

KIC 010090345

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})
010090345-01	OBS	No	1.199310	132.736989	13.9	6.134	10.6	9.3	2.34	7416	0.88	21840.65
010090345-02	OBS	No	43.307481	165.305318	148.3	1.582	7.8	8.7	2.34	7416	2.88	182.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010090345-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010090345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

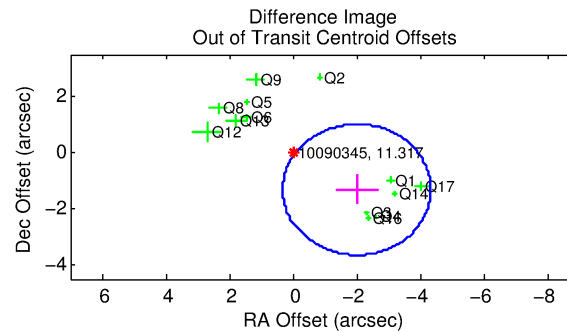
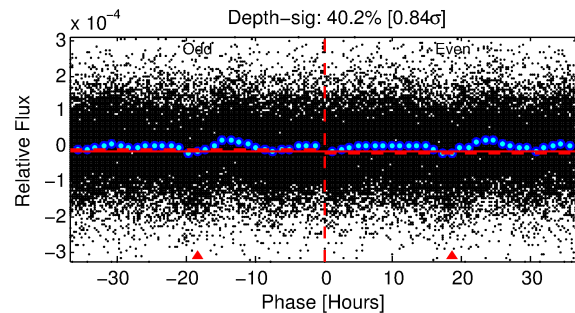
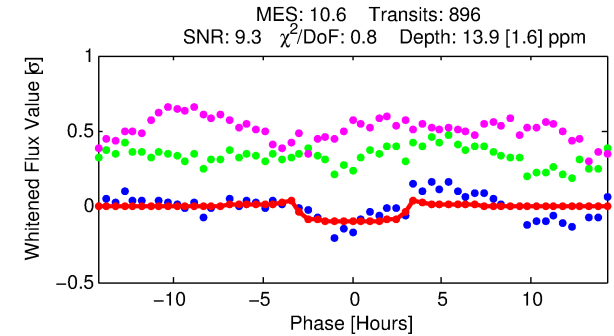
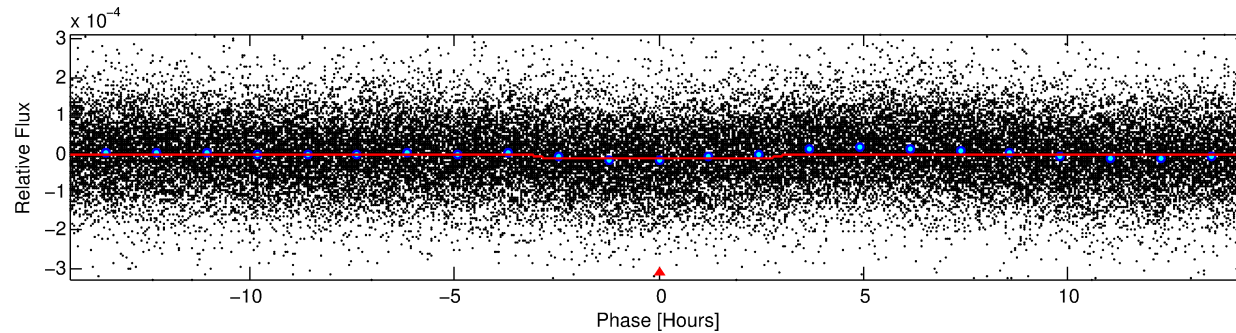
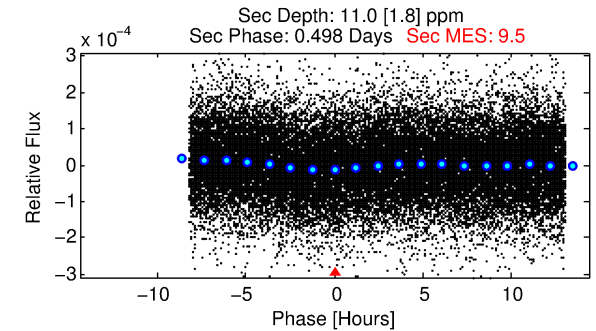
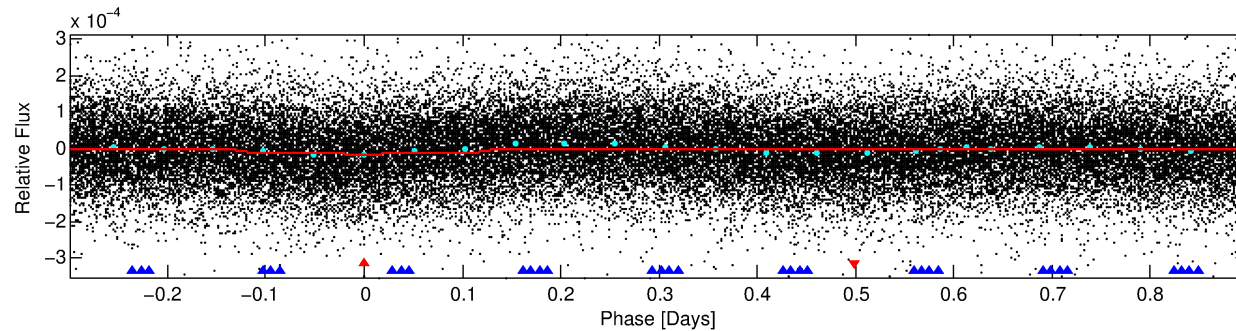
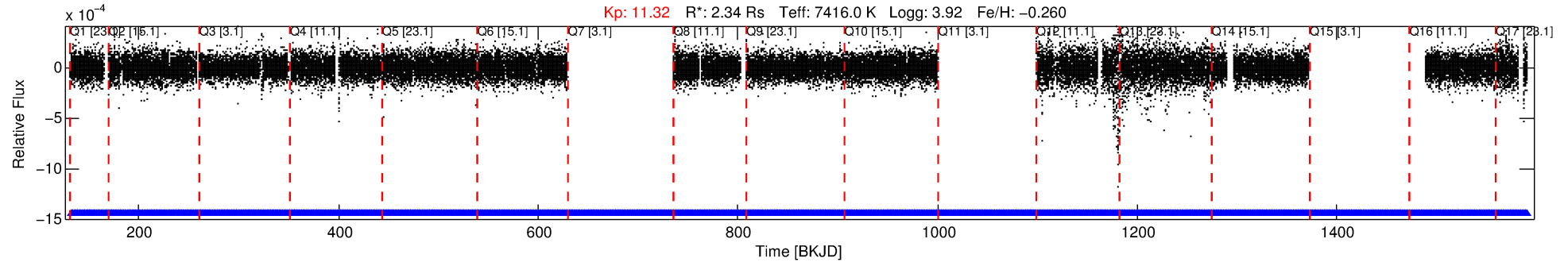
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010090345-01

No Significant Match Found

DV One-Page Summary

KIC: 10090345 Candidate: 1 of 2 Period: 1.199 d



DV Fit Results:

Period = 1.19931 [0.00002] d
Epoch = 132.7370 [0.0039] BKJD
Rp/R* = 0.0034 [0.0028]
a/R* = 1.62 [4.39]
b = 0.05 [90.58]
Seff = 21840.65 [12481.48]
Teq = 3100 [443] K
Rp = 0.88 [0.78] Re
a = 0.0261 [0.0092] AU
Ag = 5.32 [9.06] [0.48σ]
Teffp = 7278 [2951] K [1.40σ]

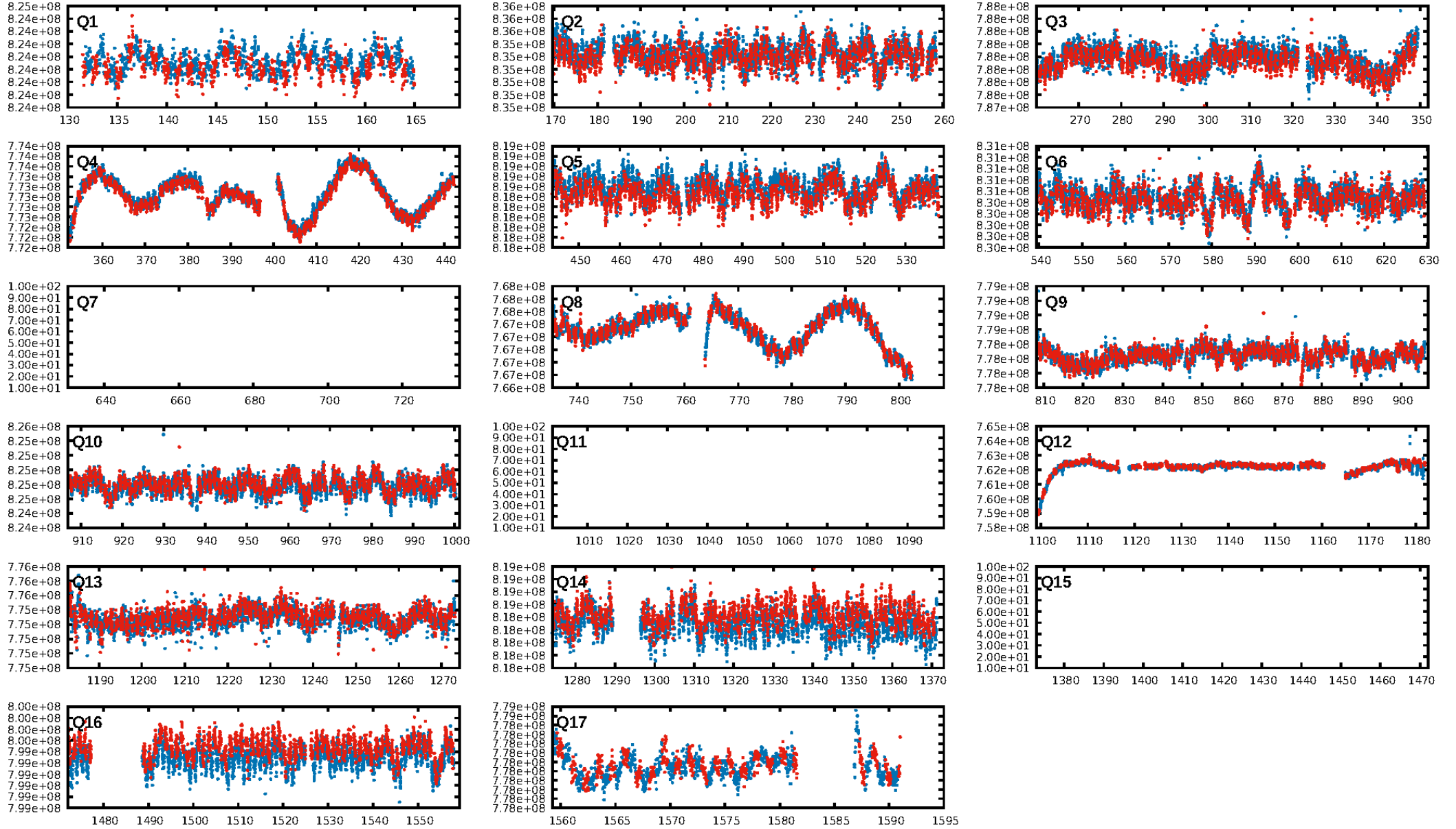
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [159.52σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.00e-15
RollingBand-fgt: 1.00 [844/844]
GhostDiagnostic-chr: 2.715
Centroid-sig: 0.0%
Centroid-so: 2.760 arcsec [4.13σ]
OotOffset-rm: 2.403 arcsec [3.10σ]
KicOffset-rm: 2.412 arcsec [3.15σ]
OotOffset-st: 3/1/4/5 [13]
KicOffset-st: 3/1/4/5 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 1.00 [14/14]

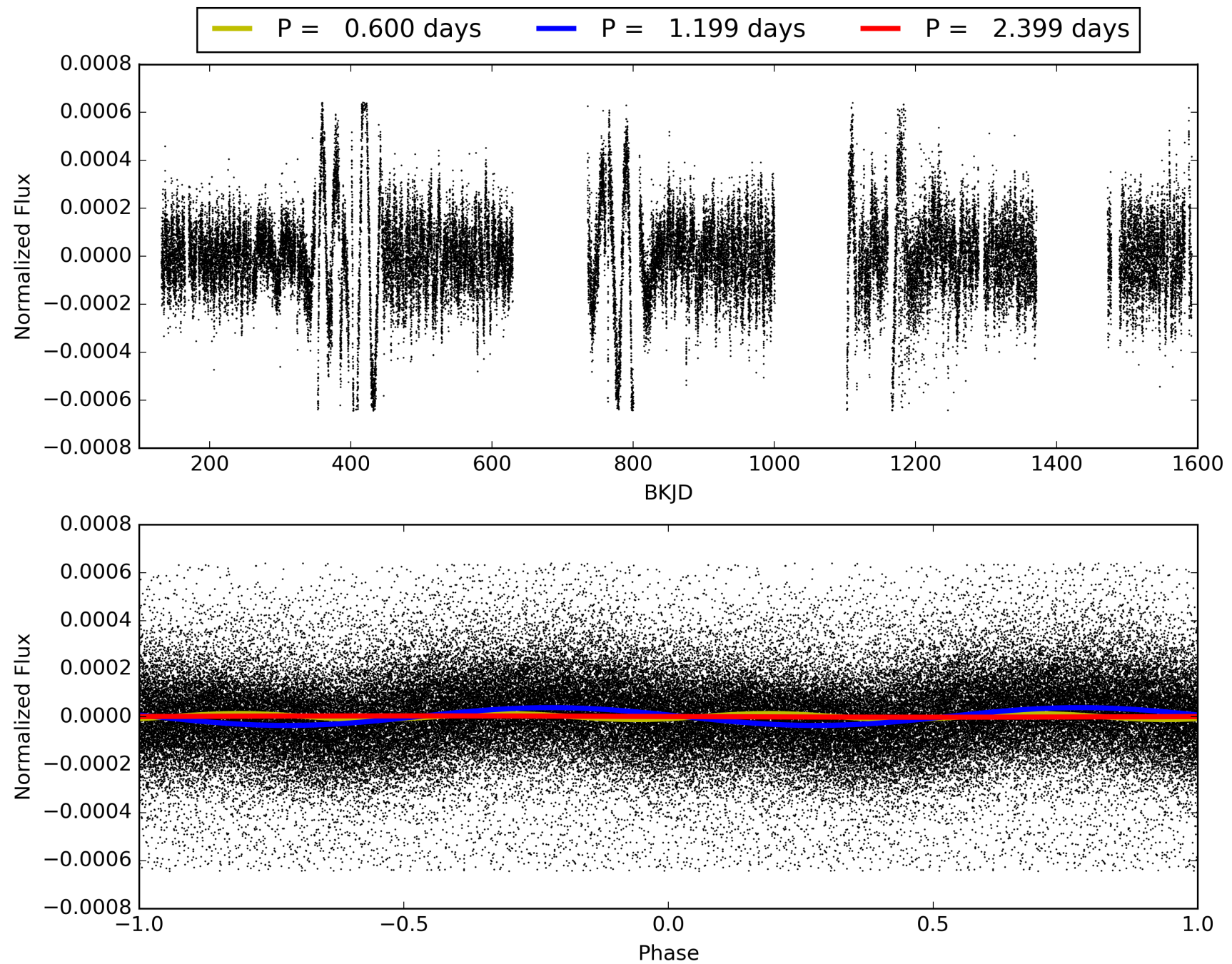
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010090345-01, PDC Light Curves

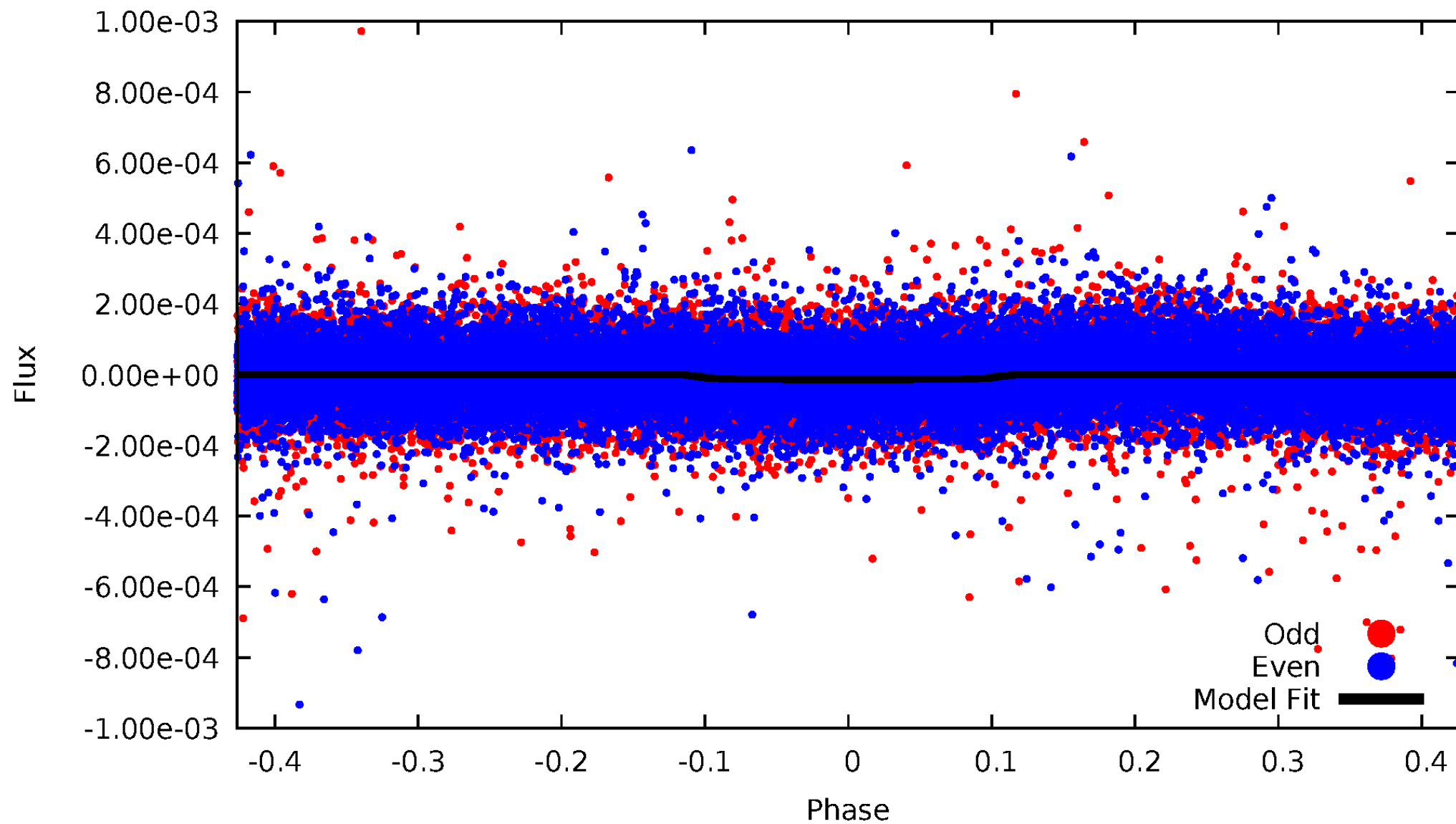


TCE 010090345-01



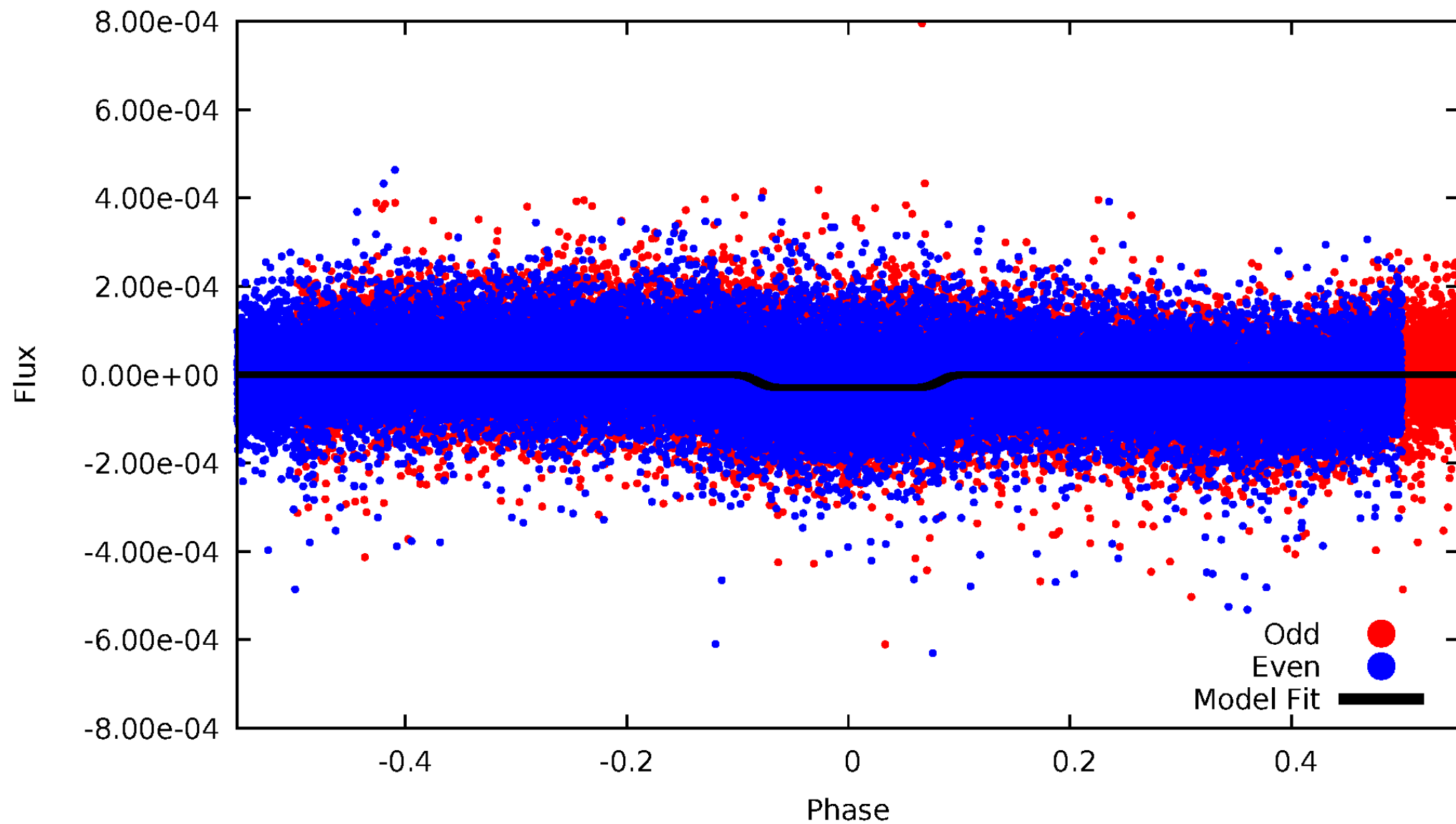
DV Odd/Even

TCE 010090345-01



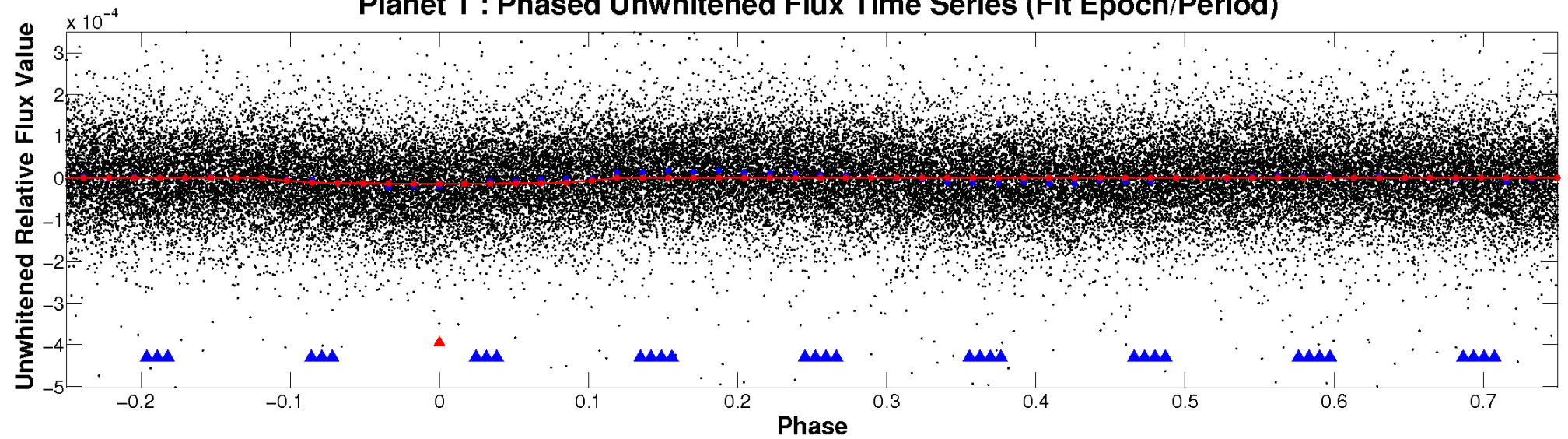
ALT Odd/Even

TCE 010090345-01

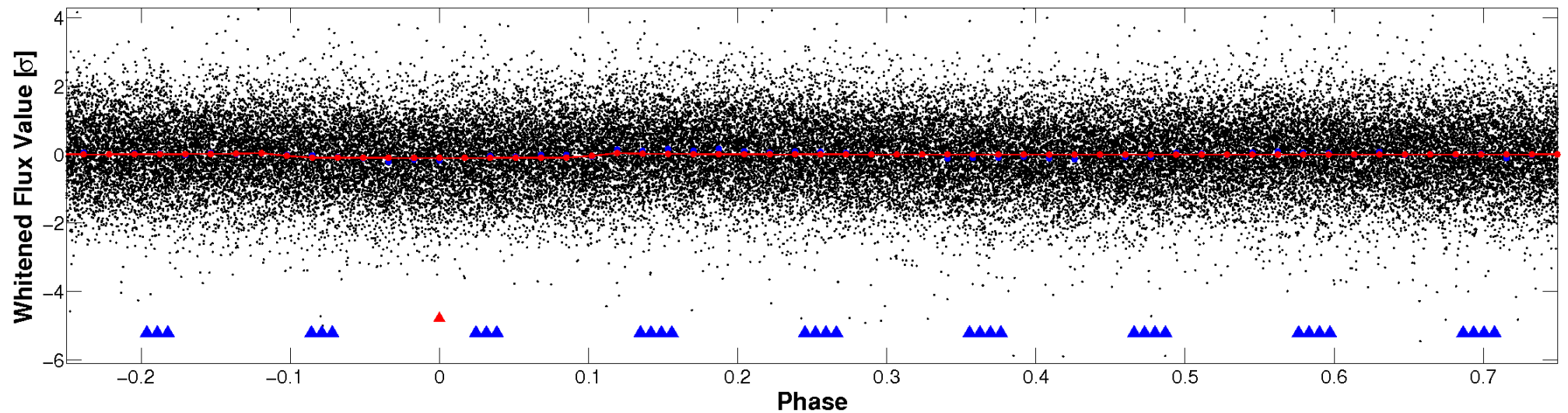


Non-Whitened Vs. Whitened Light Curve

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

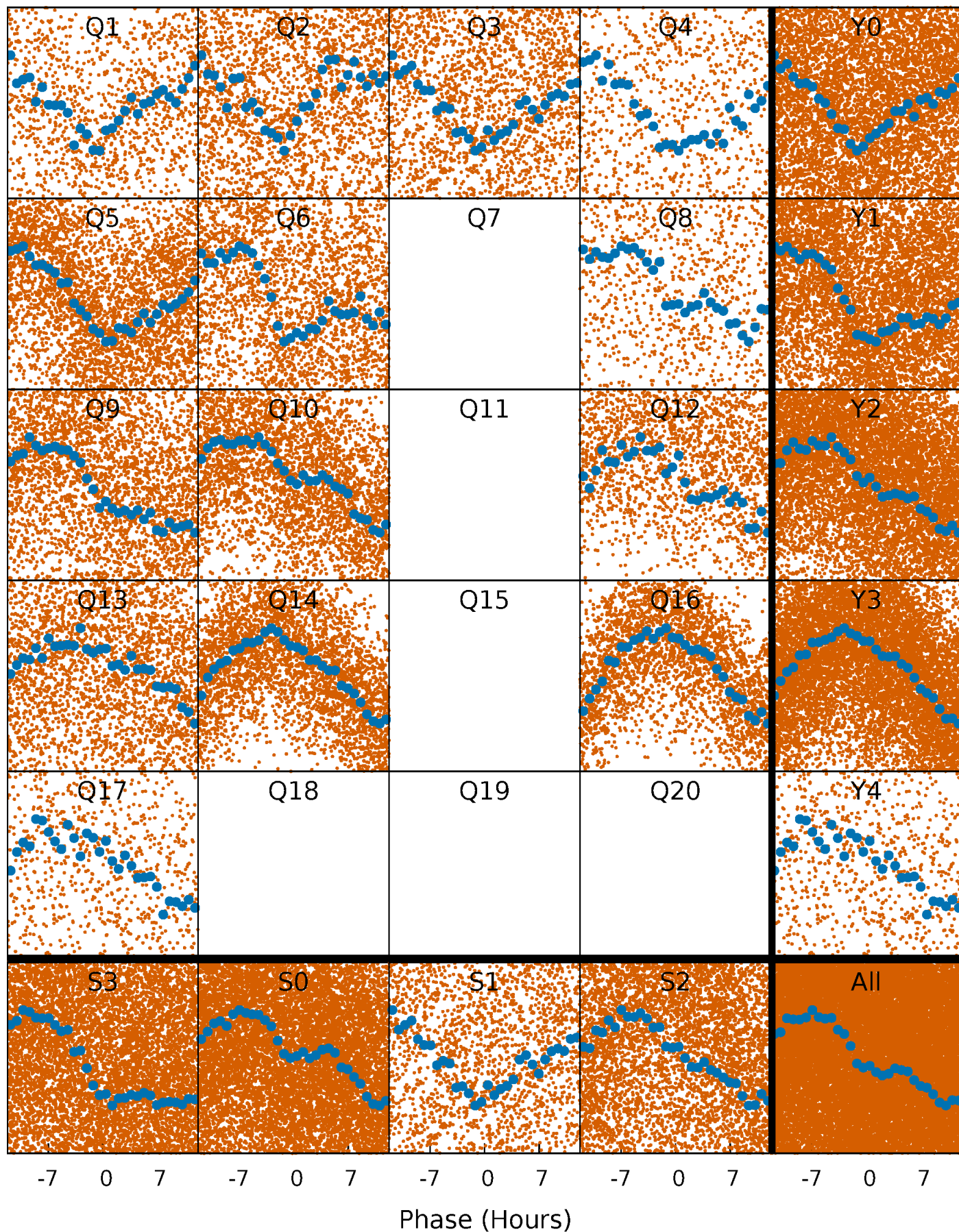


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



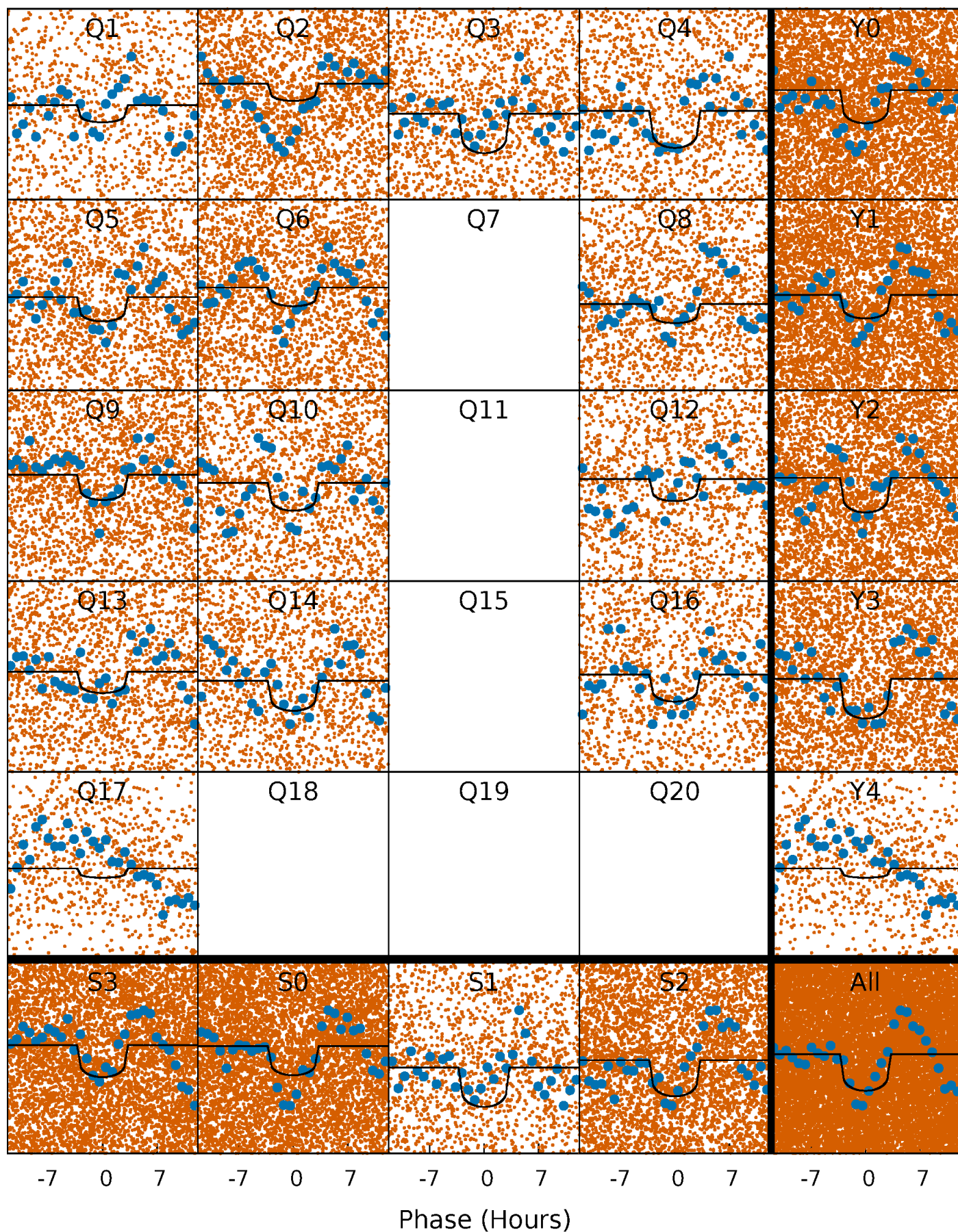
PDC Quarter-Phased Transit Curves

TCE 010090345-01 P= 1.199310 Days $T_0=132.736989$ (BKJD)



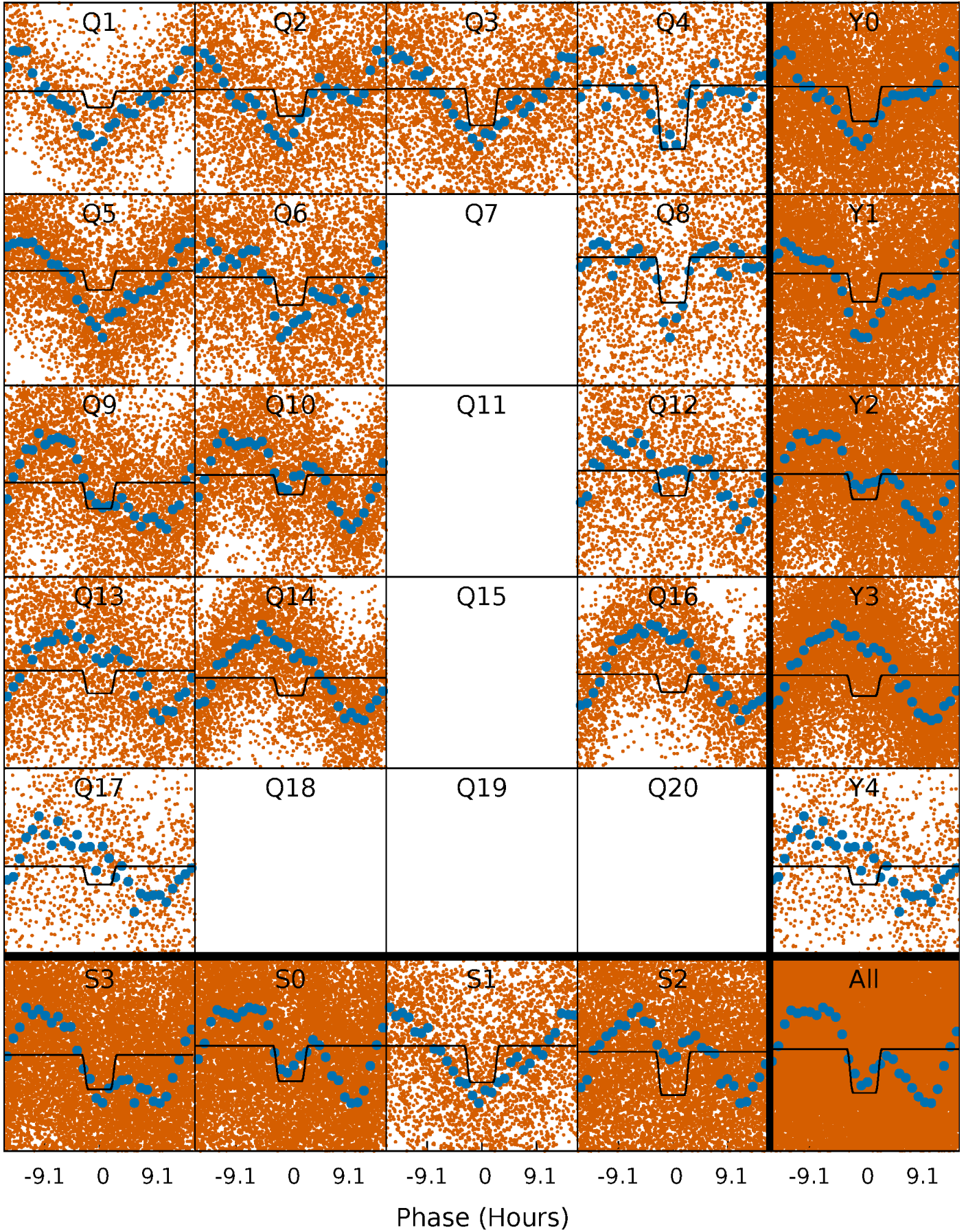
DV Quarter-Phased Transit Curves

TCE 010090345-01 P= 1.199310 Days $T_0=132.736989$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

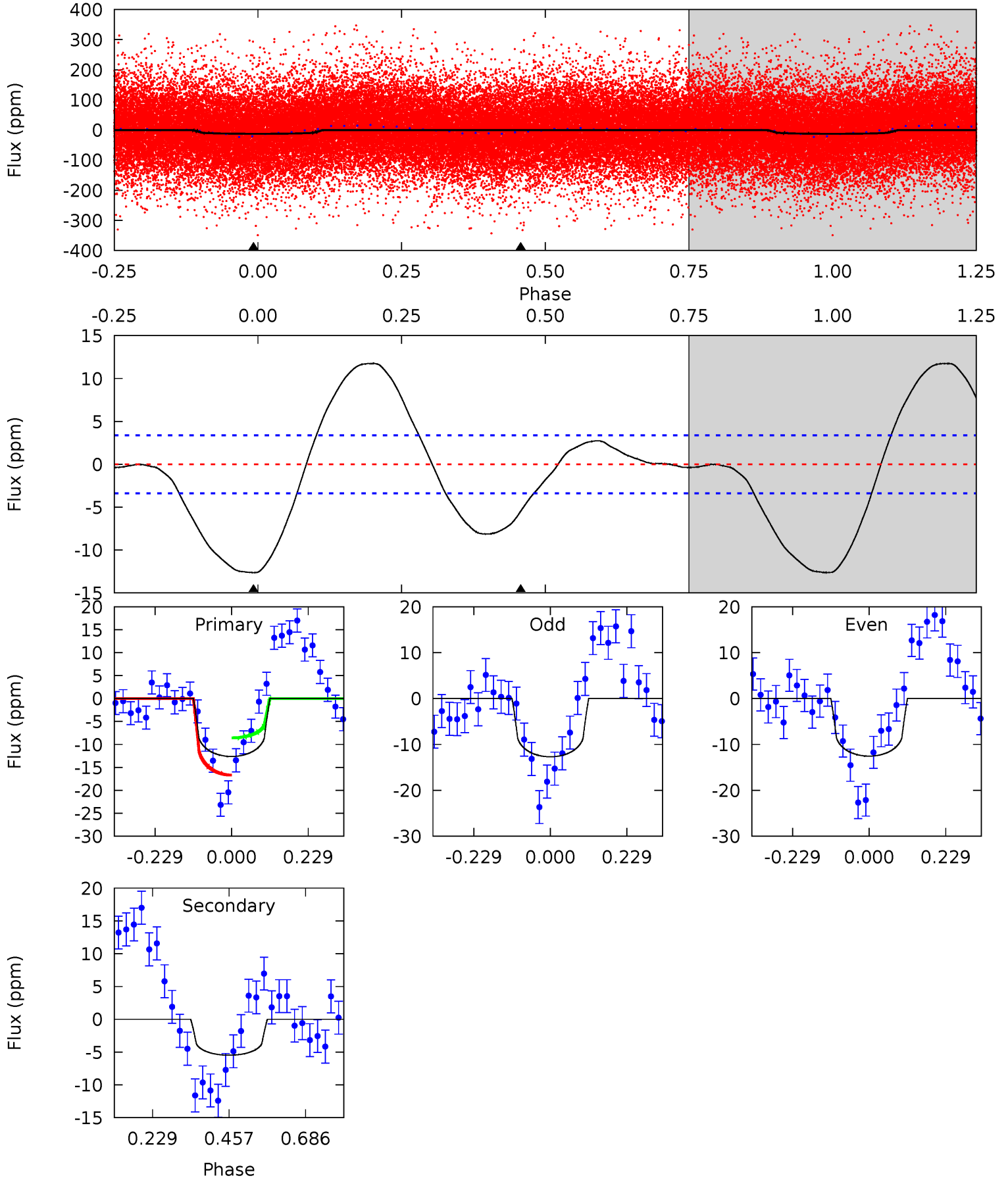
TCE 010090345-01 P= 1.199401 Days $T_0=132.715347$ (BKJD)



DV Model-Shift Uniqueness Test

010090345-01, P = 1.199310 Days, E = 130.338369 Days

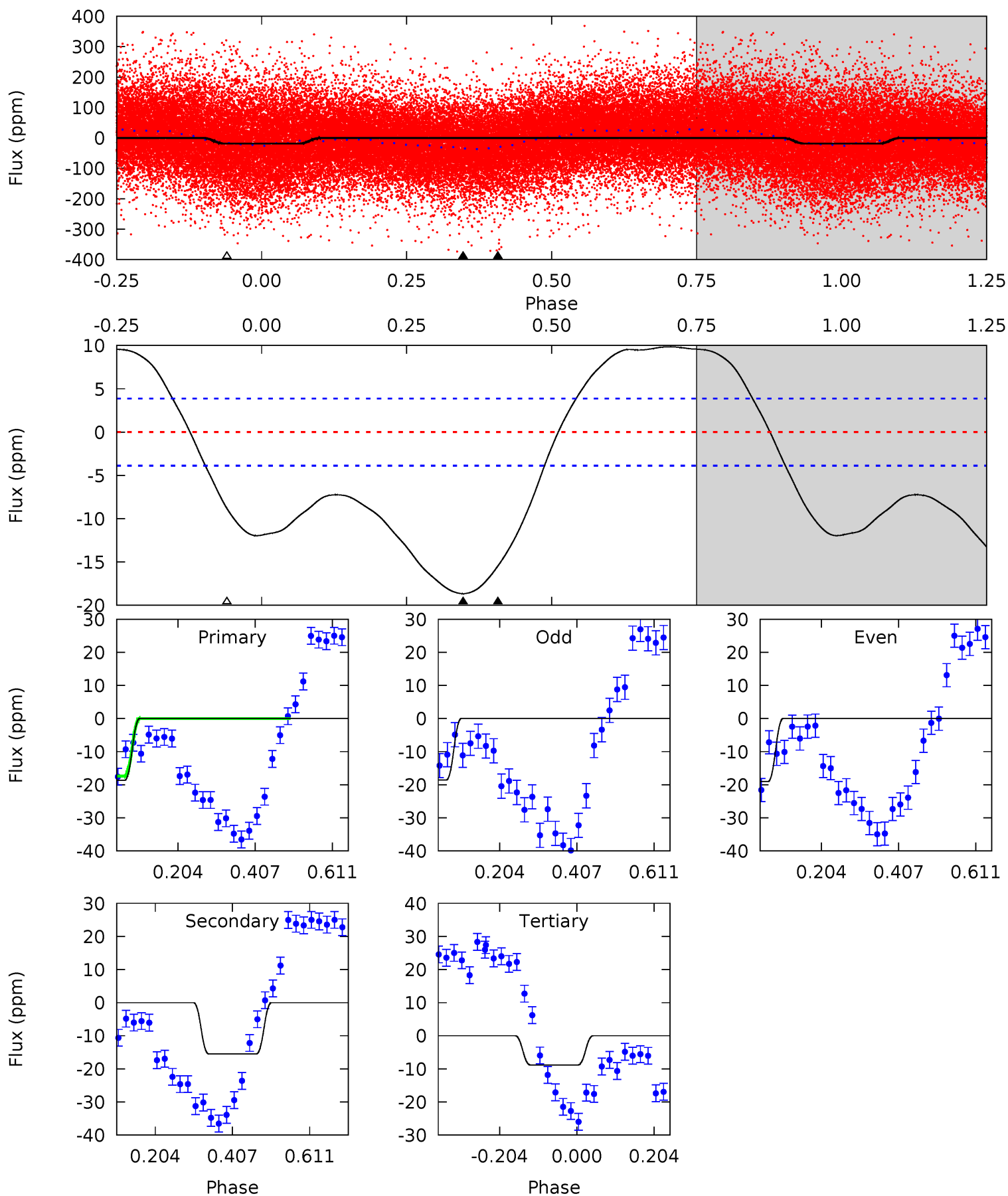
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	7.12	0	0	4.39	1.20	5.15	16.4	16.4	7.12	7.12	0.10	0.87	0.48	5.29



Alt Model-Shift Uniqueness Test

010090345-01, P = 1.199401 Days, E = 130.316545 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.3	17.6	10.0	0	4.41	1.27	10.1	11.2	21.3	7.59	17.6	0.28	0.82	0.35	1.73



Stellar Parameters For KIC 010090345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7416^{+232}_{-310}	$3.915^{+0.315}_{-0.135}$	$-0.260^{+0.250}_{-0.350}$	$2.341^{+0.481}_{-0.894}$	$1.642^{+0.164}_{-0.383}$	$0.180^{+0.397}_{-0.070}$
	+3%/-4%	+8%/-3%	+96%/-135%	+21%/-38%	+10%/-23%	+220%/-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 010090345-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-5 ± 1	$0.89^{+0.70}_{-0.50}$	4253^{+328}_{-409}	5529^{+3802}_{-1369}	$2.531^{+10.737}_{-1.749}$
Alt.	-15 ± 1	$1.29^{+0.74}_{-0.63}$	4286^{+296}_{-388}	6114^{+3028}_{-1206}	$3.336^{+10.058}_{-1.930}$

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 $A_{obs} \gg 1.0$

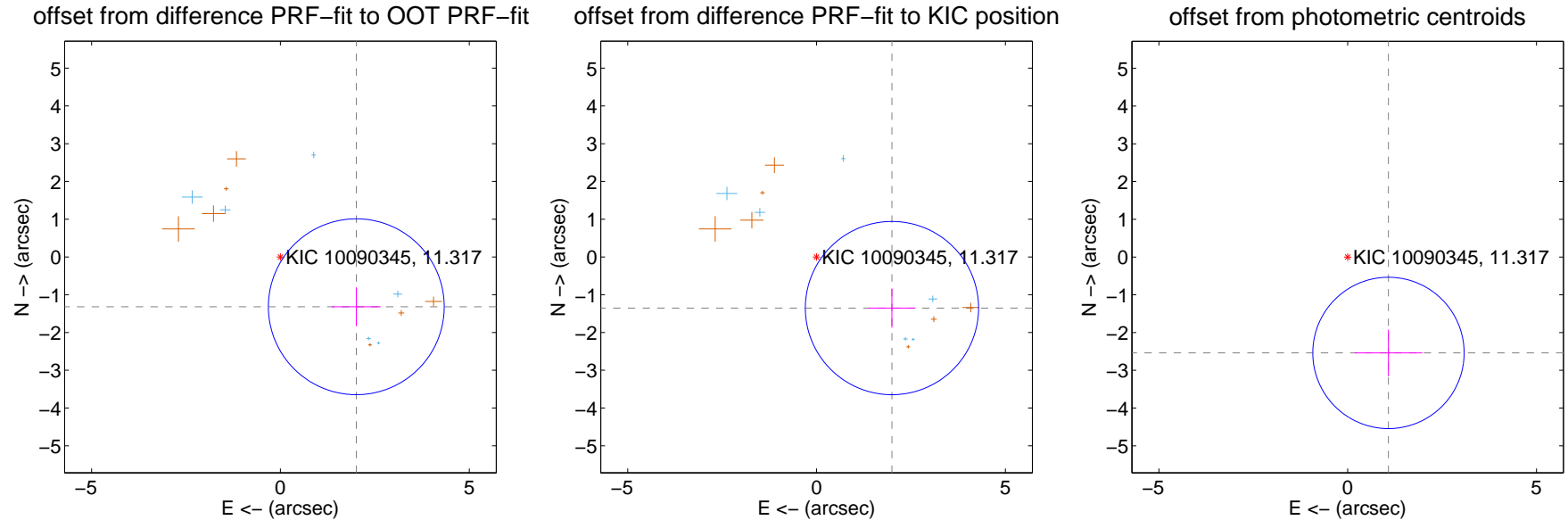
DV Centroid Data

Supplemental centroid analysis for 010090345-01. **Kepler magnitude: 11.32.** Transit SNR 9.29

There are 6 quarters with good PRF difference image offsets

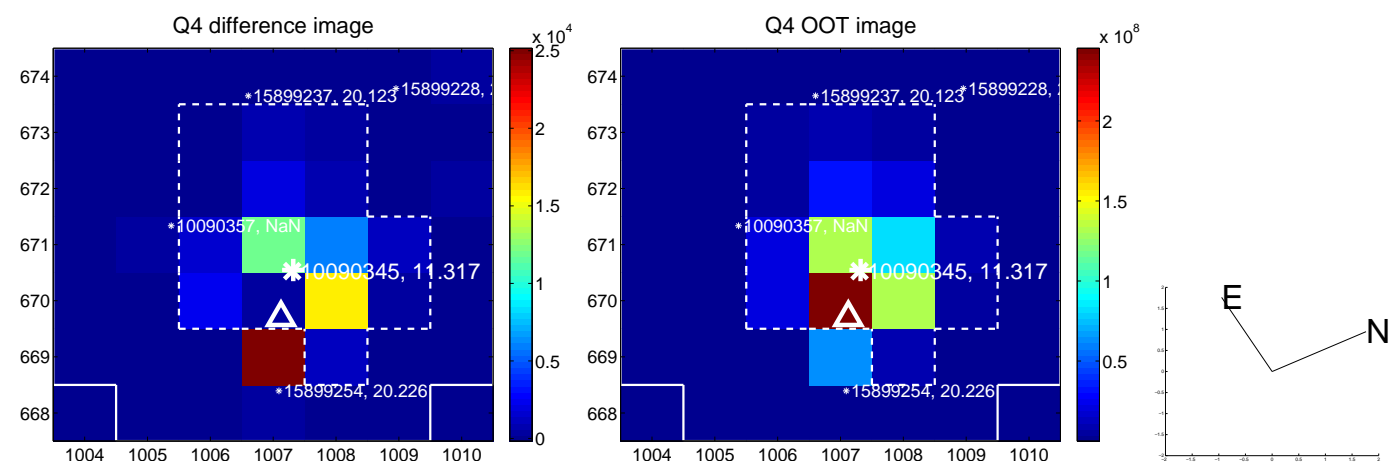
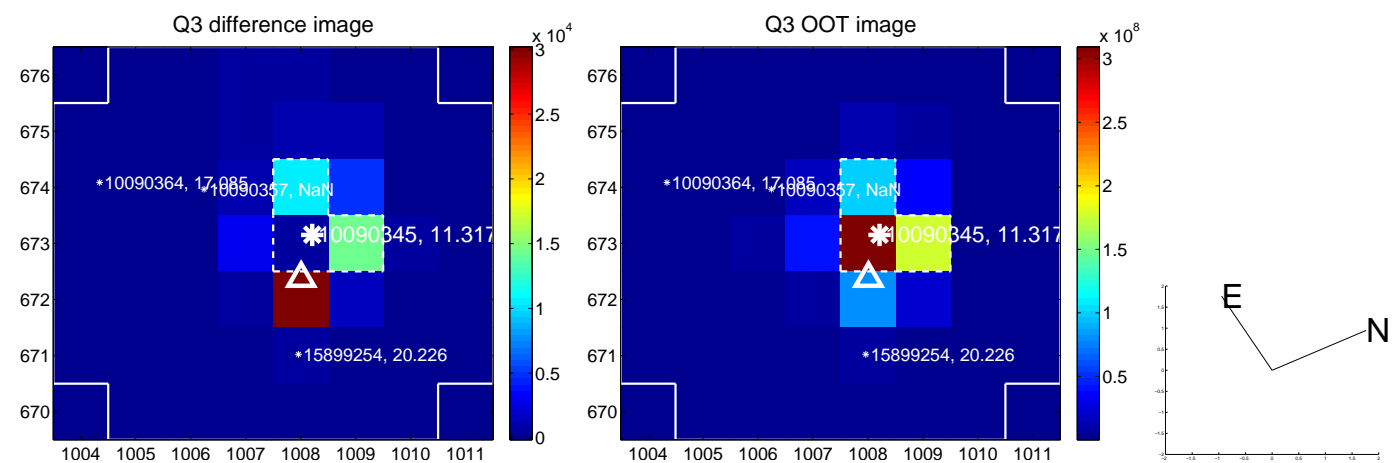
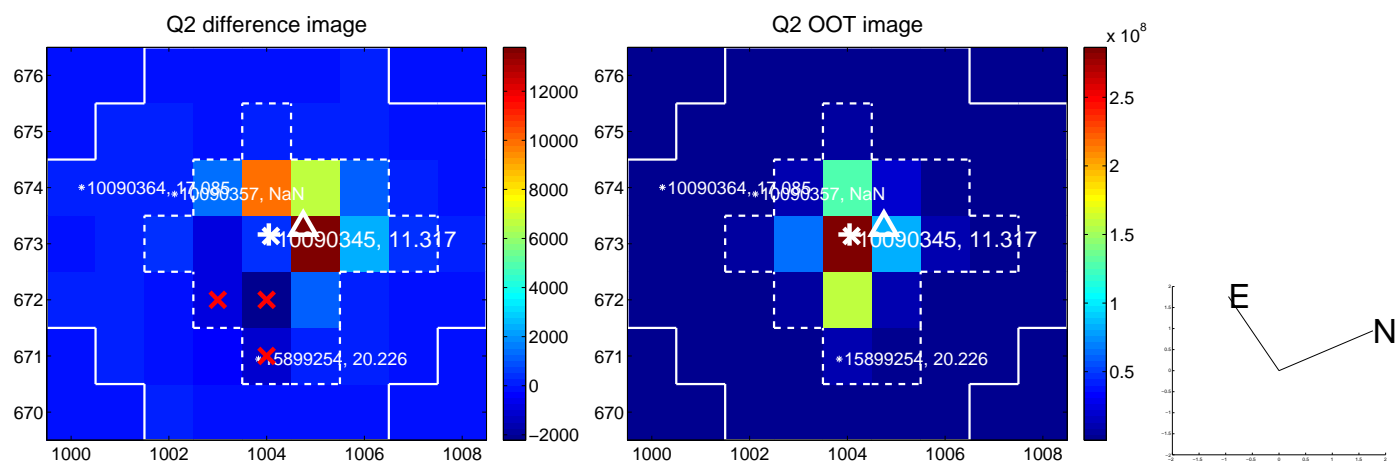
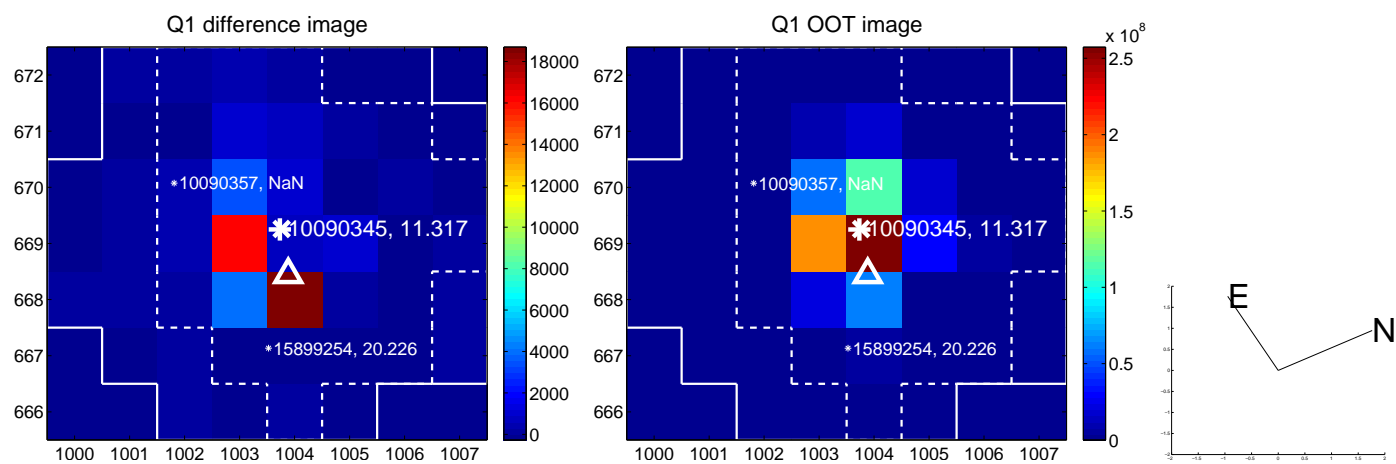
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.403 ± 0.776	3.10	-2.009 ± 0.650	-1.318 ± 0.512
PRF-fit source offset from KIC position	2.412 ± 0.765	3.15	-1.996 ± 0.622	-1.354 ± 0.520
photometric centroid source offset	2.76 ± 0.67	4.13	-1.08 ± 0.90	-2.54 ± 0.62

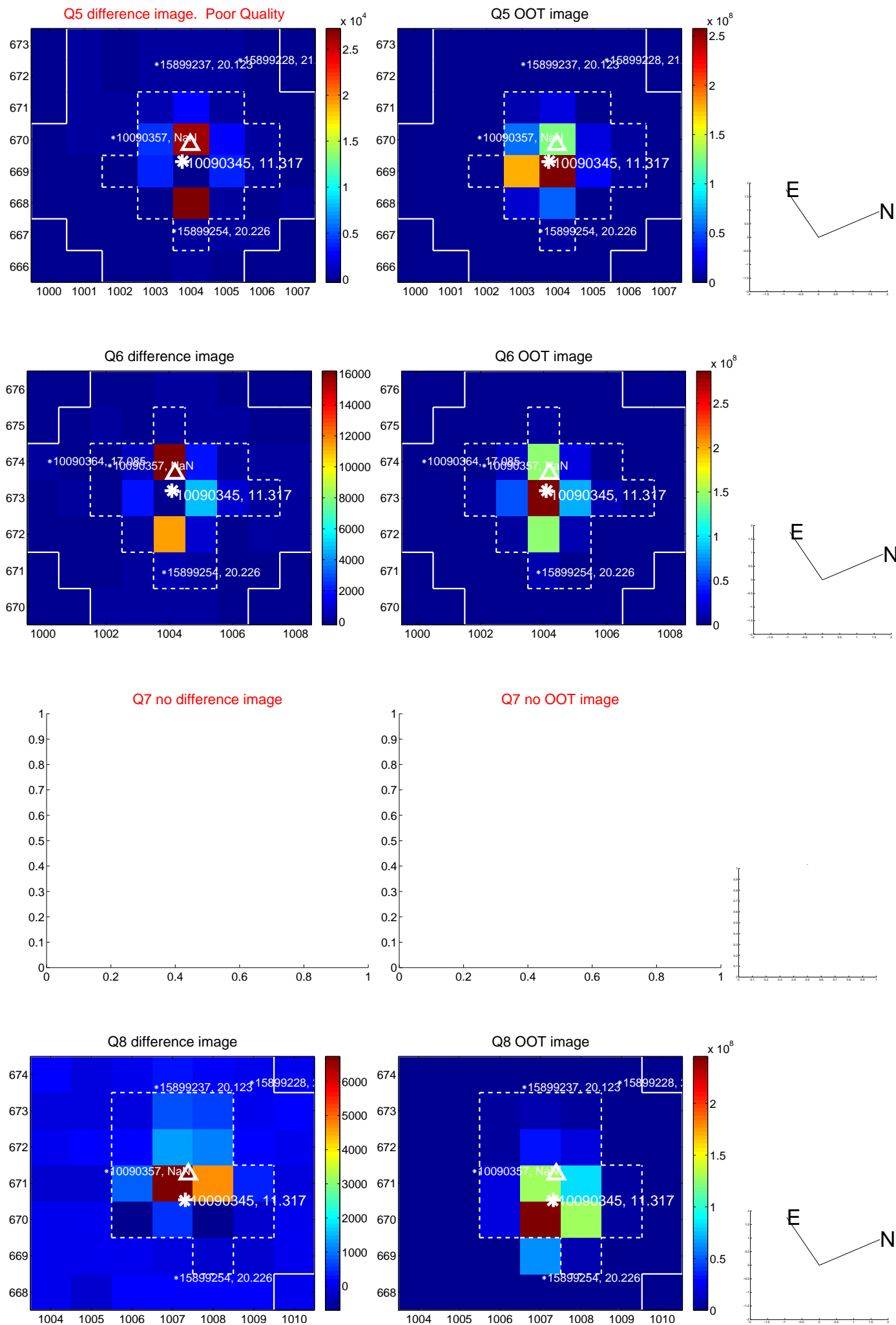


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

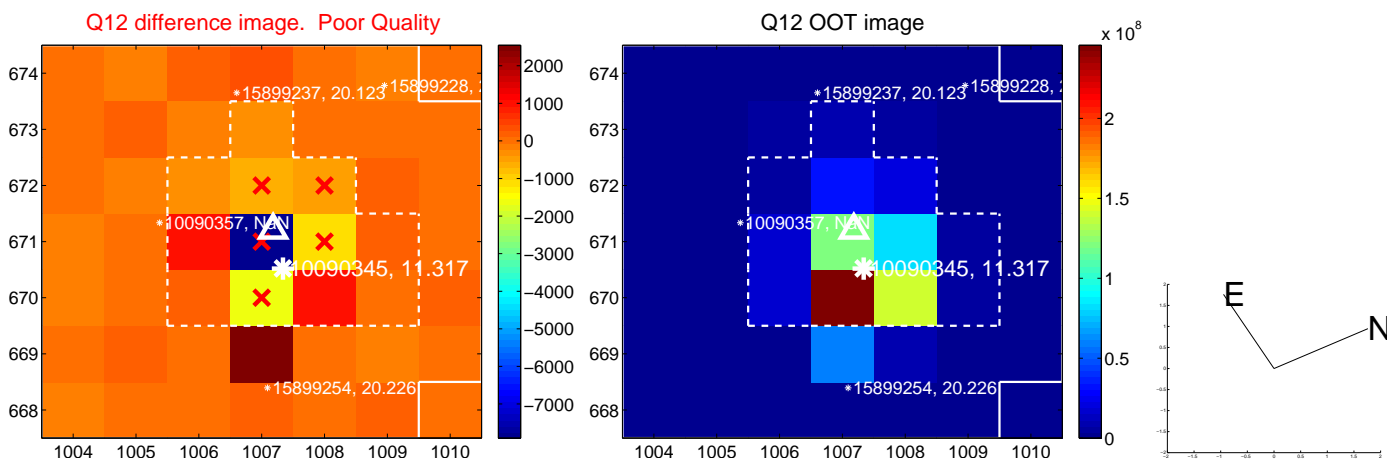
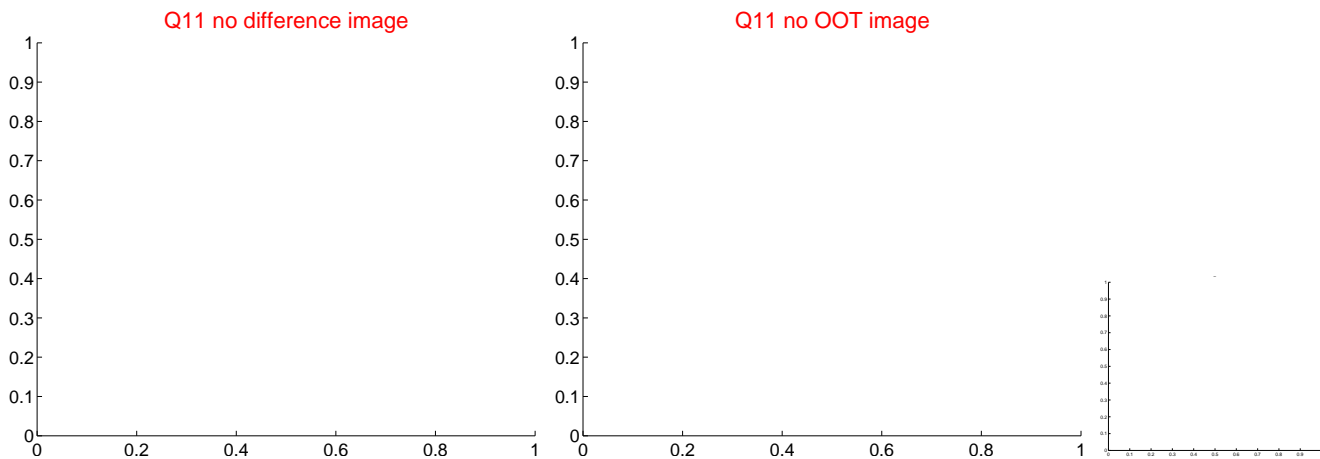
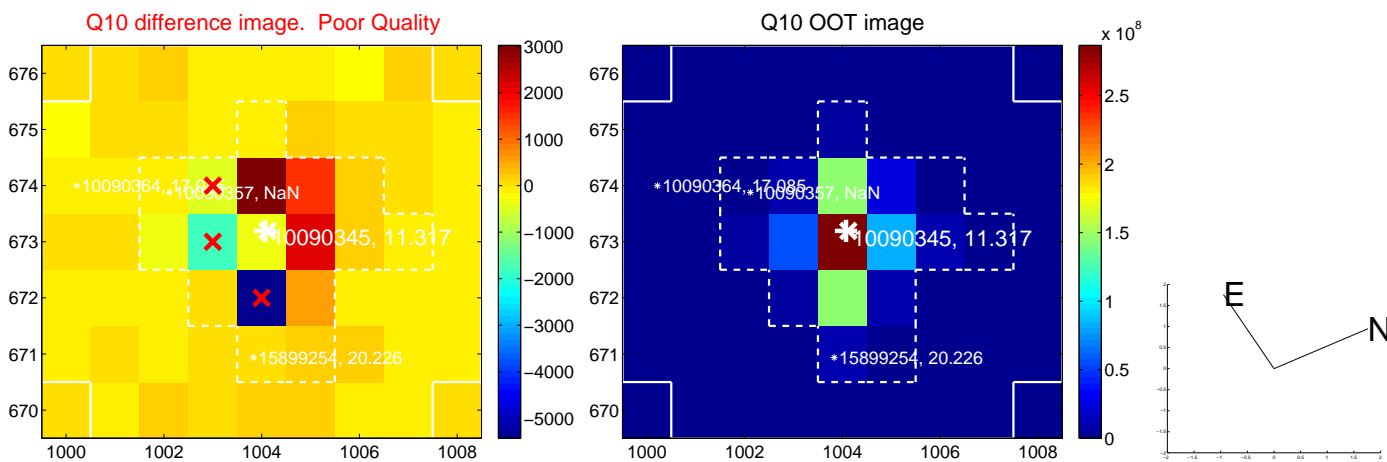
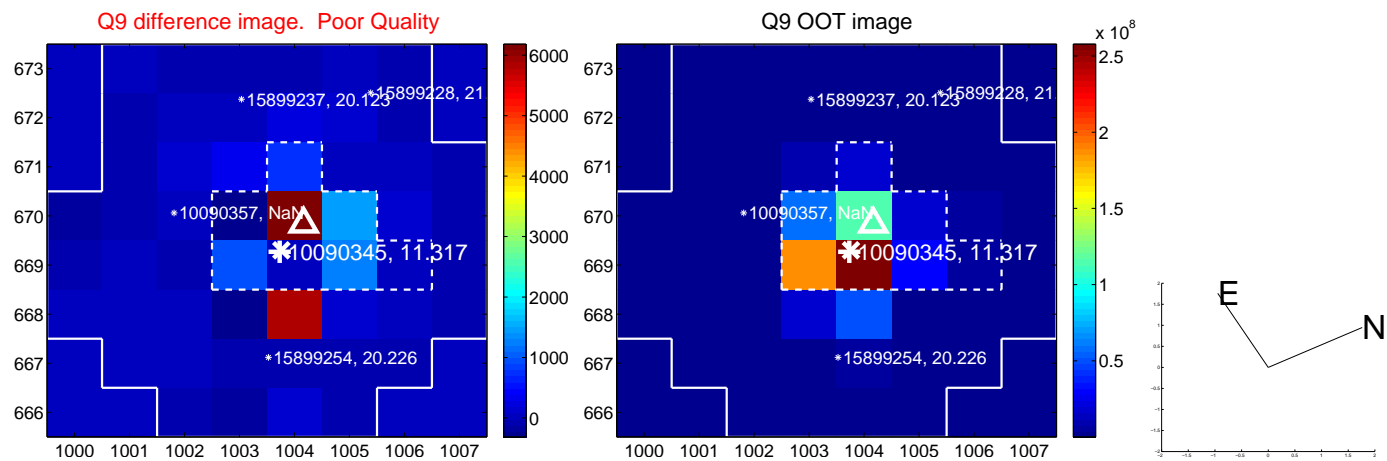
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



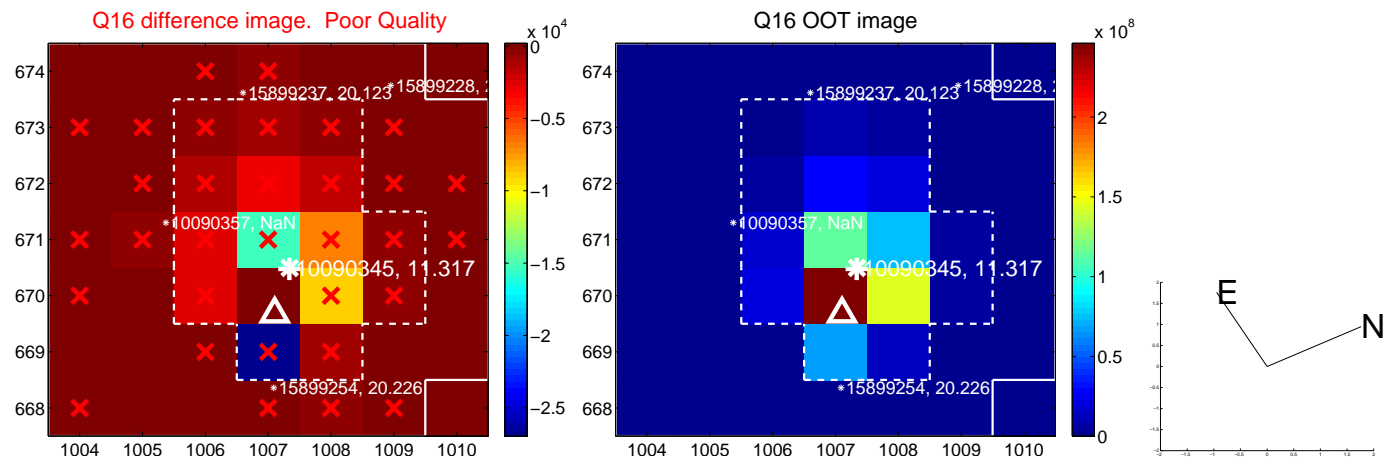
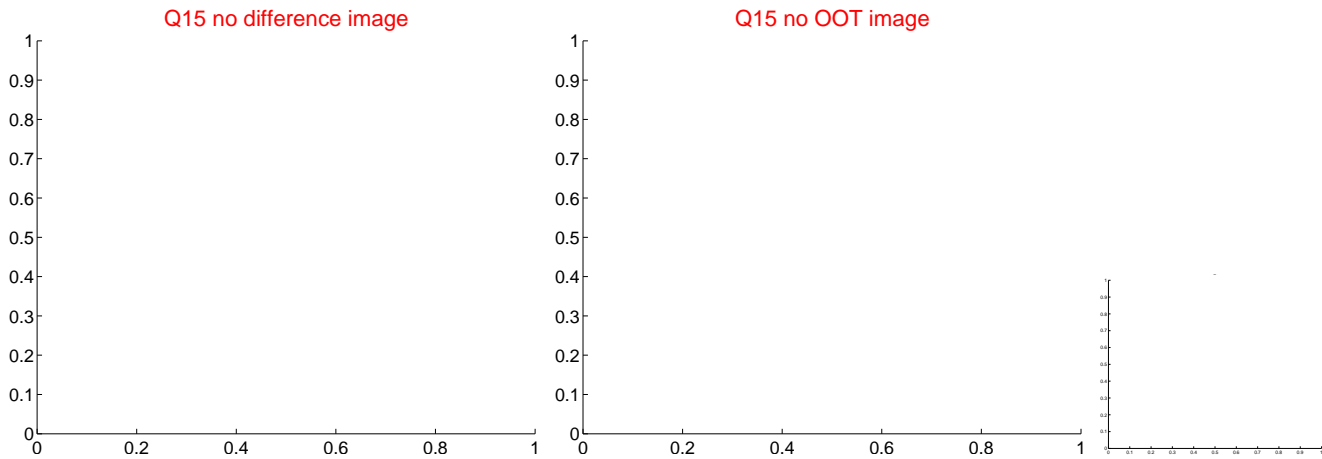
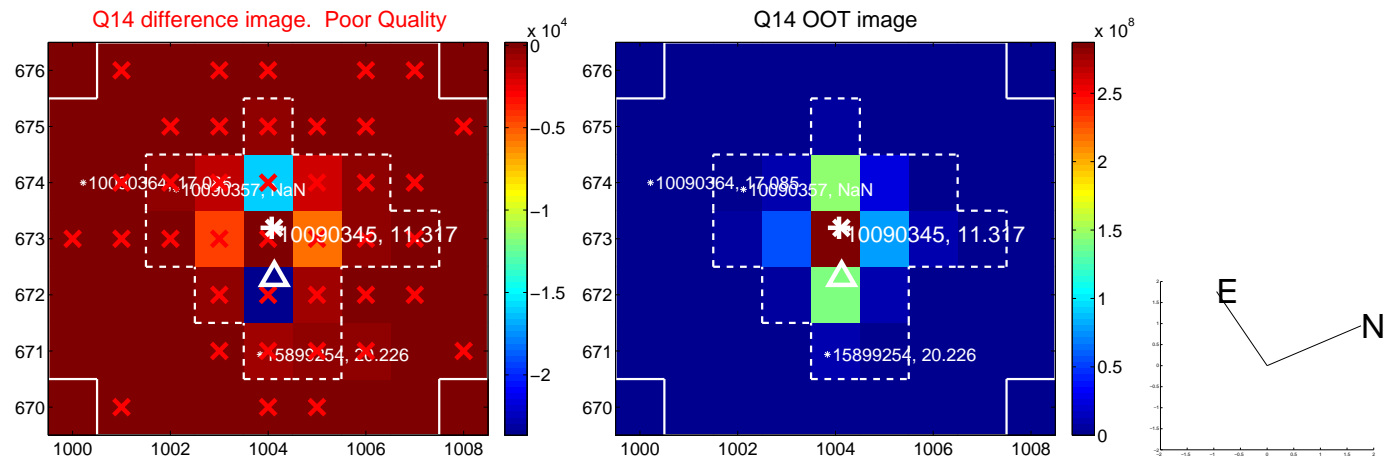
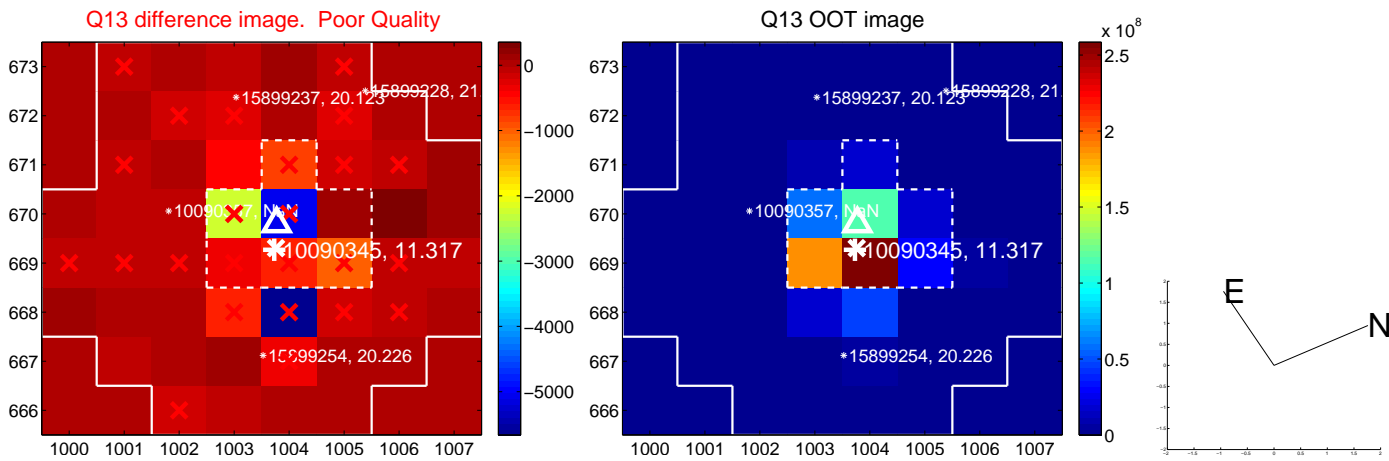
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



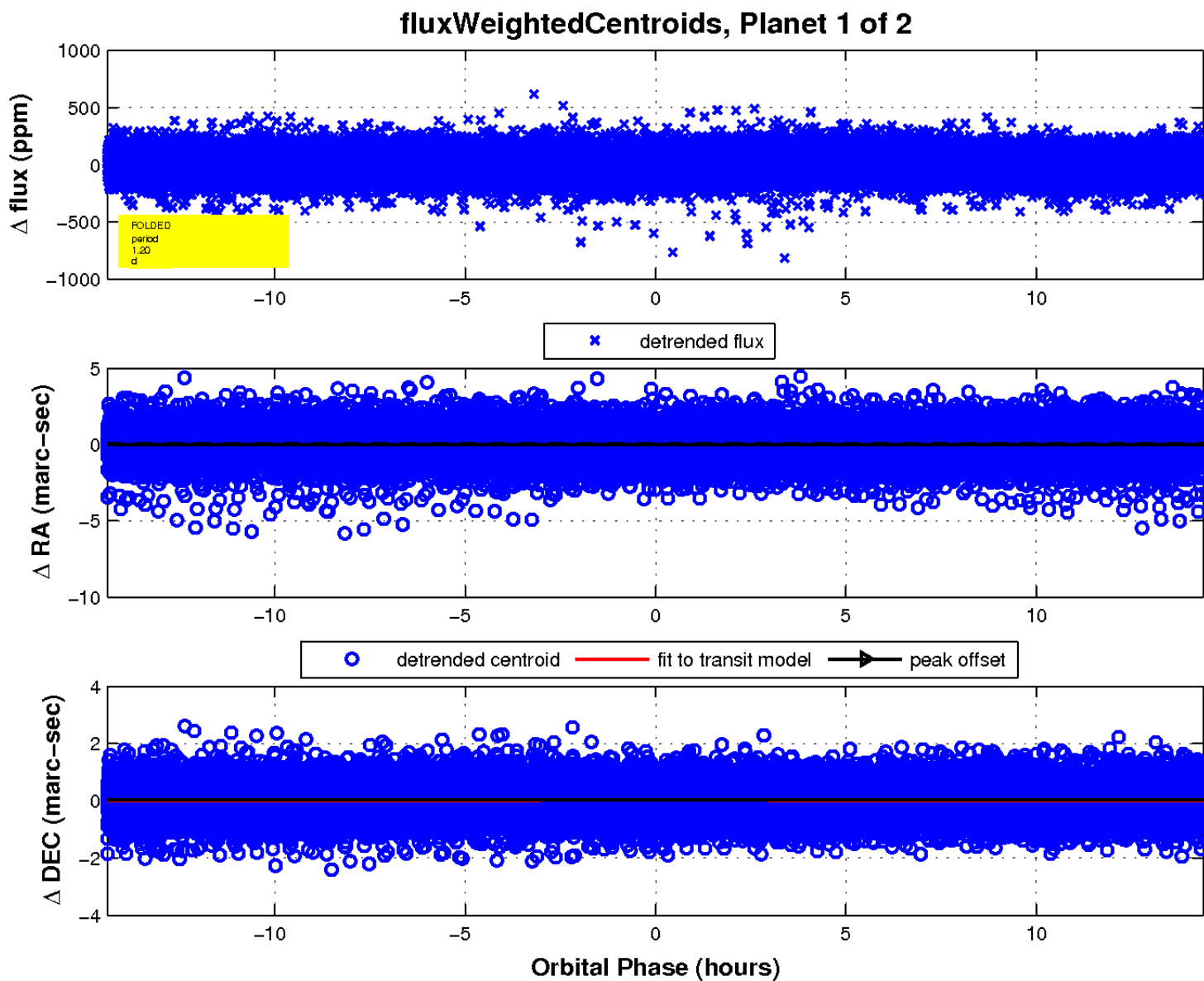
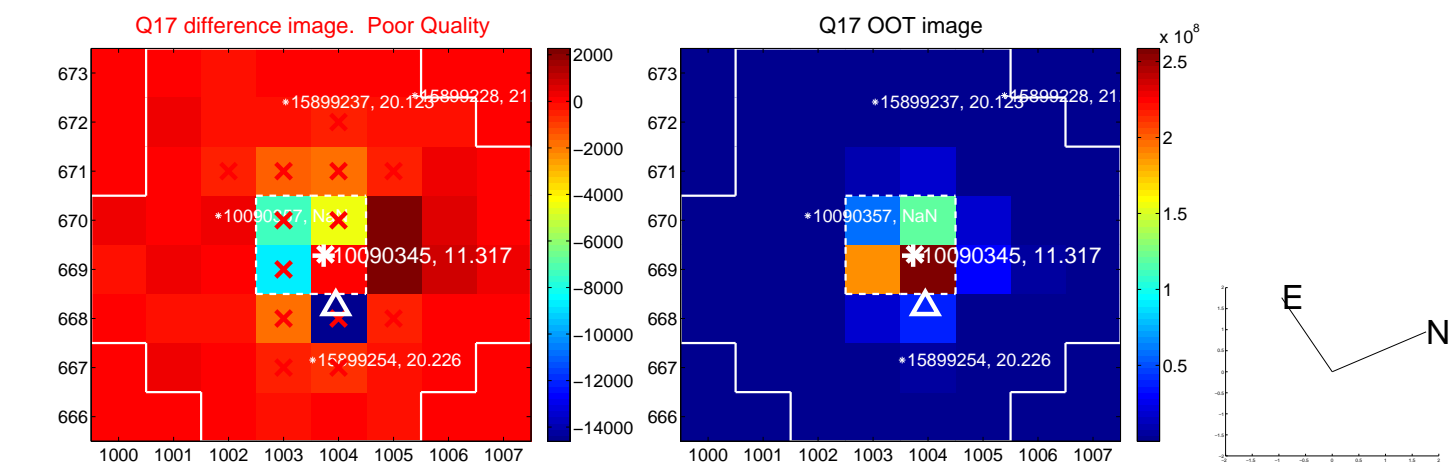
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



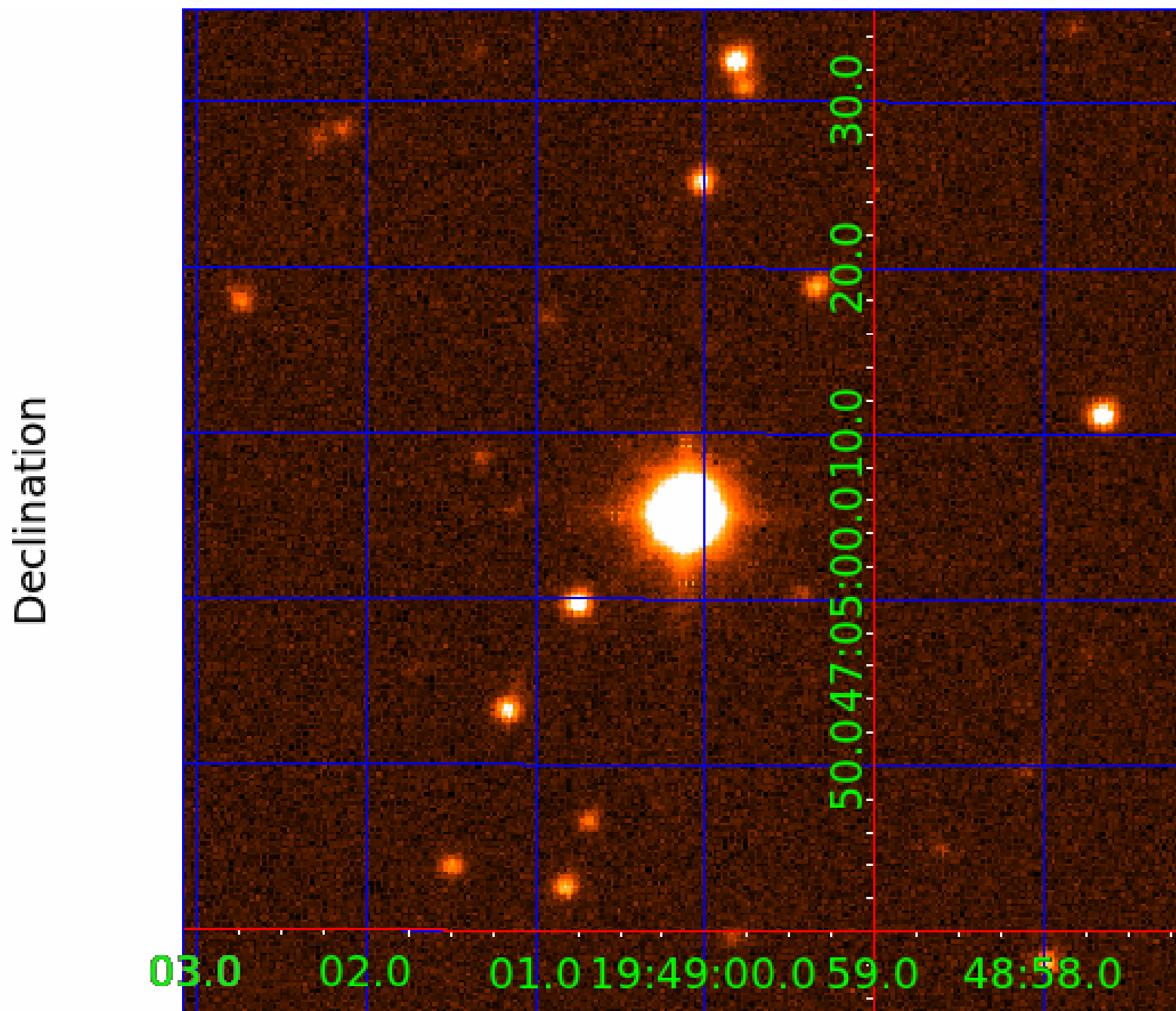
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



UKIRT Image



KIC 010090345

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})
010090345-01	OBS	No	1.199310	132.736989	13.9	6.134	10.6	9.3	2.34	7416	0.88	21840.65
010090345-02	OBS	No	43.307481	165.305318	148.3	1.582	7.8	8.7	2.34	7416	2.88	182.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010090345-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010090345-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

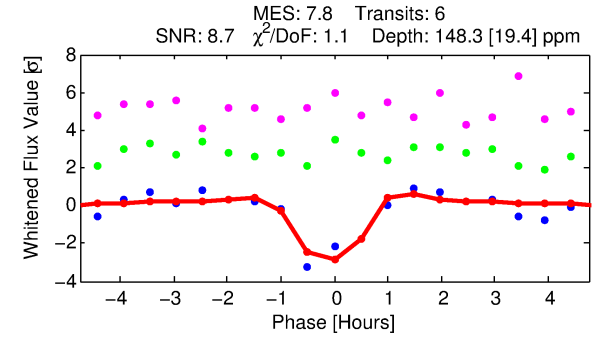
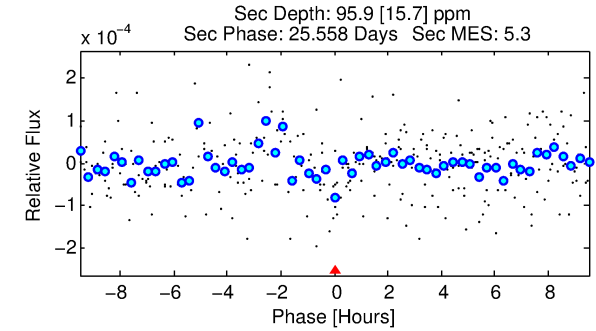
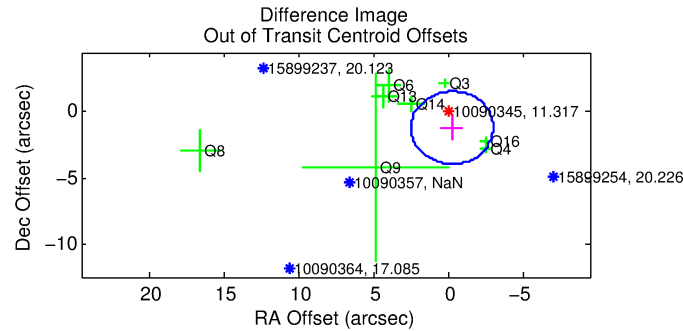
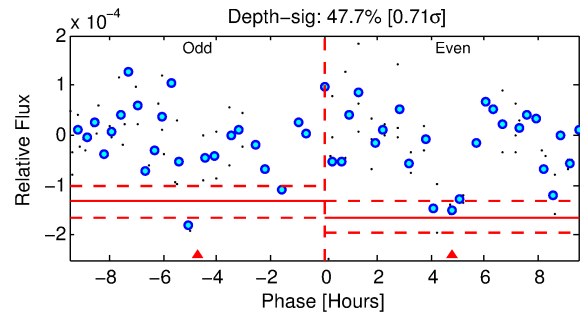
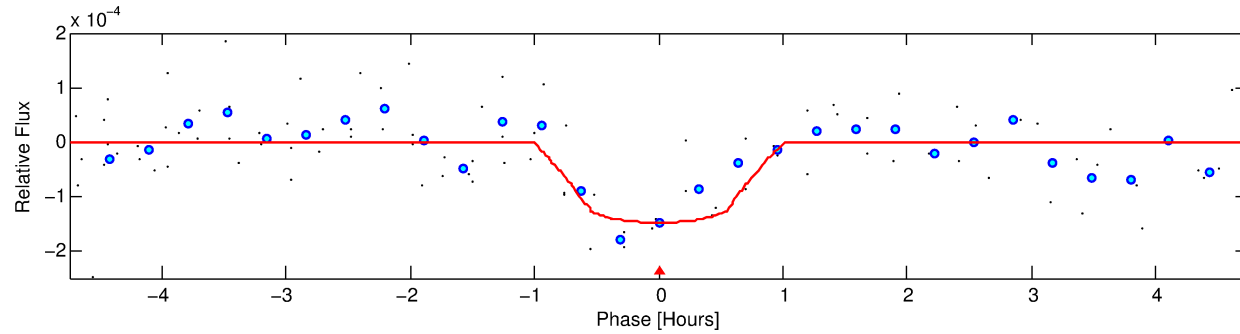
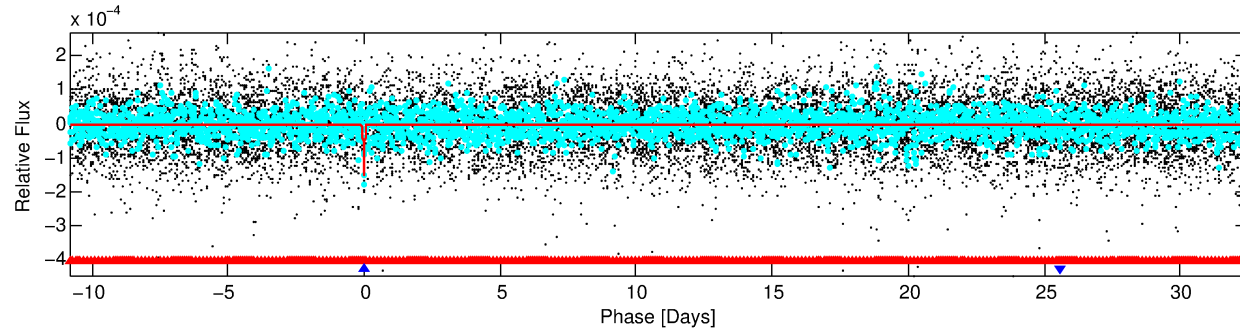
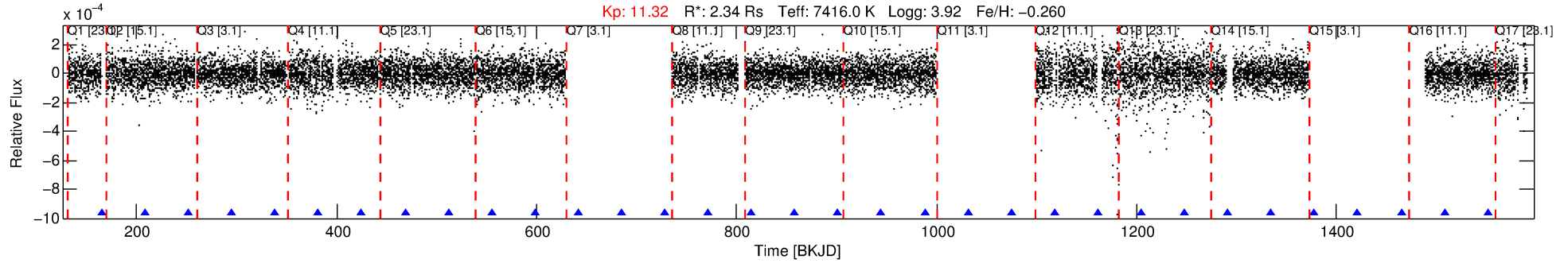
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010090345-02

No Significant Match Found

DV One-Page Summary

KIC: 10090345 Candidate: 2 of 2 Period: 43.307 d



DV Fit Results:

Period = 43.30748 [0.00021] d
Epoch = 165.3053 [0.0038] BKJD
Rp/R* = 0.0113 [0.0259]
a/R* = 208.32 [2629.10]
b = 0.17 [70.71]
Seff = 182.99 [104.57]
Teff = 938 [134] K
Rp = 2.89 [6.72] Re
a = 0.2849 [0.1000] AU
Ag = 514.52 [2380.99] [0.22 σ]
Teffp = 6906 [7939] K [0.75 σ]

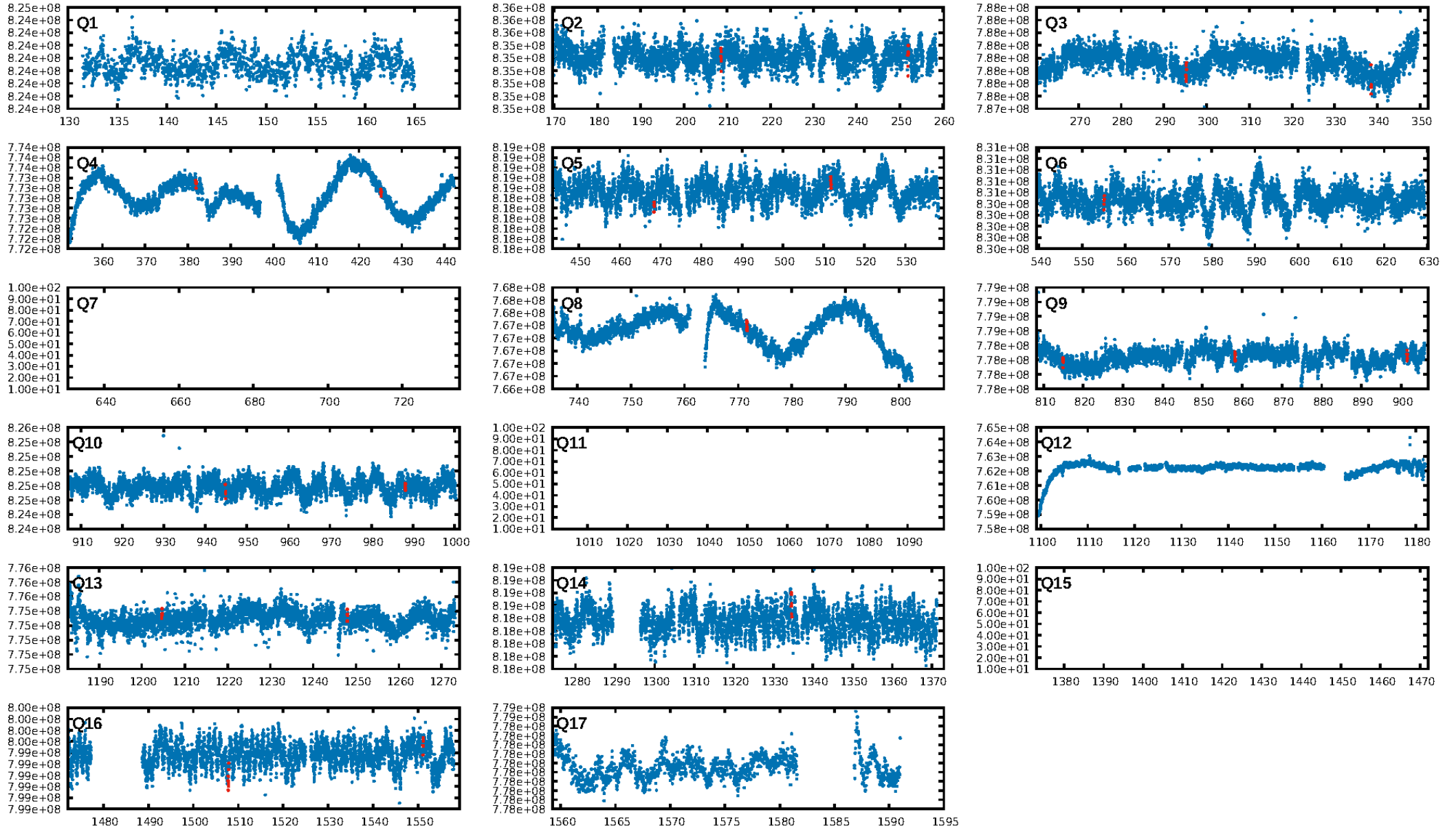
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [159.52 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 26.5%
ModelChiSquareGof-sig: 92.3%
Bootstrap-pfa: 5.78e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -3.524
Centroid-sig: 66.6%
Centroid-so: 0.173 arcsec [0.23 σ]
OotOffset-rm: 1.235 arcsec [1.35 σ]
OotOffset-st: 2/1/3/2 [8]
KicOffset-rm: 1.362 arcsec [1.49 σ]
KicOffset-st: 2/1/3/2 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.27 [3/11]

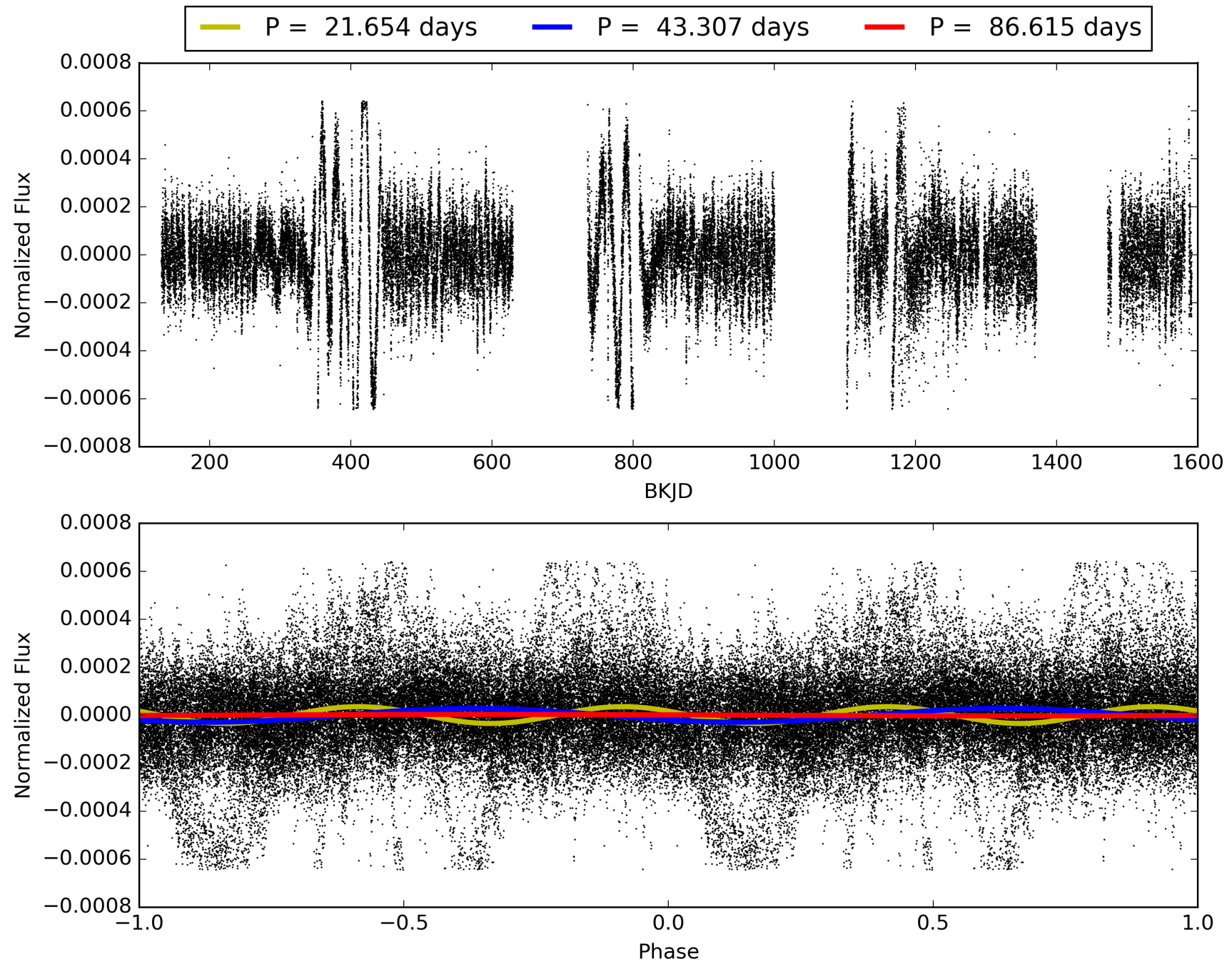
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:23:29 Z

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

TCE 010090345-02, PDC Light Curves

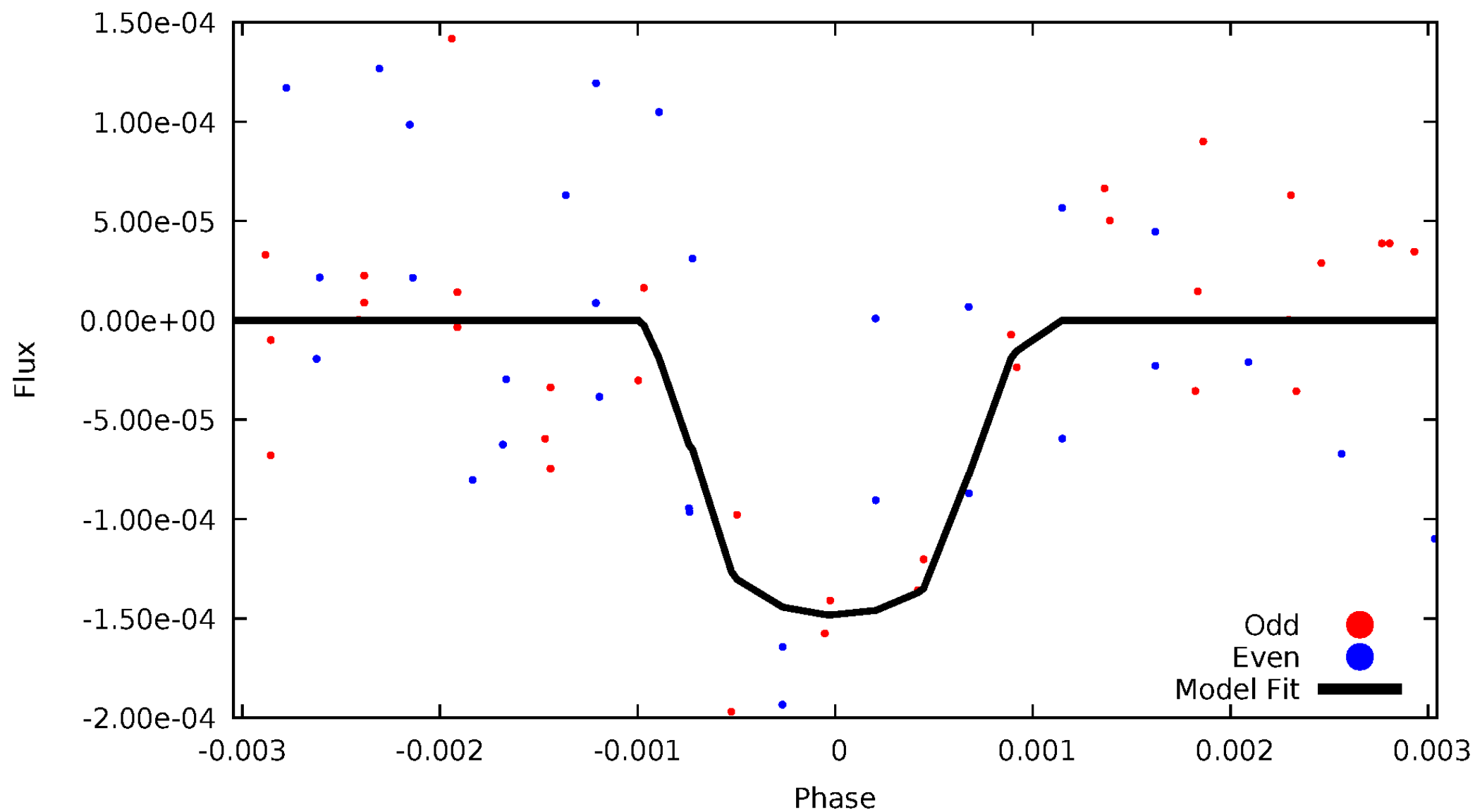


TCE 010090345-02



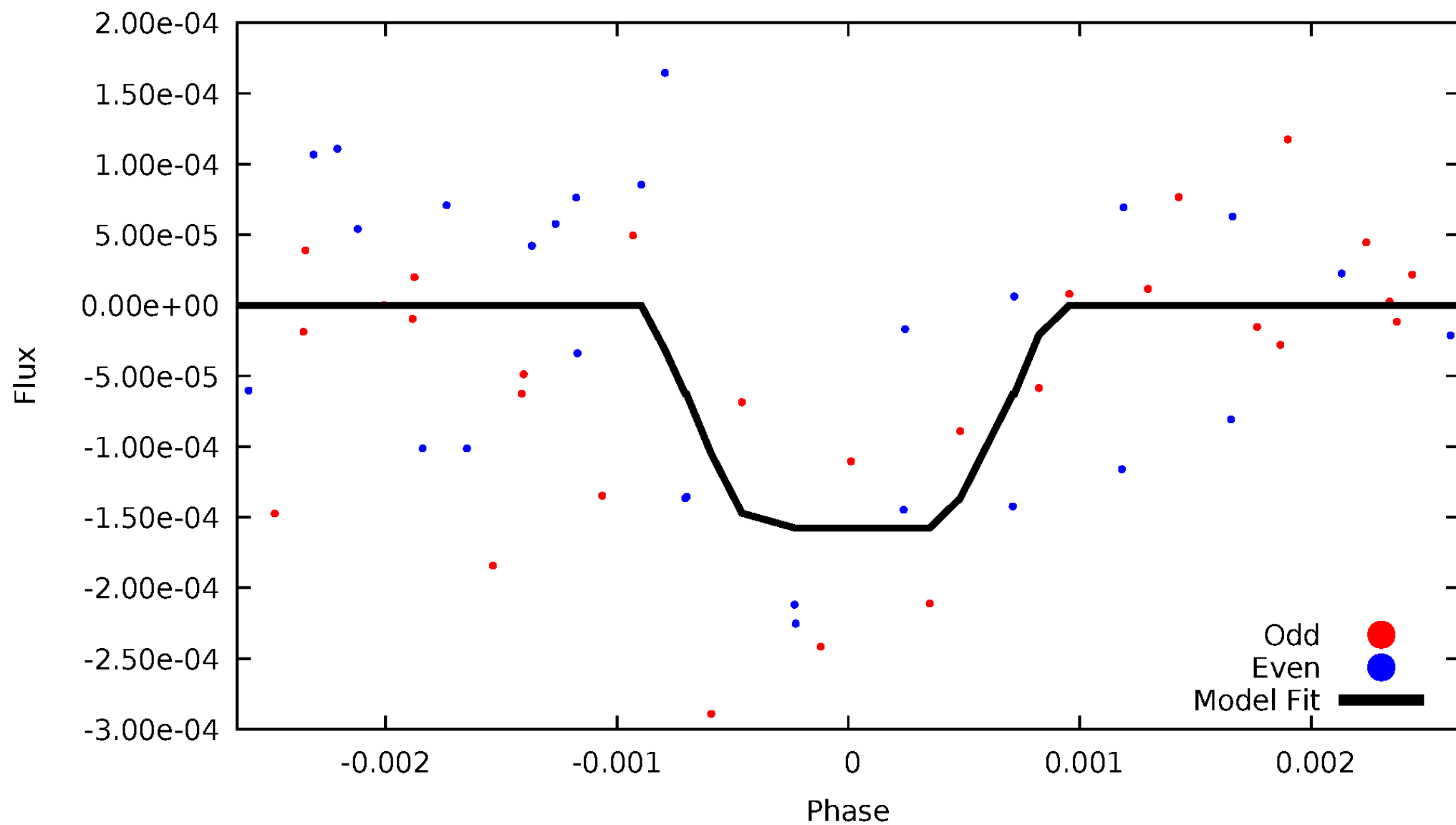
DV Odd/Even

TCE 010090345-02



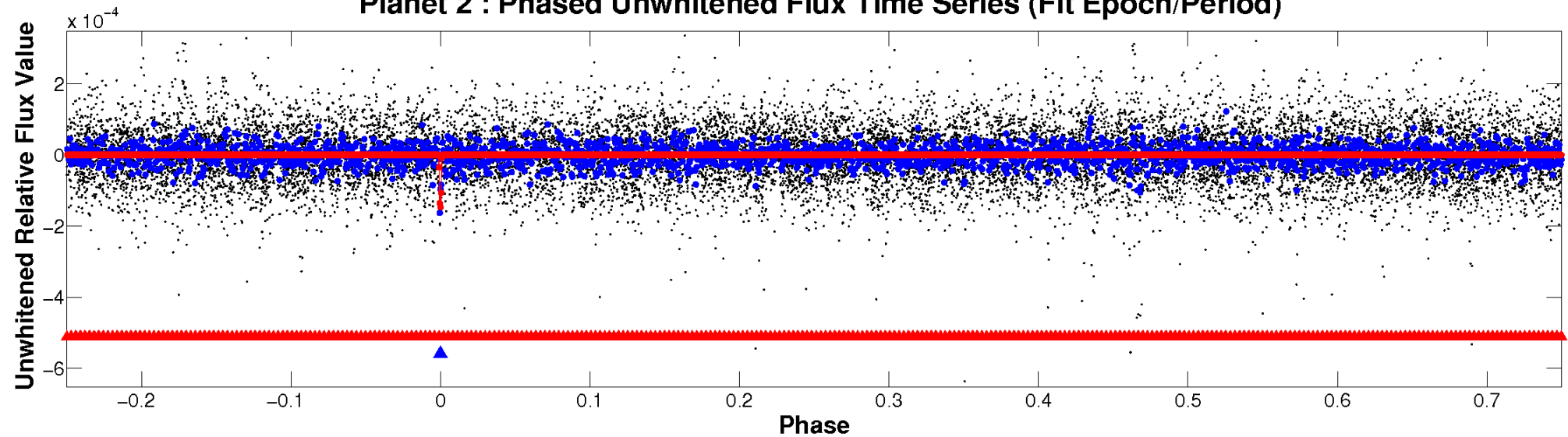
ALT Odd/Even

TCE 010090345-02

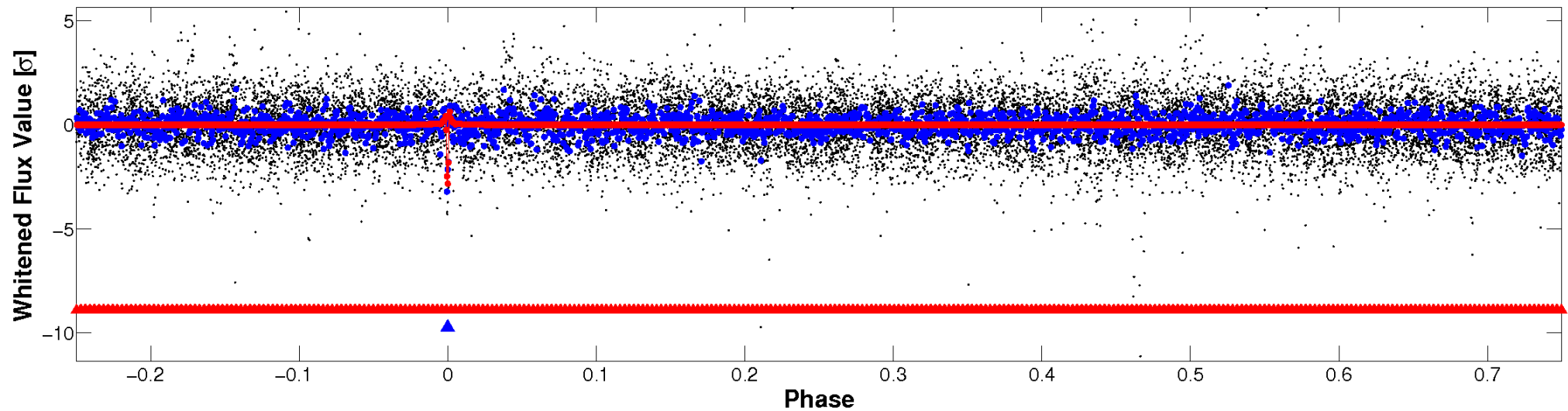


Non-Whitened Vs. Whitened Light Curve

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

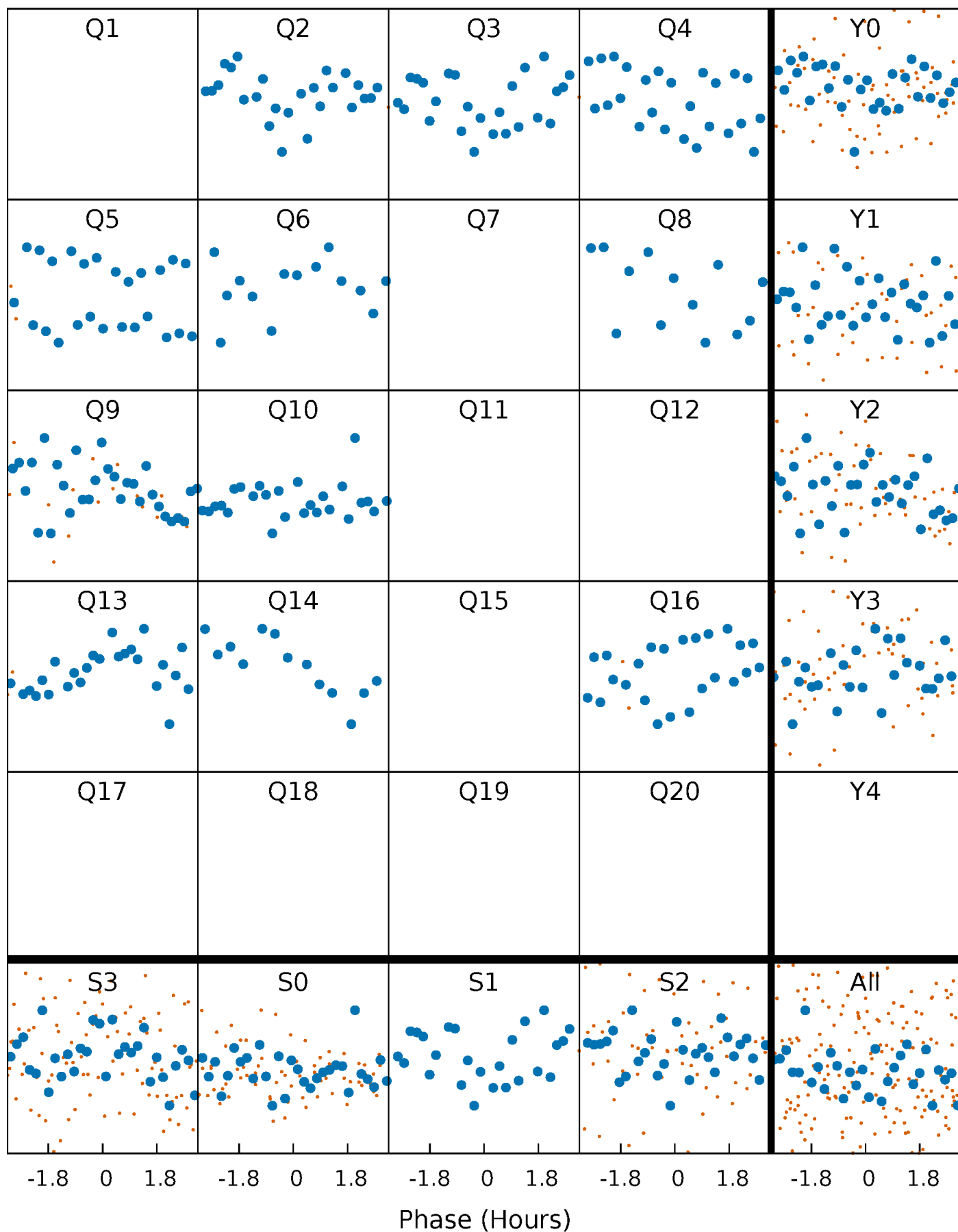


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



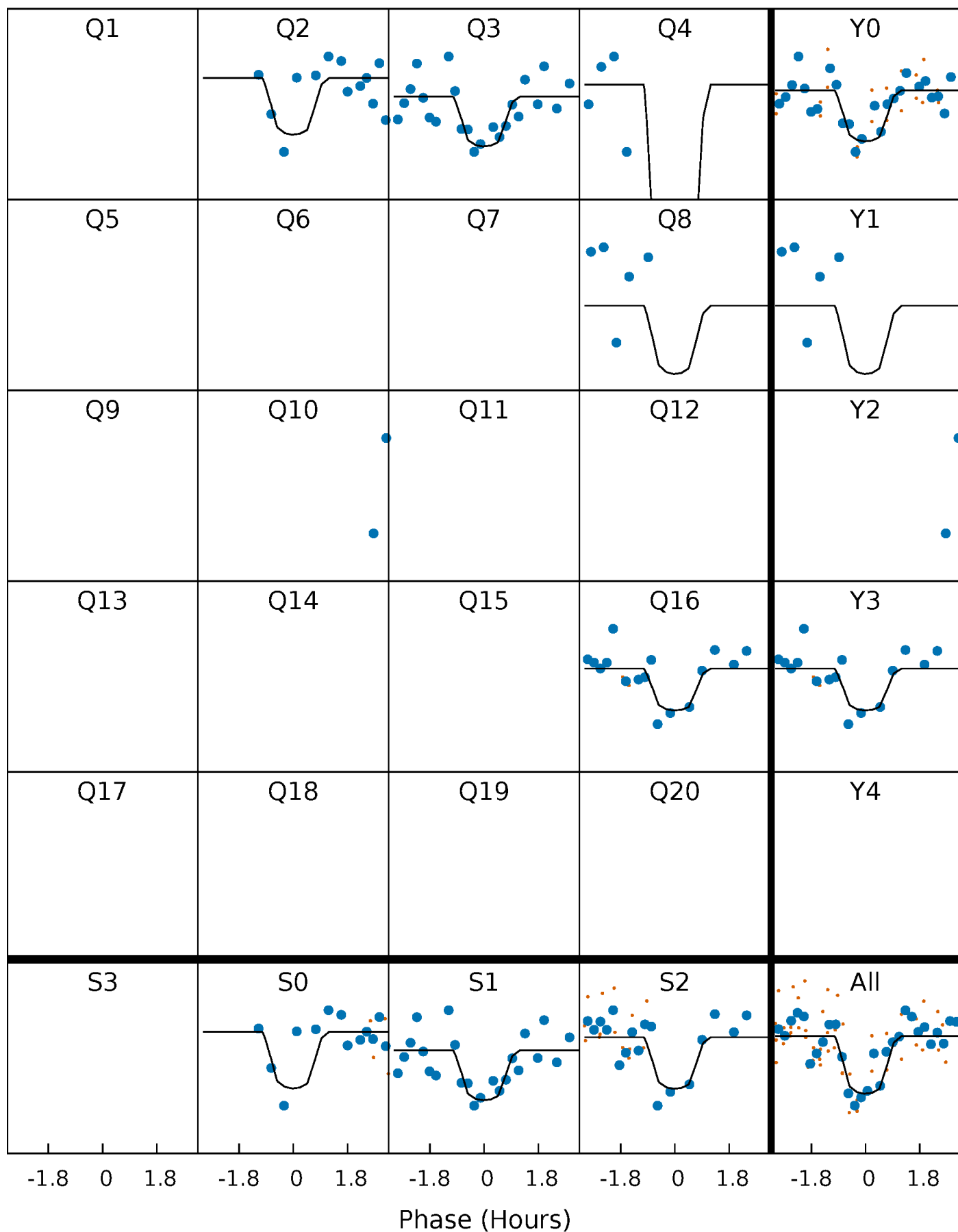
PDC Quarter-Phased Transit Curves

TCE 010090345-02 $P = 43.307481$ Days $T_0 = 165.305318$ (BKJD)



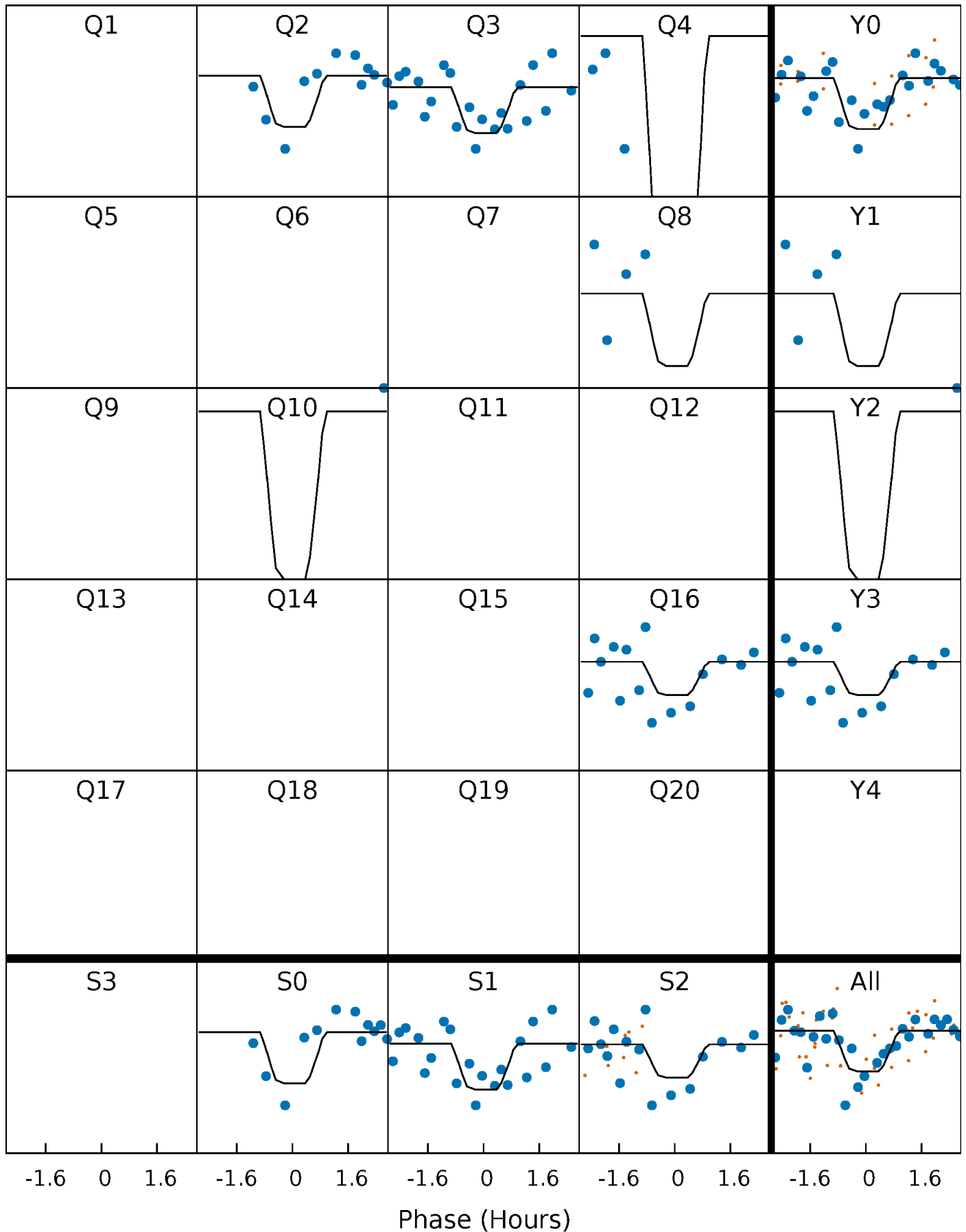
DV Quarter-Phased Transit Curves

TCE 010090345-02 P= 43.307481 Days $T_0=165.305318$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

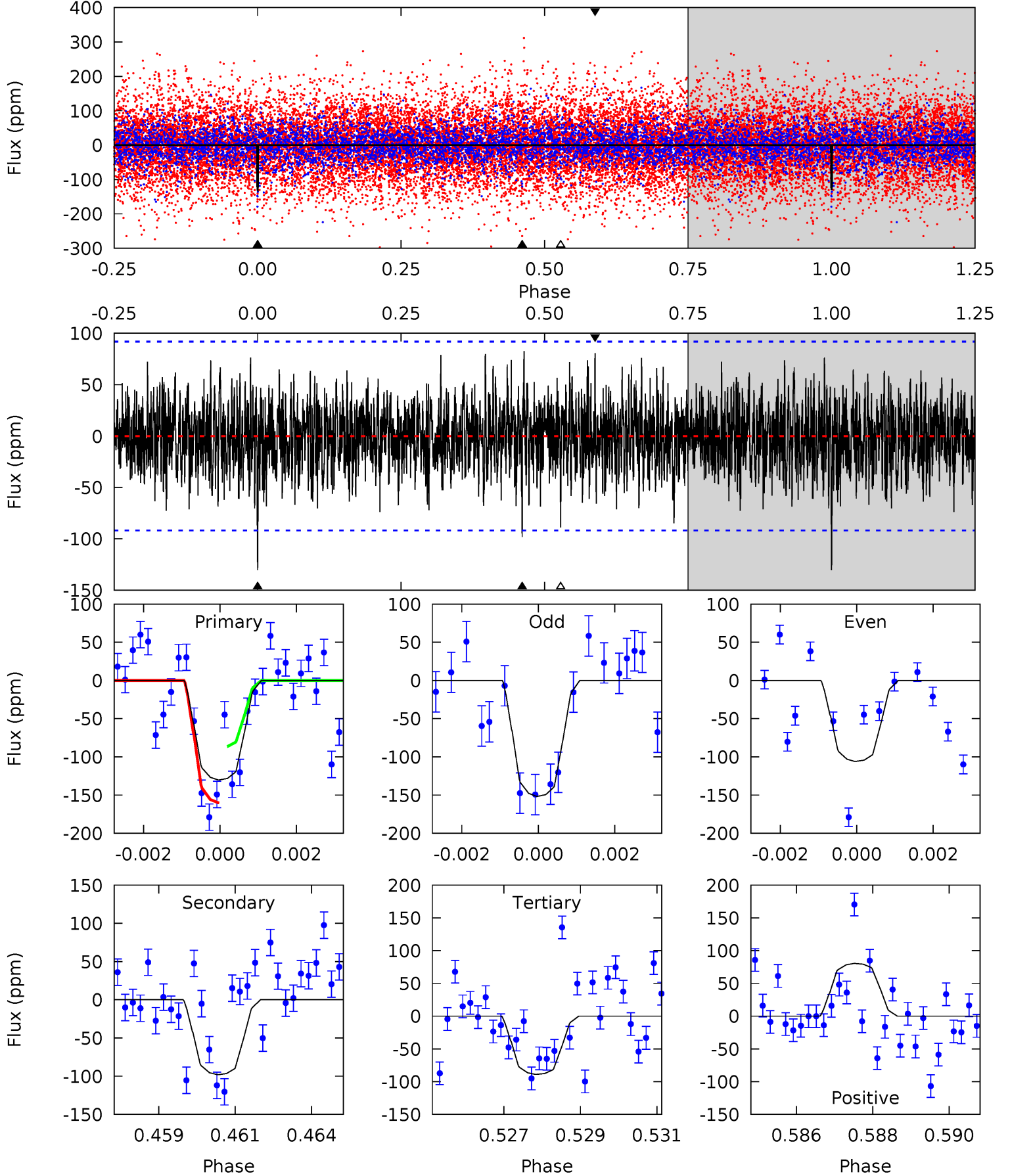
TCE 010090345-02 $P = 43.307642$ Days $T_0 = 165.303237$ (BKJD)



DV Model-Shift Uniqueness Test

010090345-02, P = 43.307481 Days, E = 121.997837 Days

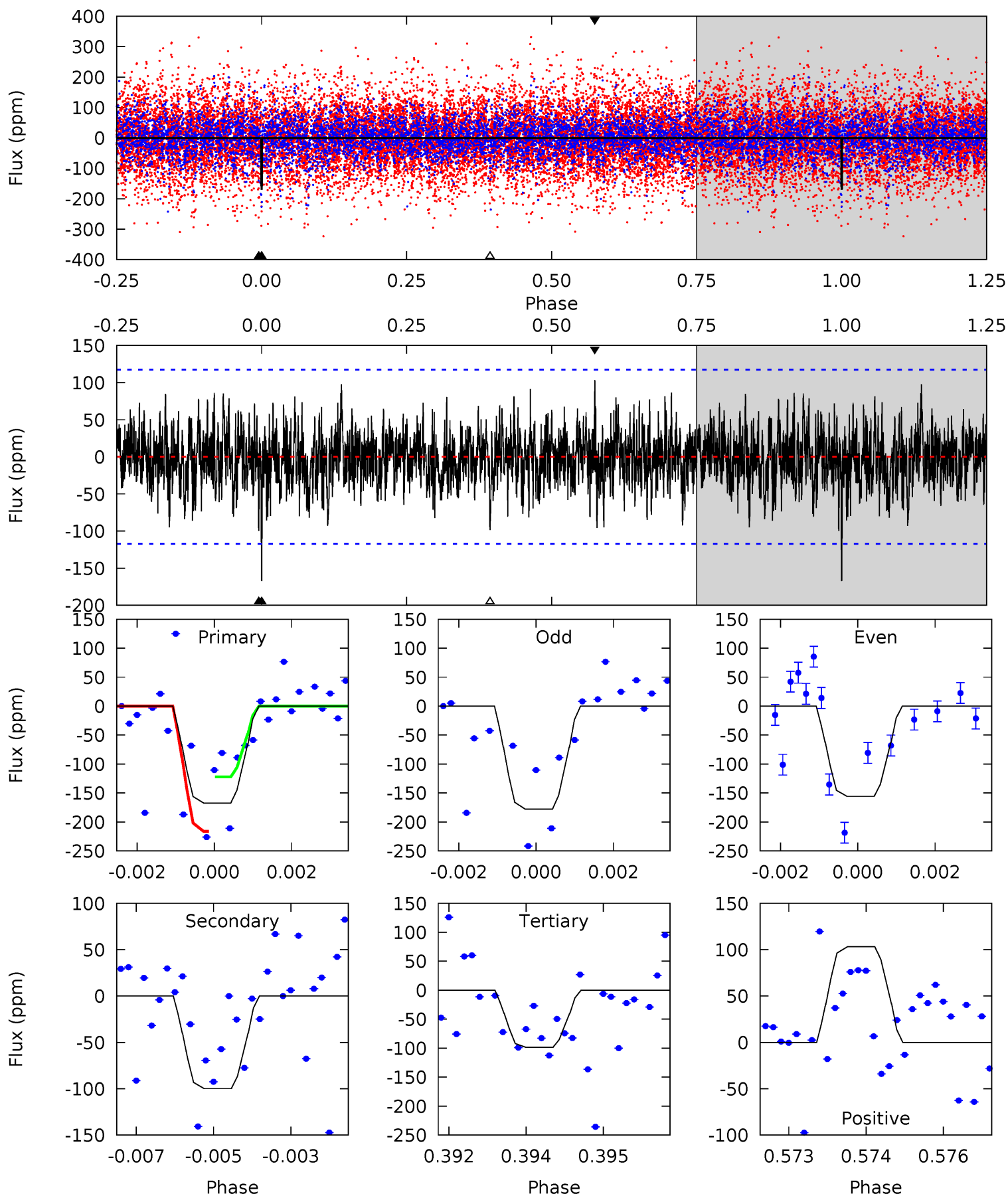
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.54	5.68	5.15	4.66	5.32	3.07	1.46	2.39	2.88	0.53	1.01	1.35	0.99	0.39	2.13



Alt Model-Shift Uniqueness Test

010090345-02, P = 43.307642 Days, E = 121.995595 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.65	4.57	4.50	4.72	5.36	3.15	1.32	3.14	2.93	0.06	-0.15	0.51	1.05	0.38	2.13



Stellar Parameters For KIC 010090345

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7416^{+232}_{-310}	$3.915^{+0.315}_{-0.135}$	$-0.260^{+0.250}_{-0.350}$	$2.341^{+0.481}_{-0.894}$	$1.642^{+0.164}_{-0.383}$	$0.180^{+0.397}_{-0.070}$
	+3%/-4%	+8%/-3%	+96%/-135%	+21%/-38%	+10%/-23%	+220%/-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 010090345-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-98 ± 17	$5.42^{+5.36}_{-3.68}$	1294^{+100}_{-123}	4909^{+4082}_{-1066}	147^{+1233}_{-112}
Alt.	-100 ± 22	$5.57^{+5.53}_{-3.68}$	1289^{+97}_{-124}	4809^{+3613}_{-1030}	134^{+1080}_{-100}

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 $A_{obs} \gg 1.0$

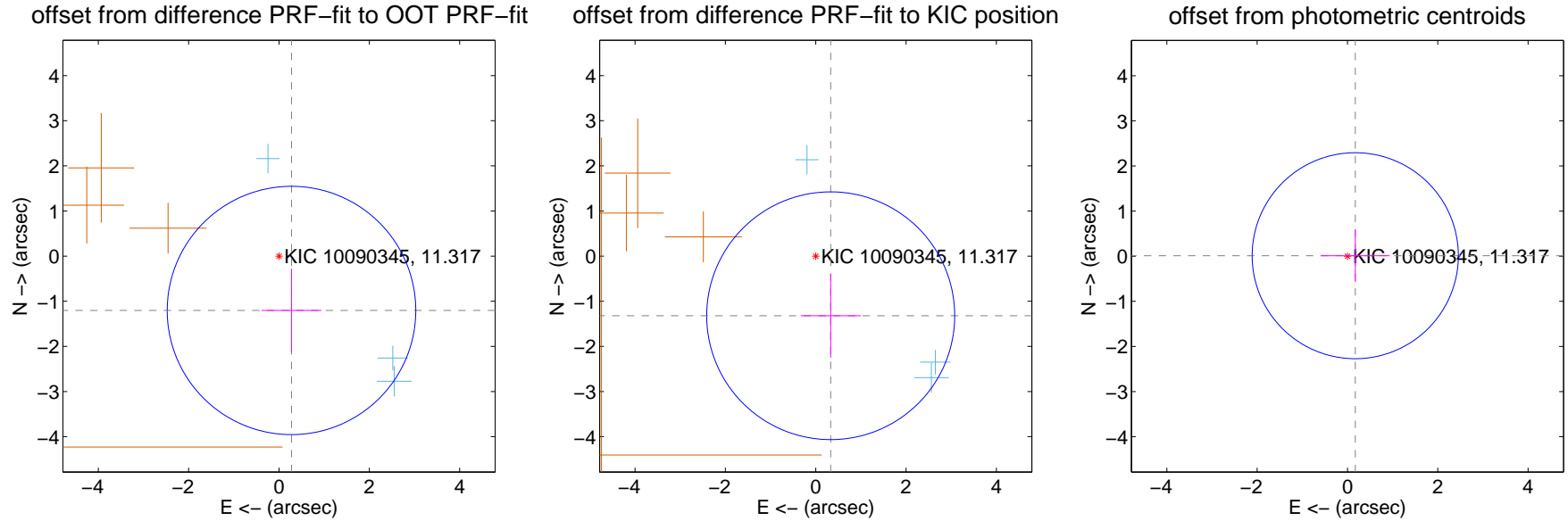
DV Centroid Data

Supplemental centroid analysis for 010090345-02. **Kepler magnitude: 11.32.** Transit SNR 8.72

There are 3 quarters with good PRF difference image offsets

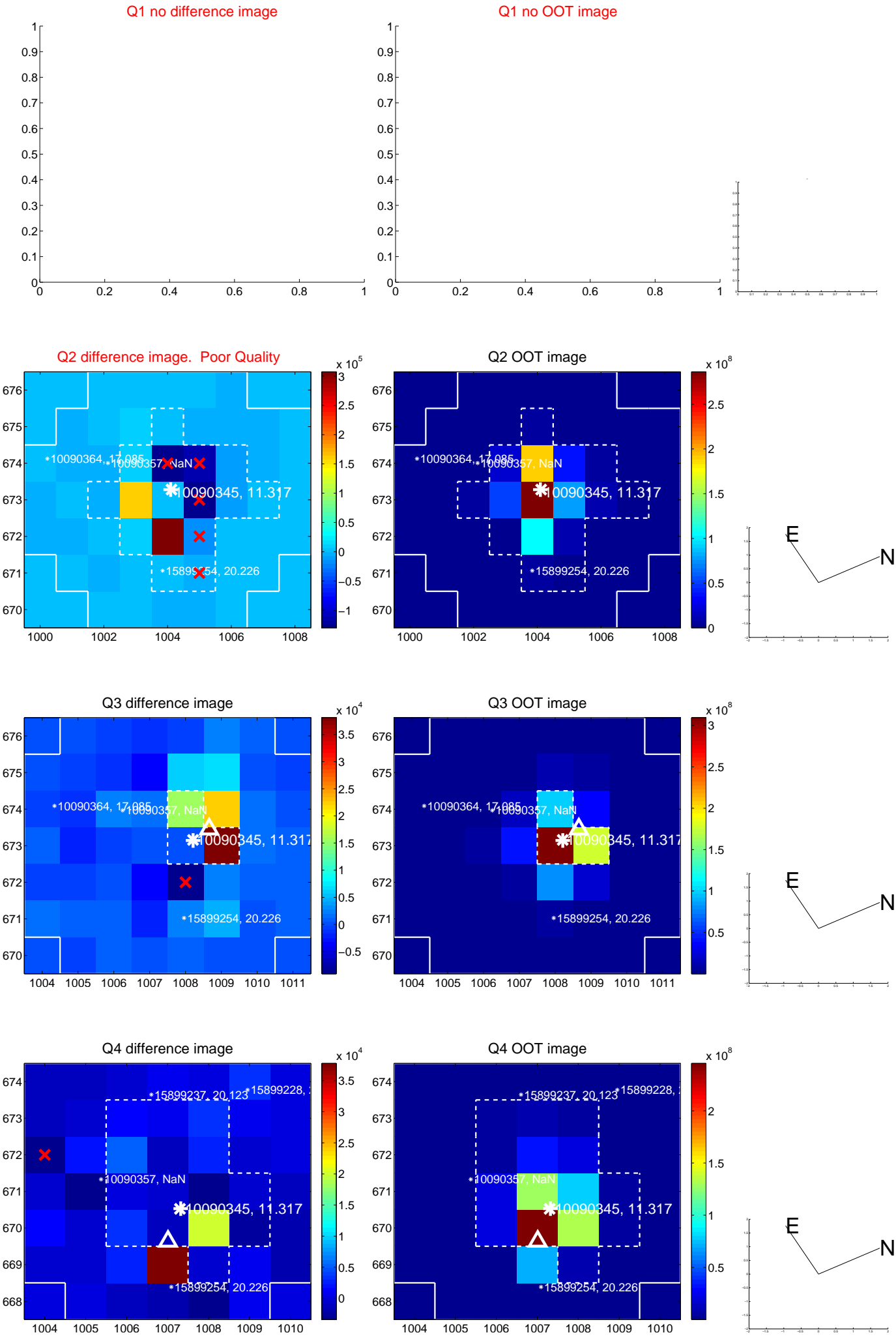
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.235 ± 0.917	1.35	-0.277 ± 0.663	-1.204 ± 0.928
PRF-fit source offset from KIC position	1.362 ± 0.915	1.49	-0.331 ± 0.663	-1.321 ± 0.928
photometric centroid source offset	0.17 ± 0.76	0.23	-0.17 ± 0.76	0.01 ± 0.58

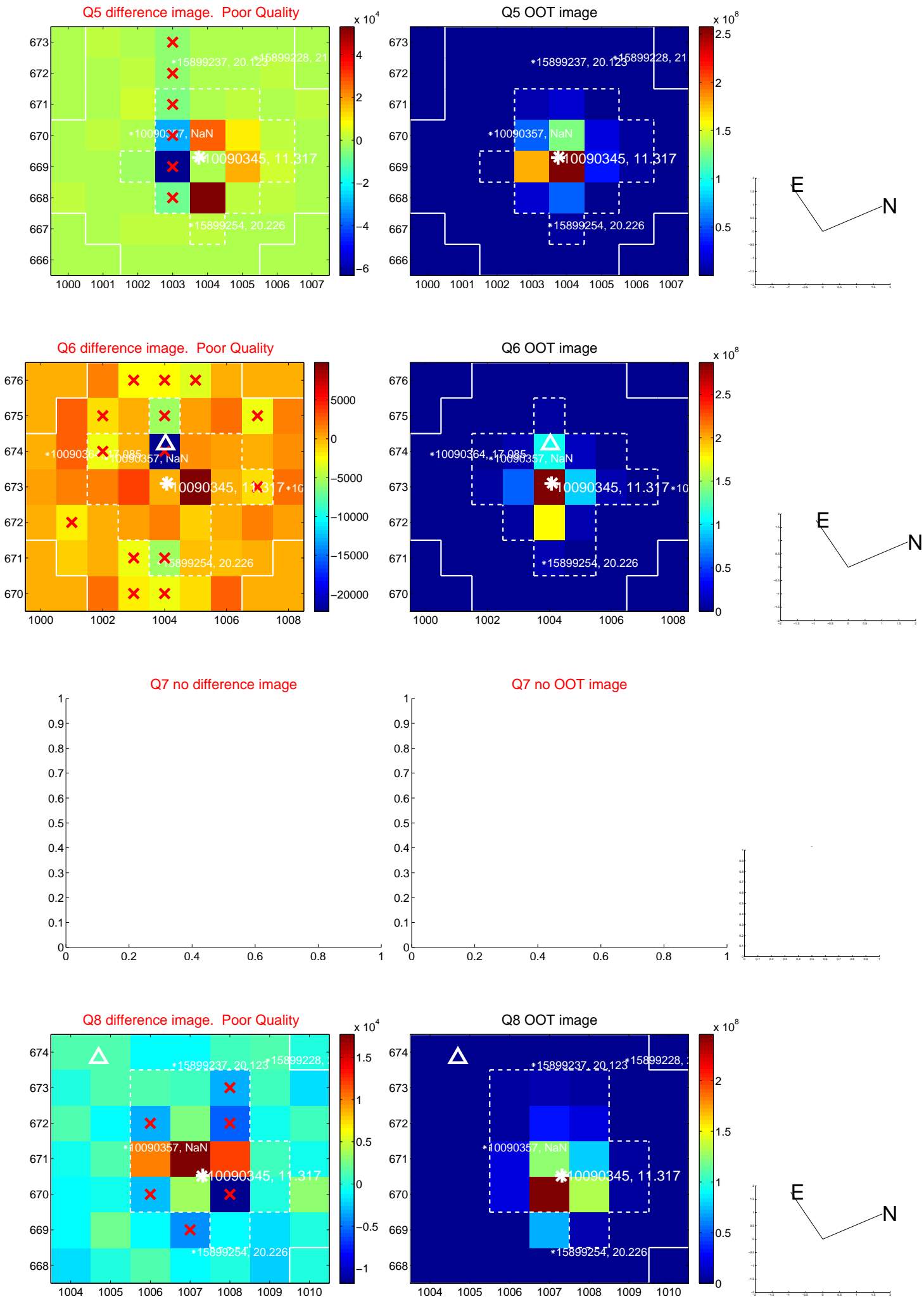


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

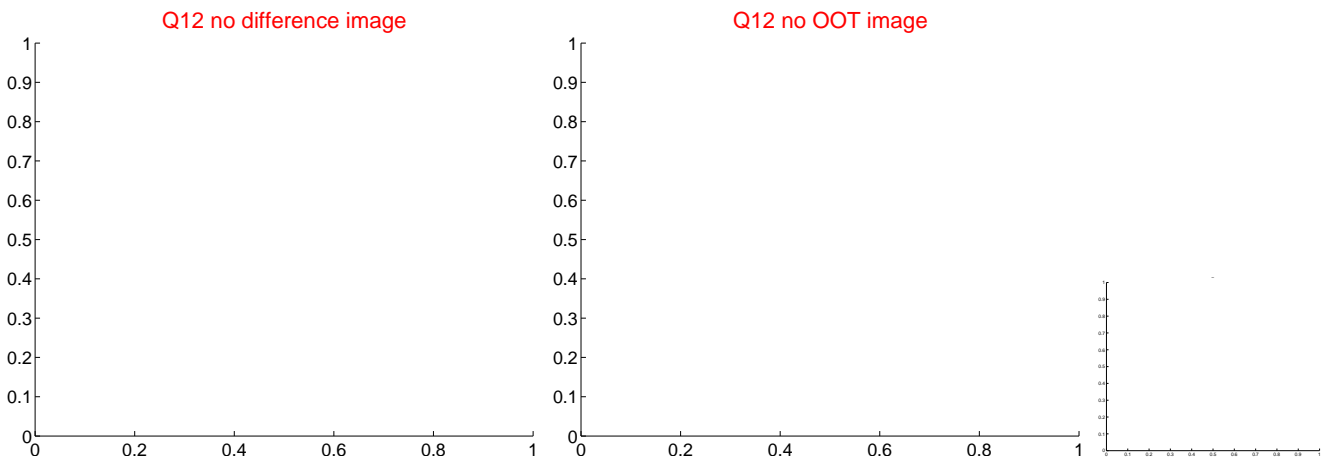
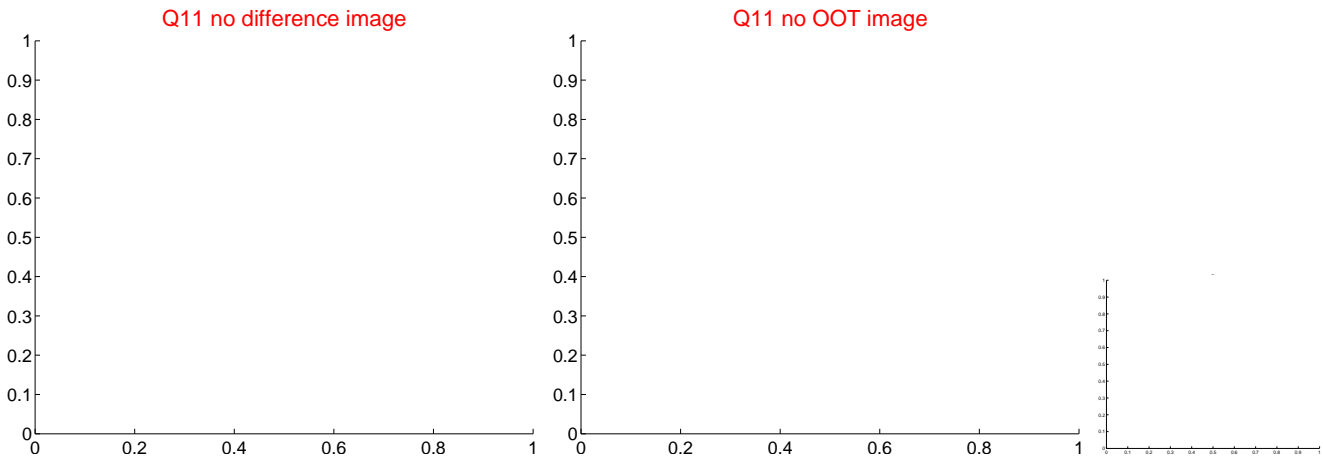
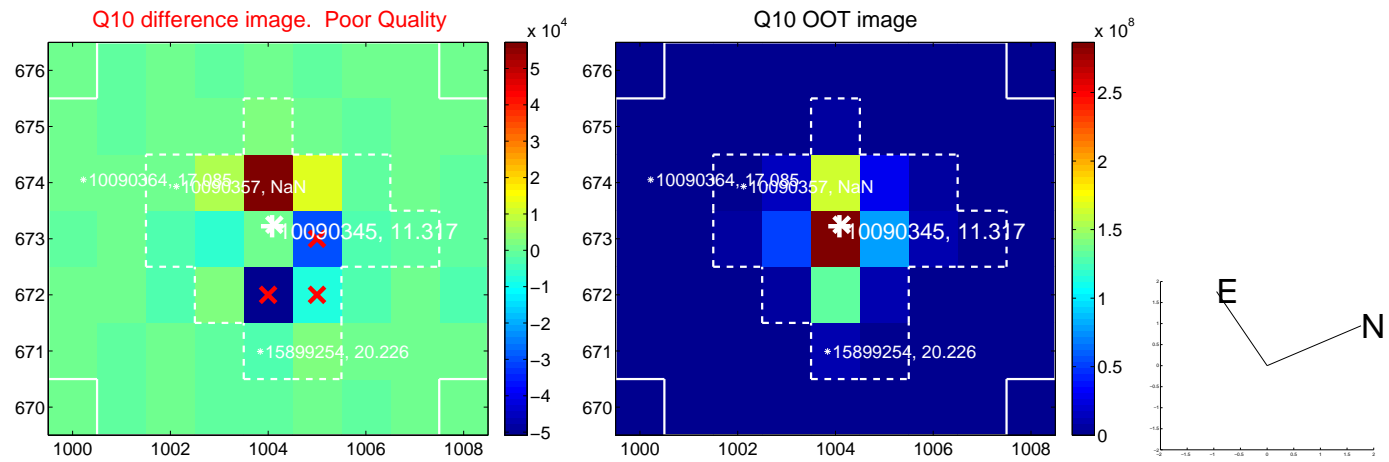
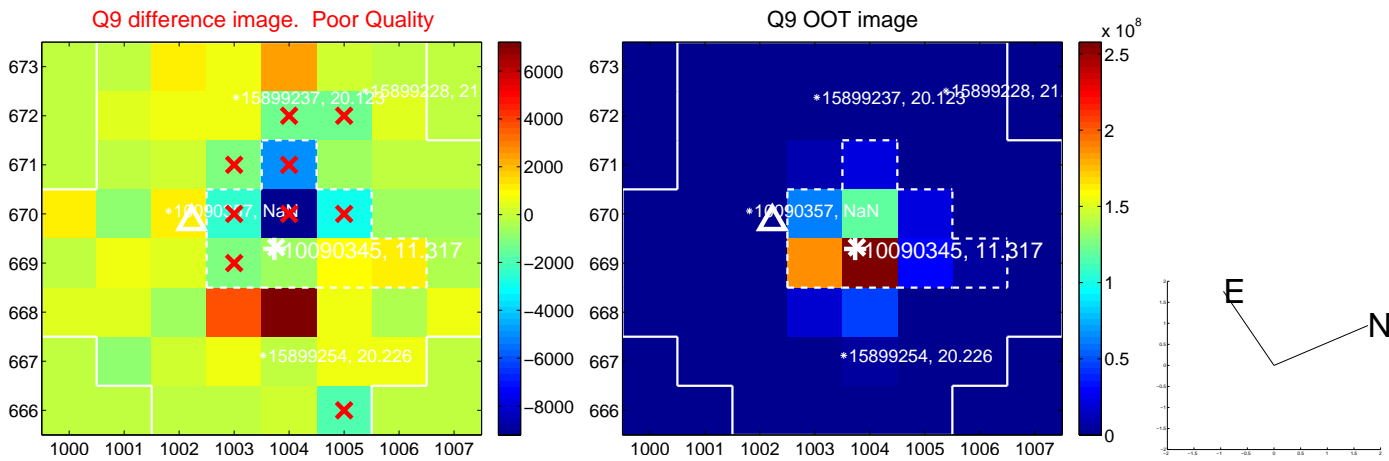
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



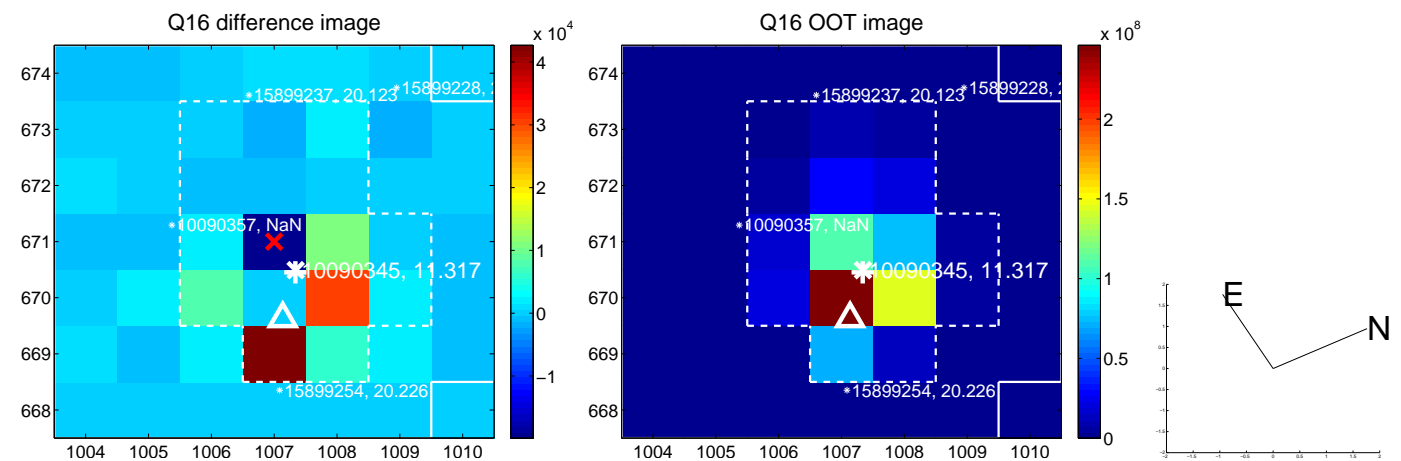
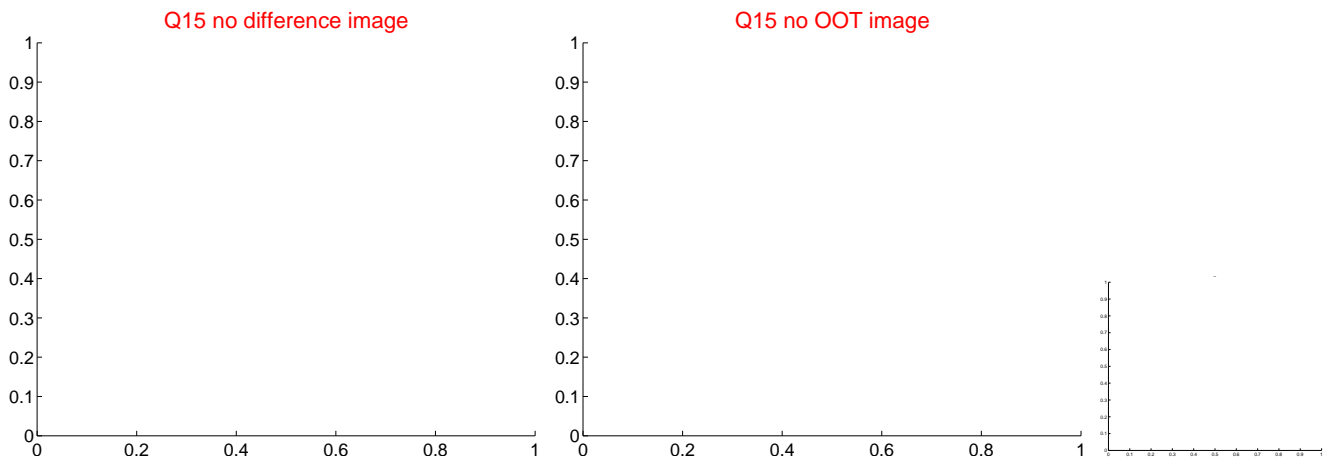
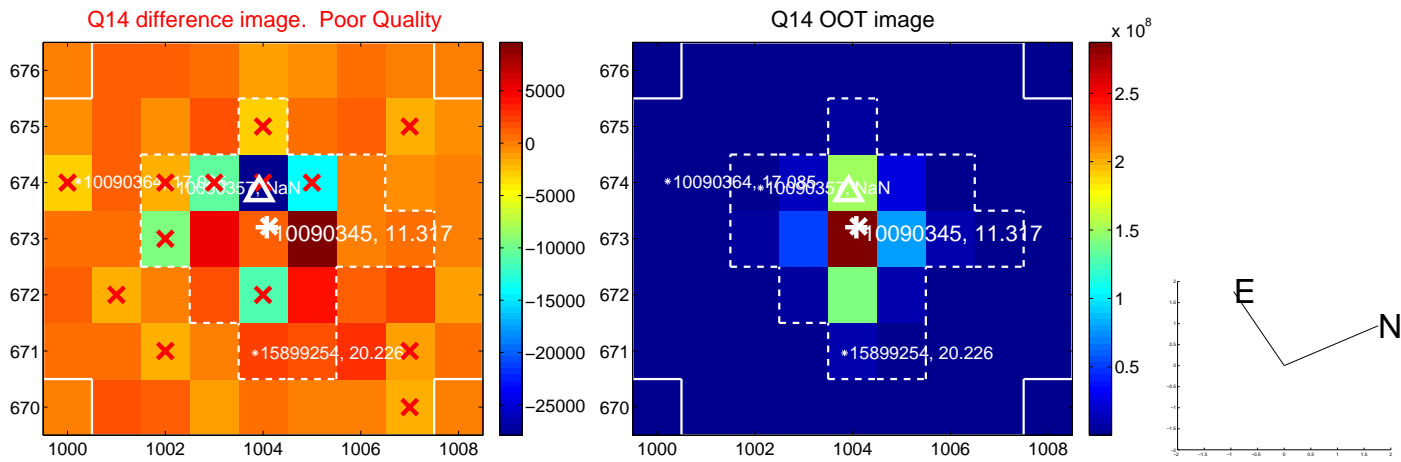
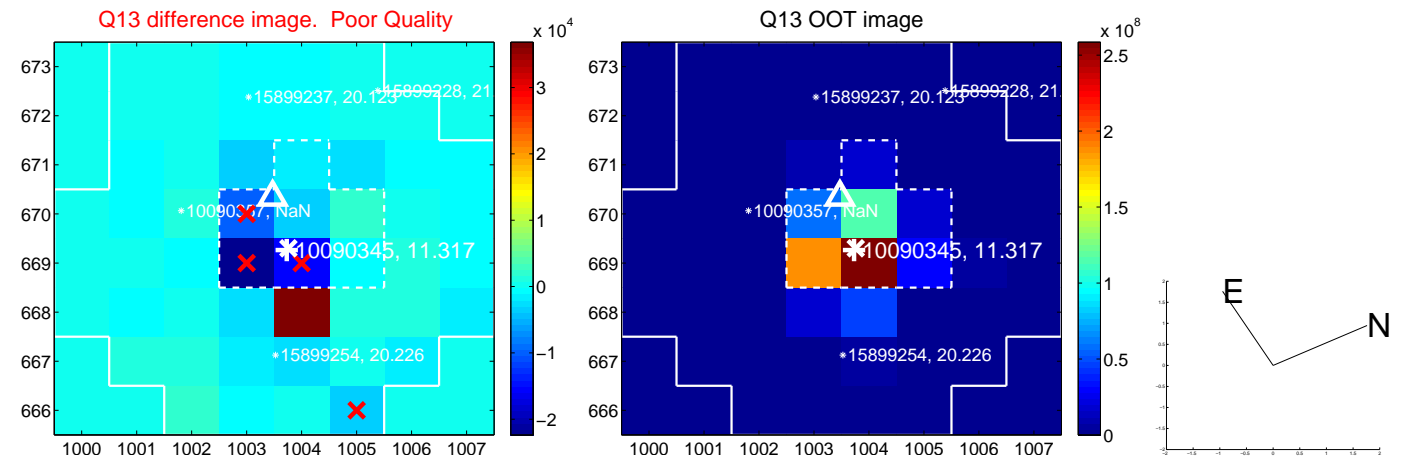
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



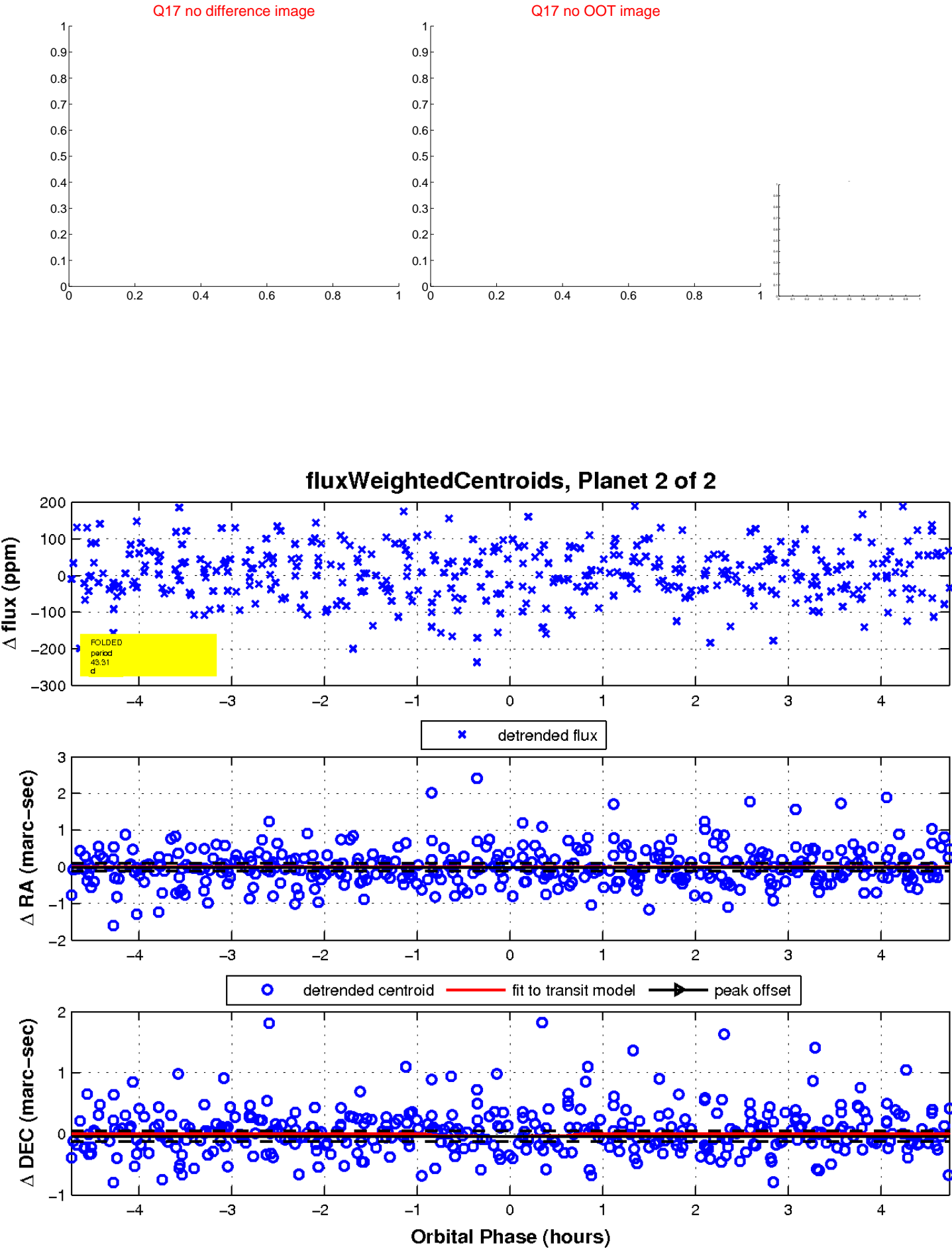
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

