

KIC 005443410

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})
005443410-01	OBS	No	4.047828	135.124731	631.5	8.560	9.1	11.2	2.34	7239	7.29	3755.07
005443410-02	OBS	No	0.578211	131.686209	537.8	5.994	8.7	15.7	2.34	7239	7.03	50288.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005443410-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005443410-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT

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

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

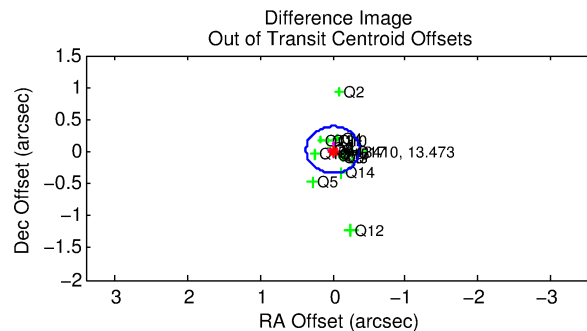
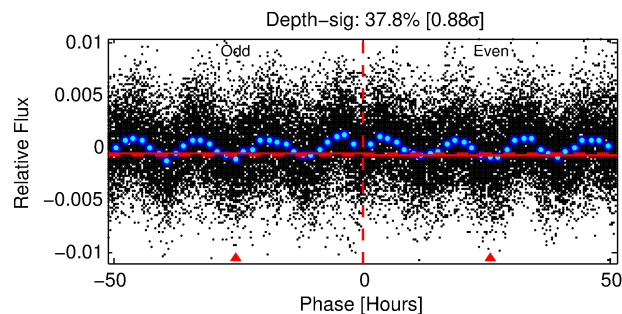
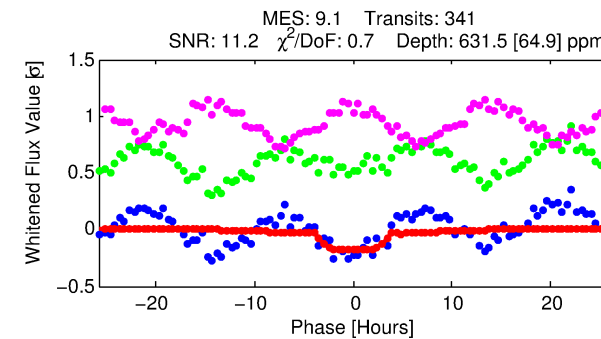
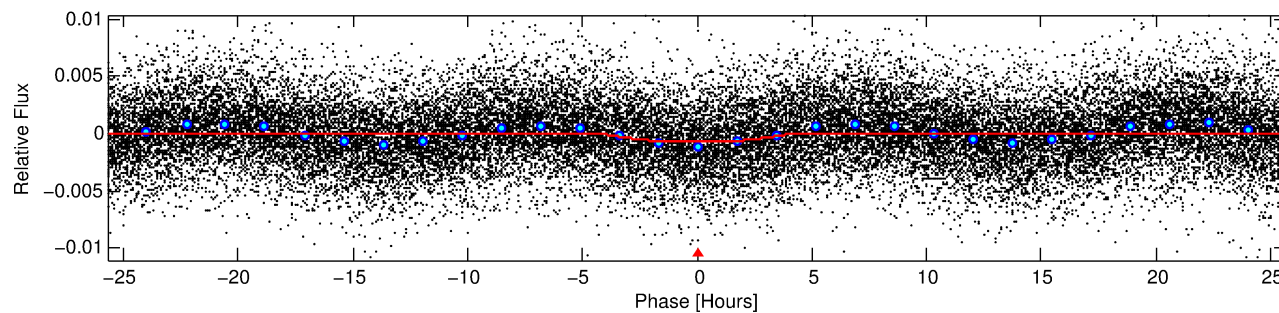
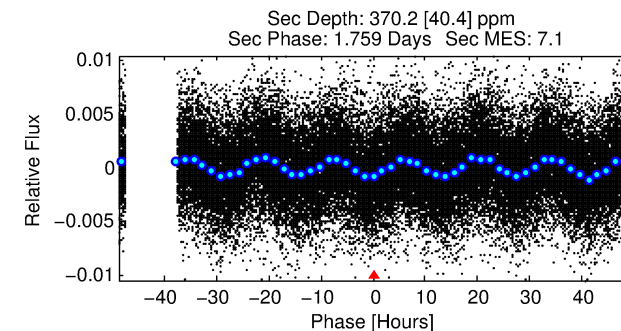
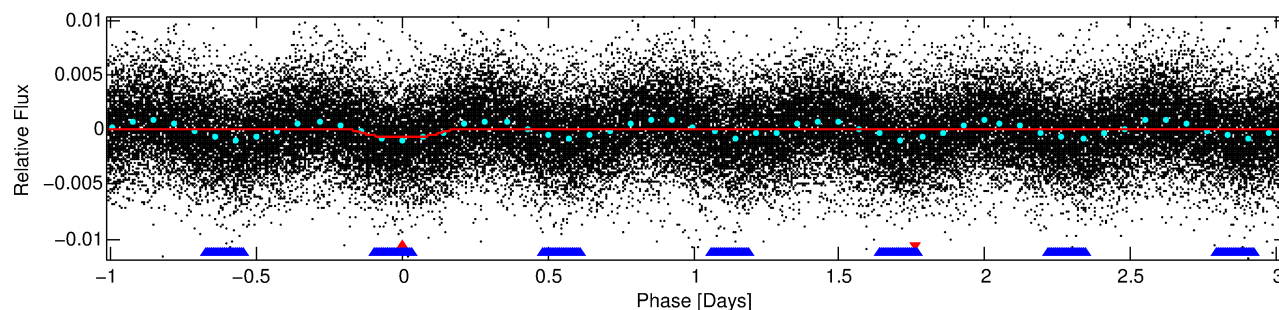
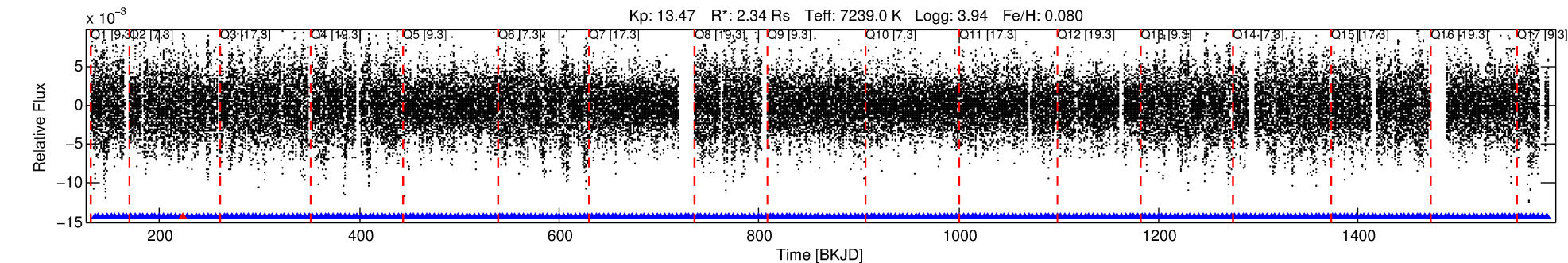
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005443410-01

No Significant Match Found

DV One-Page Summary

KIC: 5443410 Candidate: 1 of 2 Period: 4.048 d



DV Fit Results:

Period = 4.04783 [0.00008] d
Epoch = 135.1247 [0.0146] BKJD
Rp/R* = 0.0285 [0.0018]
a/R* = 1.68 [0.15]
b = 0.96 [0.01]
Seff = 3755.07 [939.96]
Teff = 1996 [125] K
Rp = 7.29 [1.48] Re
a = 0.0600 [0.0100] AU
Ag = 13.80 [4.12] [3.11σ]
Teffp = 5949 [259] K [13.76σ]

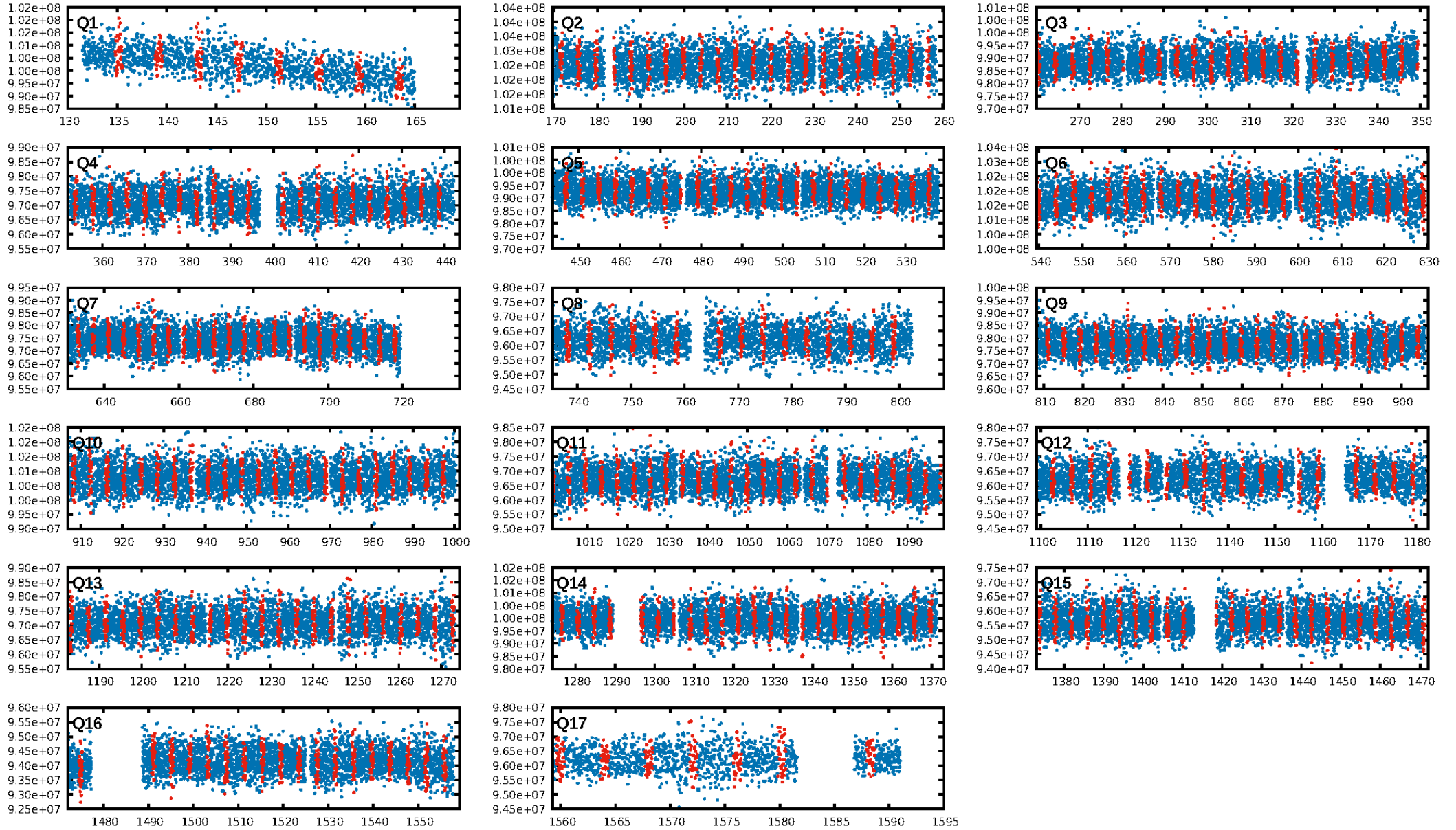
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.97σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [325/326]
GhostDiagnostic-chr: 1.037
Centroid-sig: 0.0%
Centroid-so: 0.121 arcsec [2.39σ]
OotOffset-rm: 0.029 arcsec [0.24σ]
KicOffset-rm: 0.110 arcsec [0.91σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 0.00 [0/17]

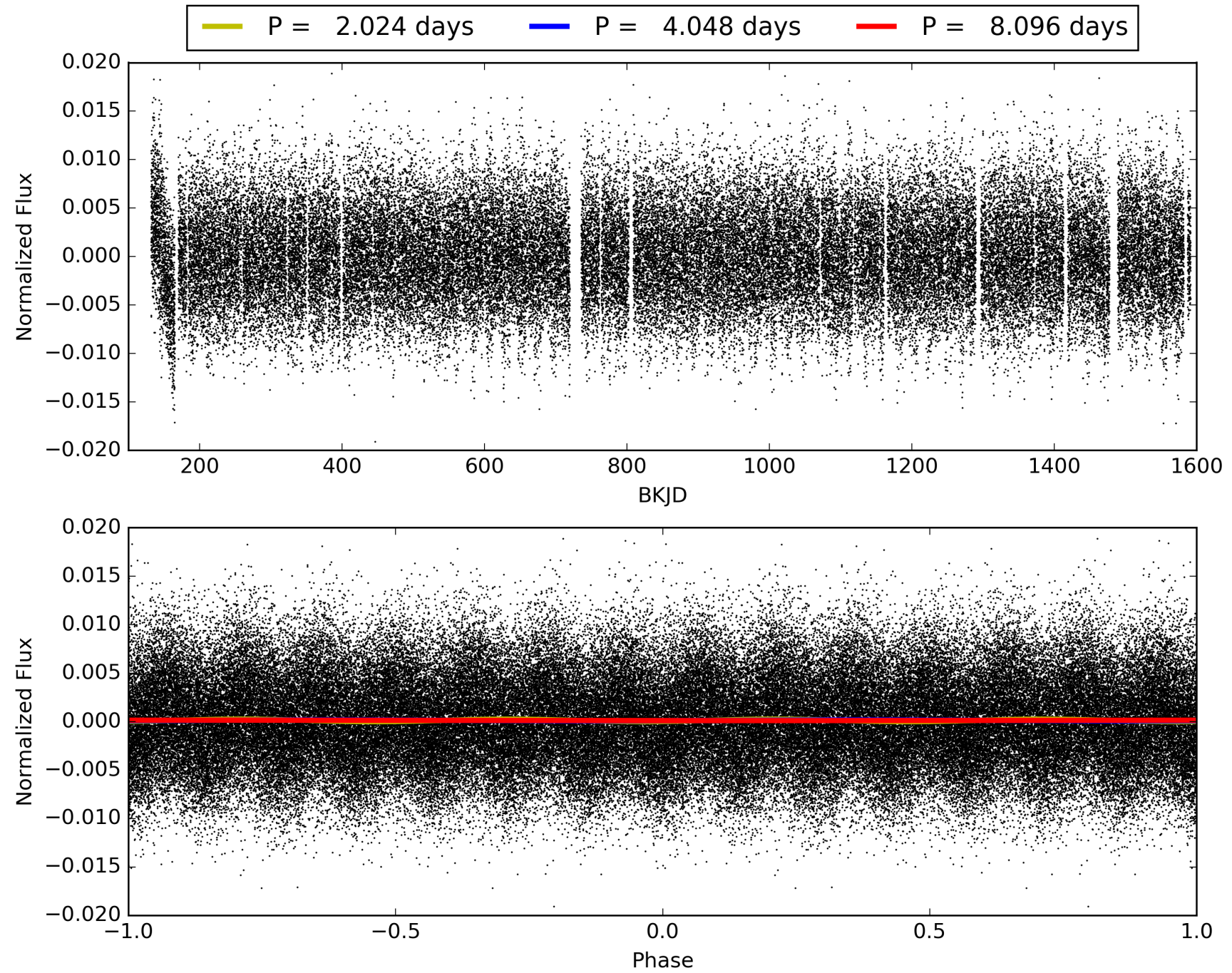
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:09:34 Z

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

TCE 005443410-01, PDC Light Curves

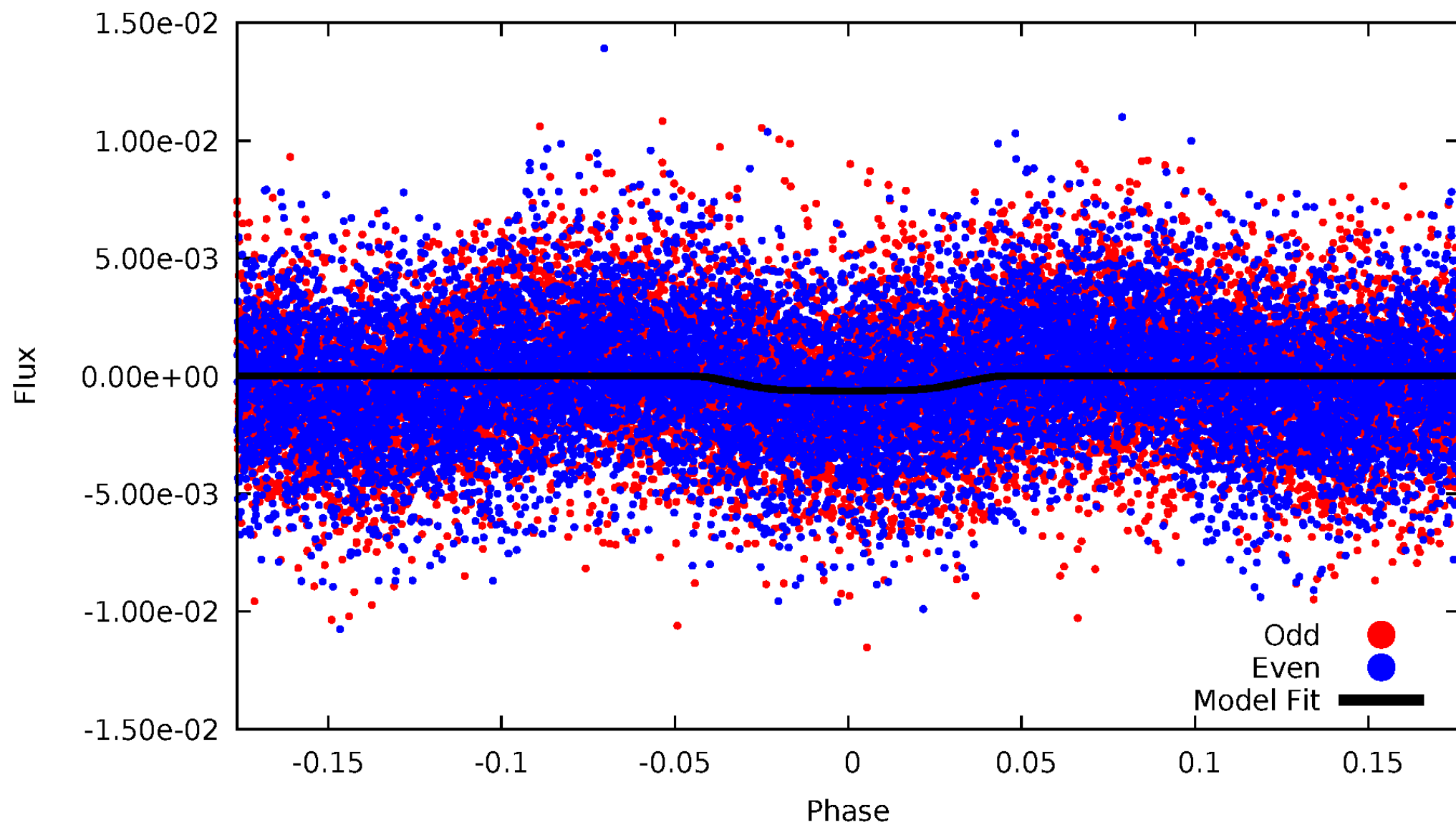


TCE 005443410-01



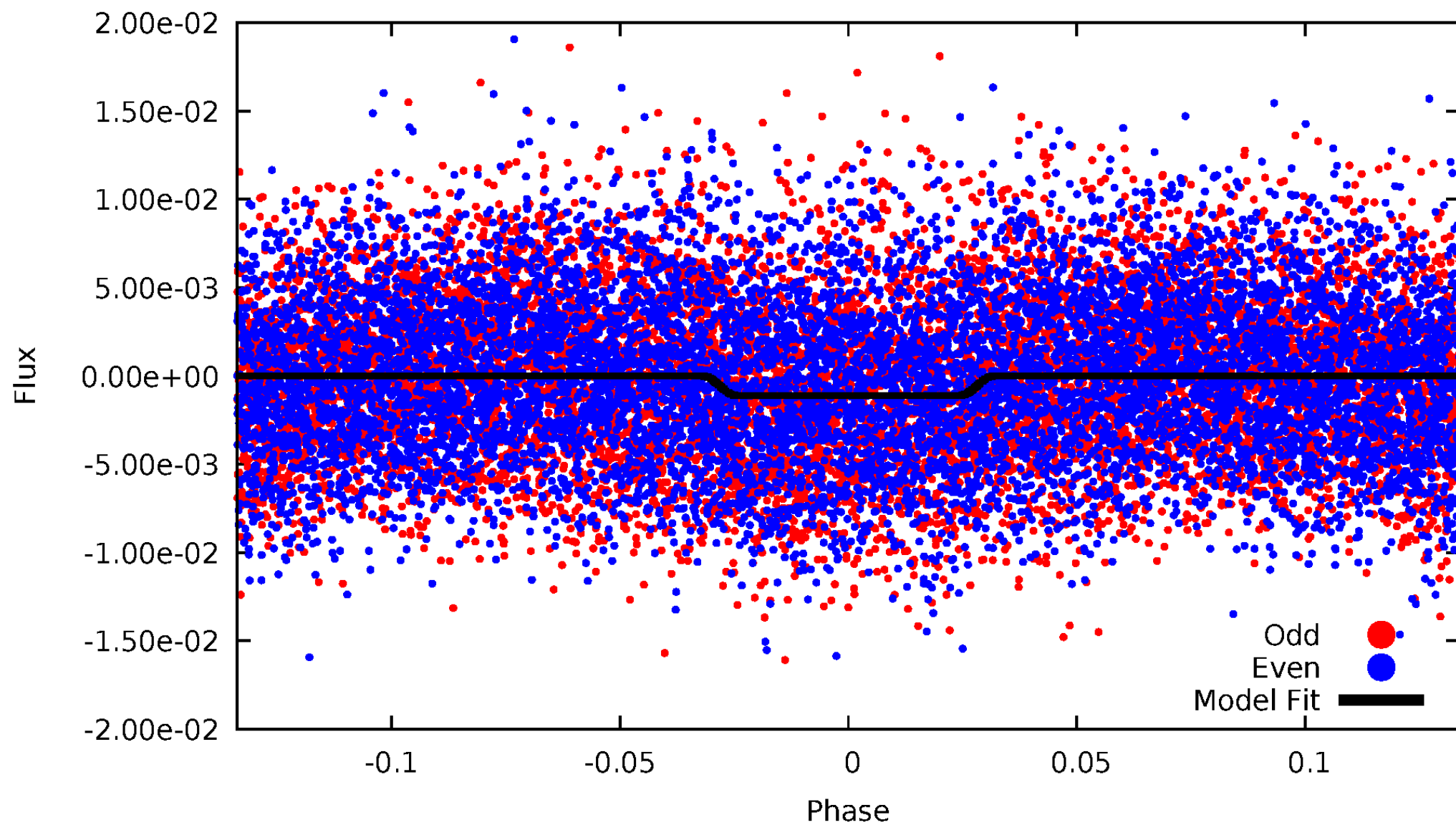
DV Odd/Even

TCE 005443410-01



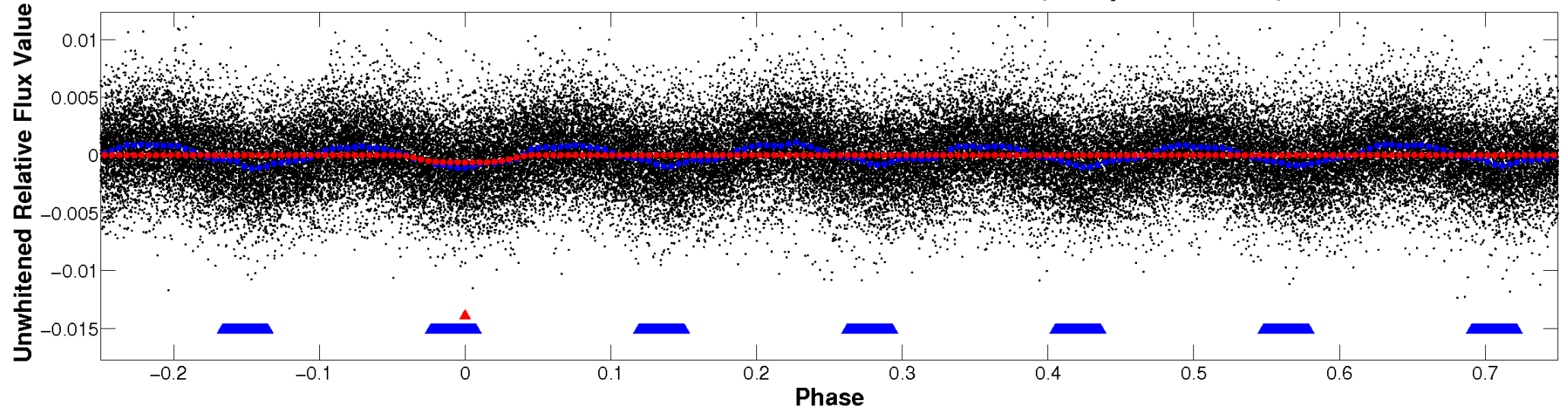
ALT Odd/Even

TCE 005443410-01

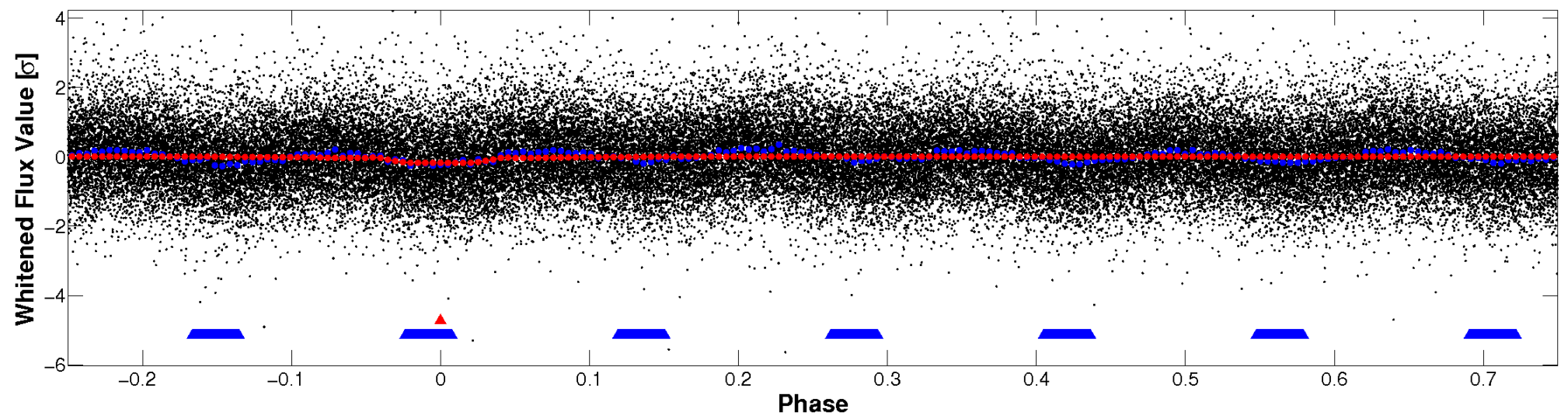


Non-Whitened Vs. Whitened Light Curve

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

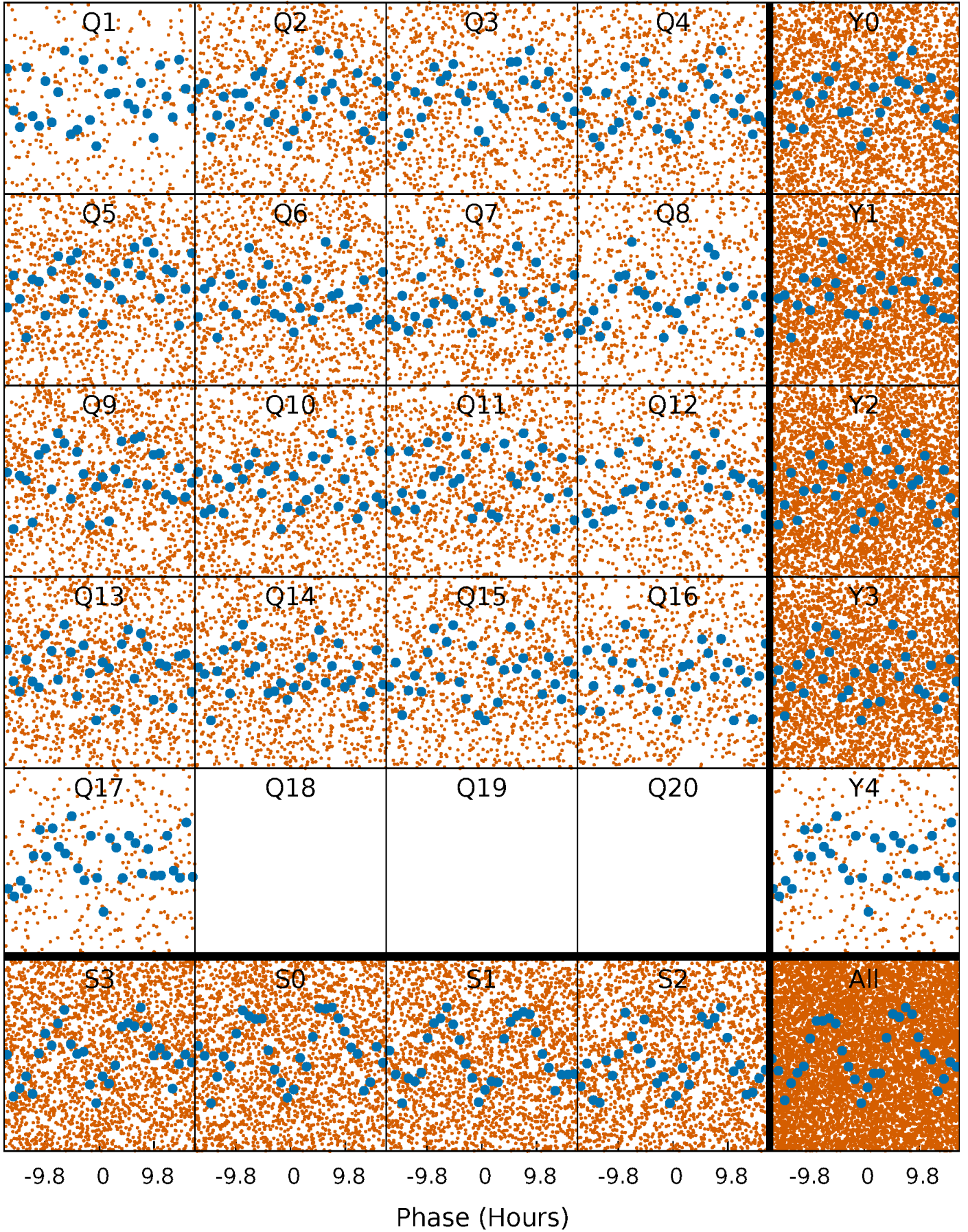


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



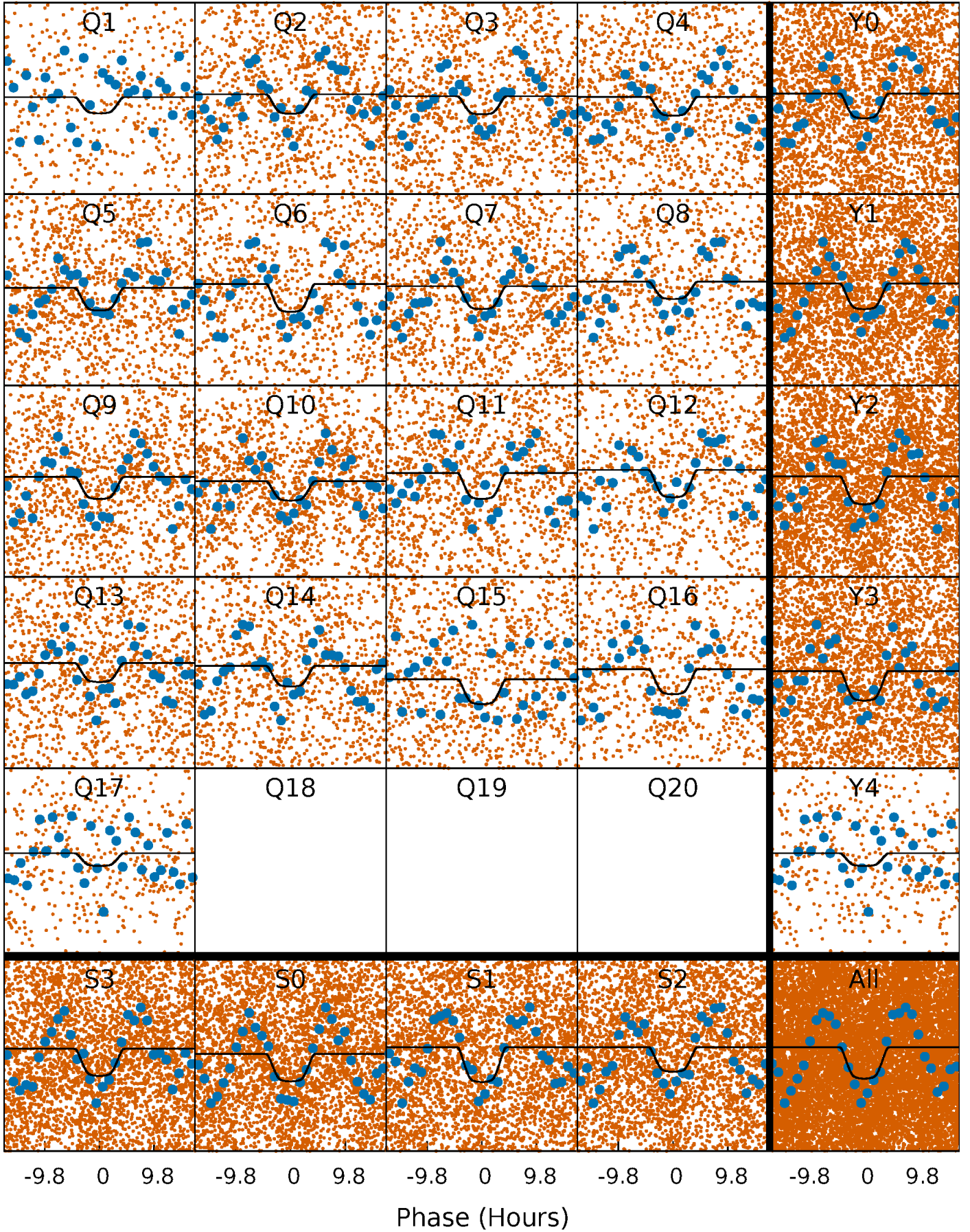
PDC Quarter-Phased Transit Curves

TCE 005443410-01 P= 4.047828 Days $T_0=135.124731$ (BKJD)



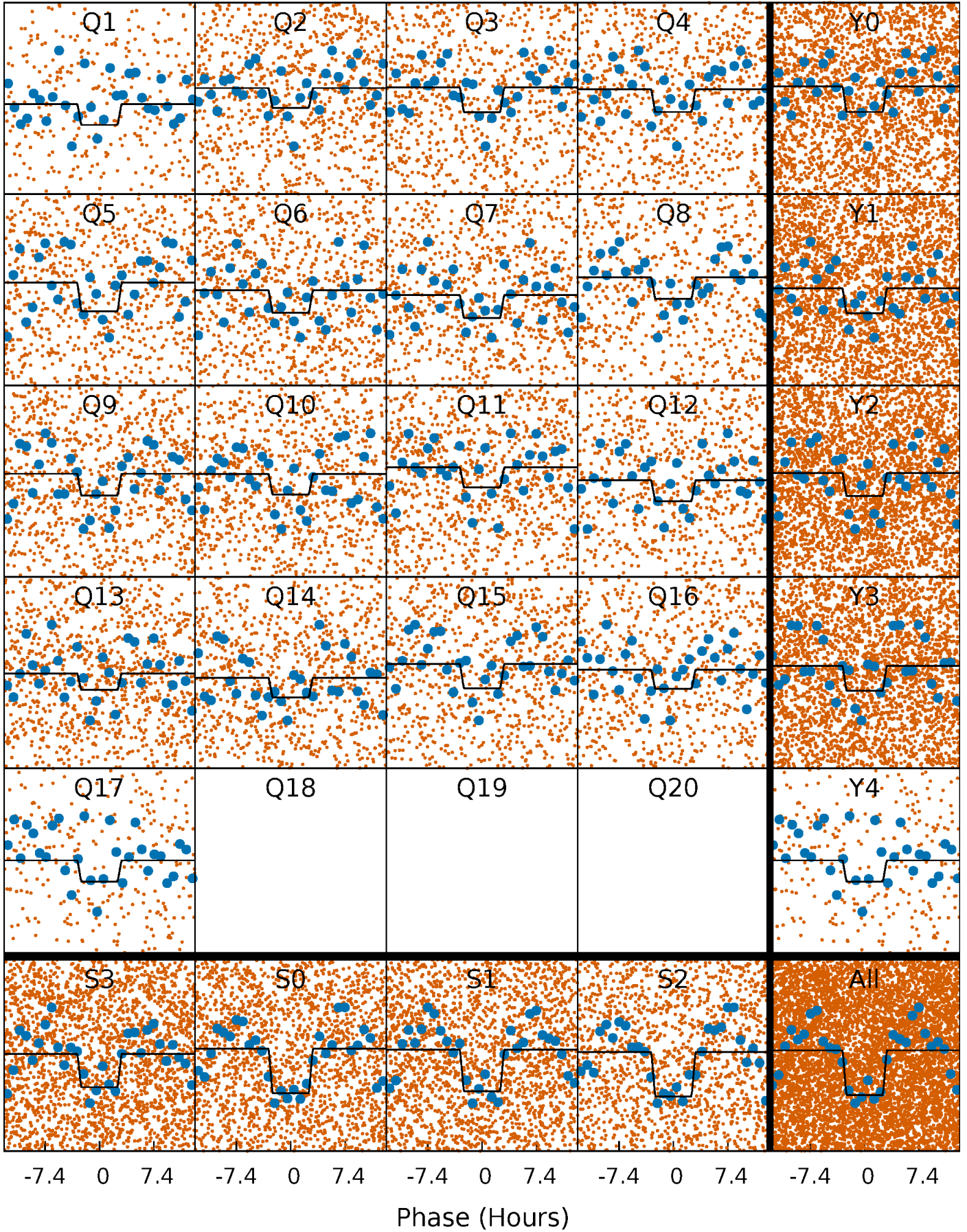
DV Quarter-Phased Transit Curves

TCE 005443410-01 P= 4.047828 Days $T_0=135.124731$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

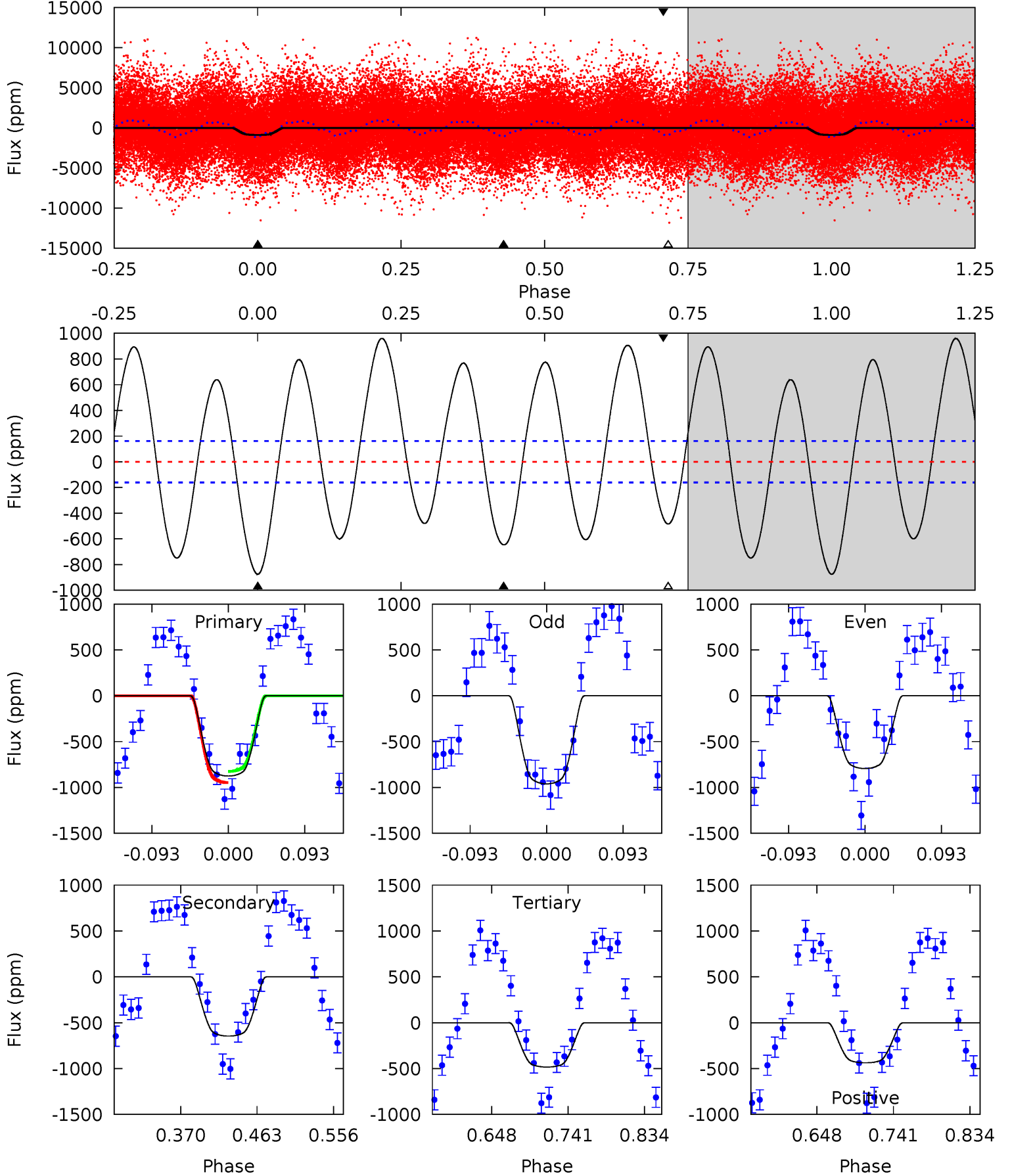
TCE 005443410-01 P= 4.047997 Days $T_0=135.099142$ (BKJD)



DV Model-Shift Uniqueness Test

005443410-01, P = 4.047828 Days, E = 131.076903 Days

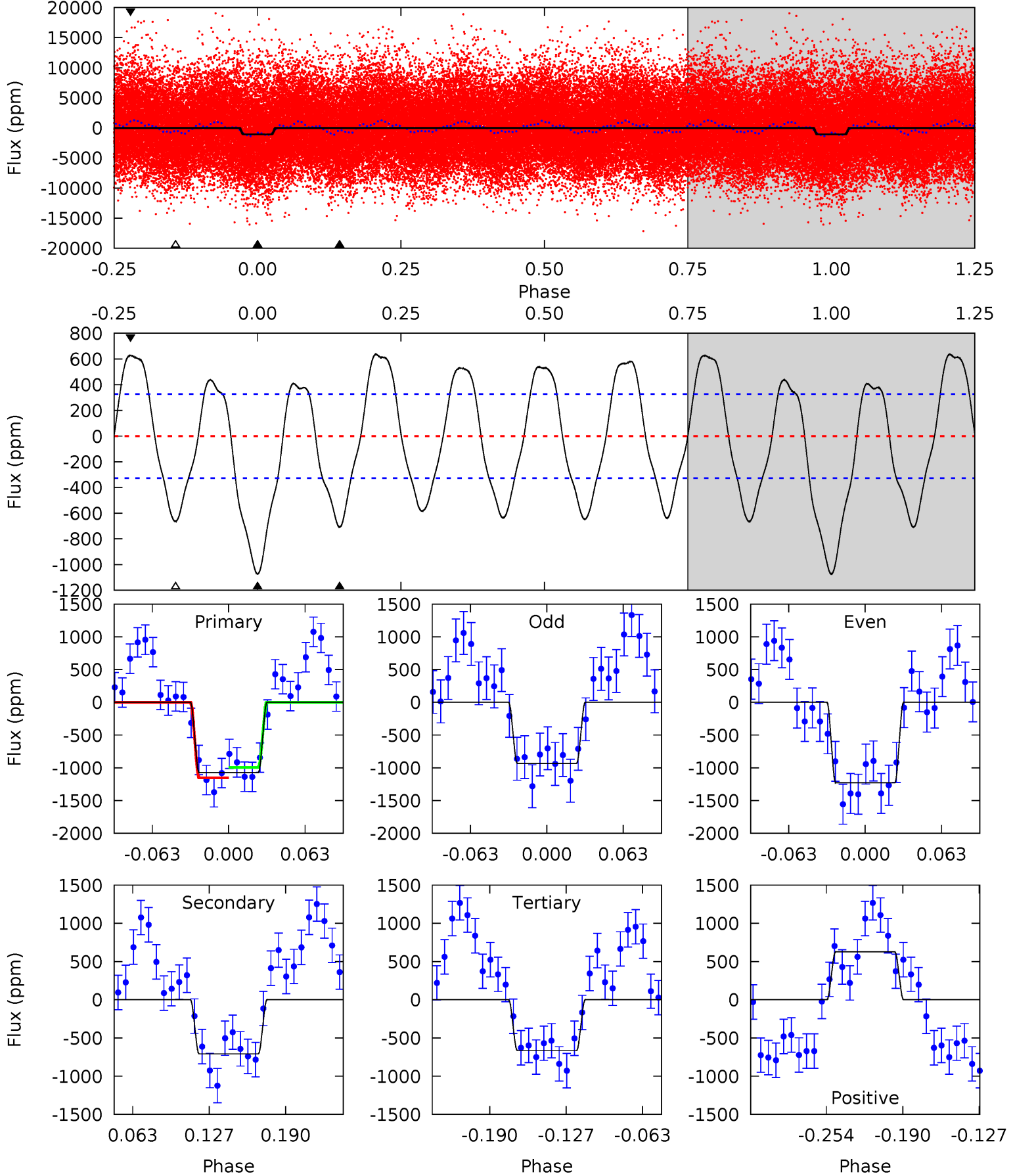
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	18.3	13.7	-12.4	4.58	1.68	14.5	11.1	37.3	4.61	30.8	2.36	1.06	0.52	1.73



Alt Model-Shift Uniqueness Test

005443410-01, P = 4.047997 Days, E = 131.051145 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	10.1	9.47	8.92	4.66	1.86	6.05	5.82	6.36	0.62	1.17	2.11	1.00	0.37	1.13



Stellar Parameters For KIC 005443410

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7239^{+79}_{-79}	$3.943^{+0.137}_{-0.112}$	$0.080^{+0.150}_{-0.150}$	$2.344^{+0.452}_{-0.452}$	$1.758^{+0.191}_{-0.156}$	$0.192^{+0.133}_{-0.068}$
	+1%/-1%	+3%/-3%	+188%/-188%	+19%/-19%	+11%/-9%	+69%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005443410-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-646 ± 35	$7.28^{+0.94}_{-0.83}$	2789^{+135}_{-141}	6772^{+269}_{-263}	24^{+8}_{-5}
Alt.	-709 ± 70	$8.55^{+0.92}_{-1.03}$	2795^{+125}_{-141}	6397^{+281}_{-247}	20^{+6}_{-4}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

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

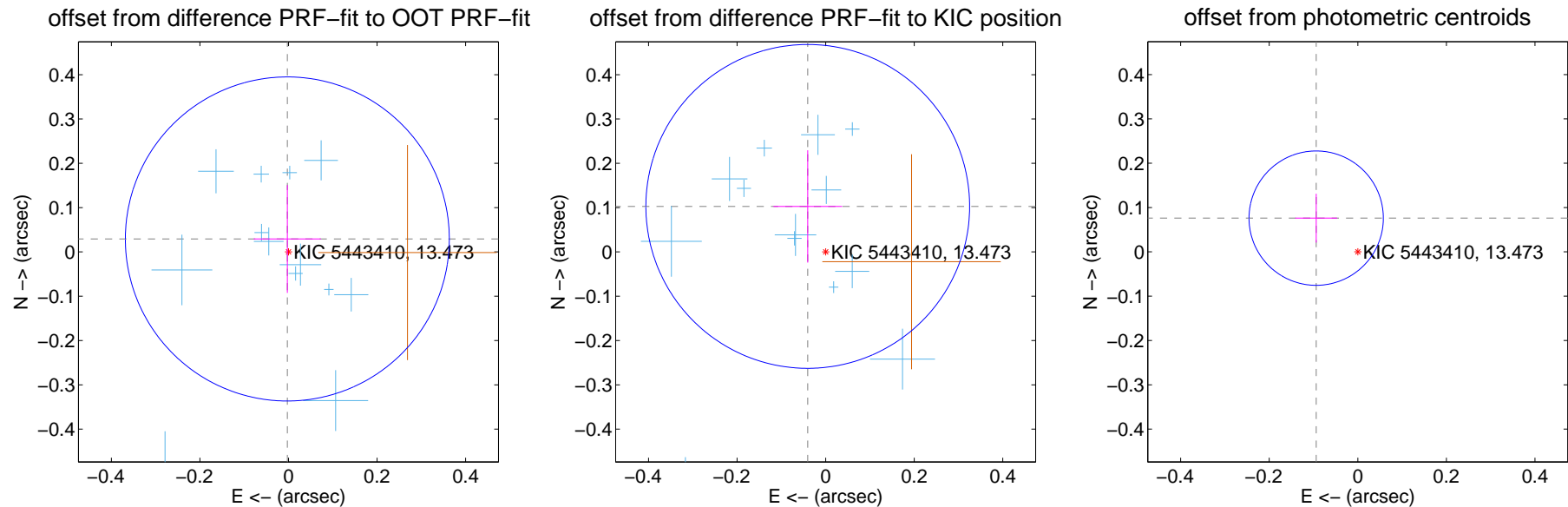
DV Centroid Data

Supplemental centroid analysis for 005443410-01. Kepler magnitude: 13.47. Transit SNR 11.18

There are 15 quarters with good PRF difference image offsets

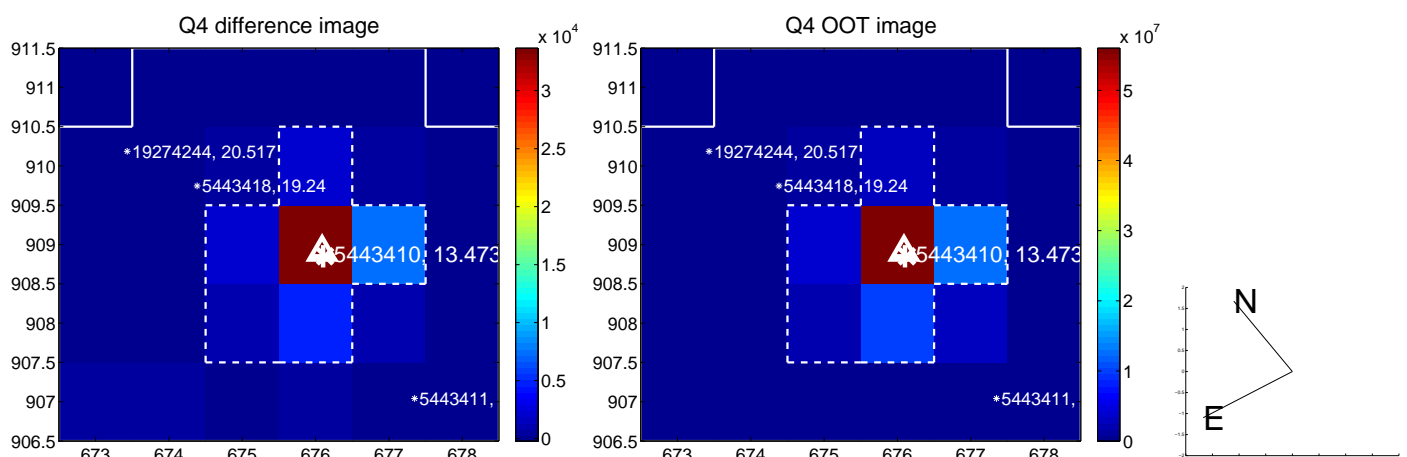
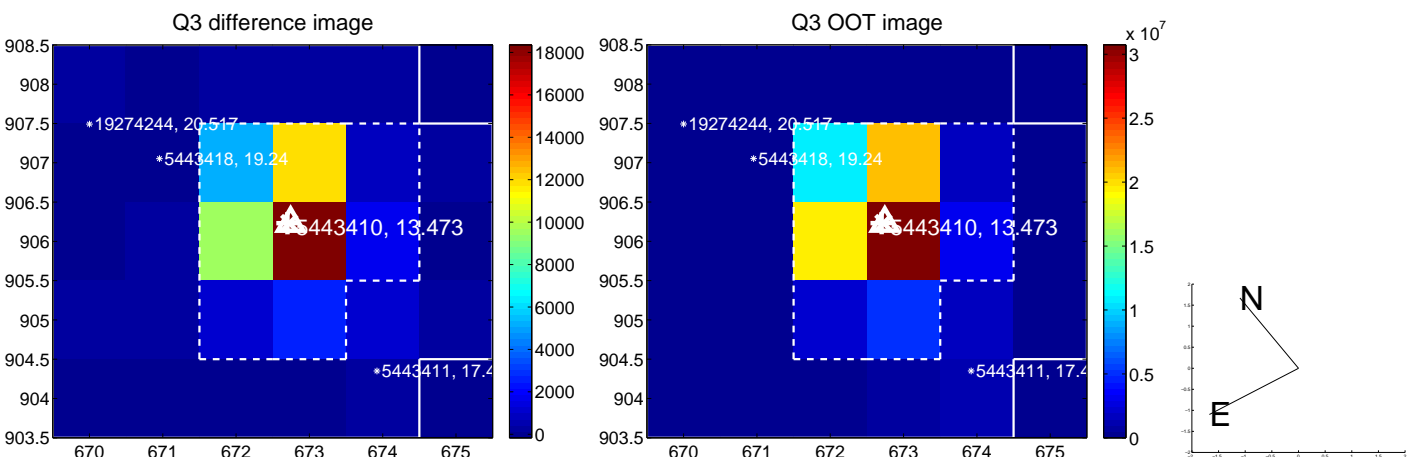
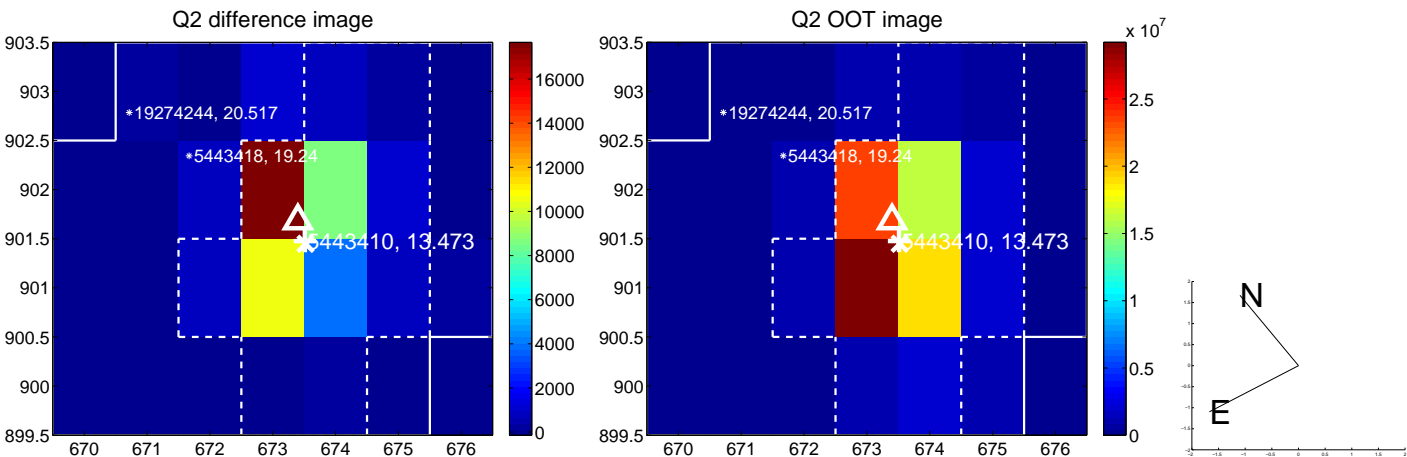
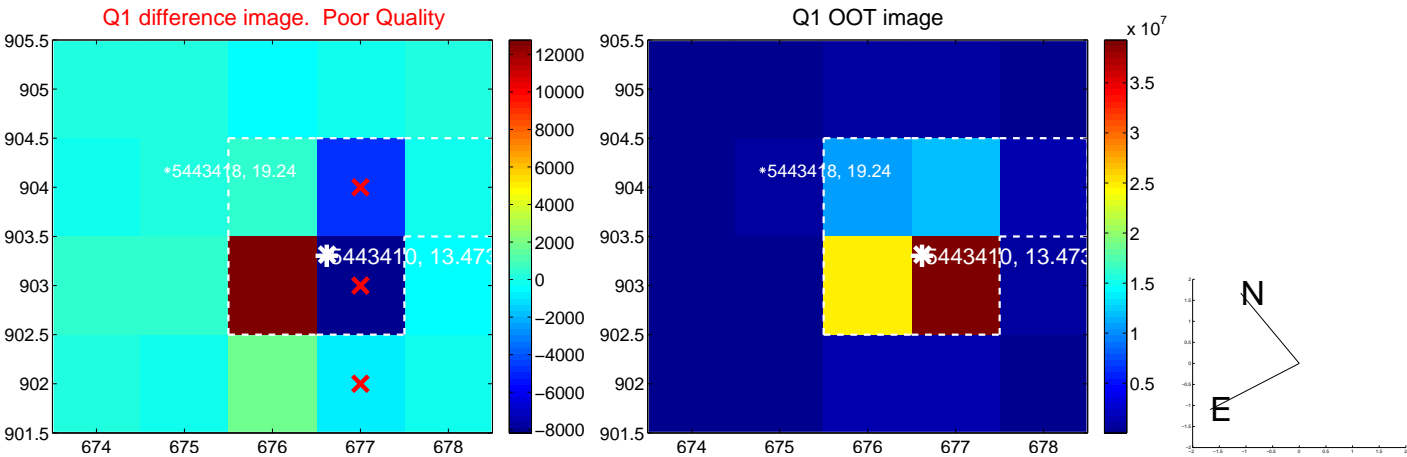
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.029 ± 0.122	0.24	0.003 ± 0.076	0.029 ± 0.122
PRF-fit source offset from KIC position	0.110 ± 0.122	0.91	0.040 ± 0.078	0.103 ± 0.127
photometric centroid source offset	0.12 ± 0.05	2.39	0.09 ± 0.05	0.08 ± 0.06

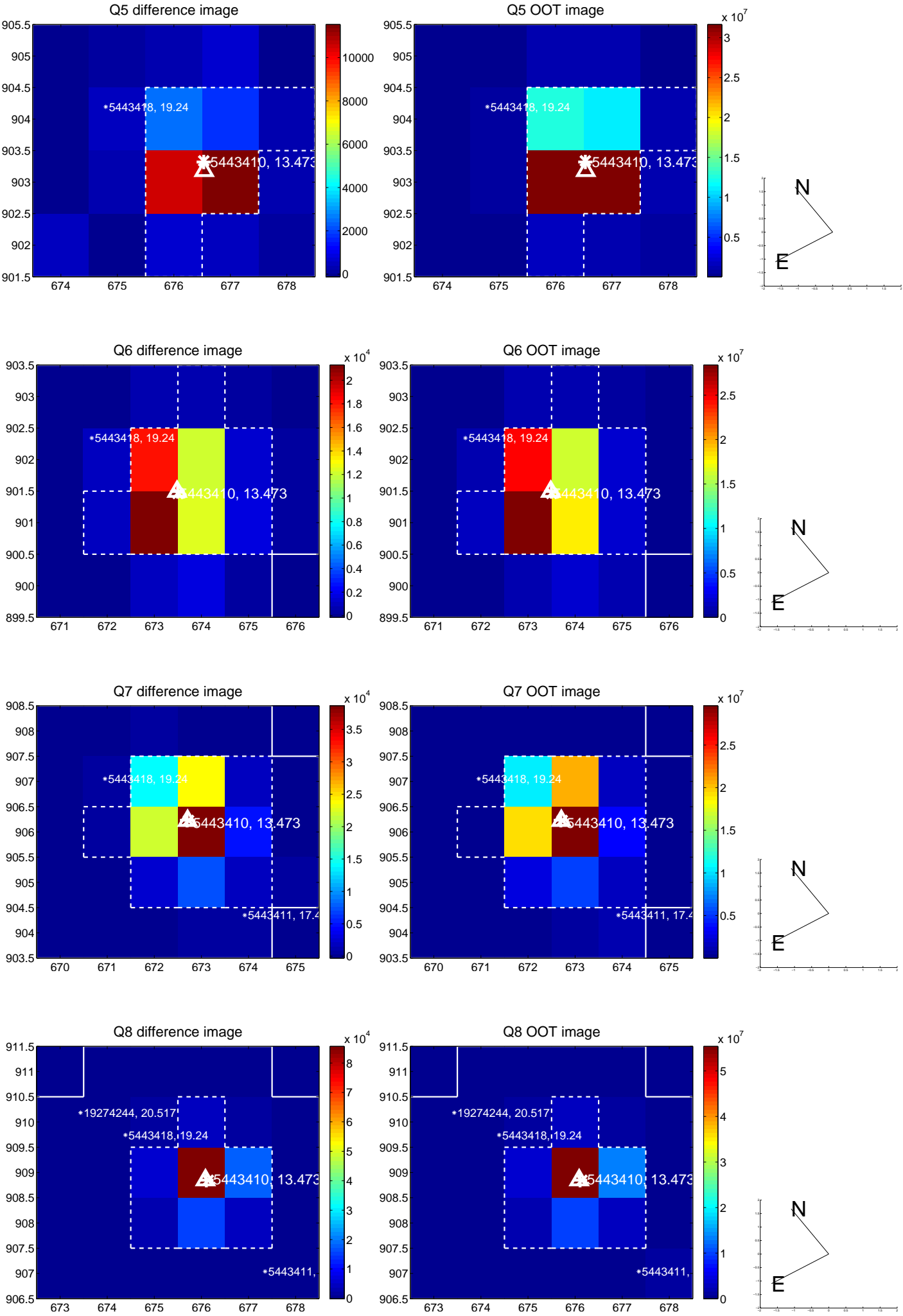


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

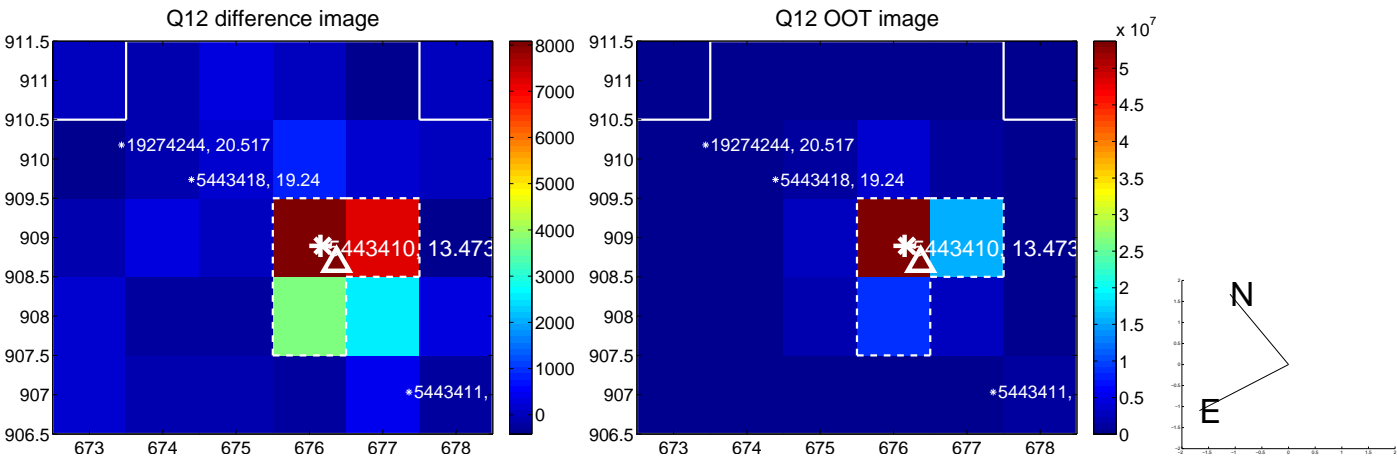
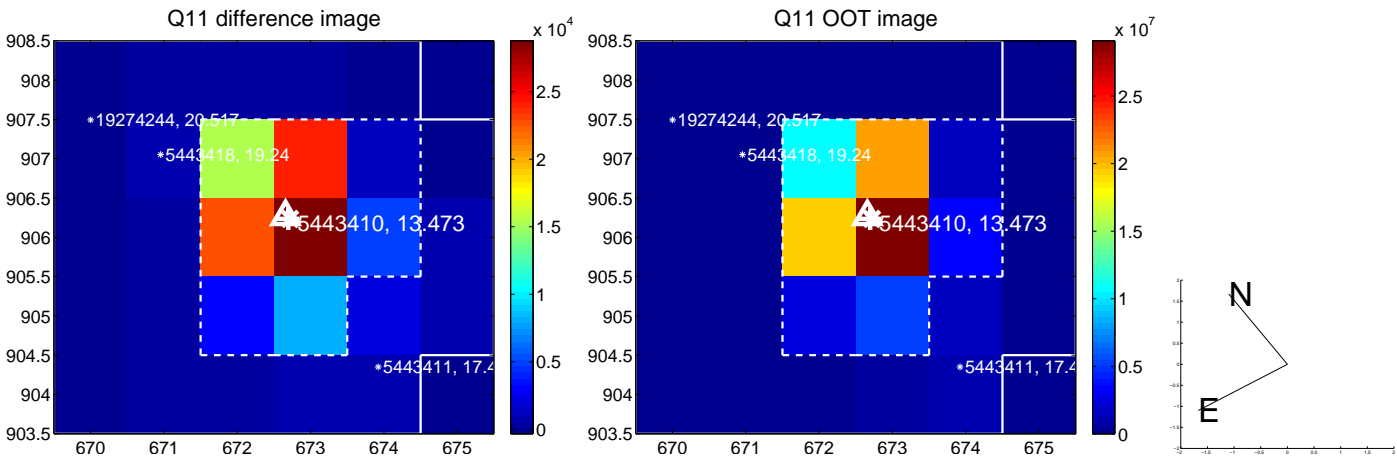
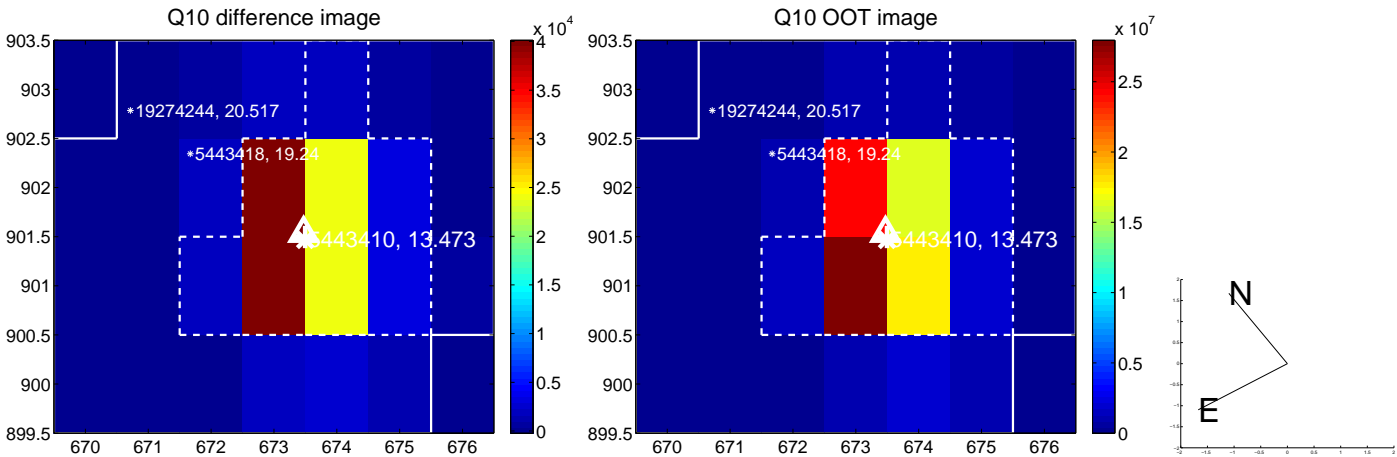
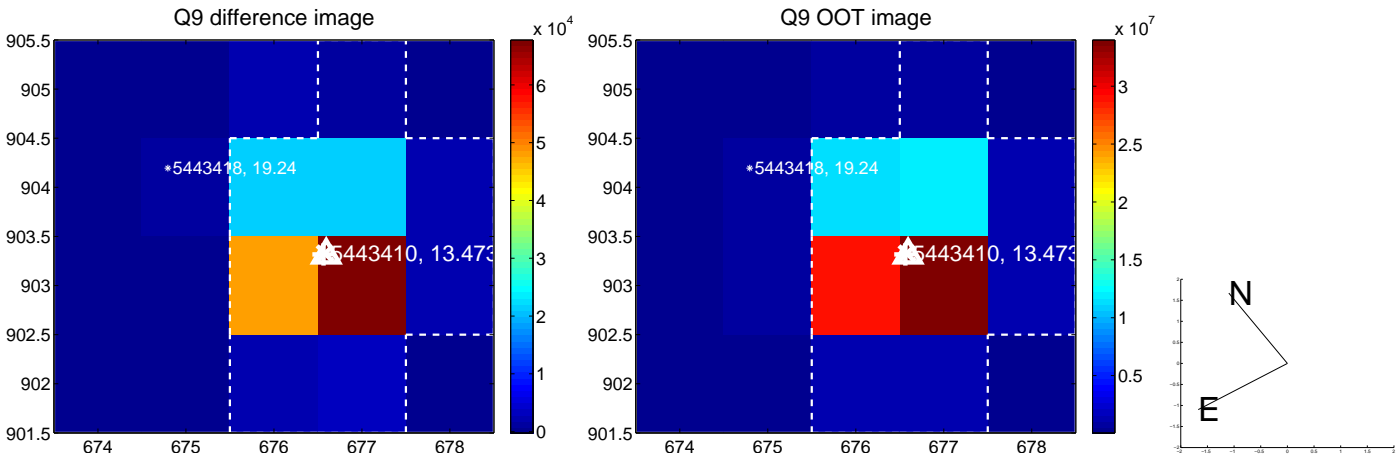
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



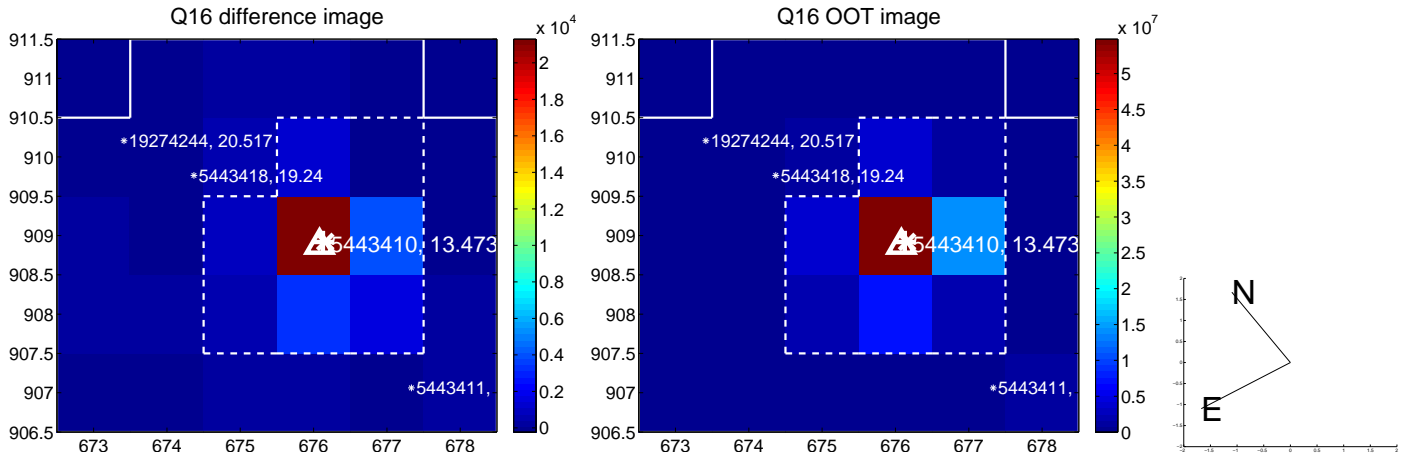
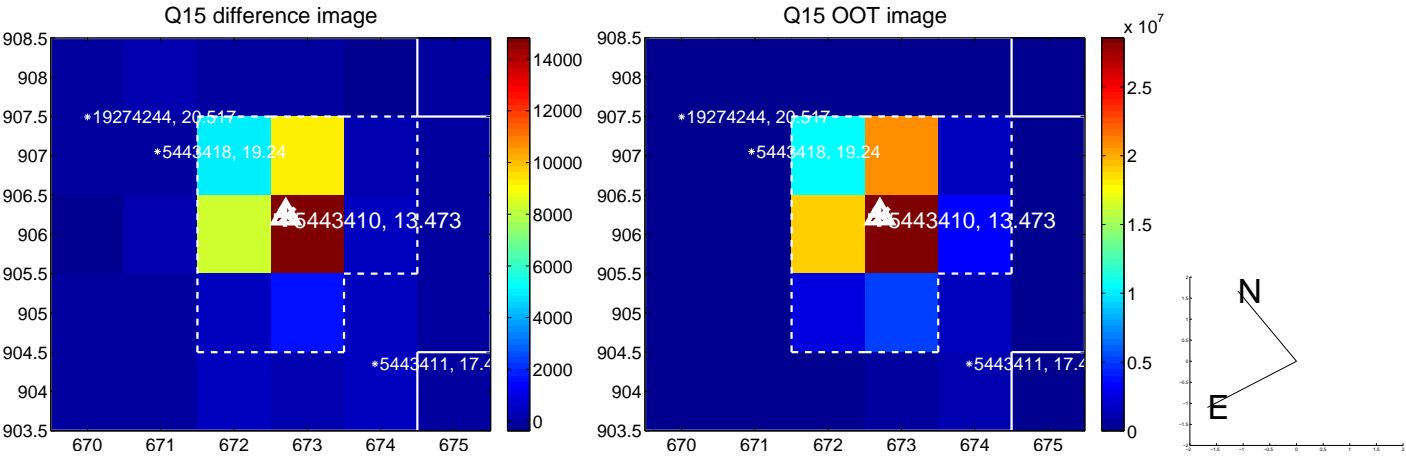
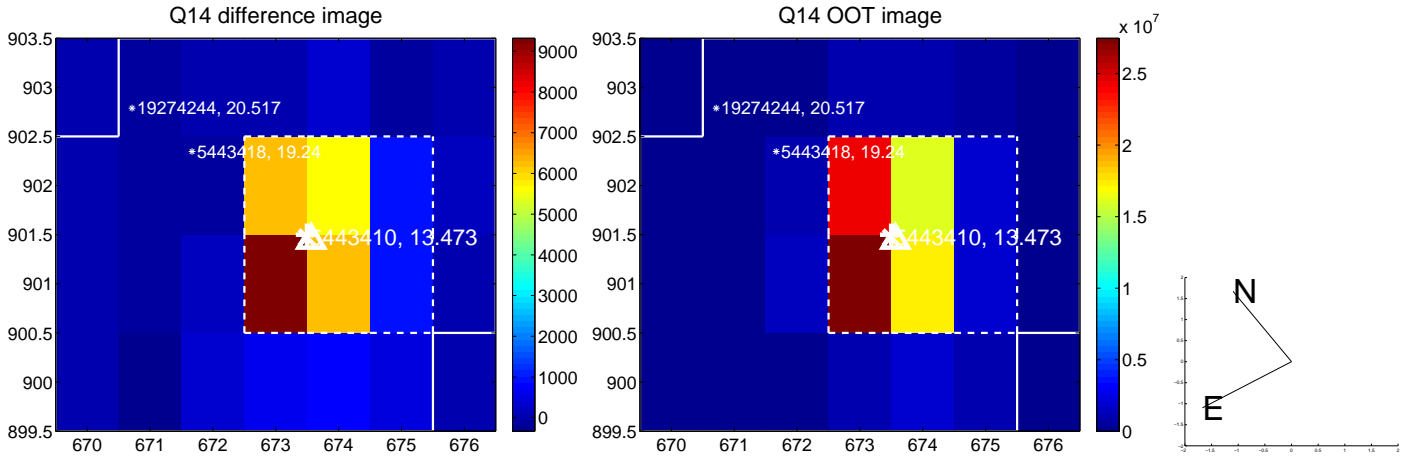
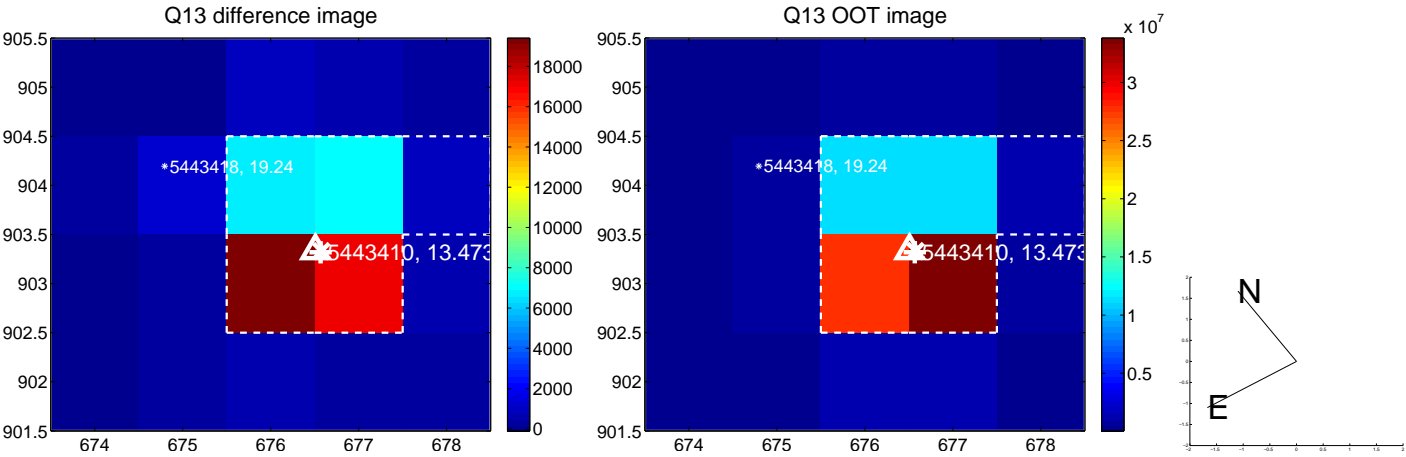
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



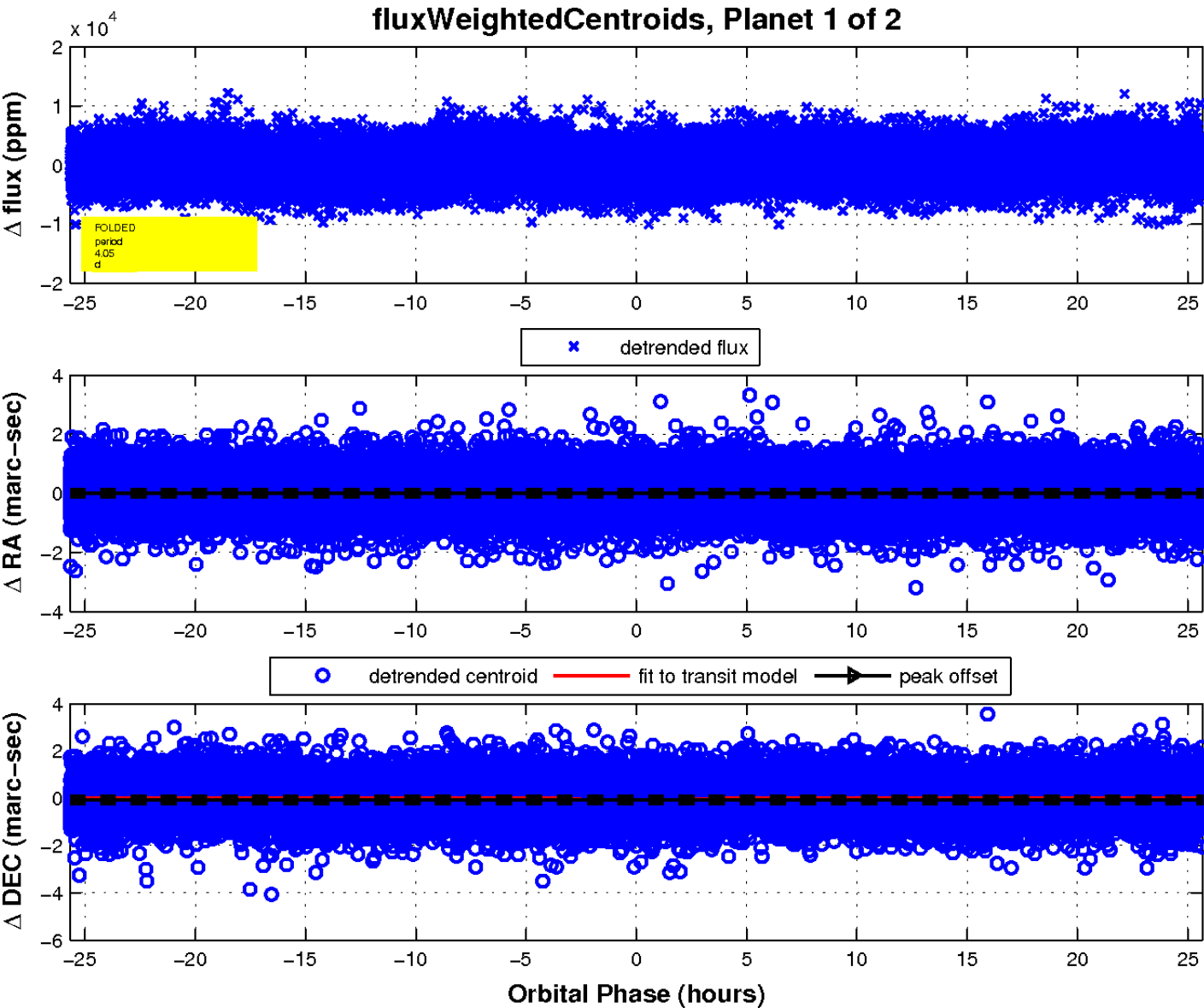
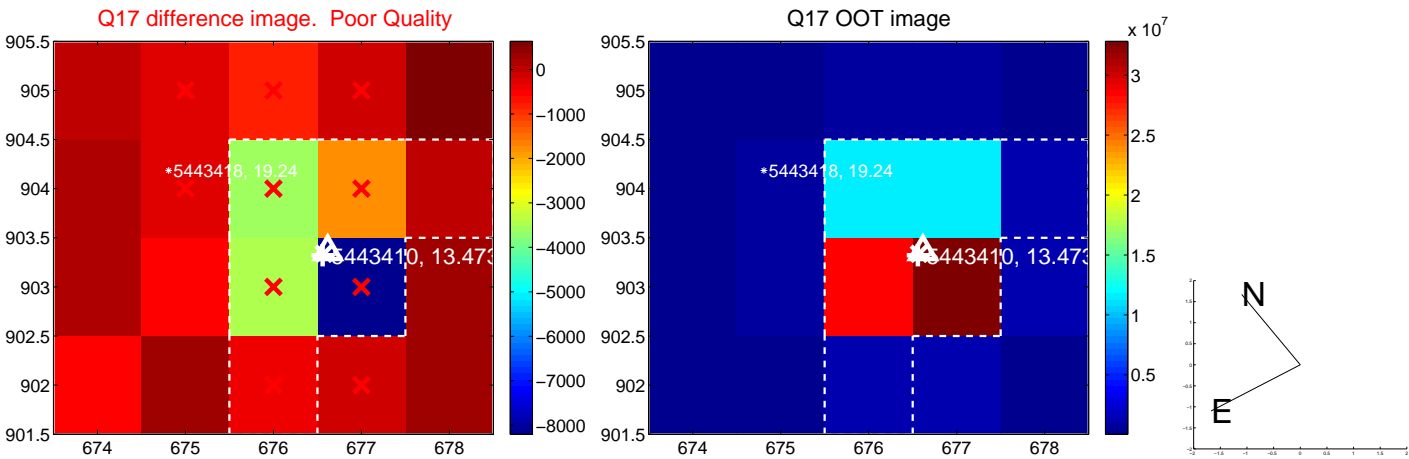
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

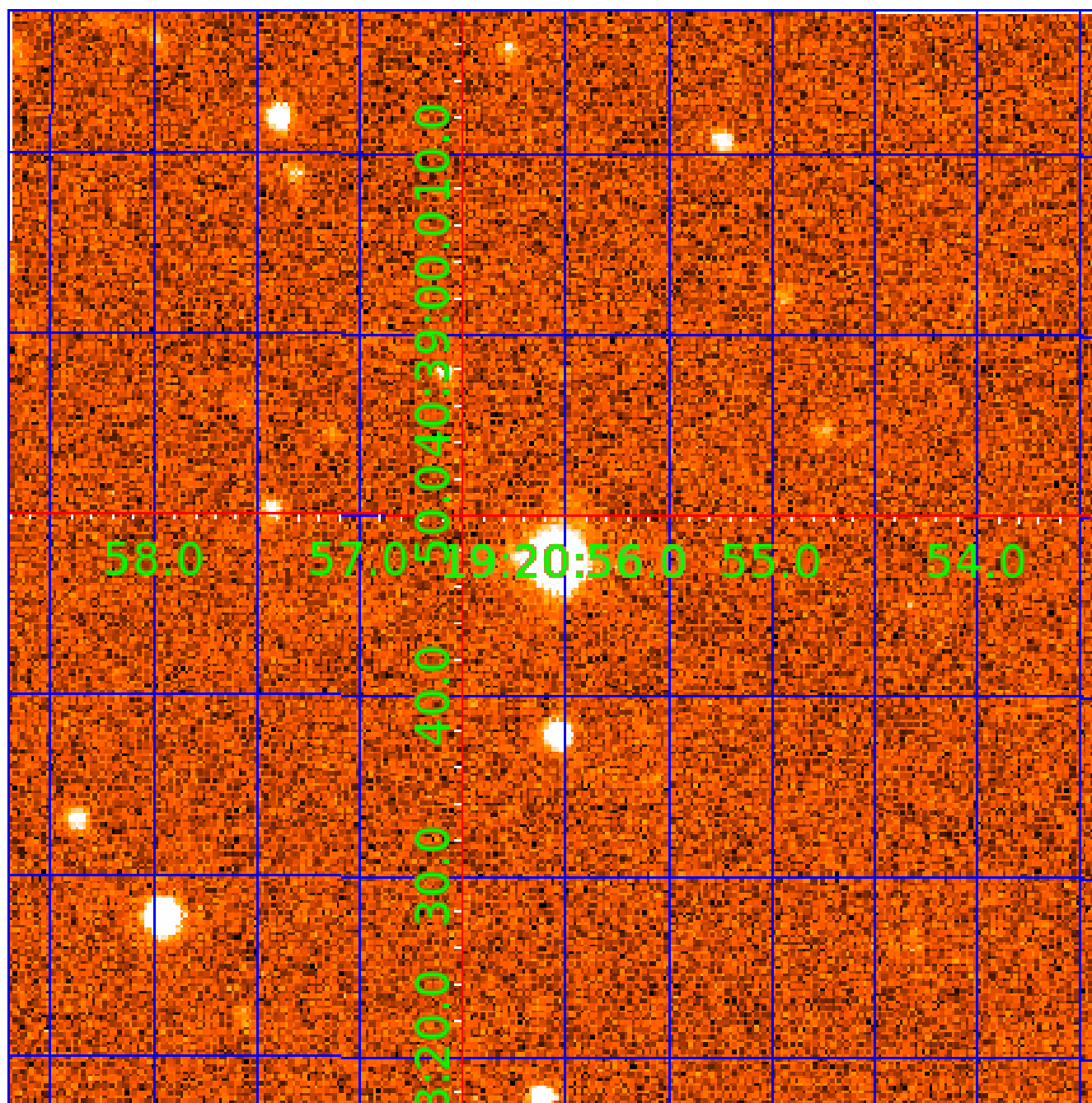


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005443410

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})
005443410-01	OBS	No	4.047828	135.124731	631.5	8.560	9.1	11.2	2.34	7239	7.29	3755.07
005443410-02	OBS	No	0.578211	131.686209	537.8	5.994	8.7	15.7	2.34	7239	7.03	50288.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005443410-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005443410-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT

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

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

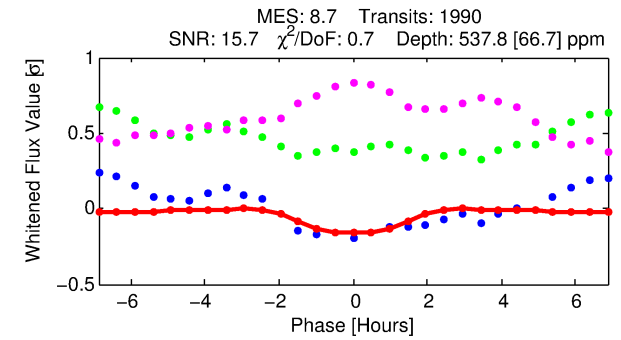
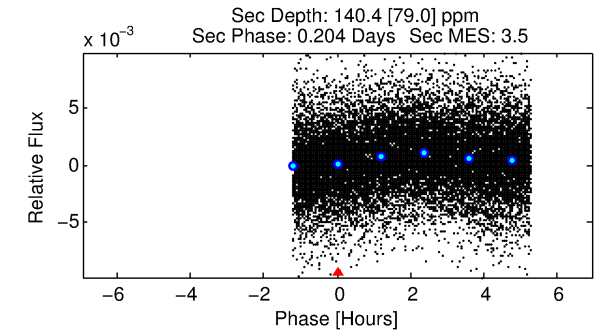
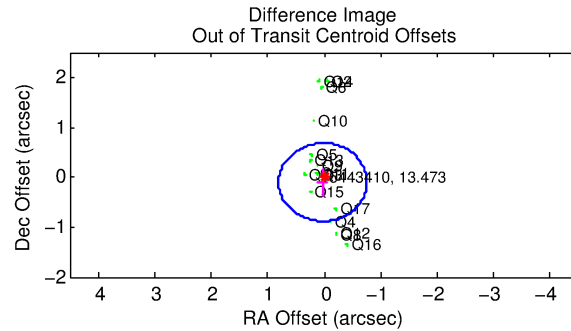
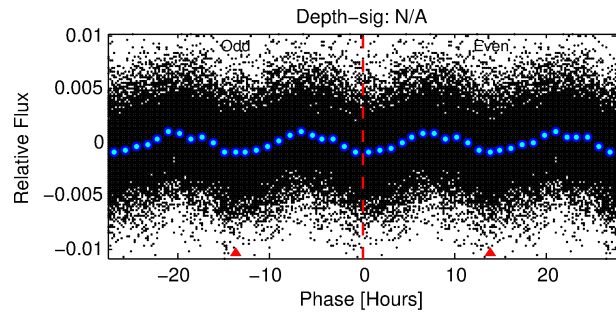
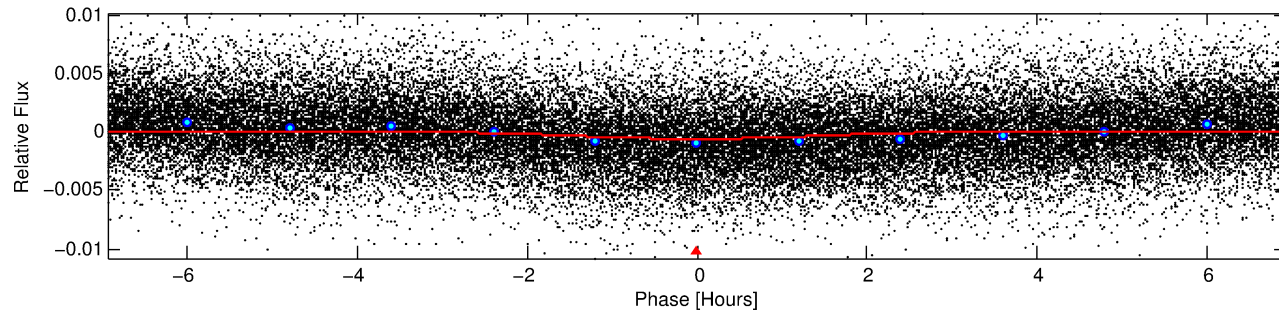
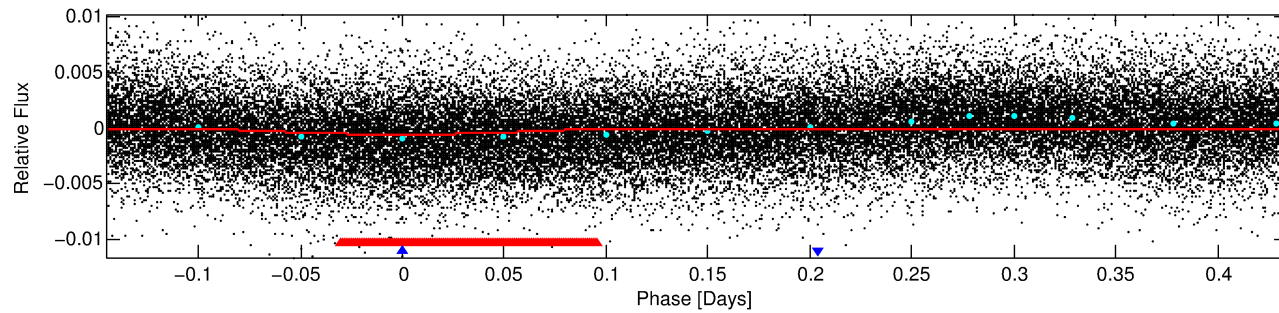
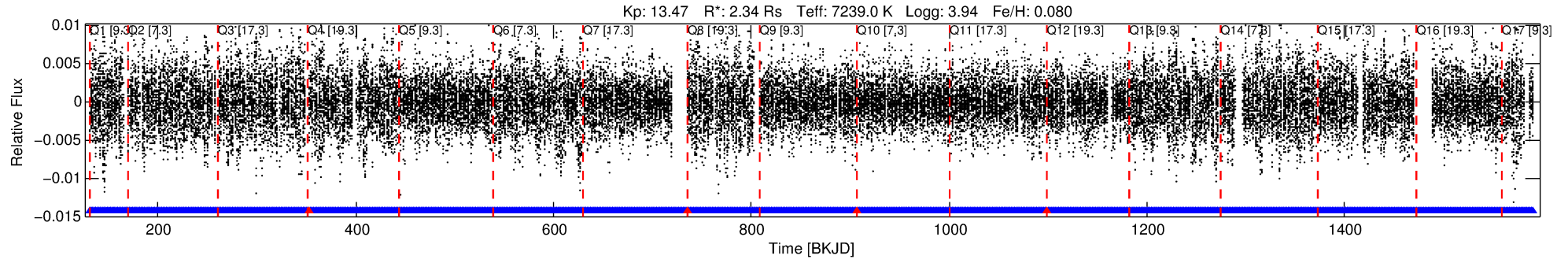
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005443410-02

No Significant Match Found

DV One-Page Summary

KIC: 5443410 Candidate: 2 of 2 Period: 0.578 d



DV Fit Results:

Period = 0.57821 [0.00001] d
Epoch = 131.6862 [0.0041] BKJD
Rp/R* = 0.0275 [0.0026]
a/R* = 1.03 [0.00]
b = 0.97 [0.01]
Seff = 50288.12 [12588.03]
Teq = 3818 [239] K
Rp = 7.03 [1.51] Re
a = 0.0164 [0.0027] AU
Ag = 0.42 [0.27] [-2.15σ]
Teffp = 4752 [706] K [1.25σ]

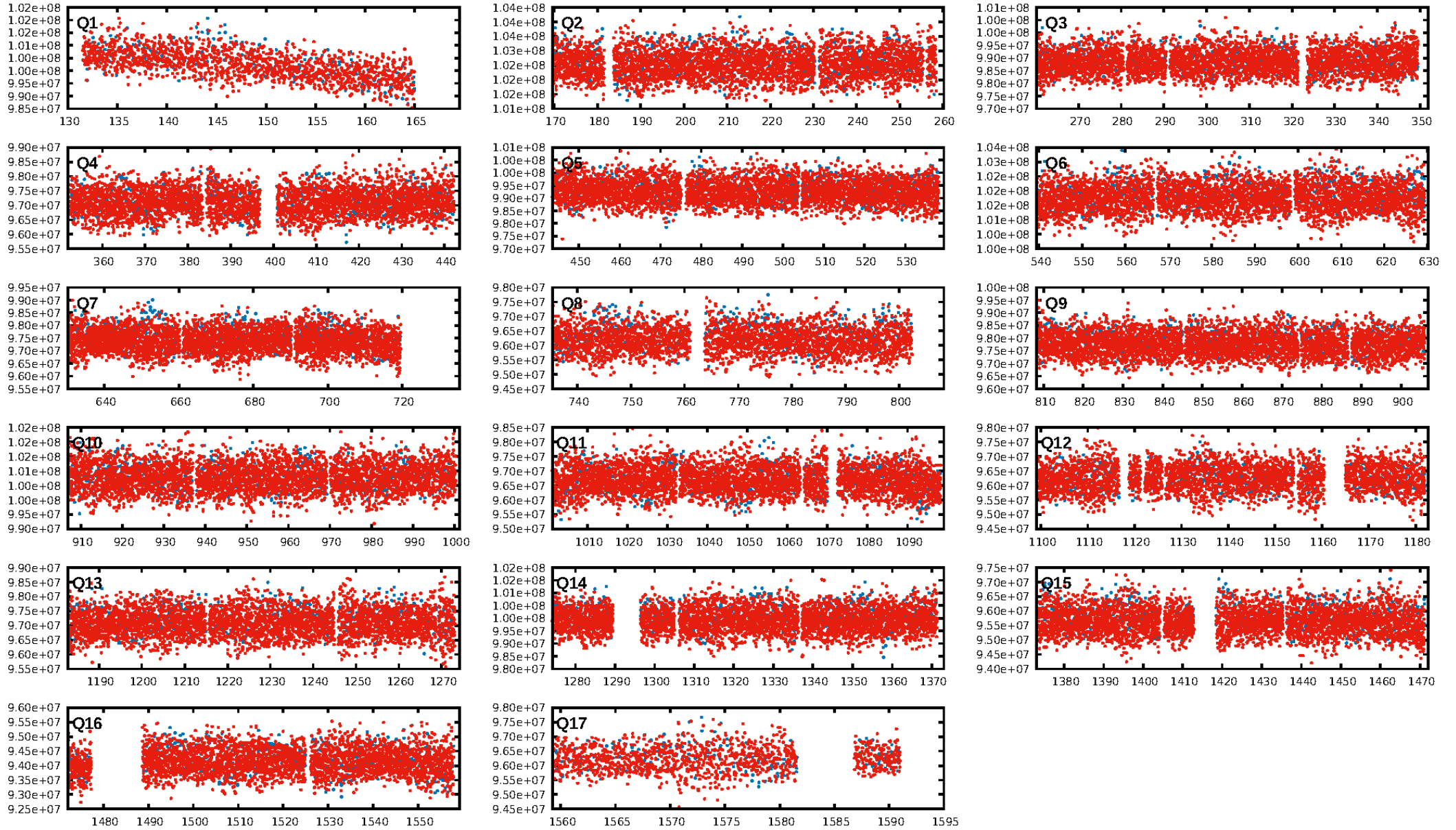
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [7.97σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-ftg: 1.00 [1896/1900]
GhostDiagnostic-chr: 3.381
Centroid-sig: 0.0%
Centroid-so: 0.199 arcsec [5.74σ]
OotOffset-rm: 0.105 arcsec [0.40σ]
KicOffset-rm: 0.099 arcsec [0.66σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

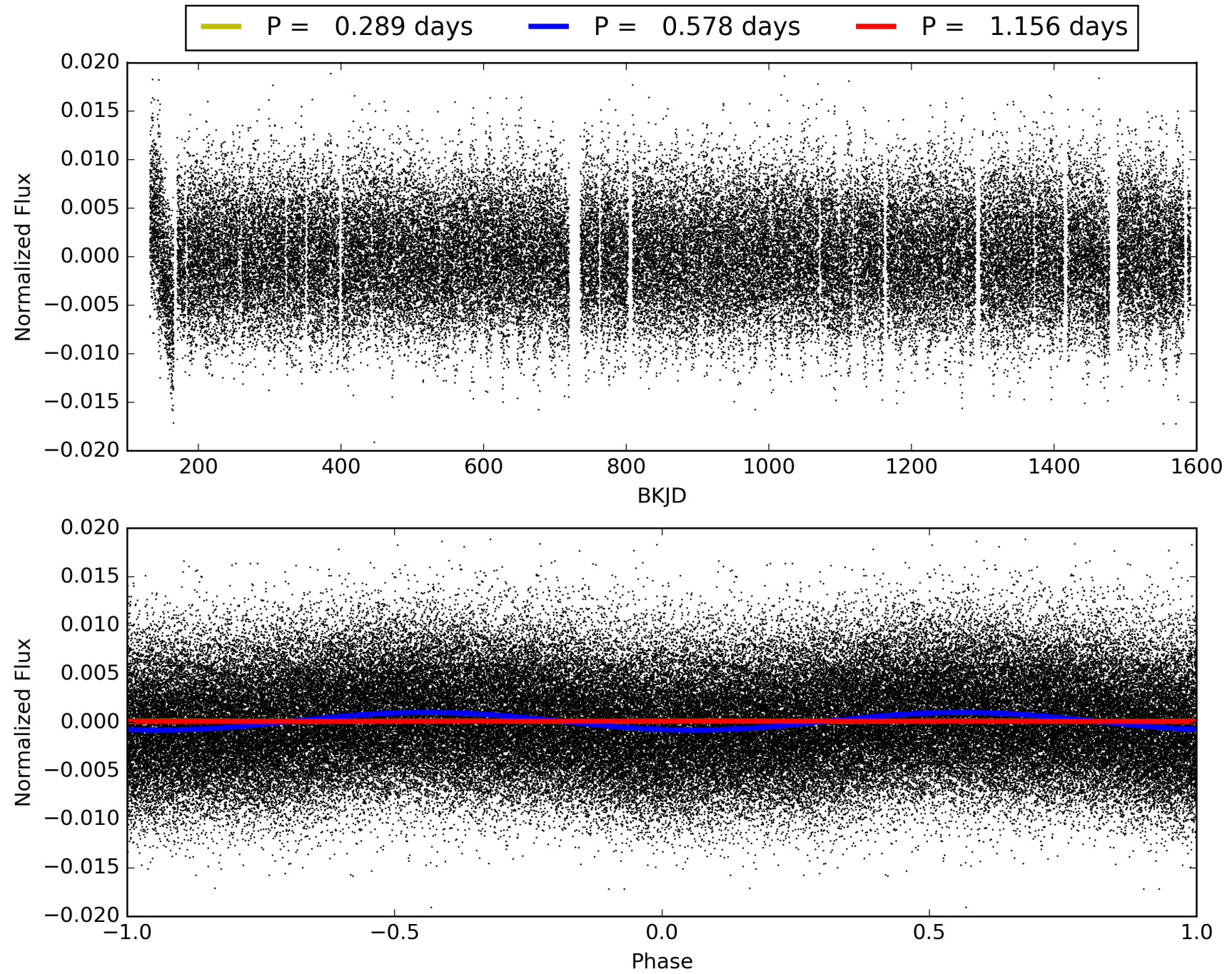
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:09:49 Z

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

TCE 005443410-02, PDC Light Curves

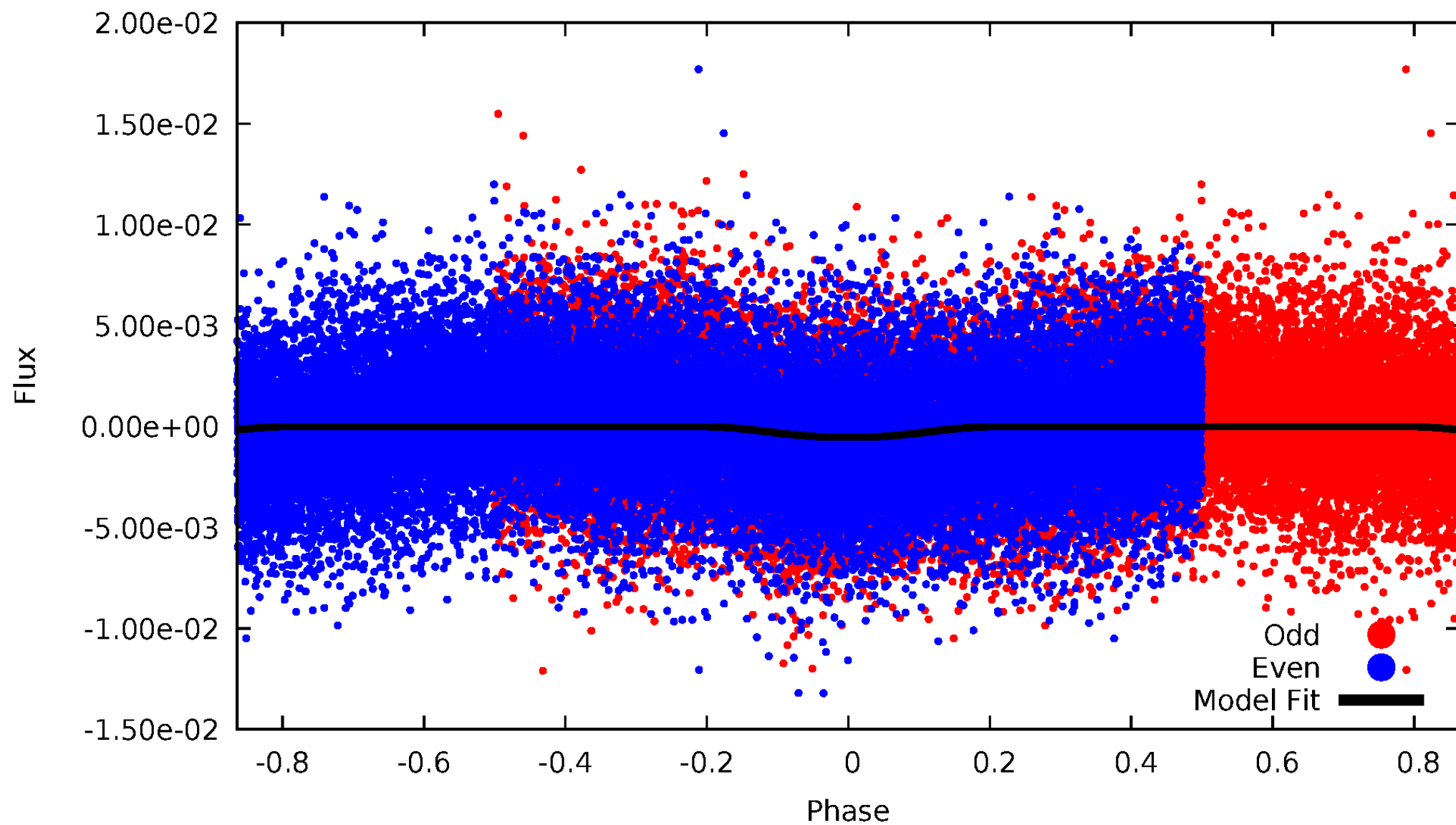


TCE 005443410-02



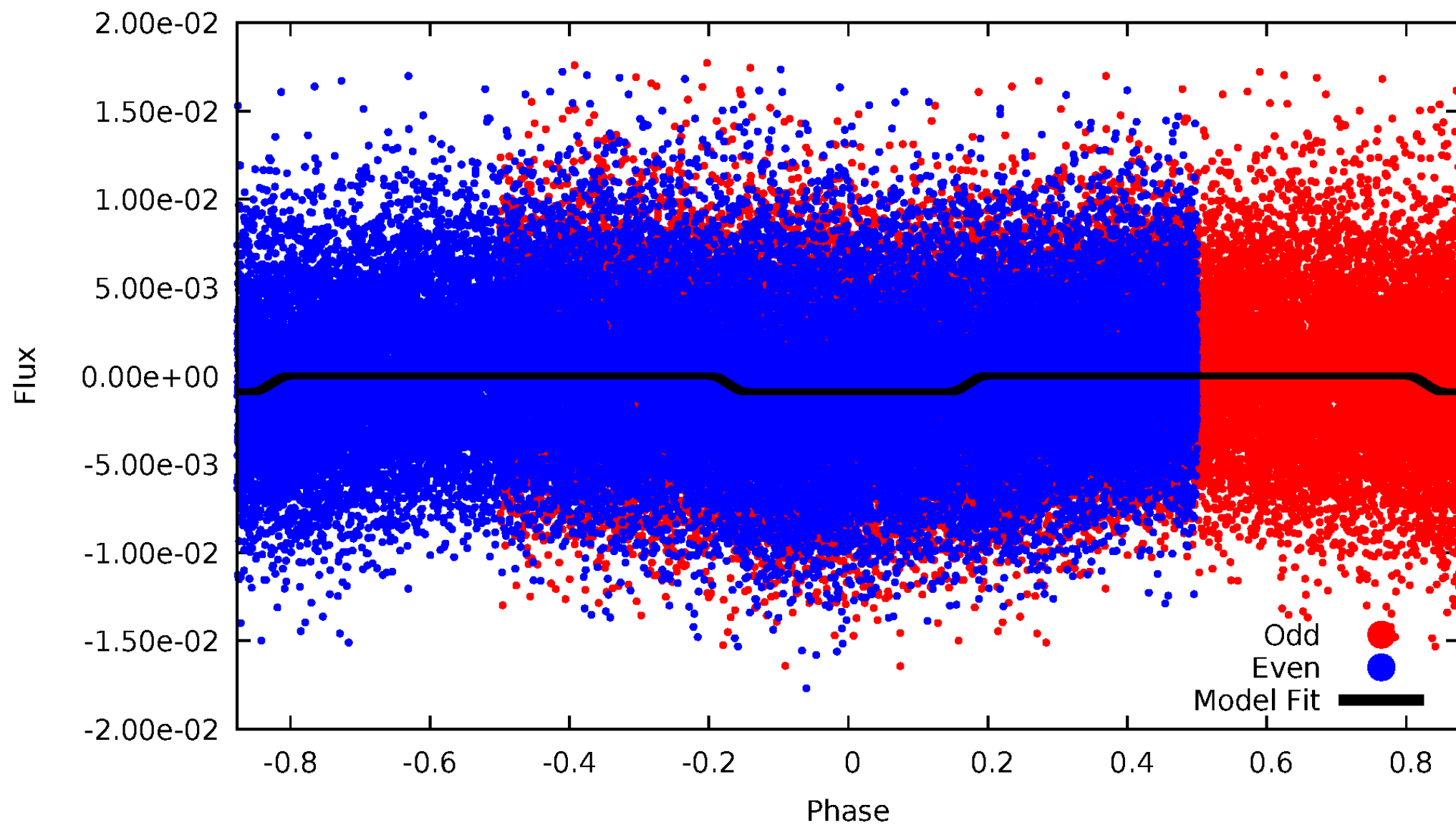
DV Odd/Even

TCE 005443410-02



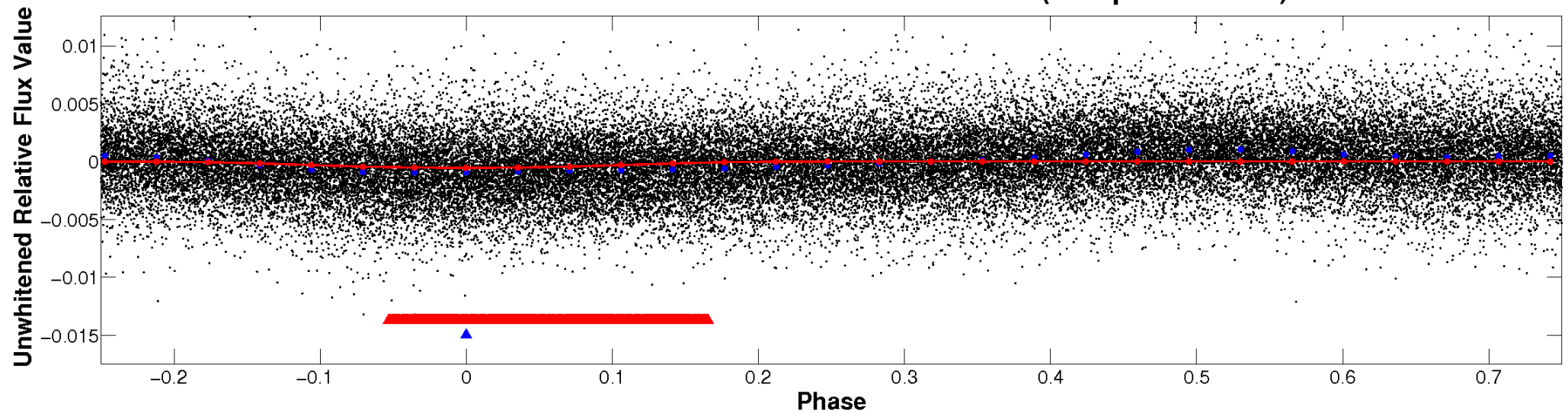
ALT Odd/Even

TCE 005443410-02

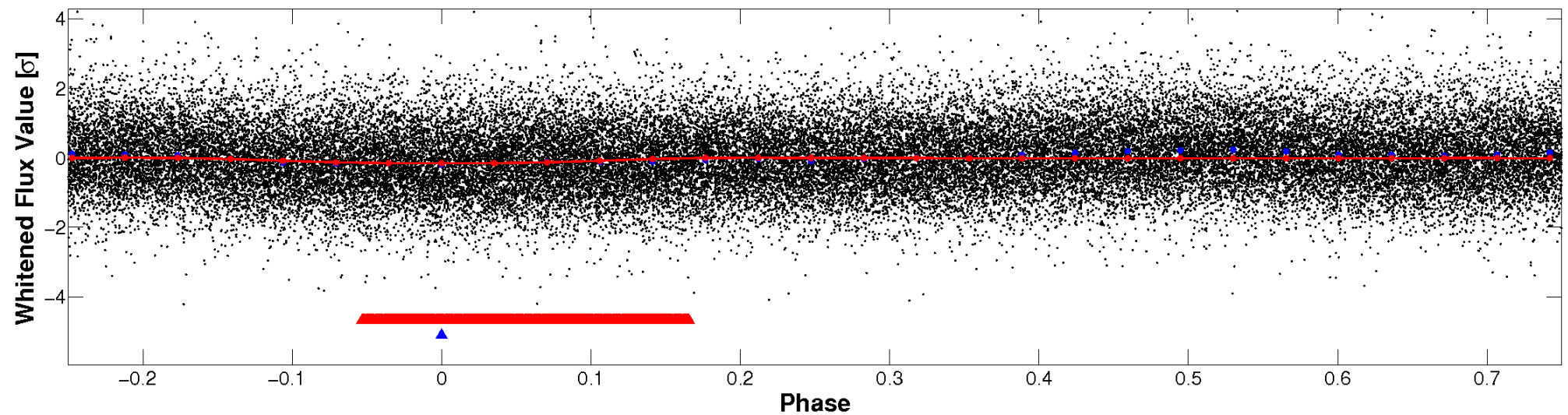


Non-Whitened Vs. Whitened Light Curve

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

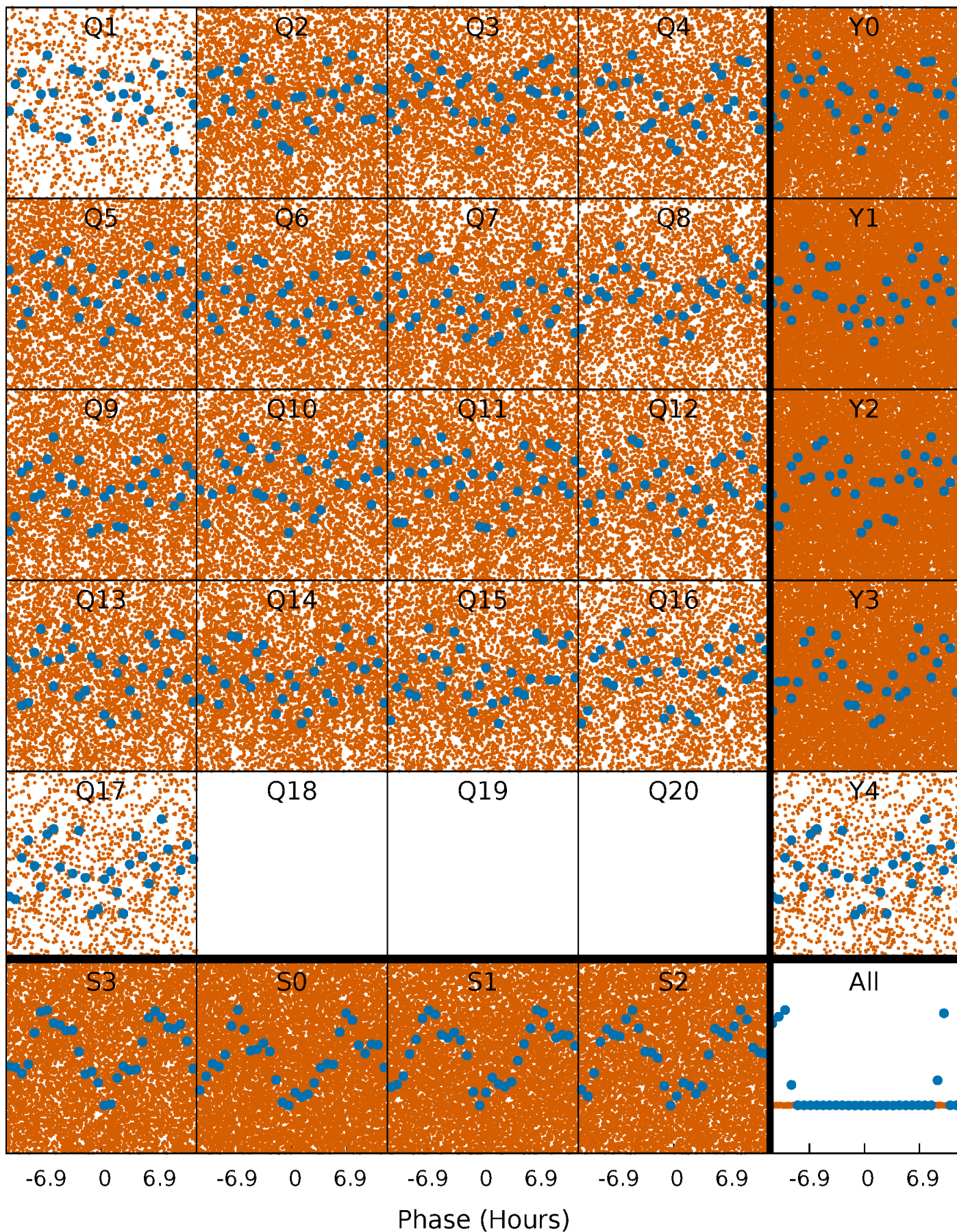


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



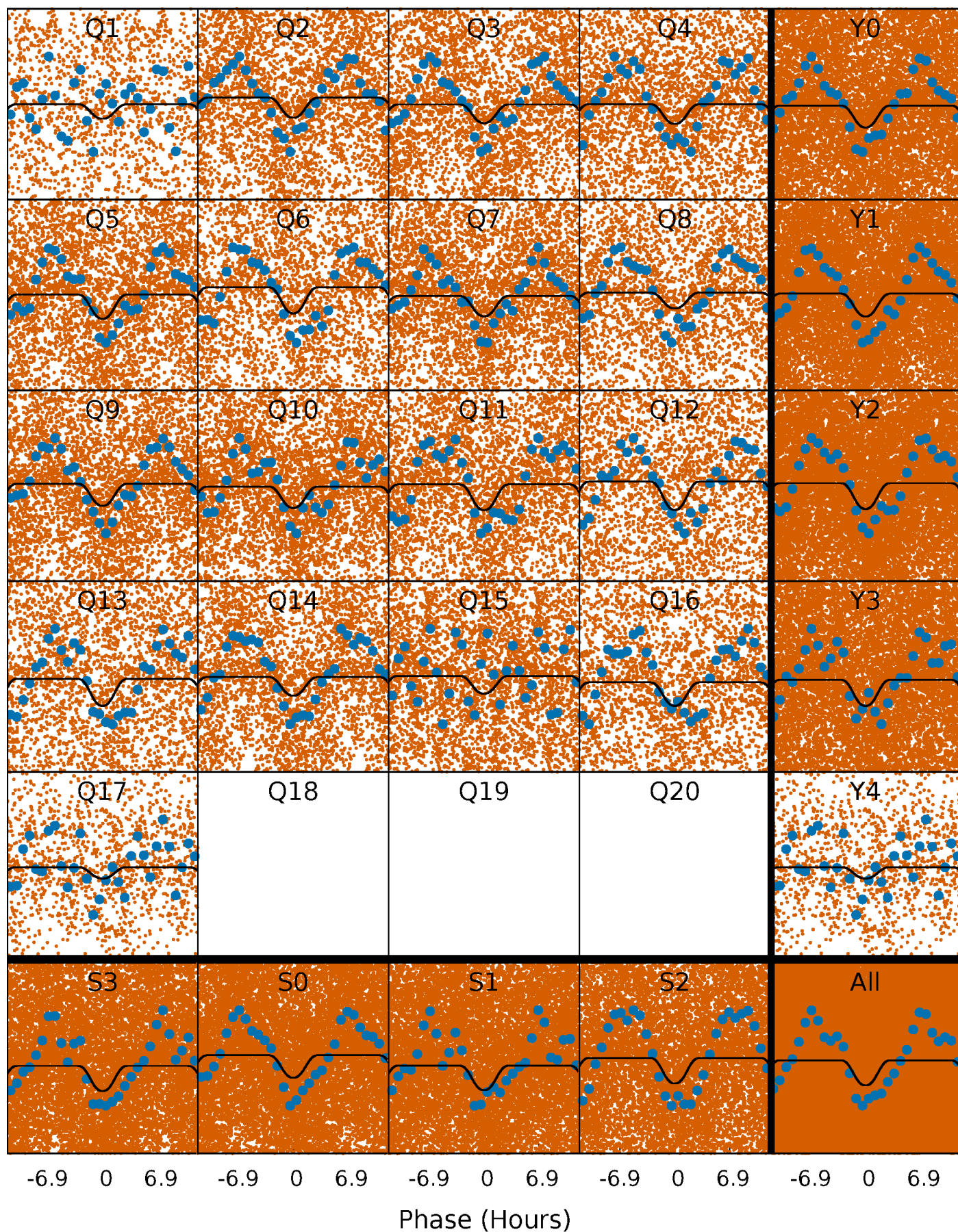
PDC Quarter-Phased Transit Curves

TCE 005443410-02 P= 0.578211 Days $T_0=131.686209$ (BKJD)



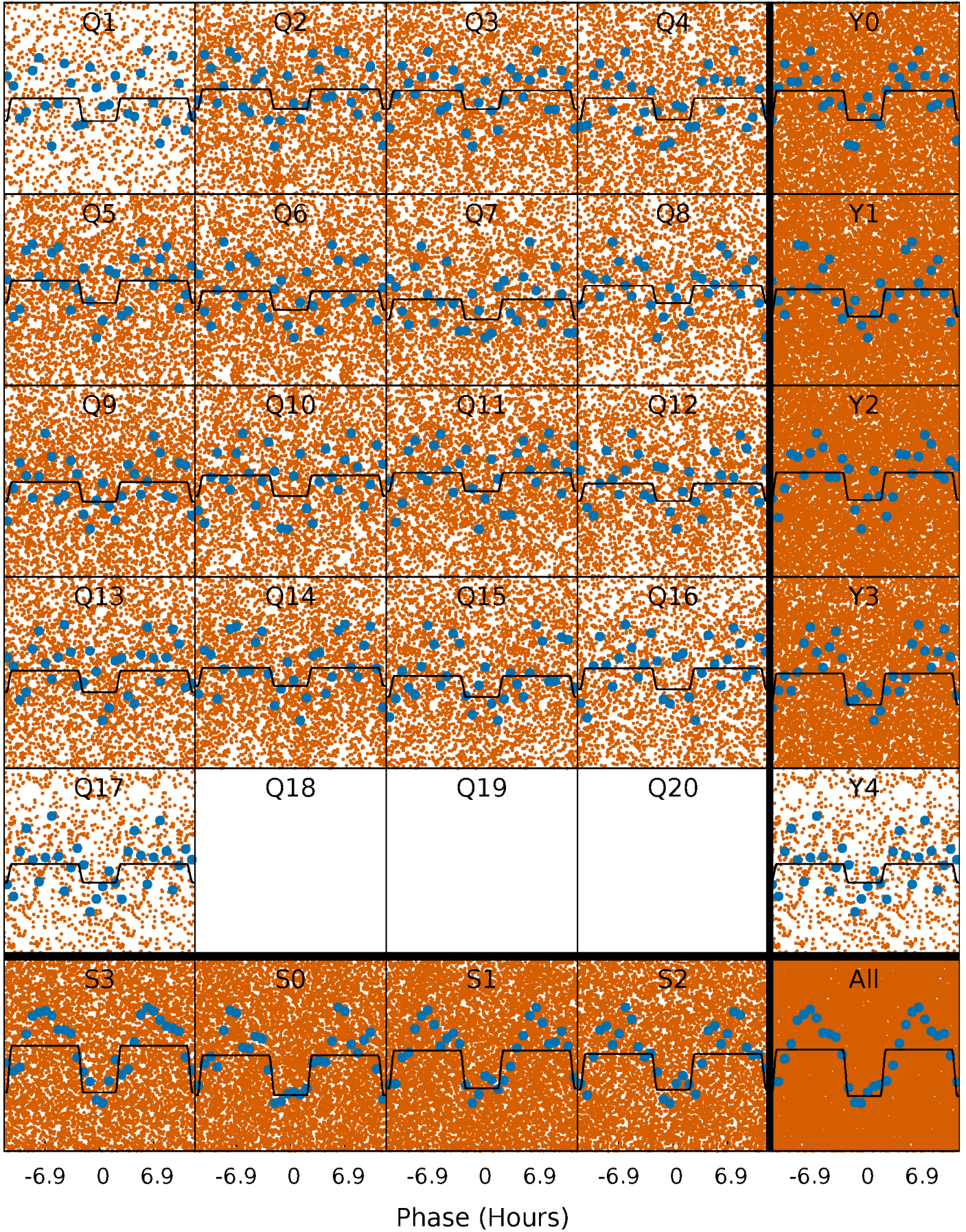
DV Quarter-Phased Transit Curves

TCE 005443410-02 P= 0.578211 Days $T_0=131.686209$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

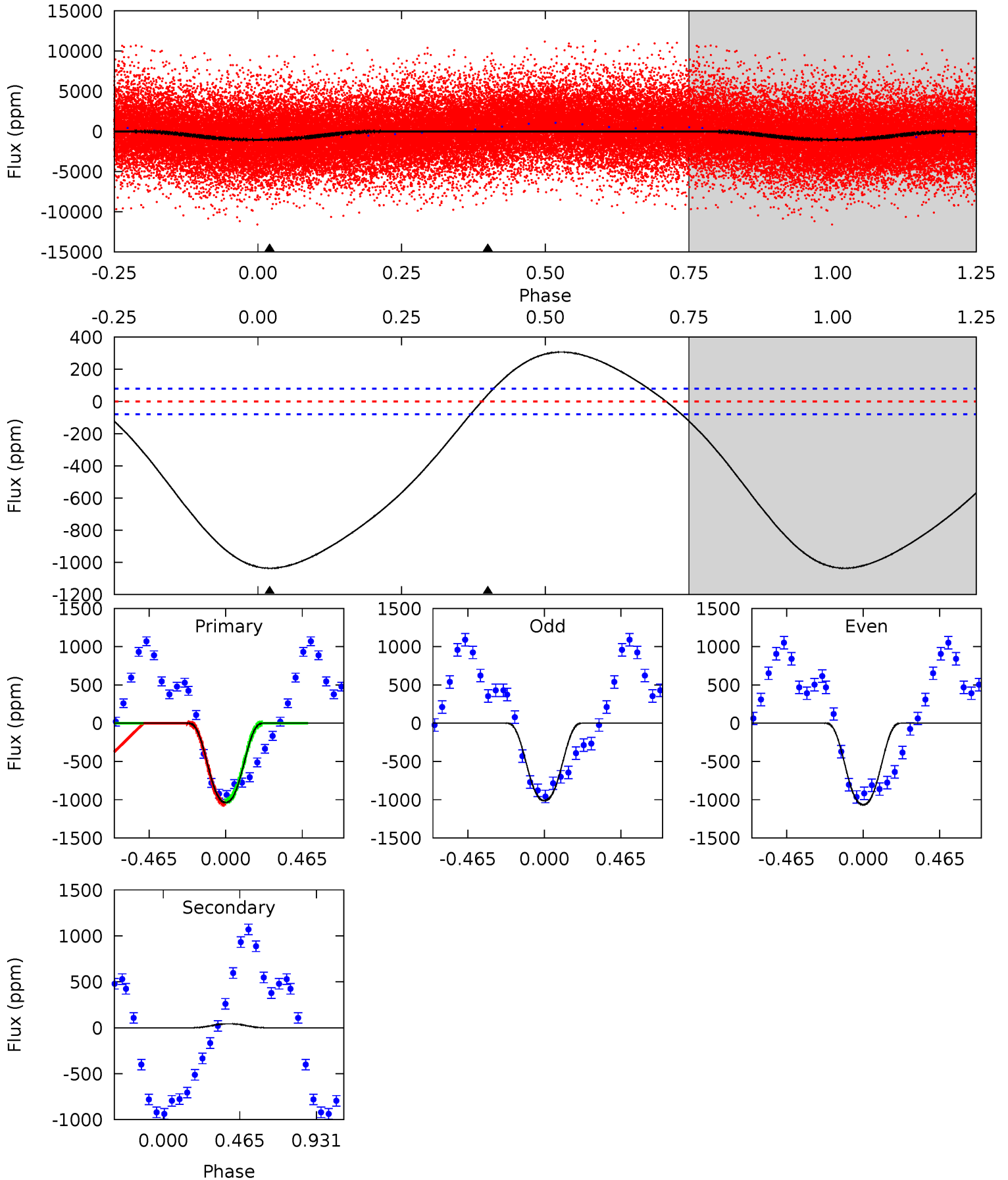
TCE 005443410-02 P= 0.578187 Days $T_0=131.739688$ (BKJD)



DV Model-Shift Uniqueness Test

005443410-02, P = 0.578211 Days, E = 131.107998 Days

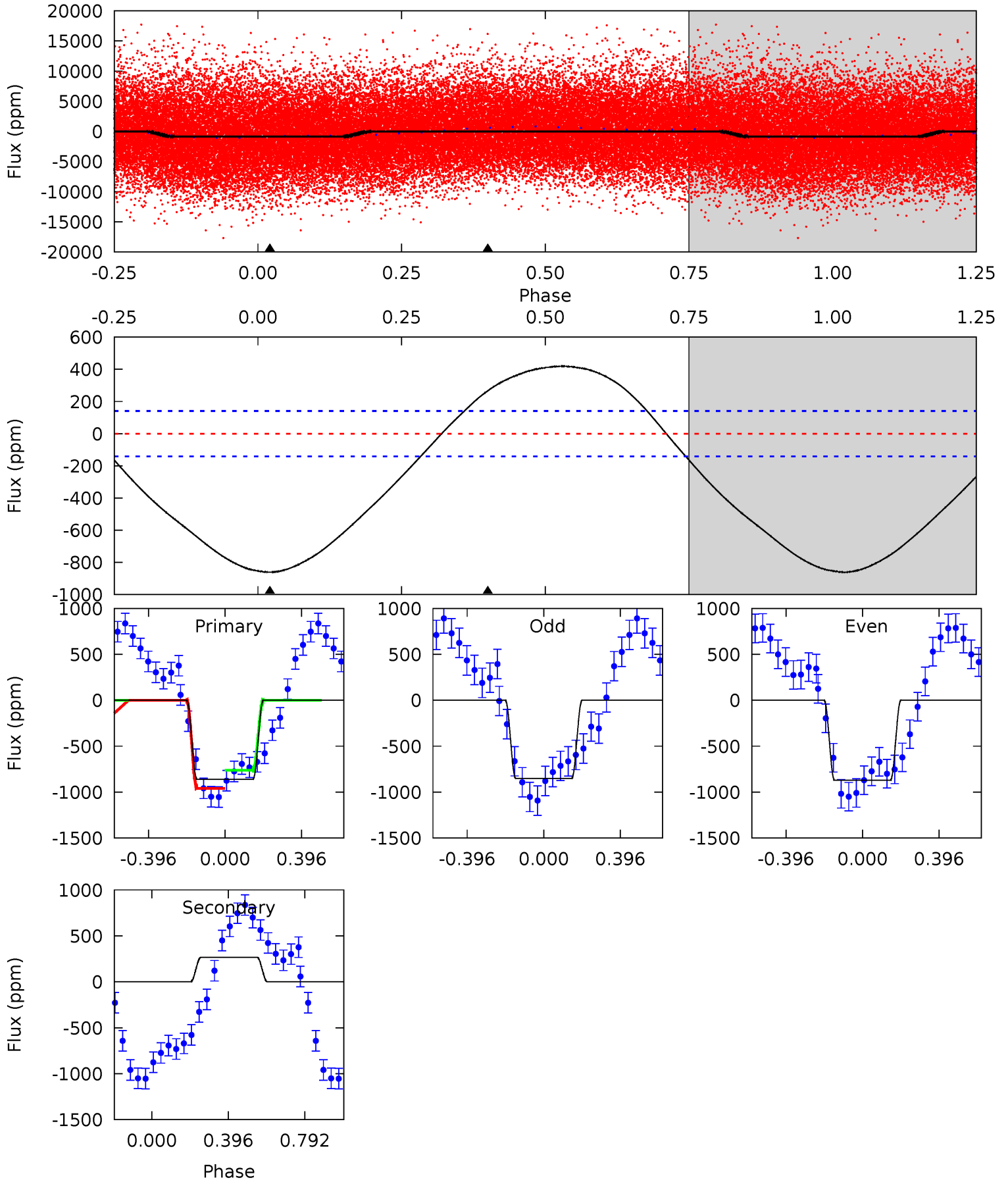
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.2	-2.27	0	0	4.23	0.73	4.51	55.2	55.2	-2.27	-2.27	1.44	1.24	0.23	1.08



Alt Model-Shift Uniqueness Test

005443410-02, P = 0.578187 Days, E = 131.161501 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.1	-8.07	0	0	4.27	0.85	3.84	26.1	26.1	-8.07	-8.07	0.30	0.92	0.33	2.89



Stellar Parameters For KIC 005443410

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7239^{+79}_{-79}	$3.943^{+0.137}_{-0.112}$	$0.080^{+0.150}_{-0.150}$	$2.344^{+0.452}_{-0.452}$	$1.758^{+0.191}_{-0.156}$	$0.192^{+0.133}_{-0.068}$
	+1%/-1%	+3%/-3%	+188%/-188%	+19%/-19%	+11%/-9%	+69%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005443410-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	43 ± 19	$7.05^{+1.02}_{-0.96}$	5338^{+234}_{-256}	-4844^{+198}_{-202}	$-0.123^{+0.059}_{-0.073}$
Alt.	266 ± 33	$7.64^{+0.99}_{-1.00}$	5334^{+231}_{-256}	-5809^{+205}_{-241}	$-0.673^{+0.155}_{-0.237}$

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

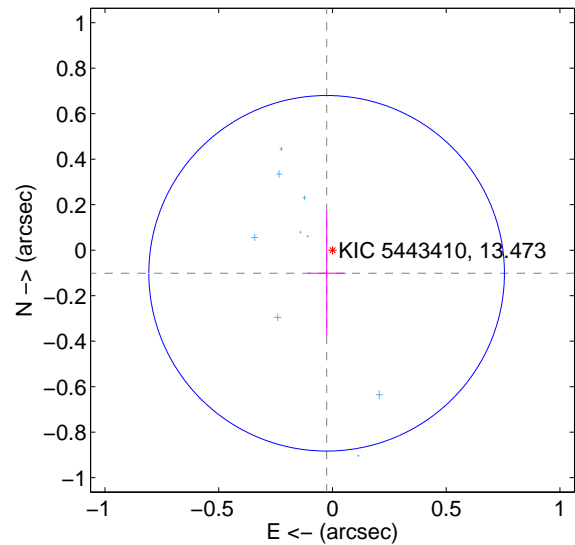
Supplemental centroid analysis for 005443410-02. Kepler magnitude: 13.47. Transit SNR 15.72

There are 16 quarters with good PRF difference image offsets

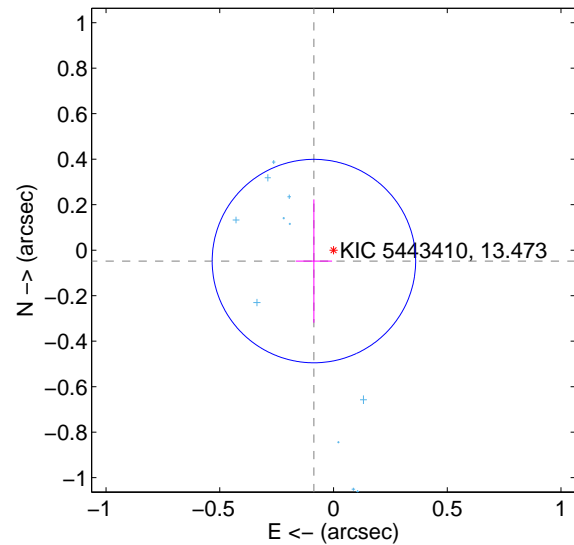
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.105 ± 0.260	0.40	0.026 ± 0.084	-0.102 ± 0.274
PRF-fit source offset from KIC position	0.099 ± 0.149	0.66	0.086 ± 0.080	-0.048 ± 0.271
photometric centroid source offset	0.20 ± 0.03	5.74	0.07 ± 0.03	0.19 ± 0.04

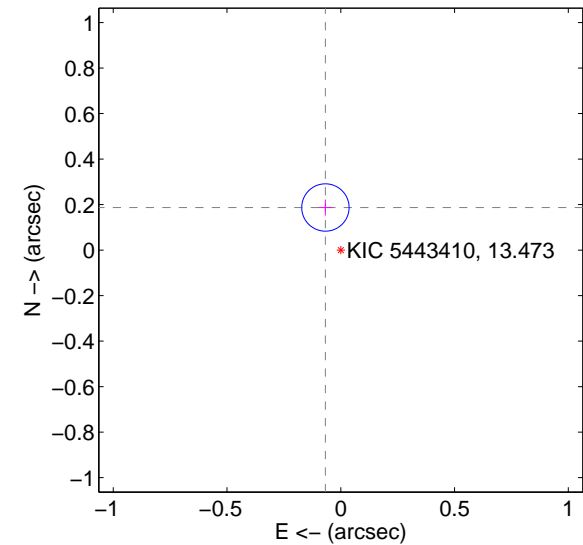
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

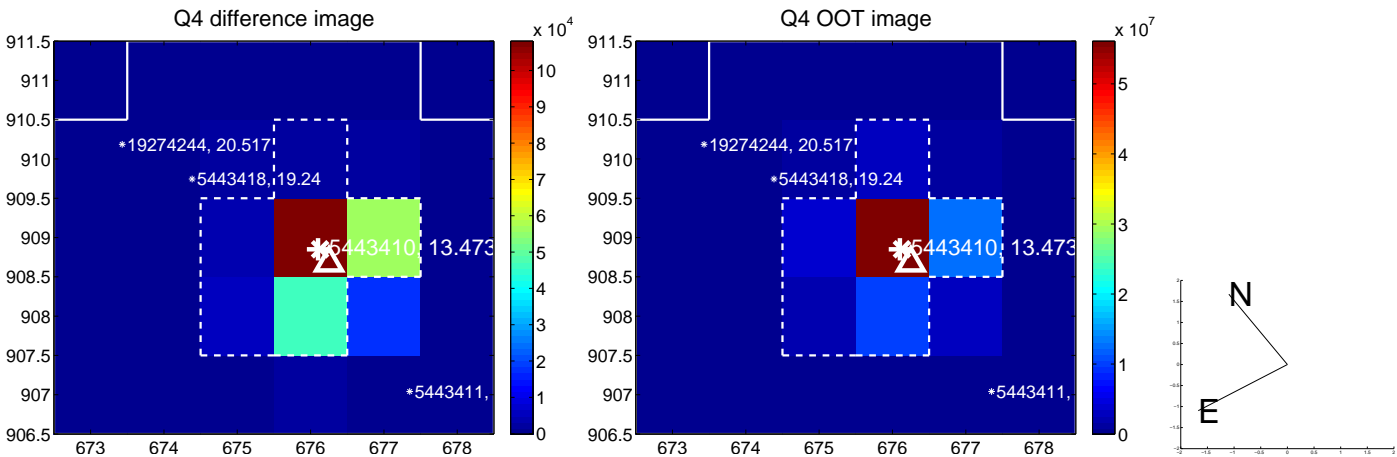
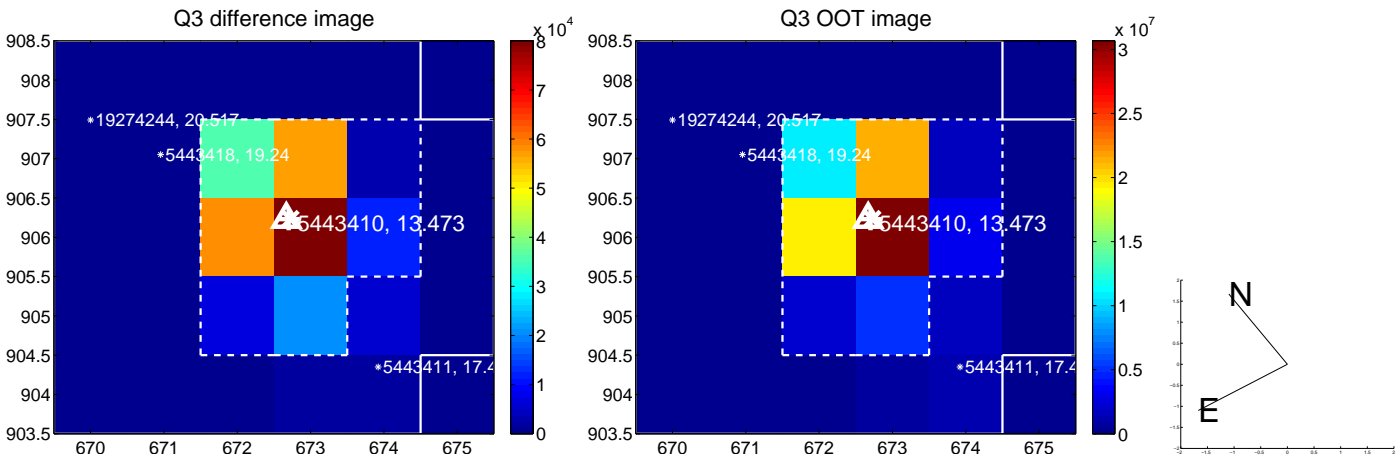
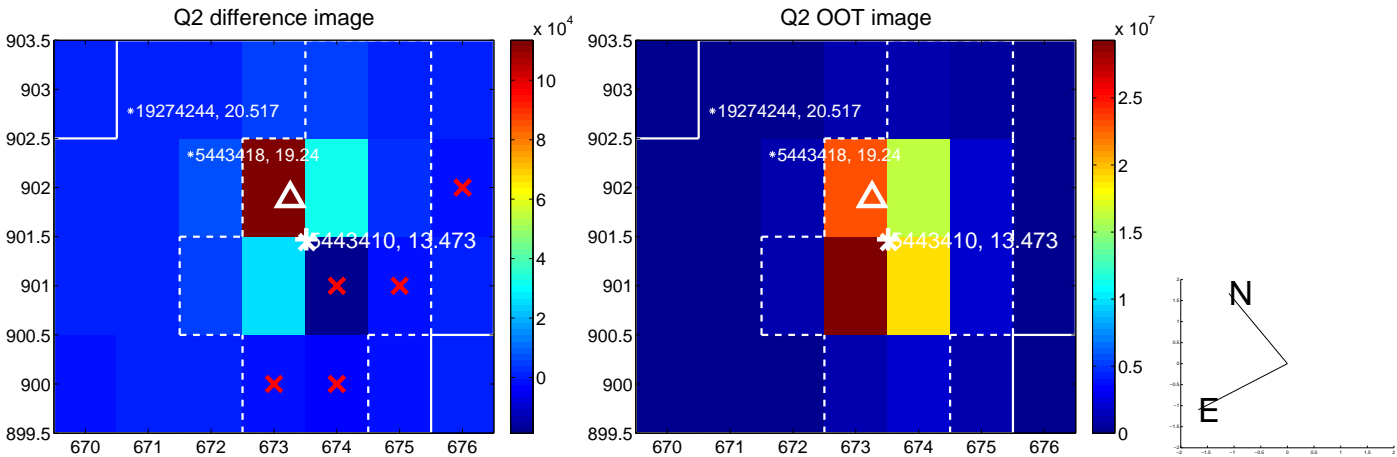
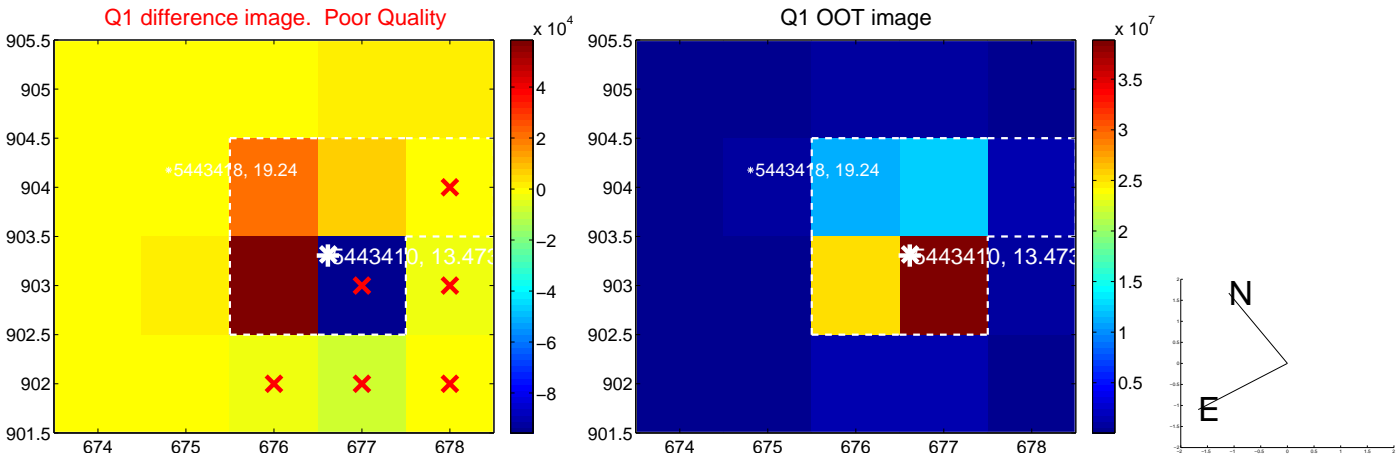


offset from photometric centroids

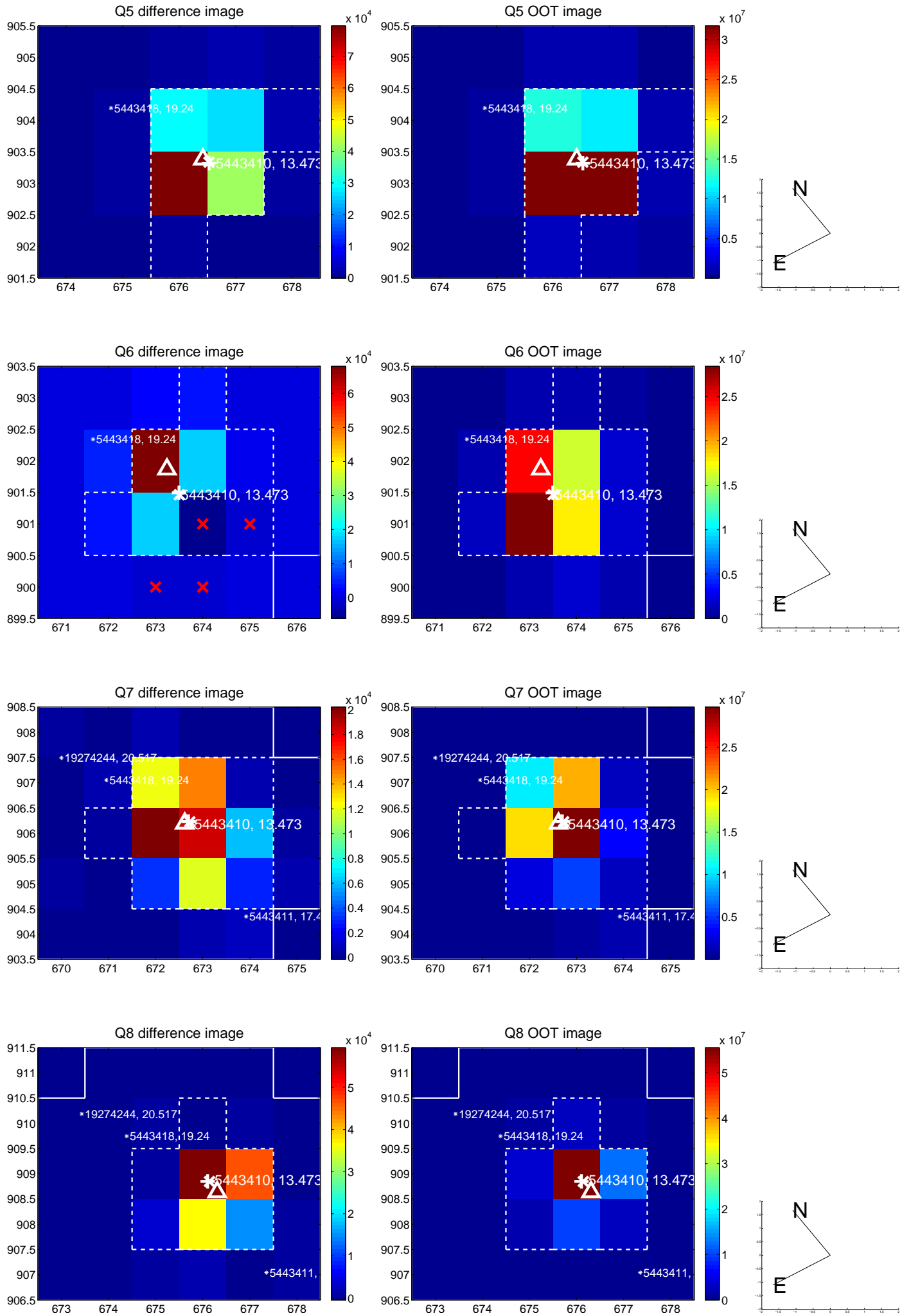


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

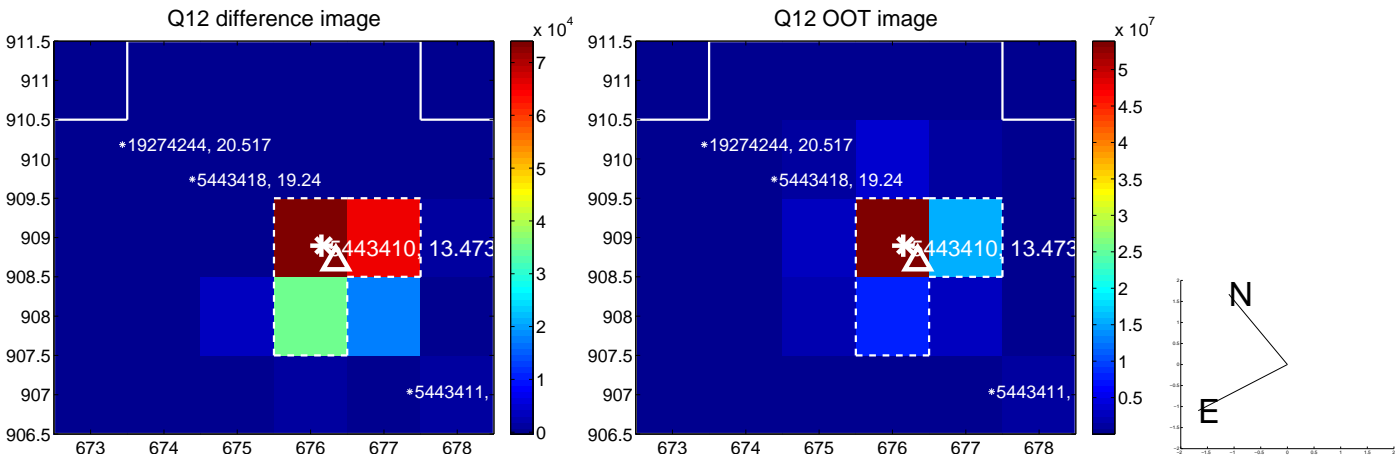
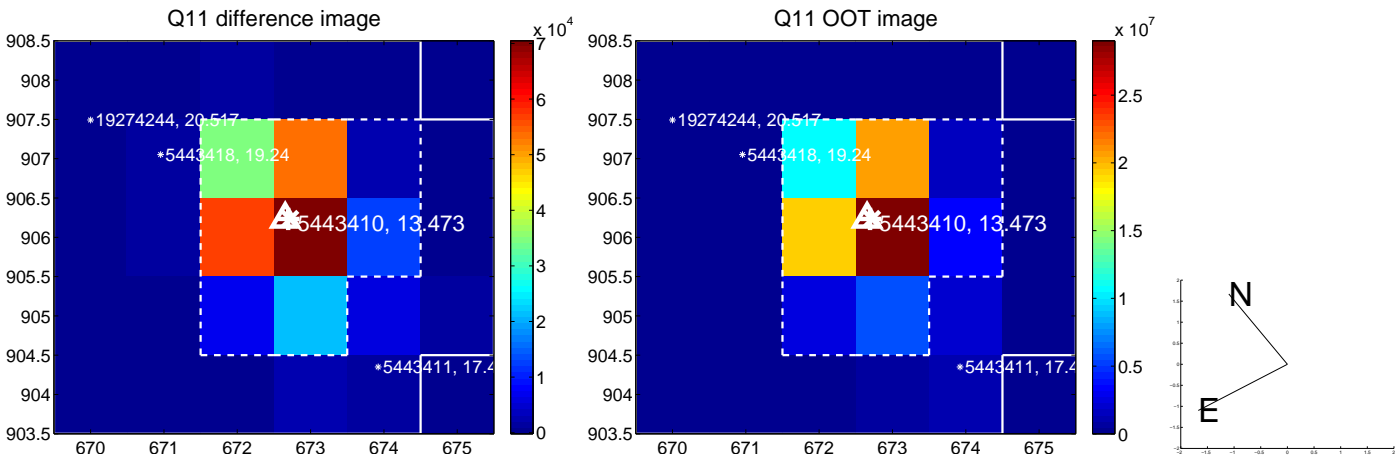
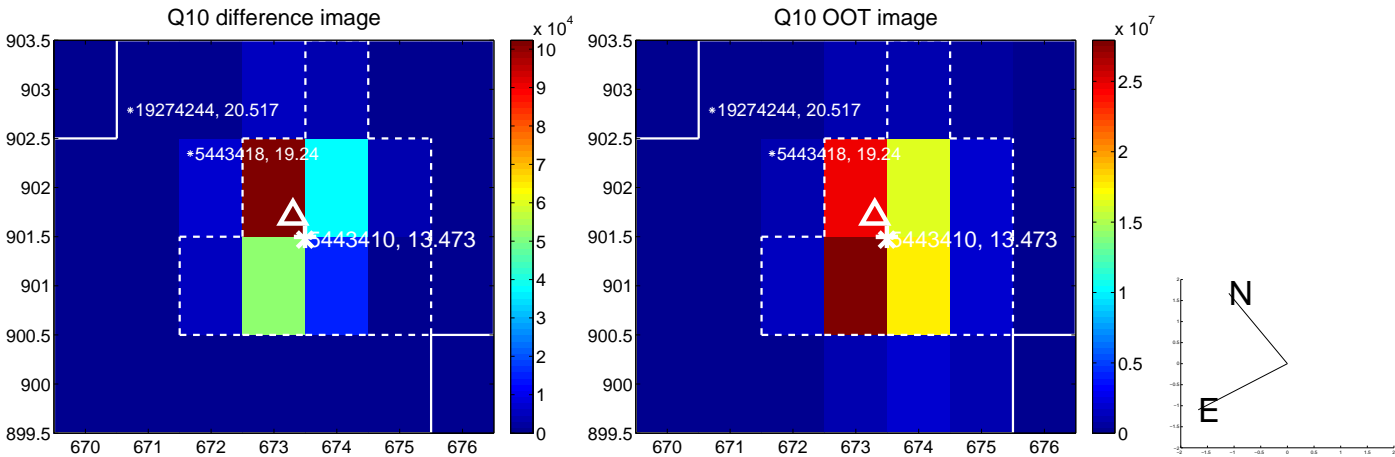
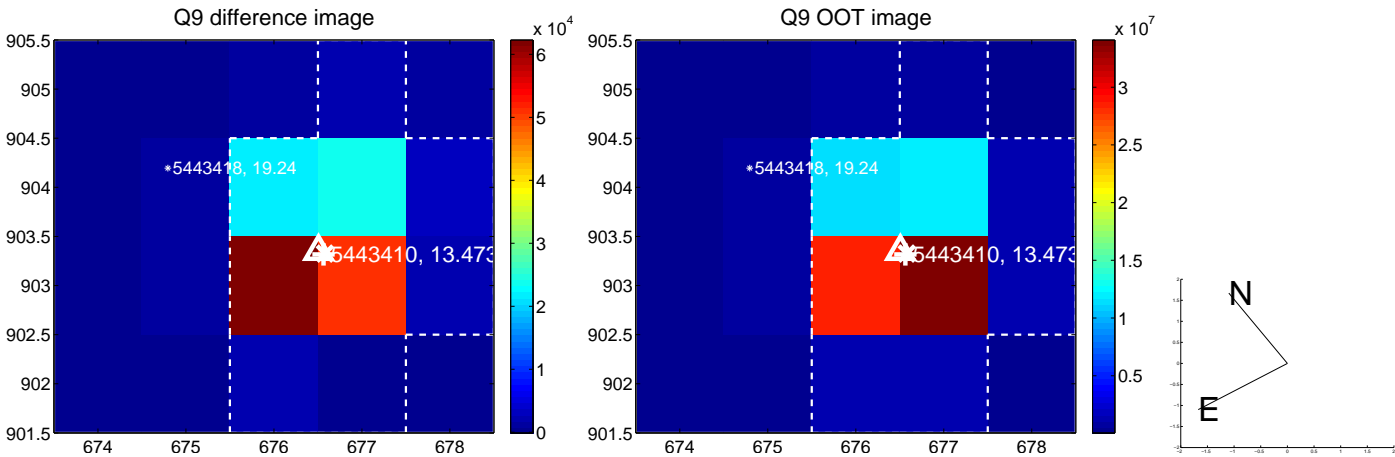
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



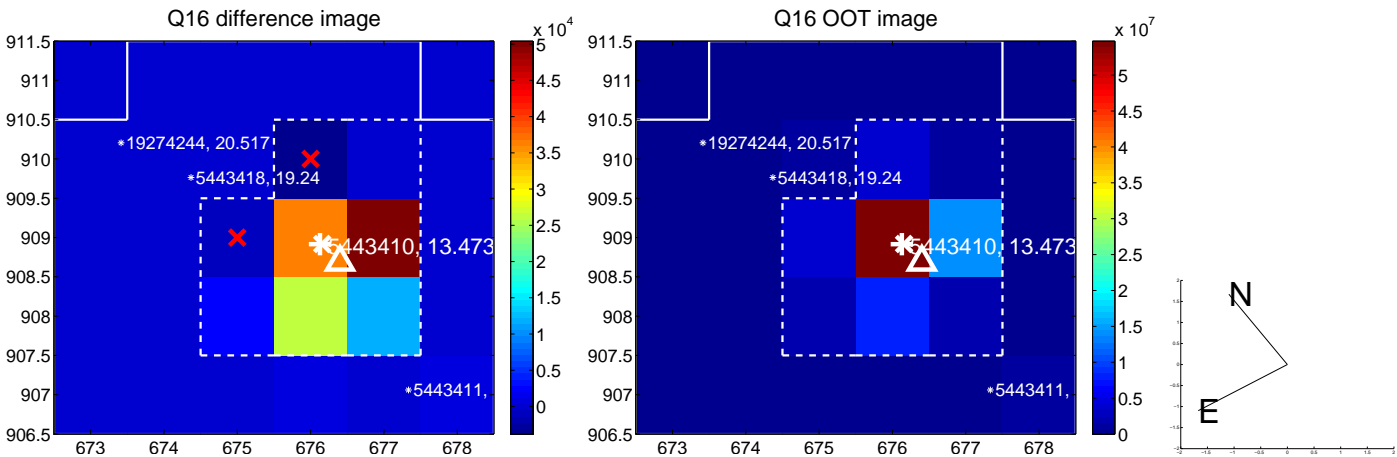
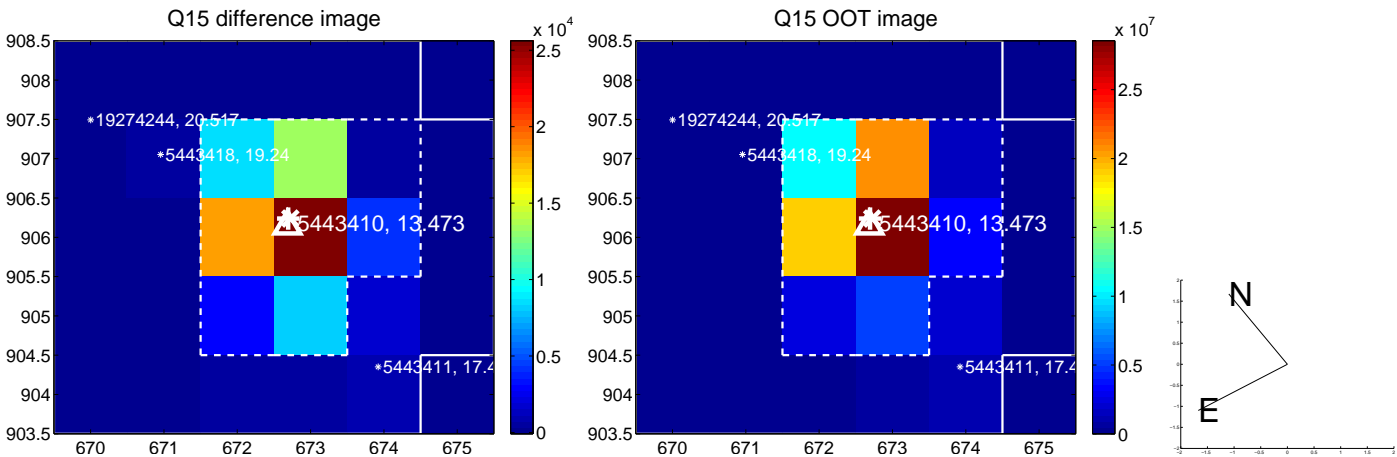
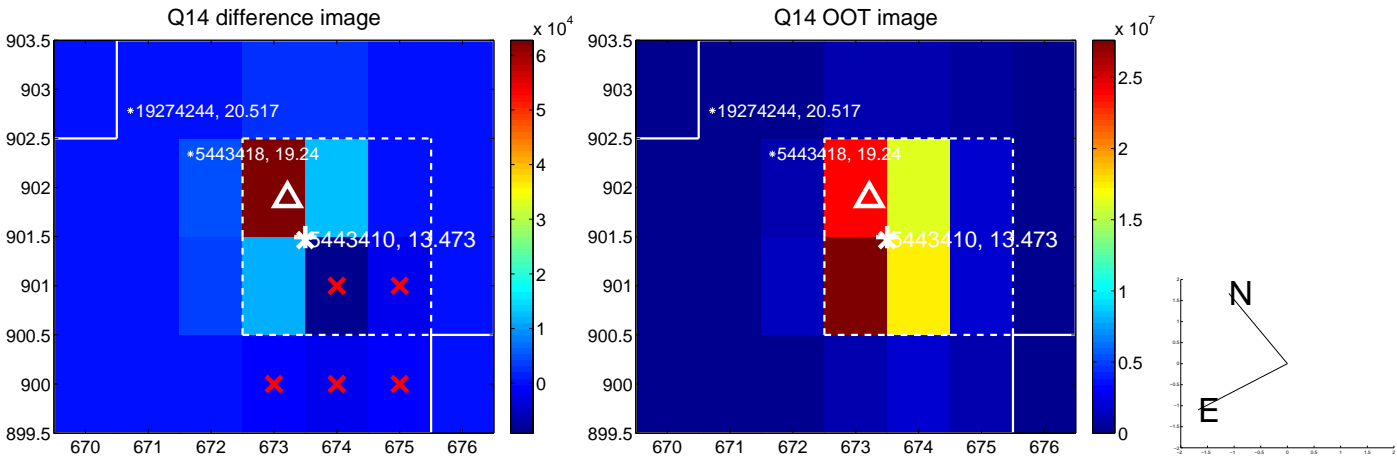
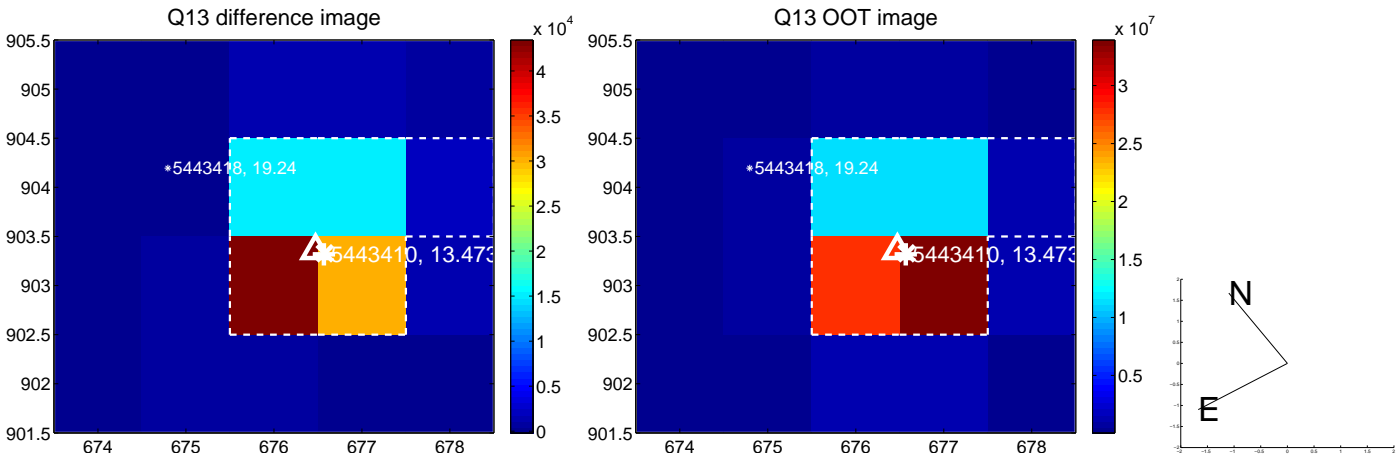
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



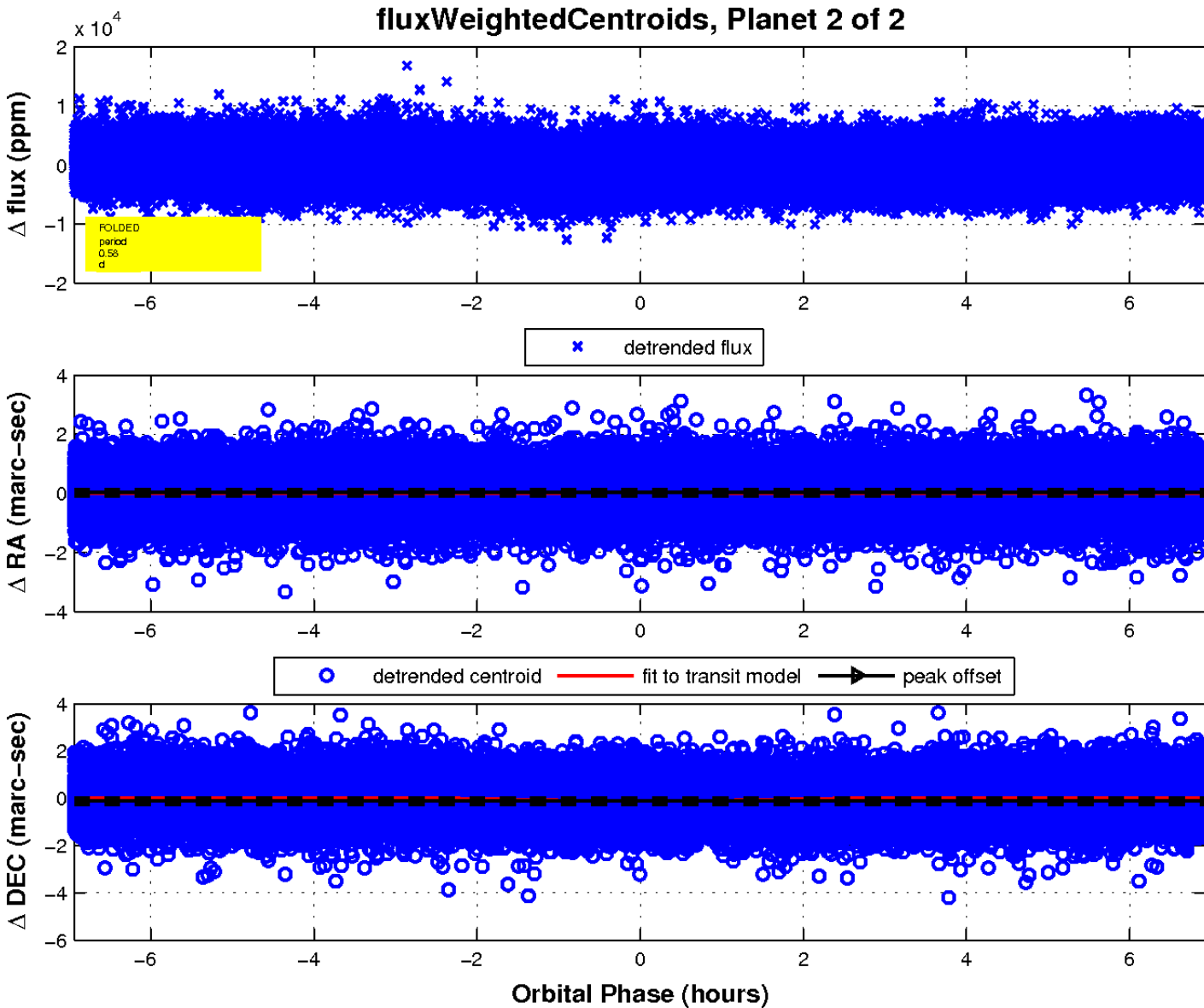
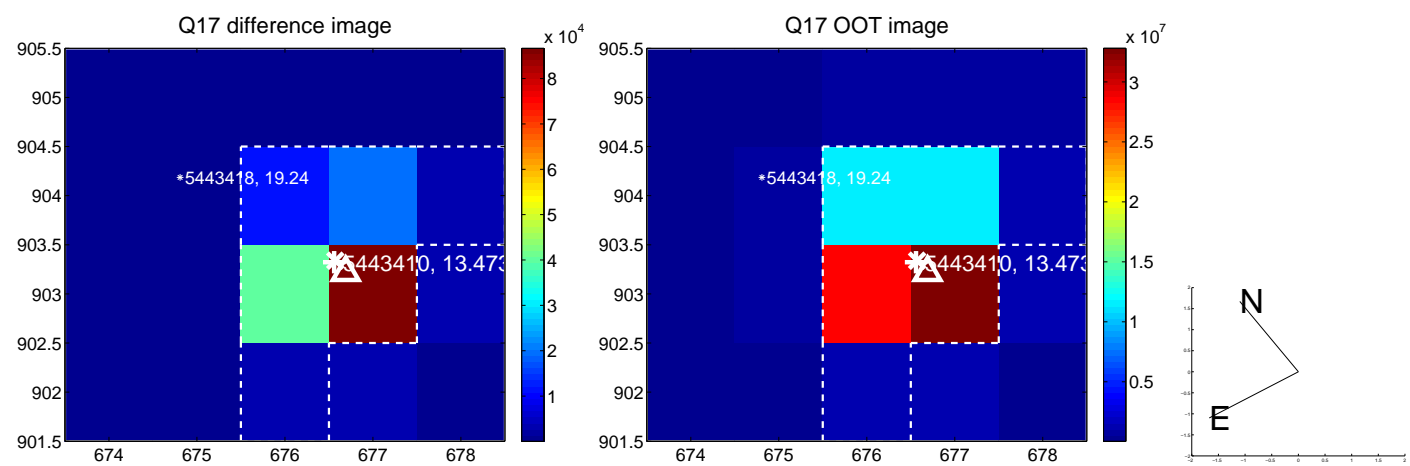
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

