

KIC 010206643

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})
010206643-01	OBS	No	2.267187	133.730644	273.7	11.404	10.2	11.1	2.11	7542	4.73	8629.52
010206643-02	OBS	No	0.755720	132.234847	292.6	9.069	9.7	14.6	2.11	7542	3.67	37338.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010206643-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010206643-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

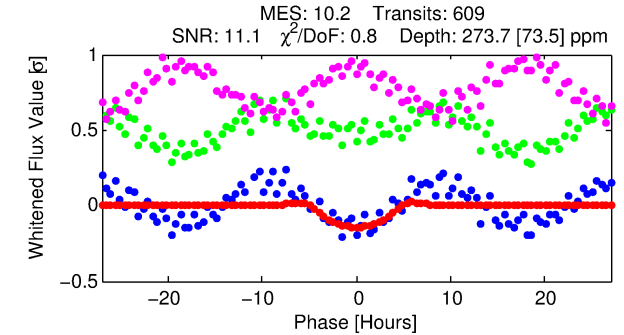
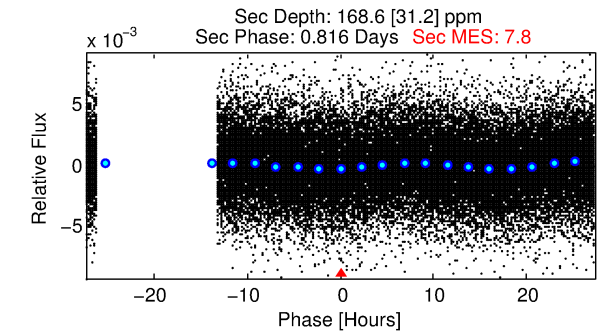
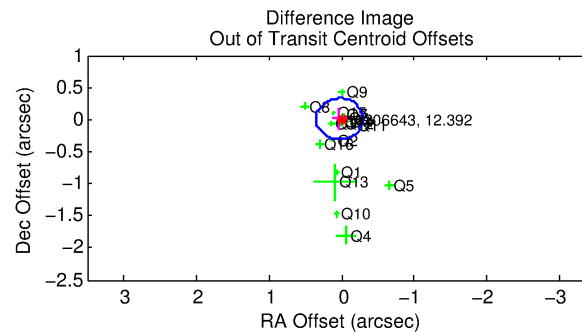
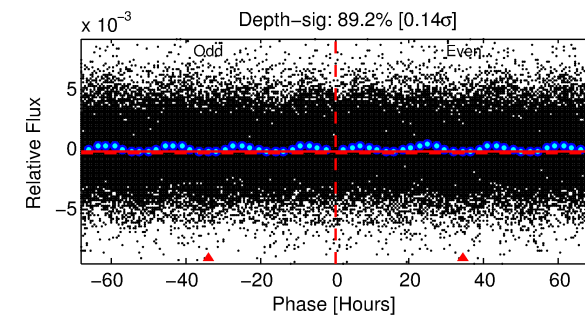
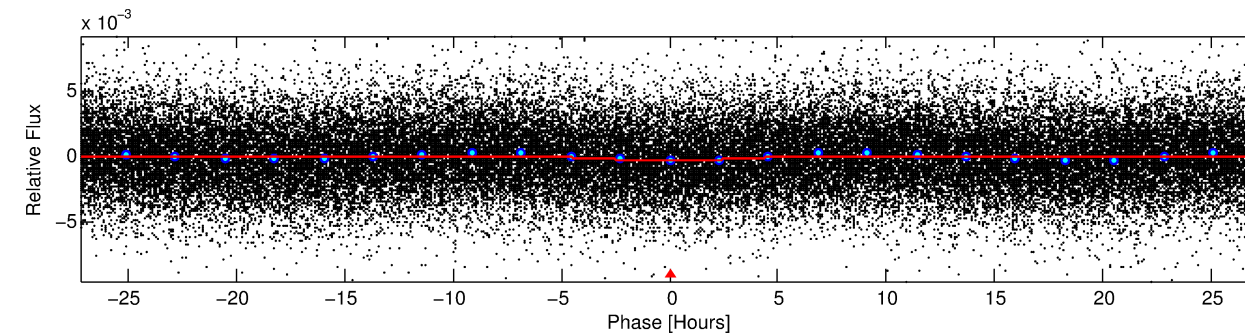
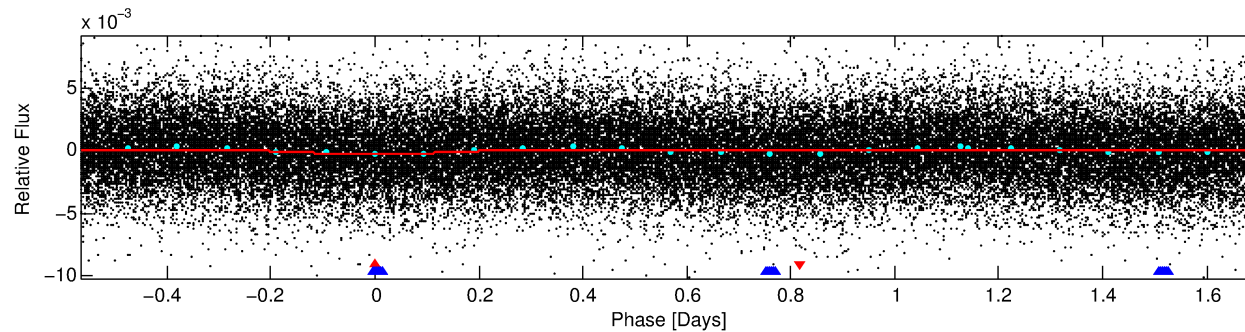
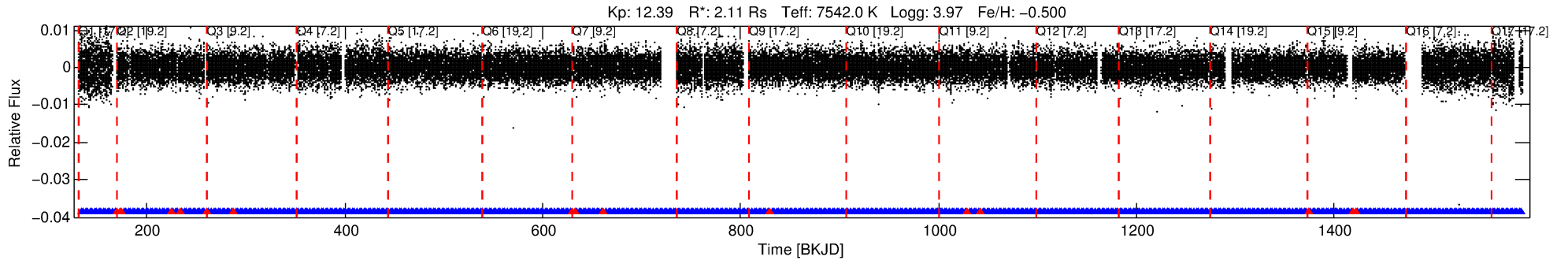
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010206643-01

No Significant Match Found

DV One-Page Summary

KIC: 10206643 Candidate: 1 of 2 Period: 2.267 d



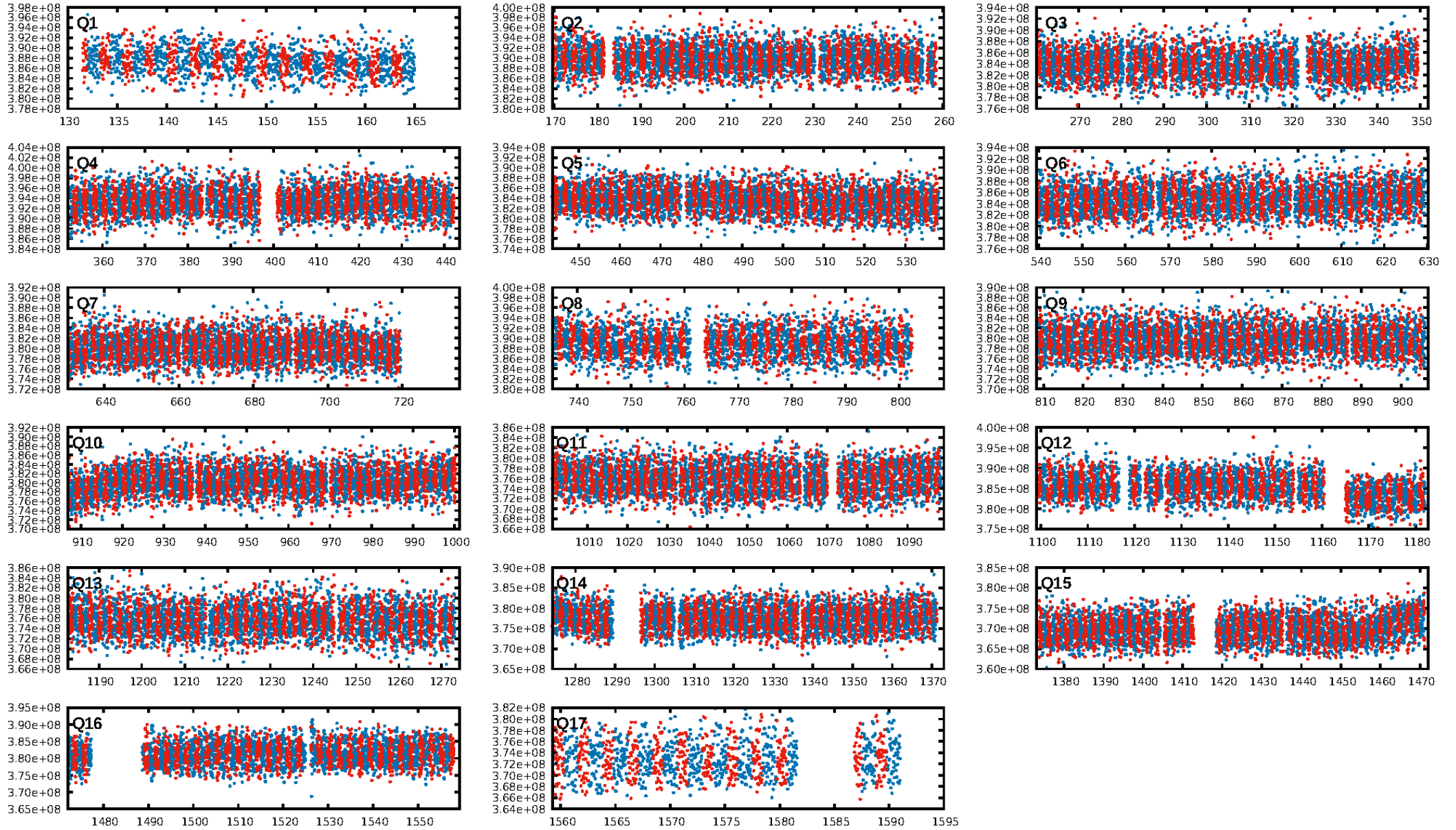
DV Fit Results:

Period = 2.26719 [0.00006] d
Epoch = 133.7306 [0.0198] BKJD
Rp/R* = 0.0205 [0.0057]
a/R* = 1.08 [0.03]
b = 0.98 [0.02]
Seff = 8629.52 [4776.71]
Teff = 2458 [340] K
Rp = 4.73 [2.12] Re
a = 0.0387 [0.0129] AU
Ag = 6.20 [4.87] [1.07 σ]
Teffp = 5997 [906] K [3.66 σ]

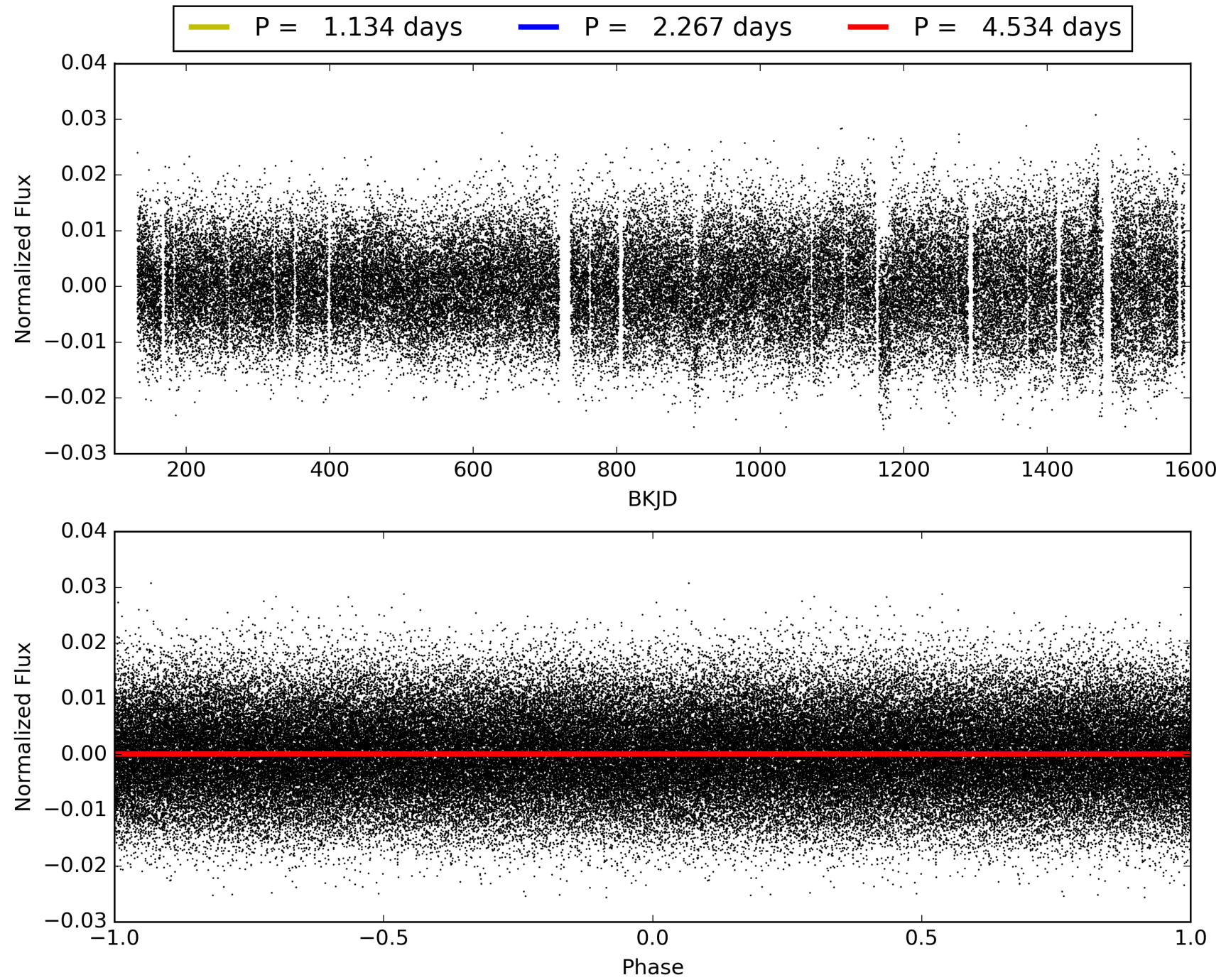
DV Diagnostic Results:

ShortPeriod-sig: 98.7% [2.49 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [566/582]
GhostDiagnostic-chr: -0.3874
Centroid-sig: 32.0%
Centroid-so: 0.057 arcsec [1.15 σ]
OotOffset-rm: 0.032 arcsec [0.30 σ]
KicOffset-rm: 0.072 arcsec [0.43 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 010206643-01, PDC Light Curves

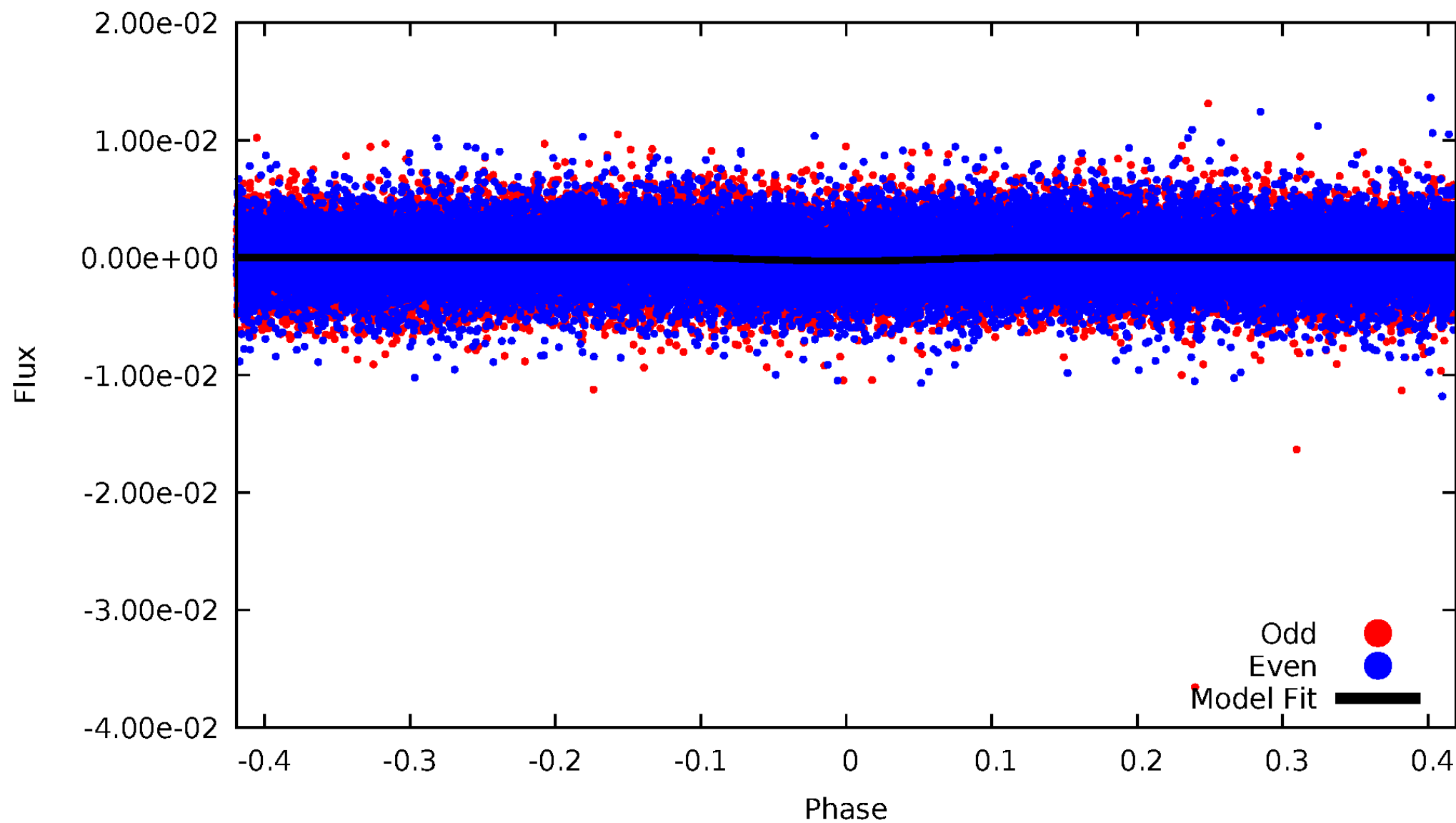


TCE 010206643-01



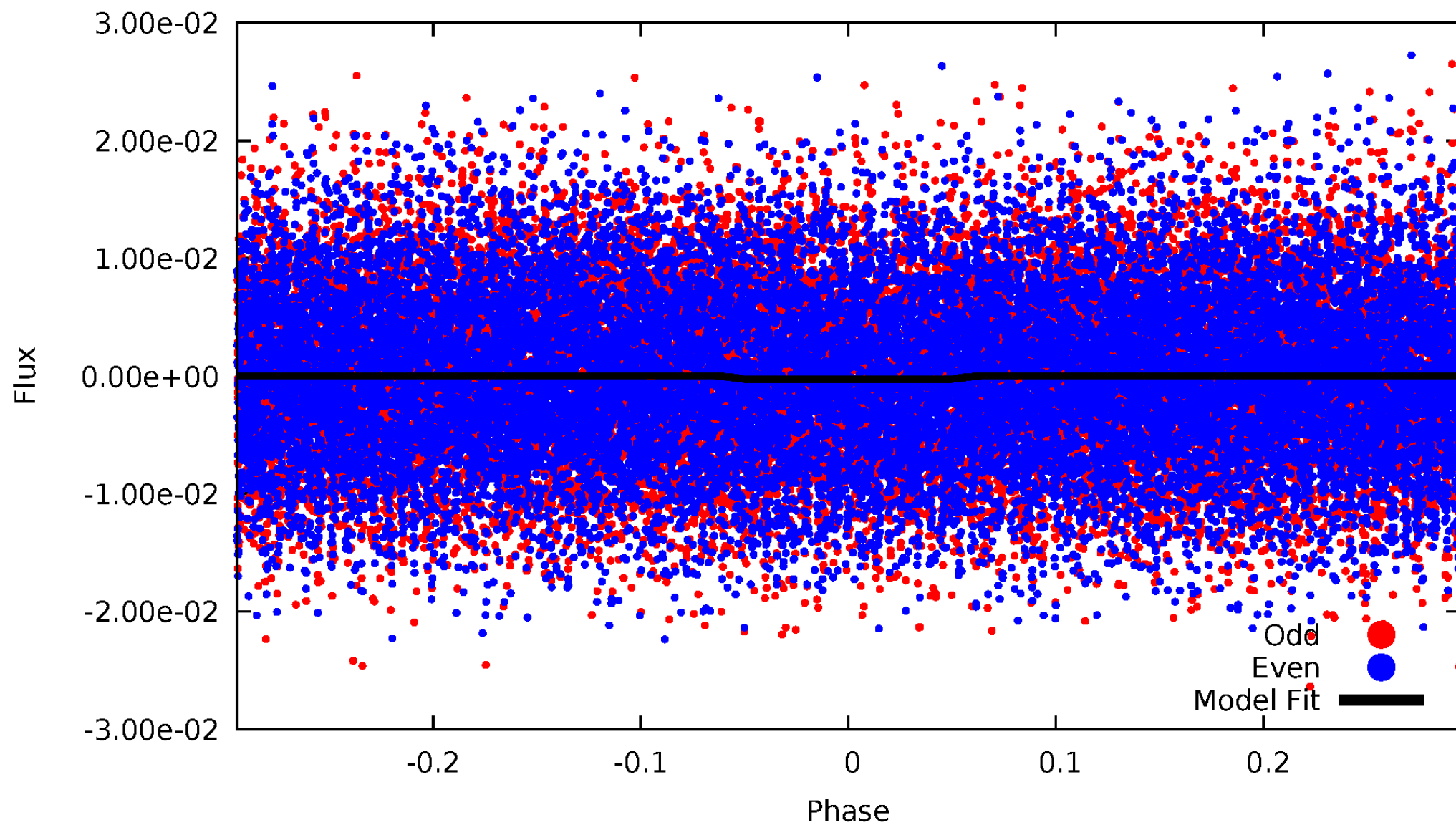
DV Odd/Even

TCE 010206643-01



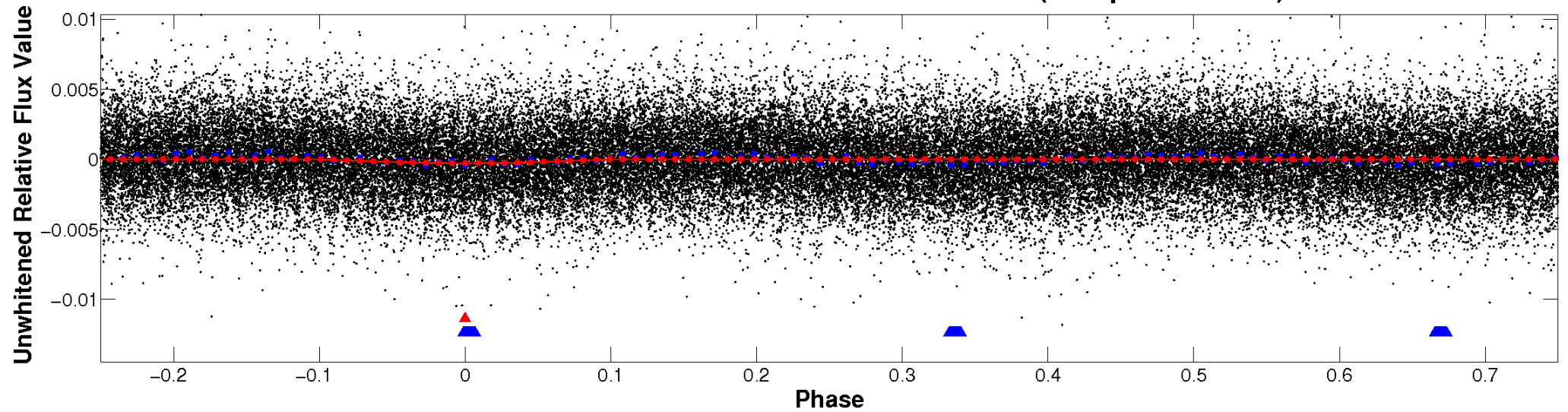
ALT Odd/Even

TCE 010206643-01

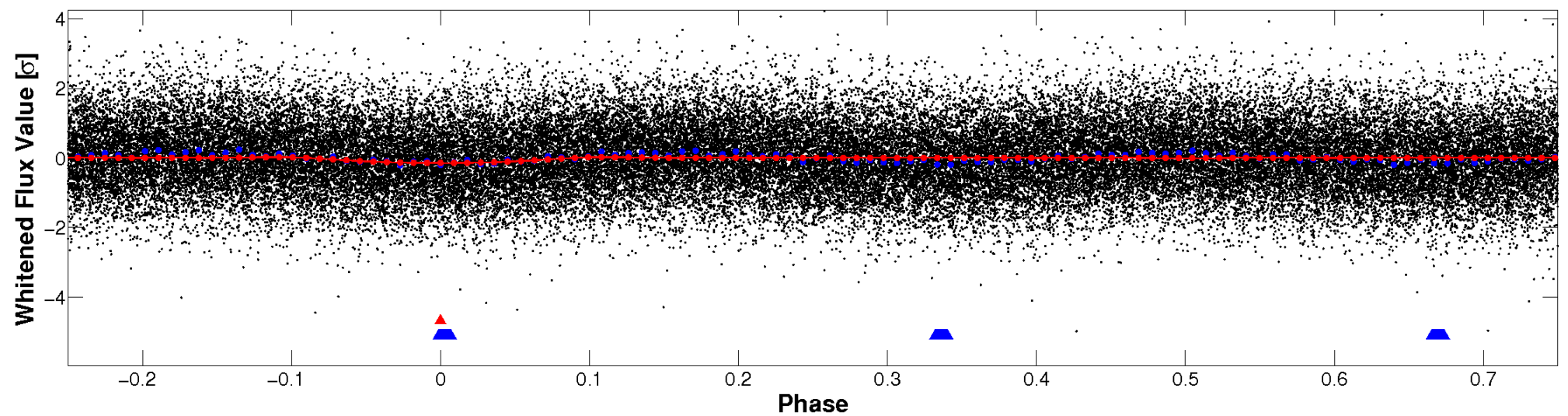


Non-Whitened Vs. Whitened Light Curve

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

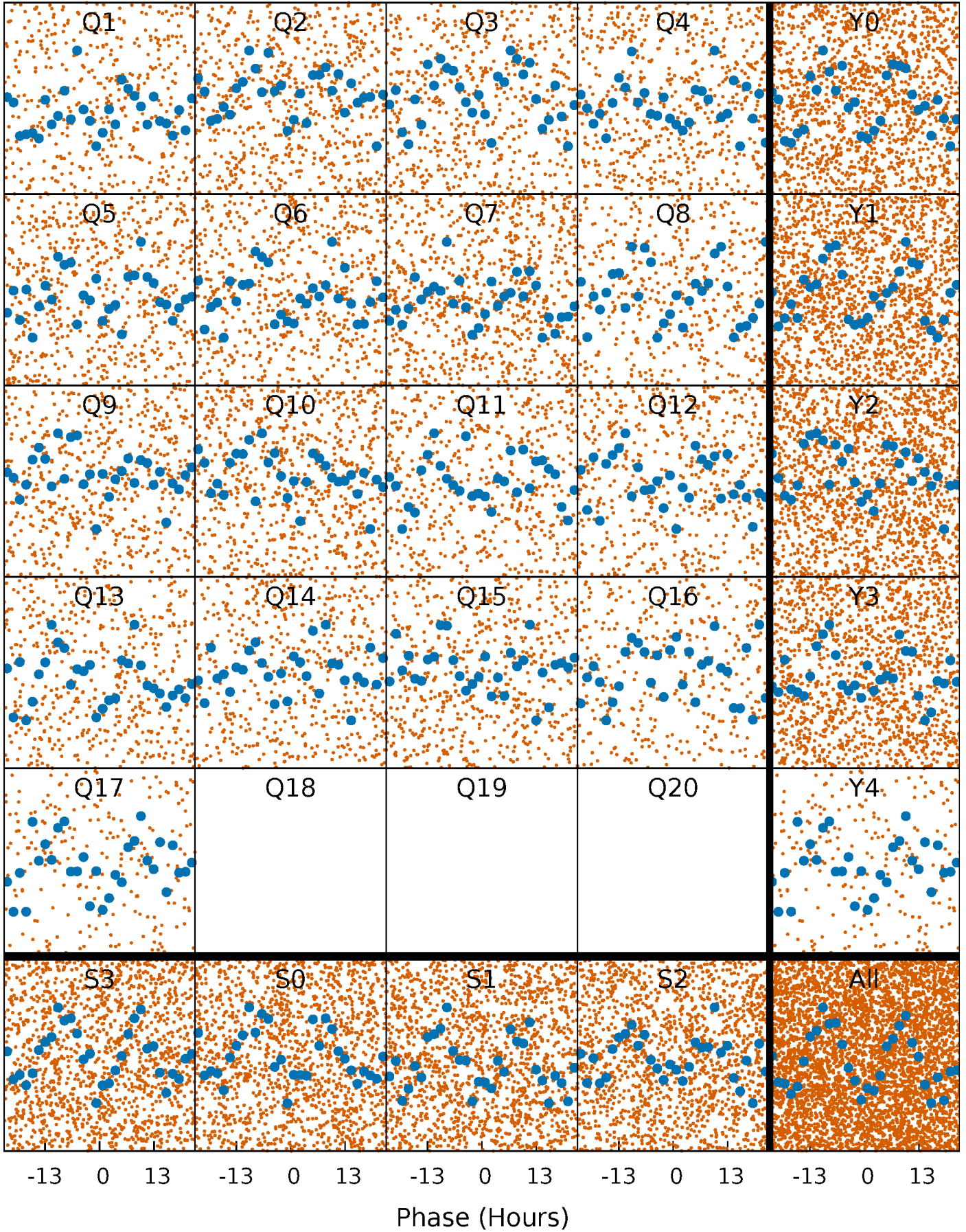


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



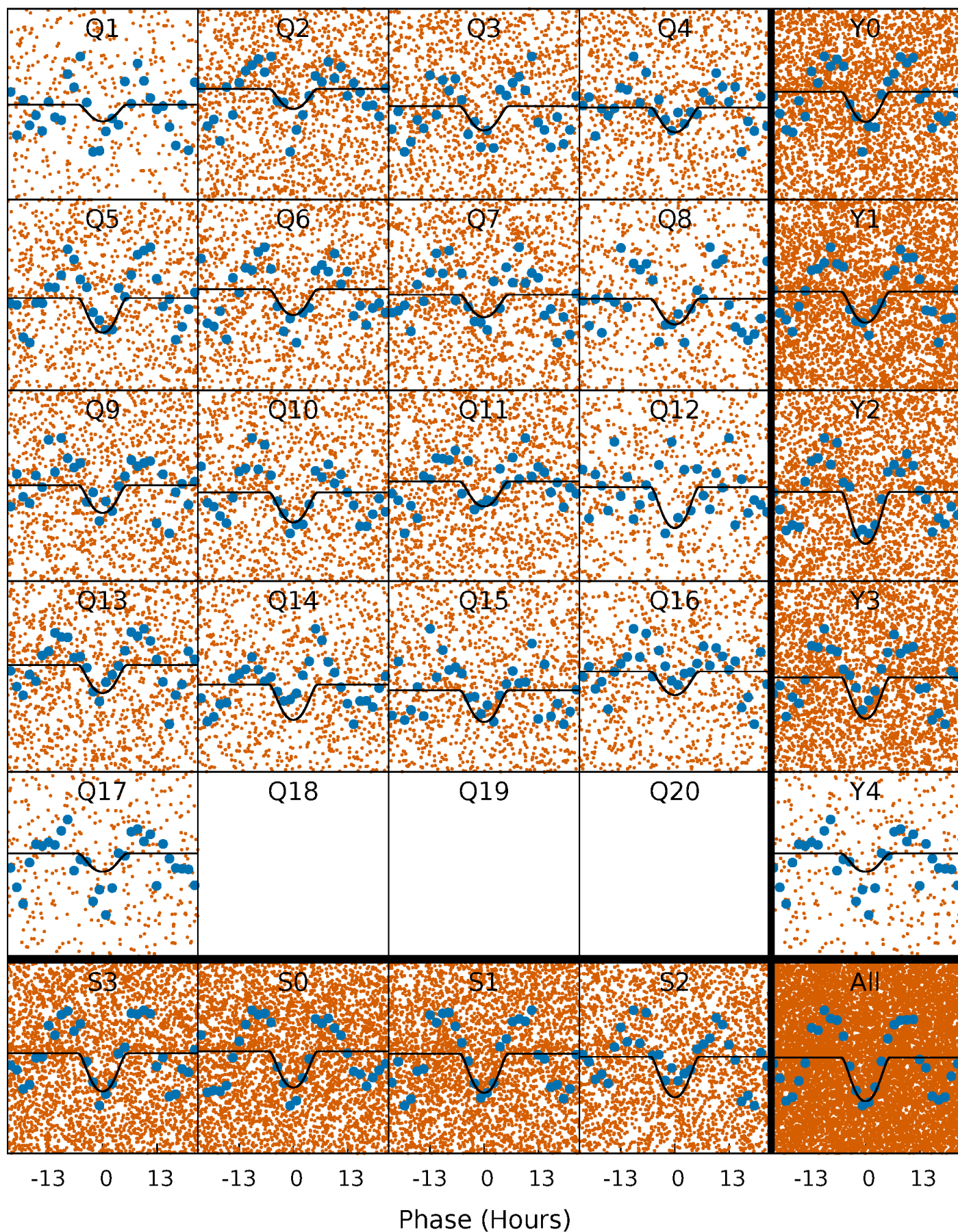
PDC Quarter-Phased Transit Curves

TCE 010206643-01 P= 2.267187 Days $T_0=133.730644$ (BKJD)



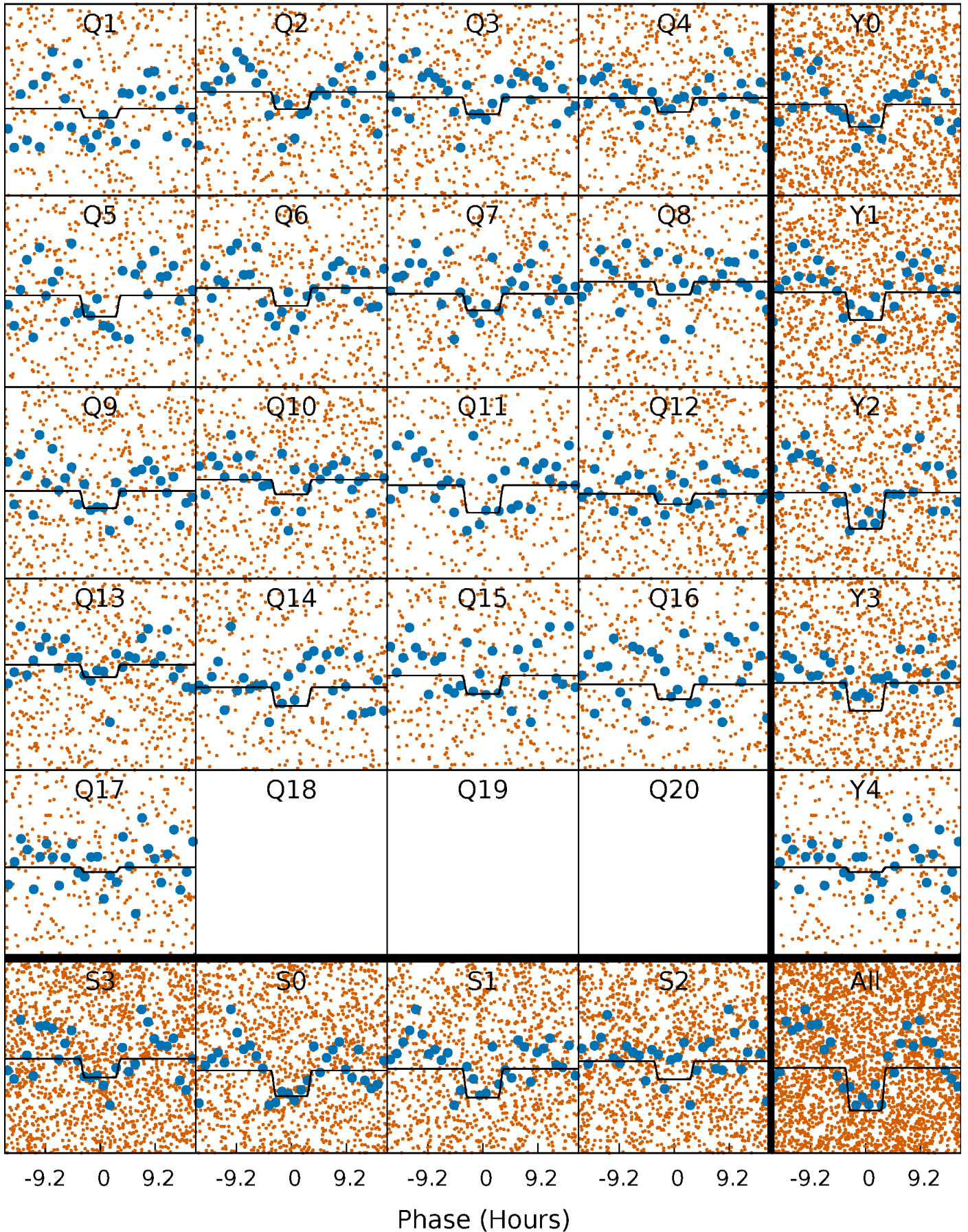
DV Quarter-Phased Transit Curves

TCE 010206643-01 P= 2.267187 Days $T_0=133.730644$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

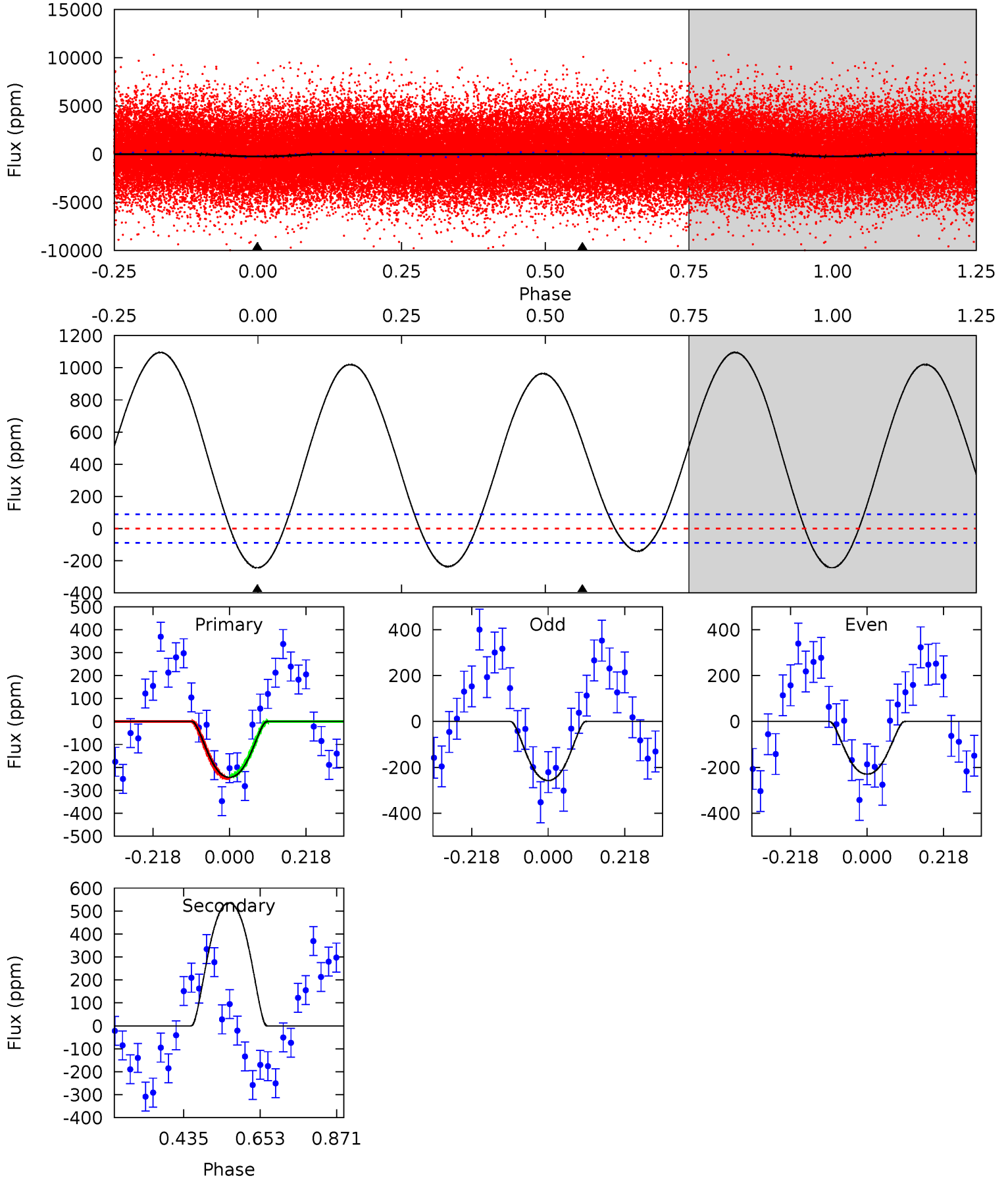
TCE 010206643-01 P= 2.267128 Days $T_0=133.757559$ (BKJD)



DV Model-Shift Uniqueness Test

010206643-01, P = 2.267187 Days, E = 131.463457 Days

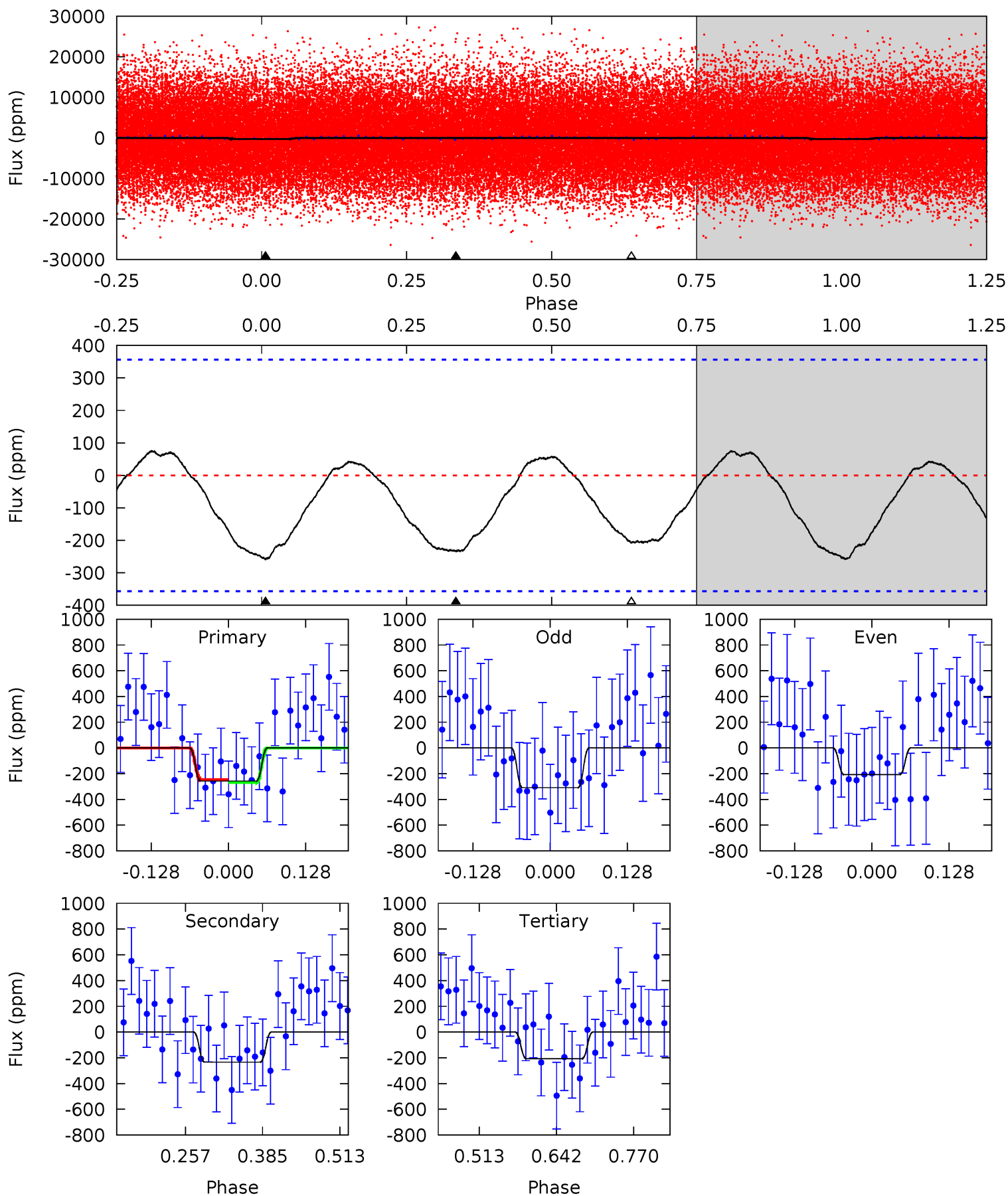
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	-26.6	0	0	4.40	1.23	15.1	12.1	12.1	-26.6	-26.6	0.69	0.92	0.82	0.29



Alt Model-Shift Uniqueness Test

010206643-01, P = 2.267128 Days, E = 131.490431 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.26	2.95	2.62	0	4.51	1.52	1.22	0.64	3.26	0.33	2.95	0.64	0.88	0.22	0.13



Stellar Parameters For KIC 010206643

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7542^{+234}_{-313}	$3.966^{+0.308}_{-0.132}$	$-0.500^{+0.250}_{-0.300}$	$2.112^{+0.497}_{-0.745}$	$1.504^{+0.197}_{-0.295}$	$0.225^{+0.509}_{-0.090}$
	+3%/-4%	+8%/-3%	+50%/-60%	+24%/-35%	+13%/-20%	+226%/-40%
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 010206643-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	535 ± 20	$4.43^{+1.68}_{-1.36}$	3374^{+265}_{-307}	-8098^{+1158}_{-2022}	$-22.344^{+10.679}_{-23.372}$
Alt.	-233 ± 79	$3.65^{+1.58}_{-1.34}$	3363^{+269}_{-292}	7055^{+2084}_{-1246}	14^{+21}_{-8}

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

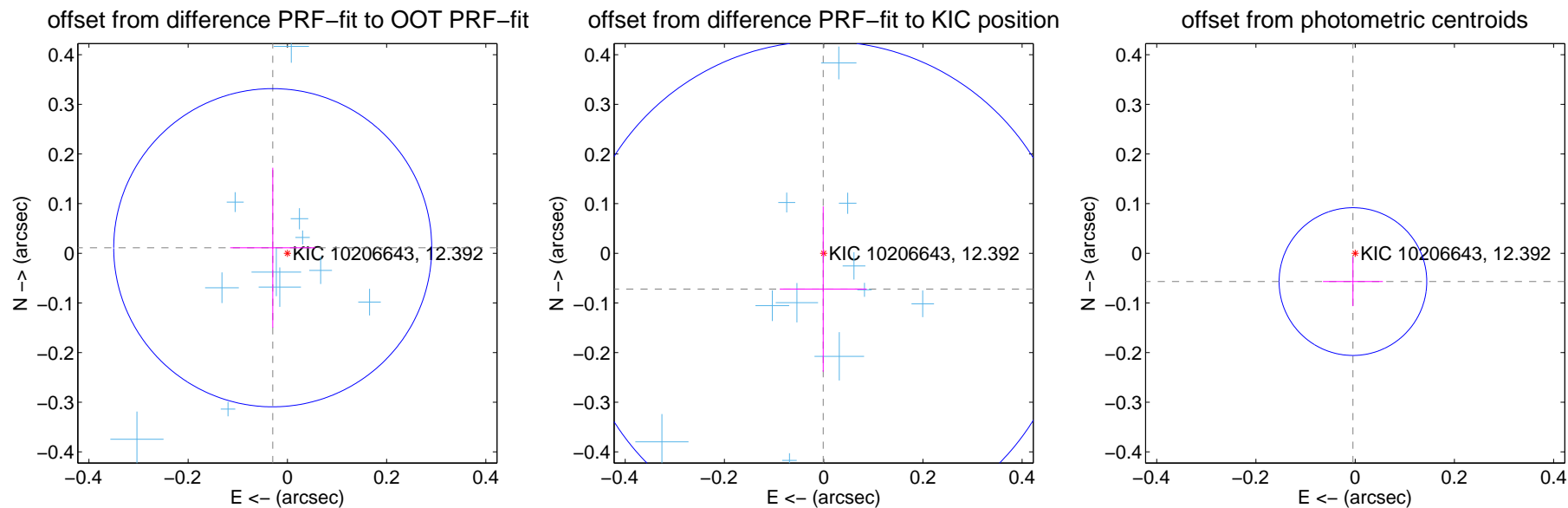
DV Centroid Data

Supplemental centroid analysis for 010206643-01. Kepler magnitude: 12.39. Transit SNR 11.10

There are 17 quarters with good PRF difference image offsets

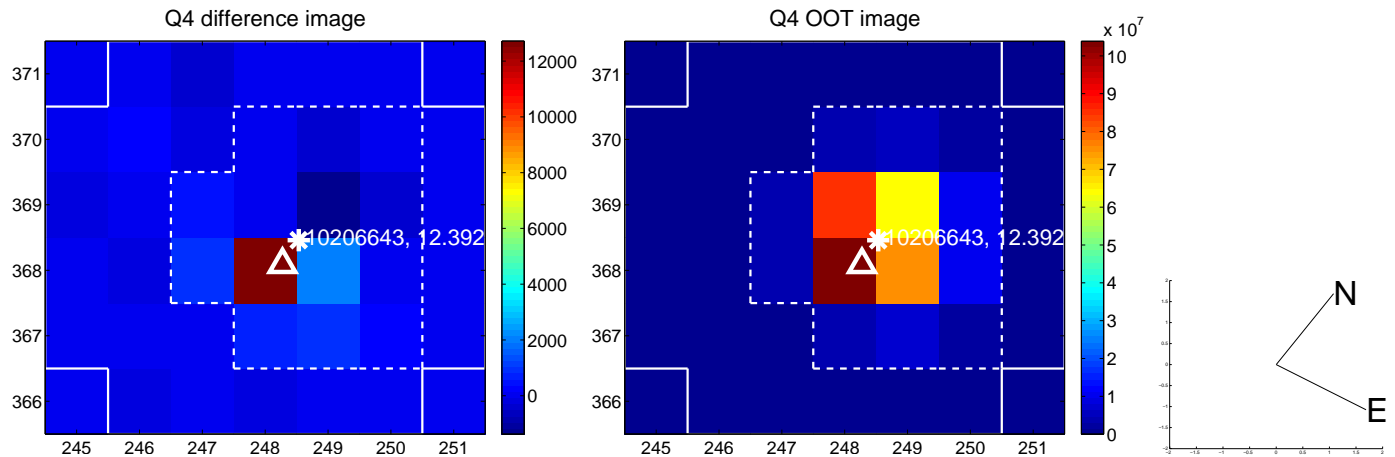
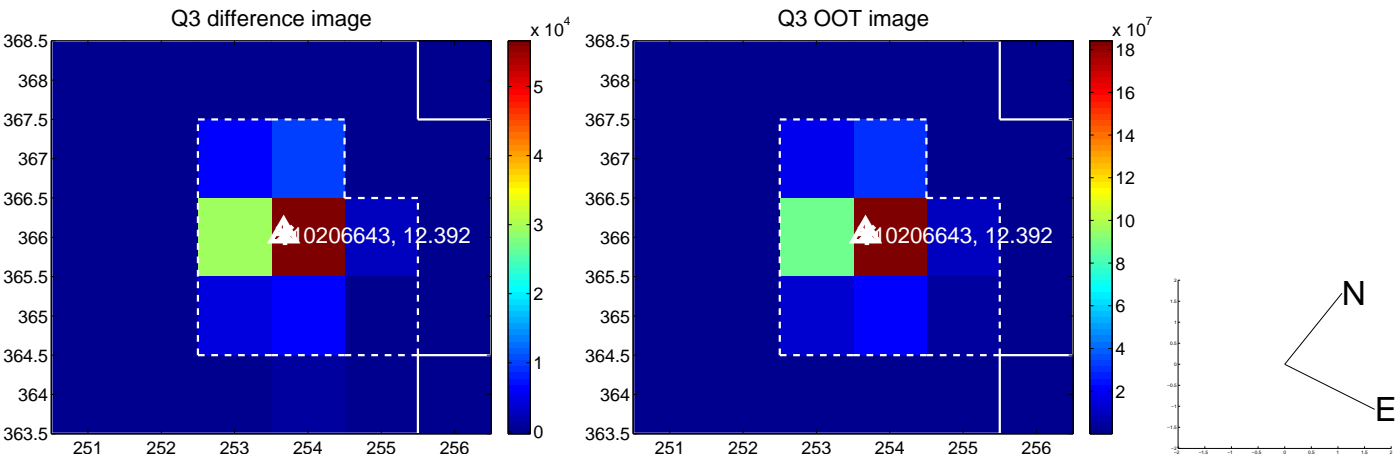
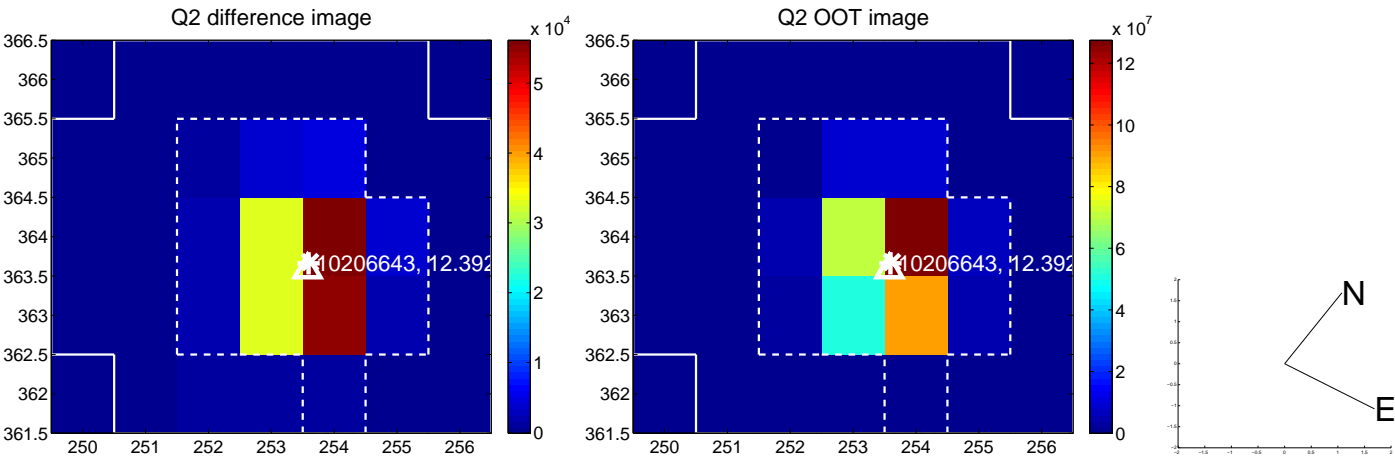
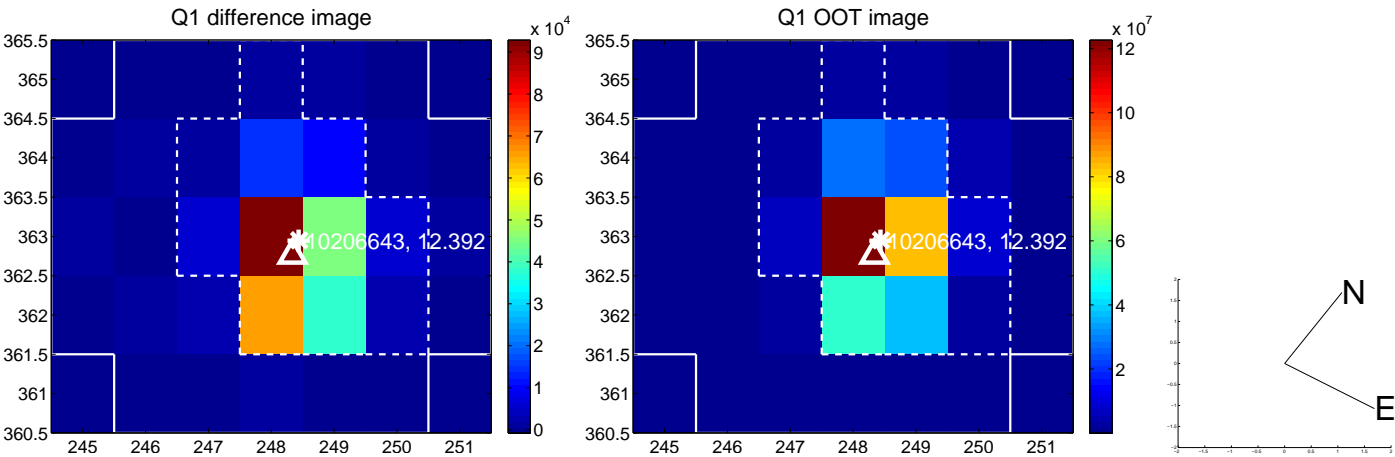
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.032 ± 0.107	0.30	0.030 ± 0.086	0.011 ± 0.161
PRF-fit source offset from KIC position	0.072 ± 0.166	0.43	0.001 ± 0.088	-0.072 ± 0.167
photometric centroid source offset	0.06 ± 0.05	1.15	0.00 ± 0.06	-0.06 ± 0.05

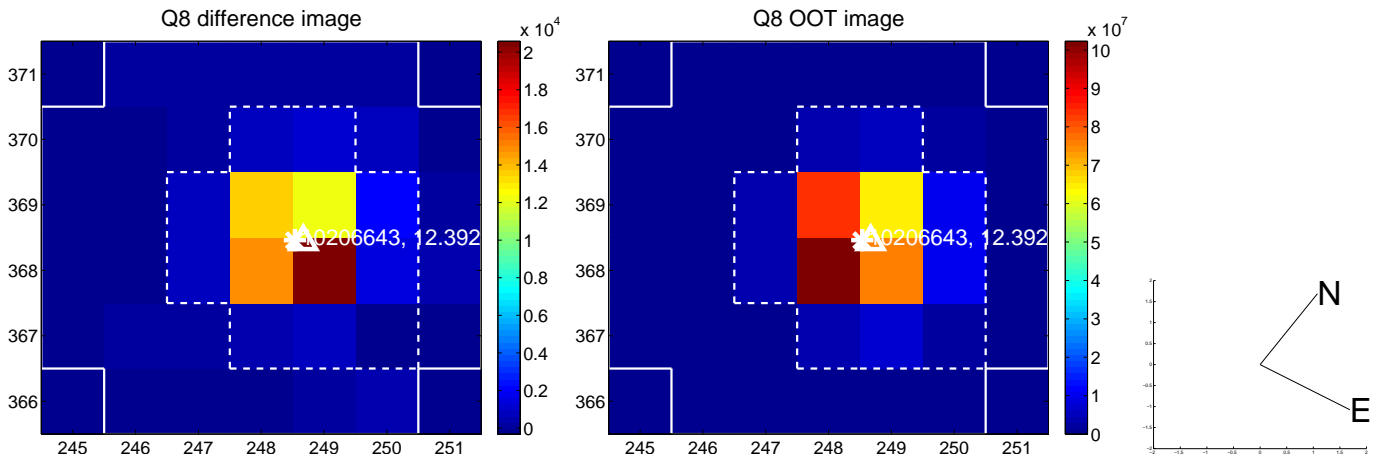
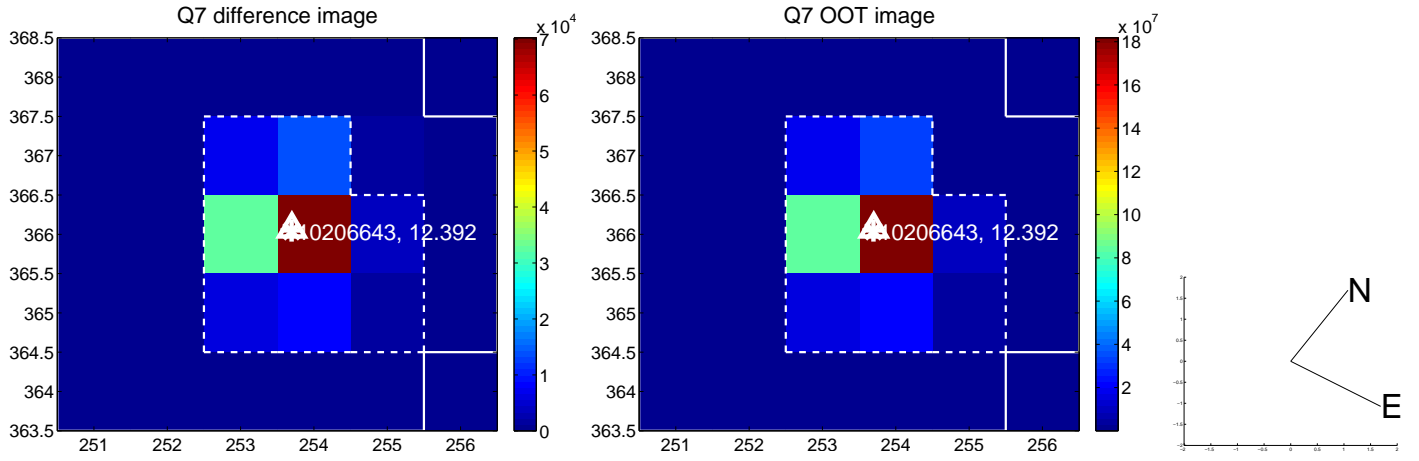
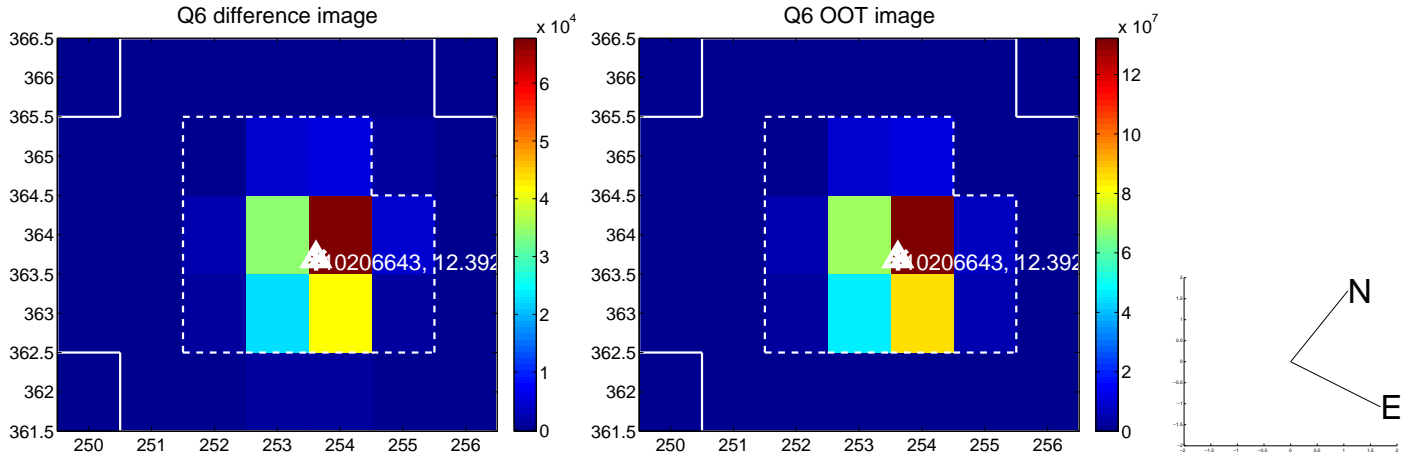
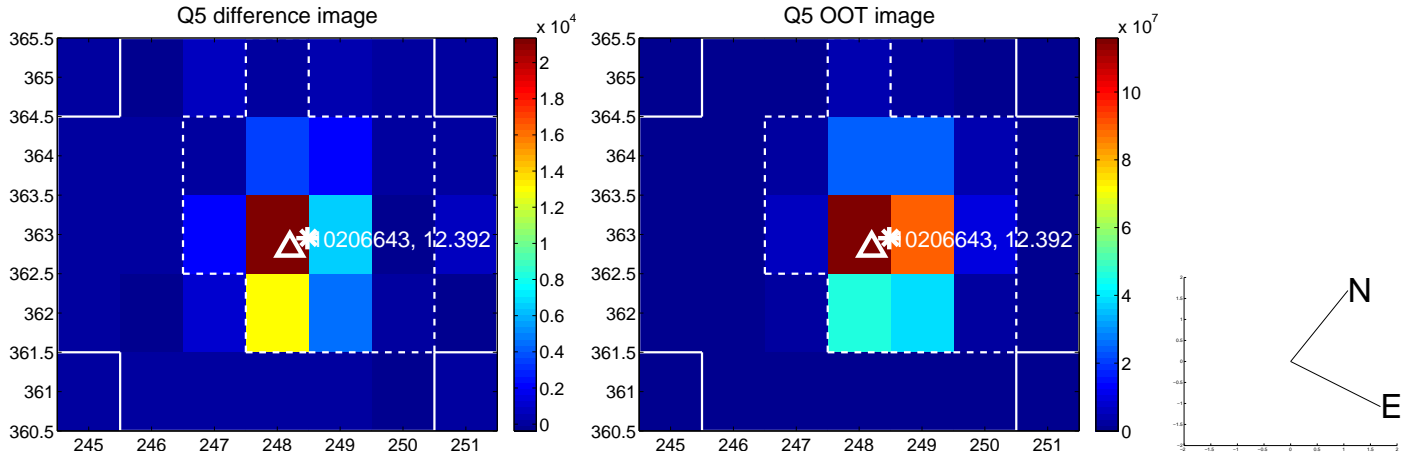


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

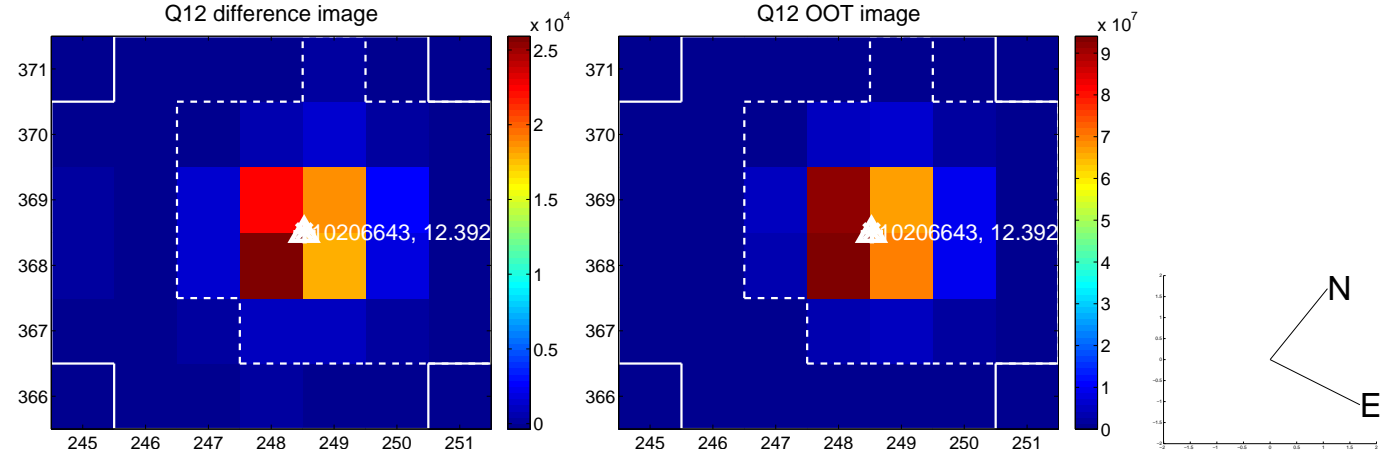
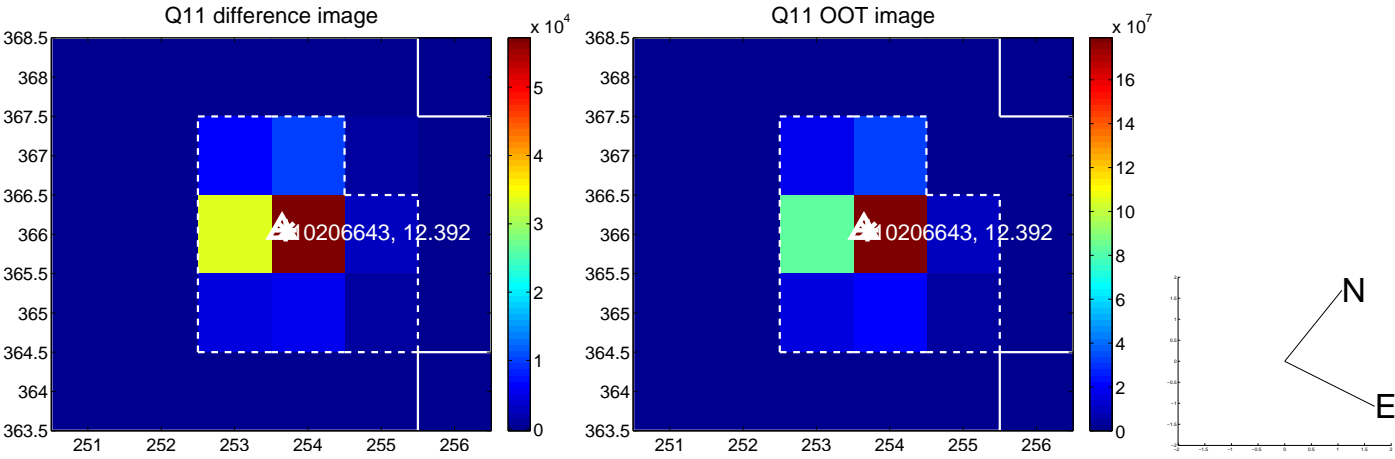
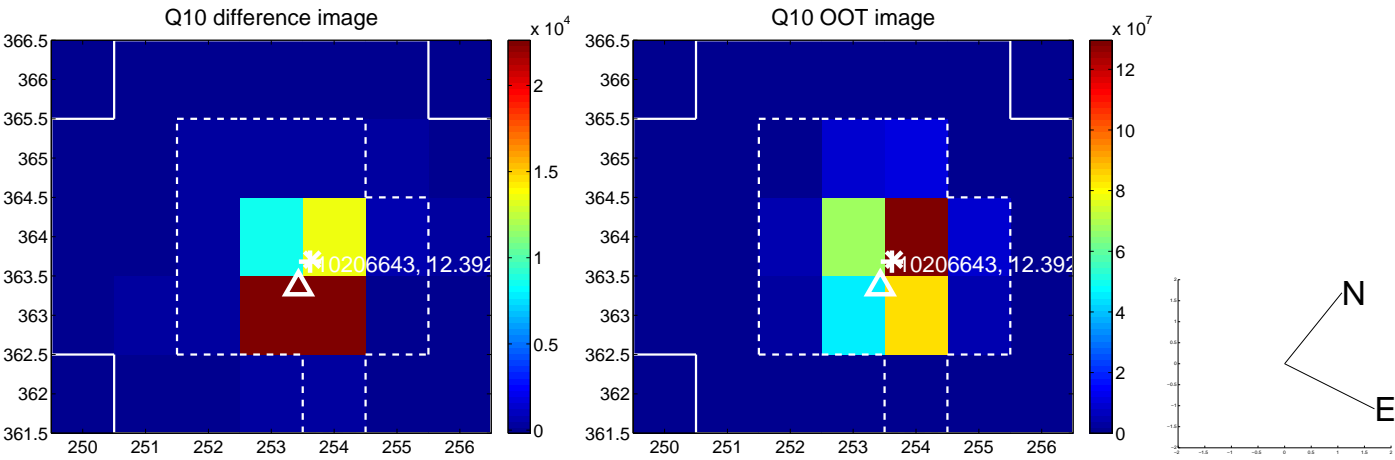
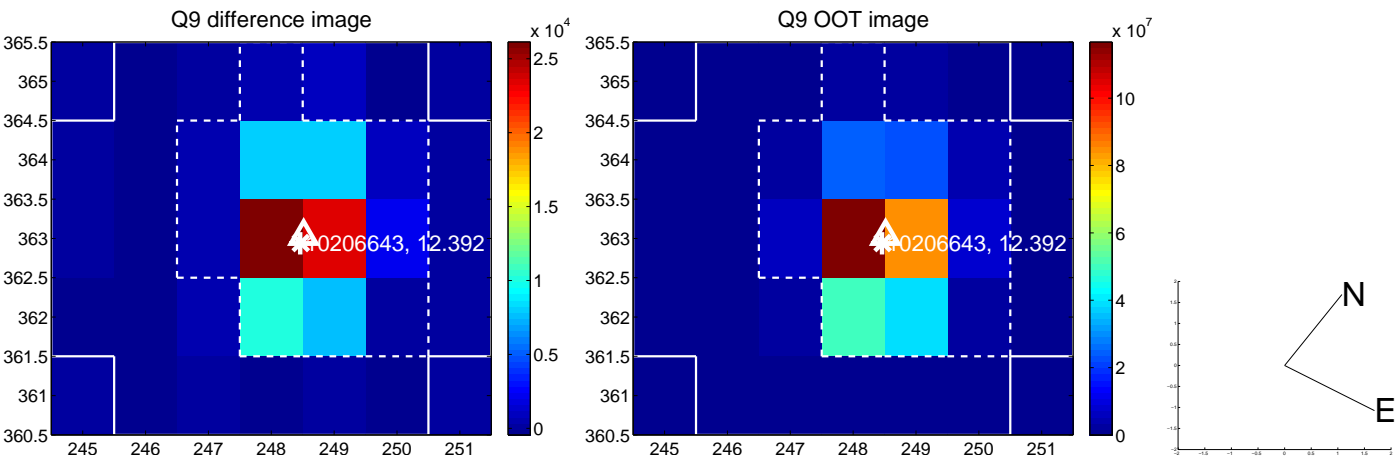
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



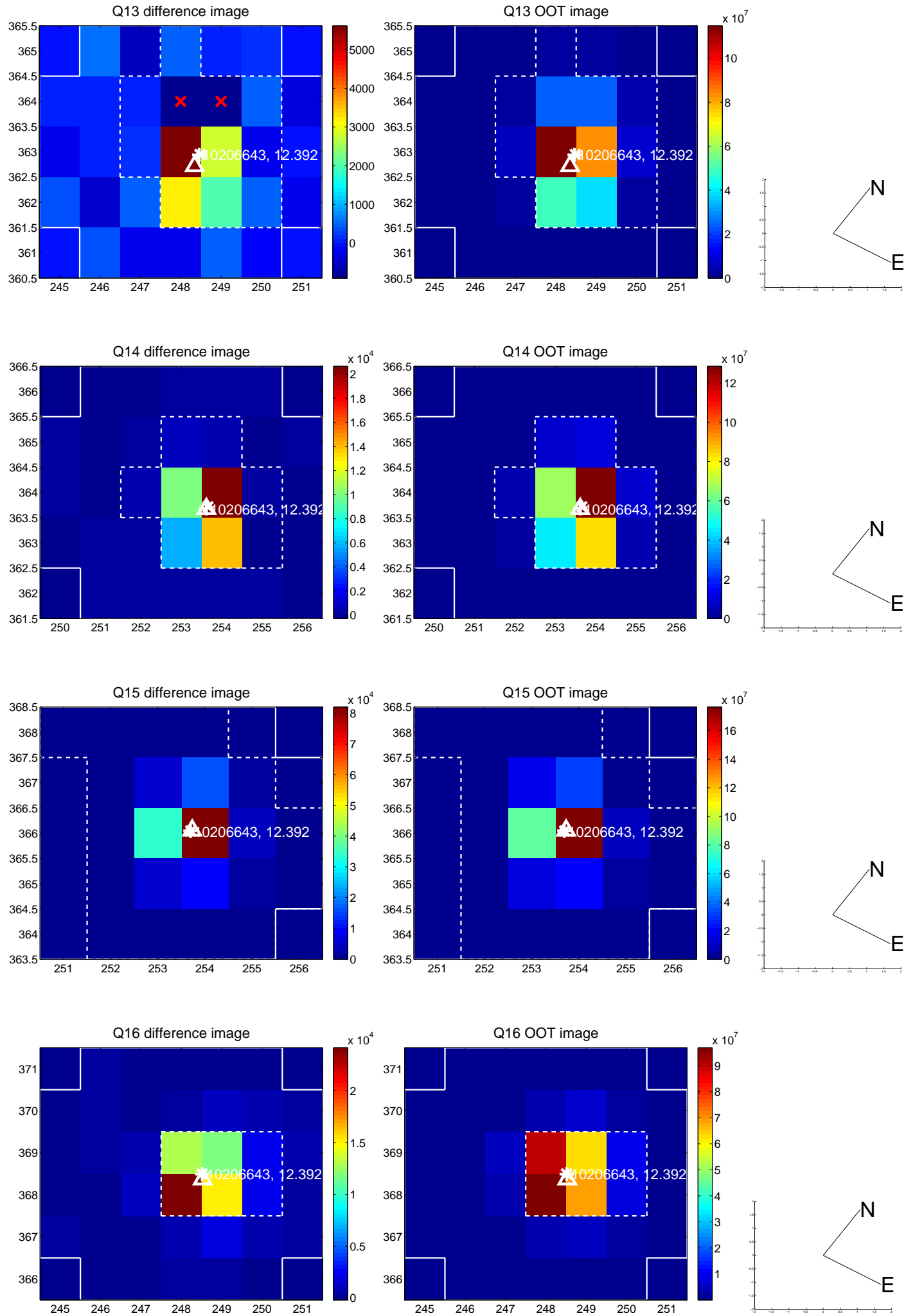
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



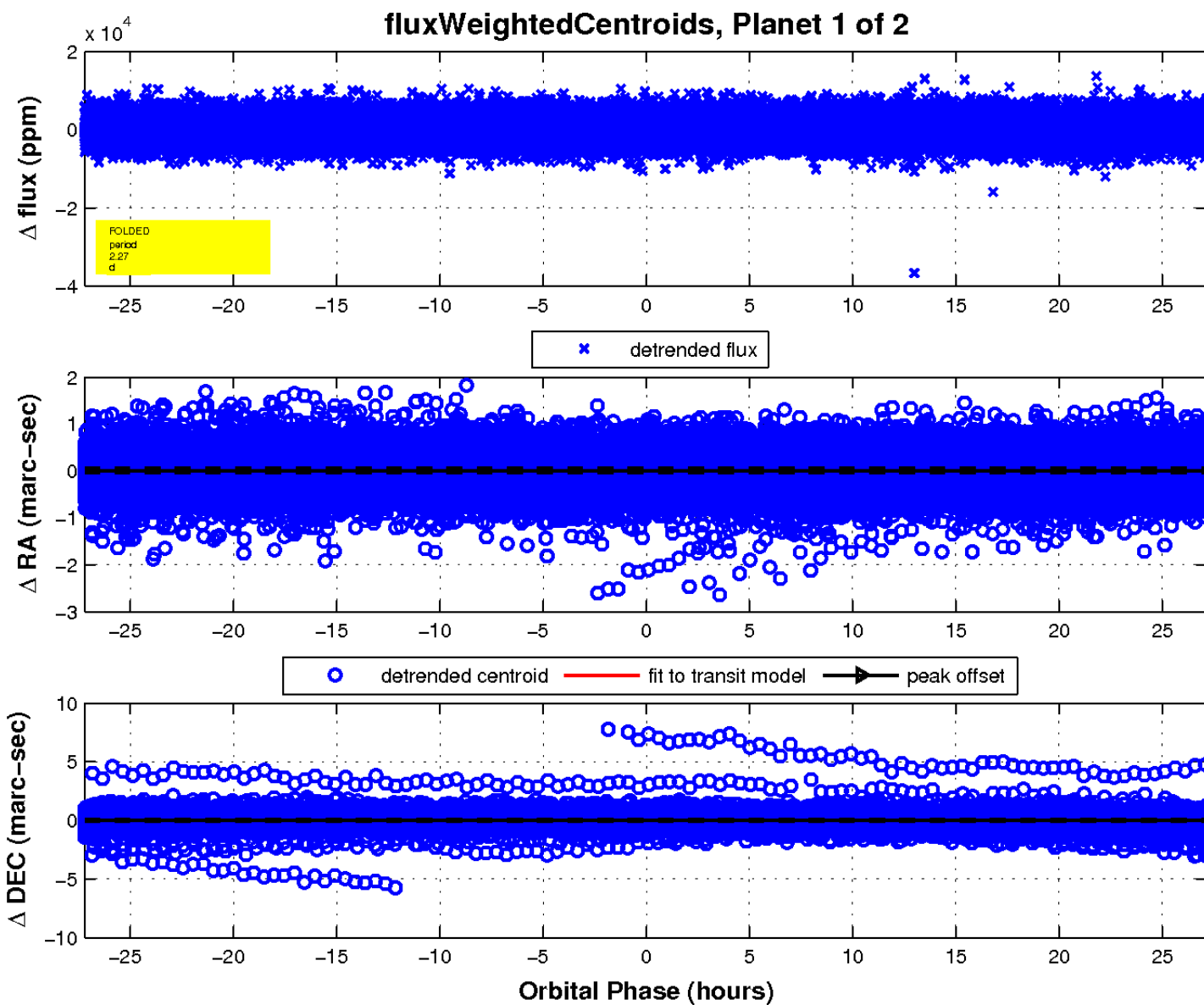
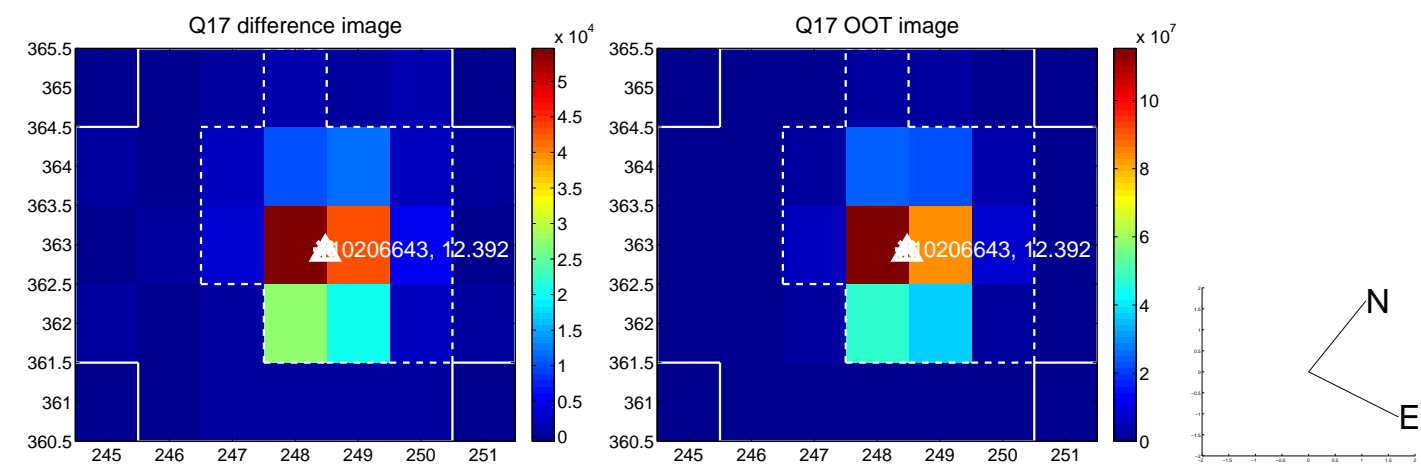
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

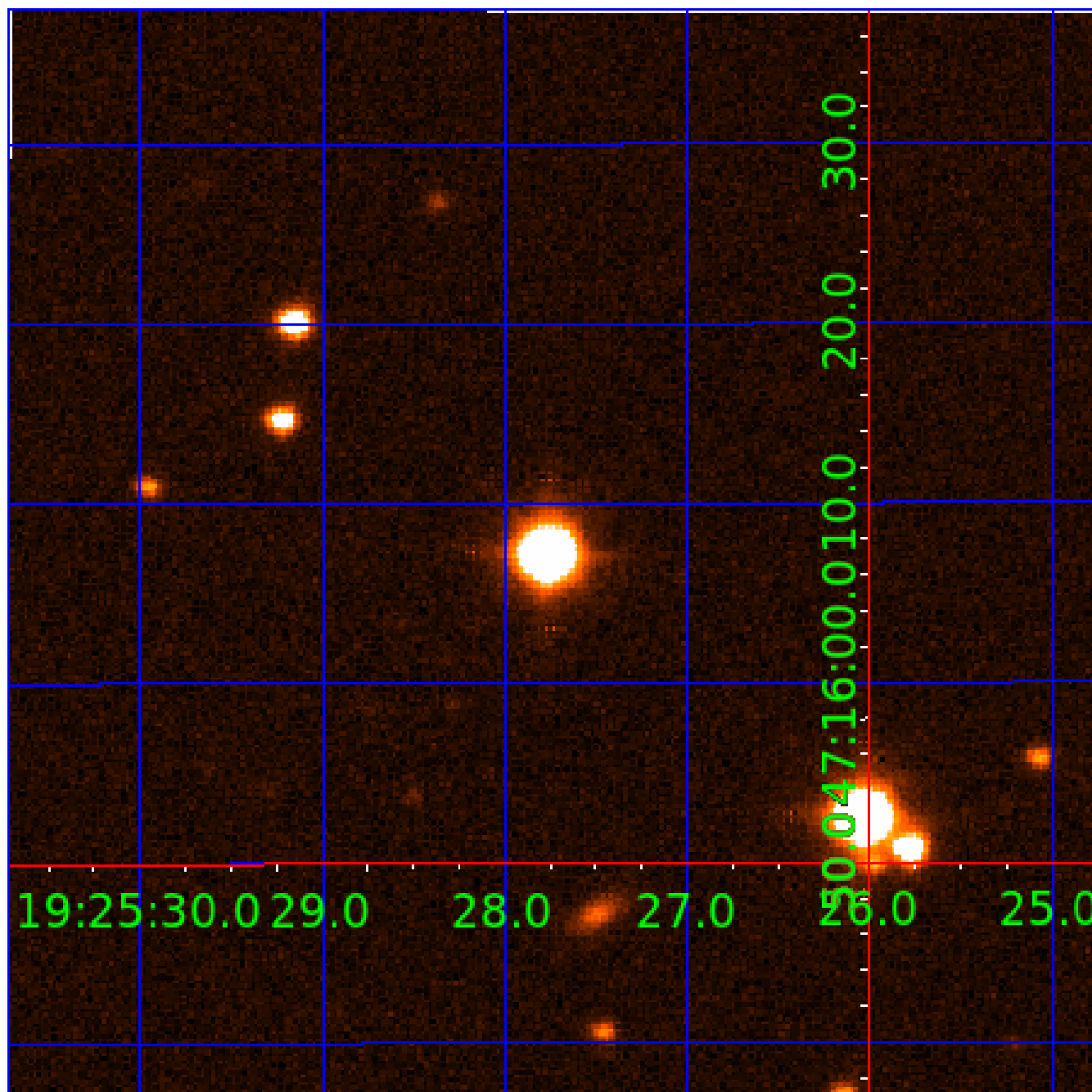


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010206643

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})
010206643-01	OBS	No	2.267187	133.730644	273.7	11.404	10.2	11.1	2.11	7542	4.73	8629.52
010206643-02	OBS	No	0.755720	132.234847	292.6	9.069	9.7	14.6	2.11	7542	3.67	37338.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010206643-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010206643-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

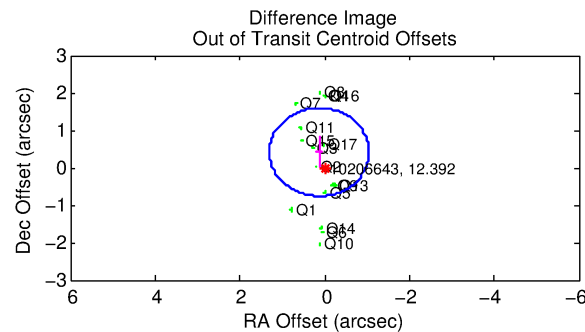
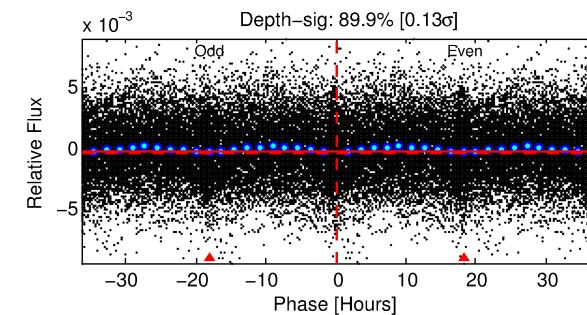
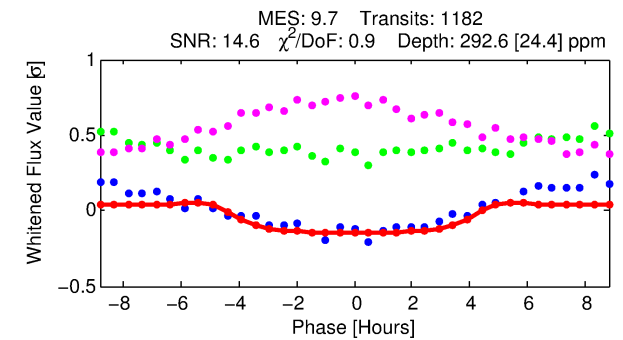
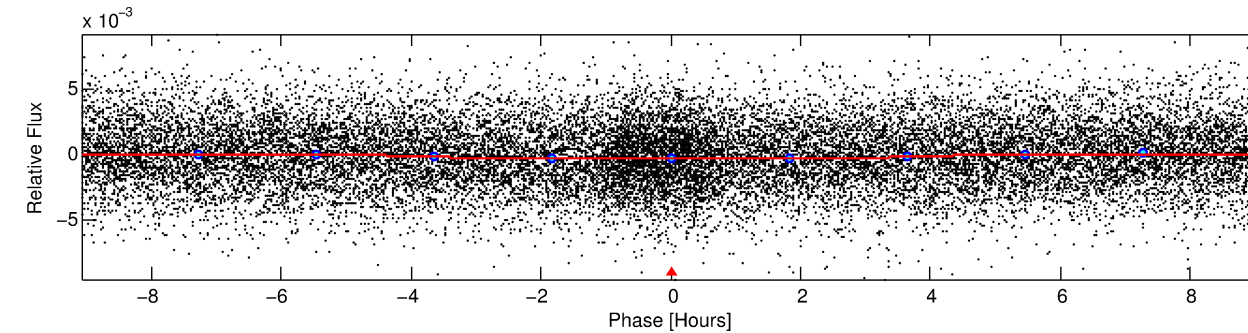
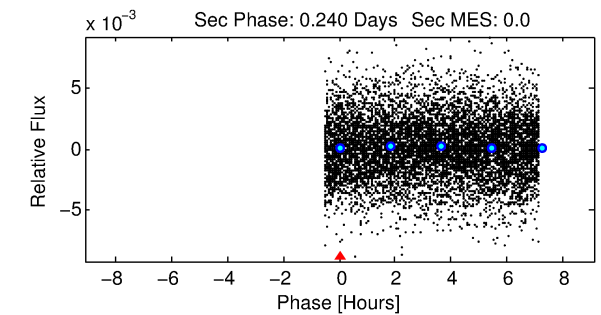
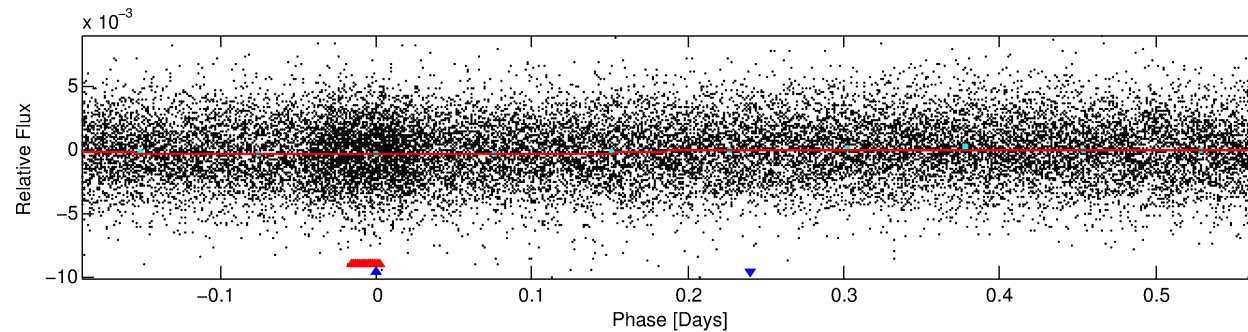
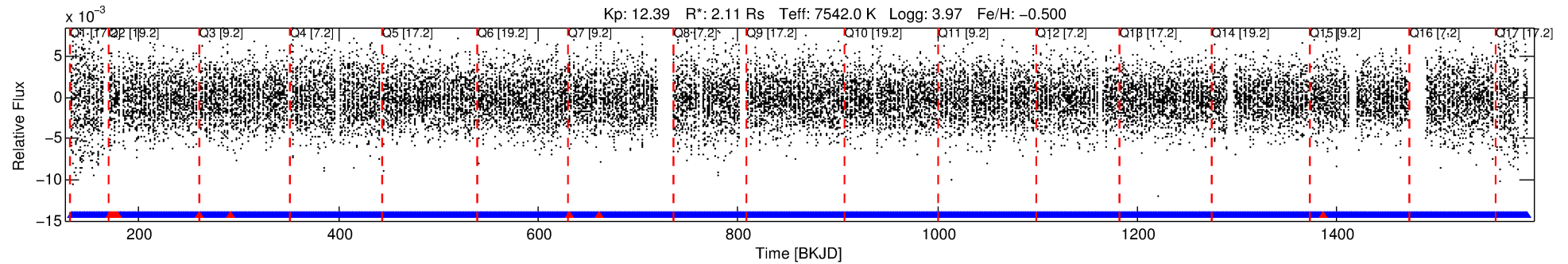
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010206643-02

No Significant Match Found

DV One-Page Summary

KIC: 10206643 Candidate: 2 of 2 Period: 0.756 d



DV Fit Results:

Period = 0.75572 [0.00001] d
Epoch = 132.2348 [0.0081] BKJD
Rp/R* = 0.0159 [0.0066]
a/R* = 1.00 [0.01]
b = 0.02 [100.65]
Seff = 37338.38 [20667.96]
Teq = 3545 [491] K
Rp = 3.67 [1.99] Re
a = 0.0186 [0.0062] AU
Ag = N/A
Teffp = N/A

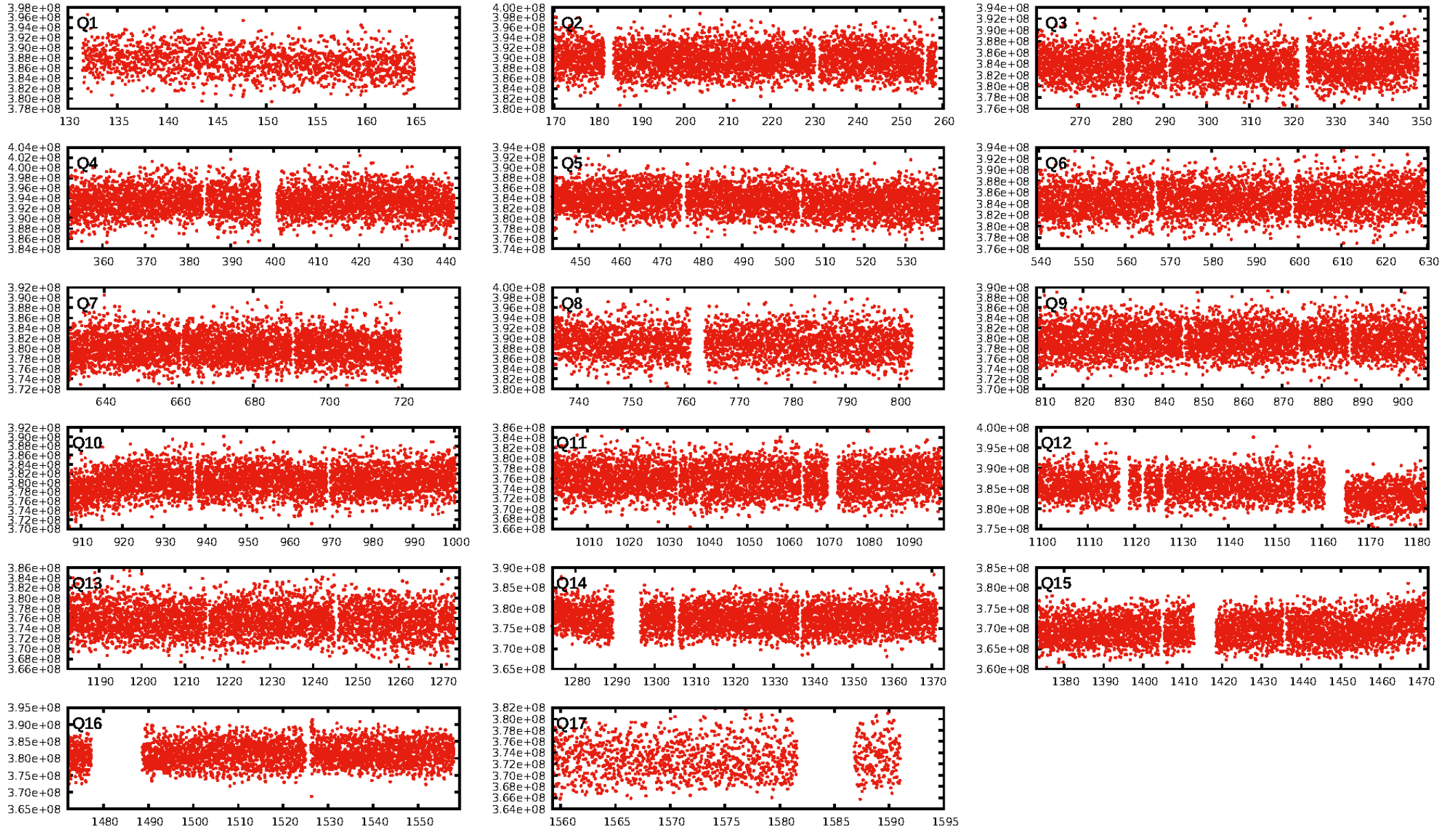
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 98.7% [2.49 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1114/1128]
GhostDiagnostic-chr: 1.246
Centroid-sig: 99.2%
Centroid-so: 0.056 arcsec [2.11 σ]
OotOffset-rm: 0.435 arcsec [1.11 σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-rm: 0.399 arcsec [0.95 σ]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

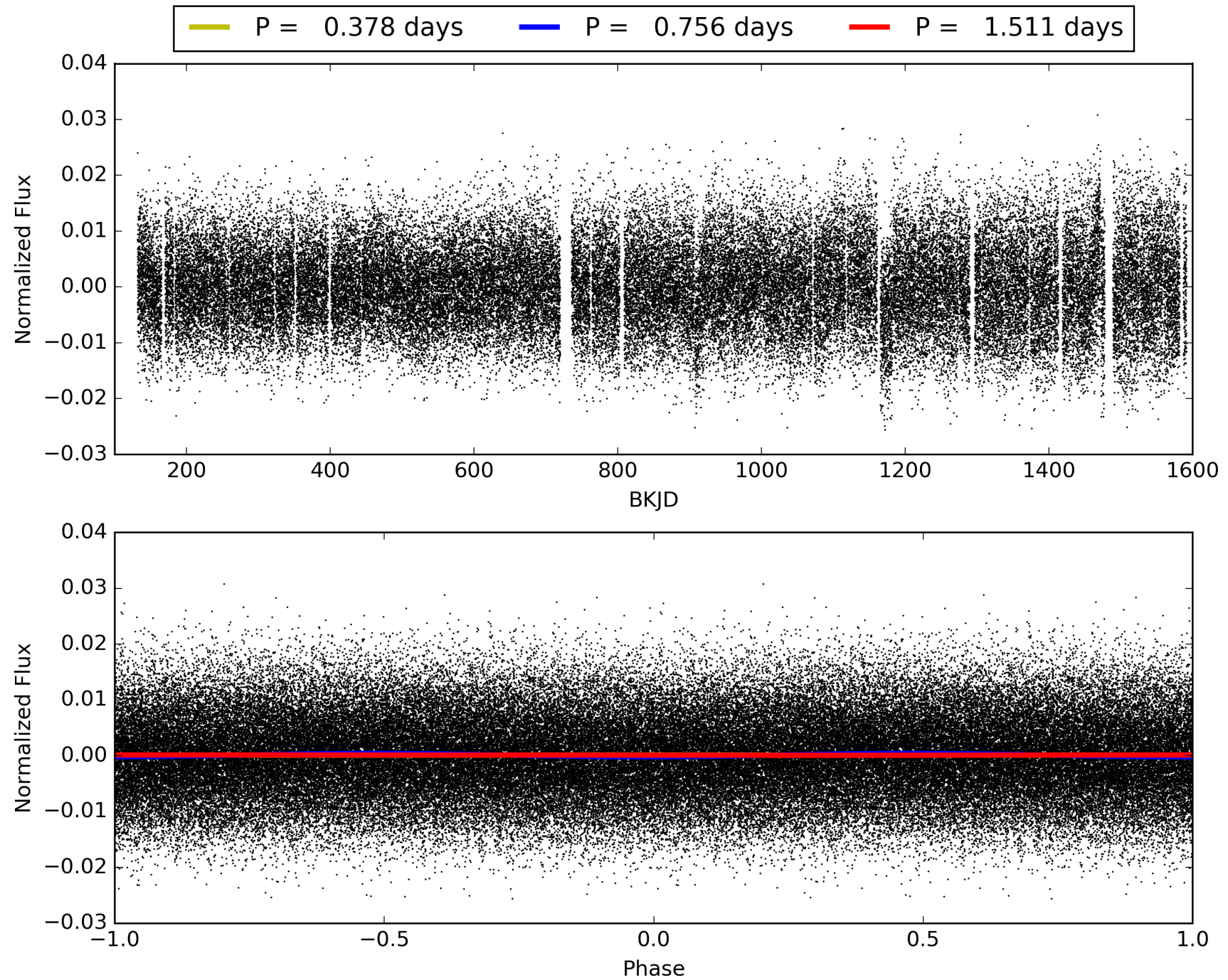
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 04:44:17 Z

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

TCE 010206643-02, PDC Light Curves

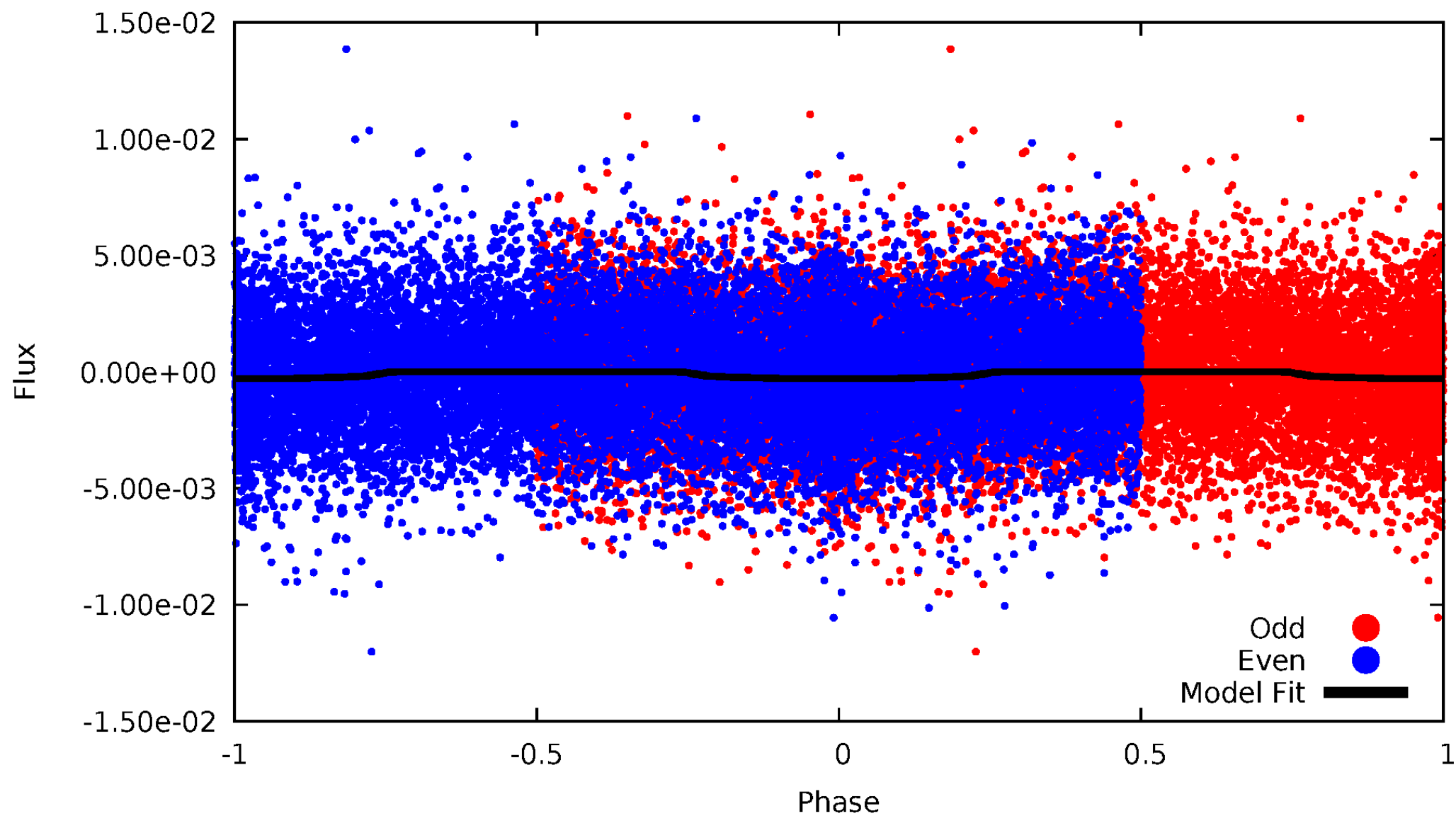


TCE 010206643-02



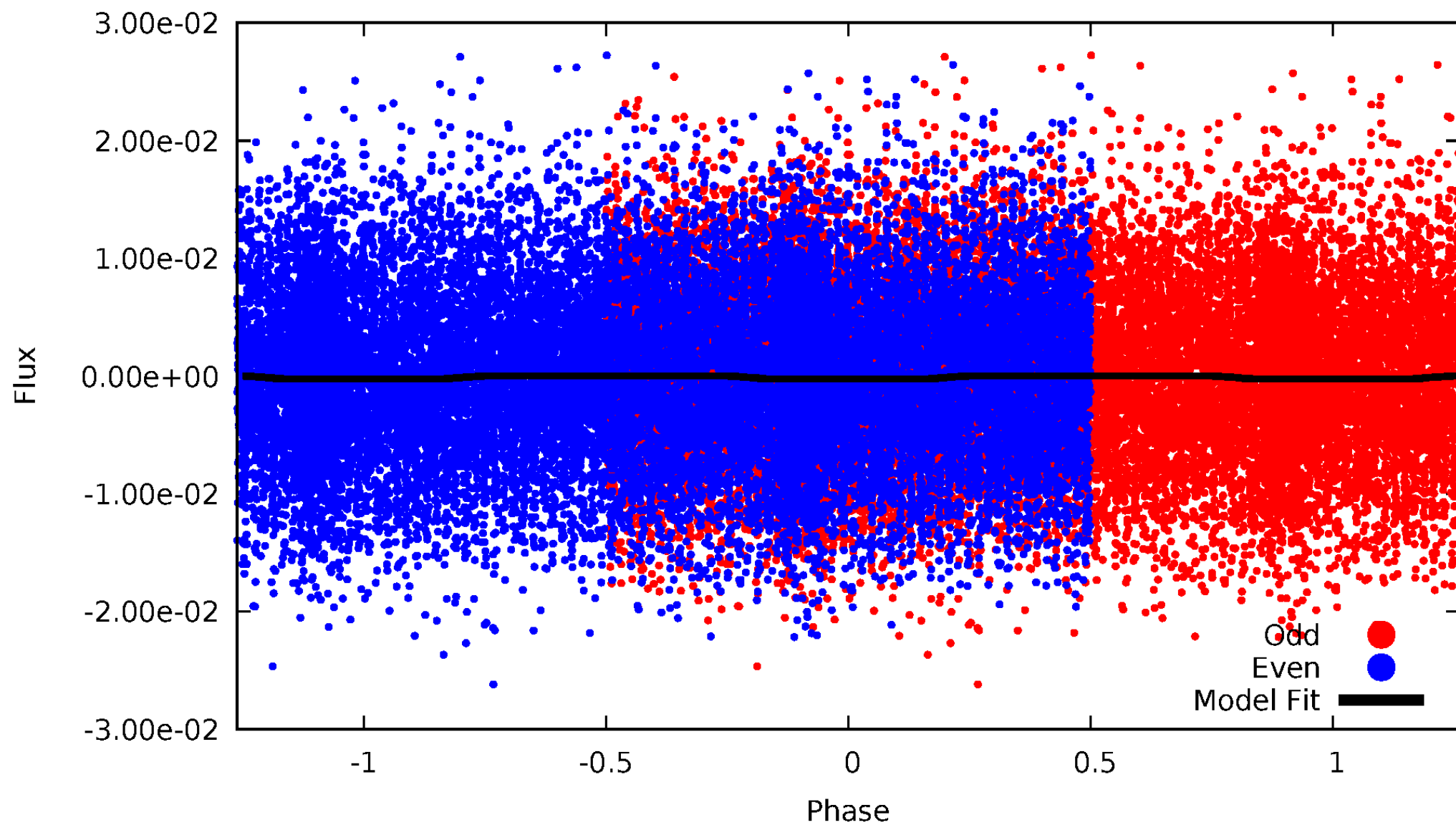
DV Odd/Even

TCE 010206643-02



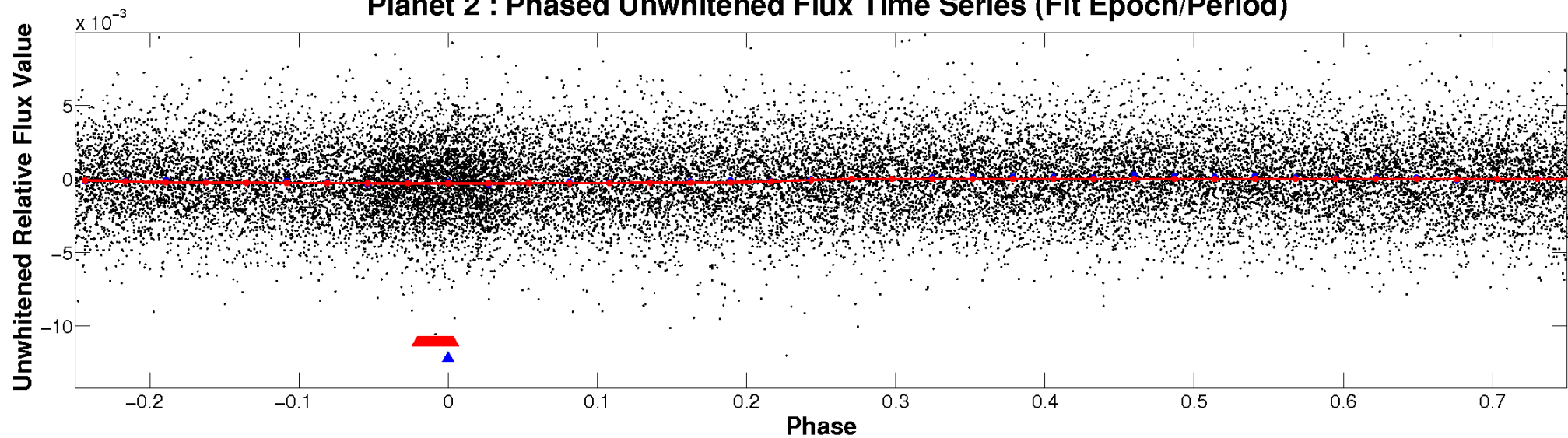
ALT Odd/Even

TCE 010206643-02

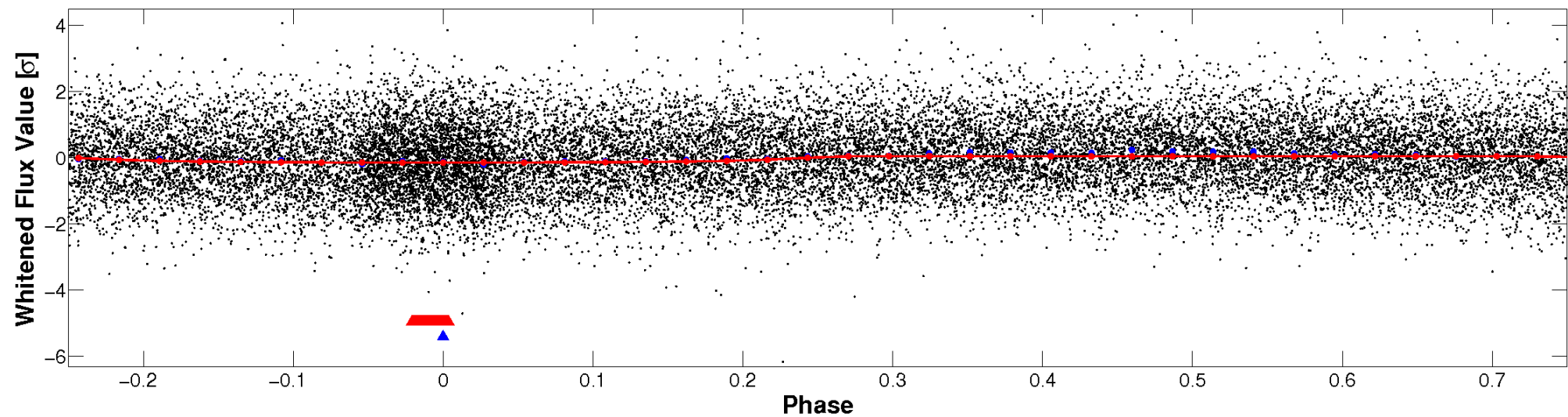


Non-Whitened Vs. Whitened Light Curve

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

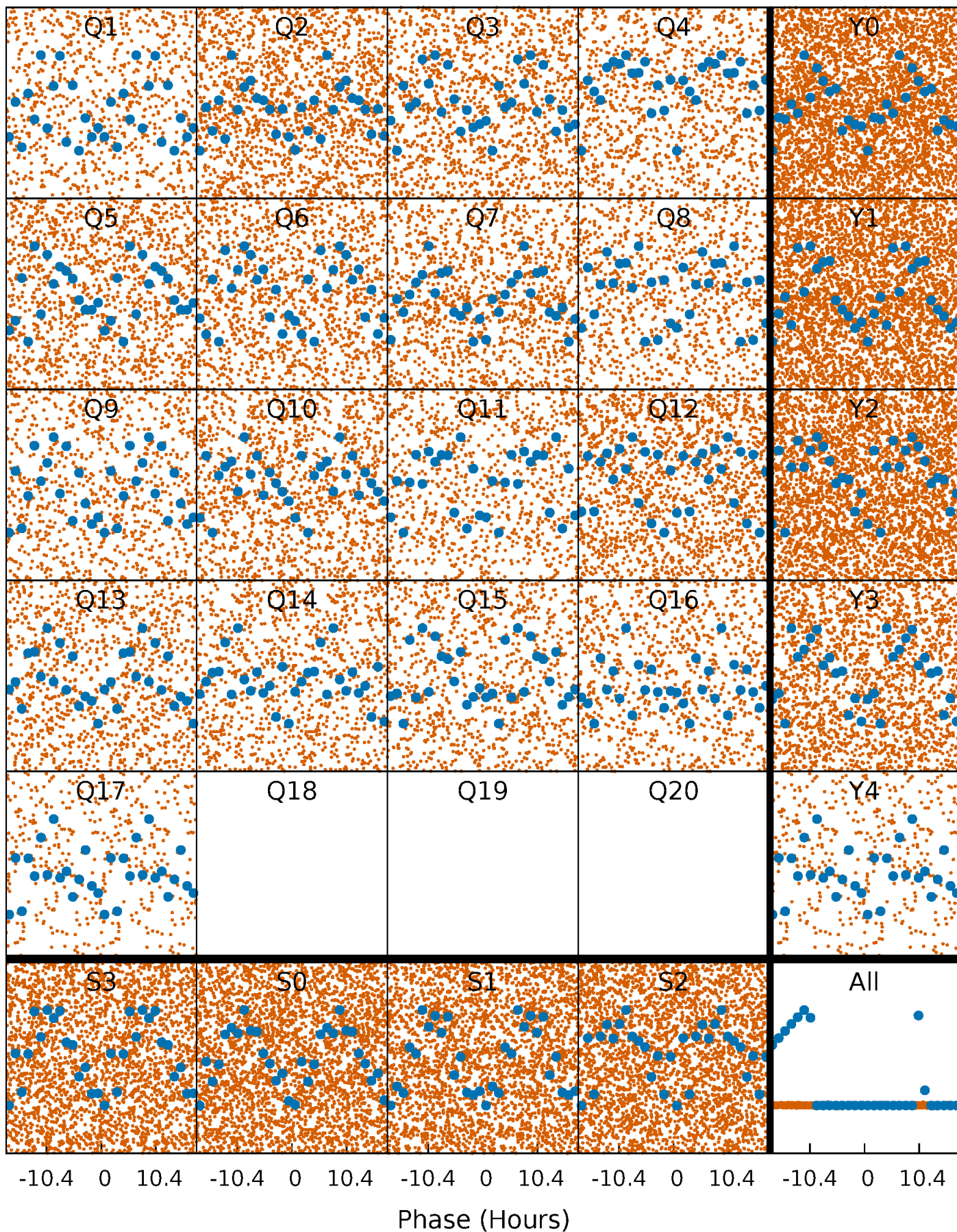


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



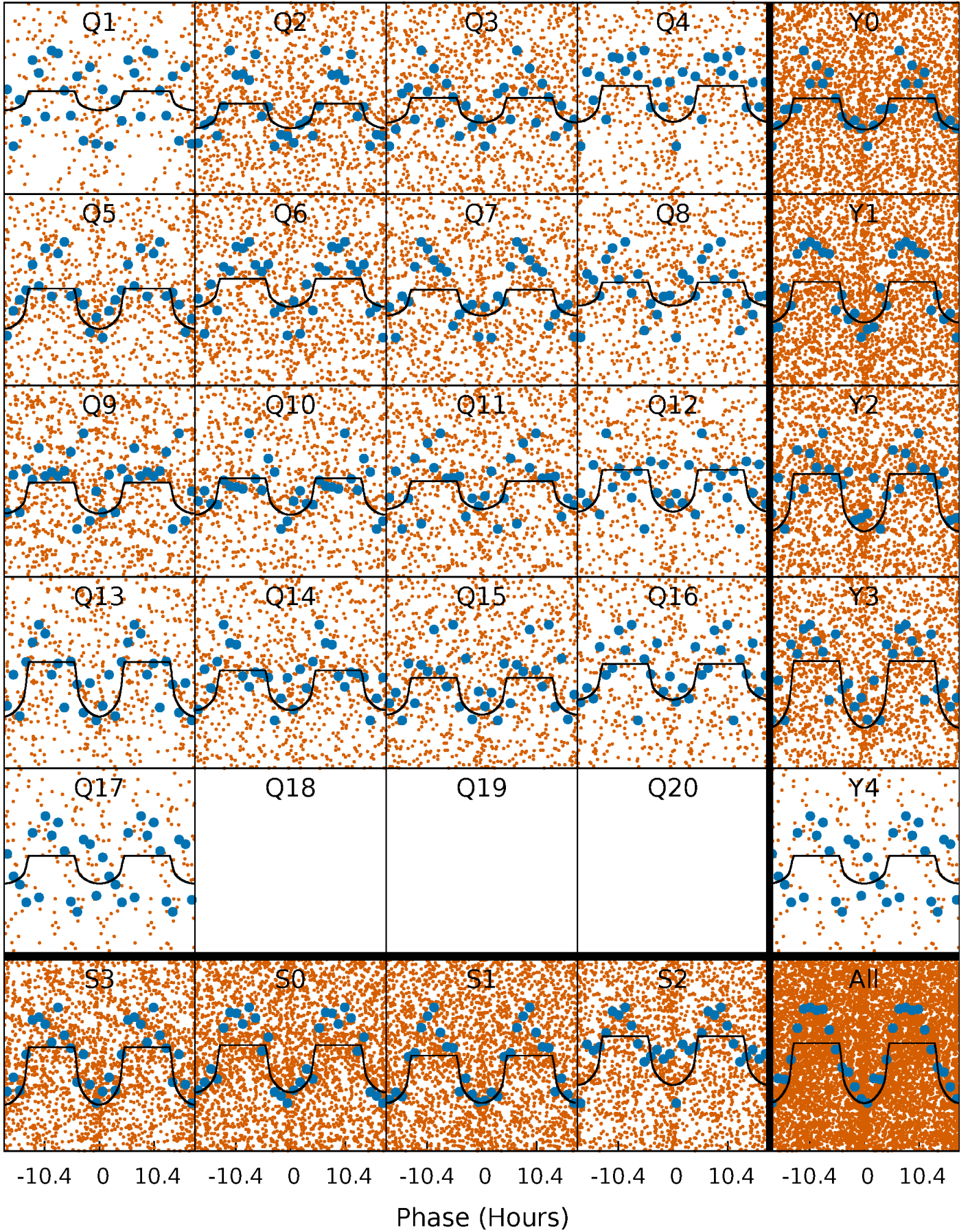
PDC Quarter-Phased Transit Curves

TCE 010206643-02 P= 0.755720 Days $T_0=132.234847$ (BKJD)



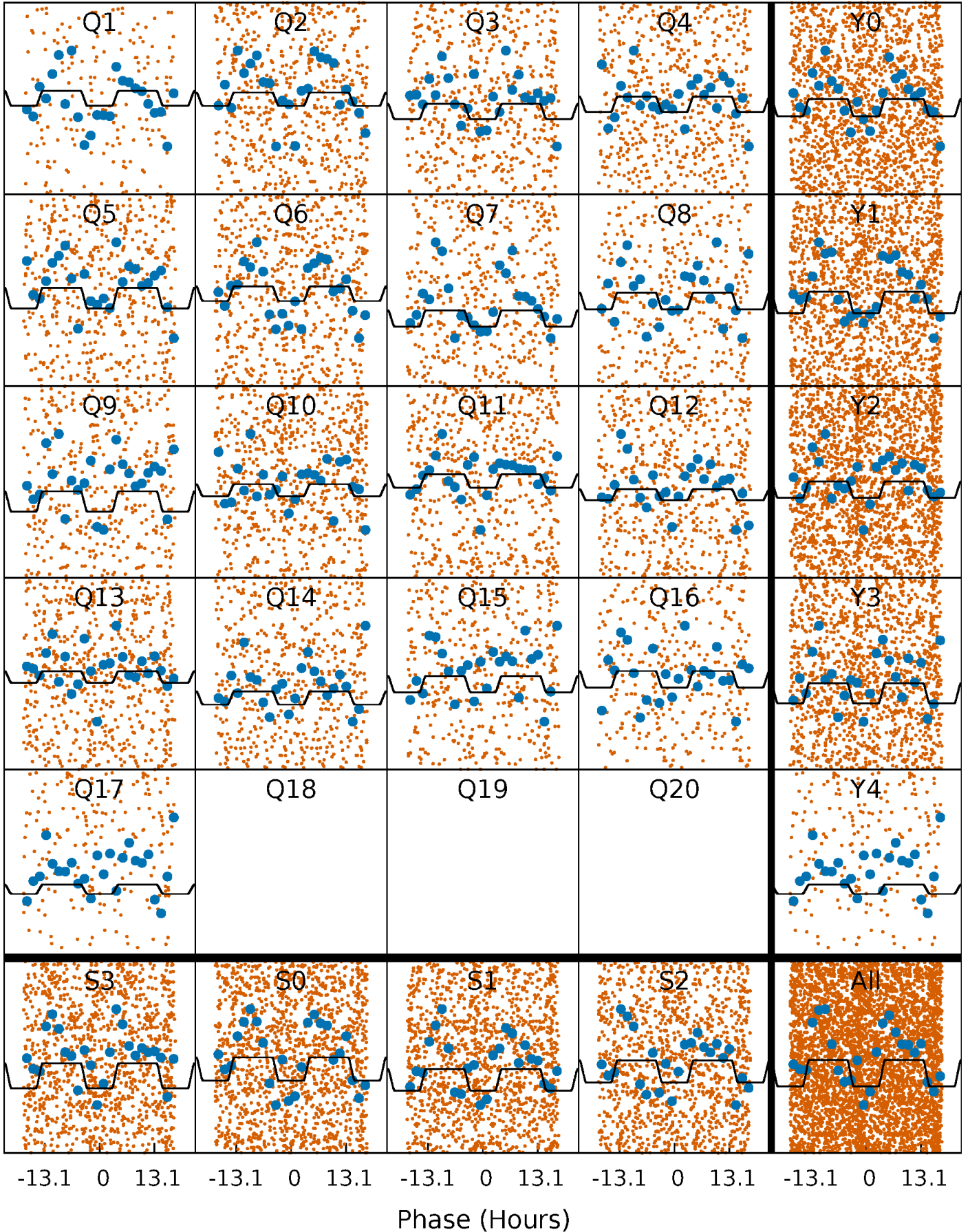
DV Quarter-Phased Transit Curves

TCE 010206643-02 P= 0.755720 Days $T_0=132.234847$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

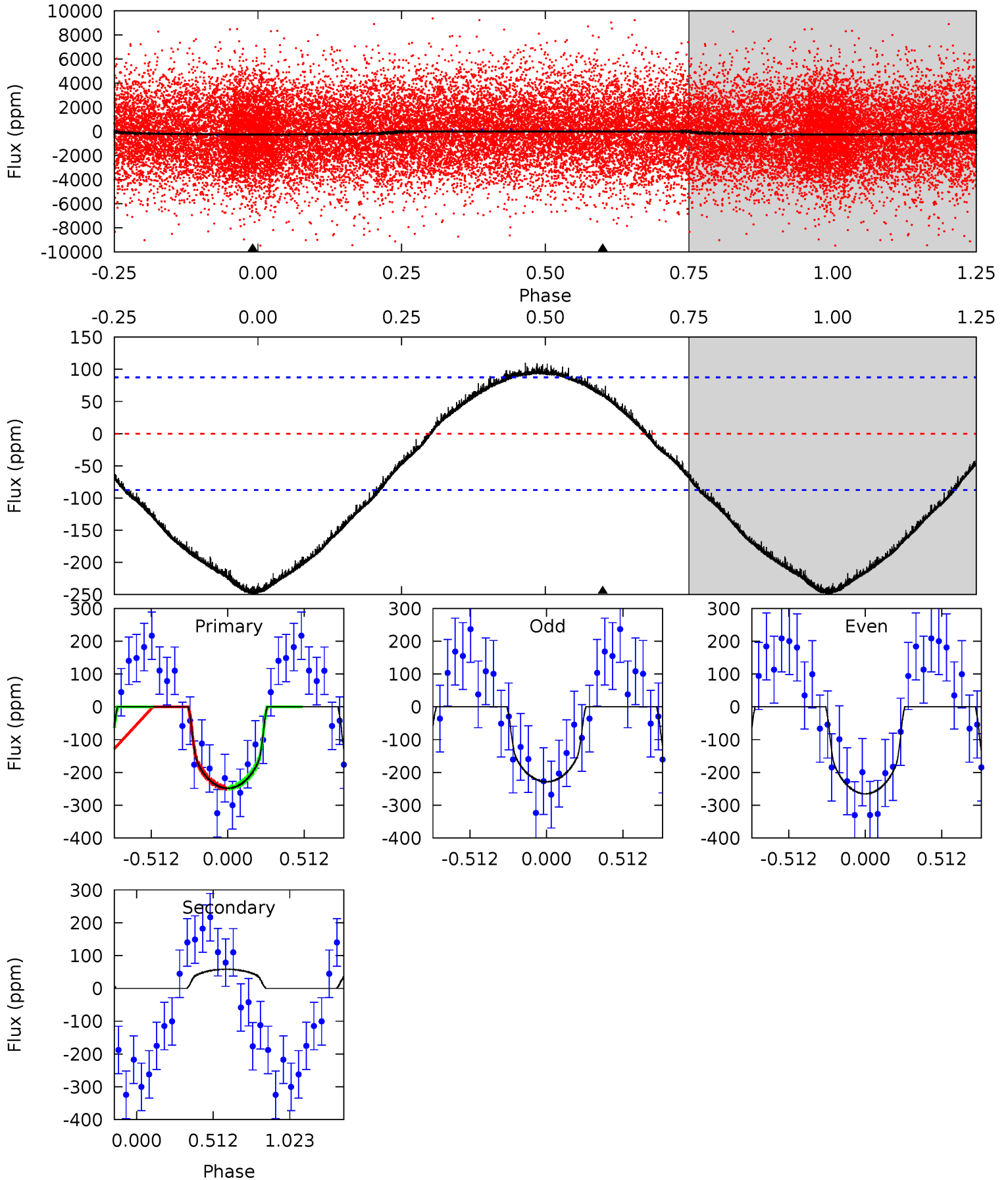
TCE 010206643-02 P= 0.755744 Days $T_0=132.278892$ (BKJD)



DV Model-Shift Uniqueness Test

010206643-02, P = 0.755720 Days, E = 131.479127 Days

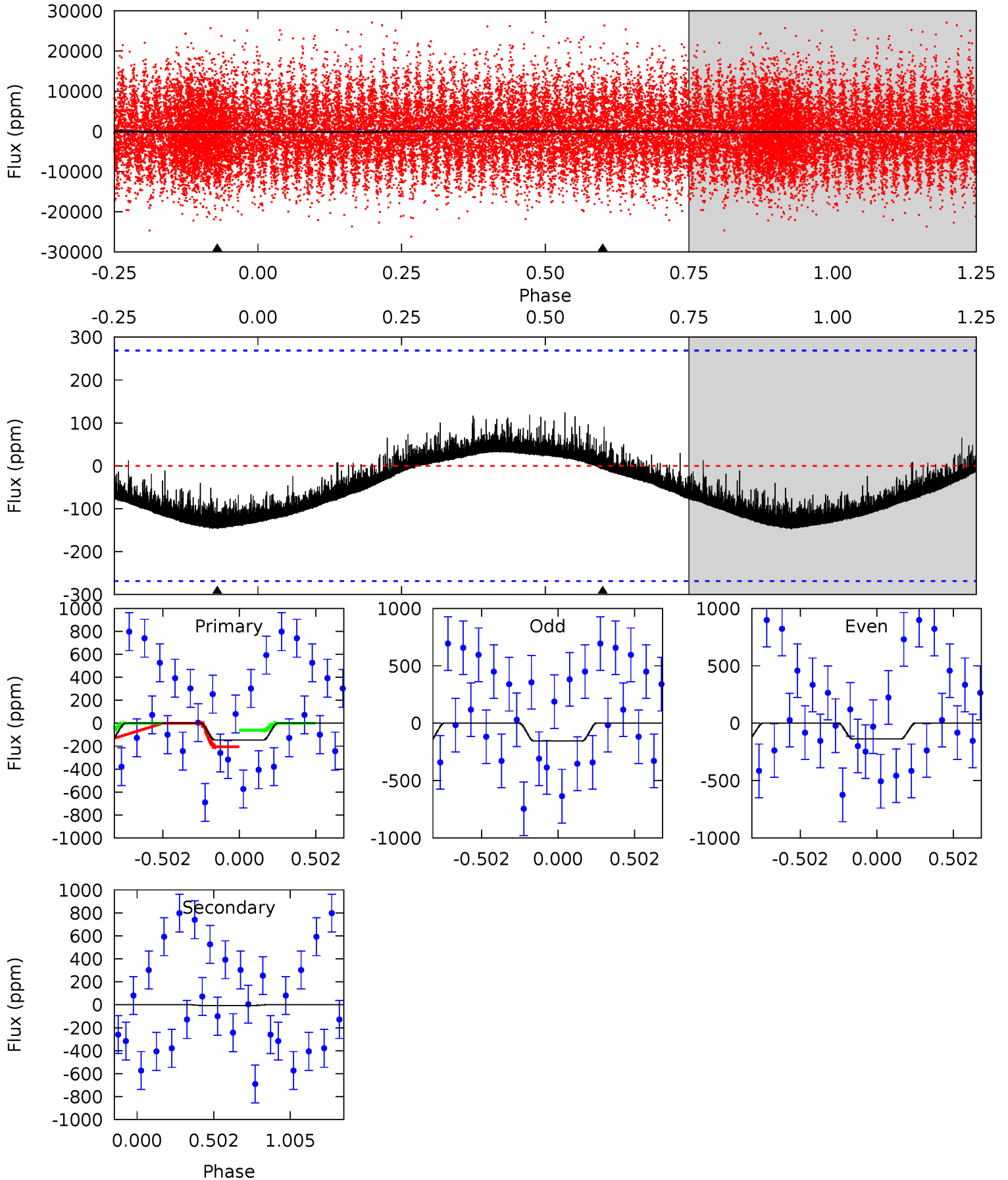
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	-2.81	0	0	4.21	0.66	1.44	11.9	11.9	-2.81	-2.81	0.89	1.09	0.31	0.01



Alt Model-Shift Uniqueness Test

010206643-02, P = 0.755744 Days, E = 131.523148 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.29	0.11	0	0	4.21	0.67	0.29	2.29	2.29	0.11	0.11	0.14	1.10	0.46	1.11



Stellar Parameters For KIC 010206643

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7542^{+234}_{-313}	$3.966^{+0.308}_{-0.132}$	$-0.500^{+0.250}_{-0.300}$	$2.112^{+0.497}_{-0.745}$	$1.504^{+0.197}_{-0.295}$	$0.225^{+0.509}_{-0.090}$
	+3%/-4%	+8%/-3%	+50%/-60%	+24%/-35%	+13%/-20%	+226%/-40%
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 010206643-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	58 ± 21	$3.54^{+1.60}_{-1.51}$	4885^{+360}_{-445}	-5495^{+635}_{-1506}	$-0.867^{+0.518}_{-1.973}$
Alt.	-7 ± 64	$3.33^{+1.66}_{-1.42}$	4846^{+373}_{-505}	-3835^{+9233}_{-1824}	$0.113^{+1.413}_{-1.197}$

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

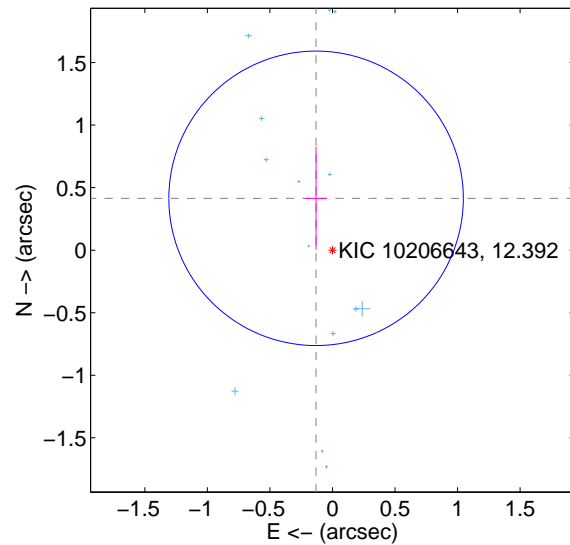
Supplemental centroid analysis for 010206643-02. Kepler magnitude: 12.39. Transit SNR 14.56

There are 16 quarters with good PRF difference image offsets

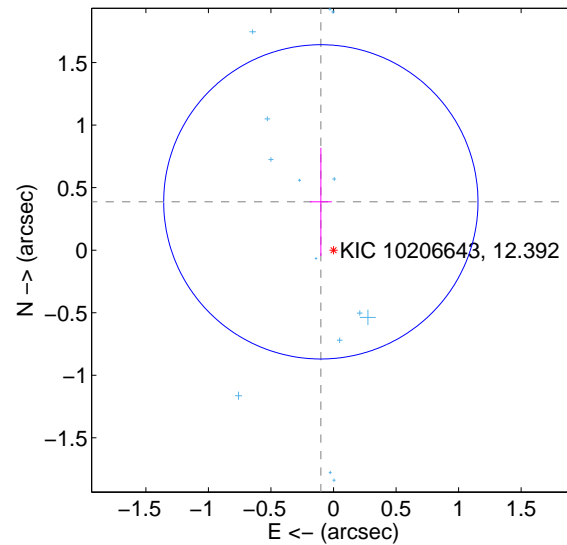
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.435 ± 0.392	1.11	0.131 ± 0.086	0.415 ± 0.411
PRF-fit source offset from KIC position	0.399 ± 0.419	0.95	0.101 ± 0.088	0.386 ± 0.432
photometric centroid source offset	0.06 ± 0.03	2.11	0.04 ± 0.03	-0.03 ± 0.02

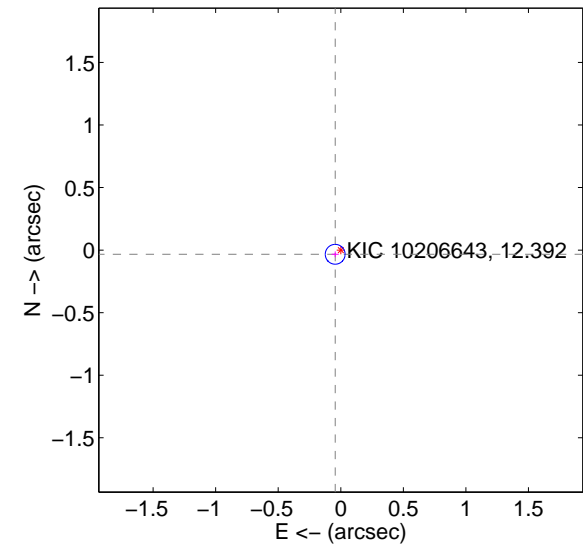
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

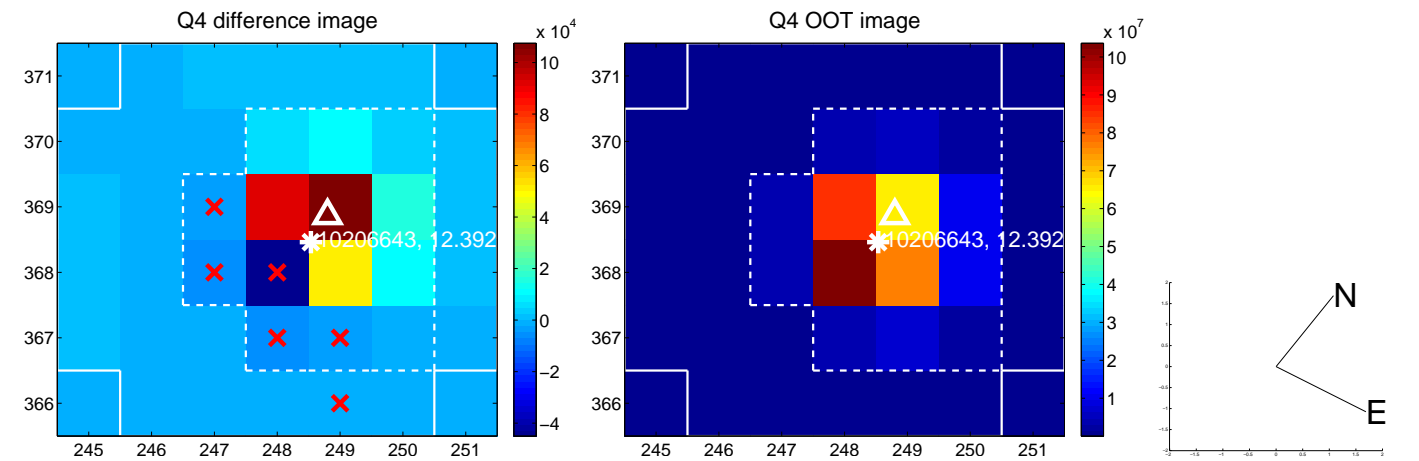
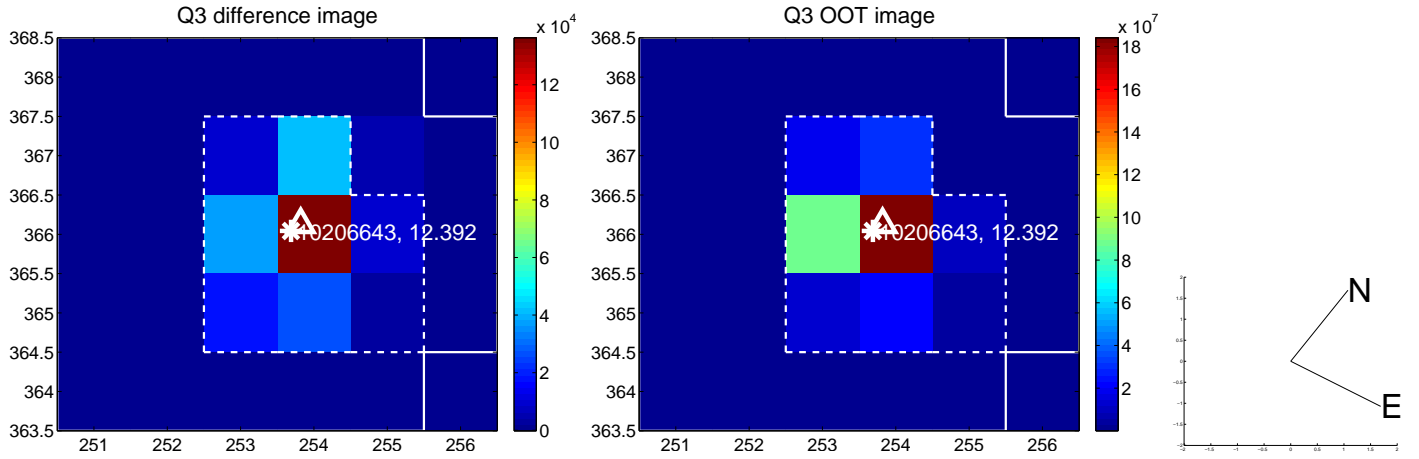
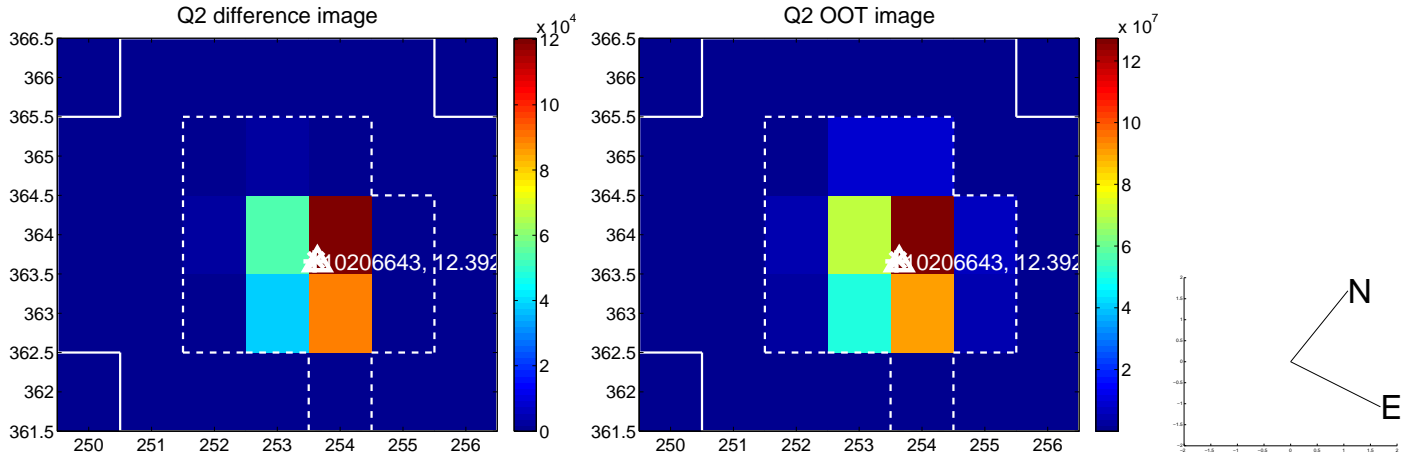
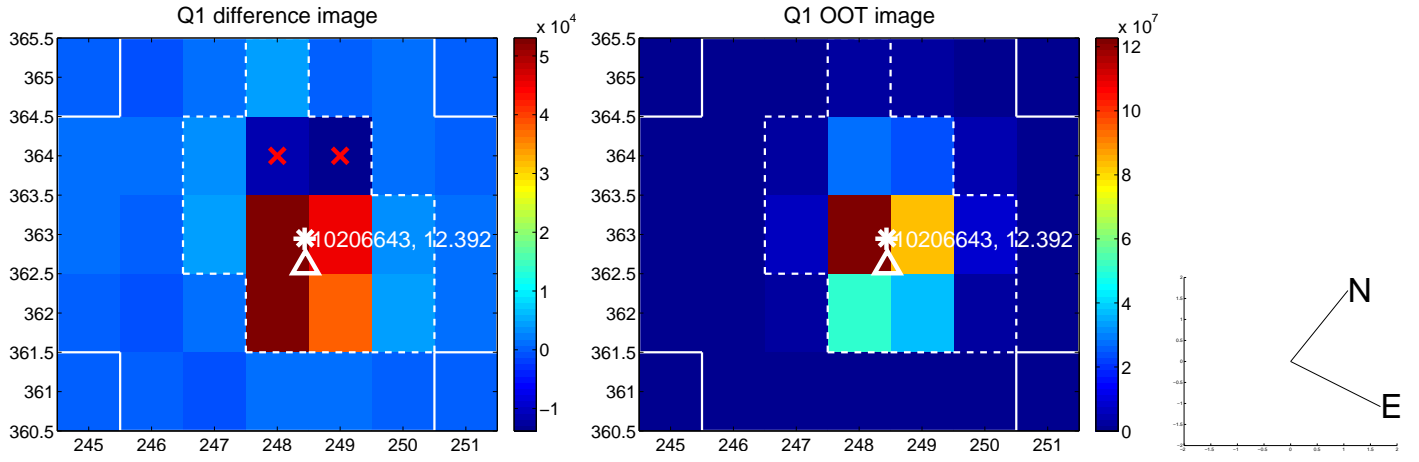


offset from photometric centroids

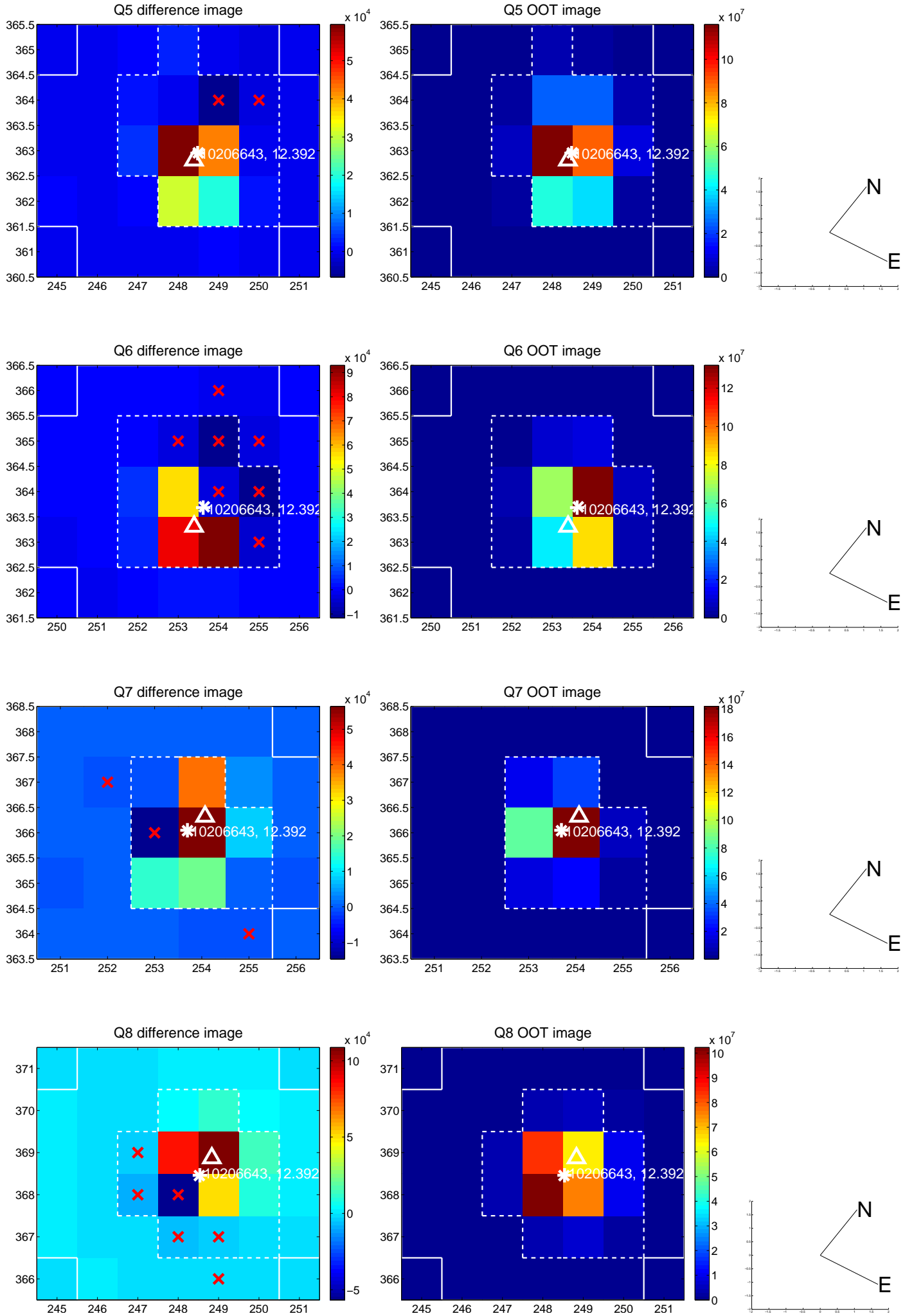


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

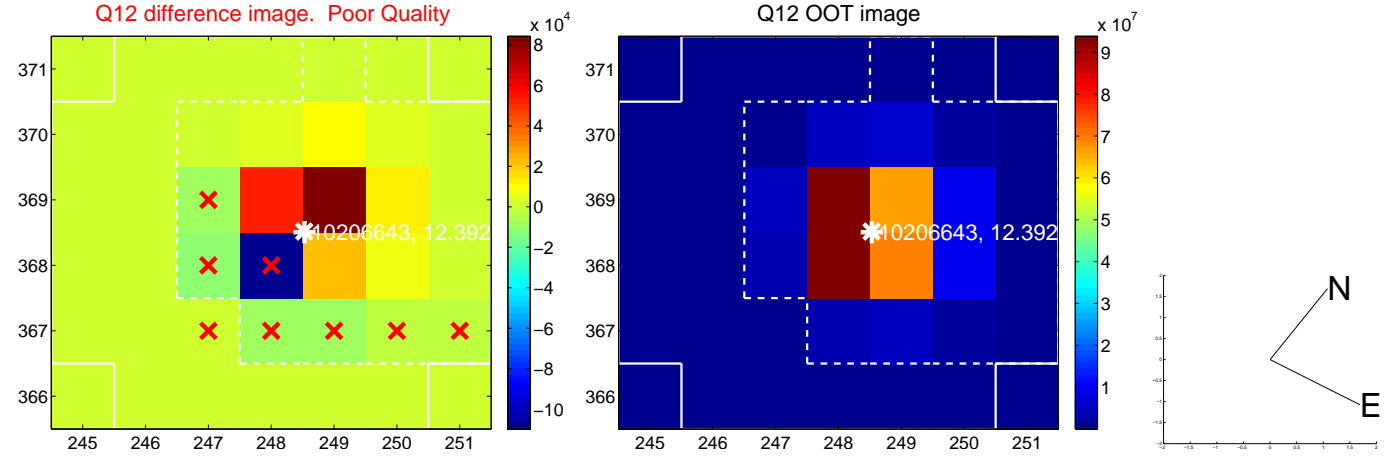
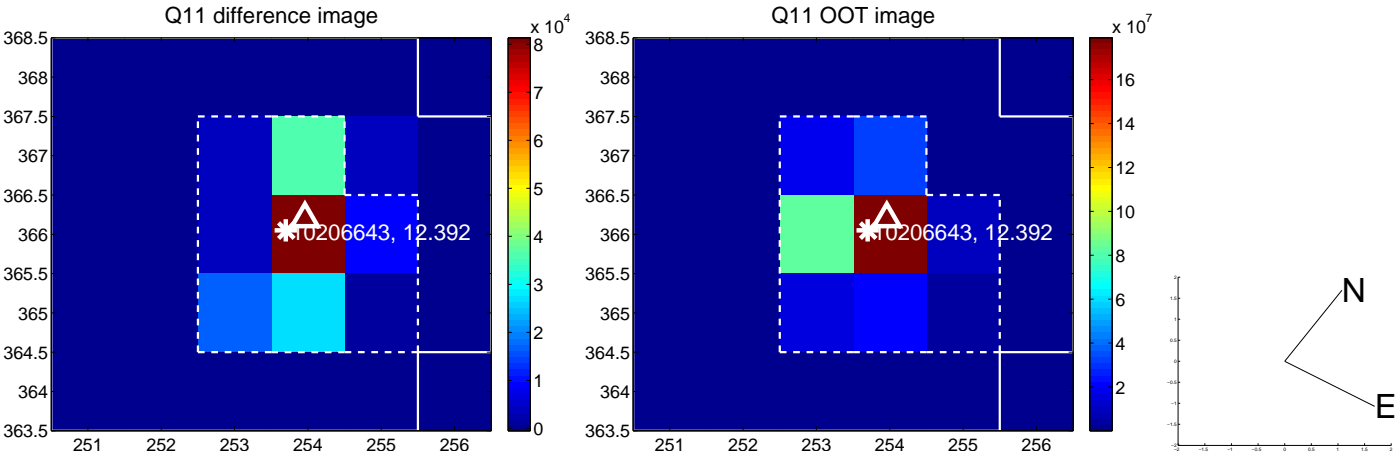
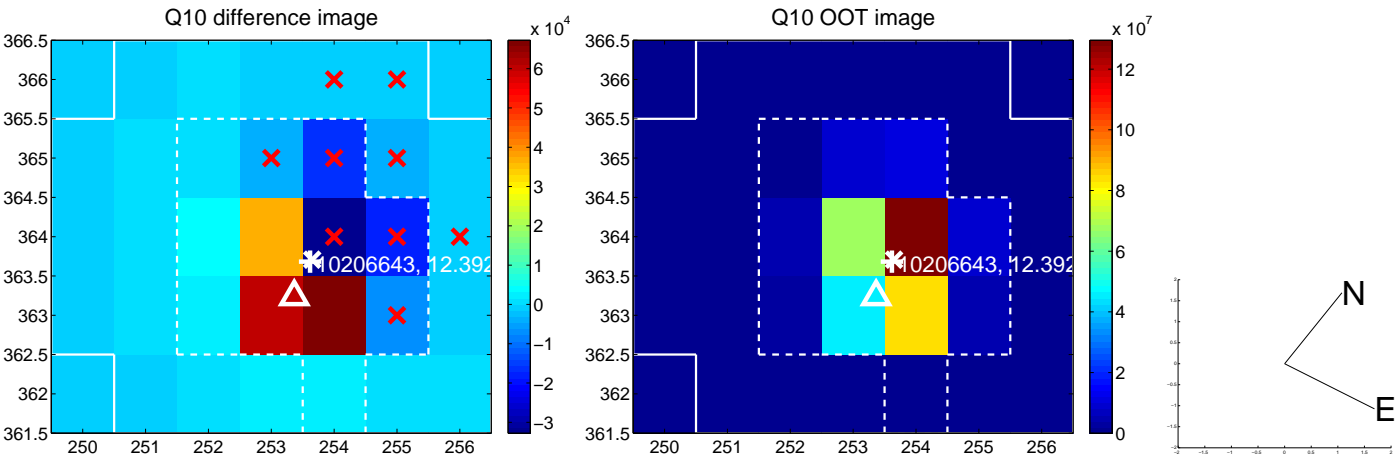
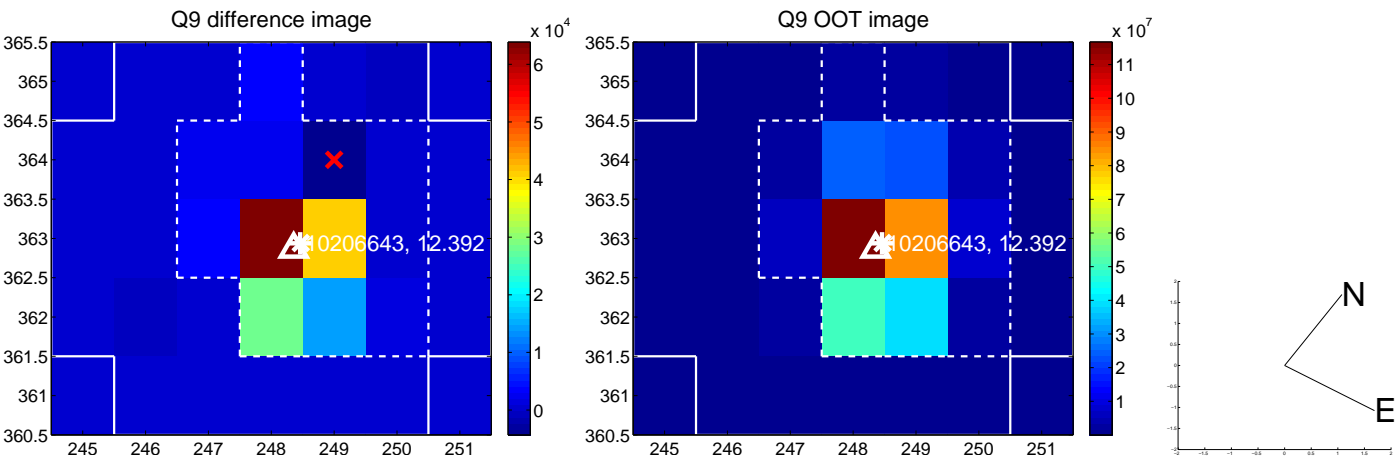
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



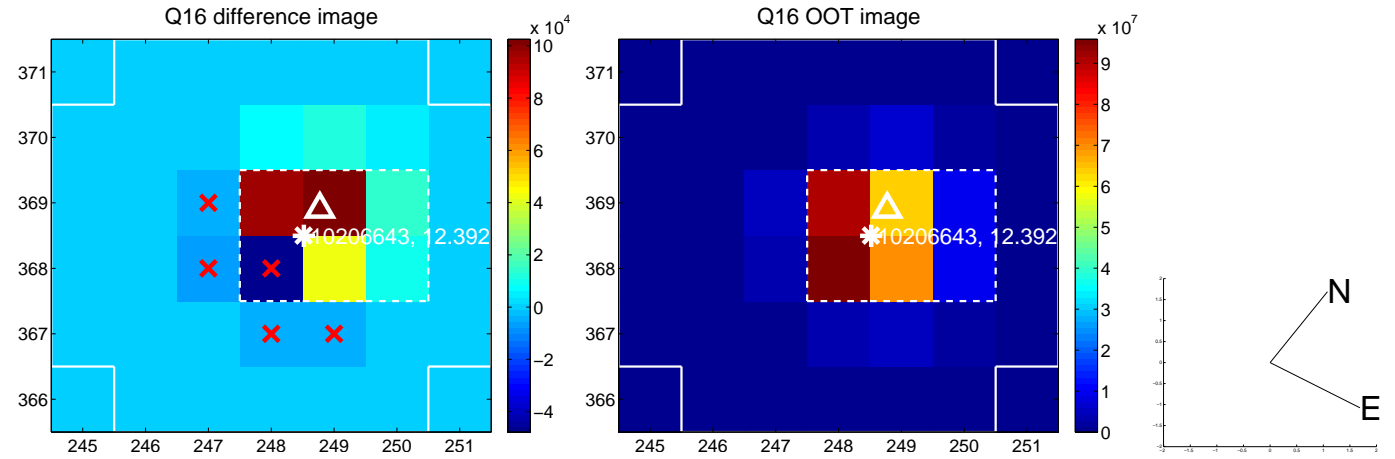
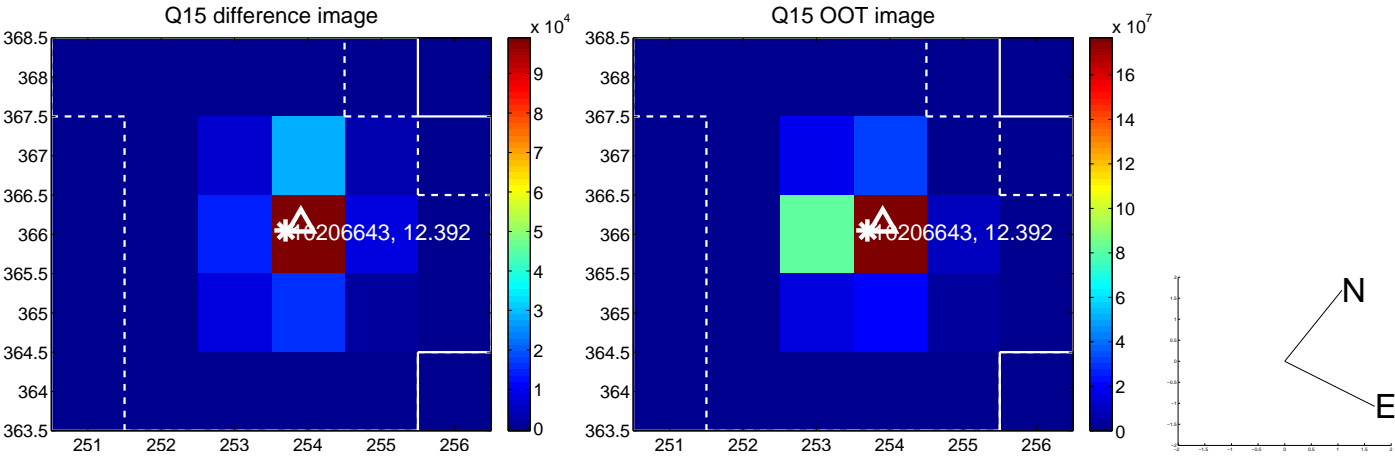
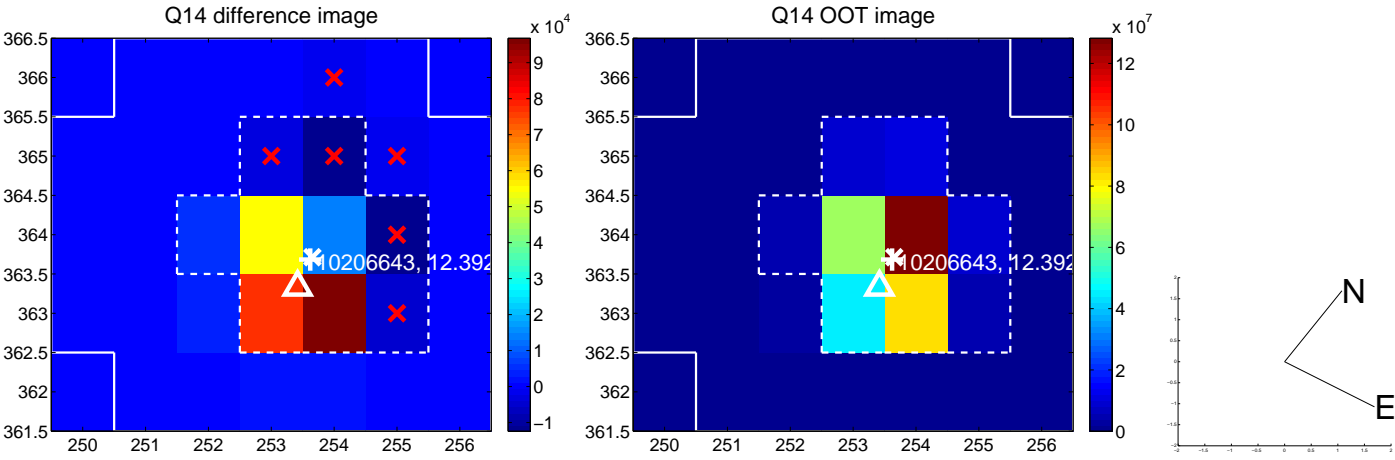
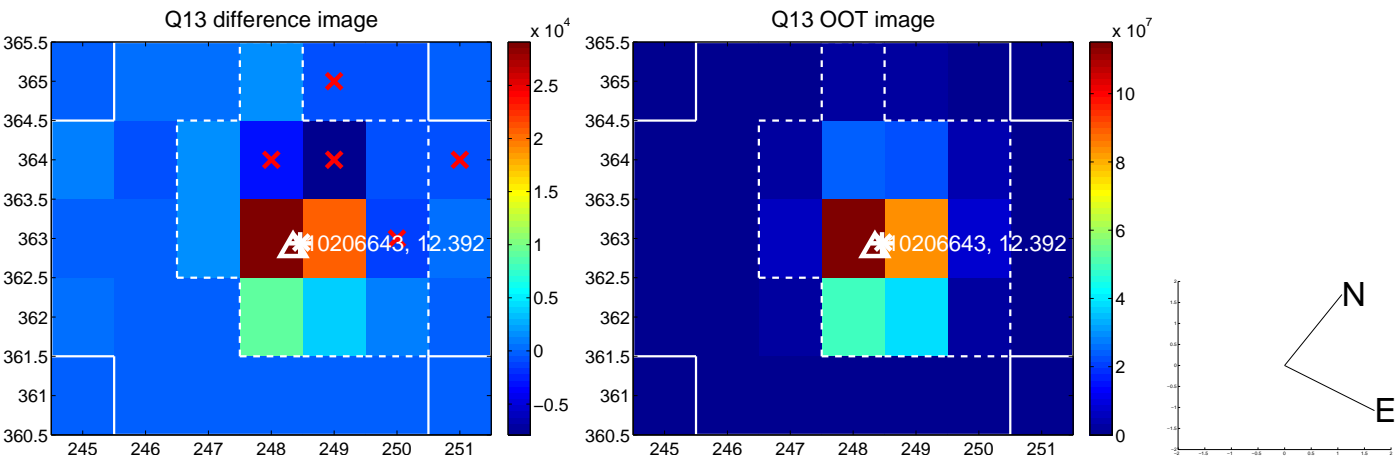
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



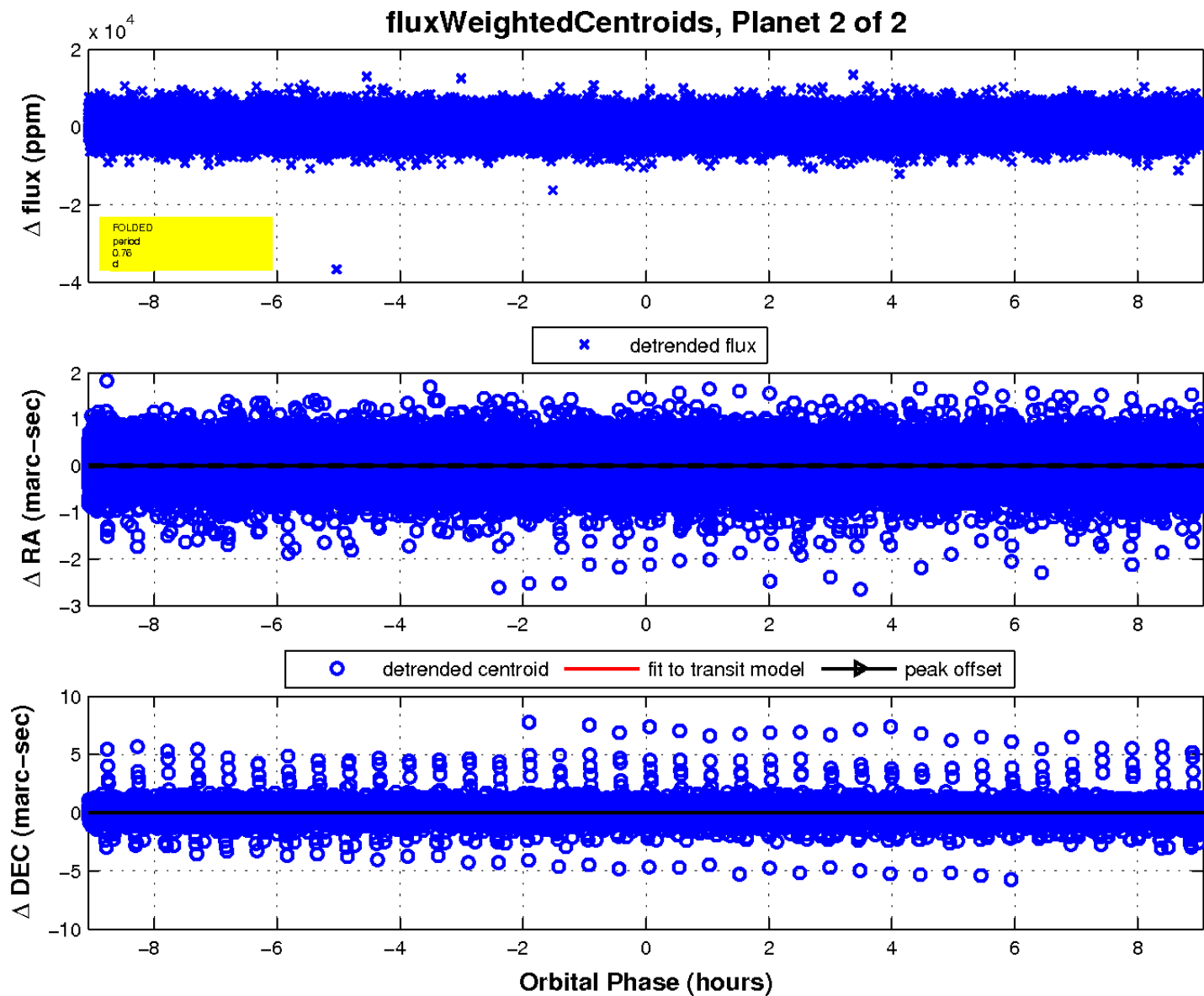
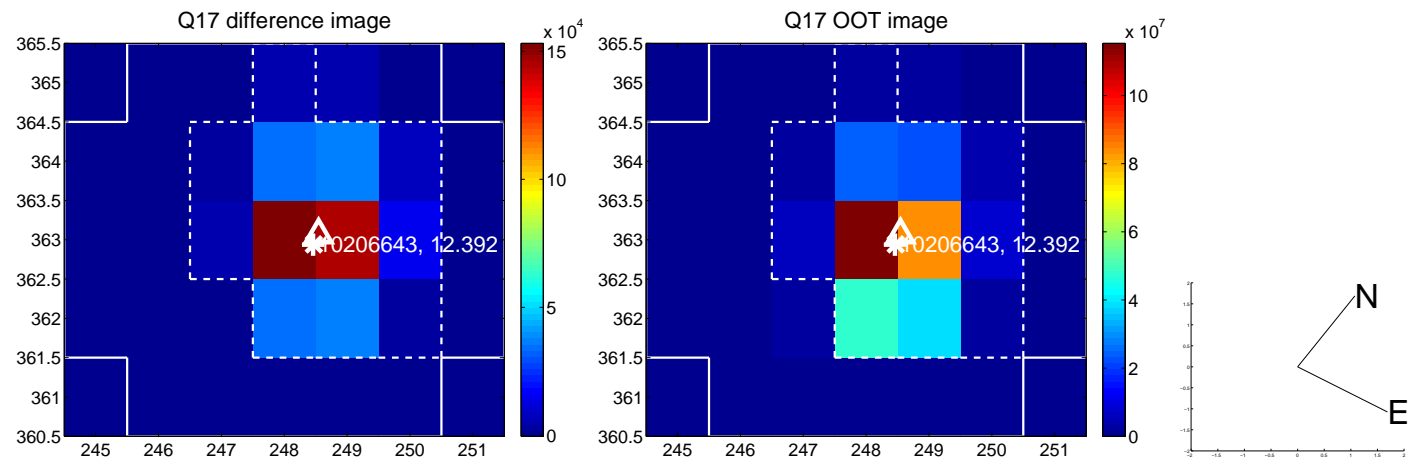
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

