

KIC 002439211

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})
002439211-01	OBS	No	1.431446	132.763500	124.6	3.297	8.8	8.5	2.46	7338	3.23	17365.90
002439211-02	OBS	No	2.243162	132.531536	144.5	13.199	8.3	9.4	2.46	7338	3.92	9540.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002439211-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
002439211-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

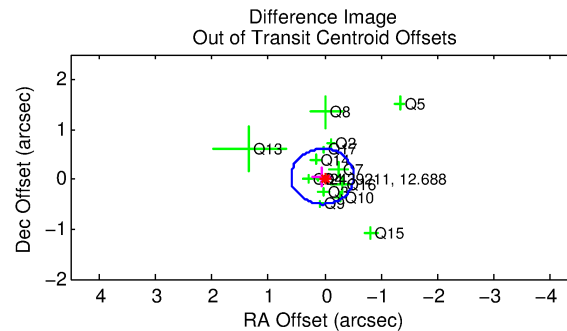
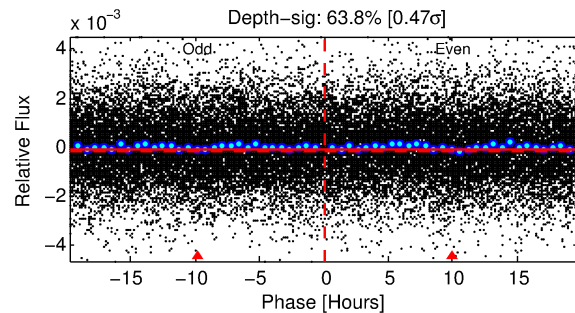
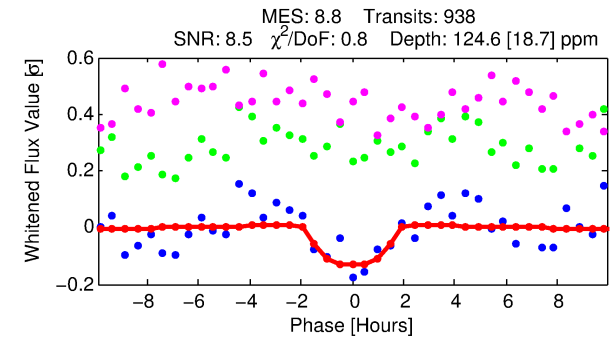
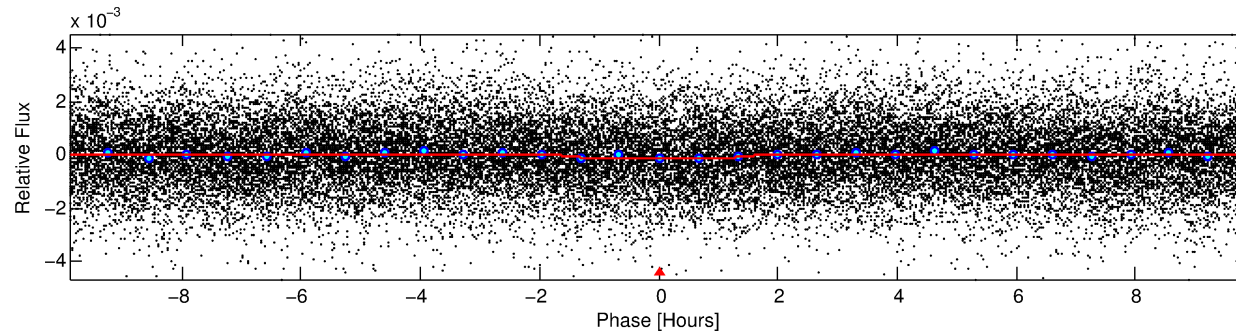
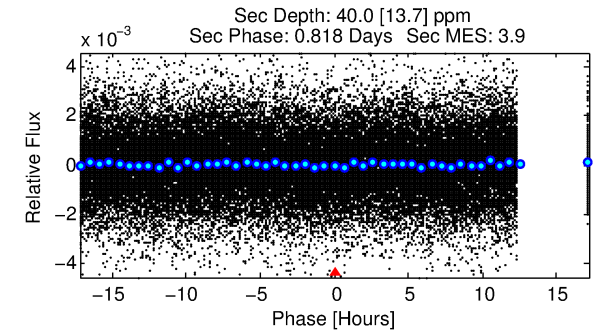
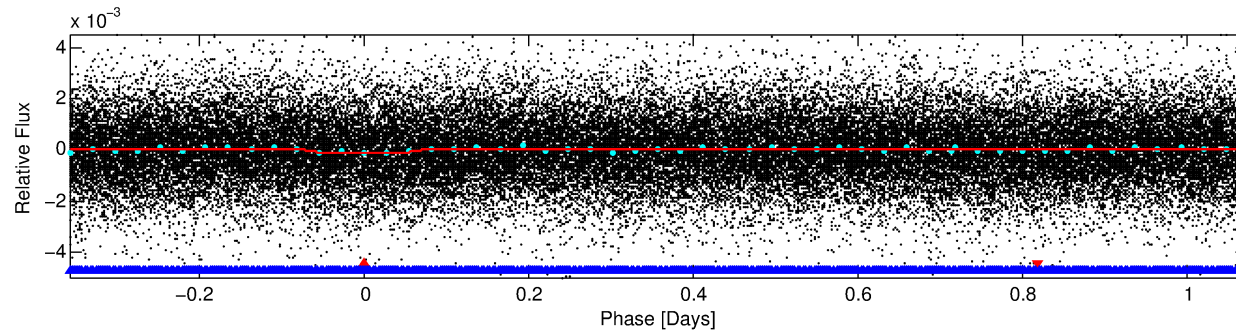
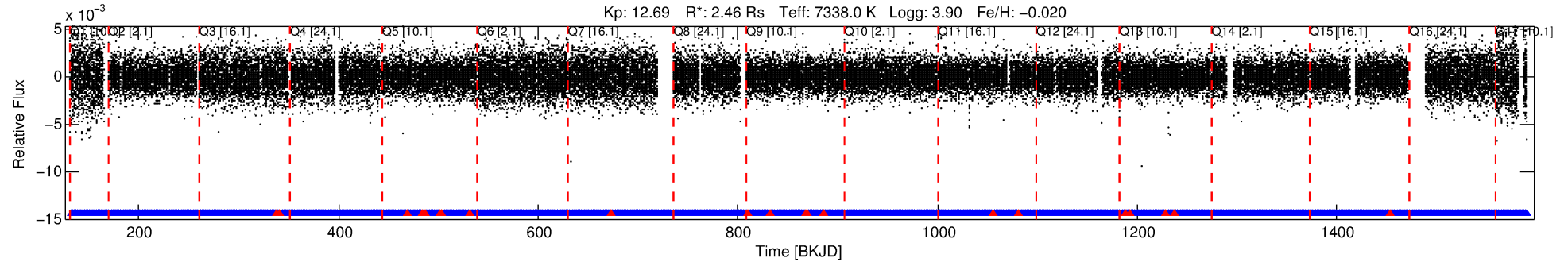
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002439211-01

No Significant Match Found

DV One-Page Summary

KIC: 2439211 Candidate: 1 of 2 Period: 1.431 d



DV Fit Results:

Period = 1.43145 [0.00002] d
Epoch = 132.7635 [0.0057] BKJD
Rp/R* = 0.0120 [0.0064]
a/R* = 1.71 [3.82]
b = 0.92 [0.60]
Seff = 17365.90 [8877.52]
Teq = 2927 [374] K
Rp = 3.23 [2.04] Re
a = 0.0301 [0.0094] AU
Ag = 1.92 [2.32] [0.39σ]
Teffp = 5325 [1501] K [1.55σ]

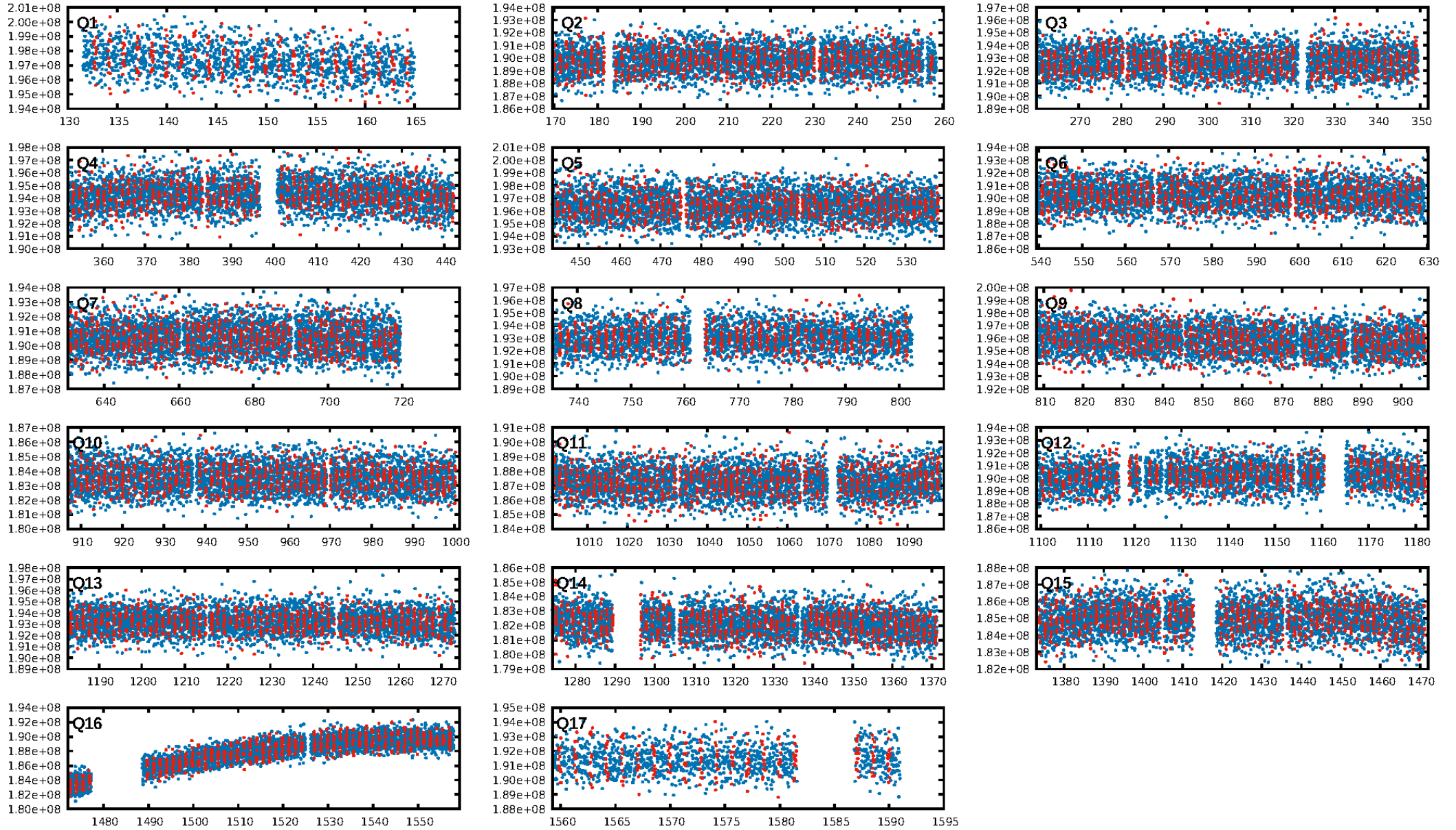
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 84.8% [1.43σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.67e-08
RollingBand-fgt: 0.98 [875/896]
GhostDiagnostic-chr: -10.23
Centroid-sig: 6.4%
Centroid-so: 0.296 arcsec [1.43σ]
OotOffset-rm: 0.067 arcsec [0.36σ]
KicOffset-rm: 0.088 arcsec [0.50σ]
OotOffset-st: 4/3/3/4 [14]
KicOffset-st: 4/3/3/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [17/17]

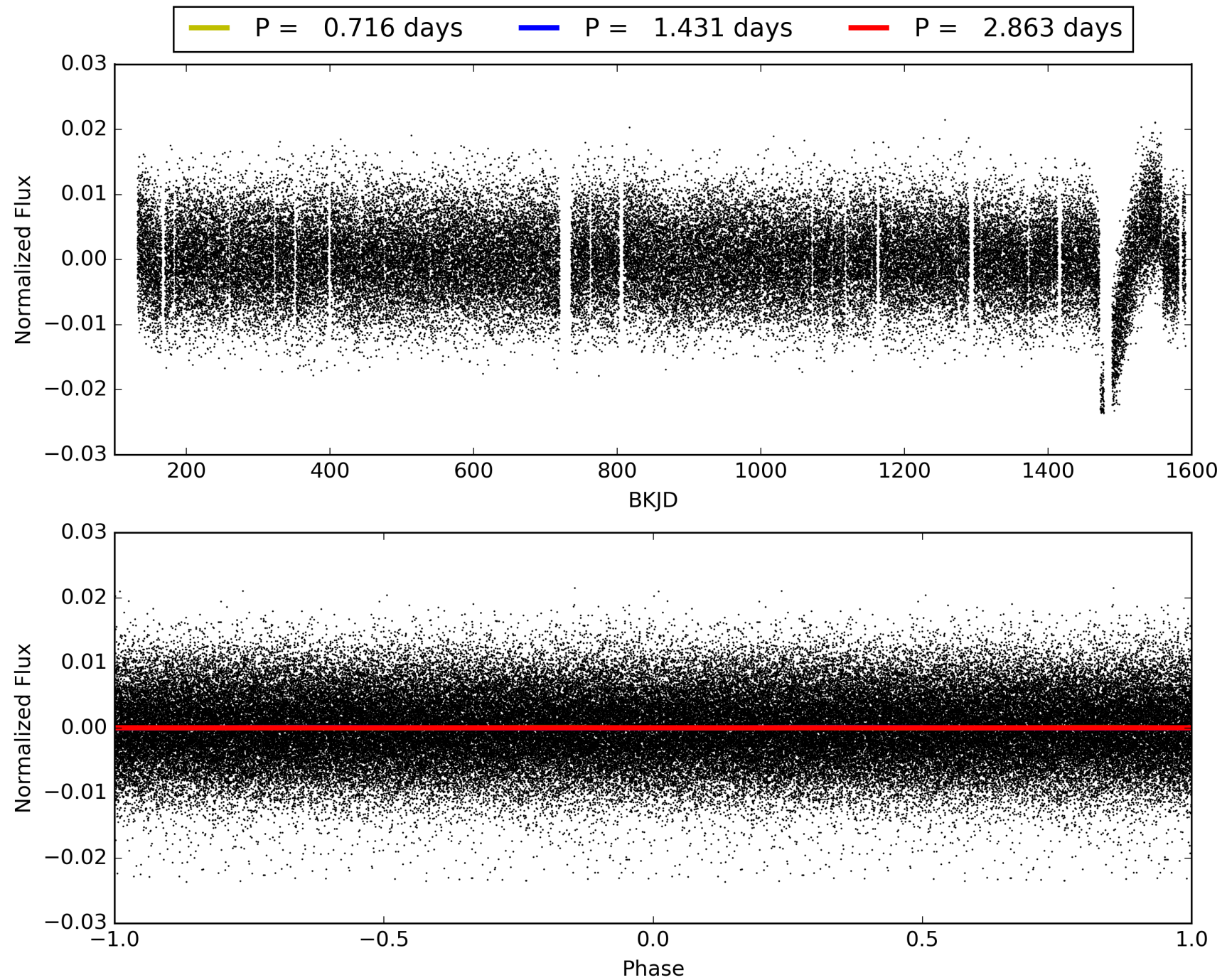
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:55:44 Z

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

TCE 002439211-01, PDC Light Curves

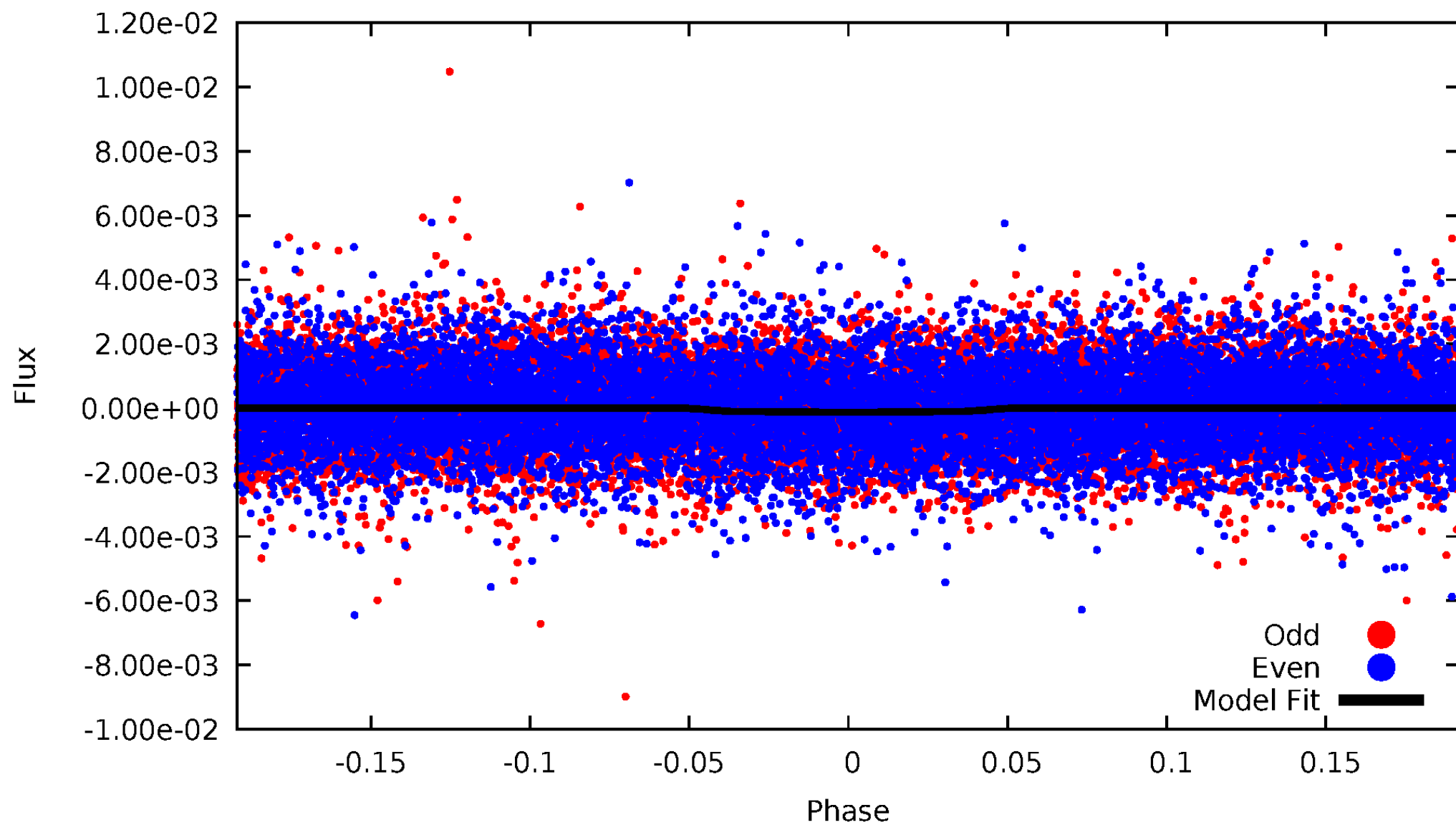


TCE 002439211-01



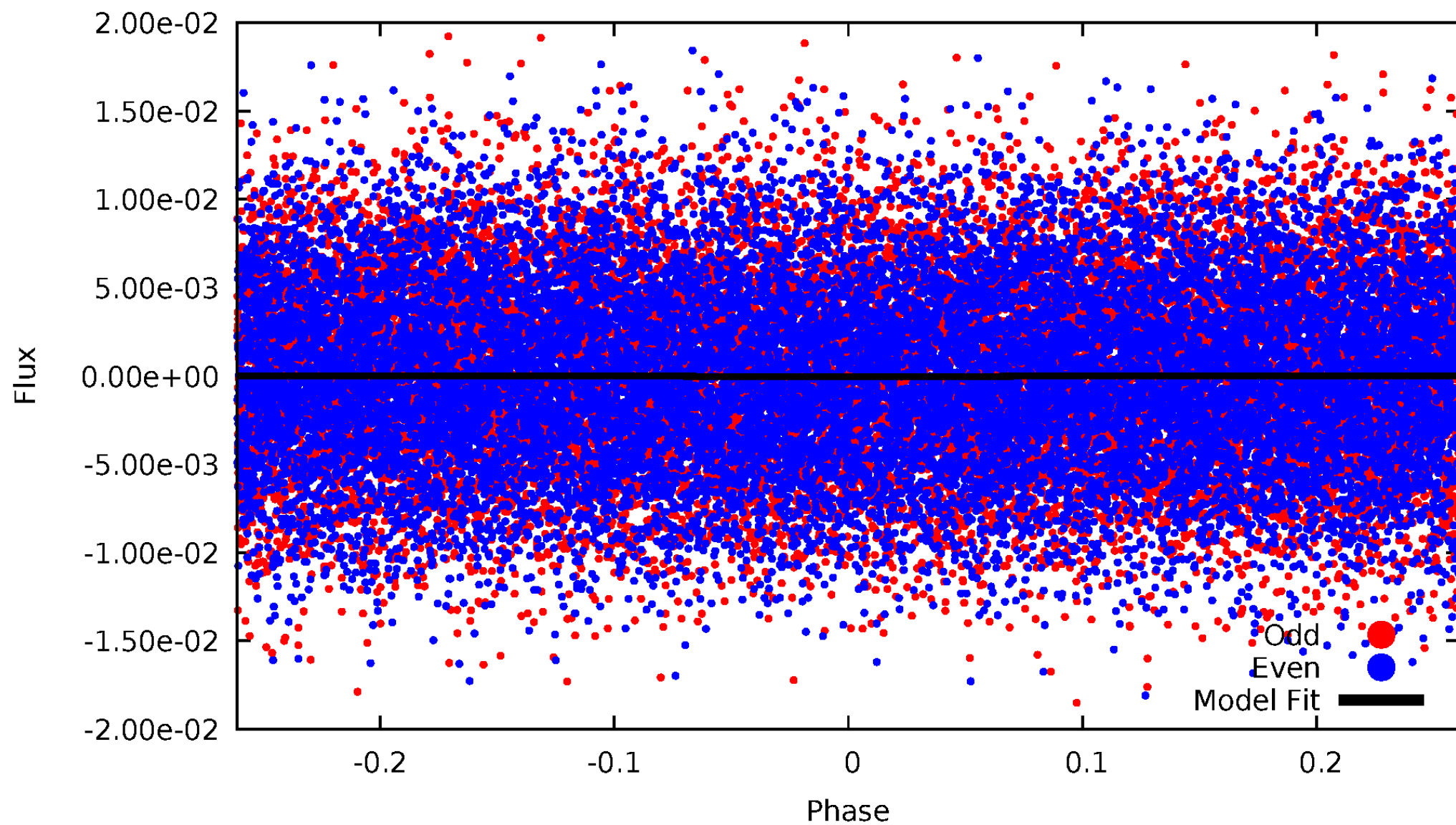
DV Odd/Even

TCE 002439211-01

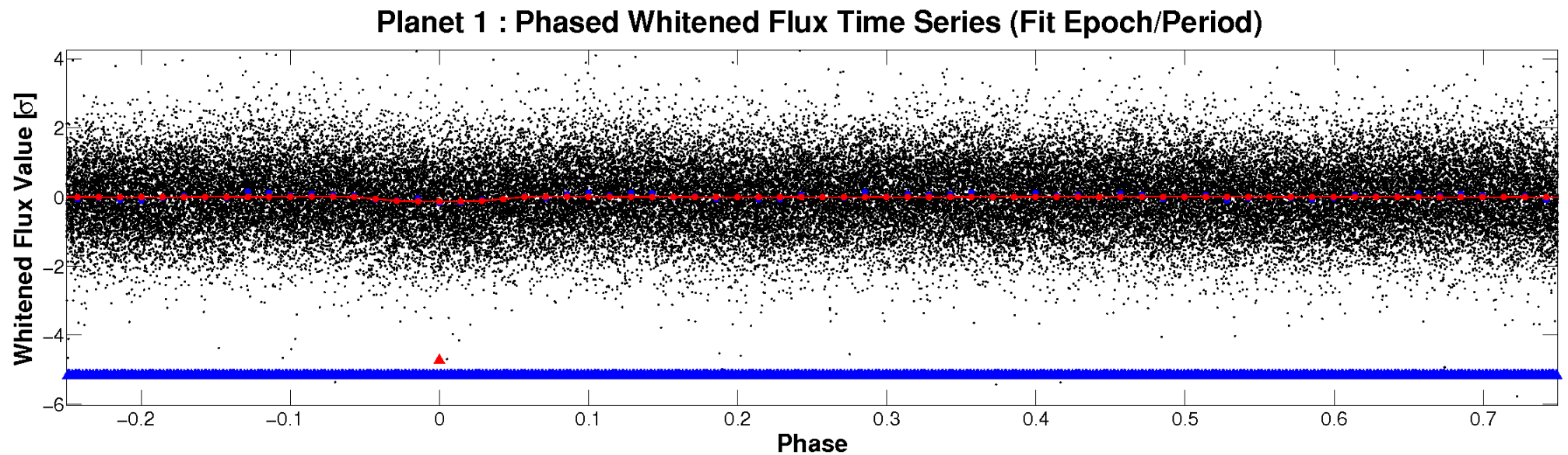
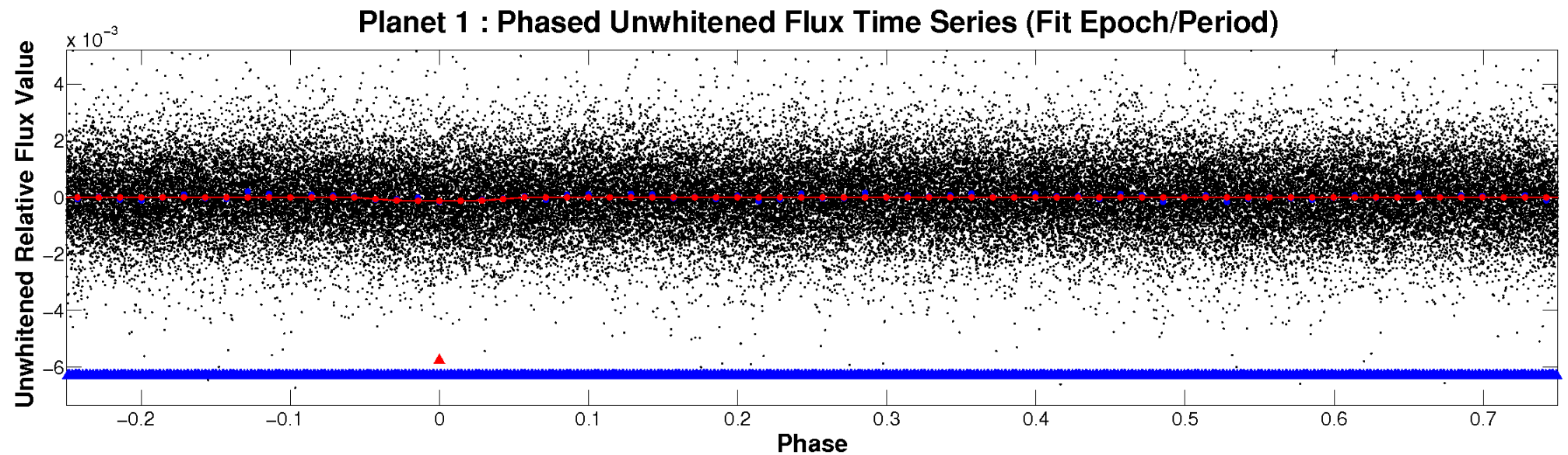


ALT Odd/Even

TCE 002439211-01

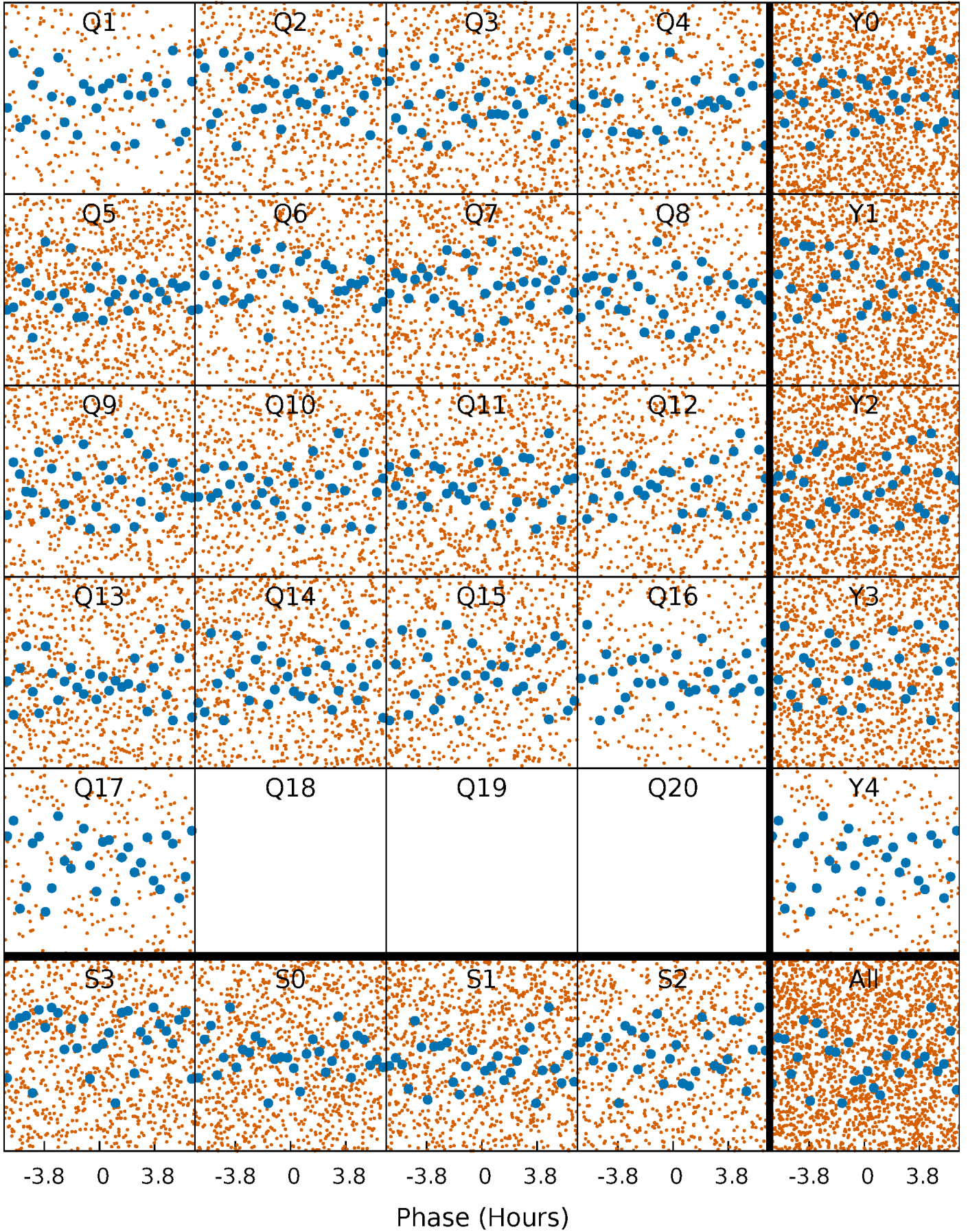


Non-Whitened Vs. Whitened Light Curve



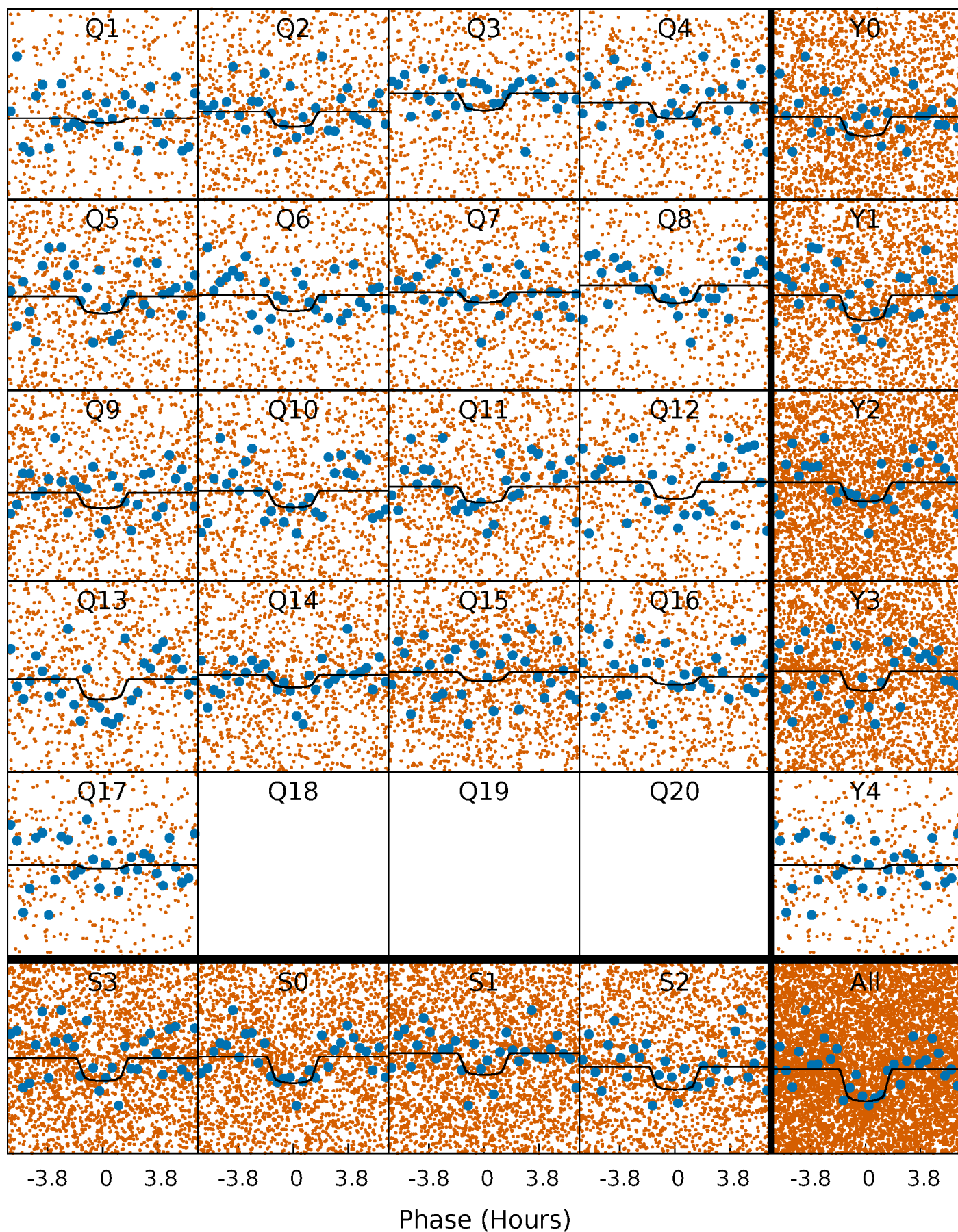
PDC Quarter-Phased Transit Curves

TCE 002439211-01 P= 1.431446 Days $T_0=132.763500$ (BKJD)



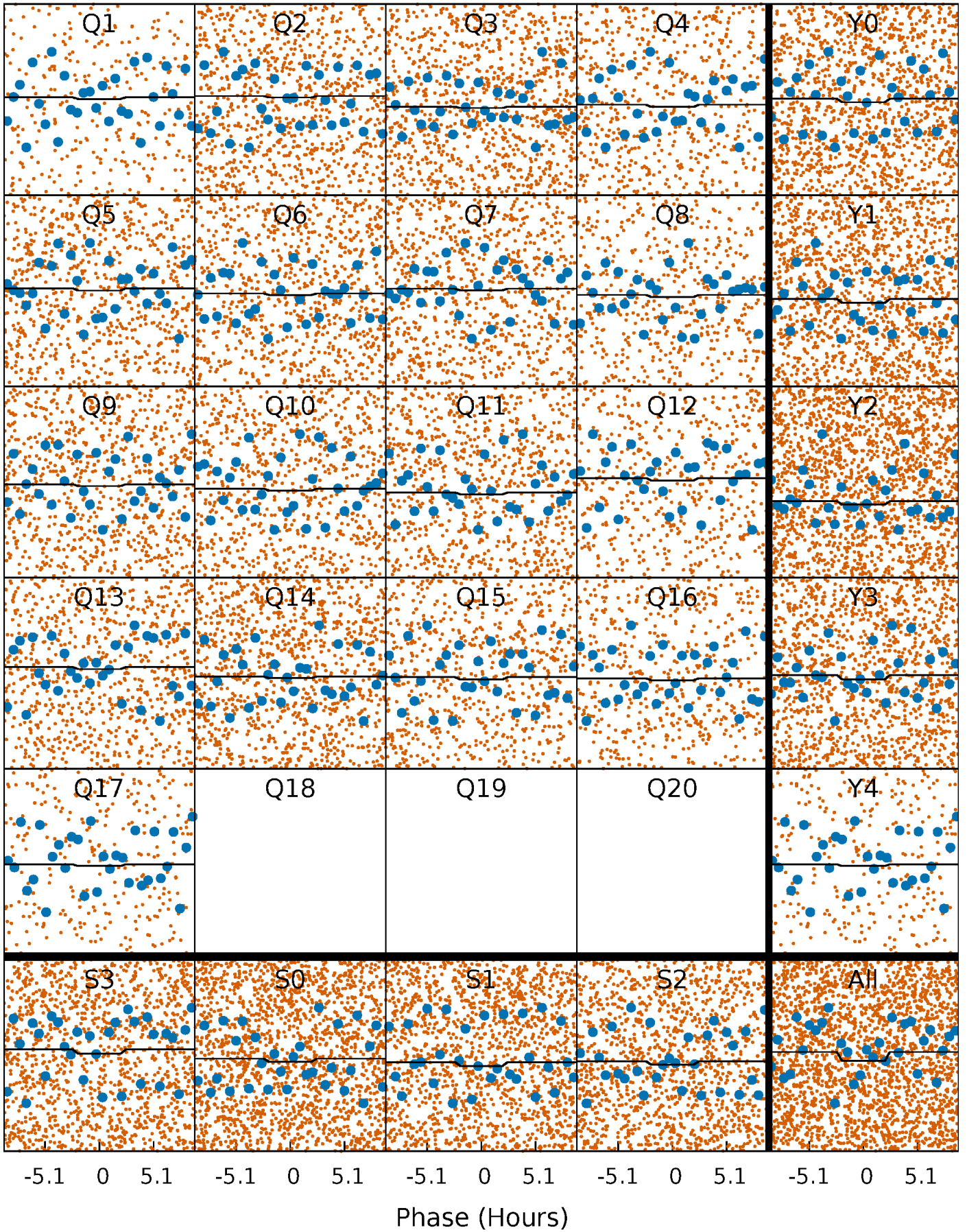
DV Quarter-Phased Transit Curves

TCE 002439211-01 P= 1.431446 Days $T_0=132.763500$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

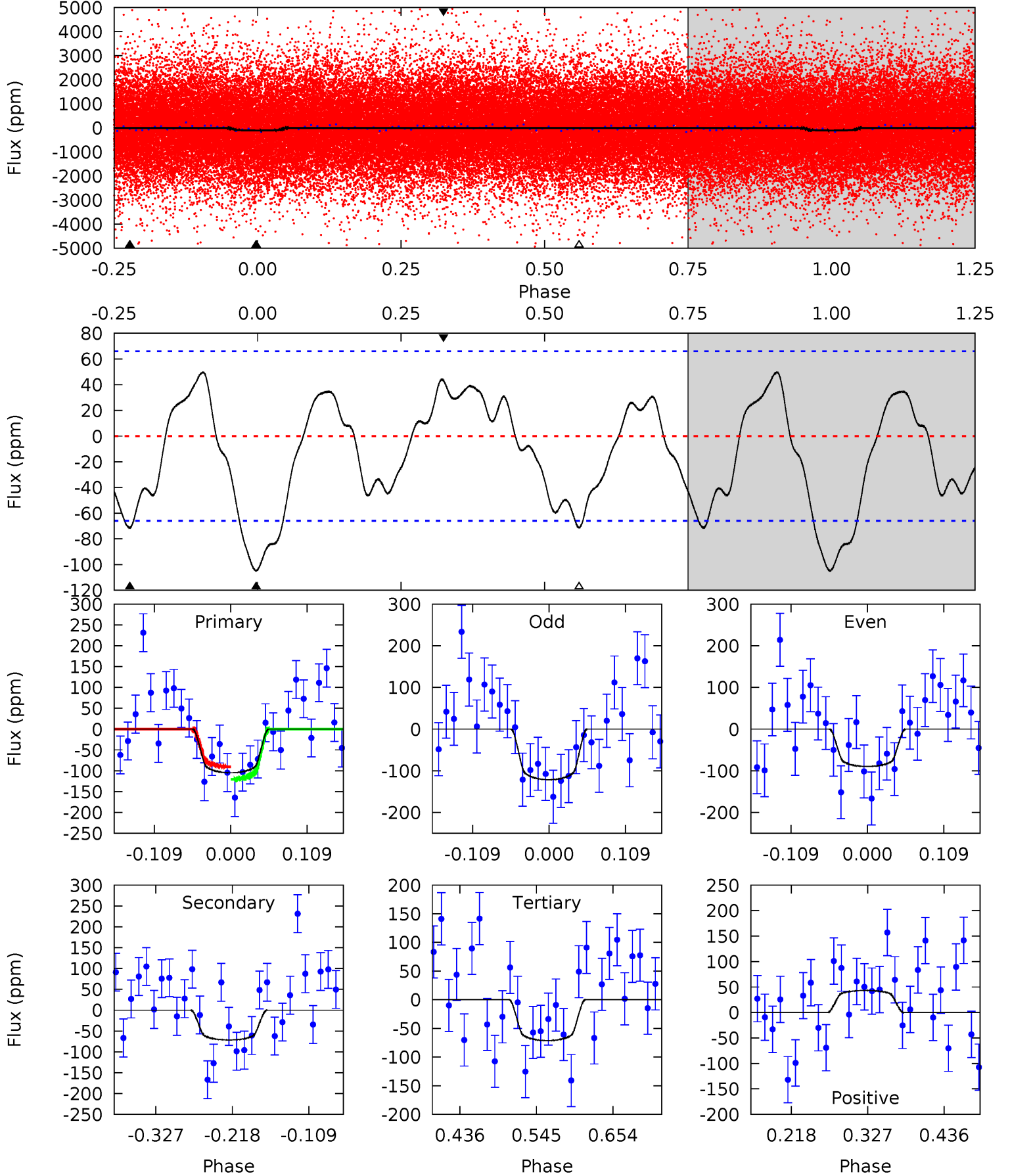
TCE 002439211-01 P= 1.431493 Days $T_0=132.768916$ (BKJD)



DV Model-Shift Uniqueness Test

002439211-01, P = 1.431446 Days, E = 131.332054 Days

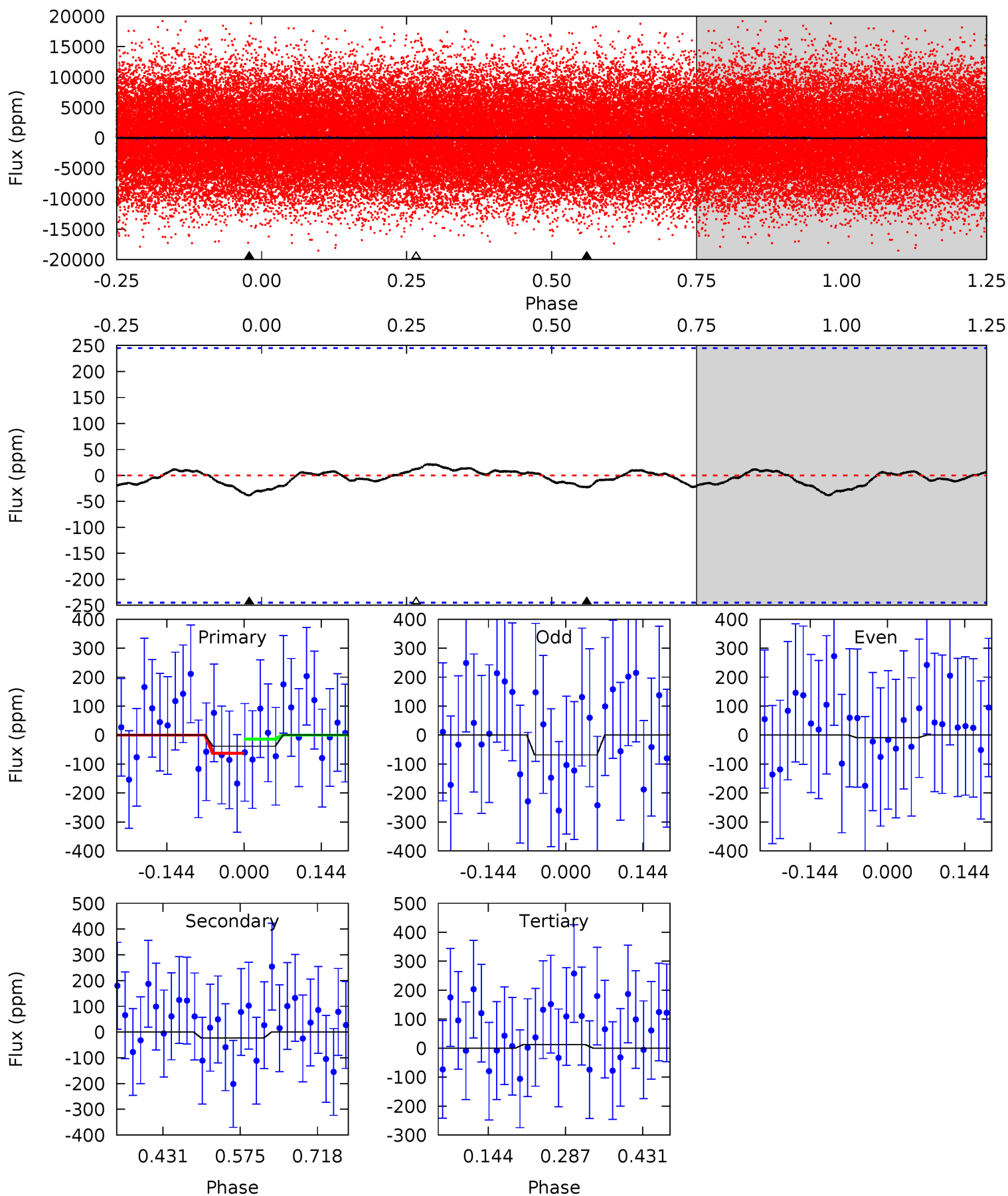
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.23	4.92	4.91	2.98	4.55	1.60	2.19	2.31	4.25	0.01	1.94	1.10	0.98	0.32	1.03



Alt Model-Shift Uniqueness Test

002439211-01, P = 1.431493 Days, E = 131.337423 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.71	0.42	-0.22	0	4.49	1.46	0.21	0.93	0.71	0.64	0.42	0.55	0.59	0.36	0.45



Stellar Parameters For KIC 002439211

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7338^{+203}_{-330}	$3.905^{+0.273}_{-0.147}$	$-0.020^{+0.200}_{-0.350}$	$2.462^{+0.498}_{-0.853}$	$1.775^{+0.175}_{-0.409}$	$0.168^{+0.356}_{-0.065}$
	+3%/-4%	+7%/-4%	+1000%/-1750%	+20%/-35%	+10%/-23%	+213%/-39%
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 002439211-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-71 ± 15	$3.21^{+1.75}_{-1.60}$	4046^{+291}_{-374}	5816^{+2769}_{-1183}	$3.327^{+9.196}_{-1.964}$
Alt.	-23 ± 55	$2.00^{+1.56}_{-1.22}$	4057^{+289}_{-352}	5181^{+4719}_{-11511}	$2.068^{+19.116}_{-5.853}$

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 $A_{obs} \gg 1.0$

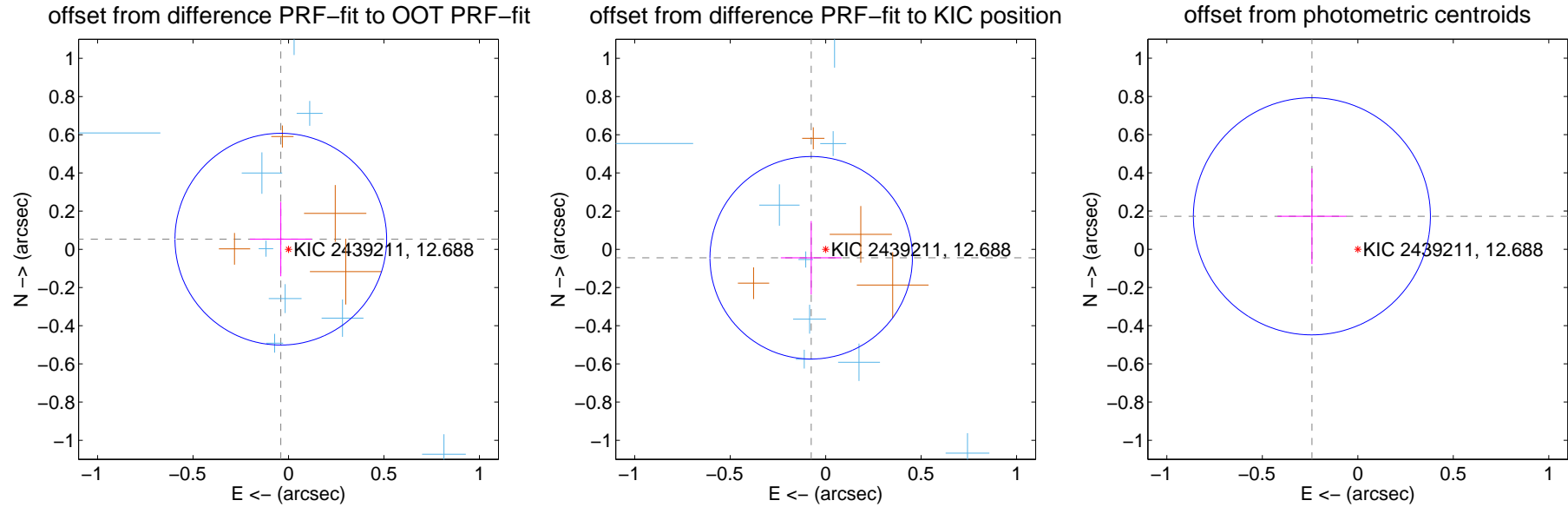
DV Centroid Data

Supplemental centroid analysis for 002439211-01. Kepler magnitude: 12.69. Transit SNR 8.54

There are 10 quarters with good PRF difference image offsets

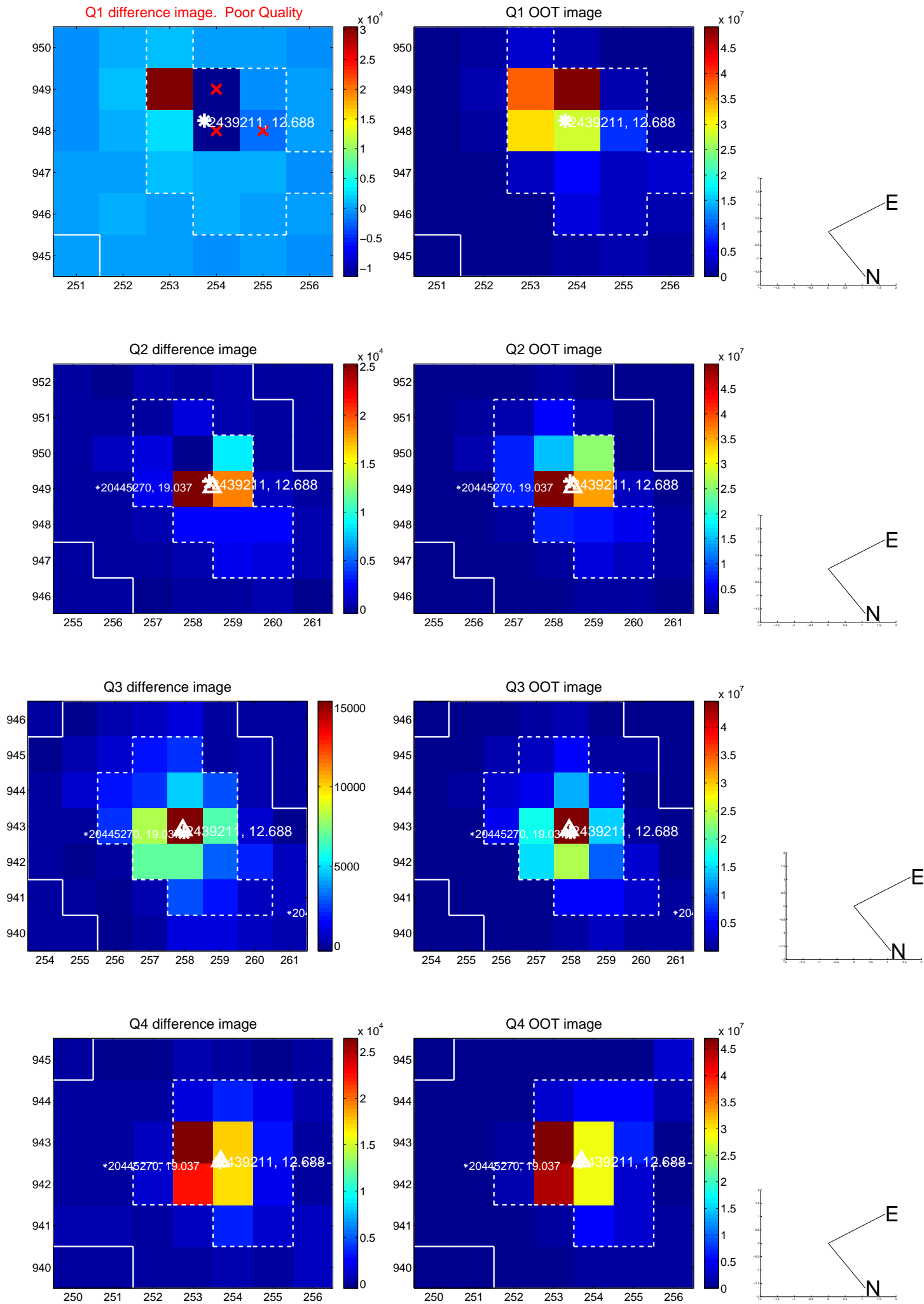
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.067 ± 0.185	0.36	0.040 ± 0.162	0.053 ± 0.195
PRF-fit source offset from KIC position	0.088 ± 0.177	0.50	0.076 ± 0.159	-0.044 ± 0.192
photometric centroid source offset	0.30 ± 0.21	1.43	0.24 ± 0.18	0.17 ± 0.25

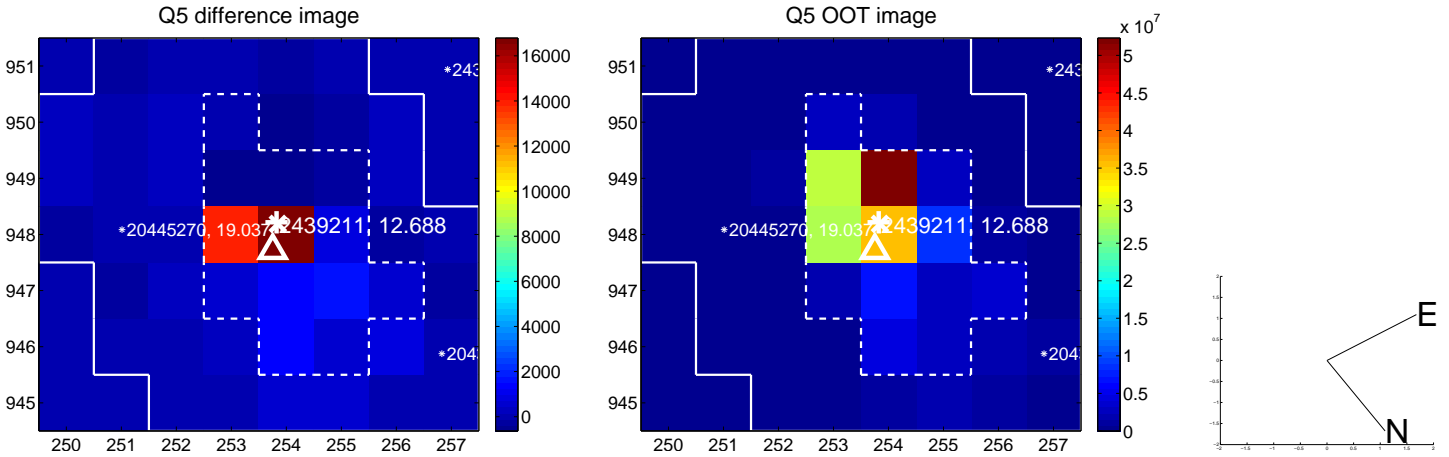


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

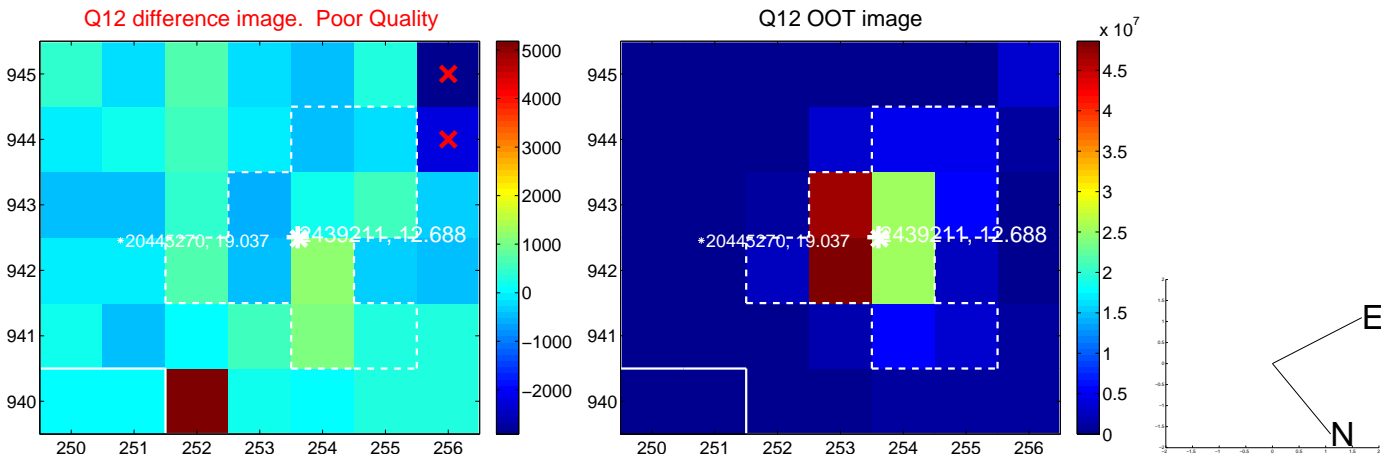
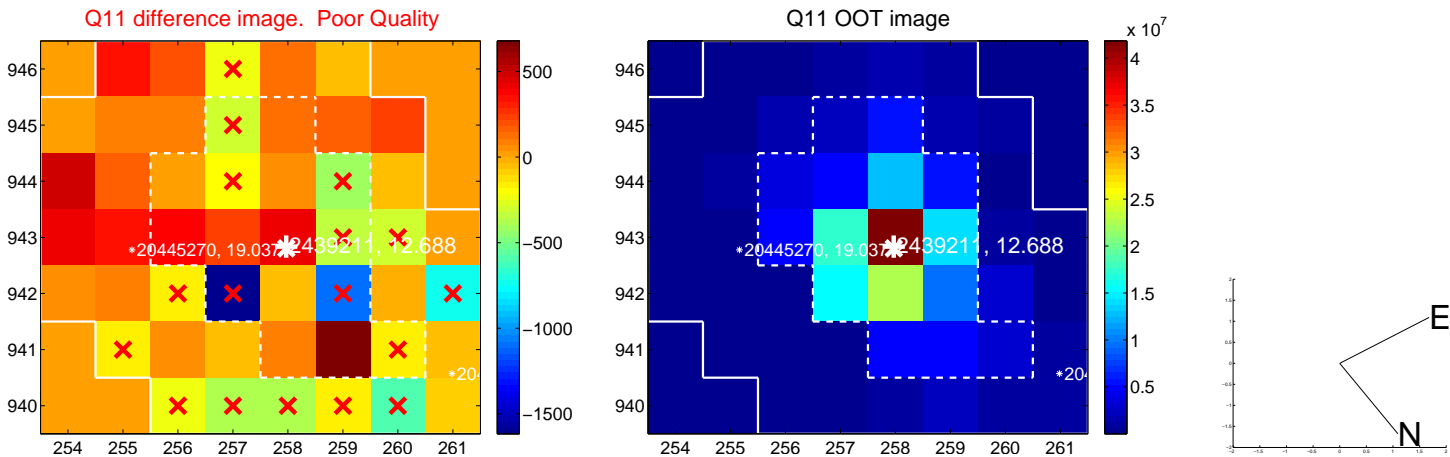
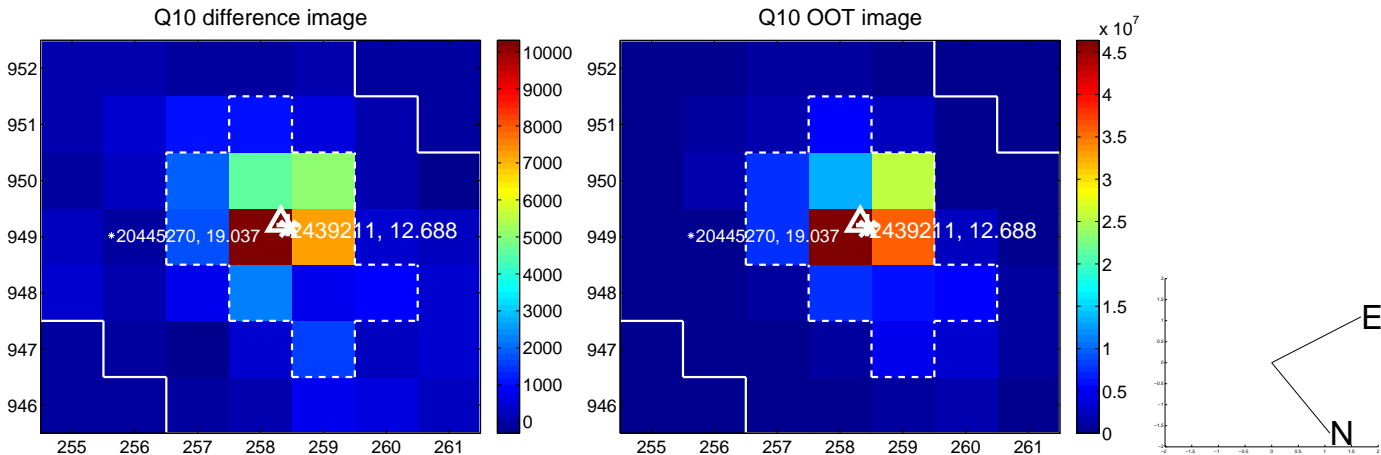
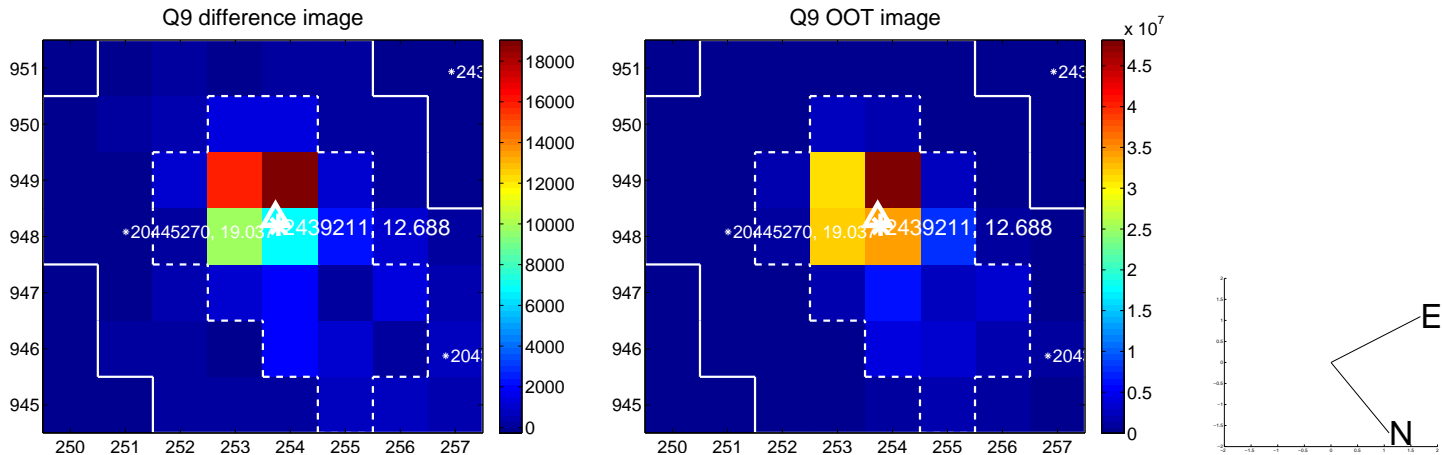
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



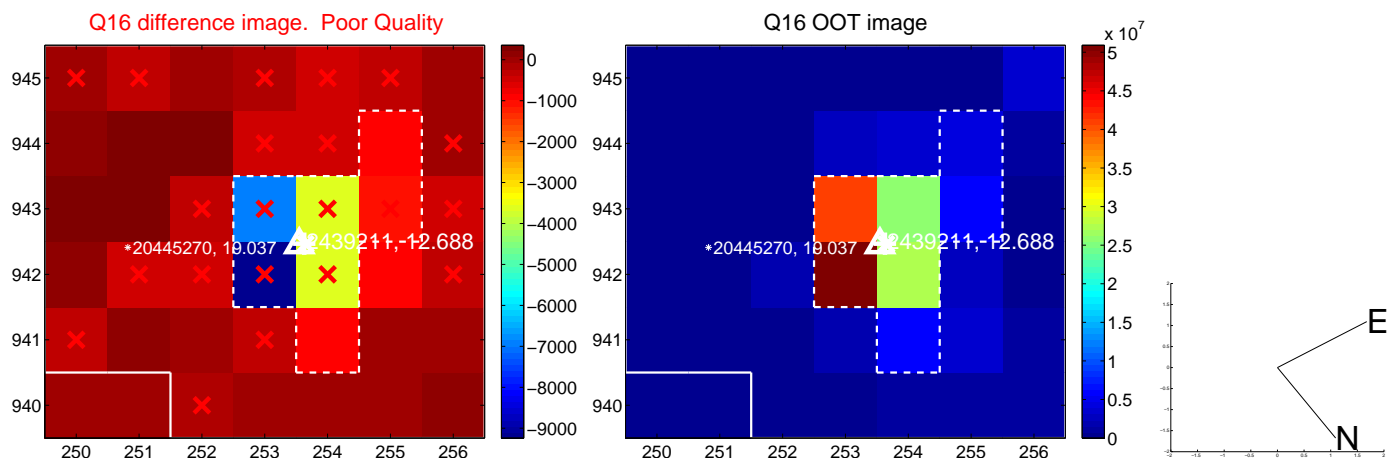
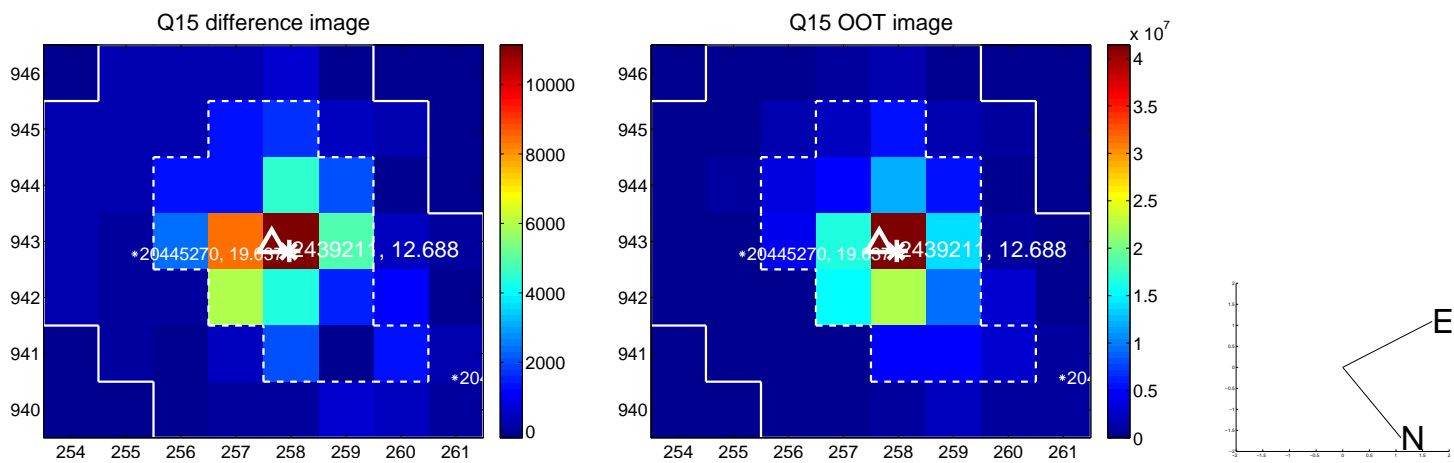
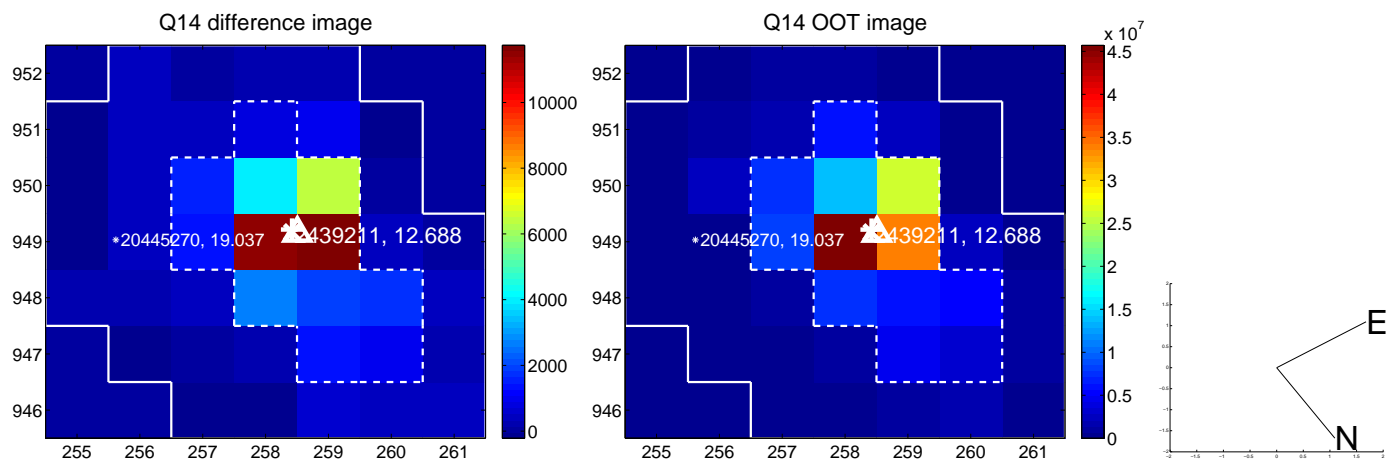
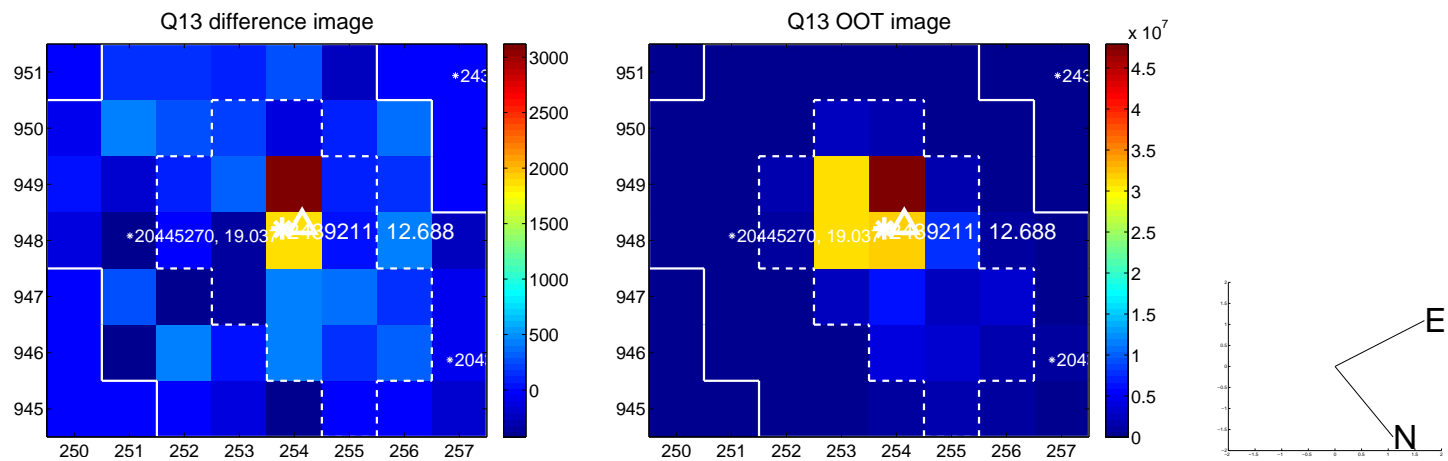
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



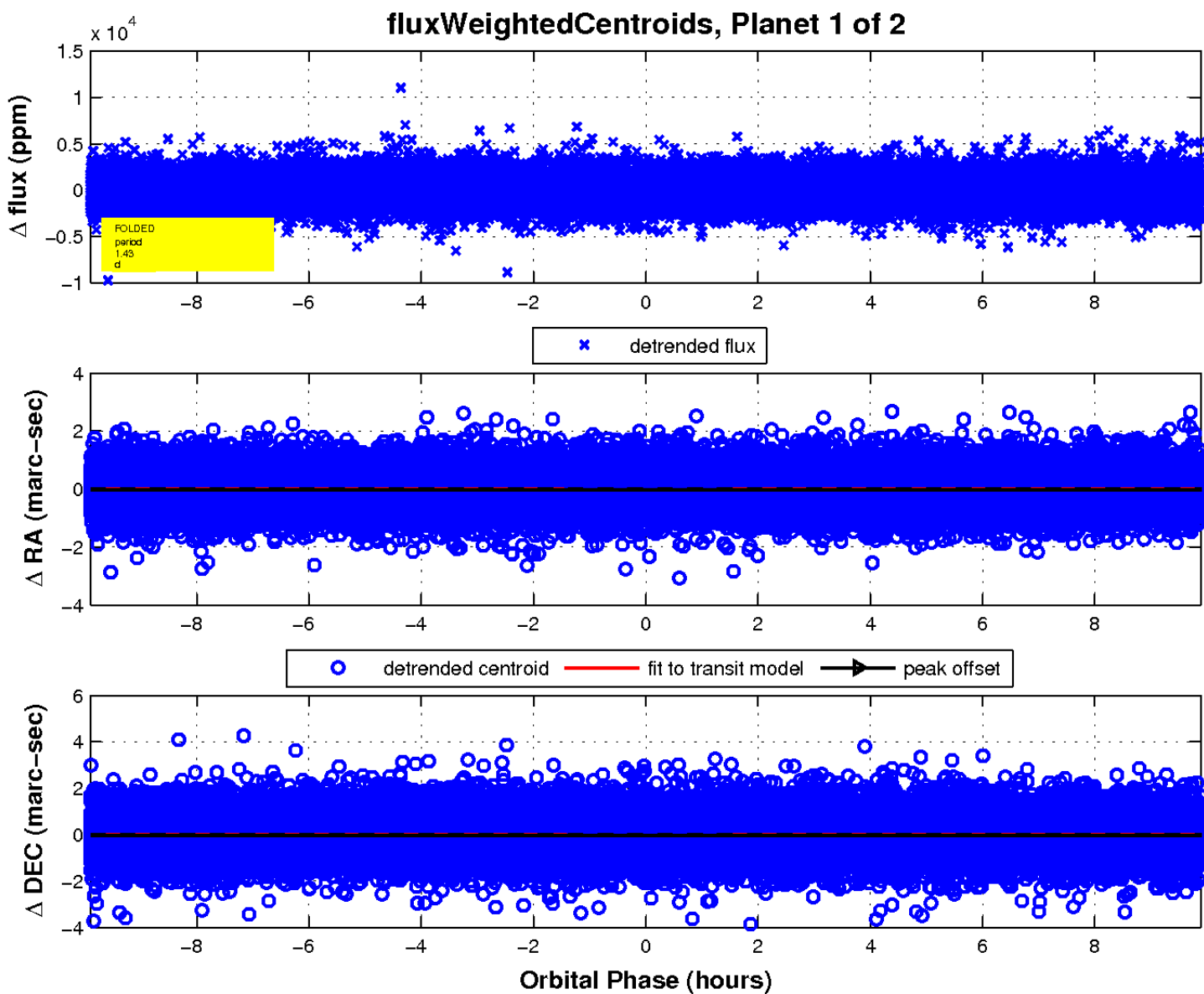
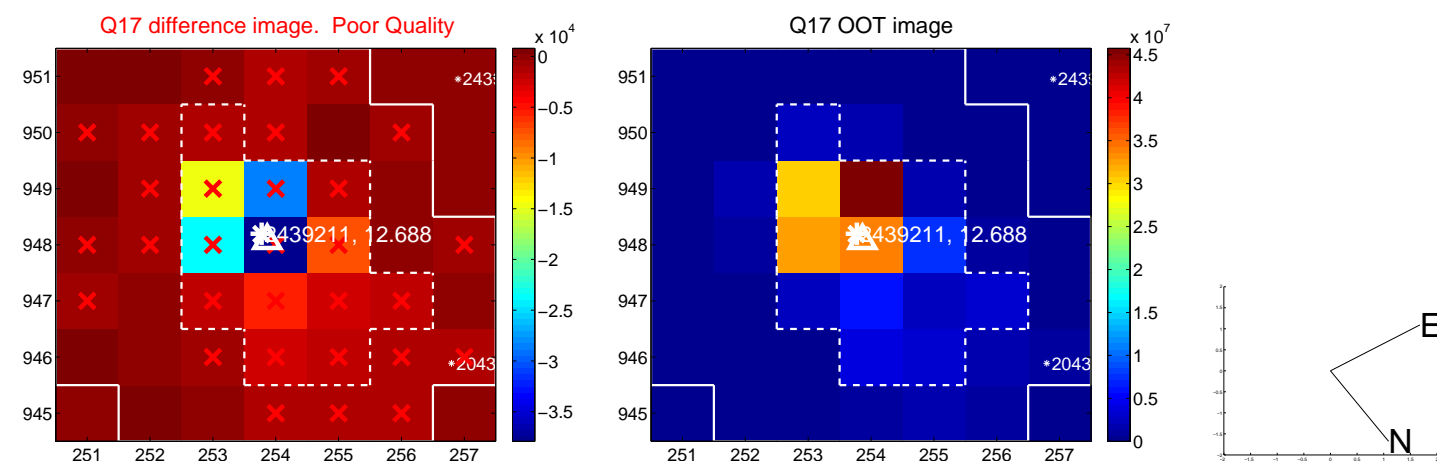
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

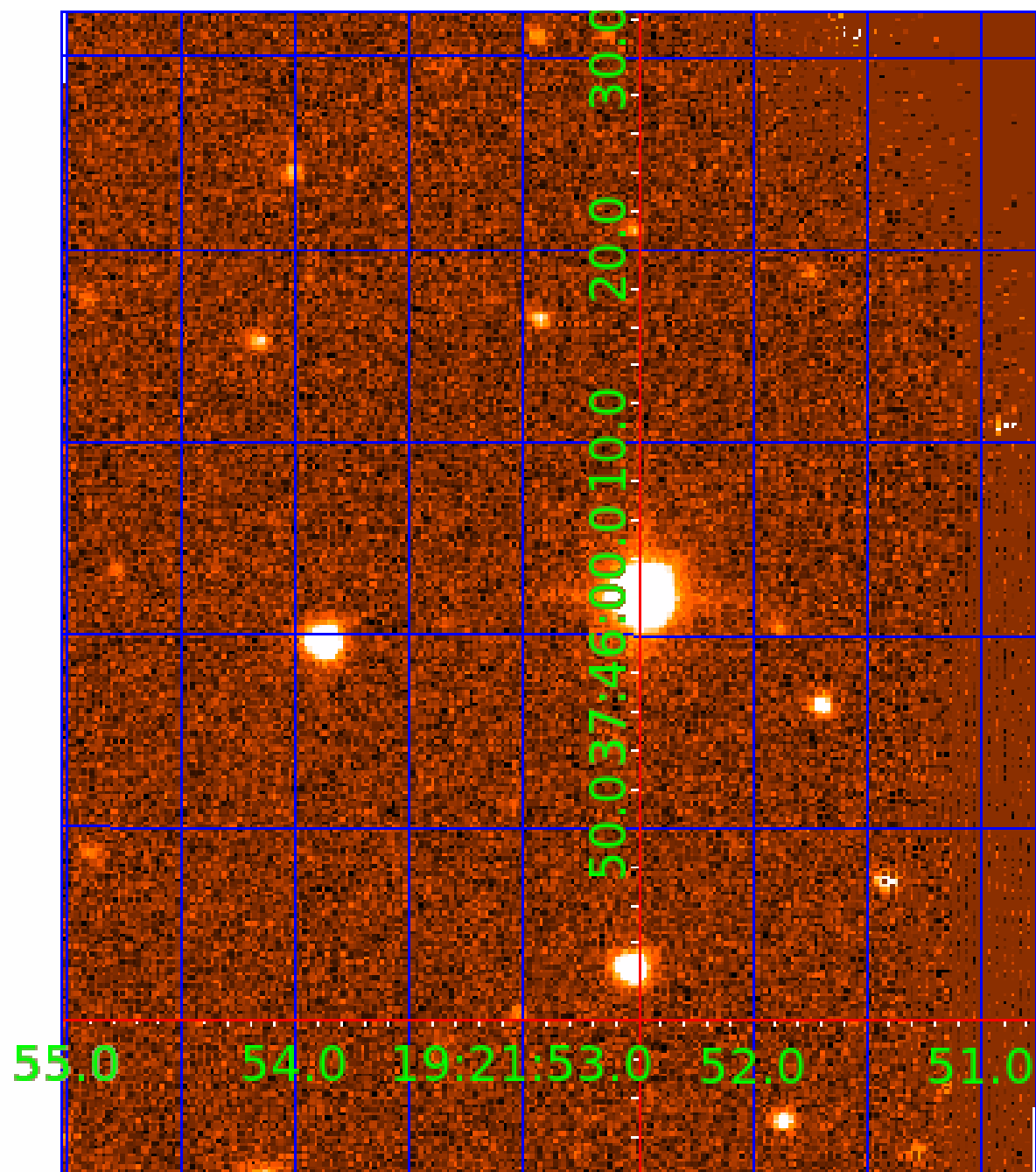


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002439211

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})
002439211-01	OBS	No	1.431446	132.763500	124.6	3.297	8.8	8.5	2.46	7338	3.23	17365.90
002439211-02	OBS	No	2.243162	132.531536	144.5	13.199	8.3	9.4	2.46	7338	3.92	9540.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002439211-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
002439211-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

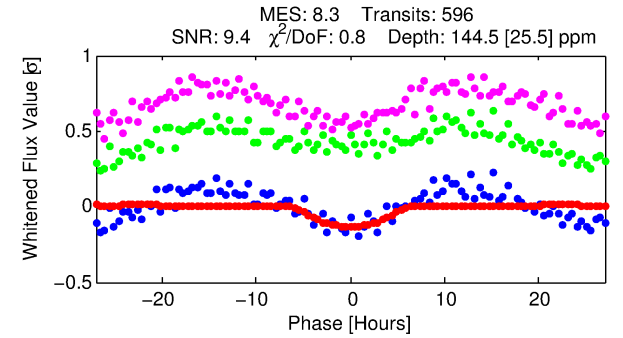
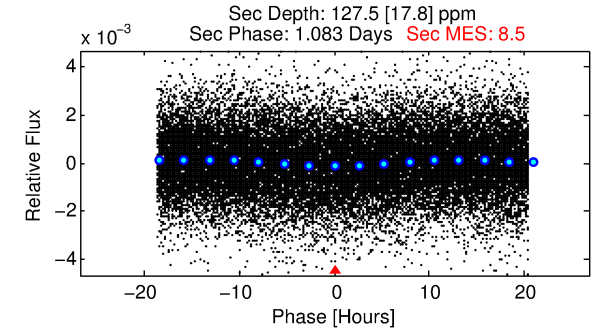
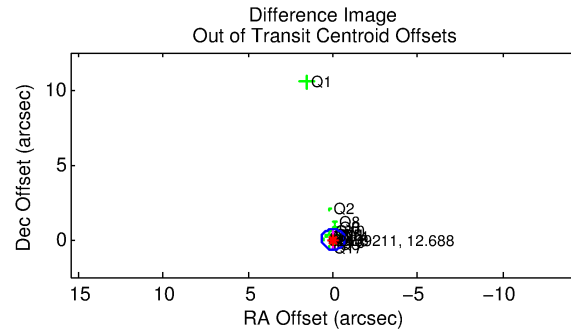
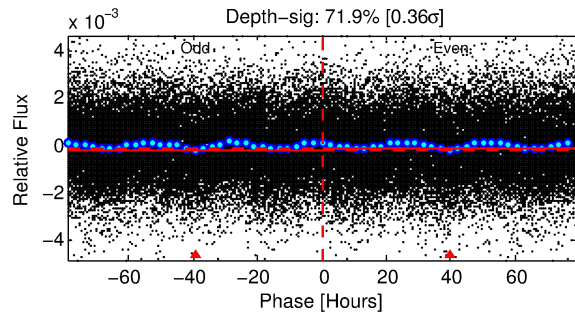
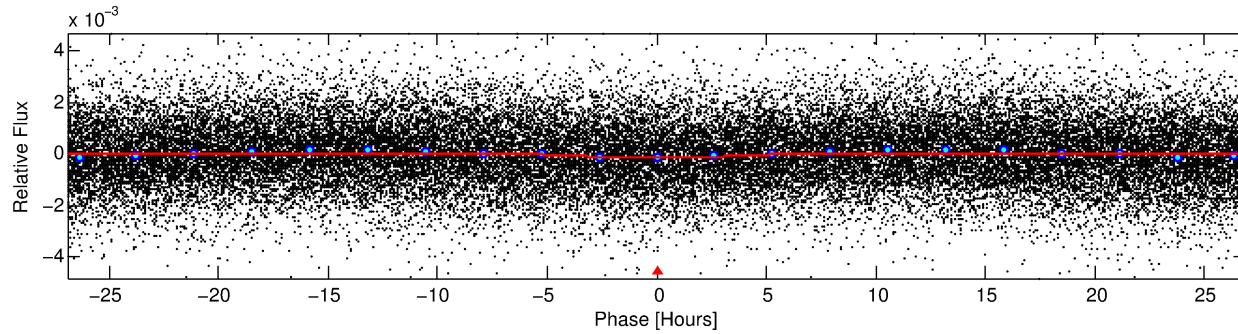
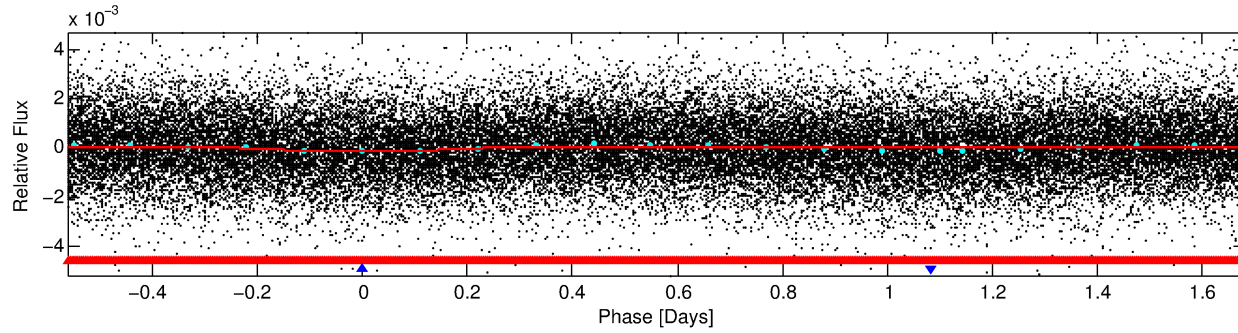
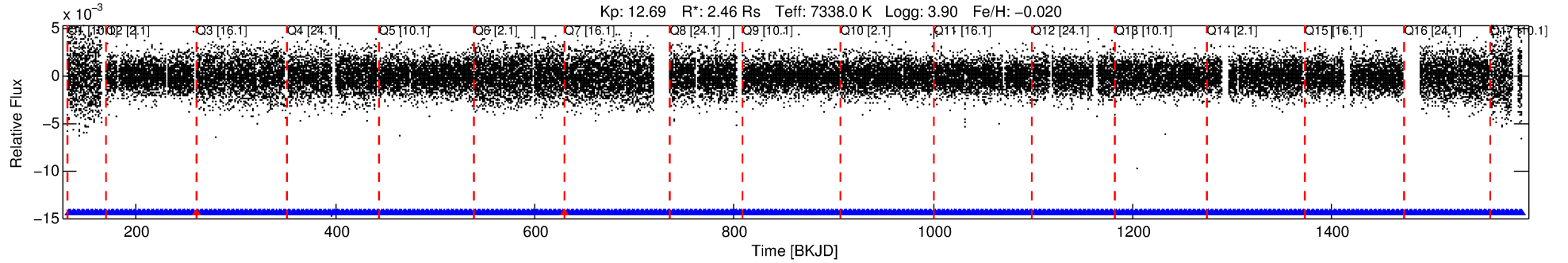
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002439211-02

No Significant Match Found

DV One-Page Summary

KIC: 2439211 Candidate: 2 of 2 Period: 2.243 d



DV Fit Results:

Period = 2.24316 [0.00009] d
Epoch = 132.5315 [0.0318] BKJD
Rp/R* = 0.0146 [0.0017]
a/R* = 1.05 [0.02]
b = 0.98 [0.01]
Seff = 9540.76 [4877.27]
Teq = 2520 [322] K
Rp = 3.92 [1.43] Re
a = 0.0406 [0.0127] AU
Ag = 7.51 [4.12] [1.58σ]
Teffp = 6451 [522] K [6.41σ]

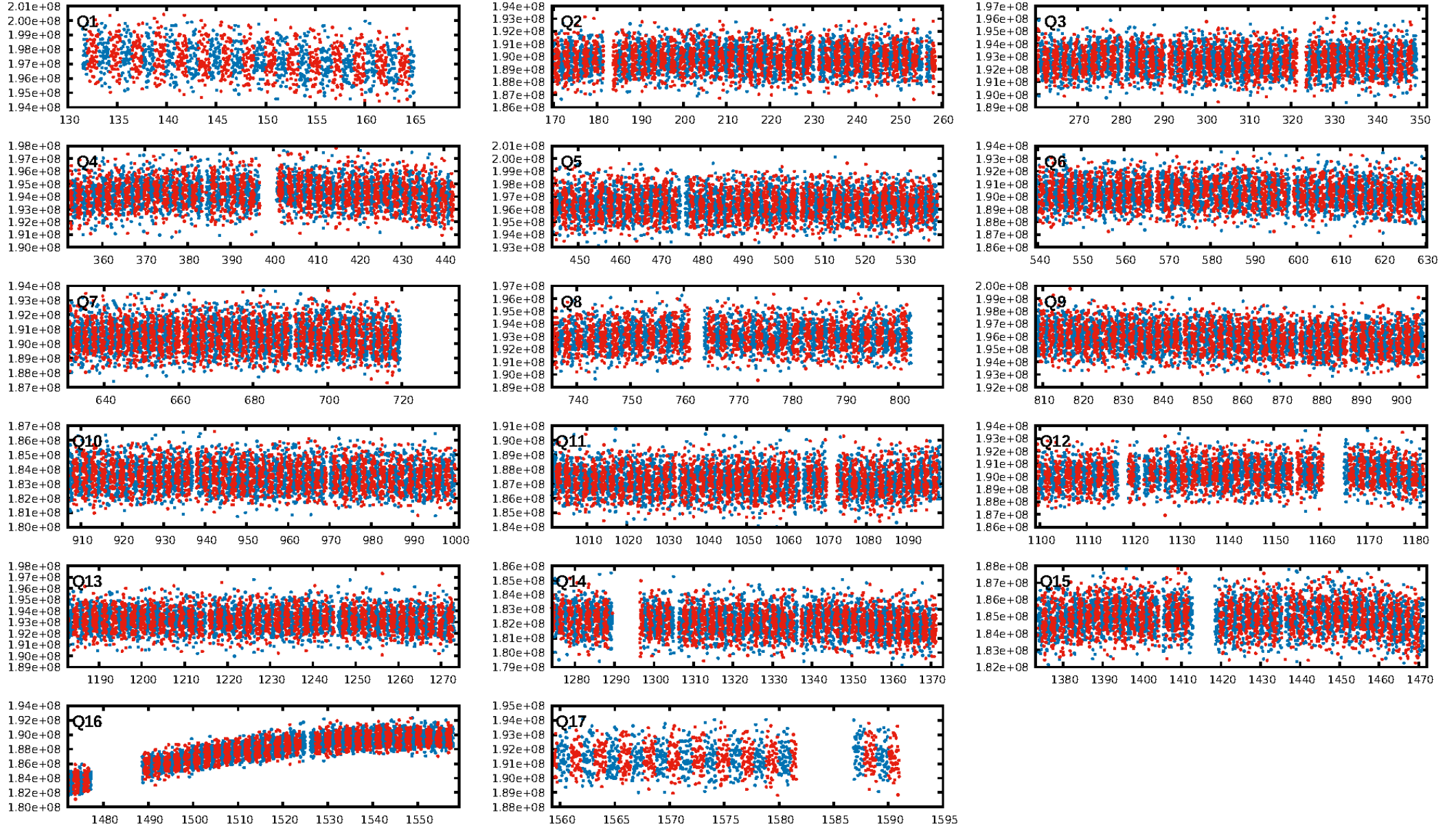
DV Diagnostic Results:

ShortPeriod-sig: 84.8% [1.43σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 8.85e-08
RollingBand-fgt: 1.00 [567/569]
GhostDiagnostic-chr: 1.665
Centroid-sig: 10.2%
Centroid-so: 0.111 arcsec [0.60σ]
OotOffset-rm: 0.031 arcsec [0.14σ]
KicOffset-rm: 0.101 arcsec [0.27σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 0.00 [0/17]

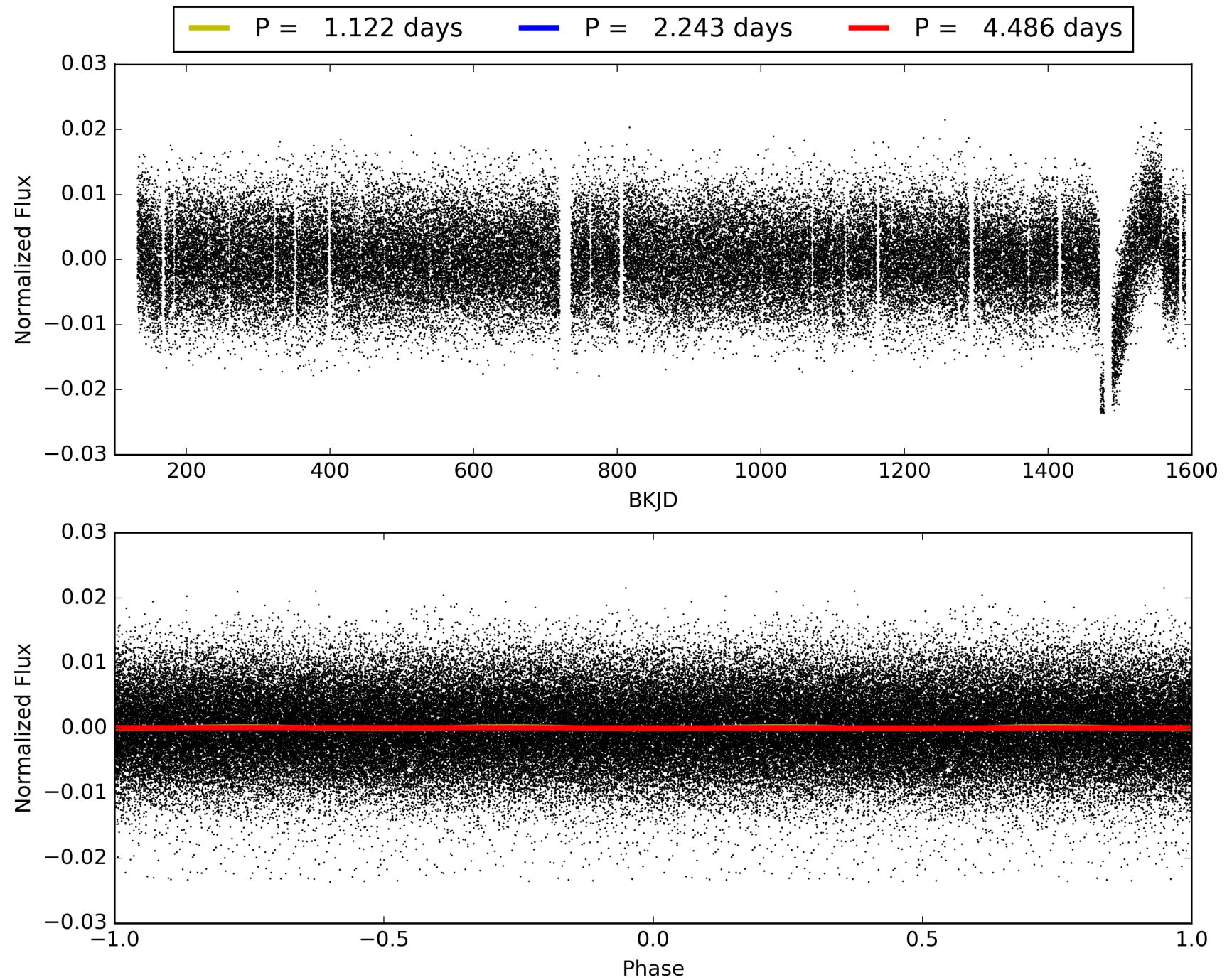
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:55:56 Z

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

TCE 002439211-02, PDC Light Curves

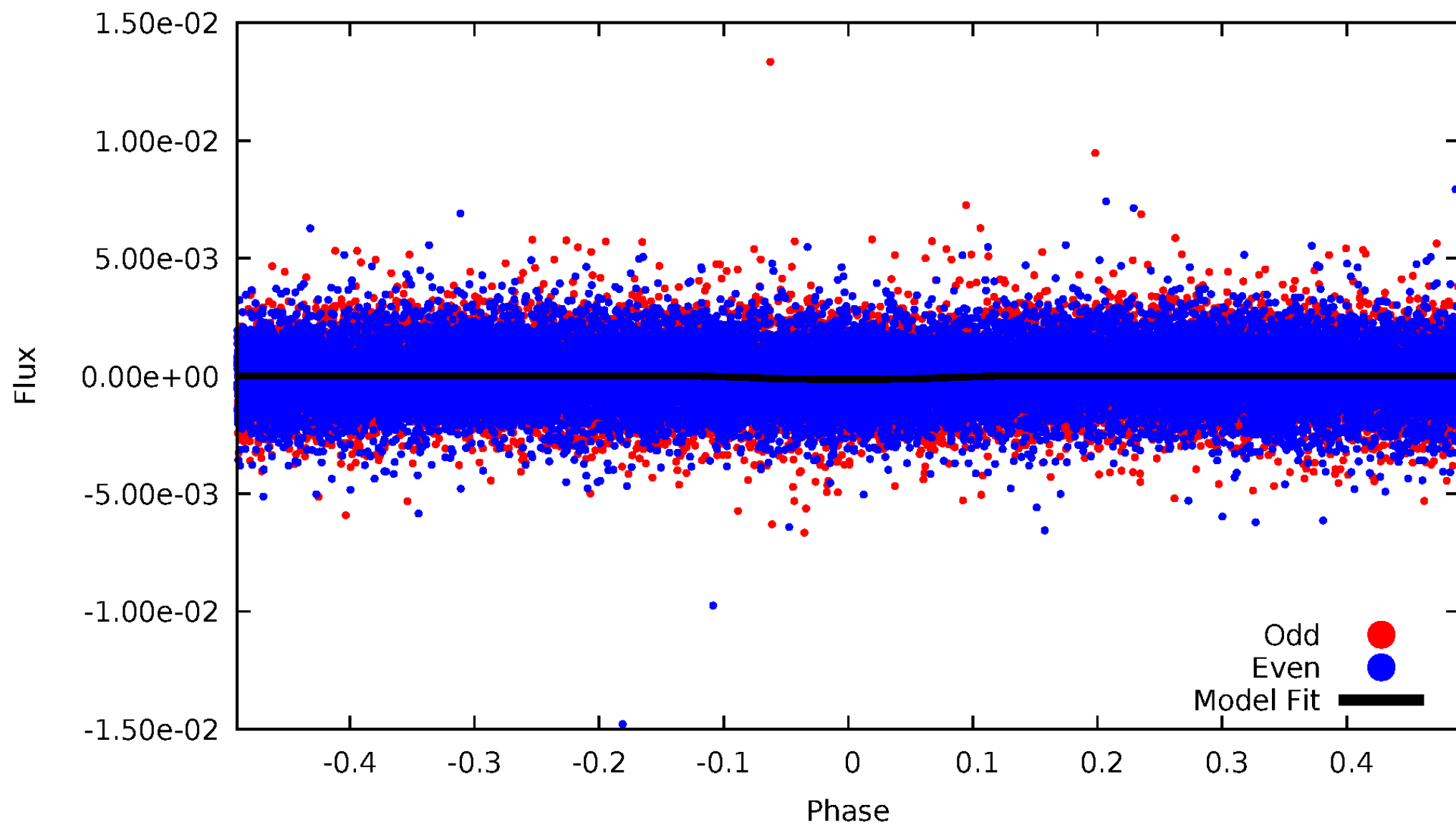


TCE 002439211-02



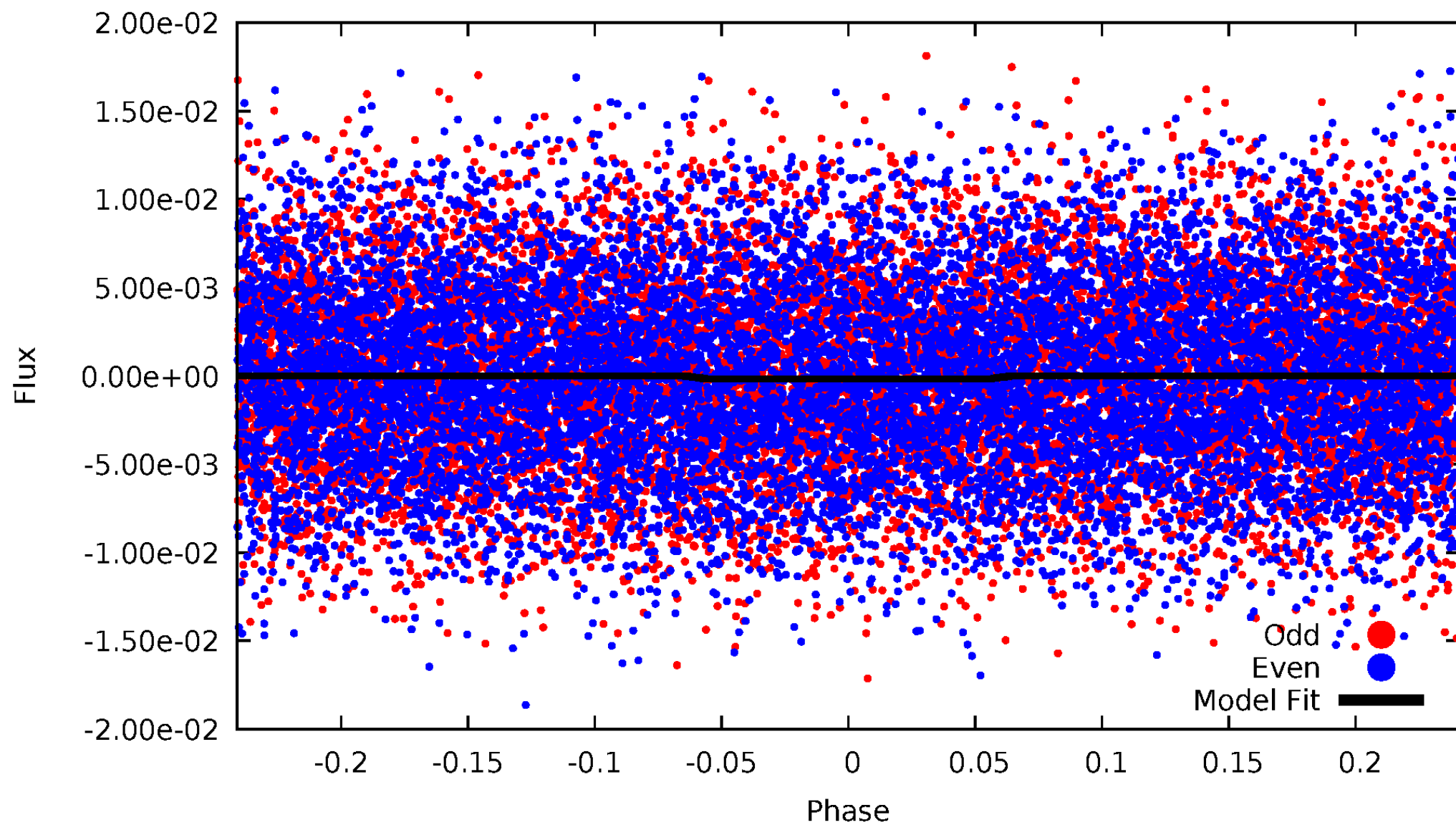
DV Odd/Even

TCE 002439211-02



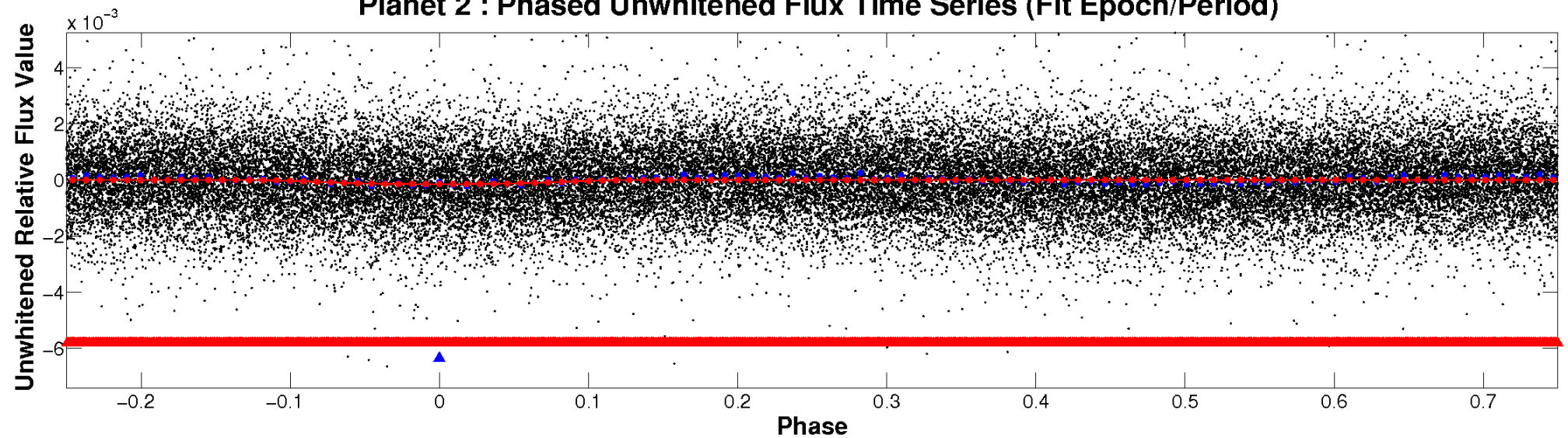
ALT Odd/Even

TCE 002439211-02

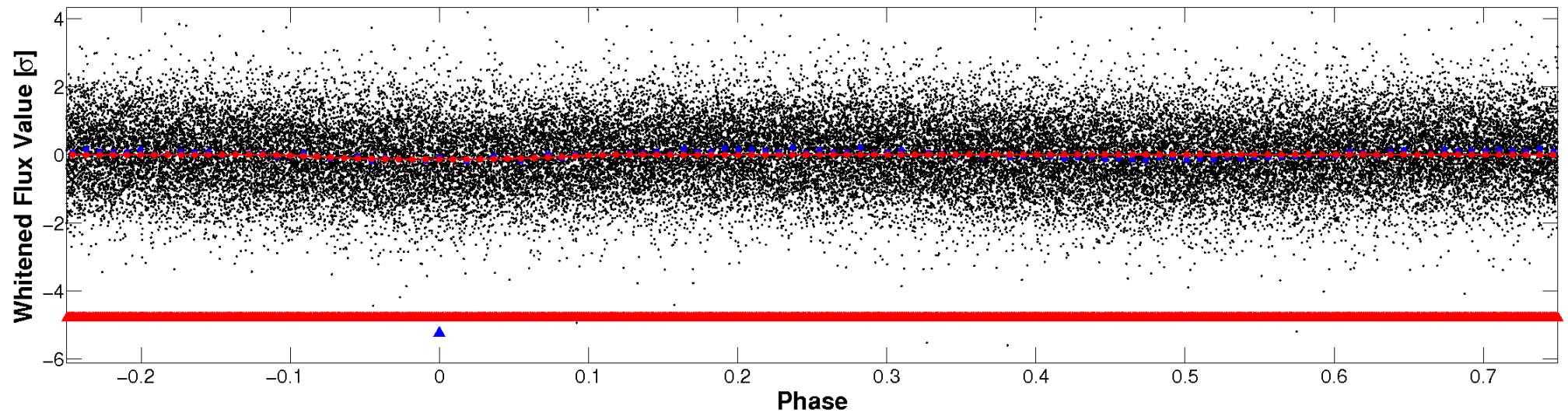


Non-Whitened Vs. Whitened Light Curve

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

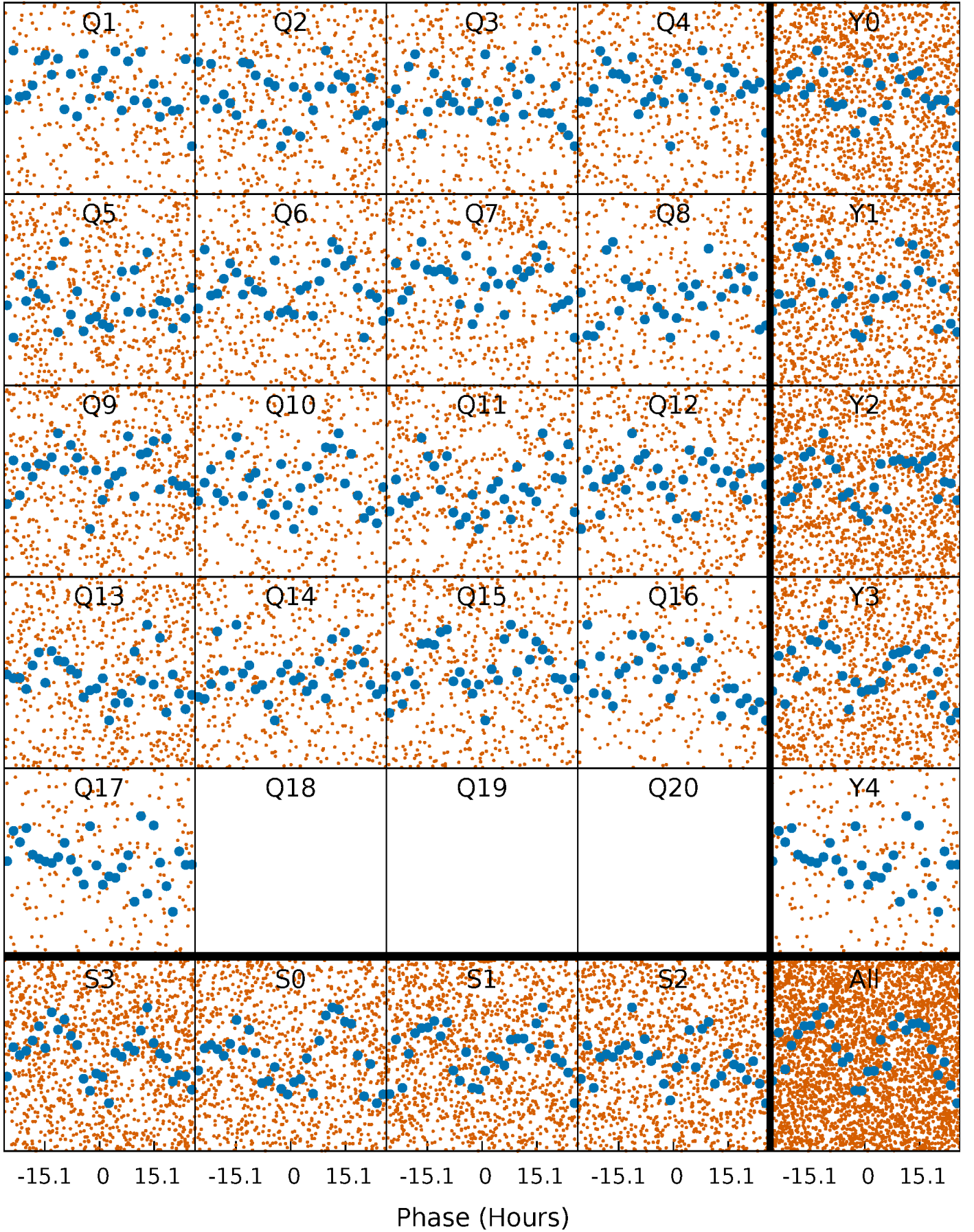


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



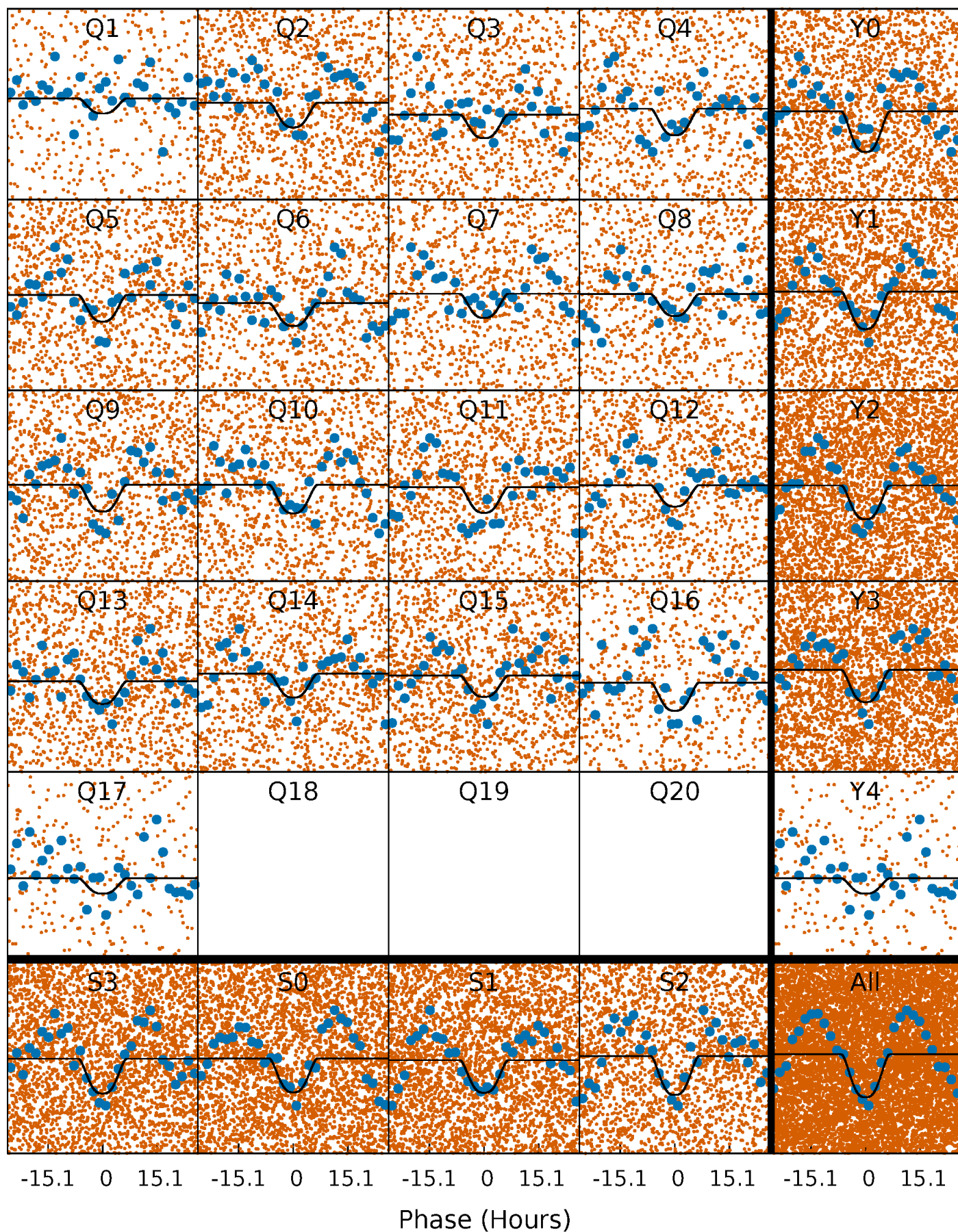
PDC Quarter-Phased Transit Curves

TCE 002439211-02 P= 2.243162 Days $T_0=132.531536$ (BKJD)



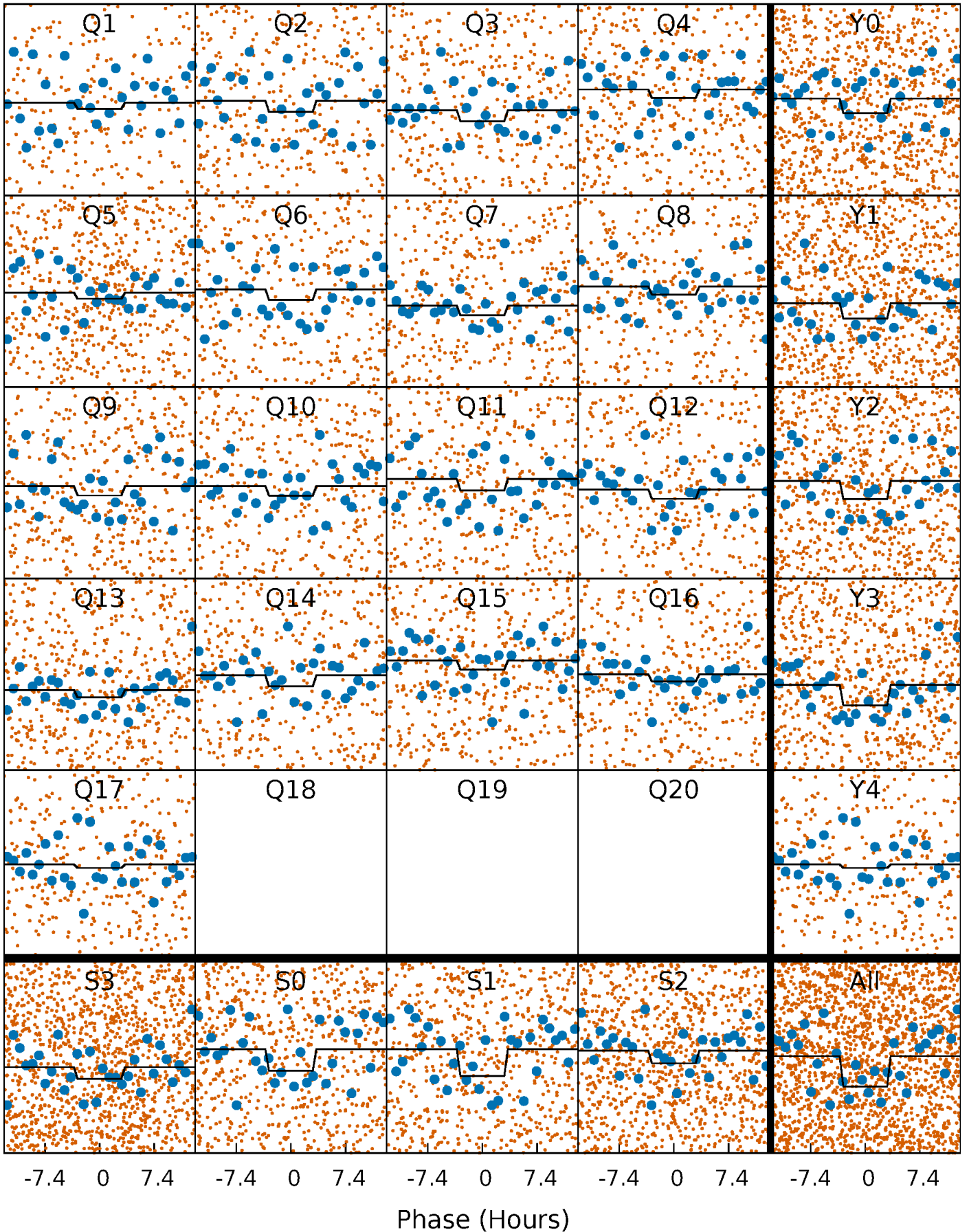
DV Quarter-Phased Transit Curves

TCE 002439211-02 P= 2.243162 Days $T_0=132.531536$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

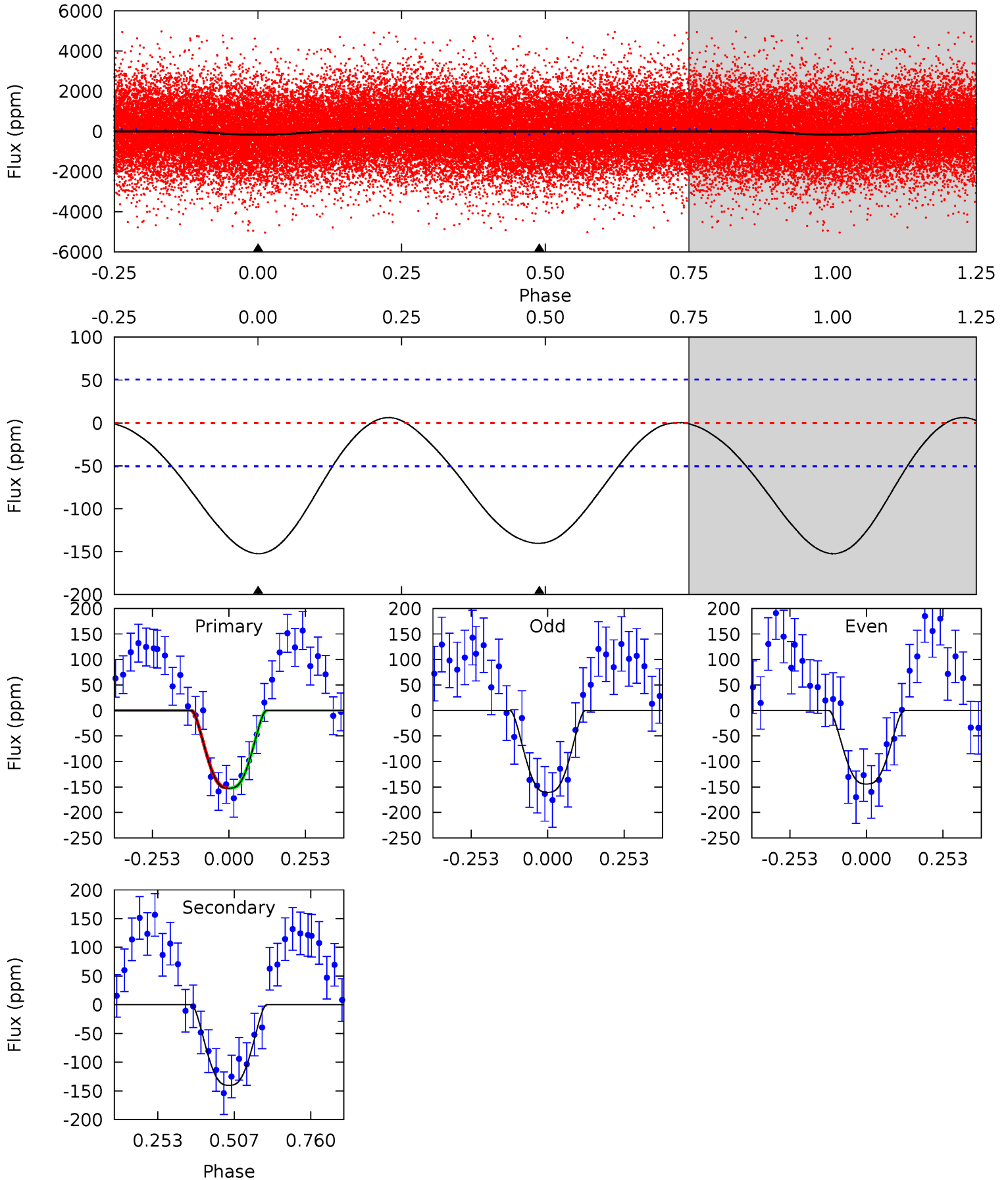
TCE 002439211-02 P= 2.243198 Days $T_0=132.508458$ (BKJD)



DV Model-Shift Uniqueness Test

002439211-02, P = 2.243162 Days, E = 130.288374 Days

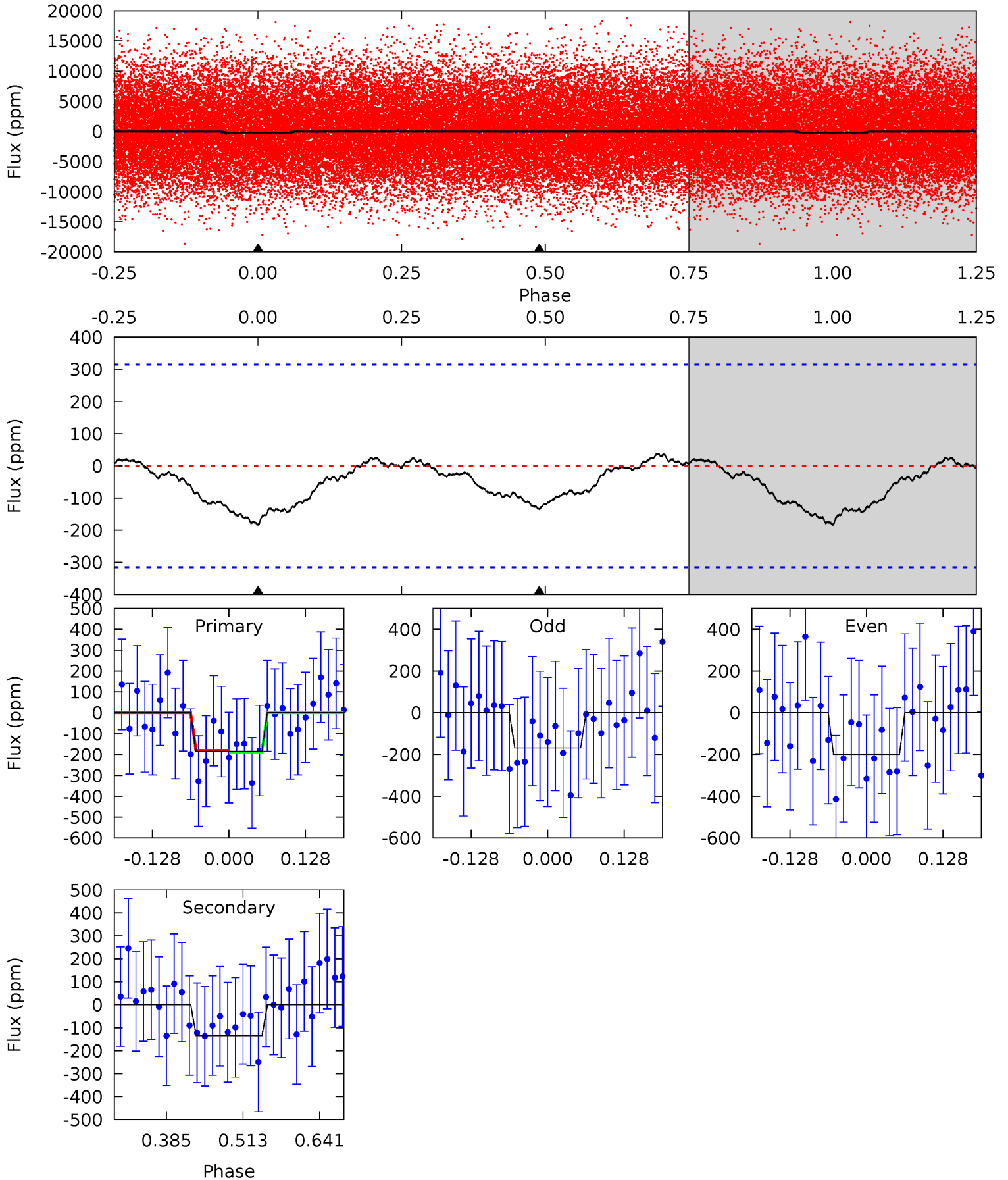
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	12.1	0	0	4.37	1.14	0.30	13.2	13.2	12.1	12.1	0.71	1.19	0.04	0.02



Alt Model-Shift Uniqueness Test

002439211-02, P = 2.243198 Days, E = 130.265260 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.64	1.92	0	0	4.51	1.52	0.29	2.64	2.64	1.92	1.92	0.22	0.82	0.17	0.05



Stellar Parameters For KIC 002439211

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7338^{+203}_{-330}	$3.905^{+0.273}_{-0.147}$	$-0.020^{+0.200}_{-0.350}$	$2.462^{+0.498}_{-0.853}$	$1.775^{+0.175}_{-0.409}$	$0.168^{+0.356}_{-0.065}$
	+3%/-4%	+7%/-4%	+1000%/-1750%	+20%/-35%	+10%/-23%	+213%/-39%
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 002439211-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-140 ± 12	$3.90^{+0.71}_{-0.82}$	3473^{+264}_{-326}	6407^{+500}_{-432}	$8.381^{+4.666}_{-2.365}$
Alt.	-134 ± 70	$3.45^{+0.68}_{-0.67}$	3470^{+252}_{-287}	6666^{+1093}_{-1126}	$9.984^{+7.916}_{-5.412}$

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 $A_{obs} \gg 1.0$

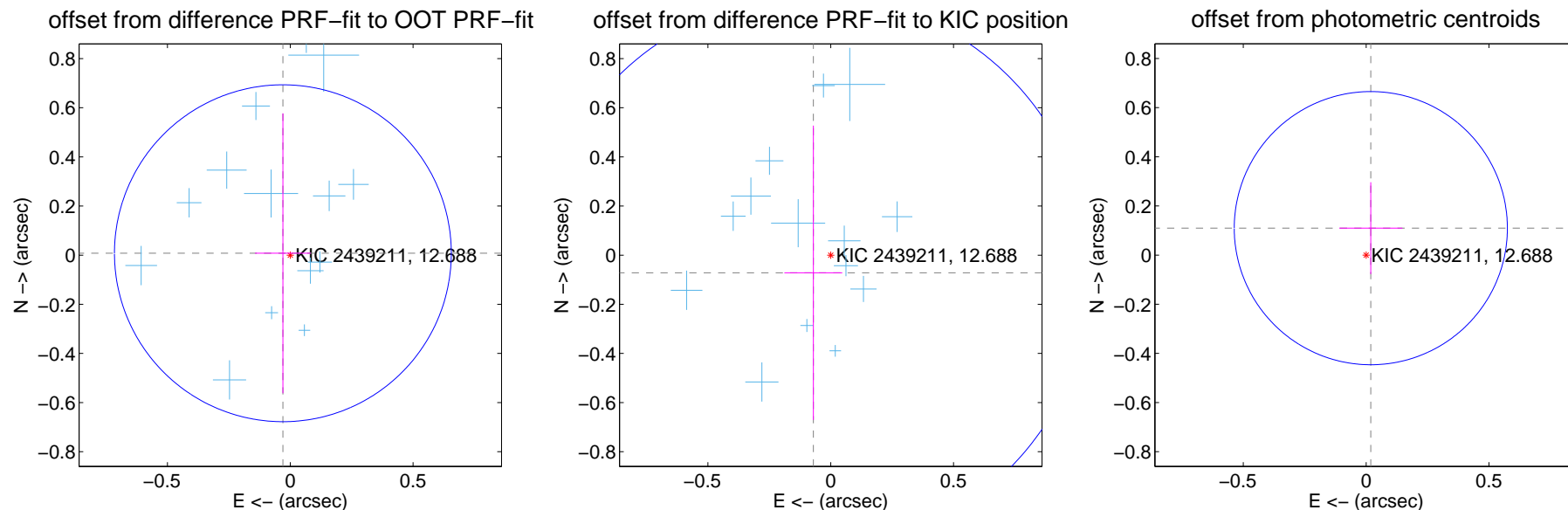
DV Centroid Data

Supplemental centroid analysis for 002439211-02. Kepler magnitude: 12.69. Transit SNR 9.35

There are 16 quarters with good PRF difference image offsets

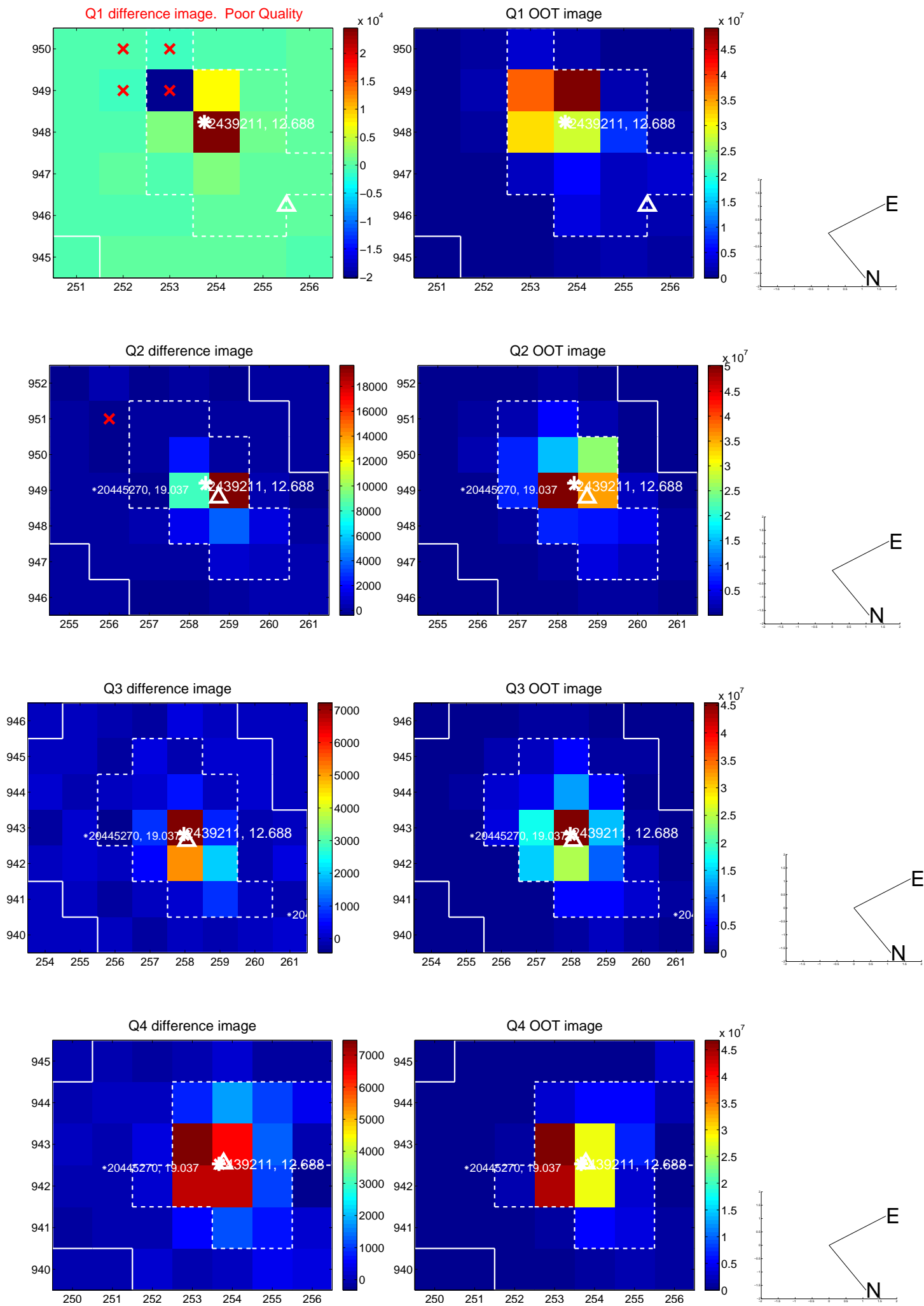
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.031 ± 0.228	0.14	0.030 ± 0.113	0.008 ± 0.570
PRF-fit source offset from KIC position	0.101 ± 0.376	0.27	0.071 ± 0.118	-0.072 ± 0.599
photometric centroid source offset	0.11 ± 0.19	0.60	-0.02 ± 0.13	0.11 ± 0.19

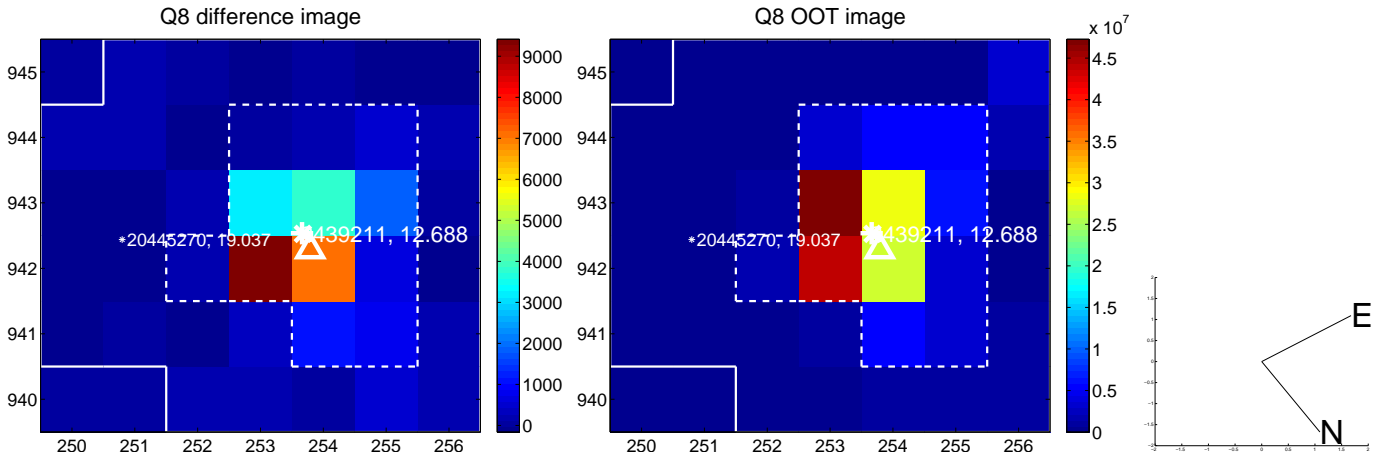
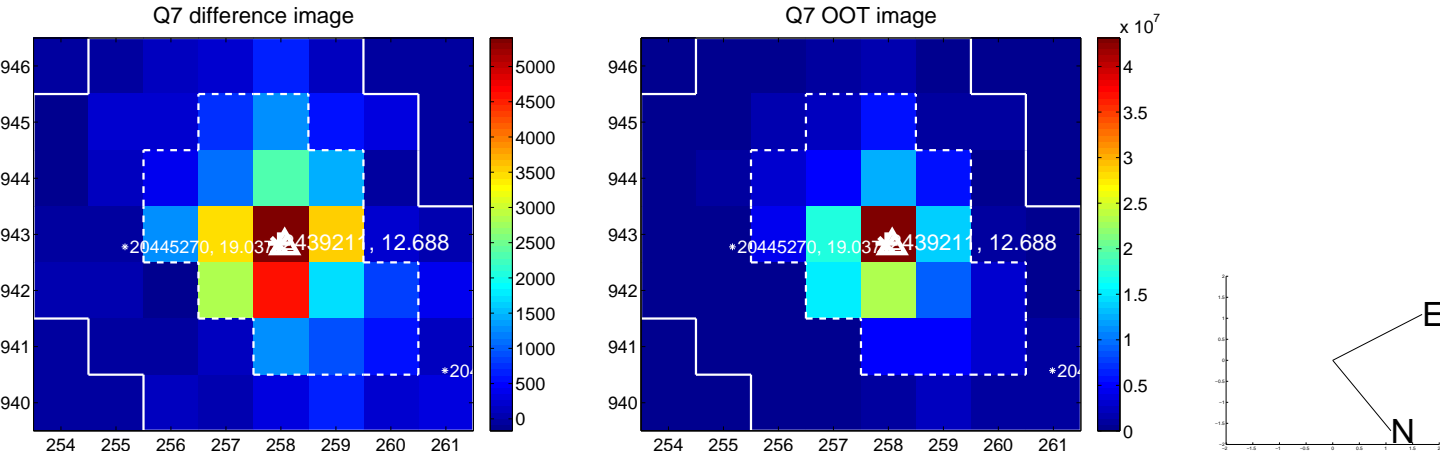
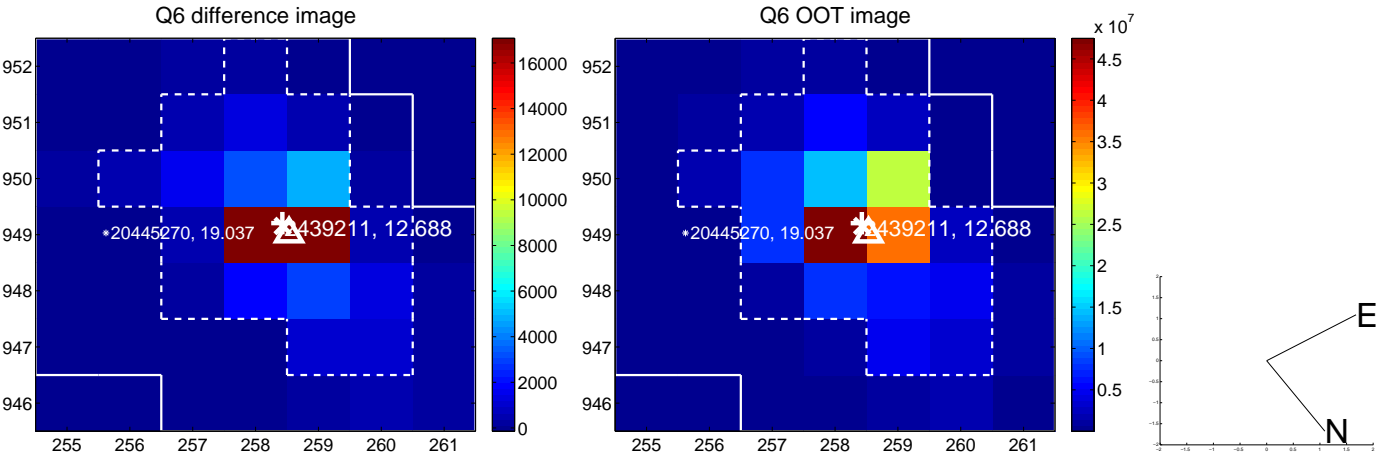
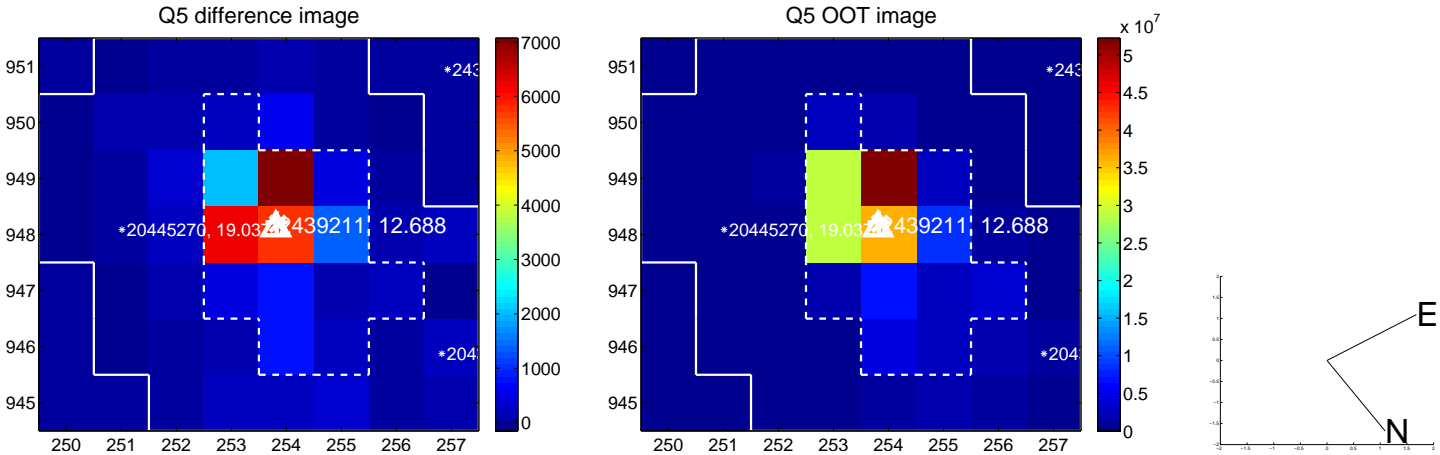


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

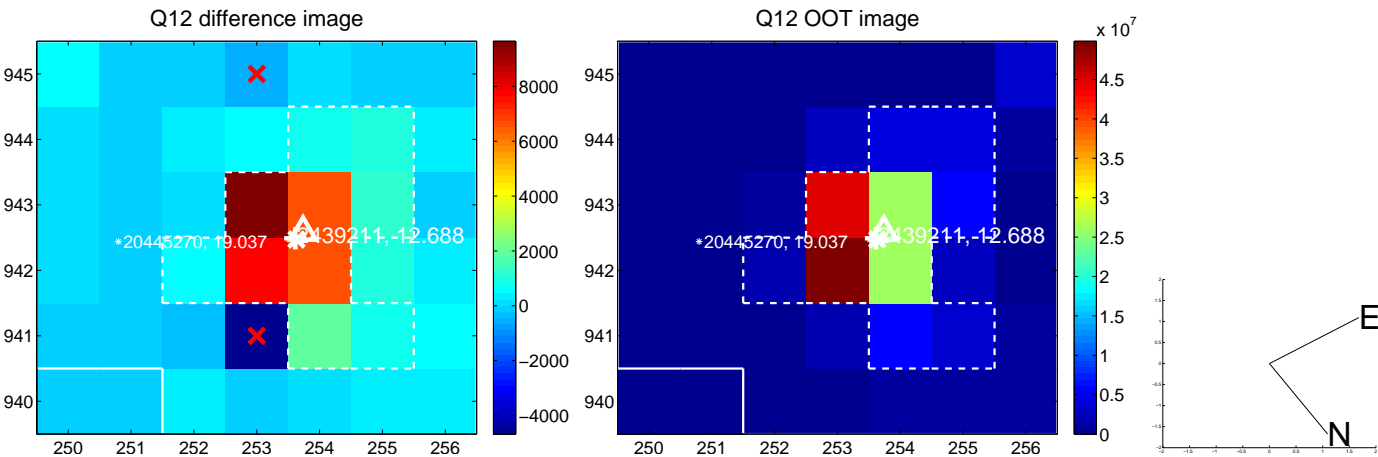
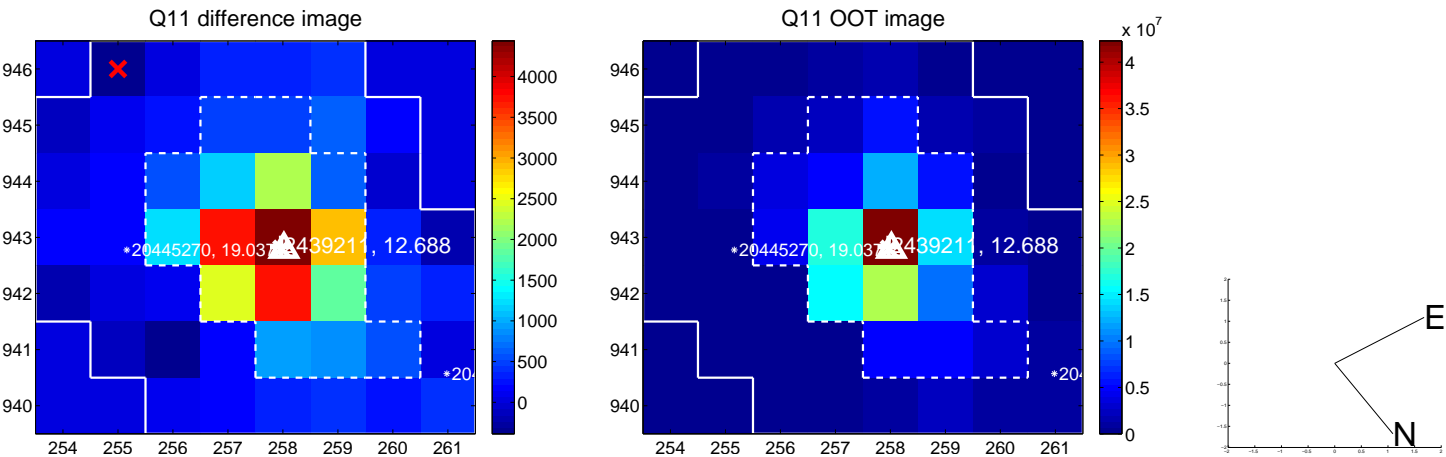
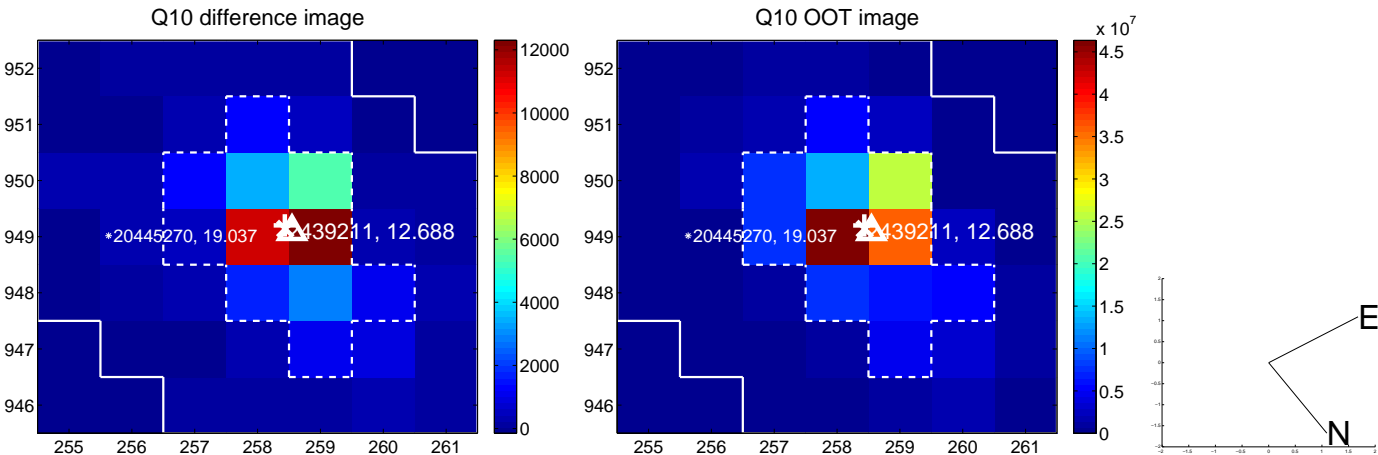
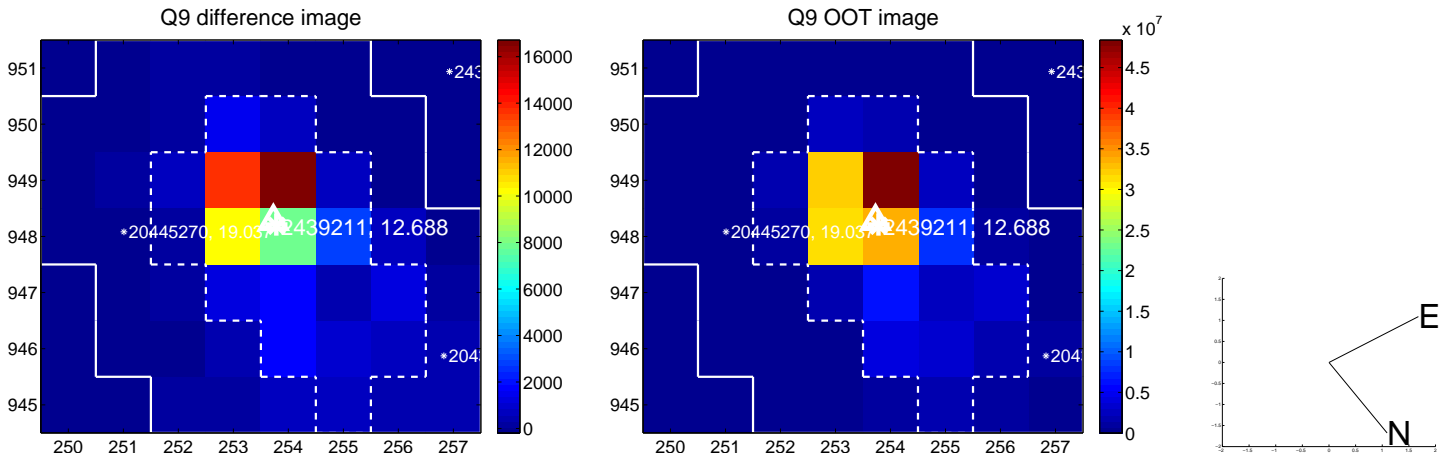
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



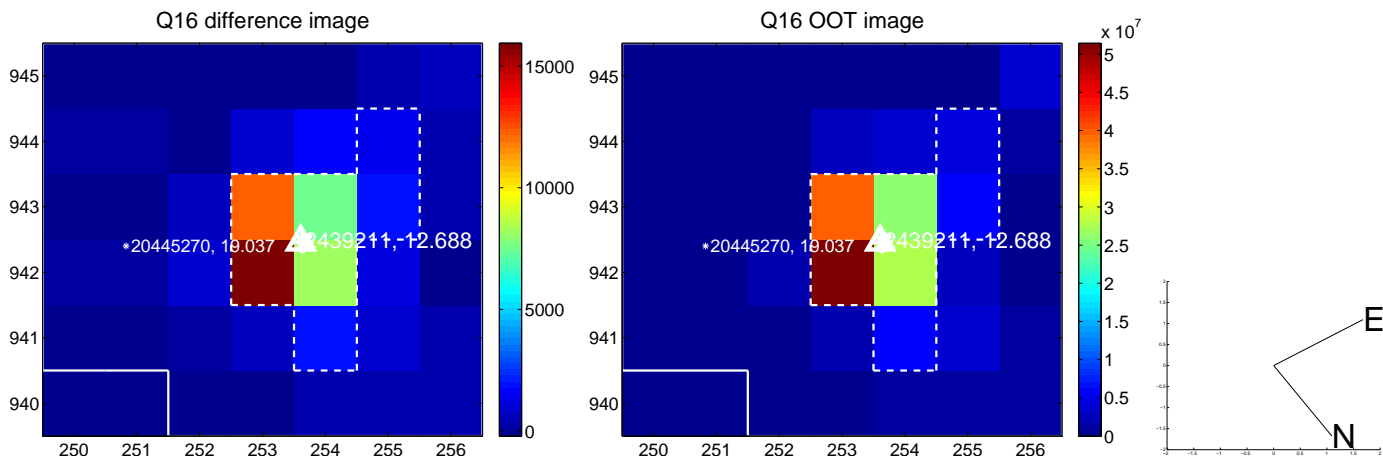
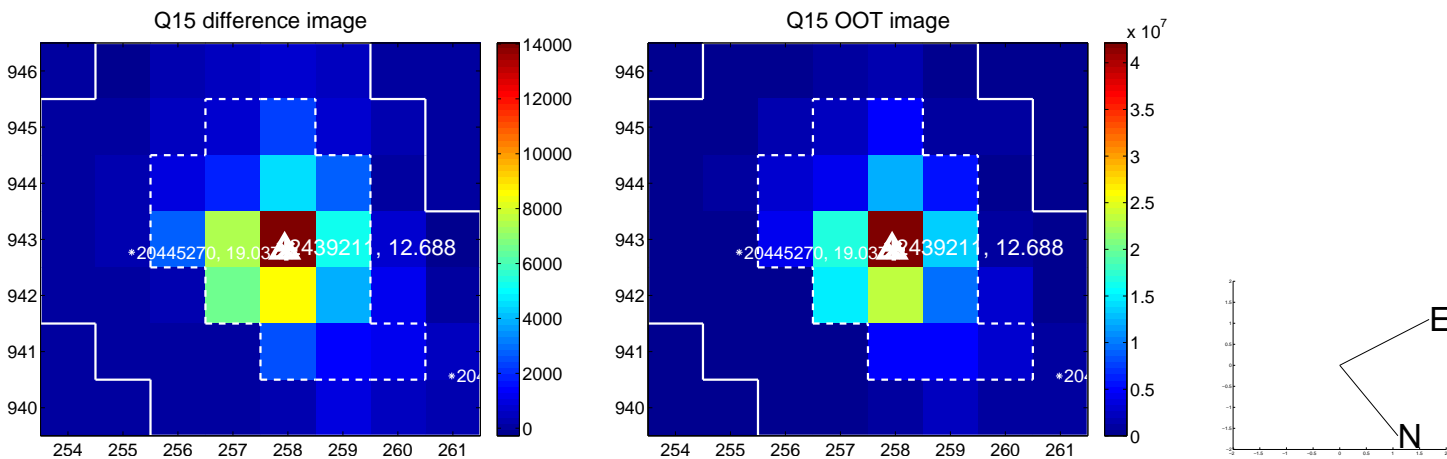
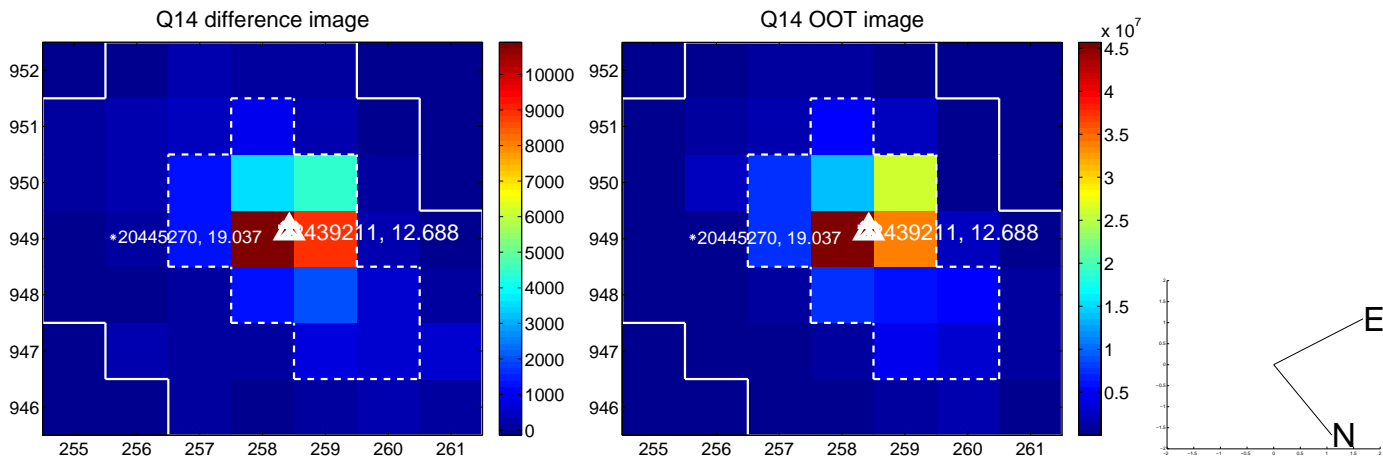
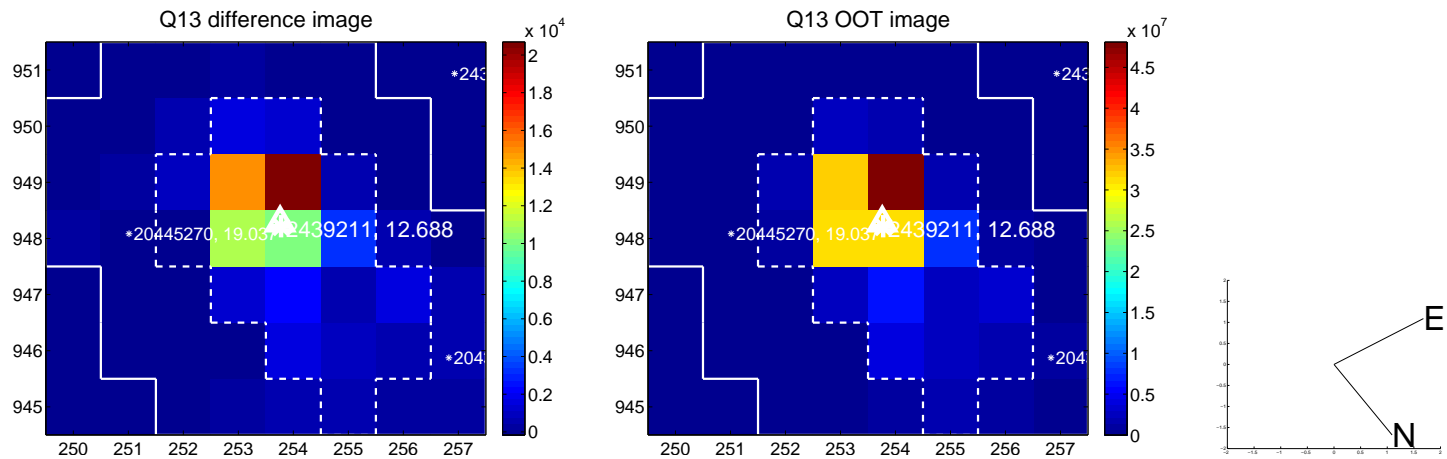
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



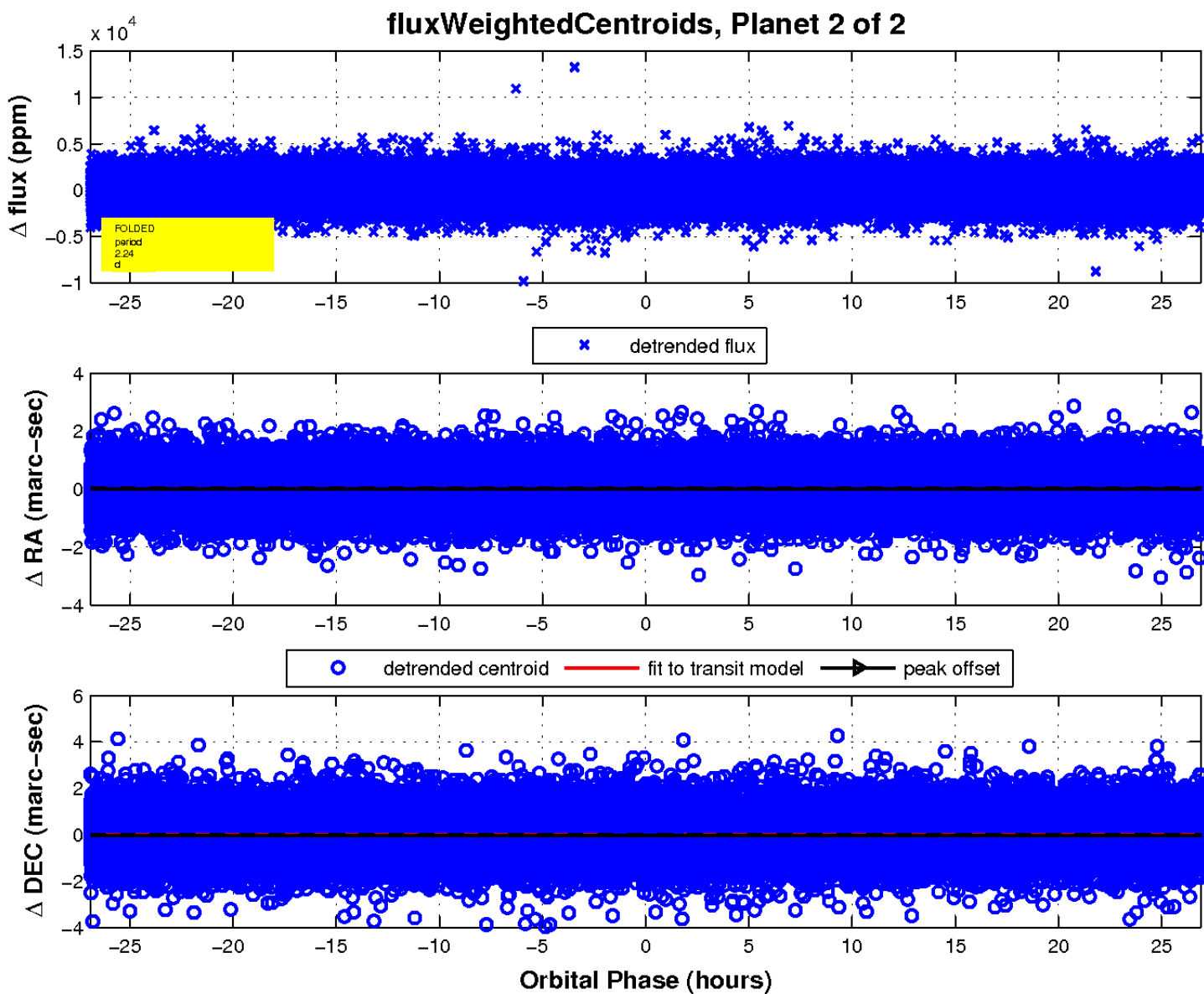
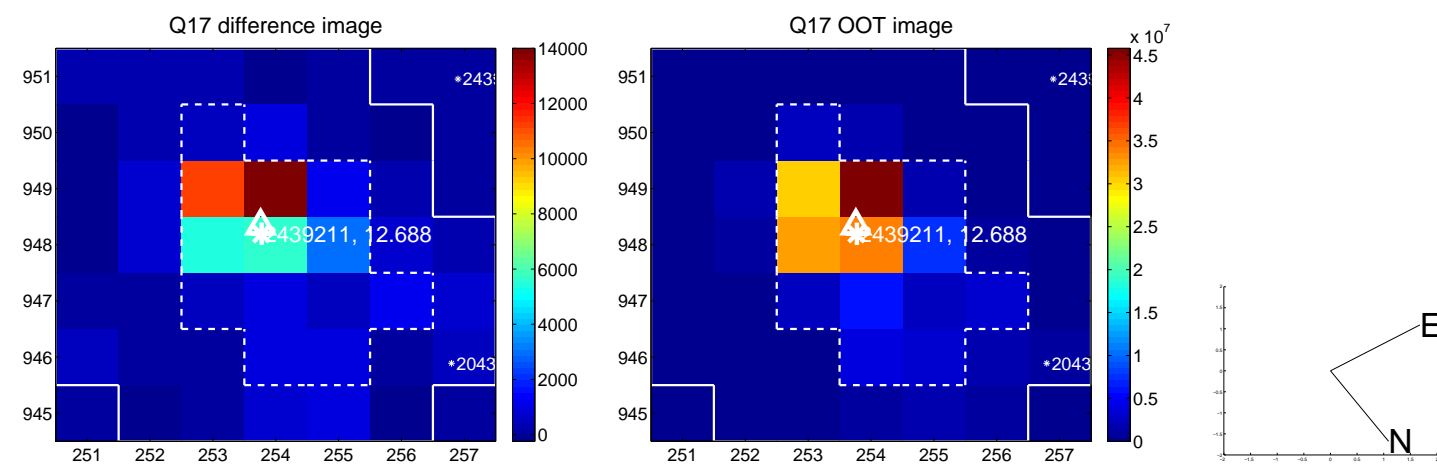
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

