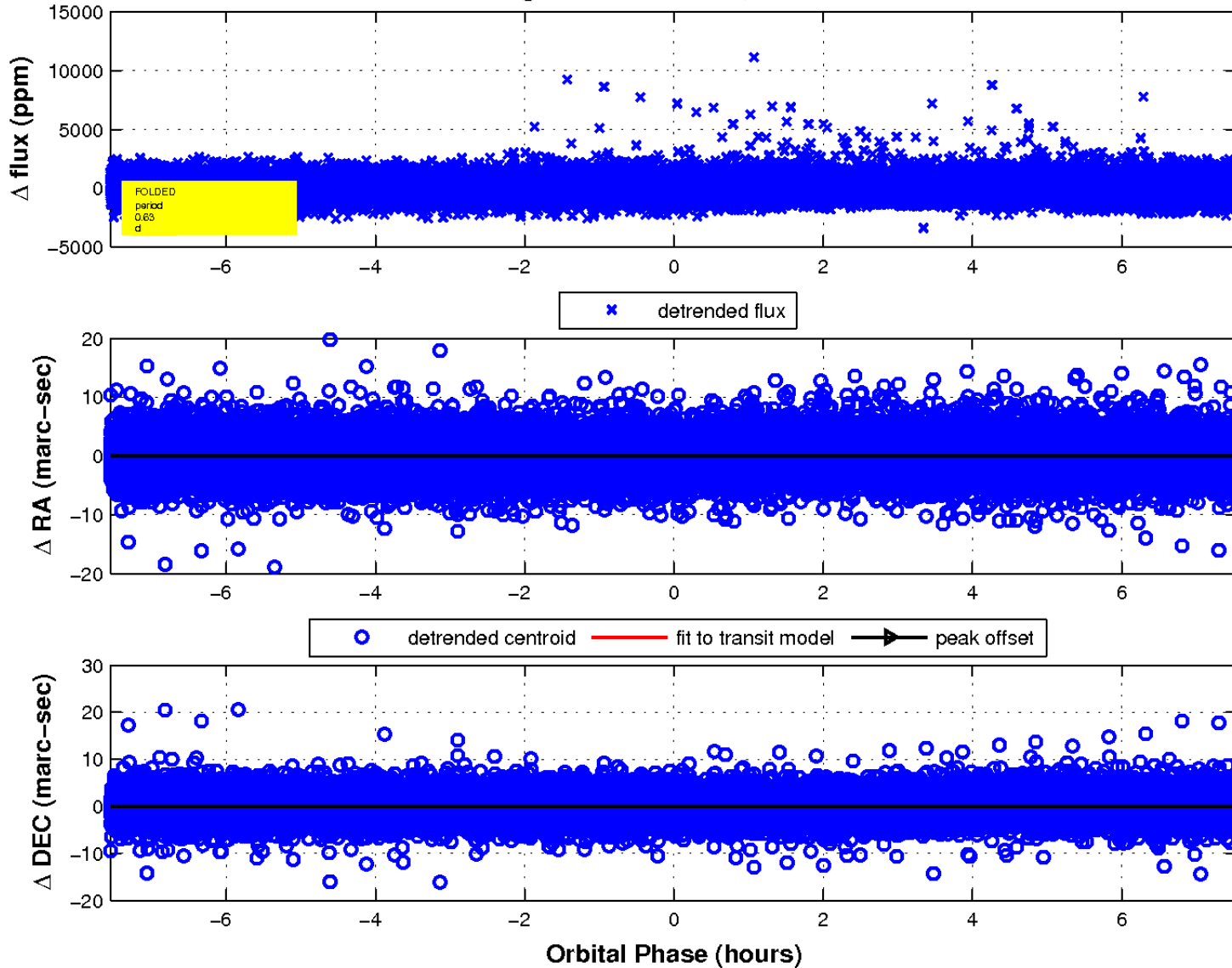
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

