

KIC 009278696

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})
009278696-01	OBS	No	0.671258	131.775162	70.8	2.129	13.9	13.9	1.87	6942	1.83	24184.71
009278696-02	OBS	No	0.671251	132.116488	72.2	2.502	12.5	12.9	1.87	6942	1.72	24185.06
009278696-03	OBS	No	9.338135	134.717444	209.4	2.000	9.4	-1.0	1.87	6942	2.74	722.85
009278696-05	OBS	No	42.738959	144.001570	995.6	5.785	7.4	6.7	1.87	6942	6.62	95.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009278696-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009278696-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009278696-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009278696-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV

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

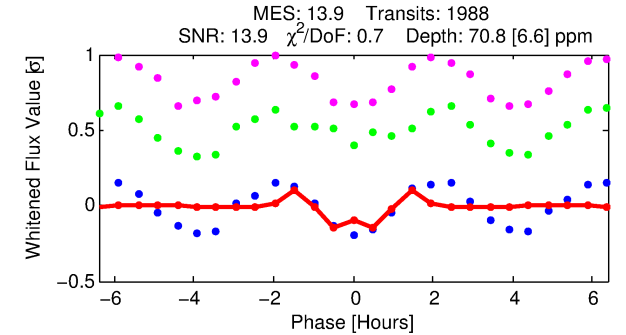
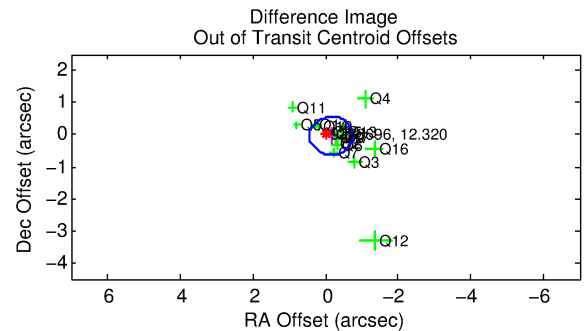
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 009278696-01

No Significant Match Found

KIC: 9278696 Candidate: 1 of 5 Period: 0.671 d

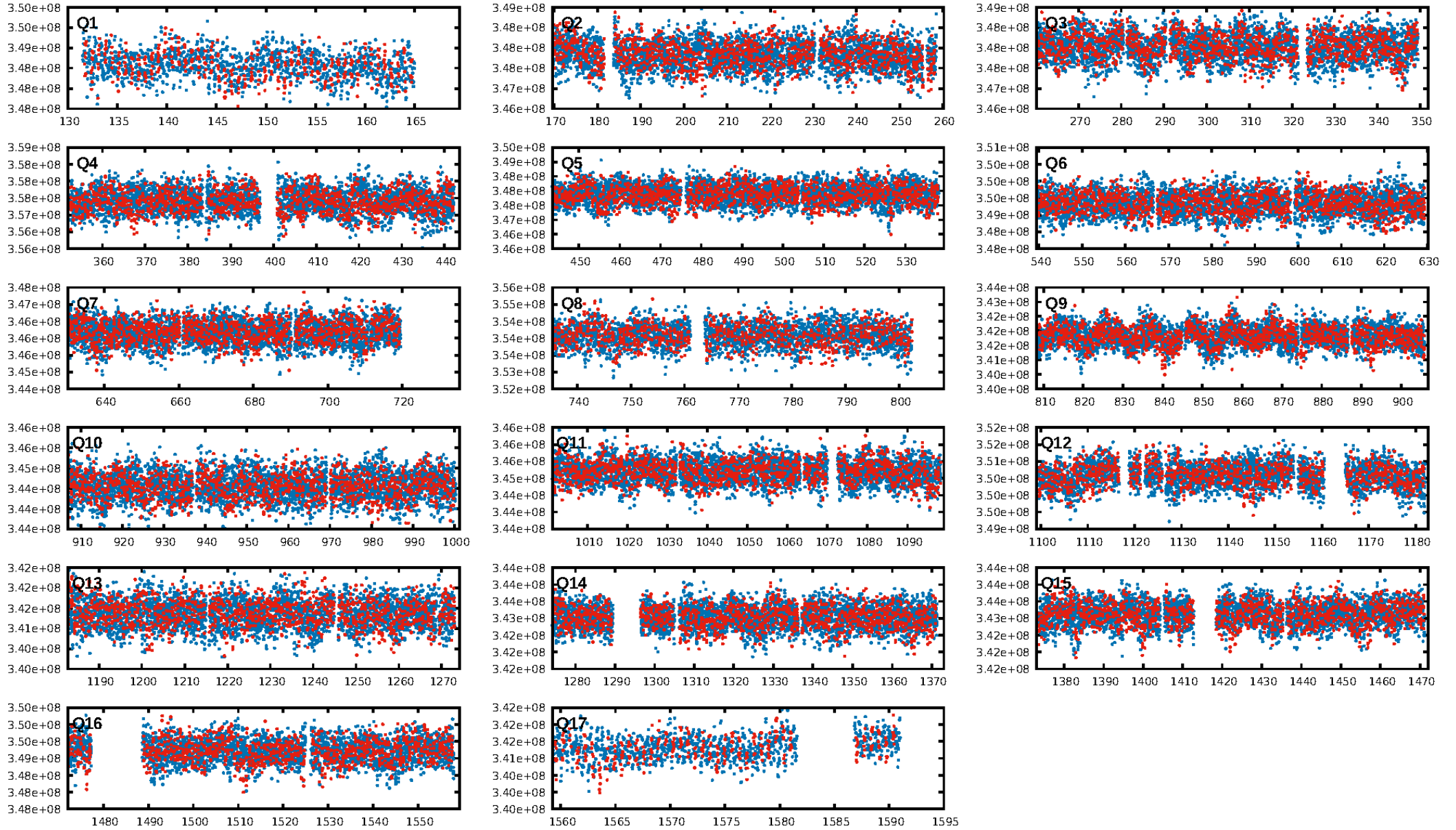


ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [71.21σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.92e-14
RollingBand-fgt: 0.97 [1849/1899]
GhostDiagnostic-chr: -3.472

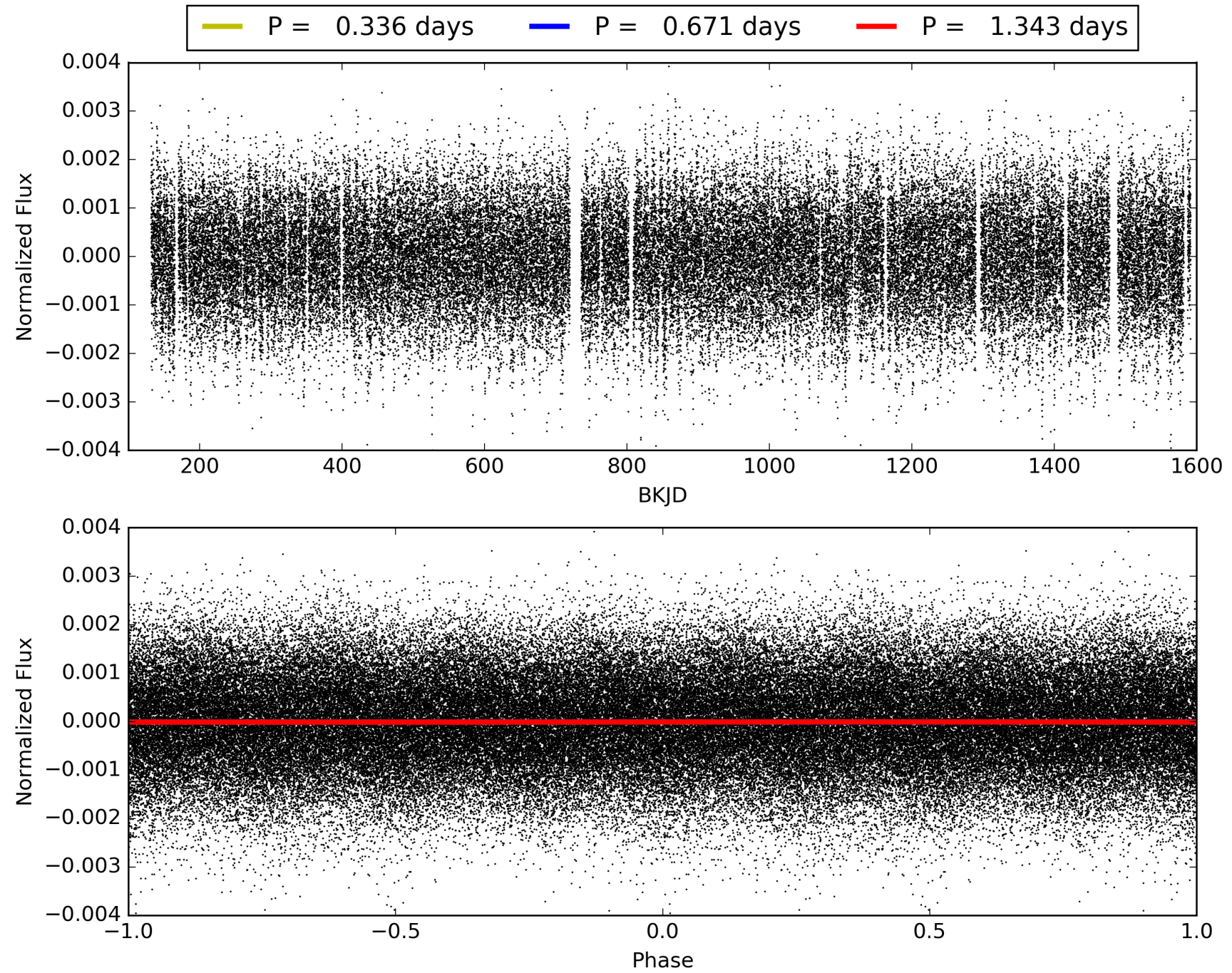
Centroid-sig: 20.9%
Centroid-so: 0.345 arcsec [1.79σ]
OotOffset-rm: 0.163 arcsec [0.83σ]
KicOffset-rm: 0.211 arcsec [0.89σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.50 [8/16]
DiffImageOverlap-fno: 1.00 [17/17]

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

TCE 009278696-01, PDC Light Curves

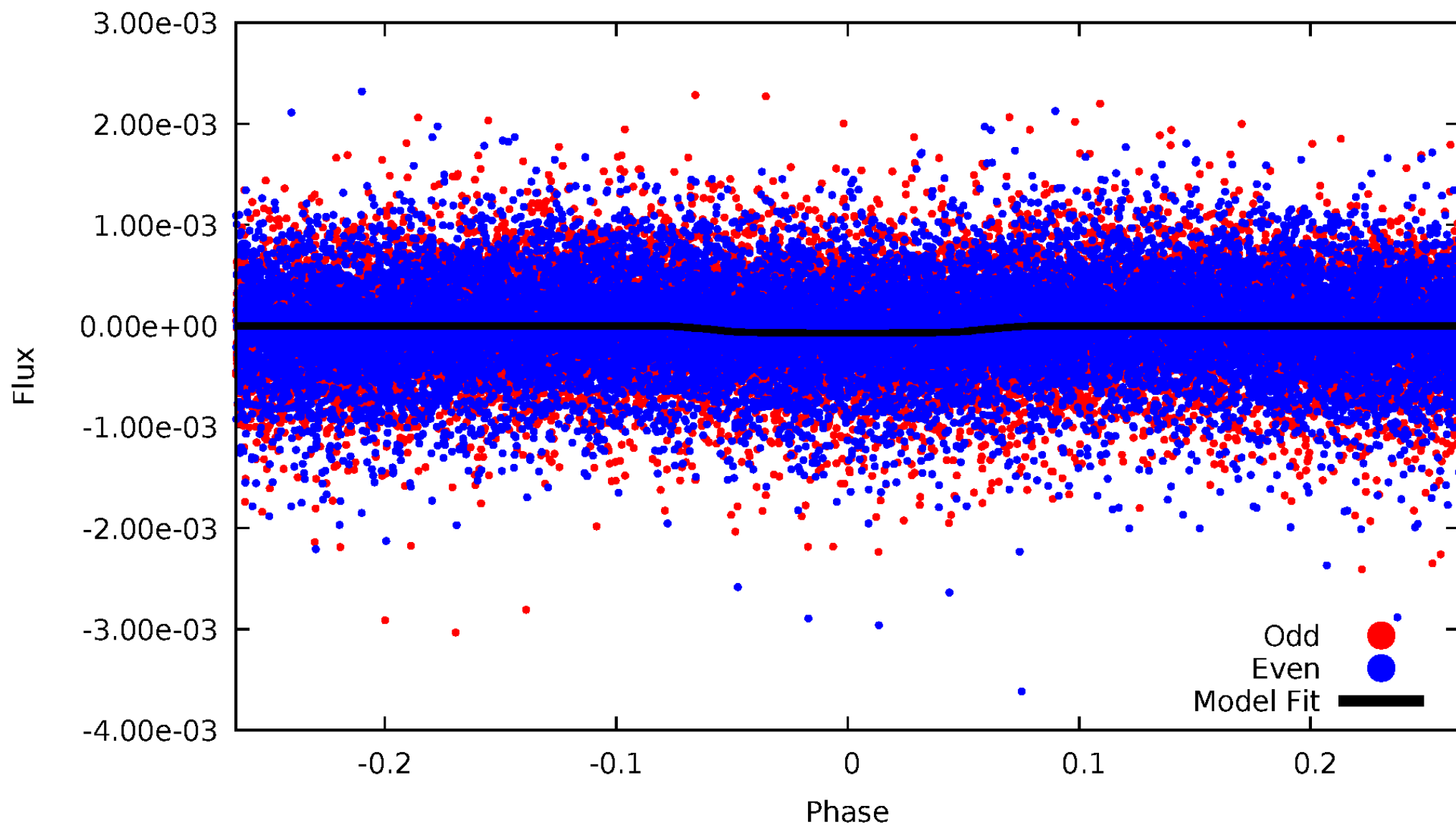


TCE 009278696-01



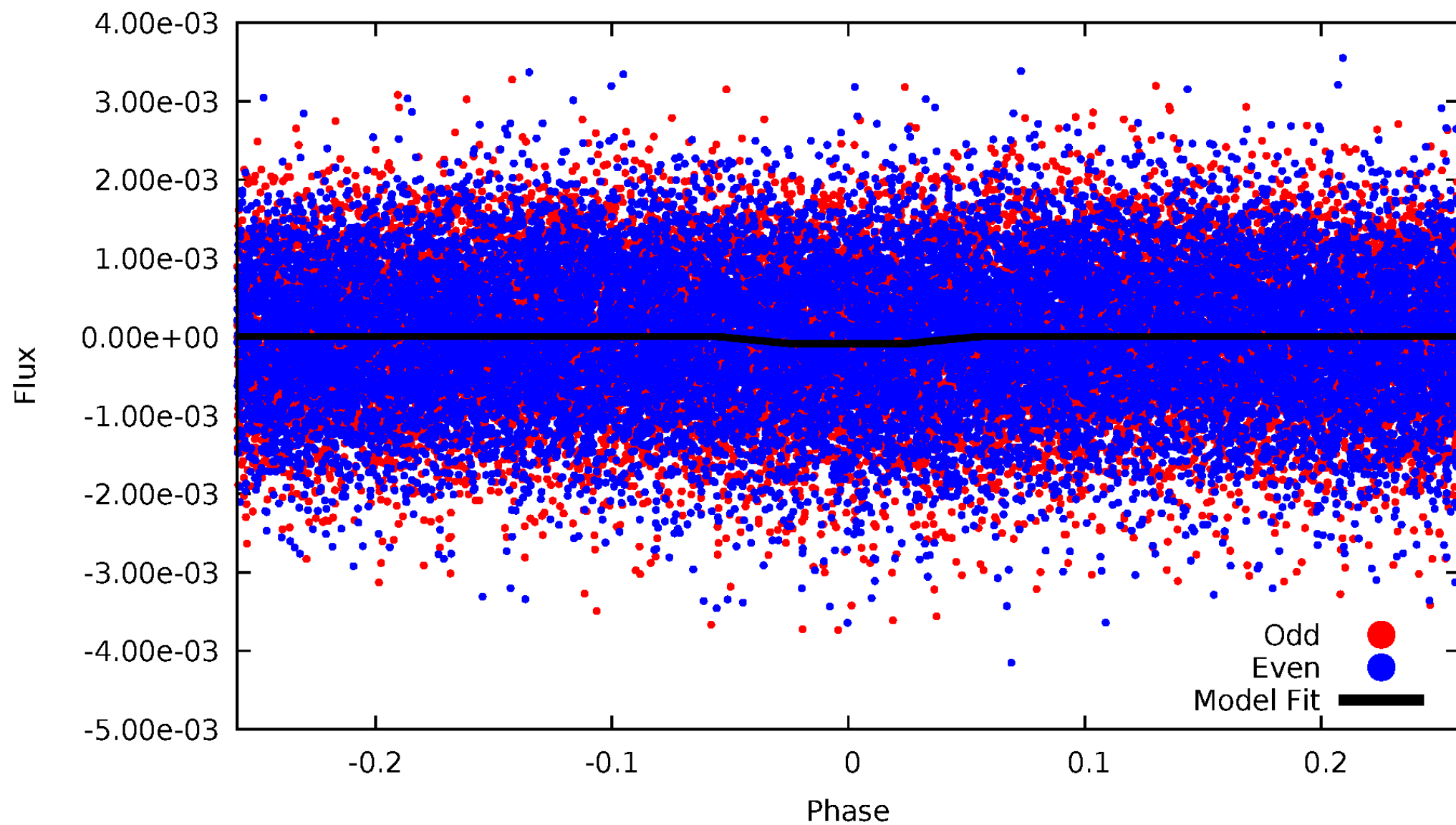
DV Odd/Even

TCE 009278696-01

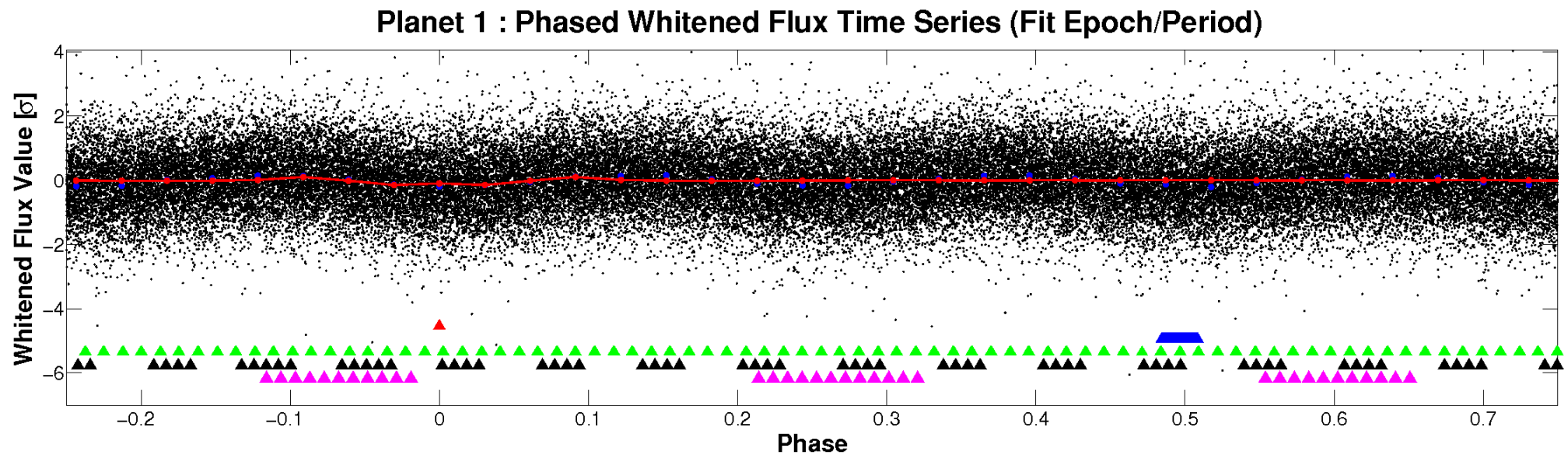
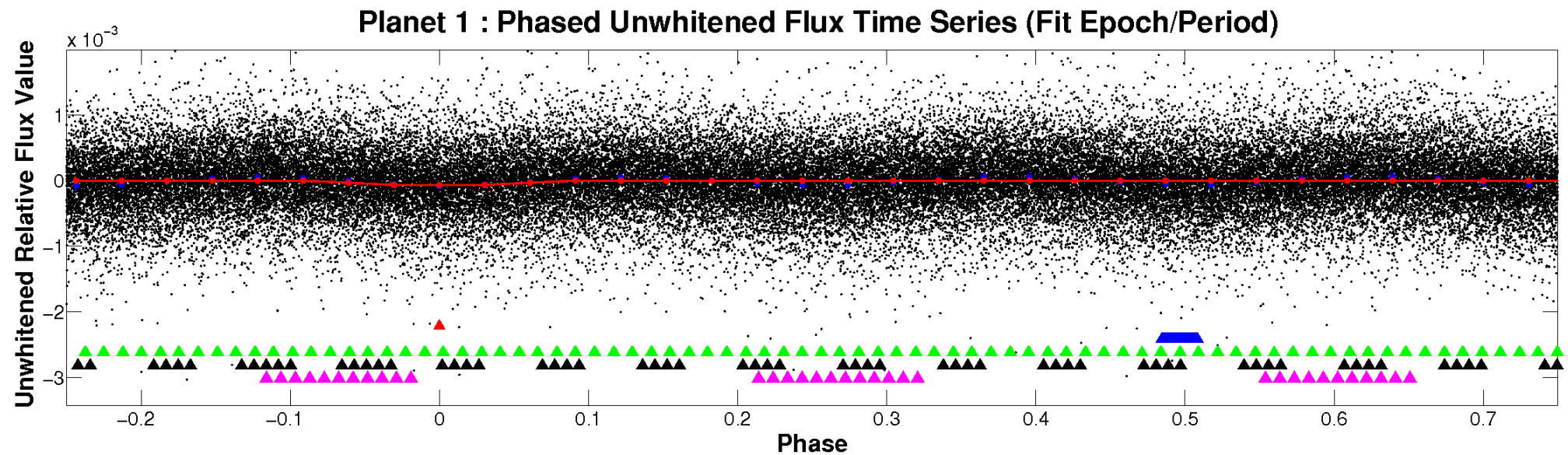


ALT Odd/Even

TCE 009278696-01

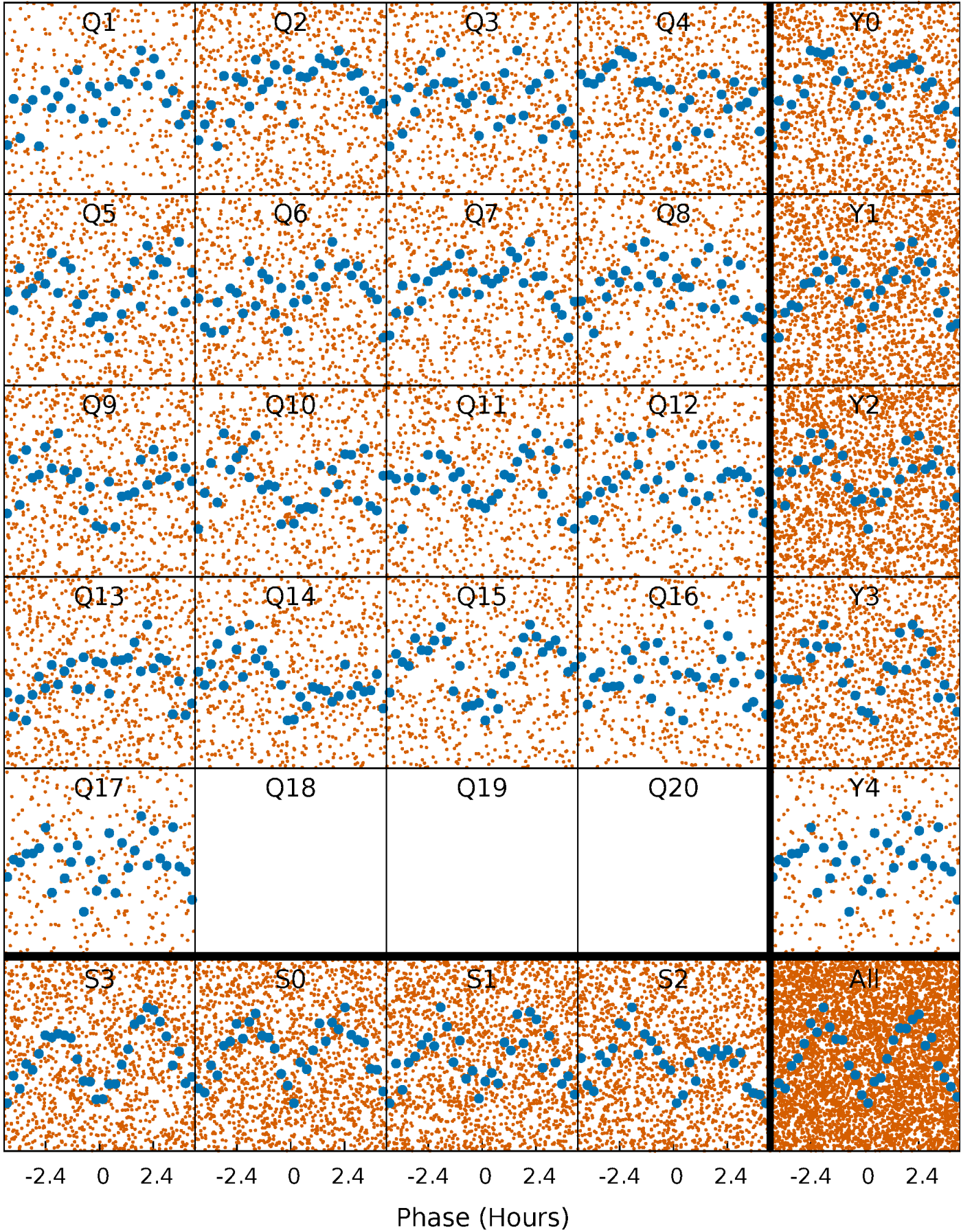


Non-Whitened Vs. Whitened Light Curve



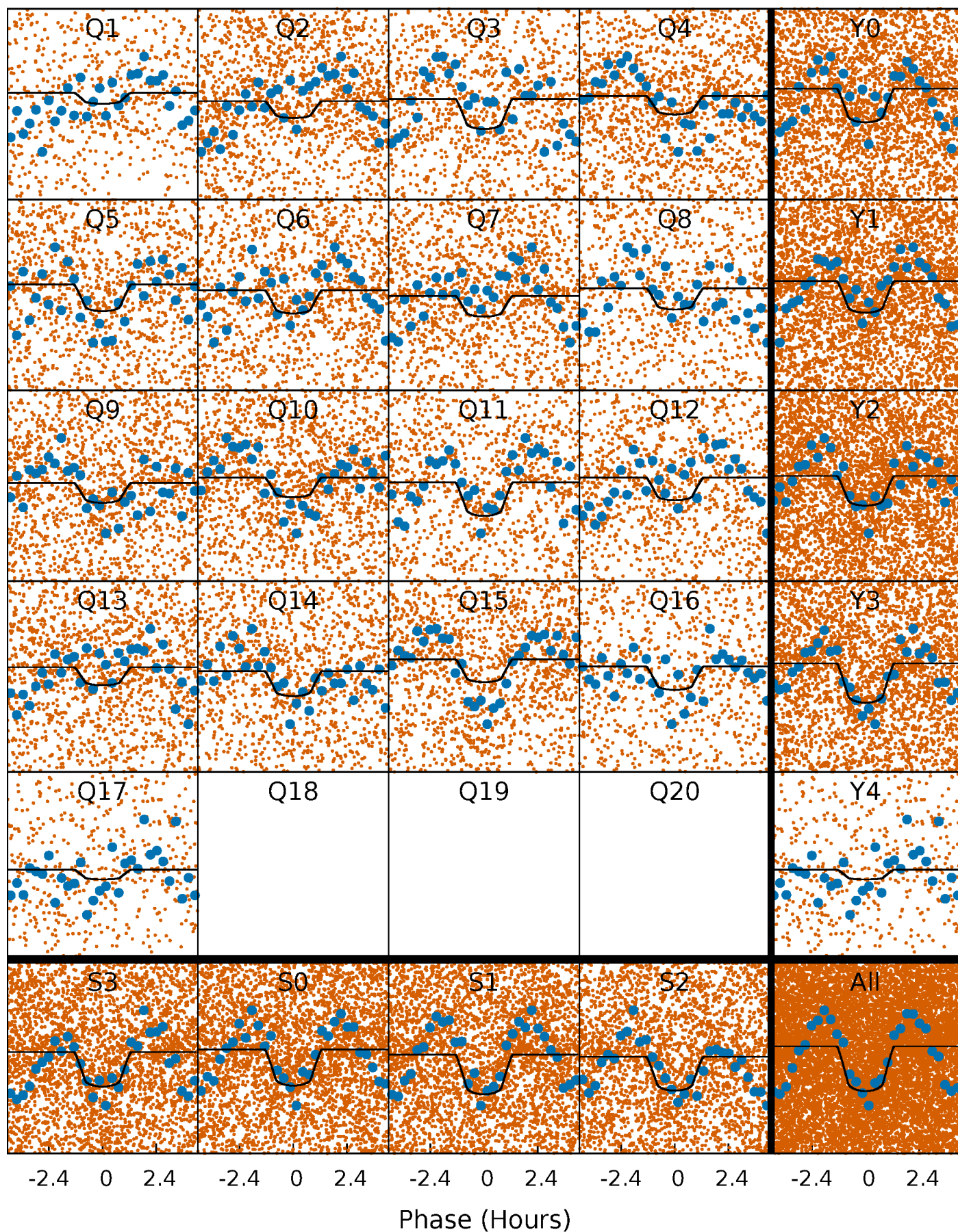
PDC Quarter-Phased Transit Curves

TCE 009278696-01 P= 0.671258 Days $T_0=131.775162$ (BKJD)



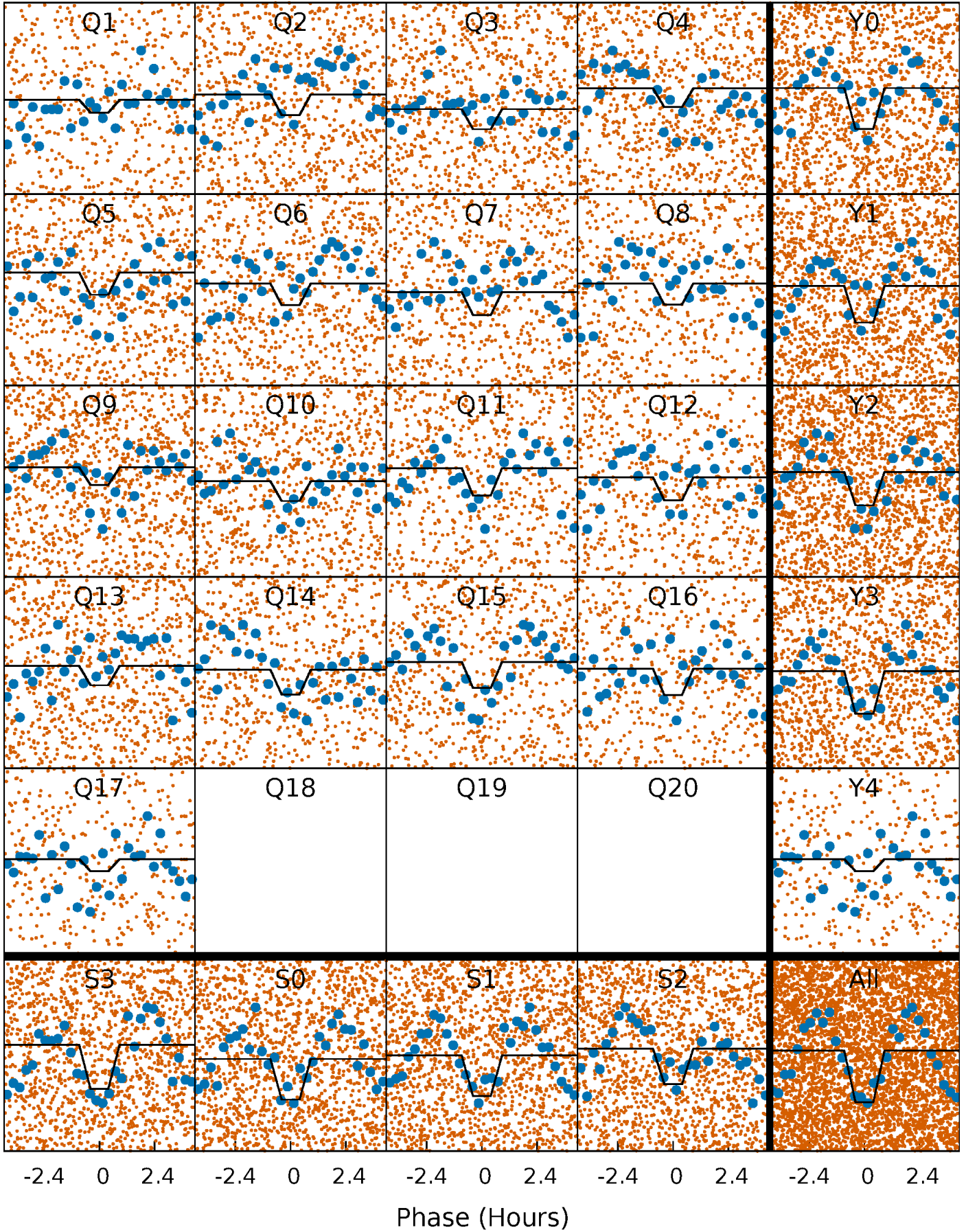
DV Quarter-Phased Transit Curves

TCE 009278696-01 P= 0.671258 Days $T_0=131.775162$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

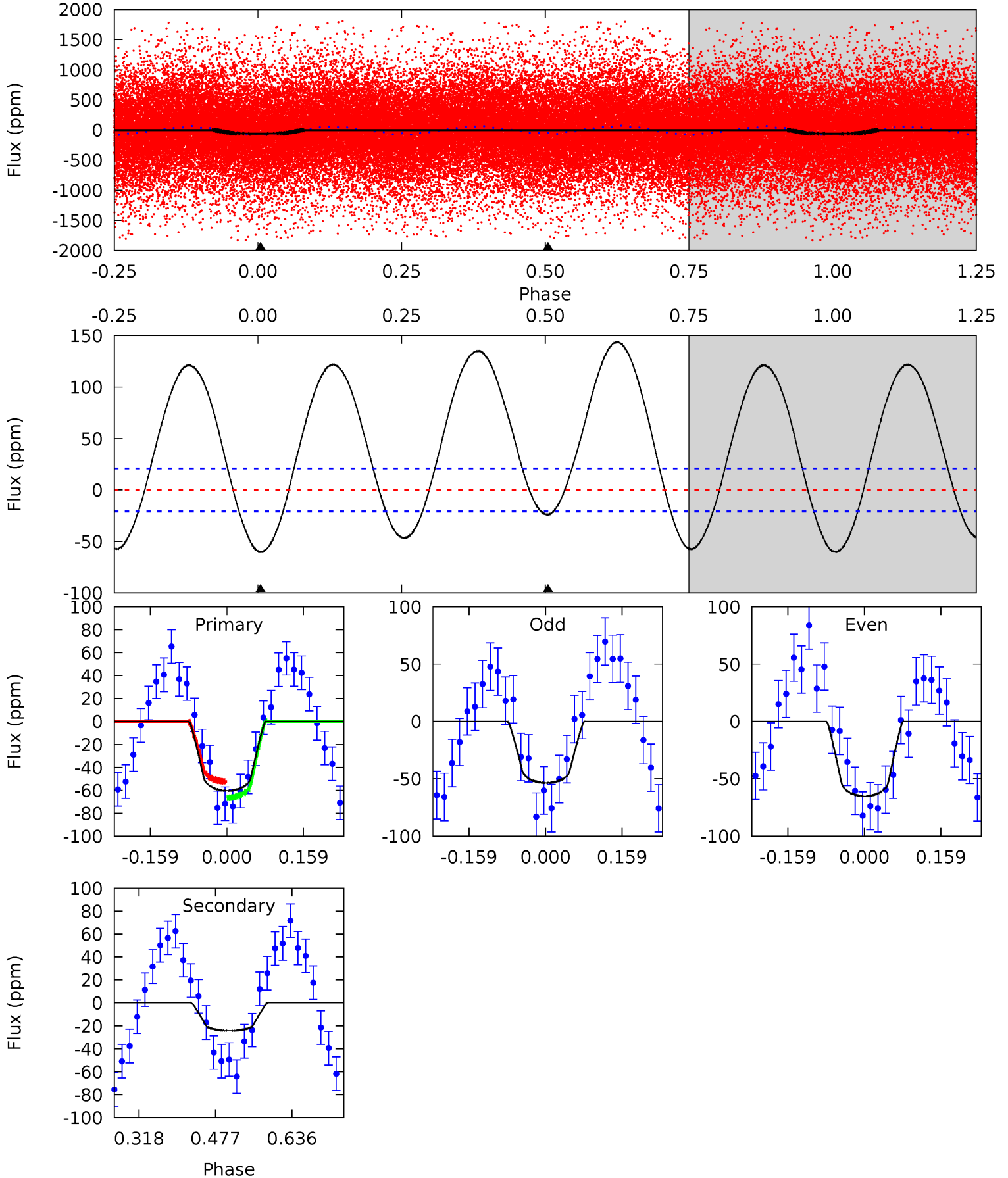
TCE 009278696-01 P= 0.671263 Days $T_0=131.774275$ (BKJD)



DV Model-Shift Uniqueness Test

009278696-01, P = 0.671258 Days, E = 131.103904 Days

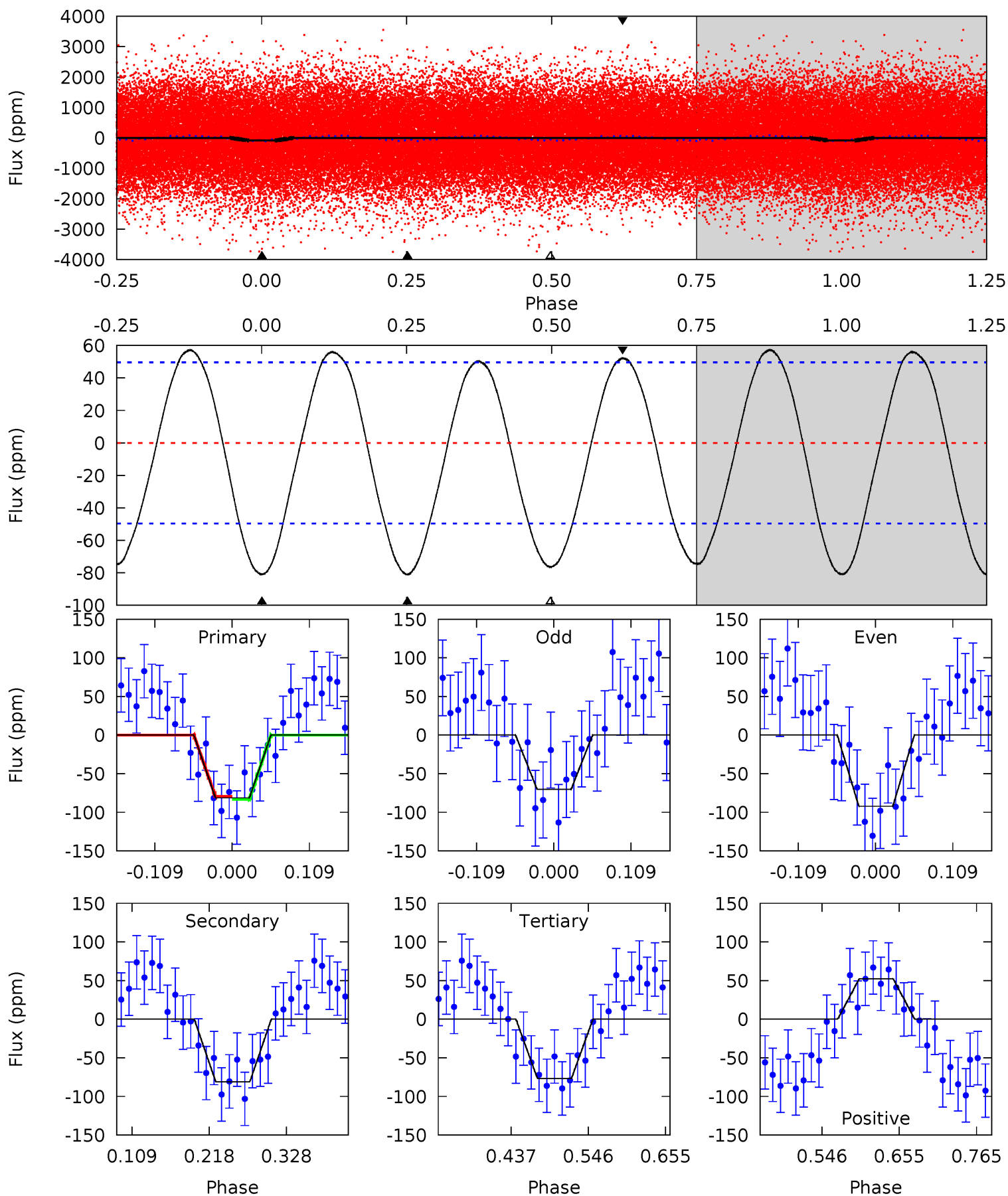
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	5.19	0	0	4.47	1.41	10.3	12.9	12.9	5.19	5.19	1.25	1.34	0.70	1.52



Alt Model-Shift Uniqueness Test

009278696-01, P = 0.671263 Days, E = 131.103012 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.45	7.45	7.04	4.80	4.55	1.60	4.35	0.41	2.65	0.41	2.65	1.00	2.58	0.41	0.16



Stellar Parameters For KIC 009278696

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6942^{+194}_{-305}	$4.083^{+0.175}_{-0.193}$	$0.100^{+0.200}_{-0.350}$	$1.870^{+0.555}_{-0.454}$	$1.545^{+0.196}_{-0.269}$	$0.333^{+0.324}_{-0.162}$
	+3%/-4%	+4%/-5%	+200%/-350%	+30%/-24%	+13%/-17%	+97%/-49%
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 009278696-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-24 ± 5	$1.83^{+0.47}_{-0.38}$	4441^{+370}_{-353}	4843^{+570}_{-567}	$1.187^{+0.744}_{-0.451}$
Alt.	-81 ± 11	$1.90^{+0.44}_{-0.37}$	4414^{+355}_{-336}	6542^{+863}_{-603}	$3.691^{+1.942}_{-1.344}$

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 $A_{obs} \gg 1.0$

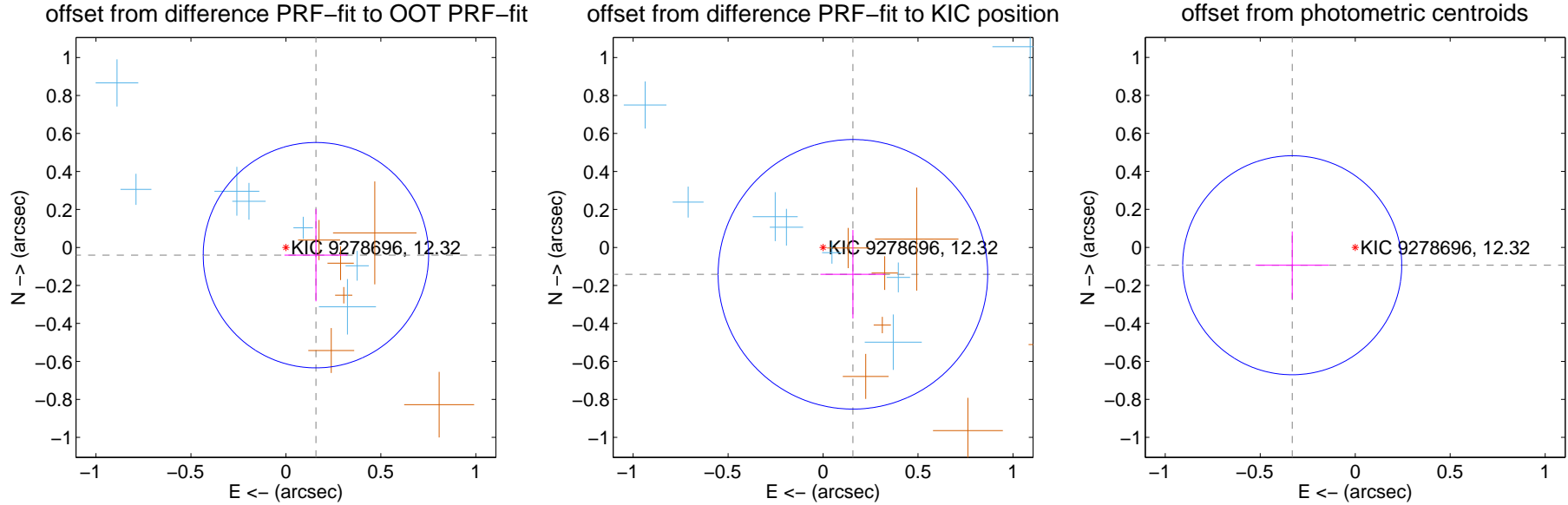
DV Centroid Data

Supplemental centroid analysis for 009278696-01. Kepler magnitude: 12.32. Transit SNR 13.89

There are 8 quarters with good PRF difference image offsets

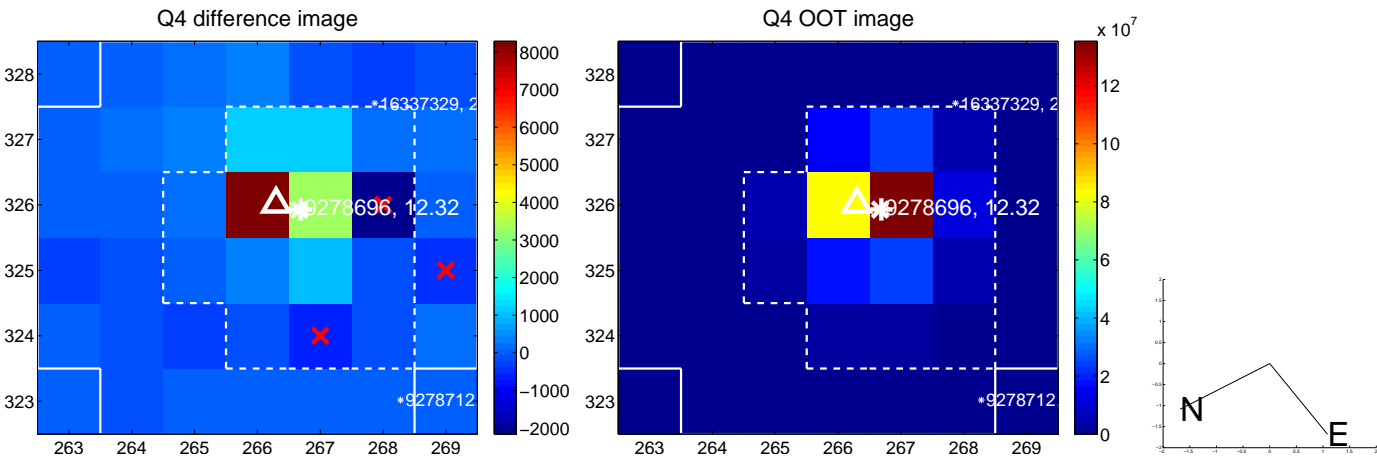
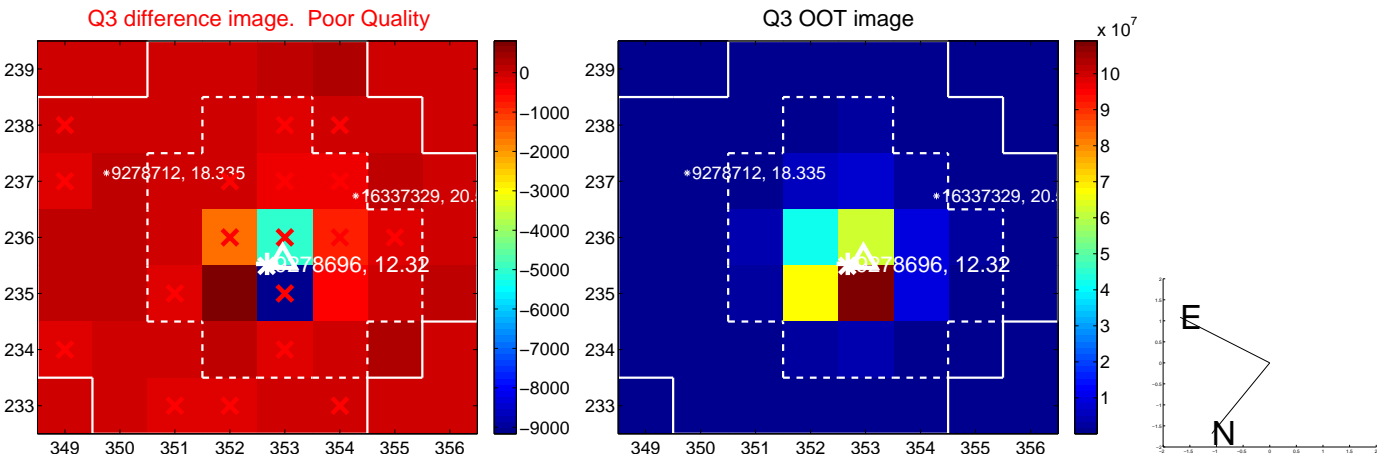
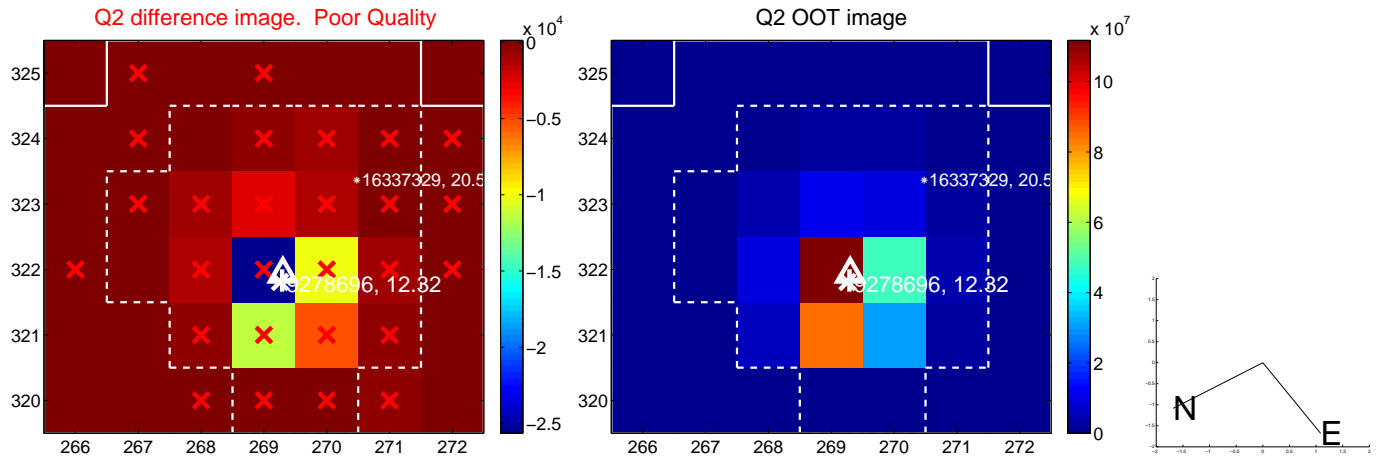
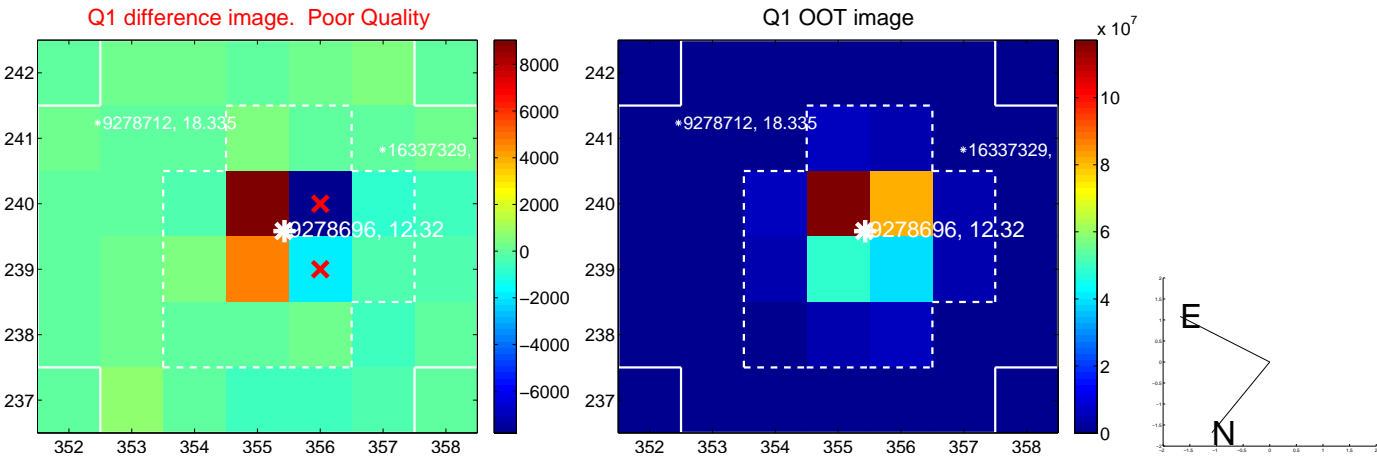
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.163 ± 0.198	0.83	-0.158 ± 0.166	-0.041 ± 0.243
PRF-fit source offset from KIC position	0.211 ± 0.237	0.89	-0.157 ± 0.171	-0.141 ± 0.233
photometric centroid source offset	0.34 ± 0.19	1.79	0.33 ± 0.19	-0.09 ± 0.18

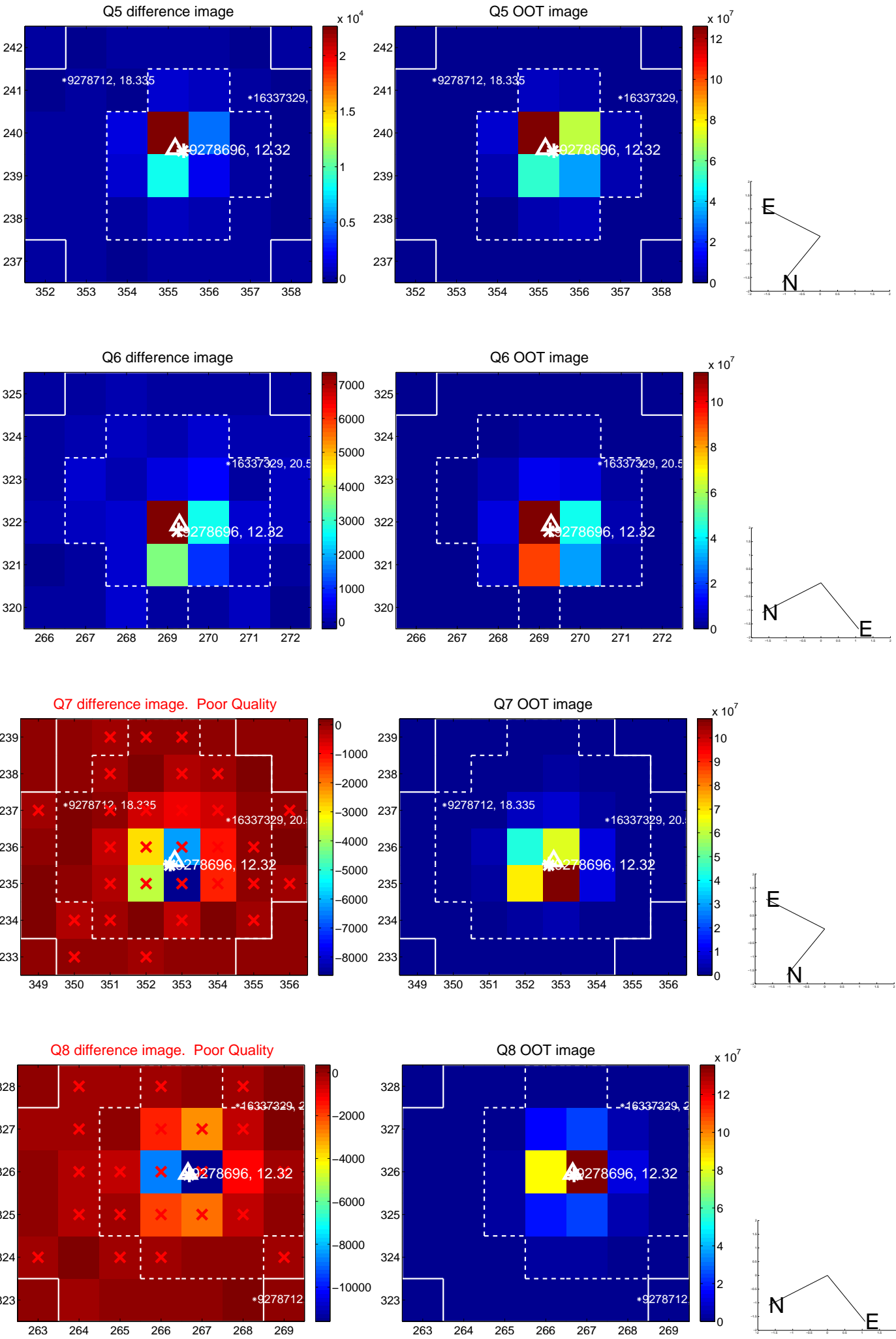


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

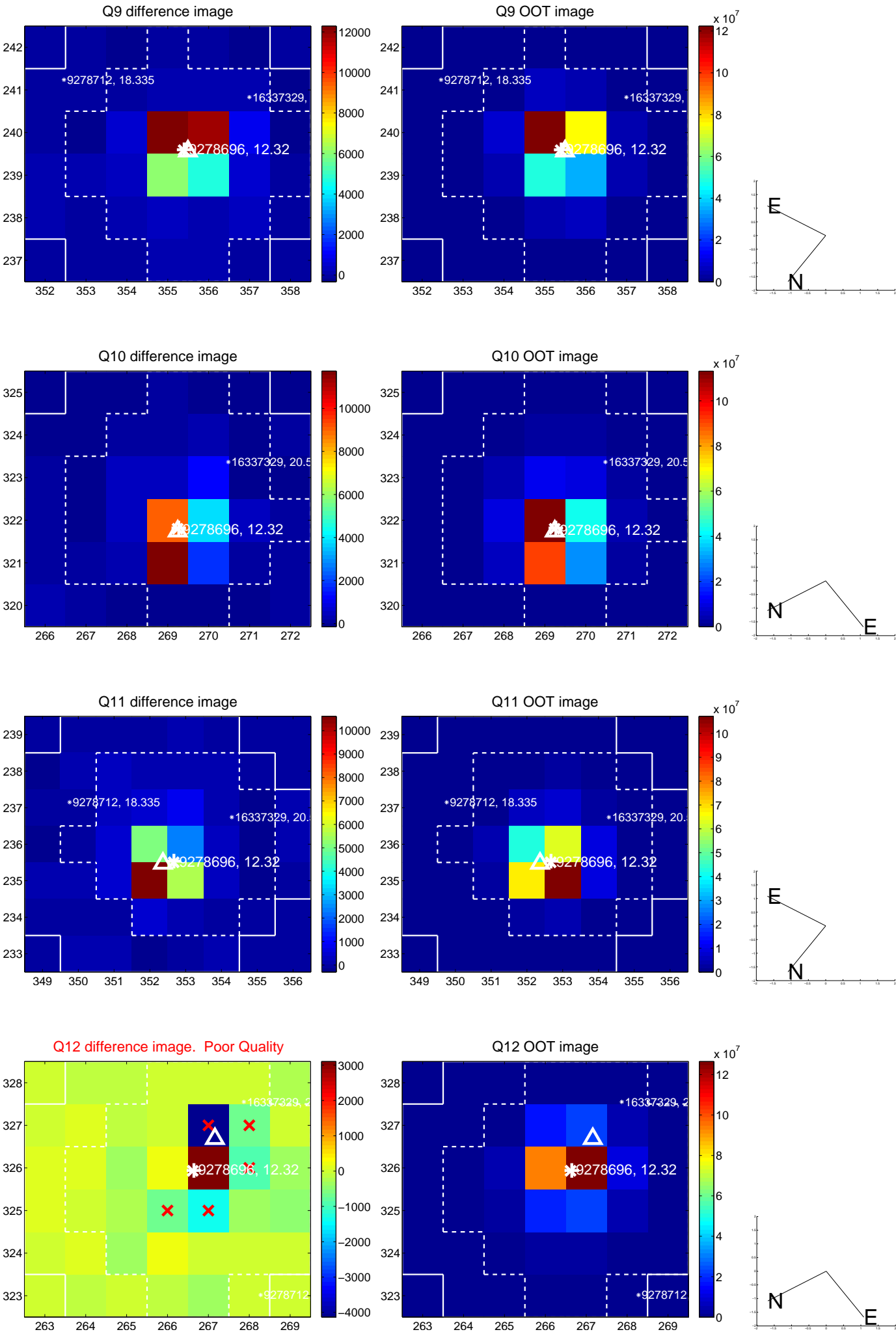
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



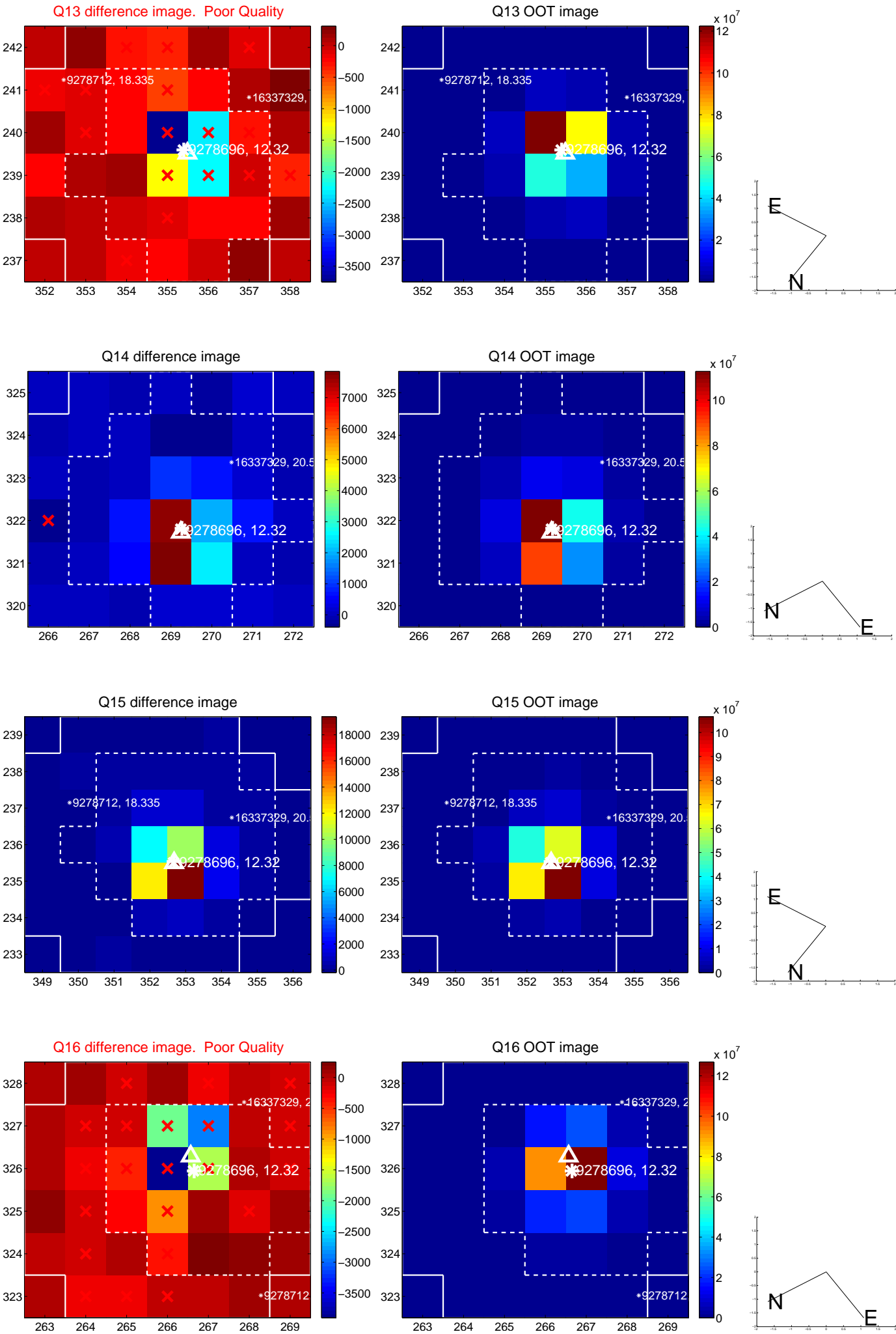
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



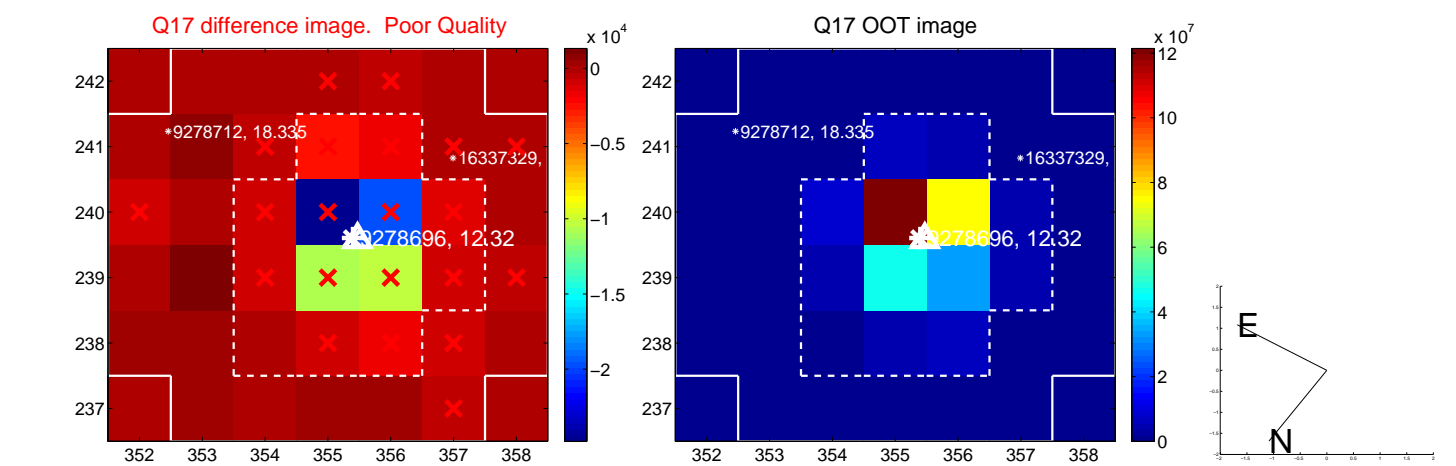
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



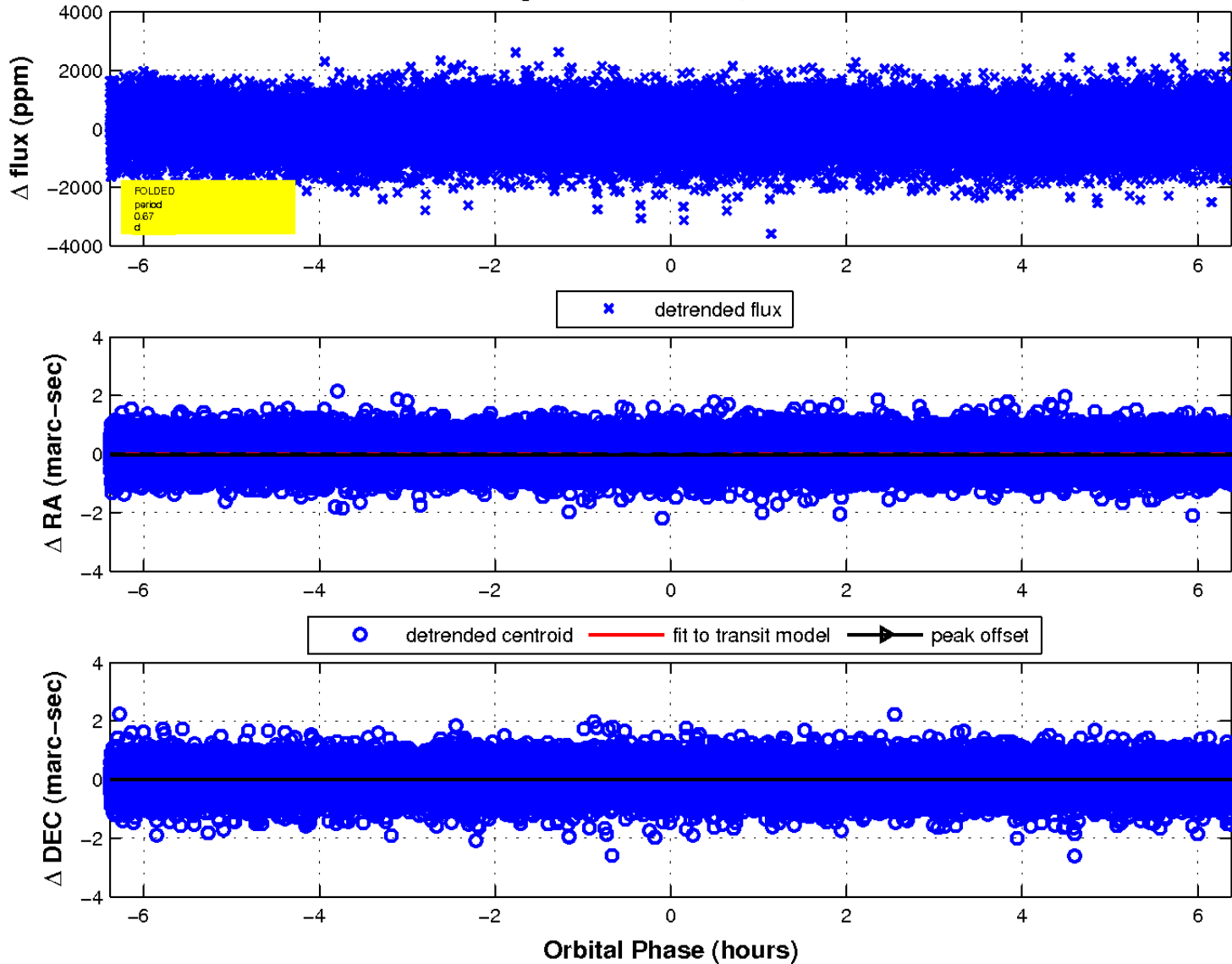
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

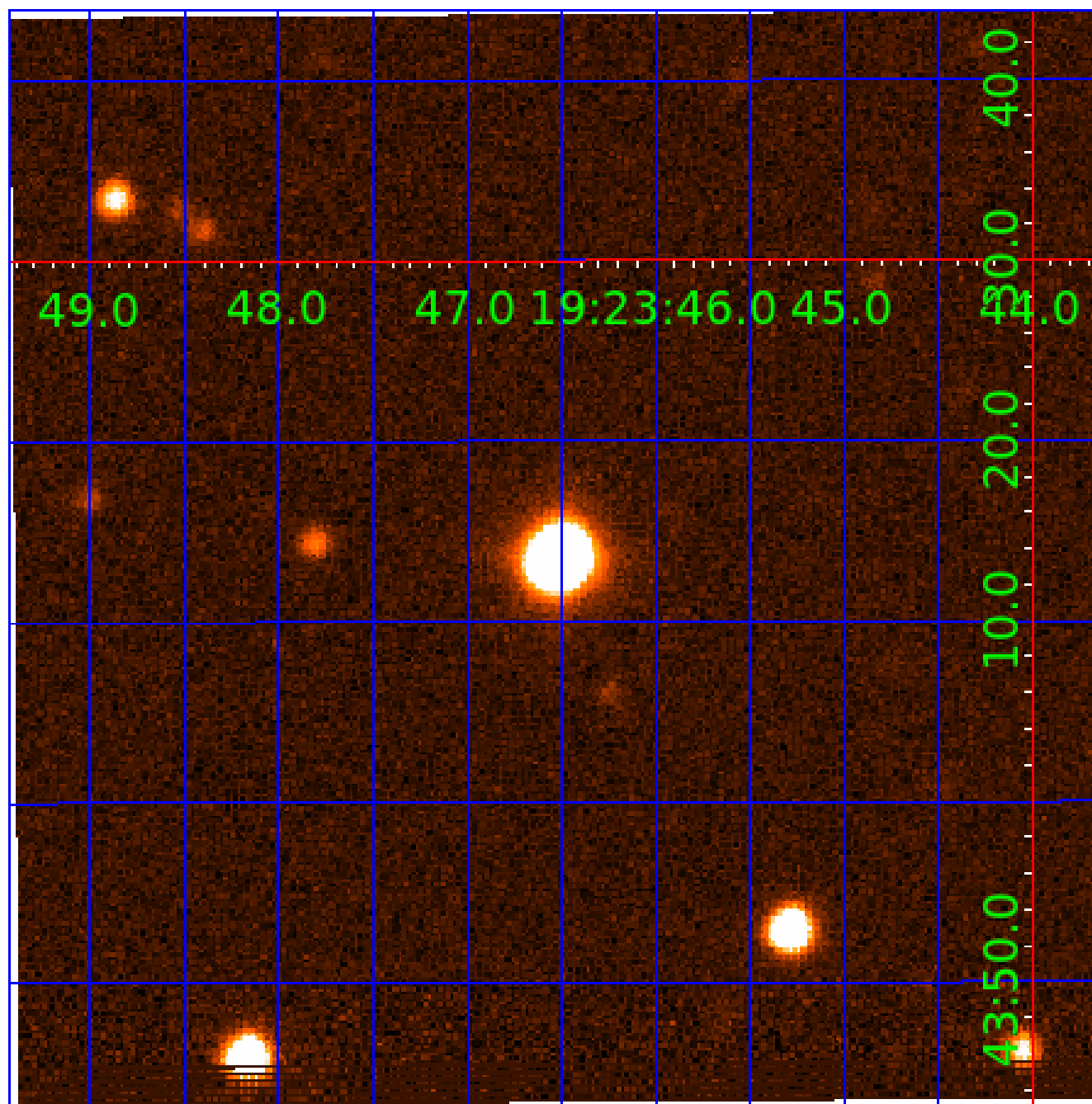


fluxWeightedCentroids, Planet 1 of 5



UKIRT Image

Declination



KIC 009278696

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})
009278696-01	OBS	No	0.671258	131.775162	70.8	2.129	13.9	13.9	1.87	6942	1.83	24184.71
009278696-02	OBS	No	0.671251	132.116488	72.2	2.502	12.5	12.9	1.87	6942	1.72	24185.06
009278696-03	OBS	No	9.338135	134.717444	209.4	2.000	9.4	-1.0	1.87	6942	2.74	722.85
009278696-05	OBS	No	42.738959	144.001570	995.6	5.785	7.4	6.7	1.87	6942	6.62	95.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009278696-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009278696-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009278696-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009278696-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV

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

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

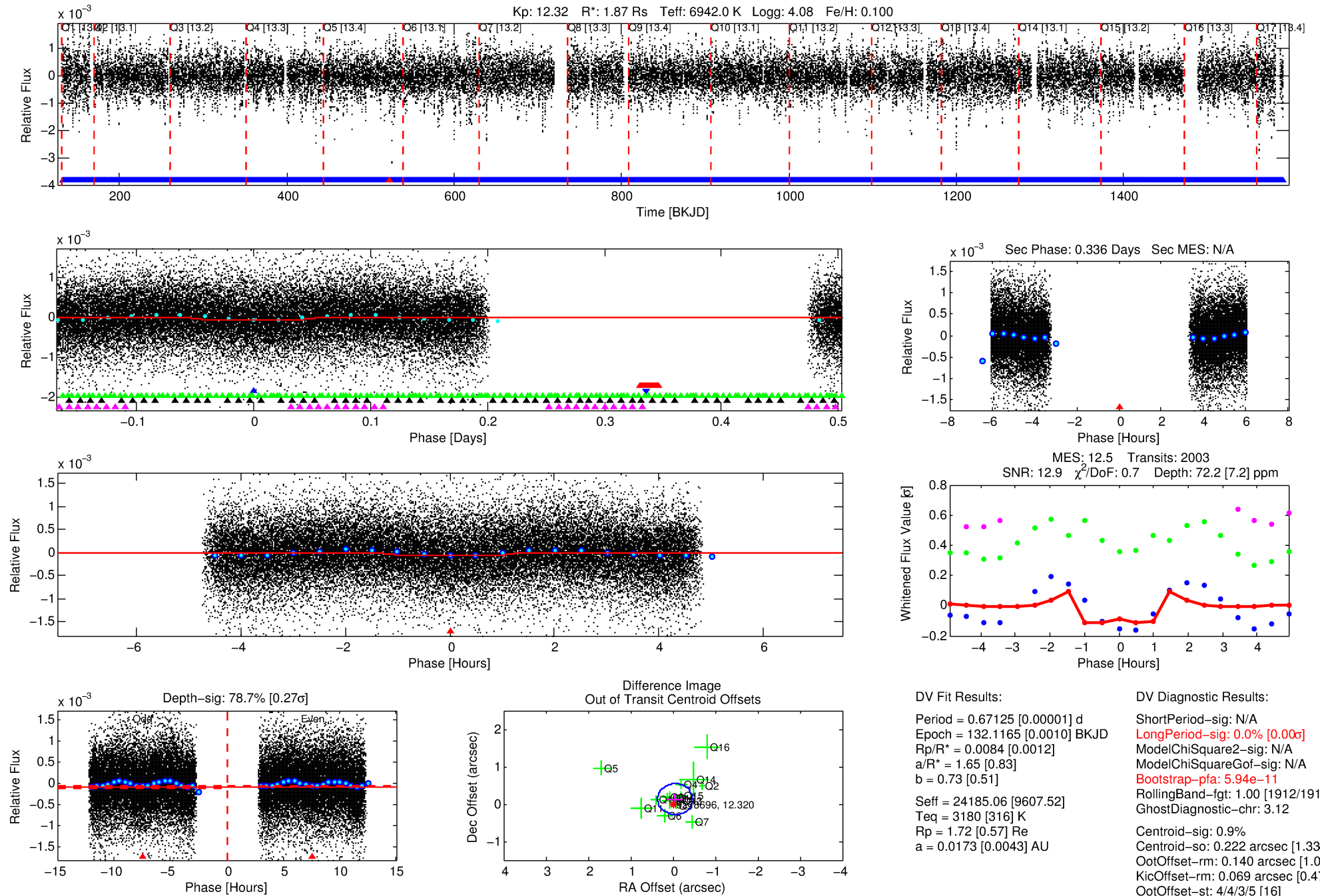
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009278696-02

No Significant Match Found

DV One-Page Summary

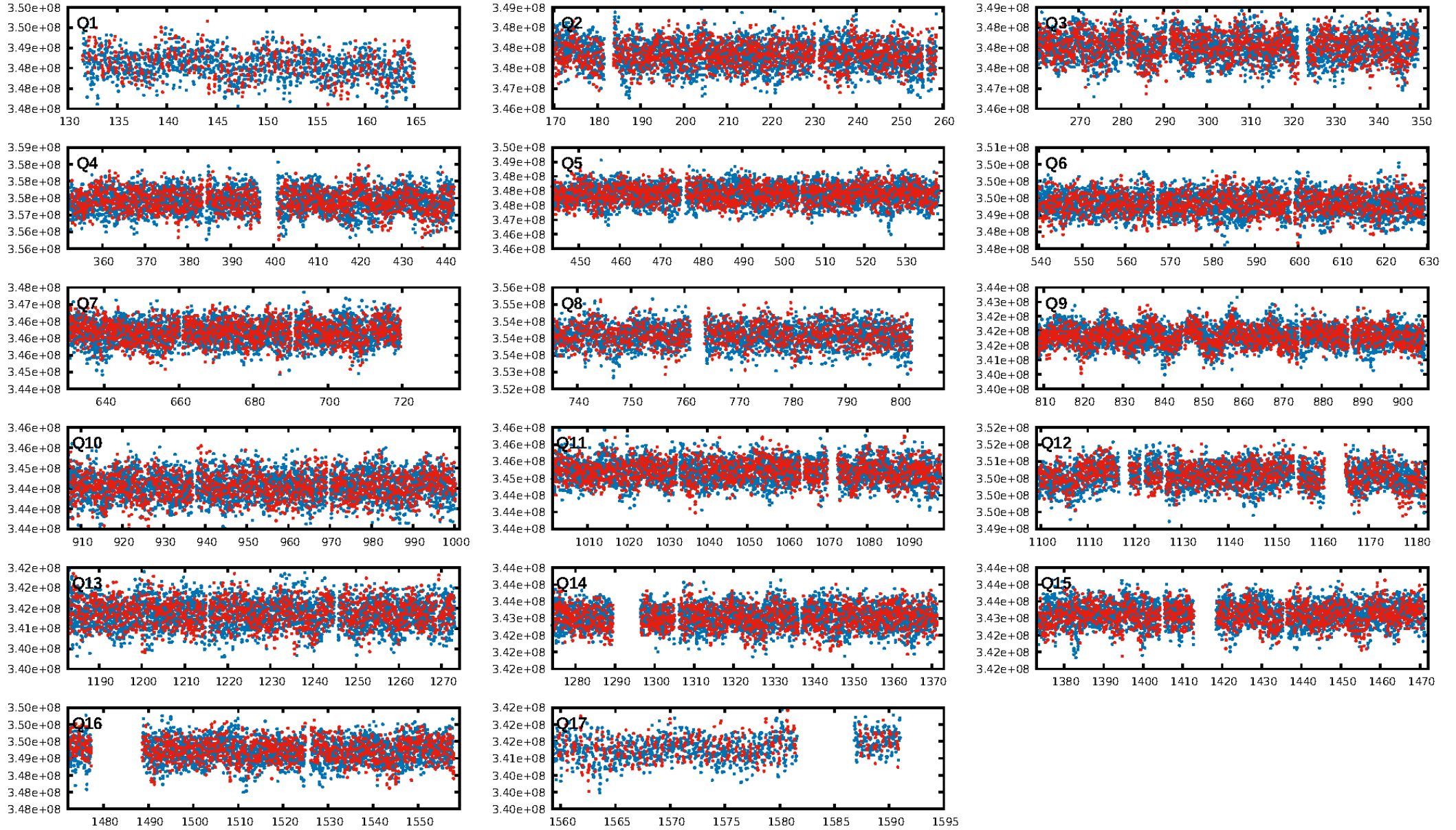
KIC: 9278696 Candidate: 2 of 5 Period: 0.671 d



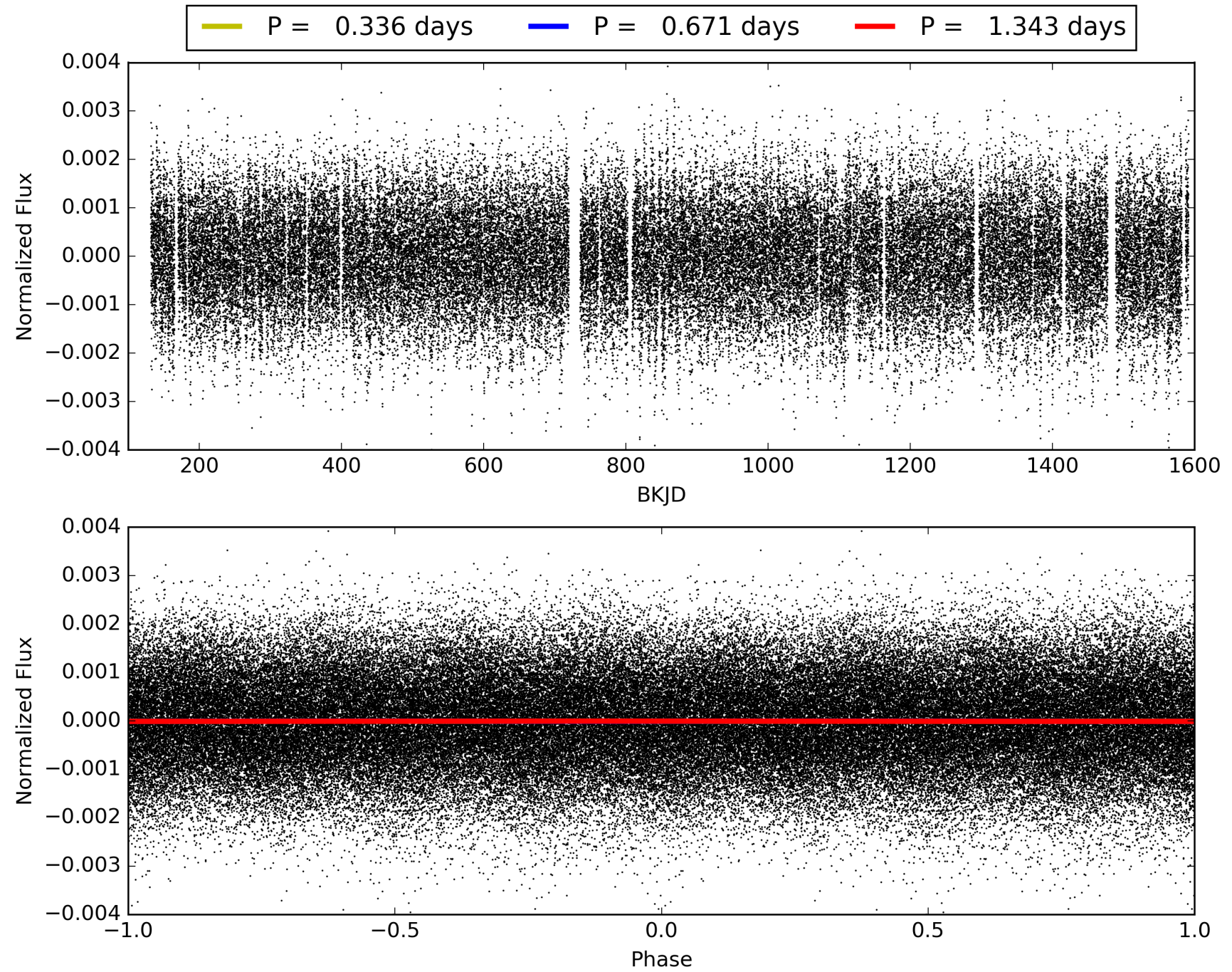
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:53:27 Z

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

TCE 009278696-02, PDC Light Curves

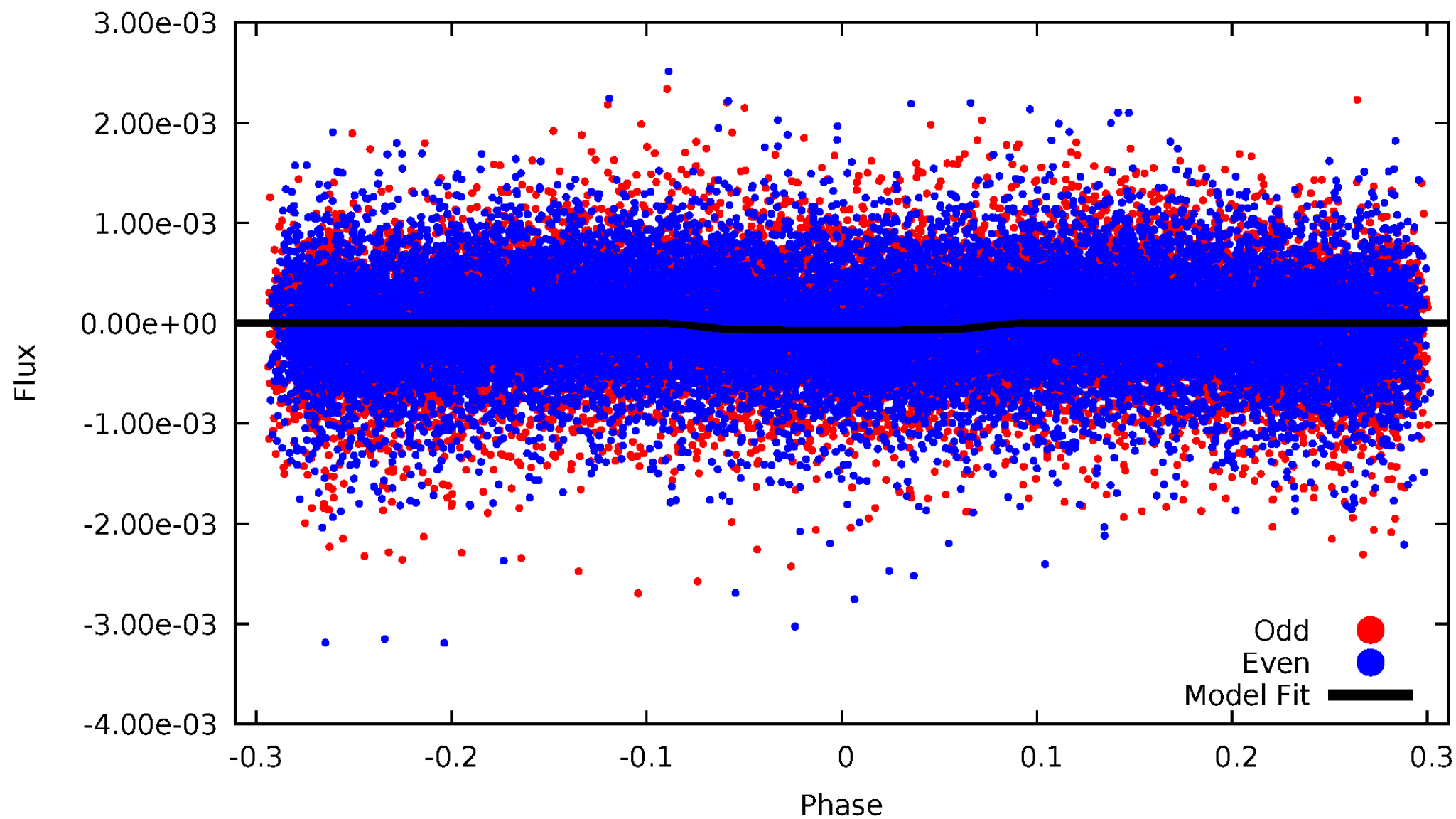


TCE 009278696-02



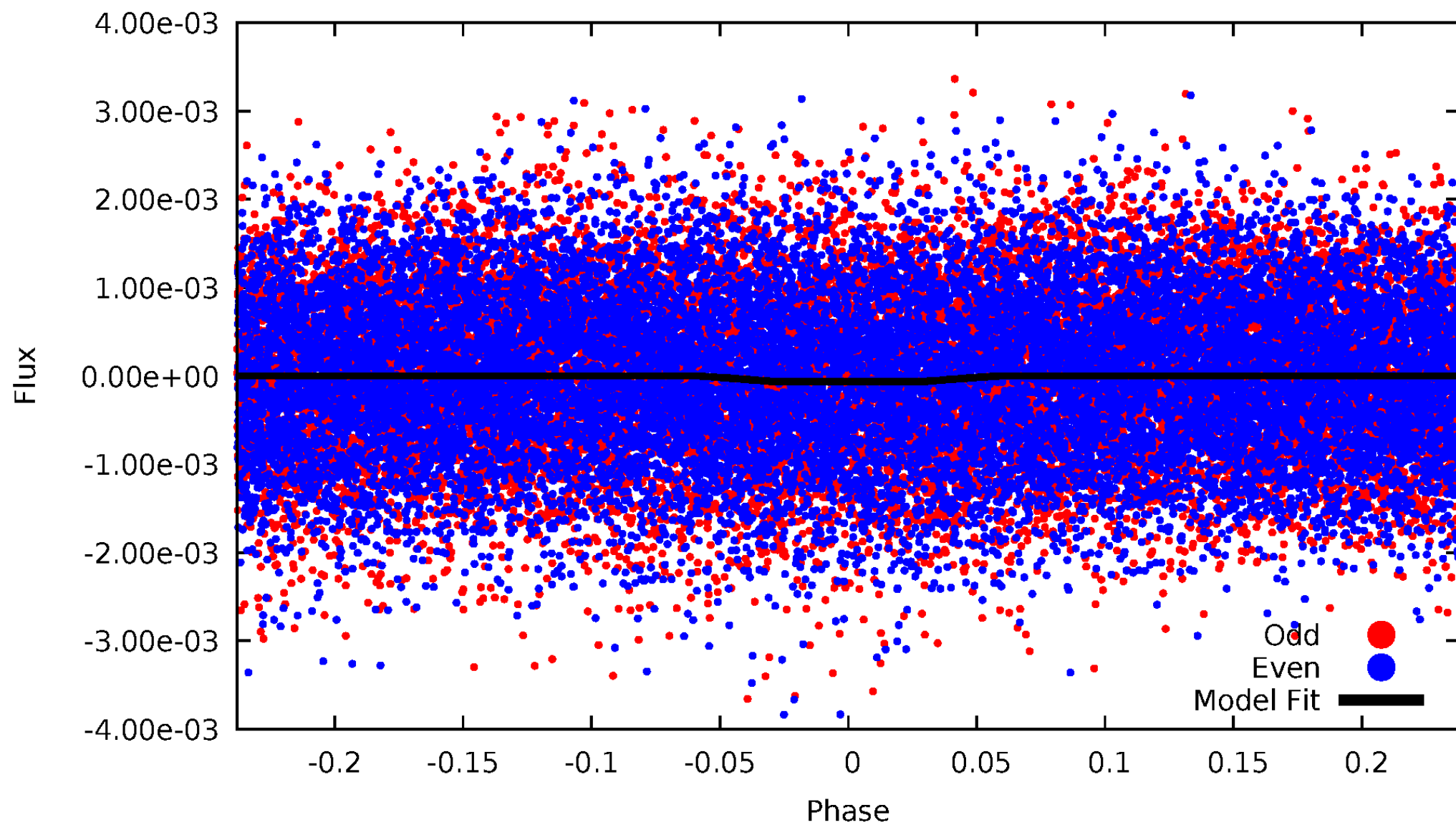
DV Odd/Even

TCE 009278696-02



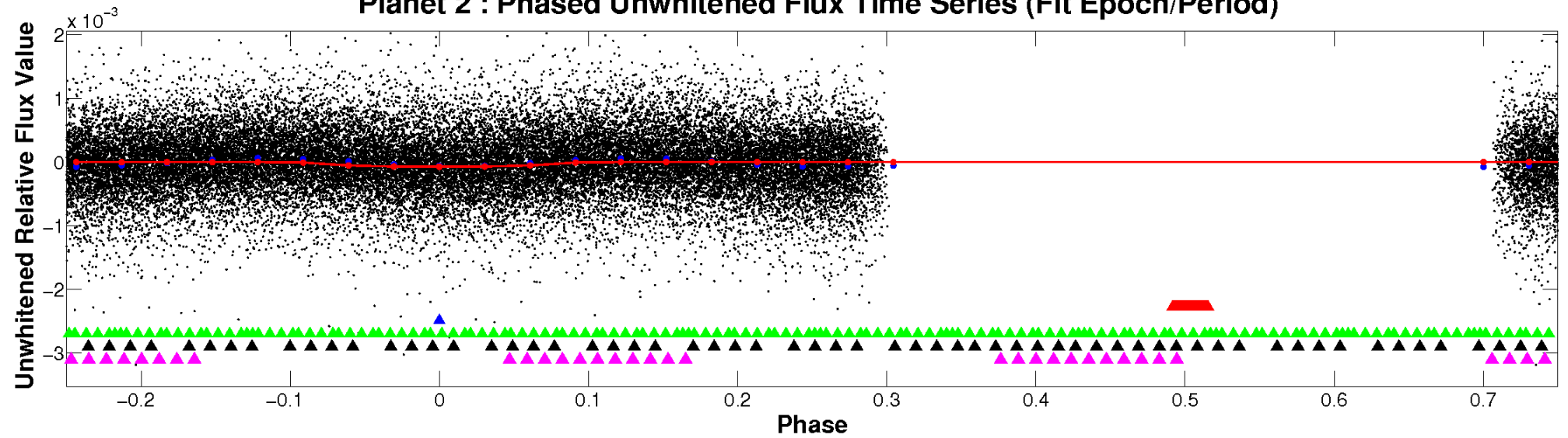
ALT Odd/Even

TCE 009278696-02

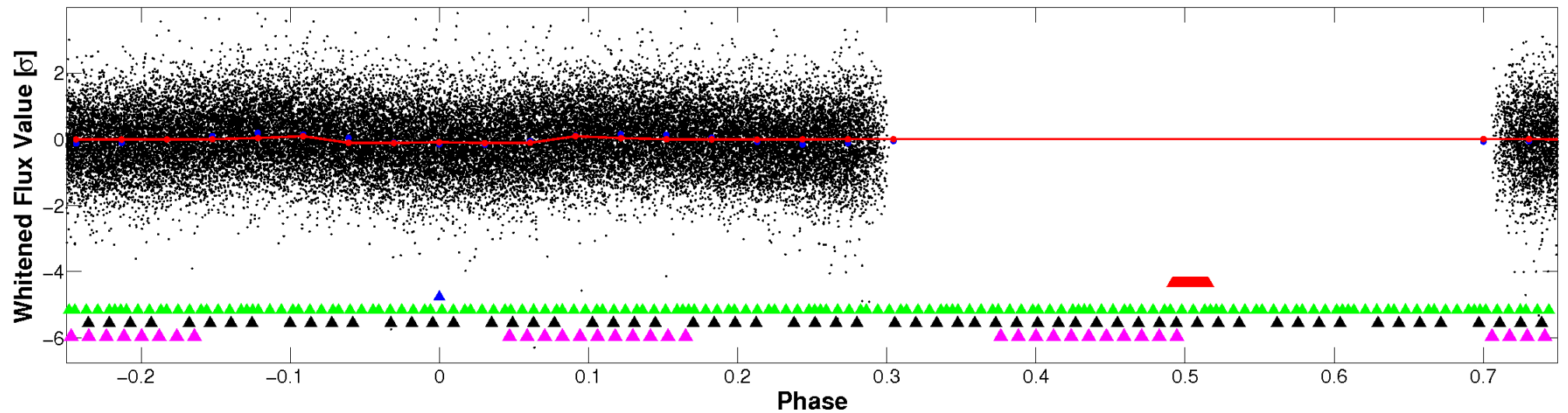


Non-Whitened Vs. Whitened Light Curve

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

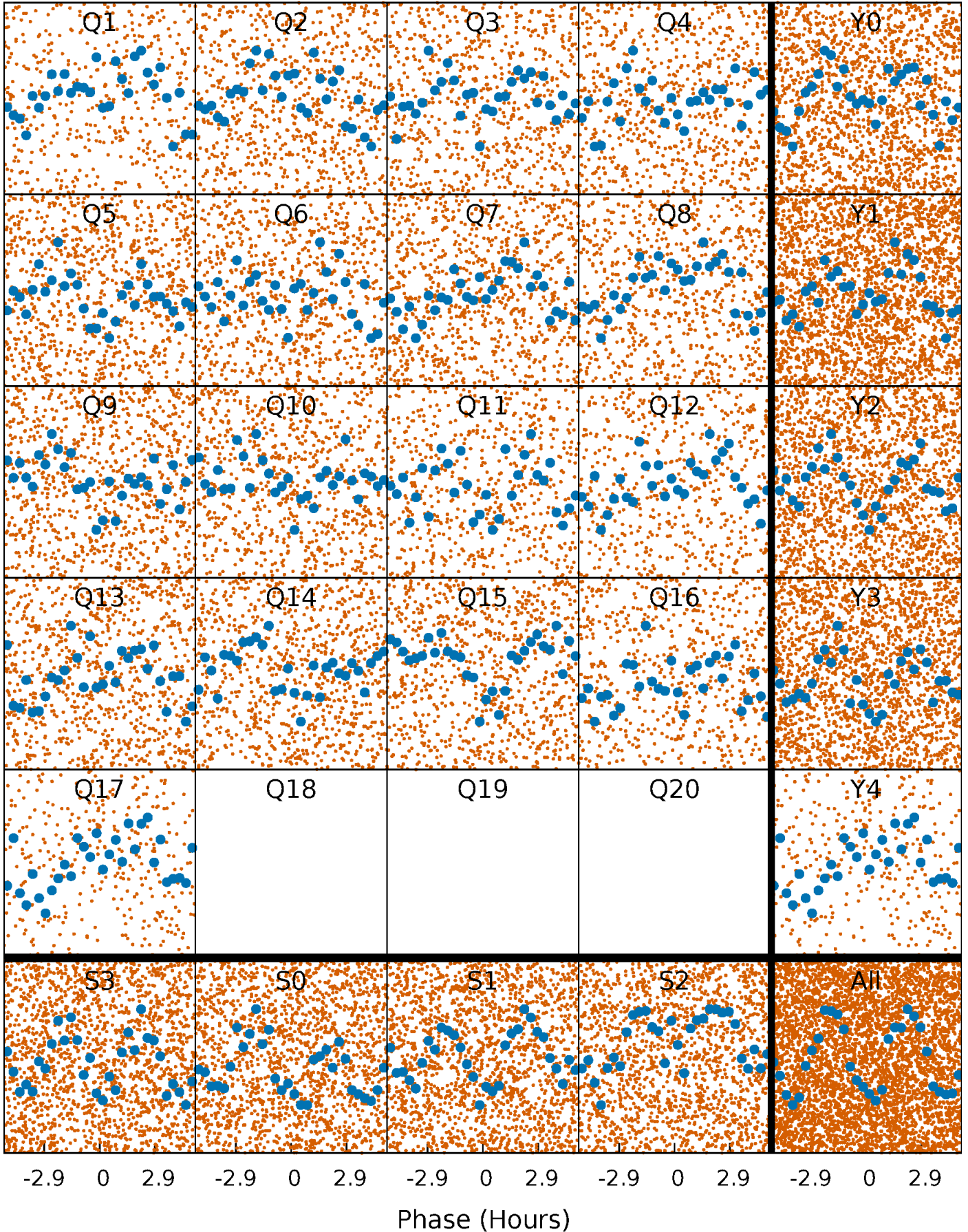


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



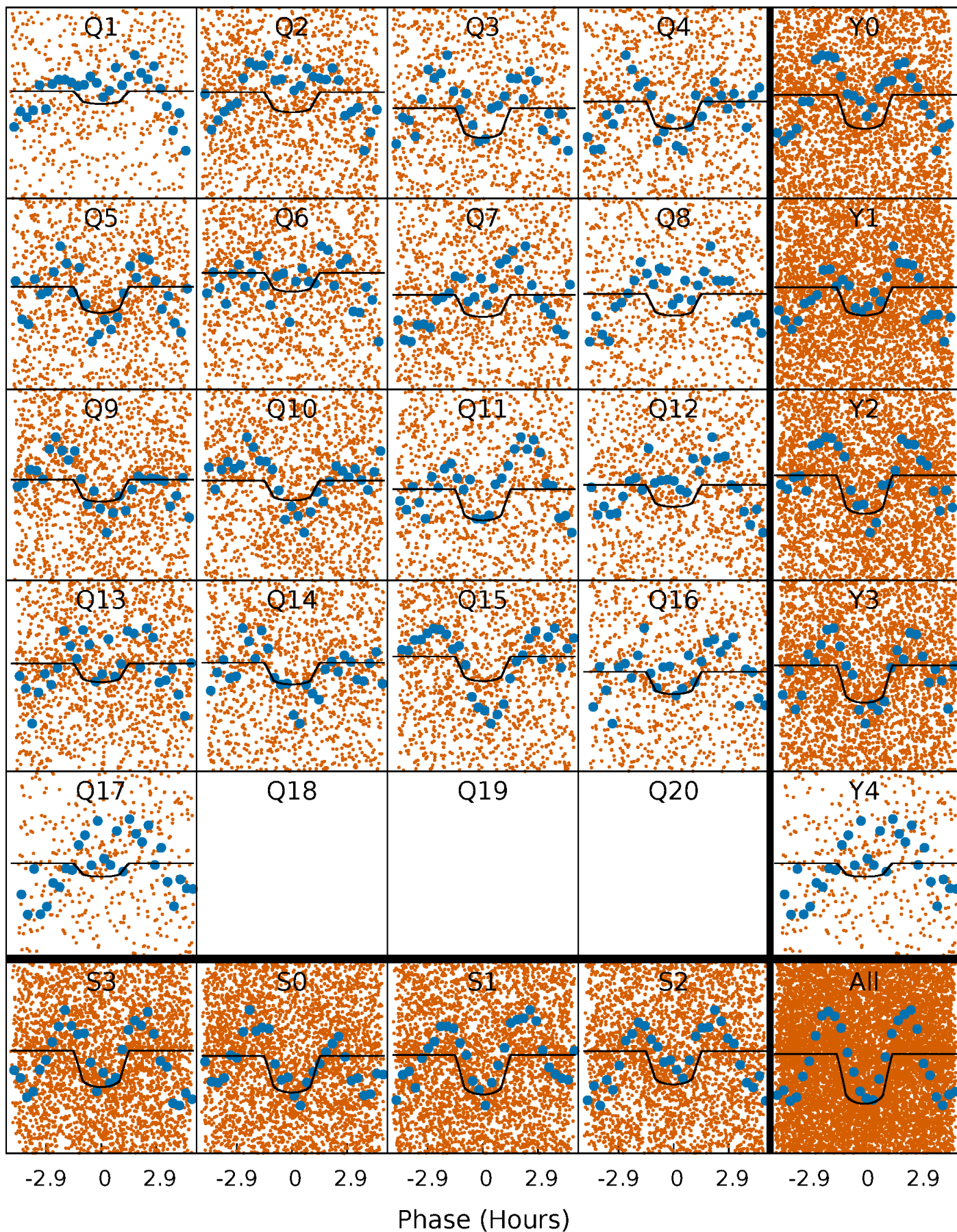
PDC Quarter-Phased Transit Curves

TCE 009278696-02 P= 0.671251 Days $T_0=132.116488$ (BKJD)



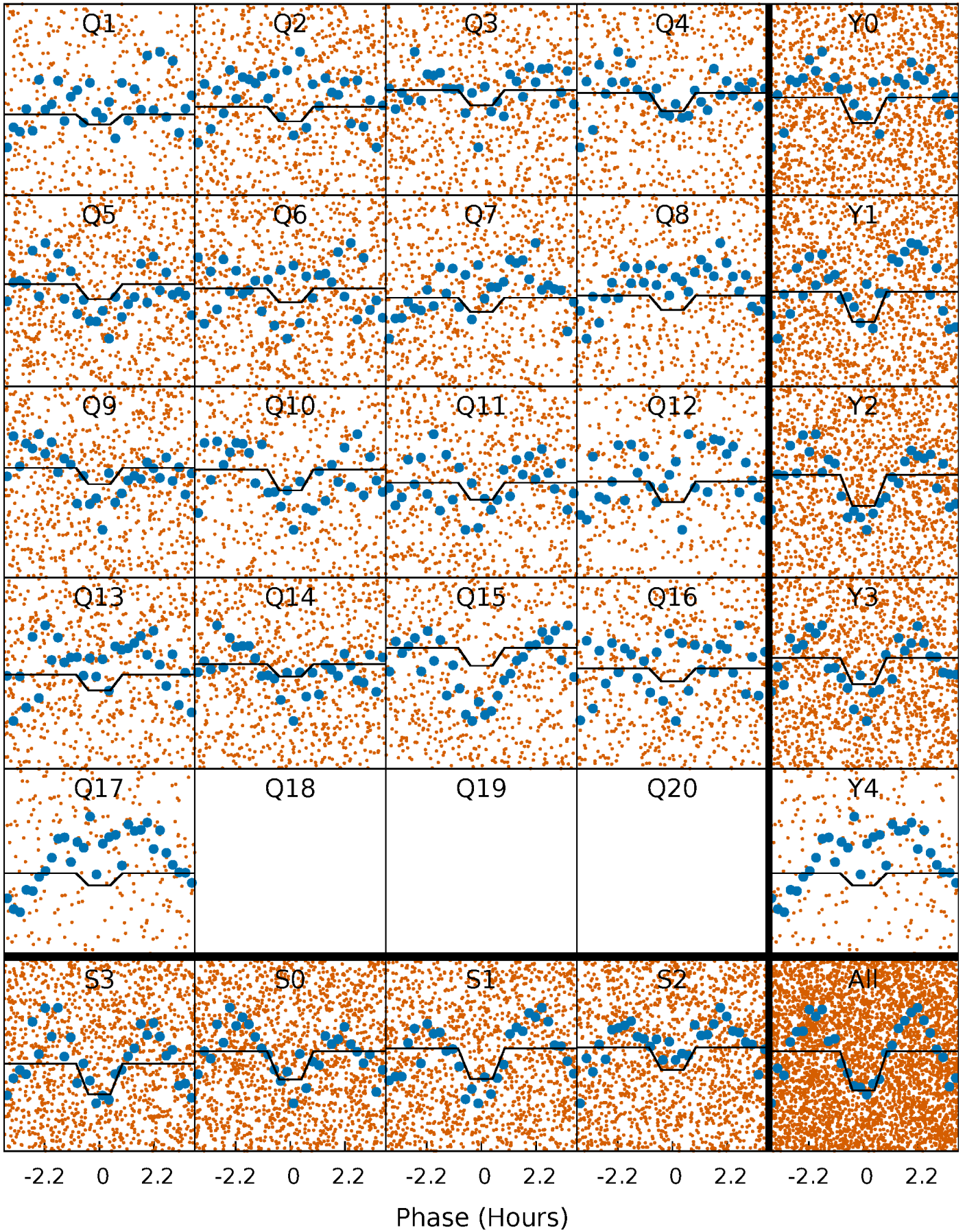
DV Quarter-Phased Transit Curves

TCE 009278696-02 P= 0.671251 Days $T_0=132.116488$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

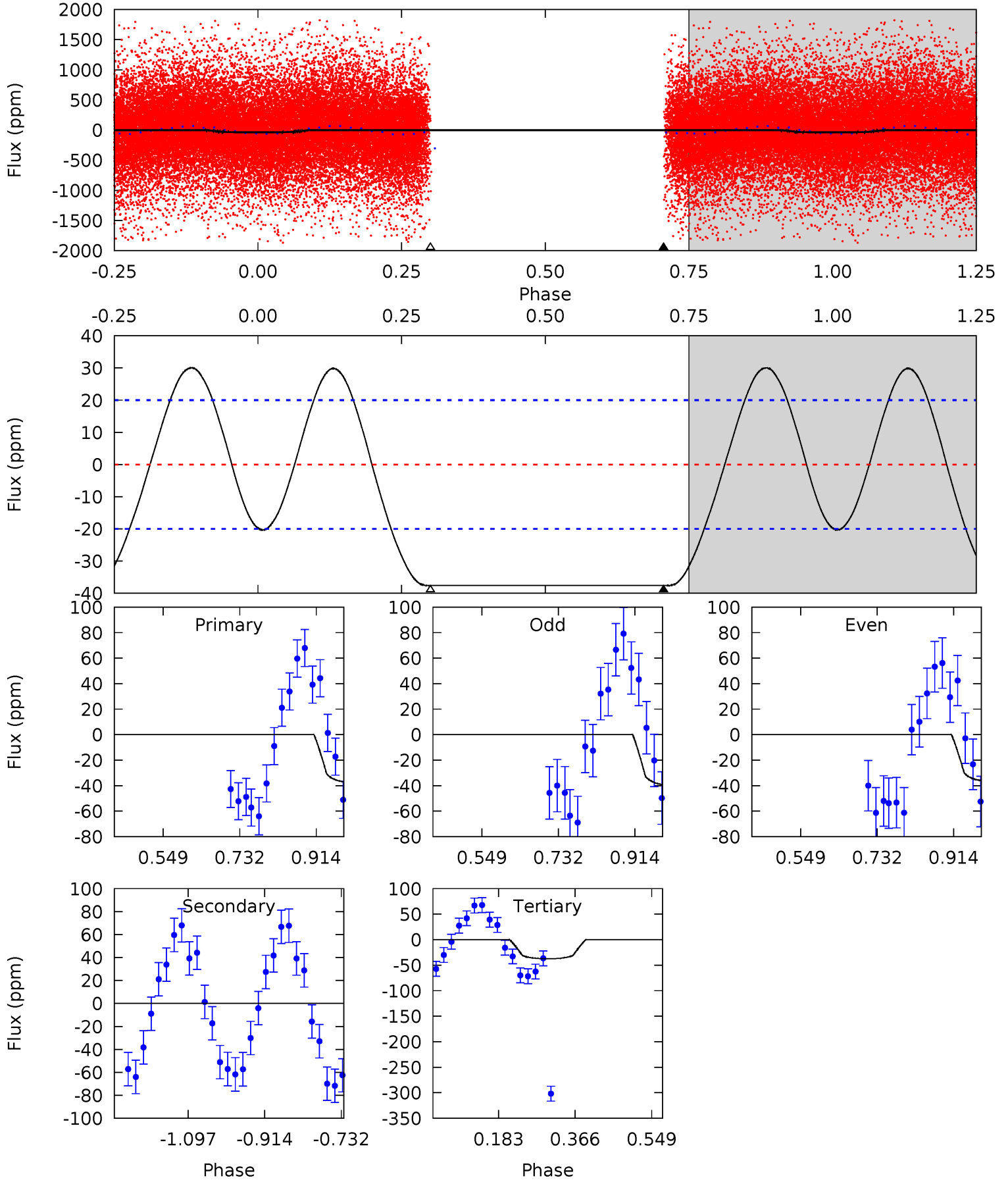
TCE 009278696-02 P= 0.671263 Days $T_0=132.109022$ (BKJD)



DV Model-Shift Uniqueness Test

009278696-02, P = 0.671251 Days, E = 131.445237 Days

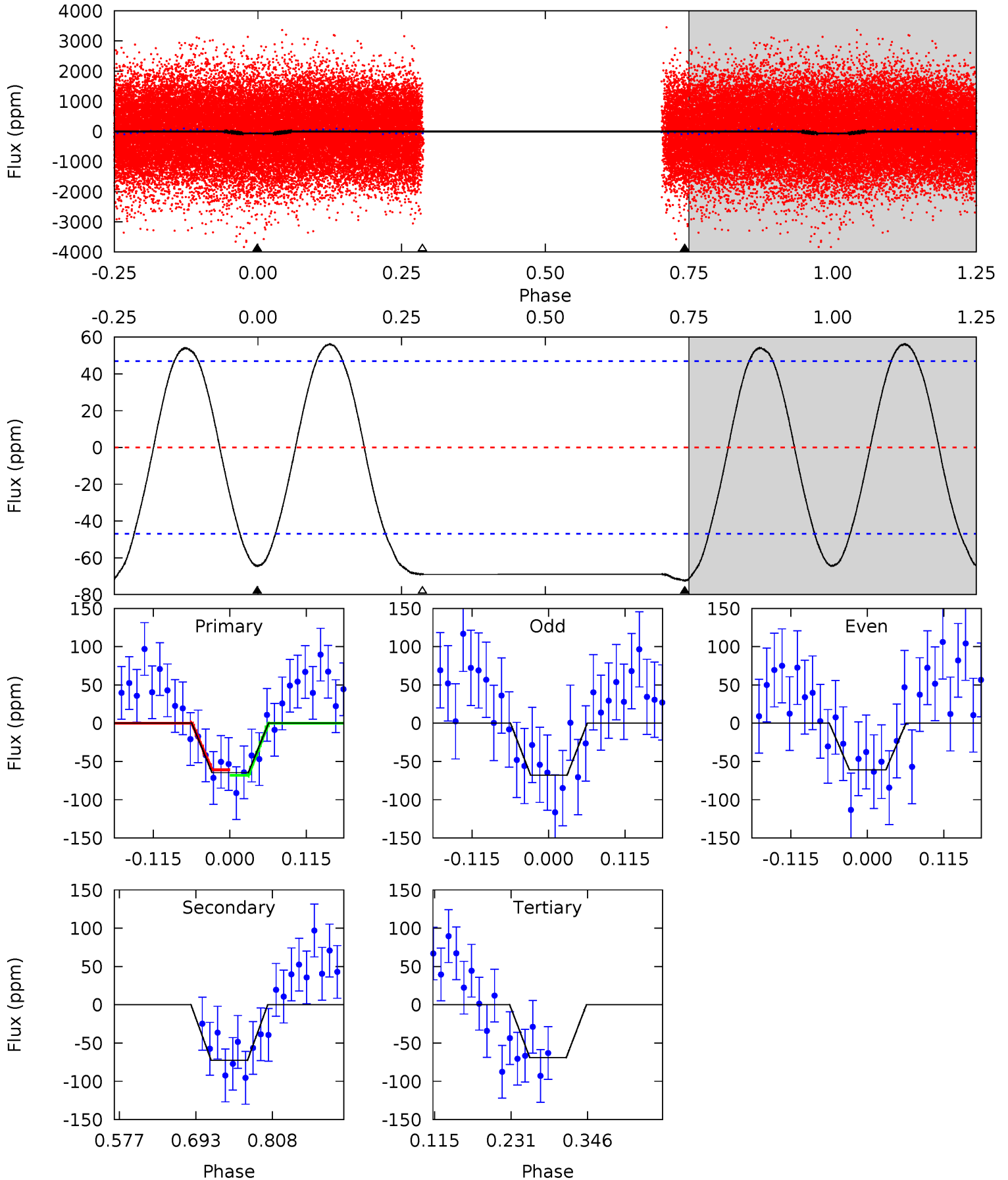
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.33	0	8.33	0	4.44	1.33	4.58	0.00	8.33	-8.33	0	0.35	0.92	0.44	2.82



Alt Model-Shift Uniqueness Test

009278696-02, P = 0.671263 Days, E = 131.437759 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.24	7.02	6.68	0	4.53	1.57	4.75	-0.44	6.24	0.33	7.02	0.33	5.76	0.44	0.33



Stellar Parameters For KIC 009278696

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6942^{+194}_{-305}	$4.083^{+0.175}_{-0.193}$	$0.100^{+0.200}_{-0.350}$	$1.870^{+0.555}_{-0.454}$	$1.545^{+0.196}_{-0.269}$	$0.333^{+0.324}_{-0.162}$
	+3%/-4%	+4%/-5%	+200%/-350%	+30%/-24%	+13%/-17%	+97%/-49%
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 009278696-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 5	$1.69^{+0.41}_{-0.34}$	4450^{+367}_{-354}	-4005^{+1274}_{-497}	$-0.004^{+0.276}_{-0.260}$
Alt.	-73 ± 10	$1.65^{+0.38}_{-0.33}$	4443^{+359}_{-364}	6947^{+857}_{-641}	$4.386^{+2.380}_{-1.621}$

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 $A_{obs} \gg 1.0$

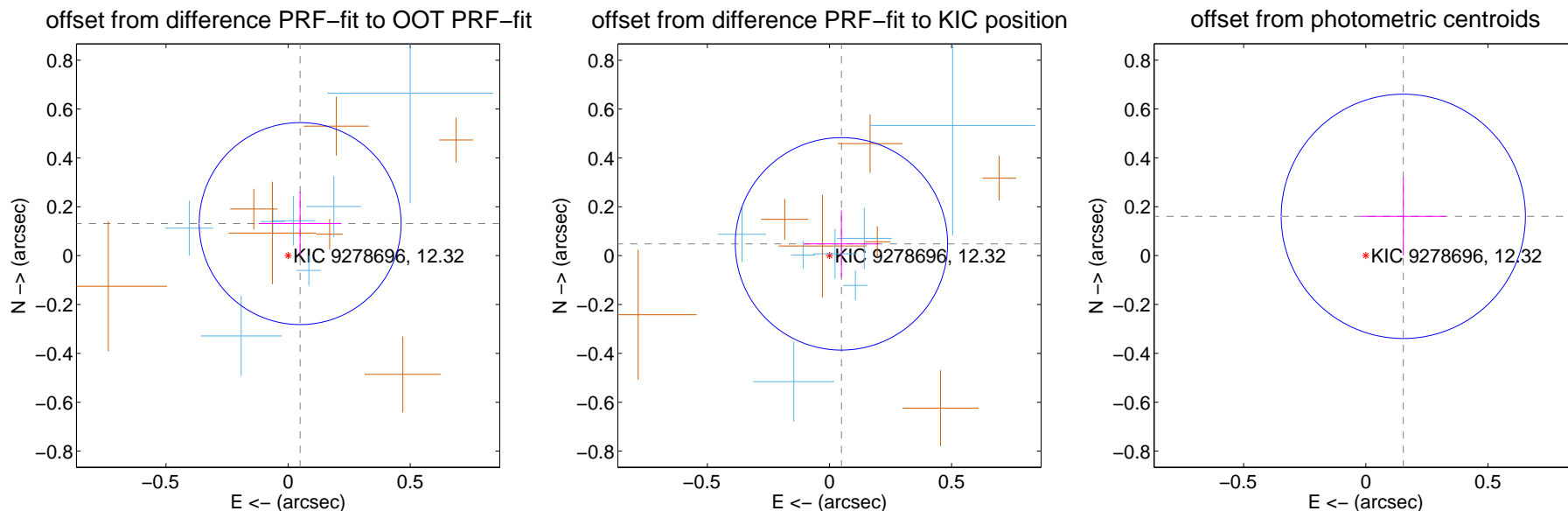
DV Centroid Data

Supplemental centroid analysis for 009278696-02. Kepler magnitude: 12.32. Transit SNR 12.87

There are 7 quarters with good PRF difference image offsets

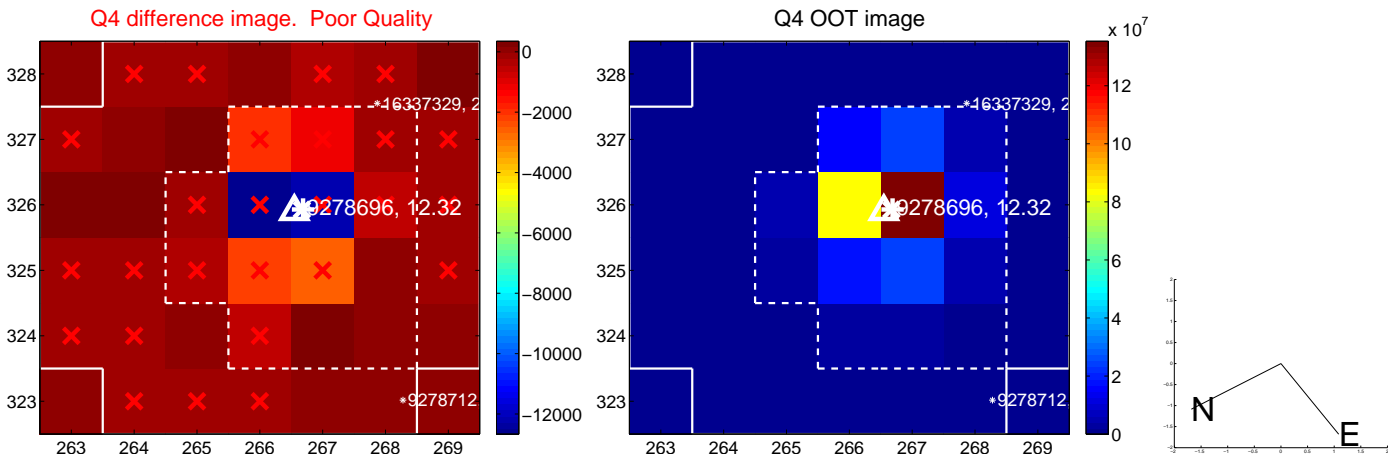
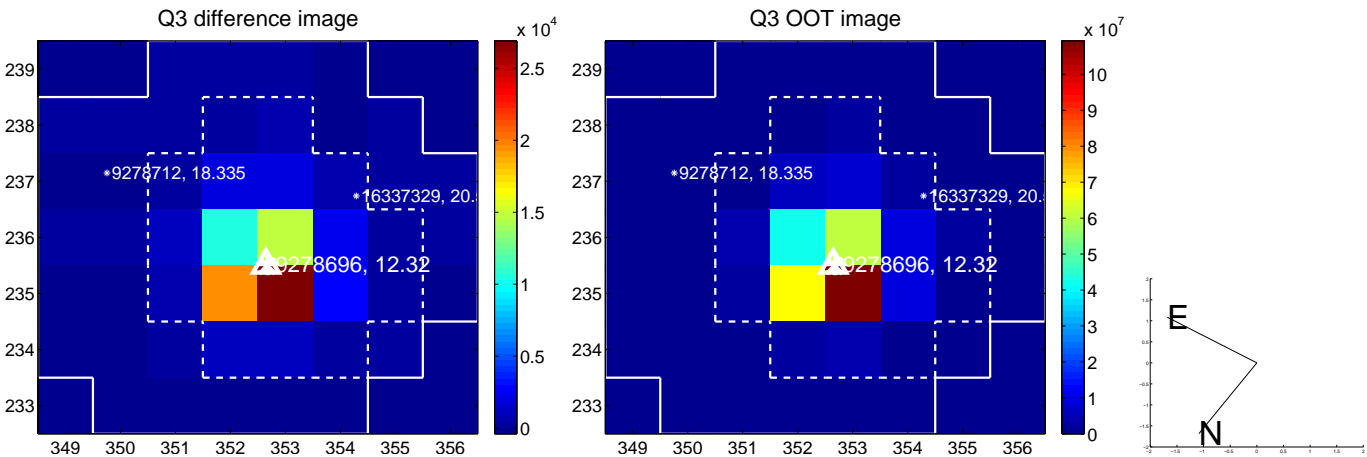
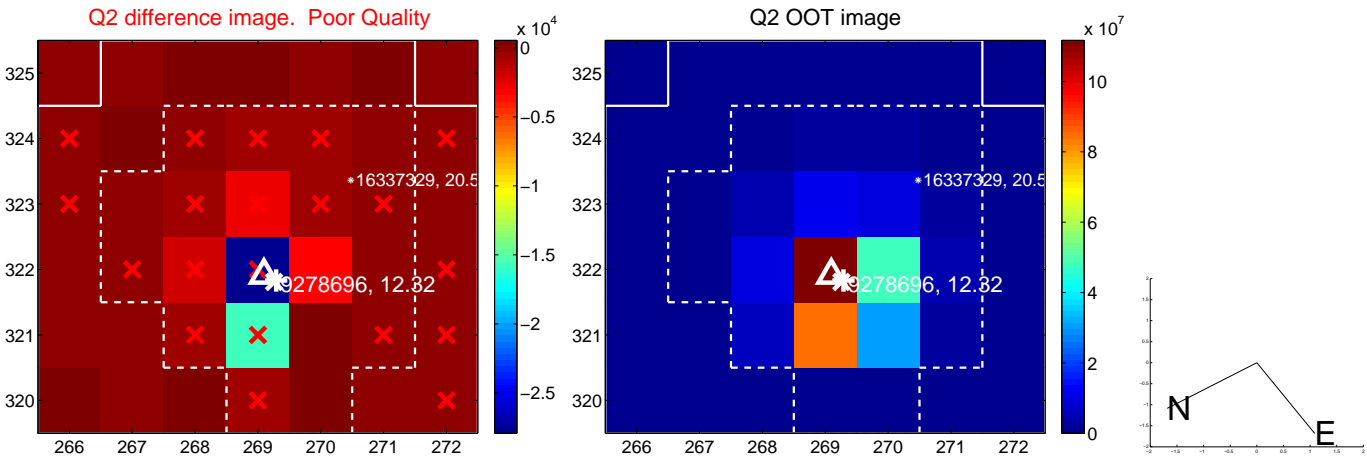
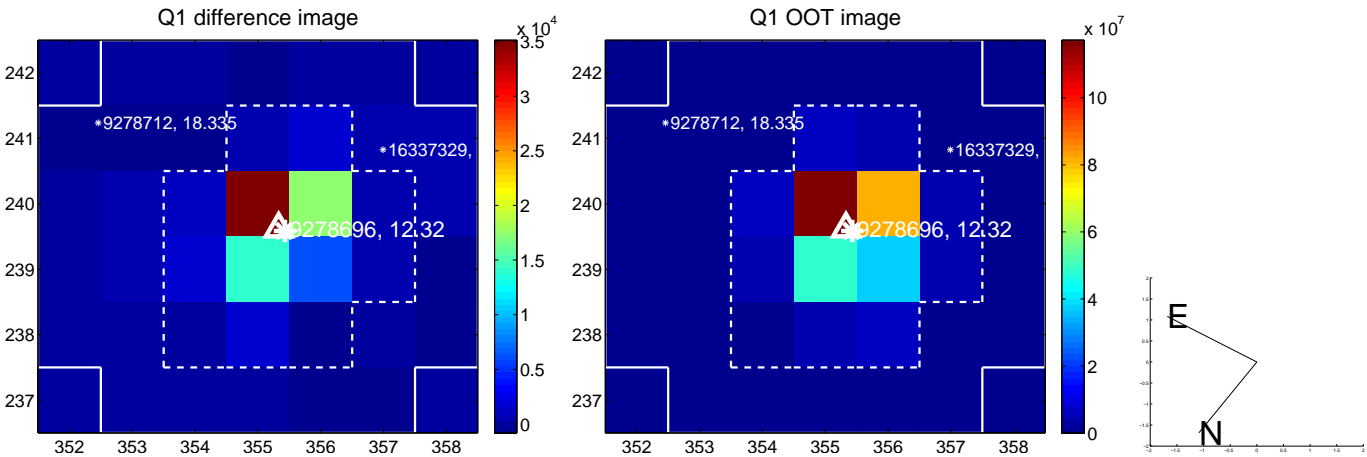
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.140 ± 0.138	1.02	-0.049 ± 0.169	0.131 ± 0.133
PRF-fit source offset from KIC position	0.069 ± 0.145	0.47	-0.049 ± 0.154	0.048 ± 0.137
photometric centroid source offset	0.22 ± 0.17	1.33	-0.15 ± 0.17	0.16 ± 0.16

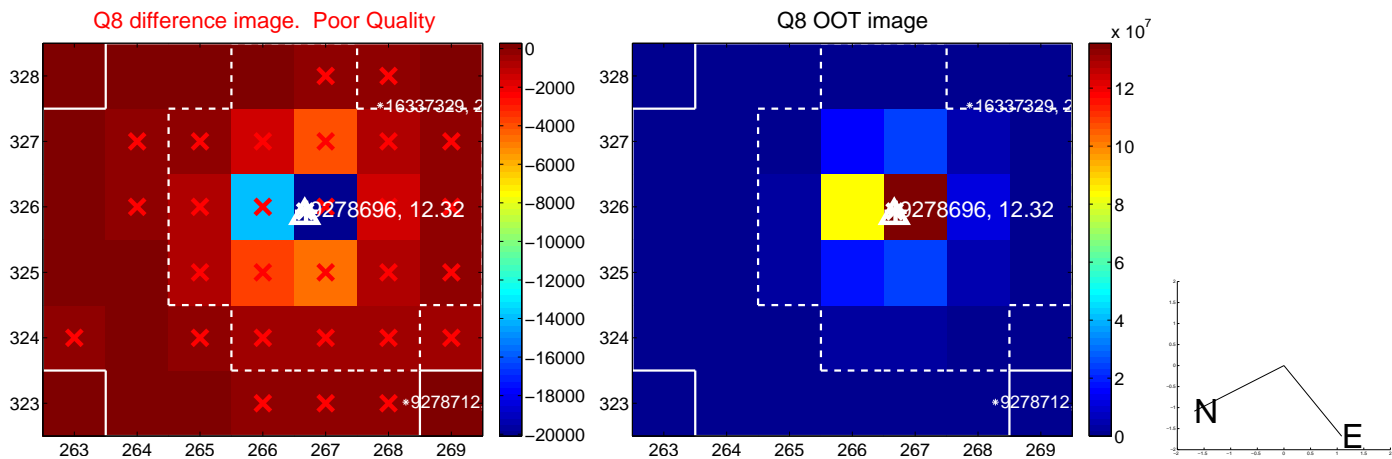
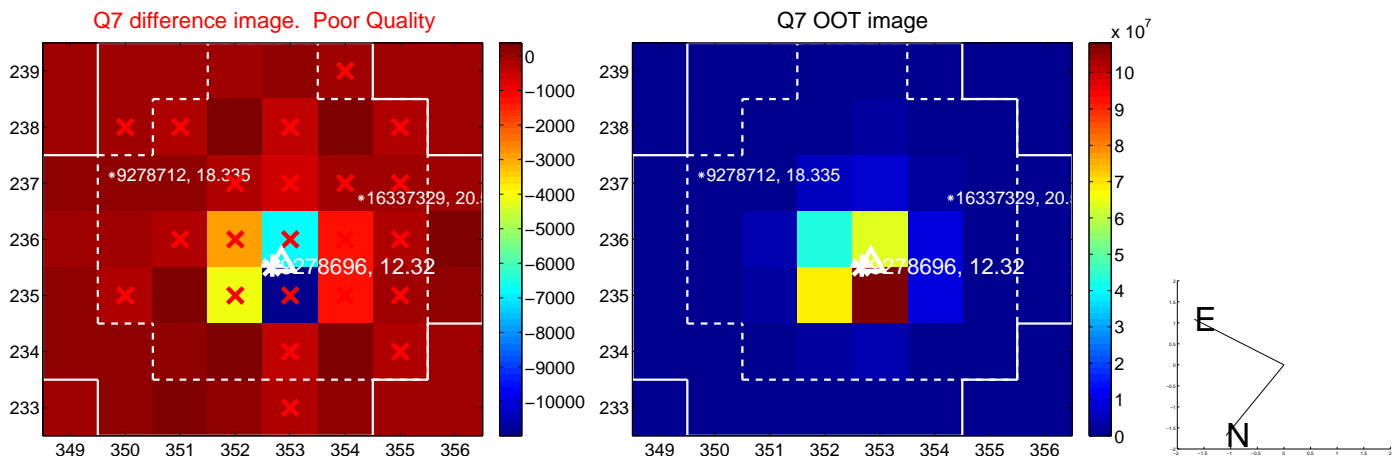
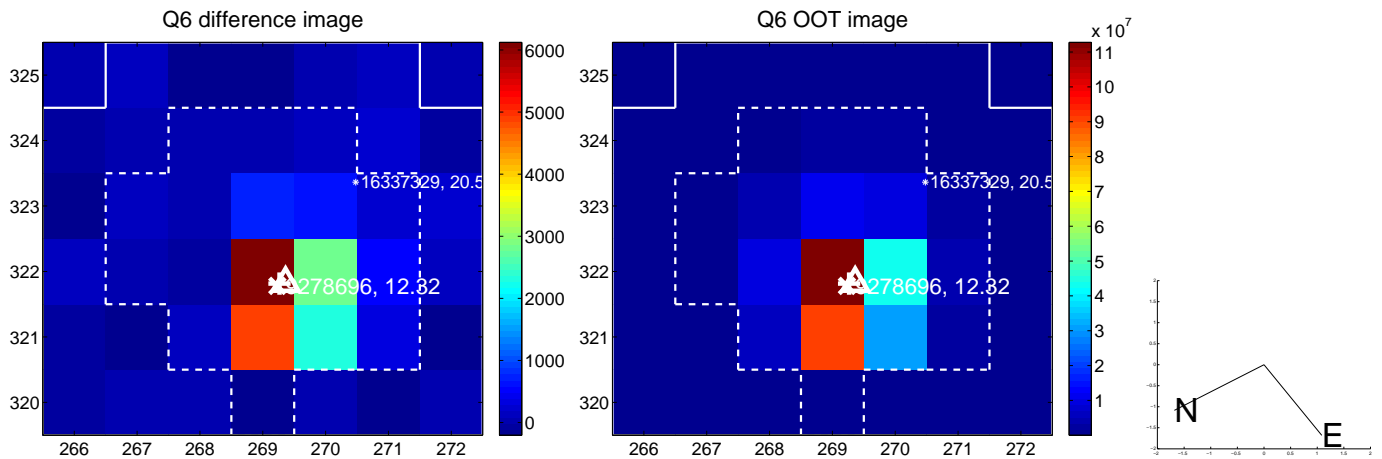
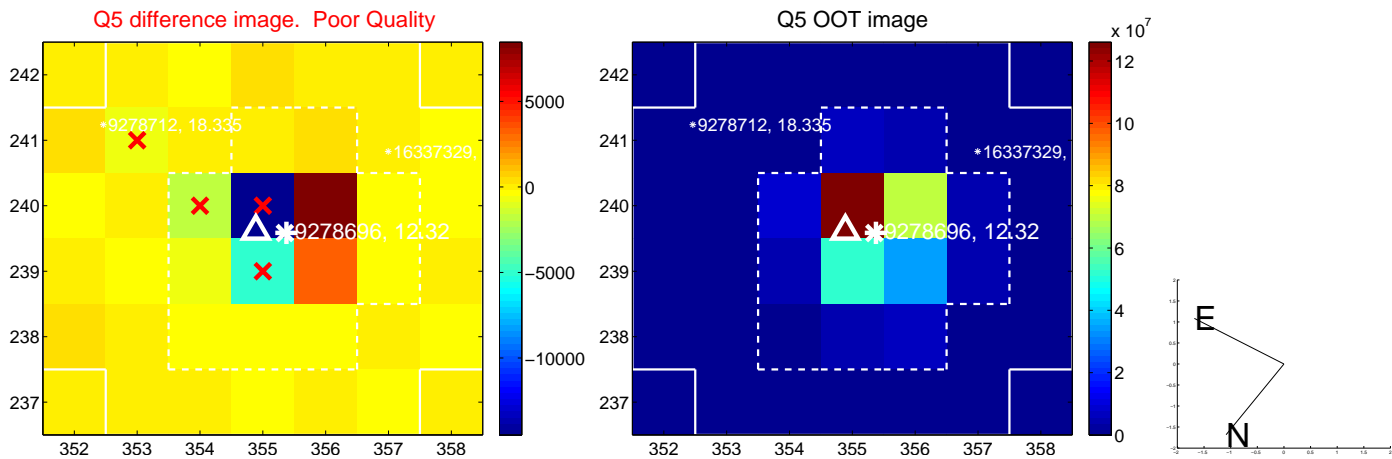


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

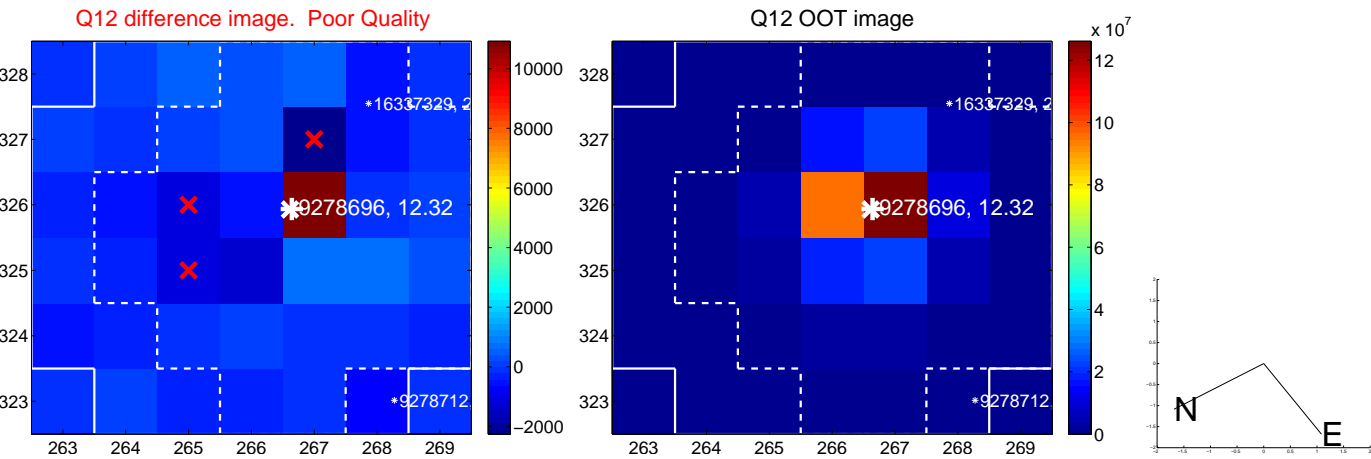
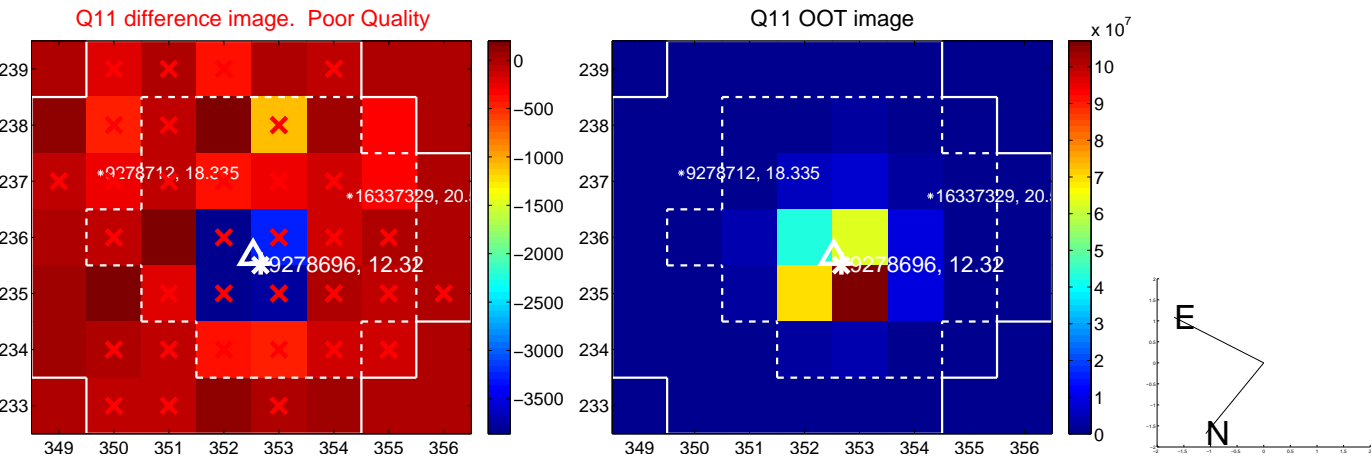
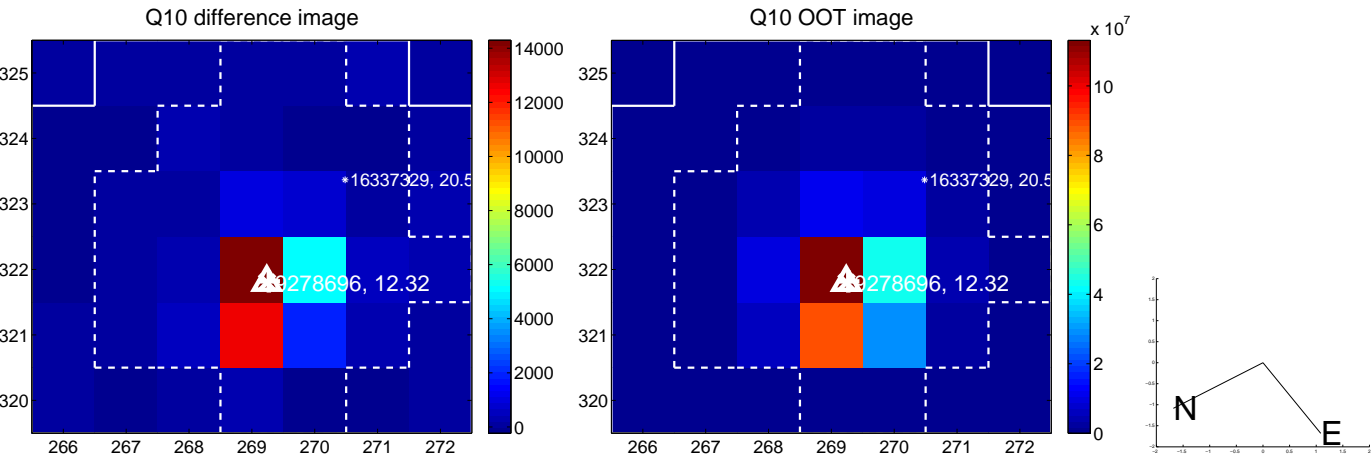
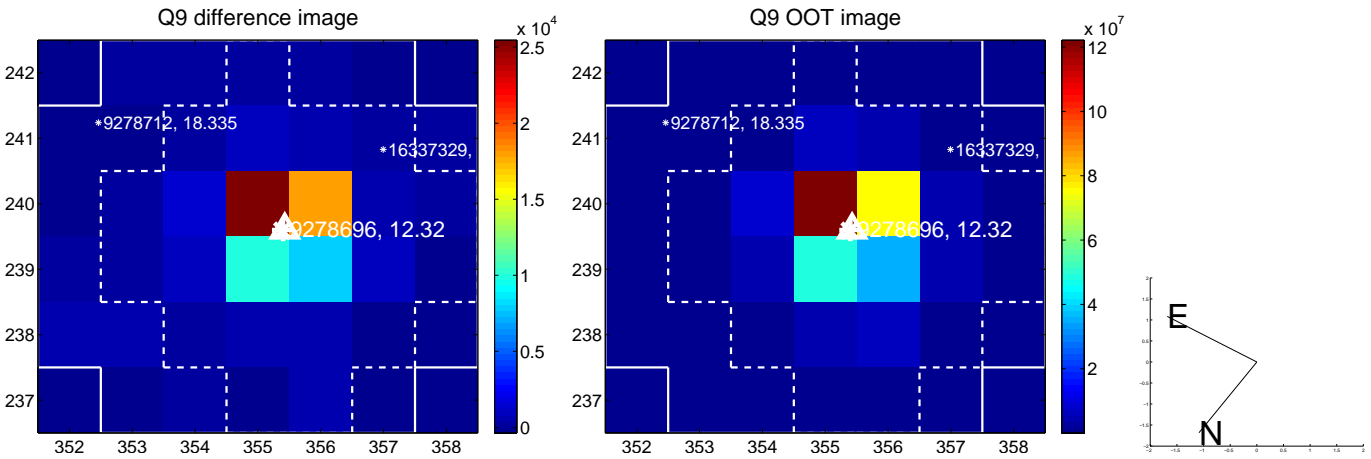
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



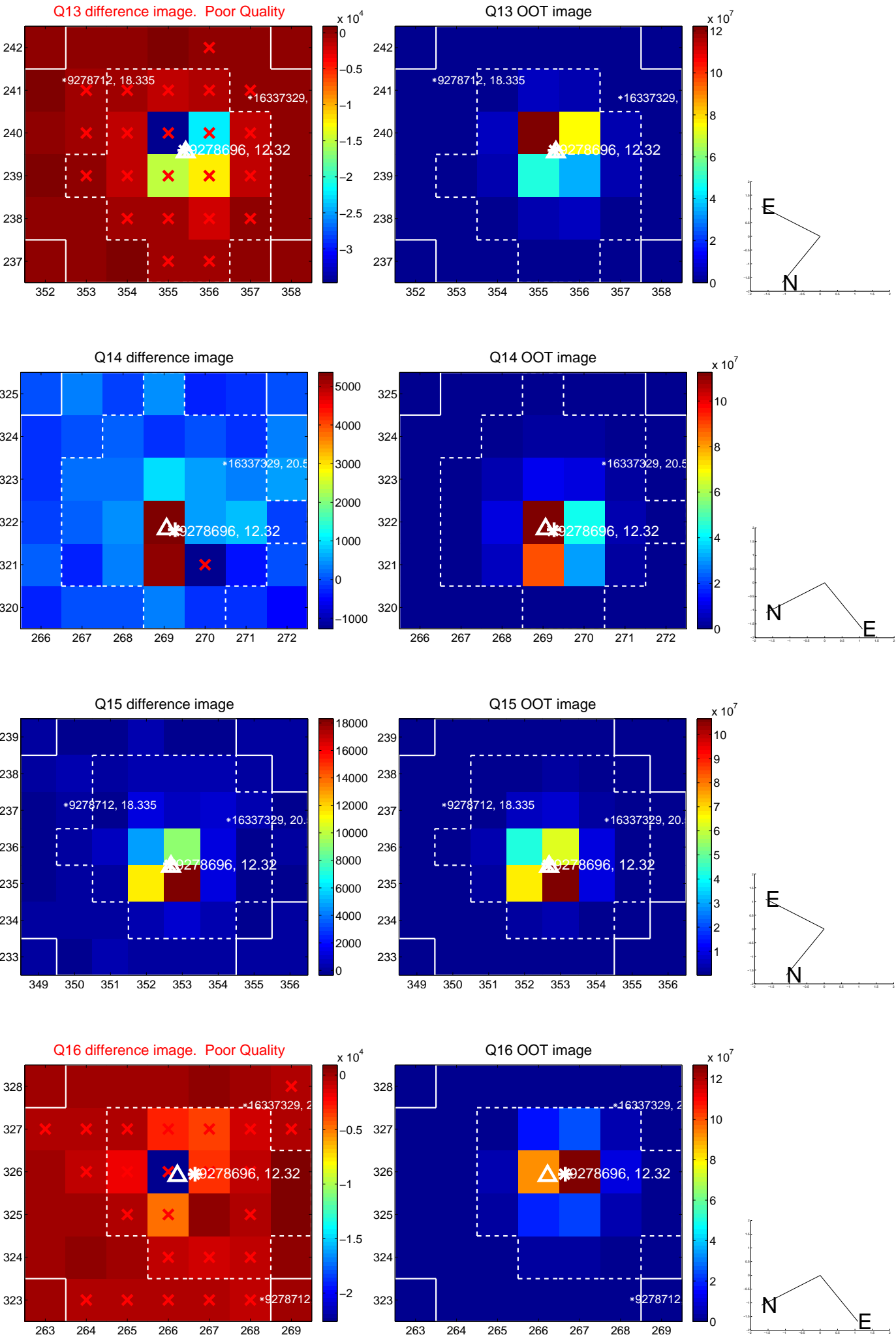
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



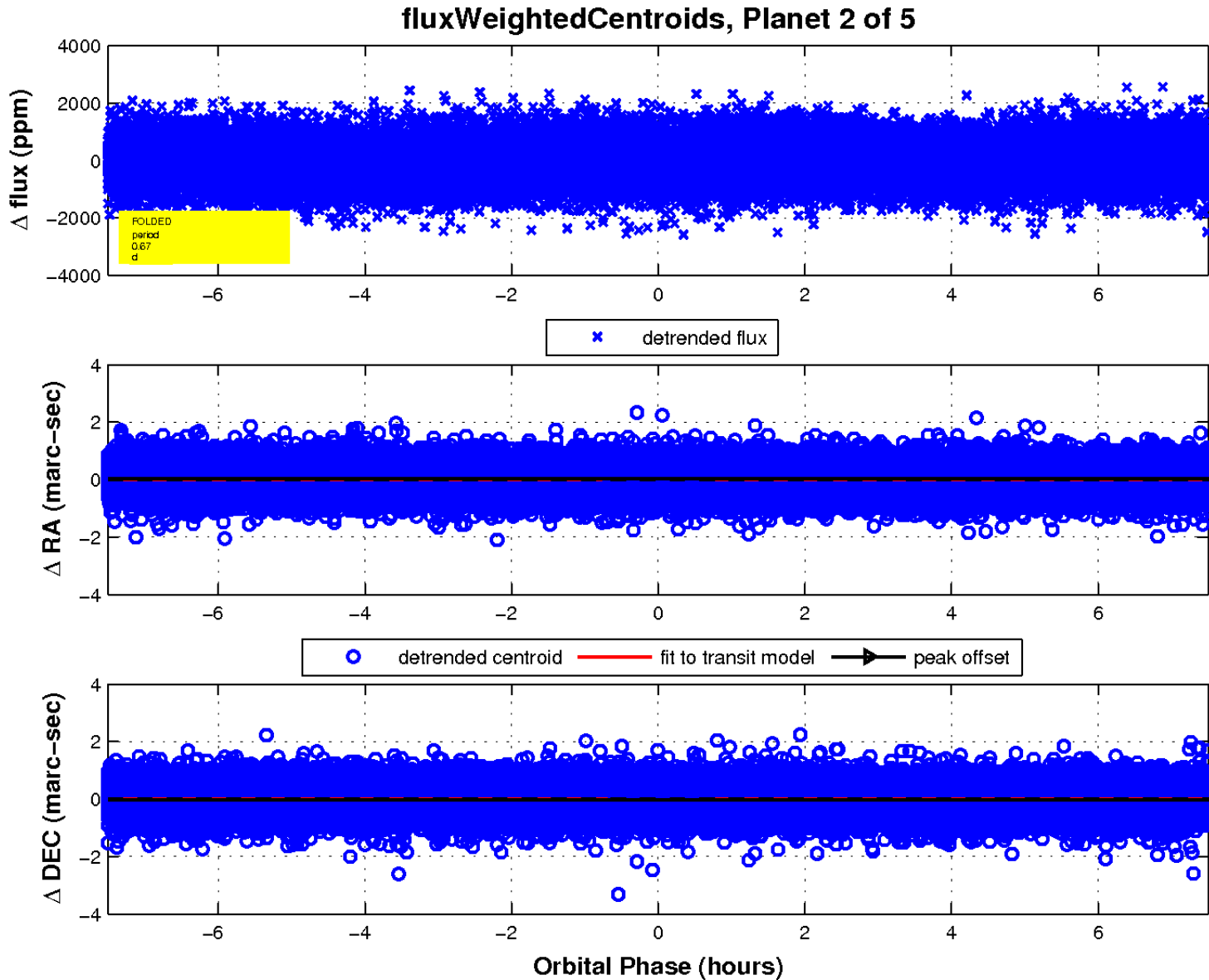
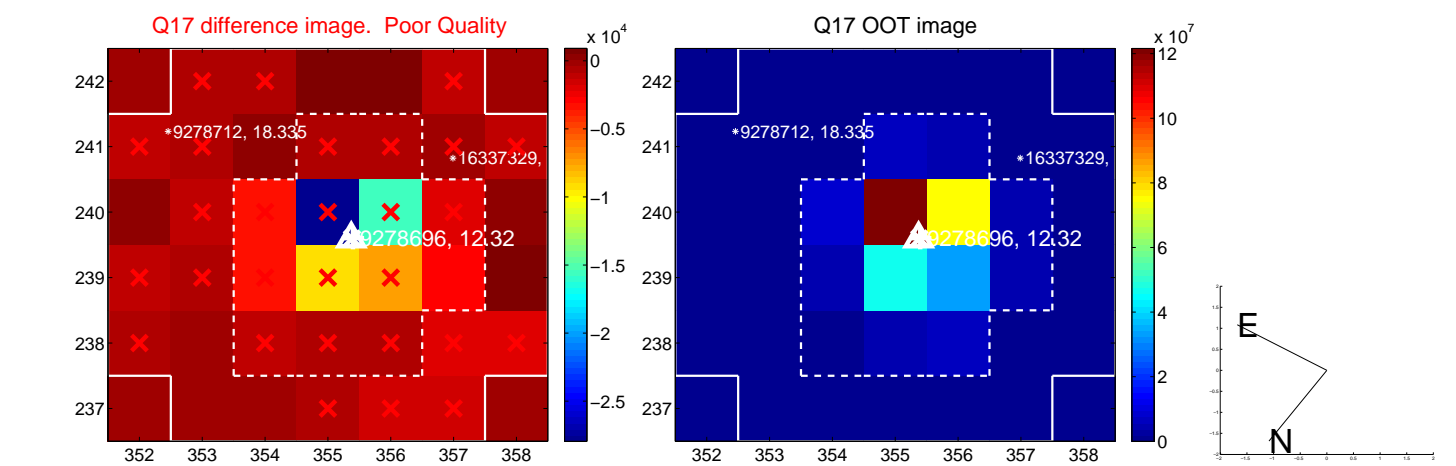
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

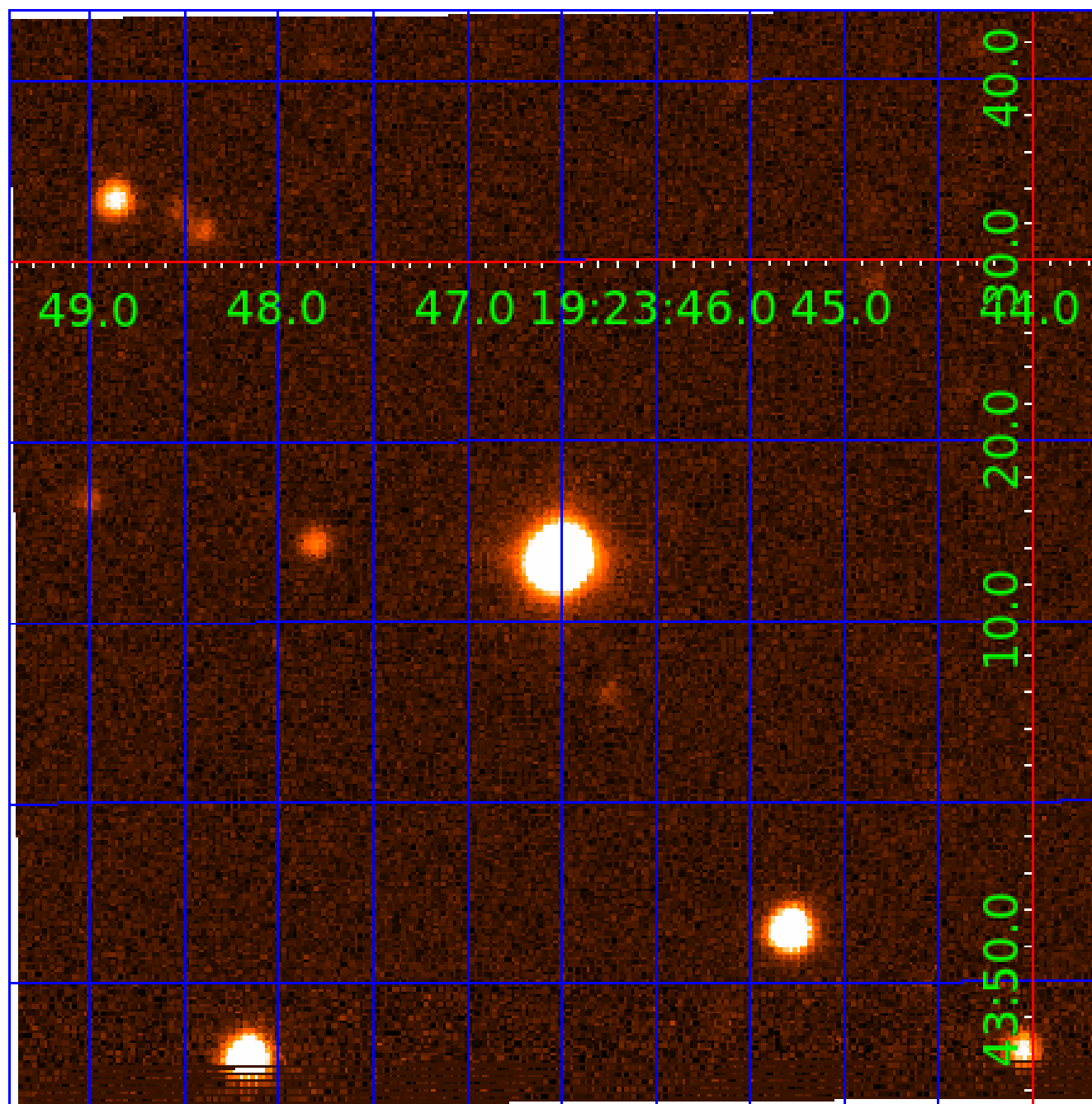


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009278696

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})
009278696-01	OBS	No	0.671258	131.775162	70.8	2.129	13.9	13.9	1.87	6942	1.83	24184.71
009278696-02	OBS	No	0.671251	132.116488	72.2	2.502	12.5	12.9	1.87	6942	1.72	24185.06
009278696-03	OBS	No	9.338135	134.717444	209.4	2.000	9.4	-1.0	1.87	6942	2.74	722.85
009278696-05	OBS	No	42.738959	144.001570	995.6	5.785	7.4	6.7	1.87	6942	6.62	95.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009278696-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009278696-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009278696-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009278696-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV

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

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

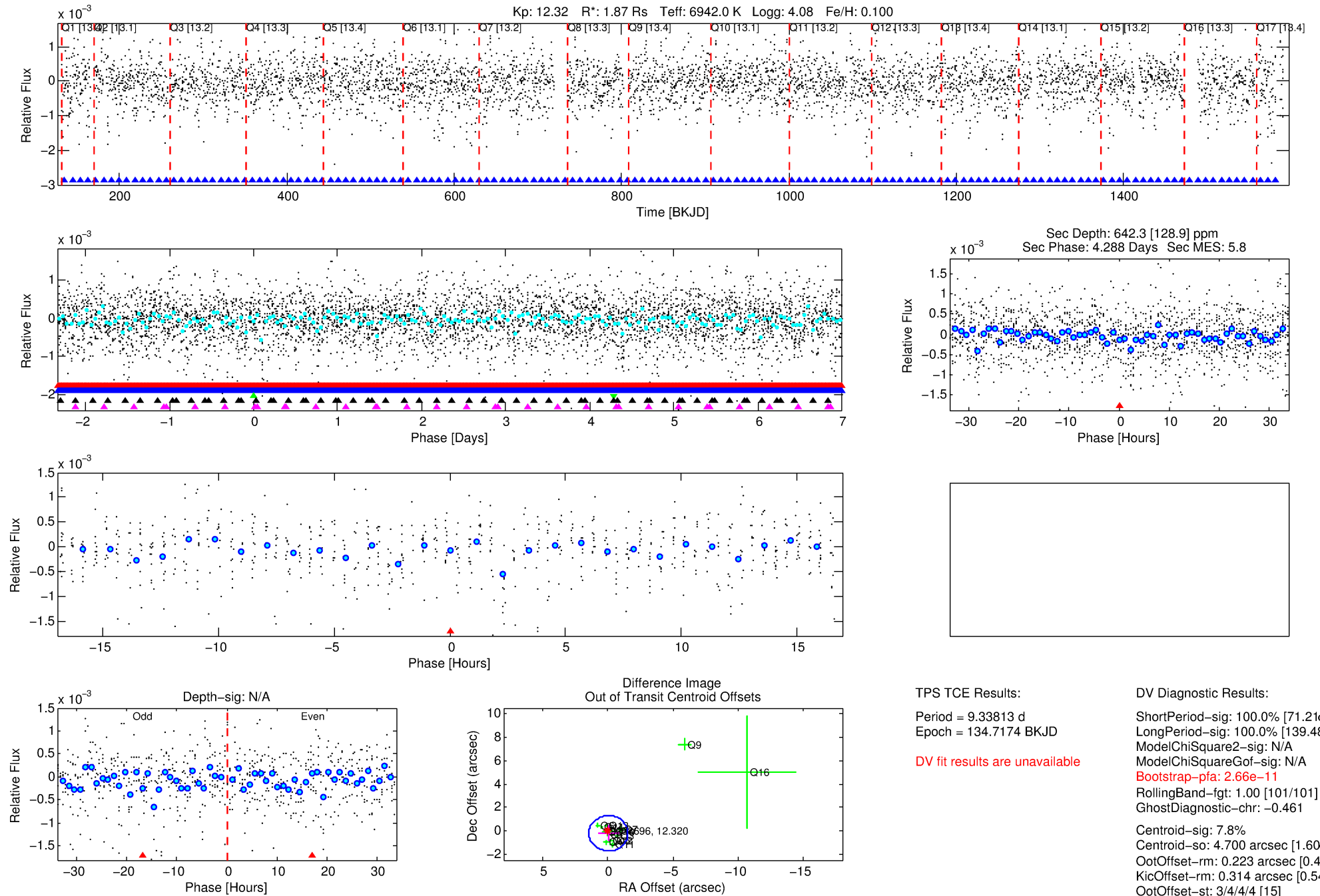
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009278696-03

No Significant Match Found

DV One-Page Summary

KIC: 9278696 Candidate: 3 of 5 Period: 9.338 d



TPS TCE Results:

Period = 9.33813 d
Epoch = 134.7174 BKJD

DV fit results are unavailable

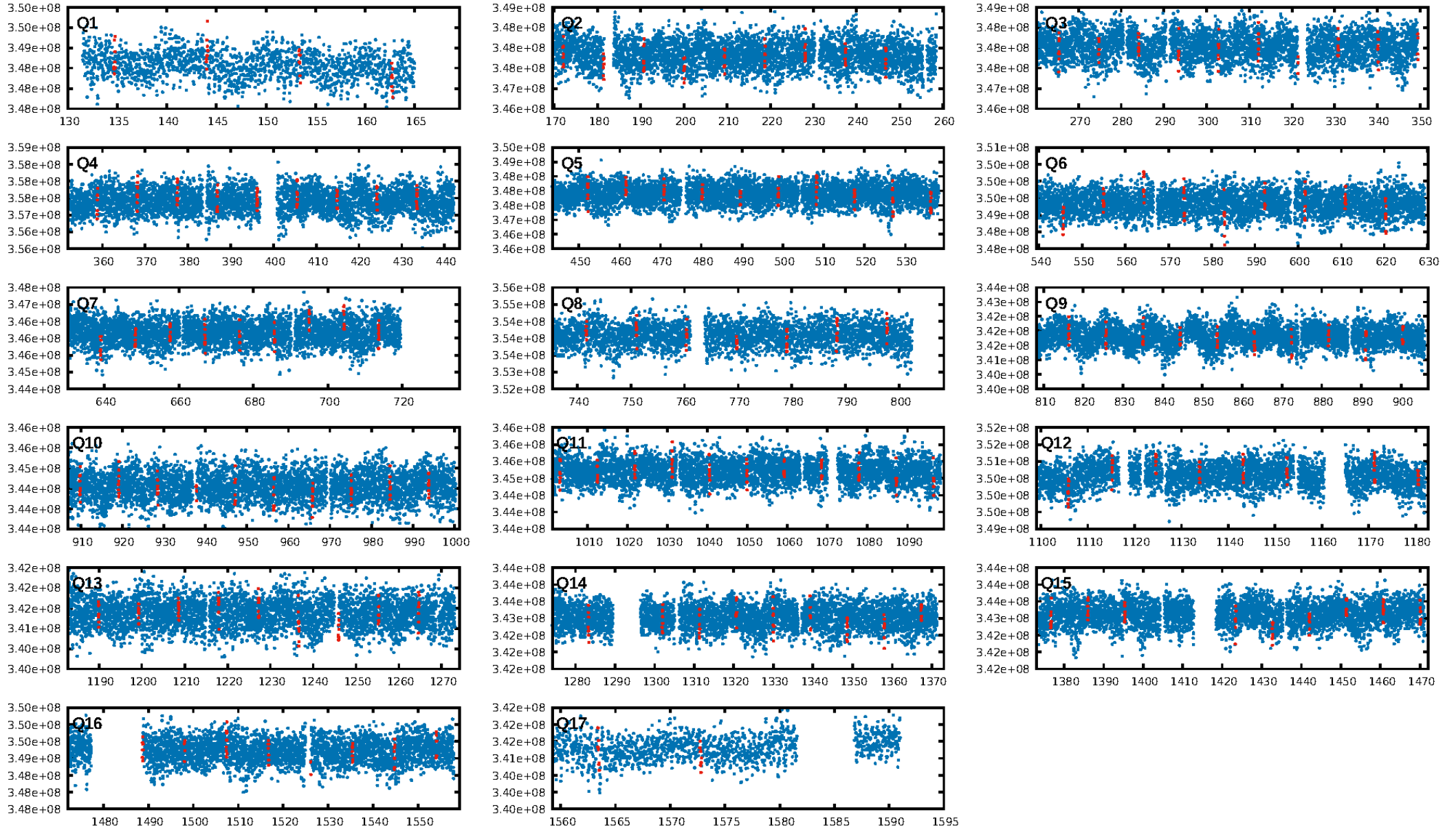
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [71.21 σ]
LongPeriod-sig: 100.0% [139.48 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.66e-11
RollingBand-fgt: 1.00 [101/101]
GhostDiagnostic-chr: -0.461
Centroid-sig: 7.8%
Centroid-so: 4.700 arcsec [1.60 σ]
OotOffset-rm: 0.223 arcsec [0.44 σ]
KicOffset-rm: 0.314 arcsec [0.54 σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.53 [8/15]
DiffImageOverlap-fno: 0.00 [0/17]

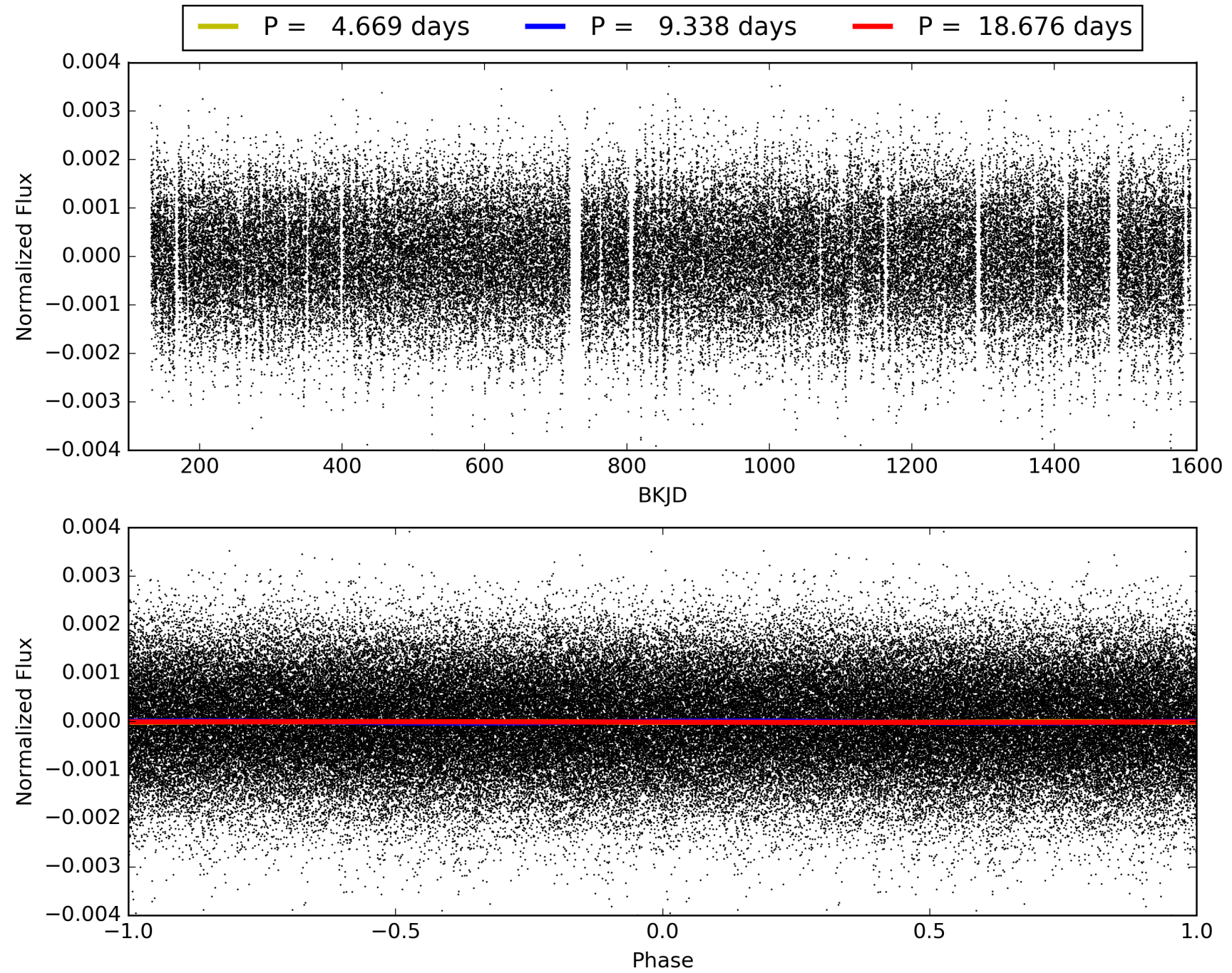
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:53:34 Z

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

TCE 009278696-03, PDC Light Curves

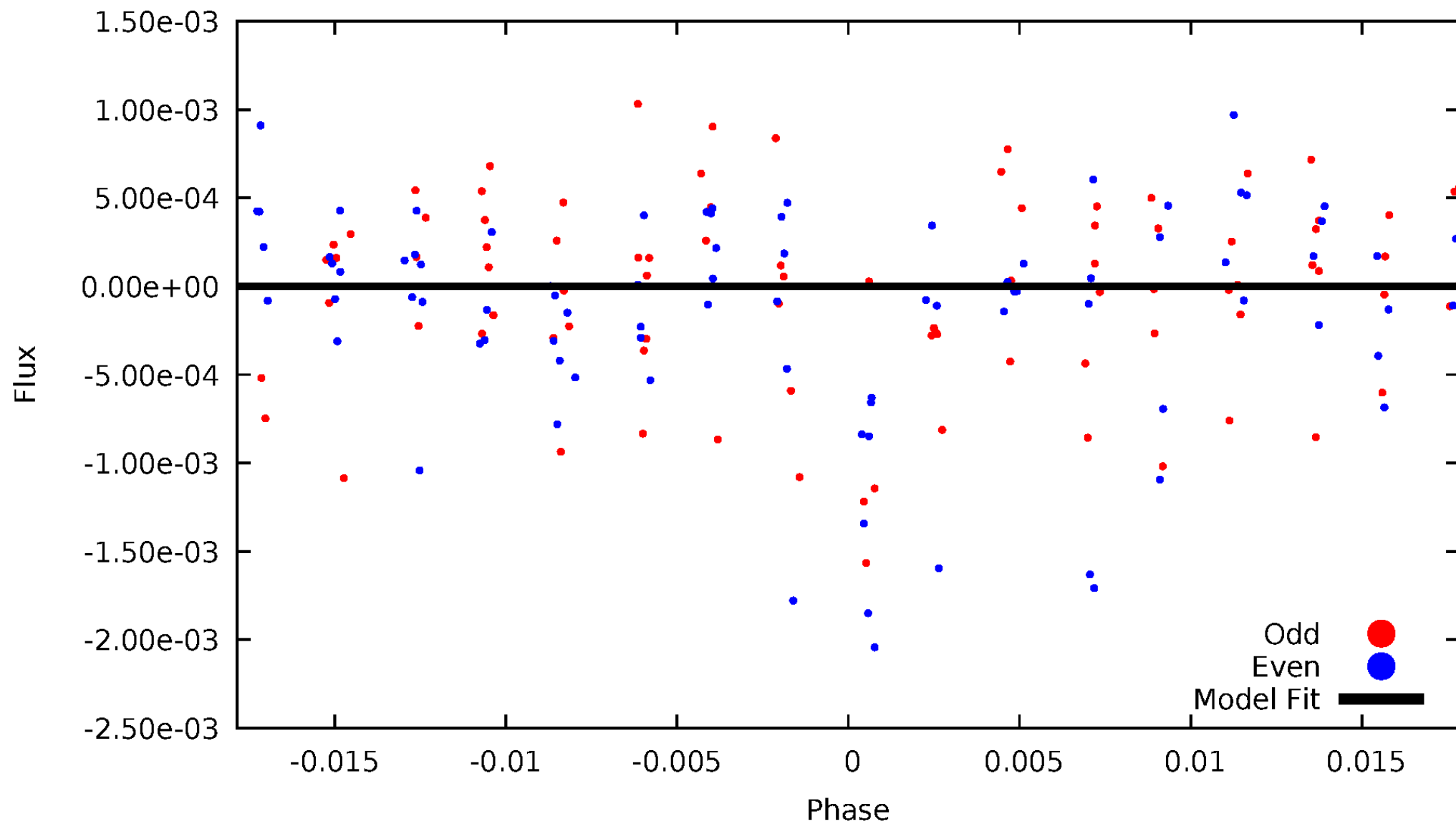


TCE 009278696-03



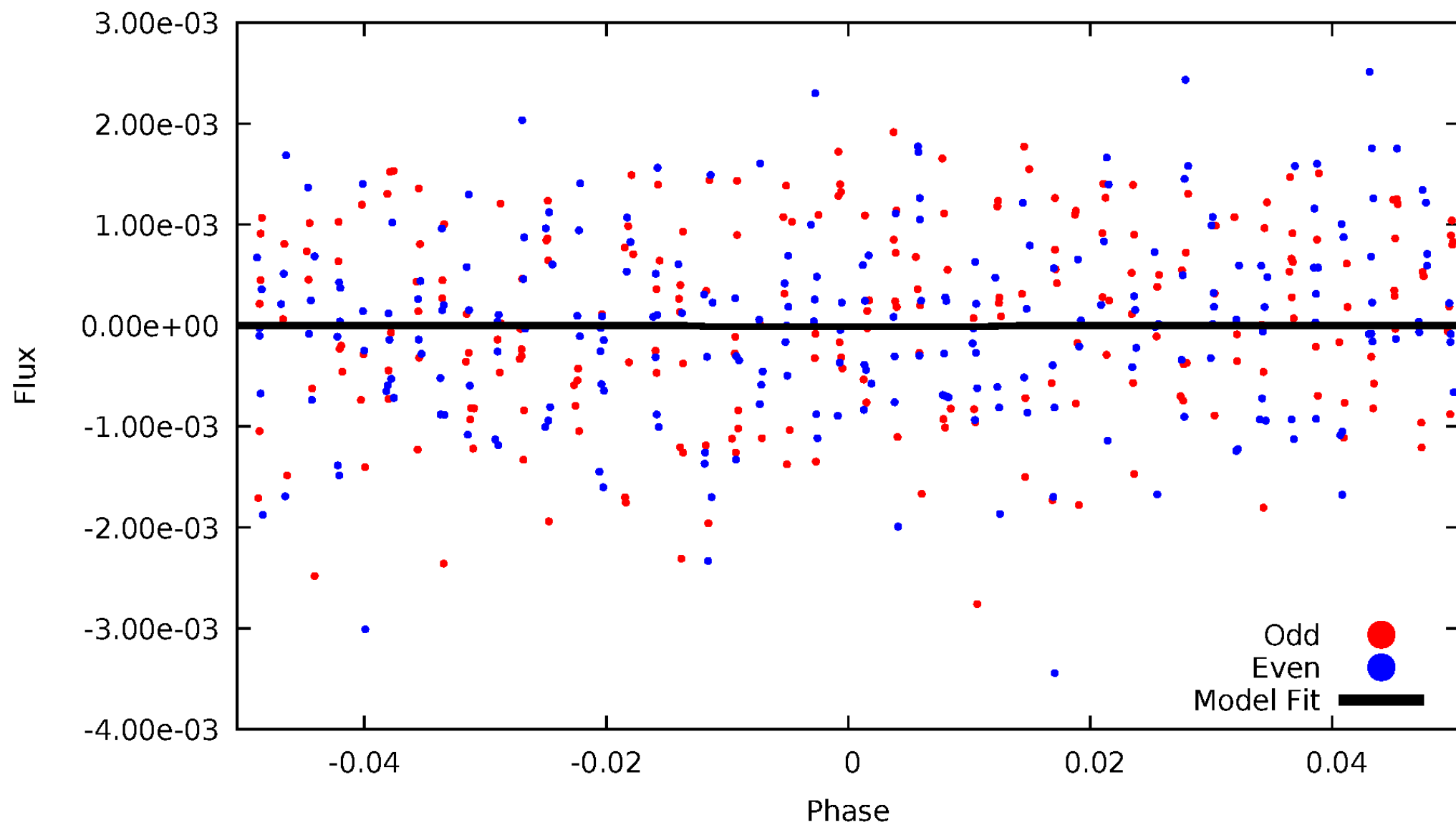
DV Odd/Even

TCE 009278696-03



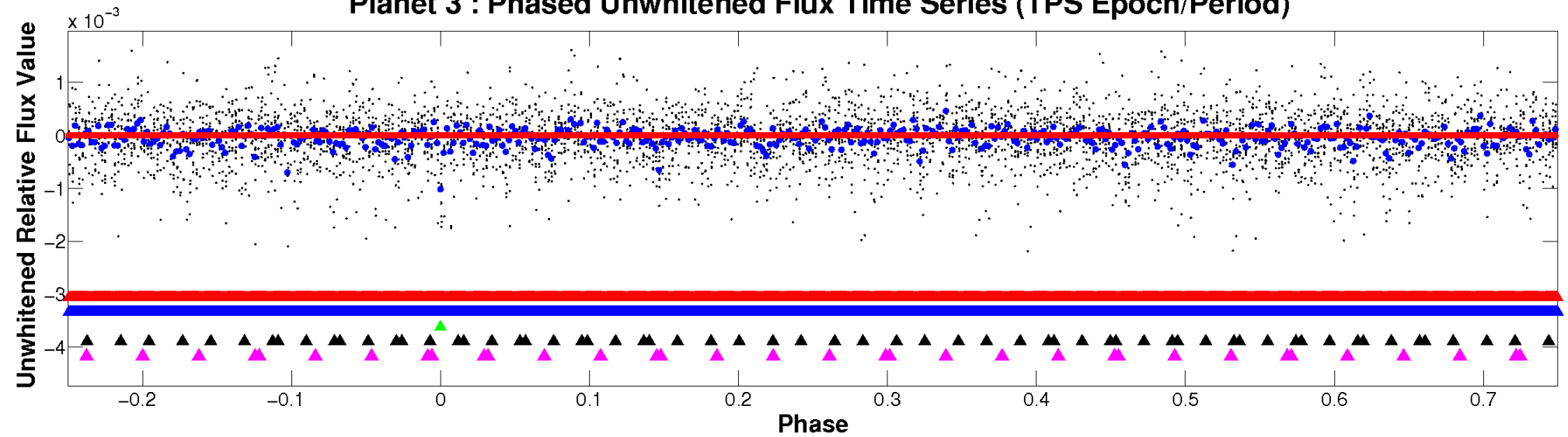
ALT Odd/Even

TCE 009278696-03

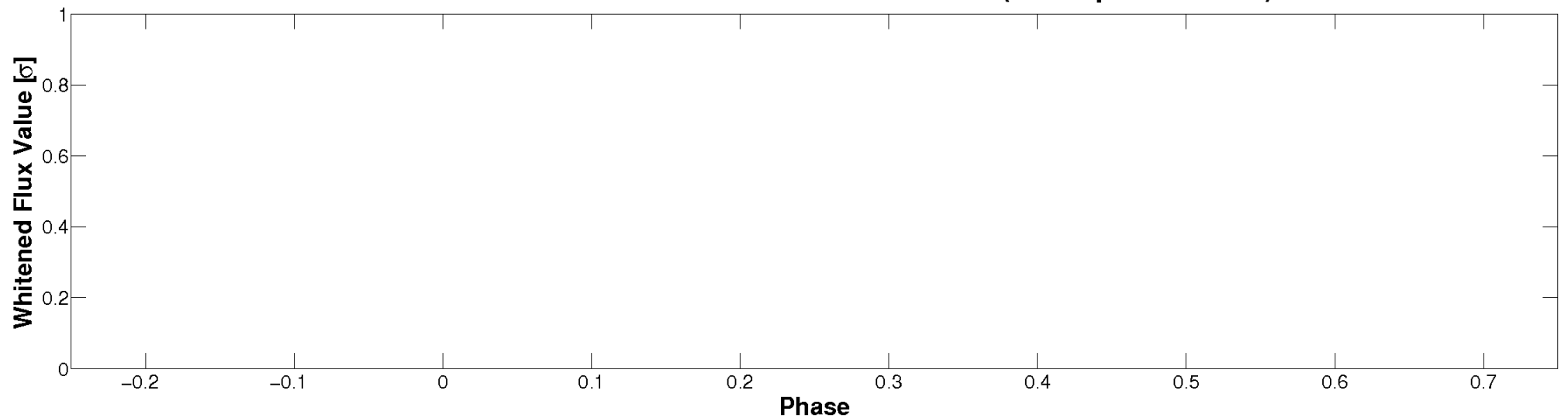


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

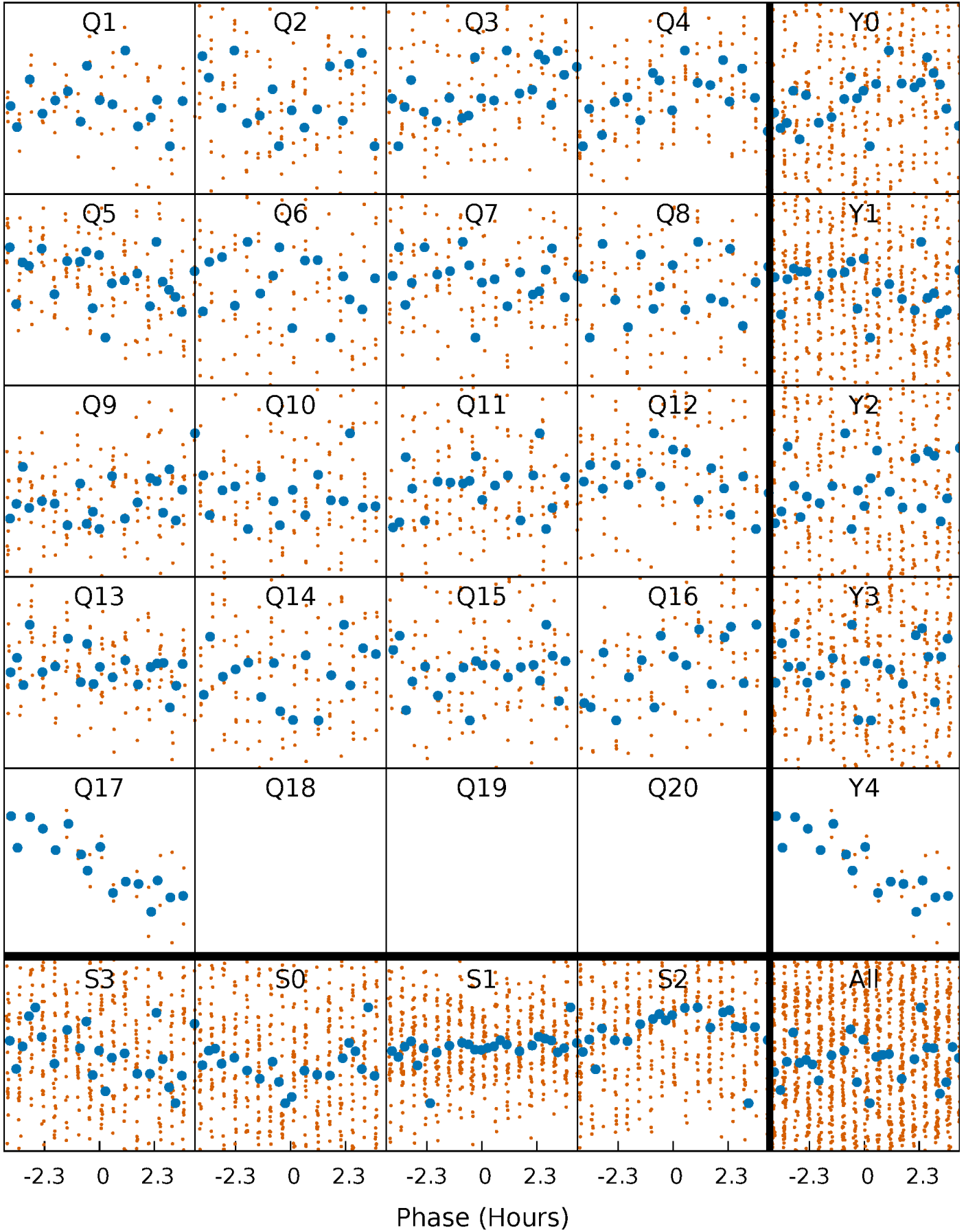


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



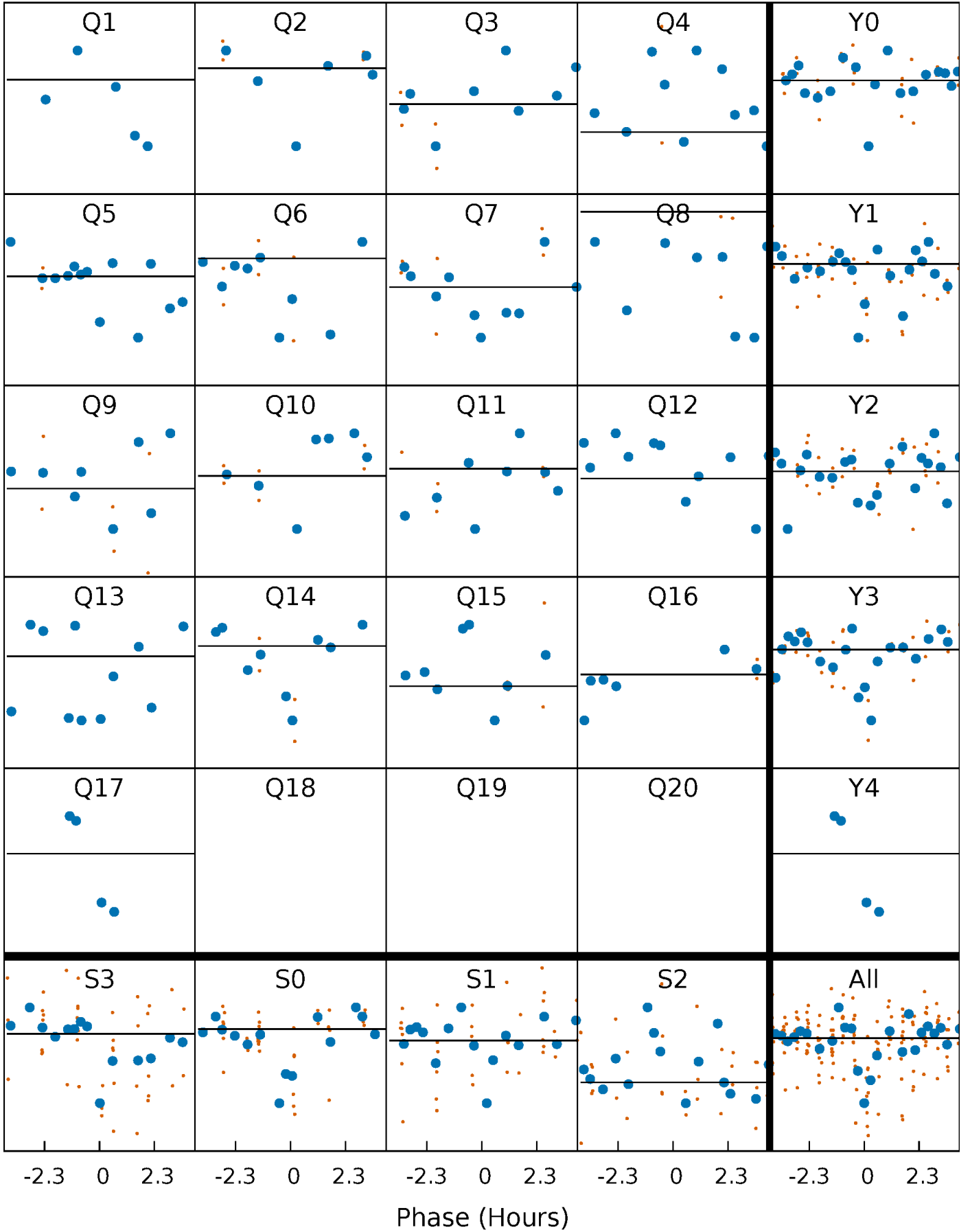
PDC Quarter-Phased Transit Curves

TCE 009278696-03 P= 9.338135 Days $T_0=134.717444$ (BKJD)



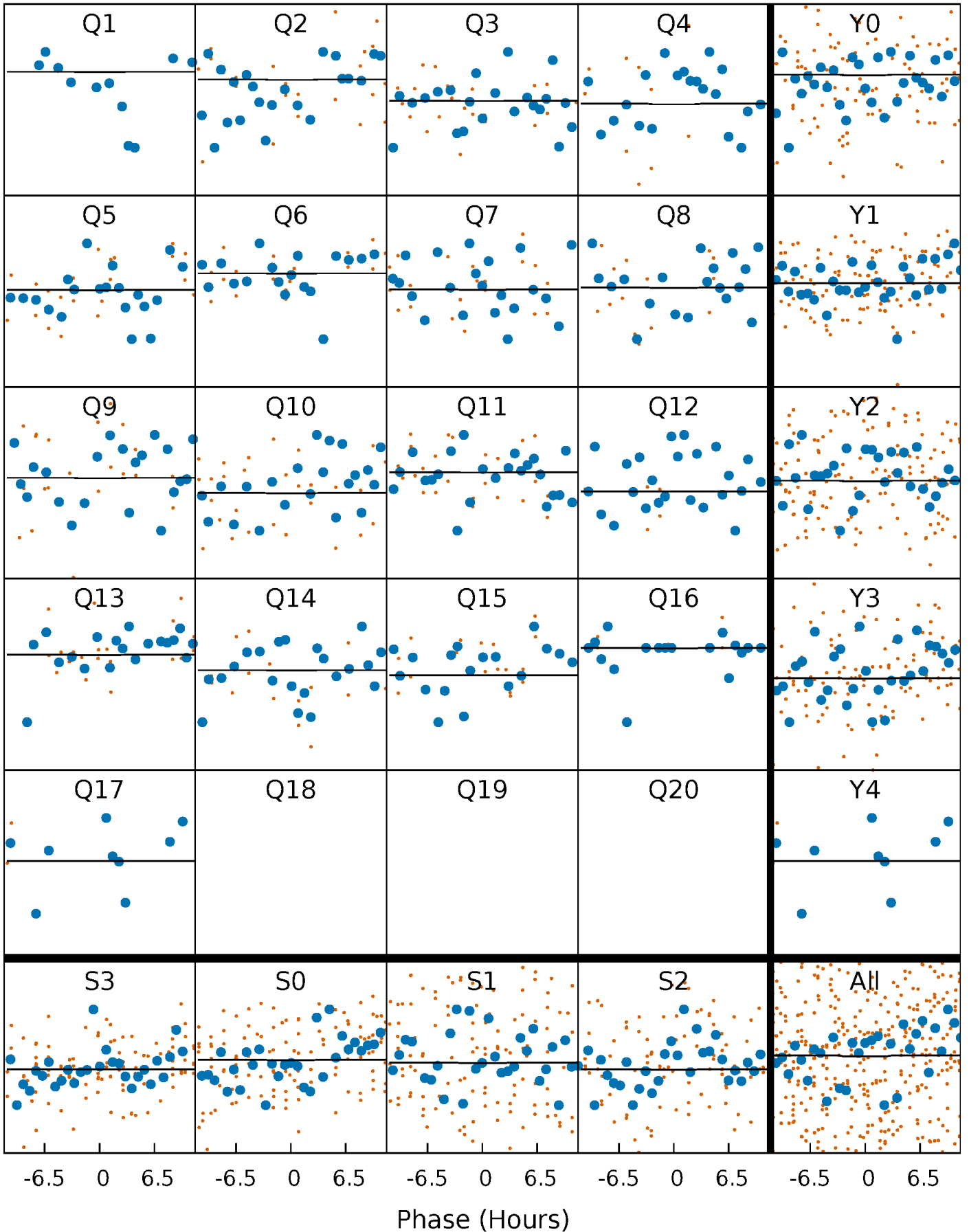
DV Quarter-Phased Transit Curves

TCE 009278696-03 P= 9.338135 Days $T_0=134.717444$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

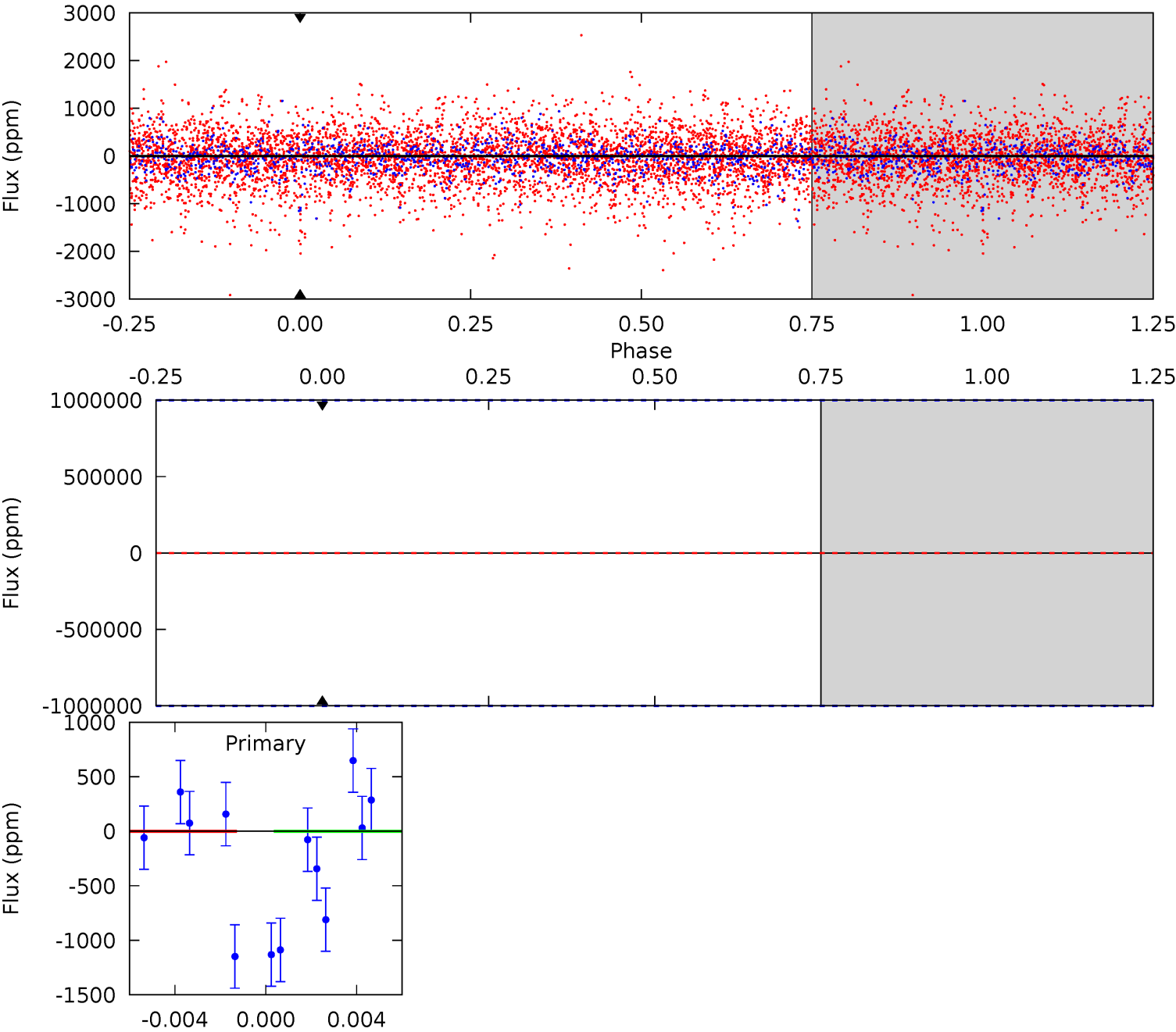
TCE 009278696-03 $P = 9.338135$ Days $T_0 = 134.625134$ (BKJD)



DV Model-Shift Uniqueness Test

009278696-03, P = 9.338135 Days, E = 125.379309 Days

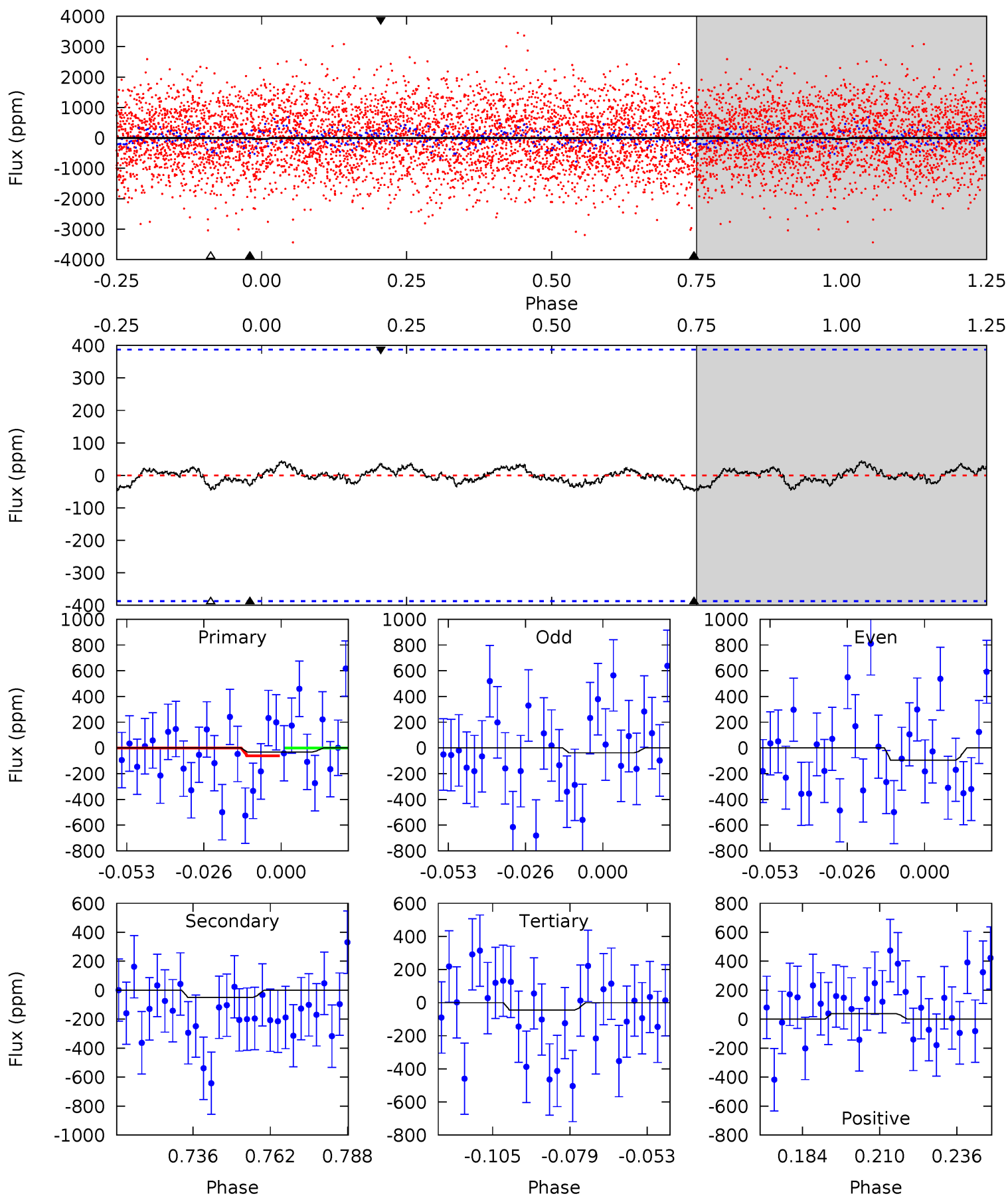
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009278696-03, P = 9.338135 Days, E = 125.286999 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.39	0.62	0.56	0.46	4.84	2.22	0.22	-0.17	-0.07	0.06	0.15	0.36	0	0.48	0.38



Stellar Parameters For KIC 009278696

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6942^{+194}_{-305}	$4.083^{+0.175}_{-0.193}$	$0.100^{+0.200}_{-0.350}$	$1.870^{+0.555}_{-0.454}$	$1.545^{+0.196}_{-0.269}$	$0.333^{+0.324}_{-0.162}$
	+3%/-4%	+4%/-5%	+200%/-350%	+30%/-24%	+13%/-17%	+97%/-49%
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 009278696-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$14.43^{+16.34}_{-9.57}$	1851^{+145}_{-141}	4789^{+31939}_{-34251}	22^{+5070}_{-4033}
Alt.	-49 ± 80	$13.66^{+16.18}_{-9.46}$	1833^{+156}_{-132}	2504^{+1608}_{-5284}	$0.706^{+12.874}_{-1.339}$

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

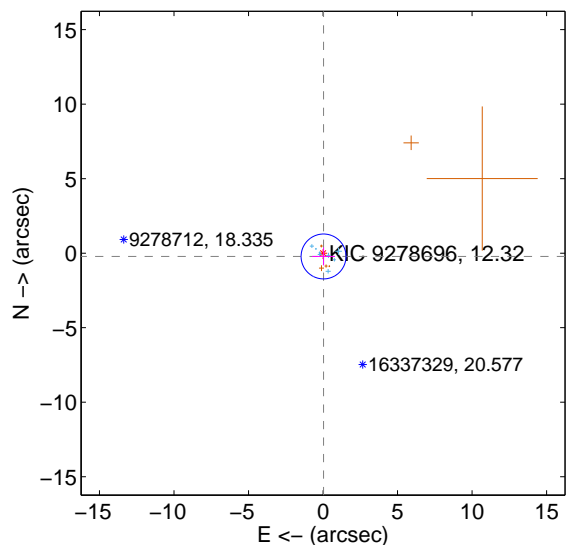
Supplemental centroid analysis for 009278696-03. Kepler magnitude: 12.32. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

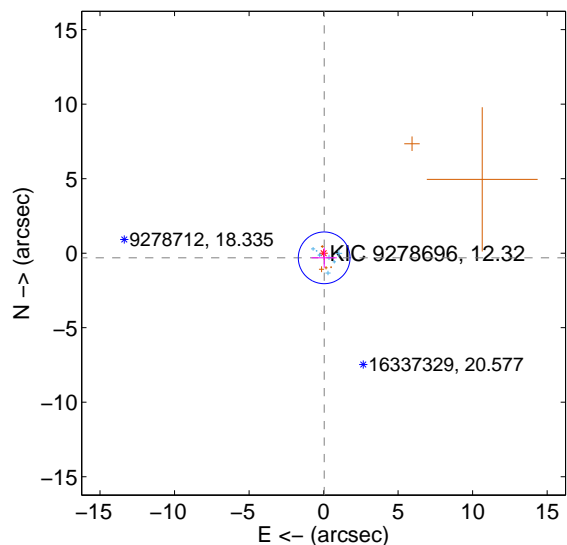
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.223 ± 0.502	0.44	-0.034 ± 0.769	-0.220 ± 0.600
PRF-fit source offset from KIC position	0.314 ± 0.578	0.54	-0.039 ± 0.850	-0.312 ± 0.669
photometric centroid source offset	4.70 ± 2.94	1.60	4.35 ± 2.98	1.78 ± 2.72

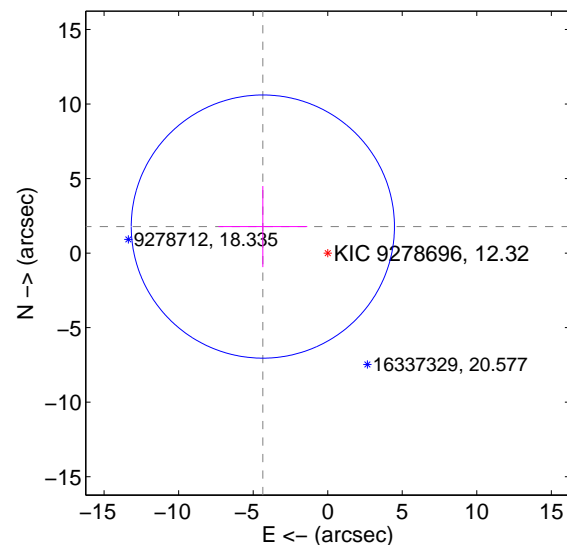
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

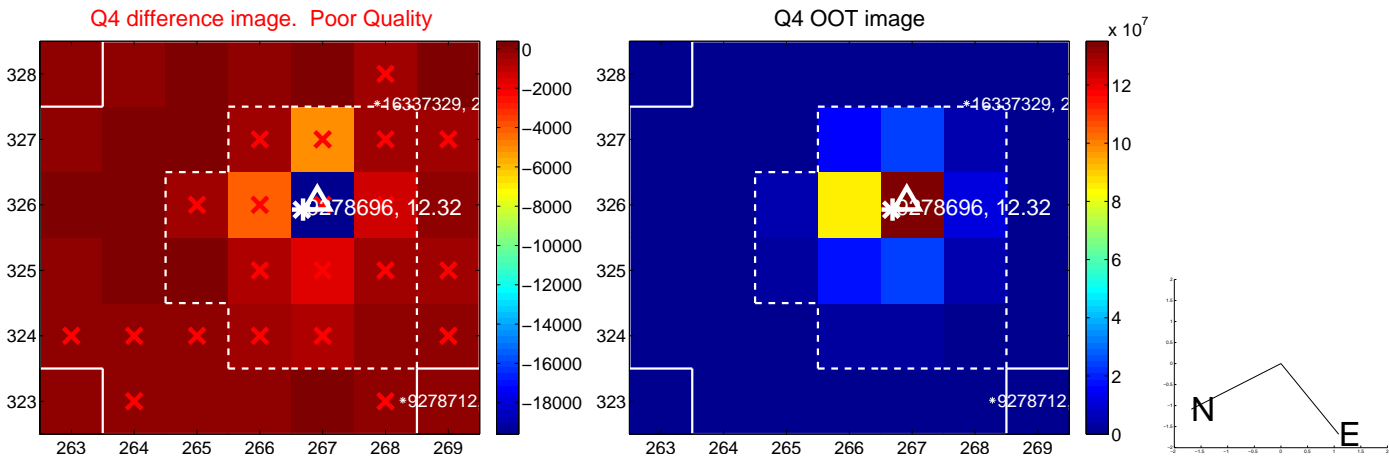
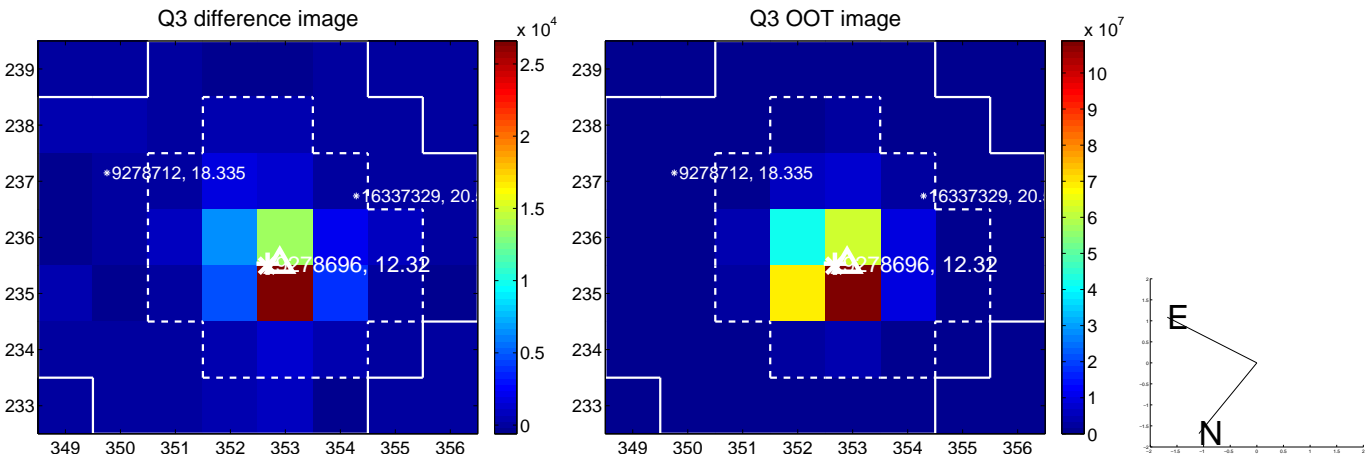
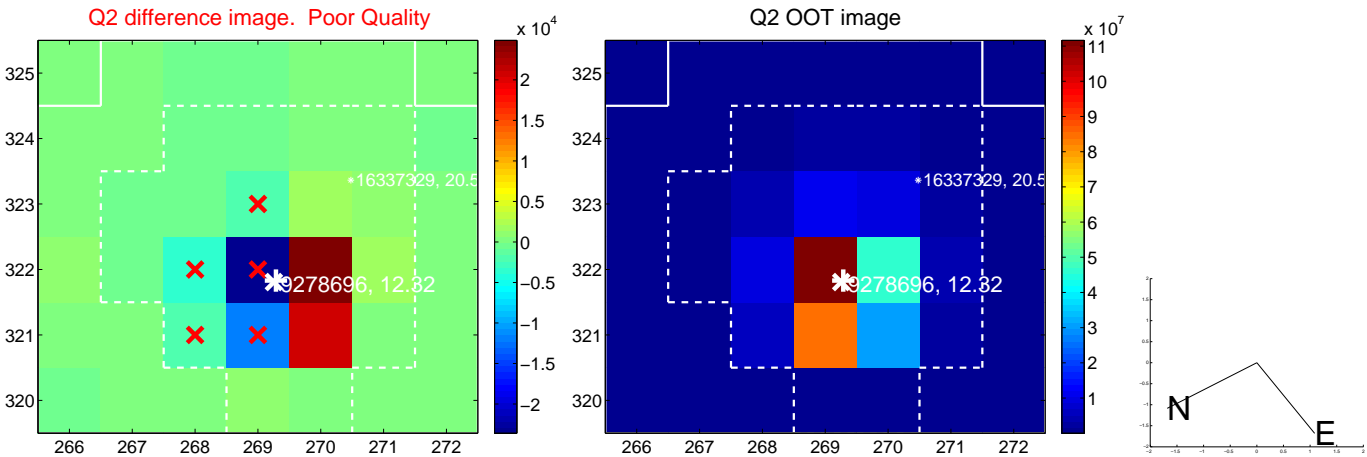
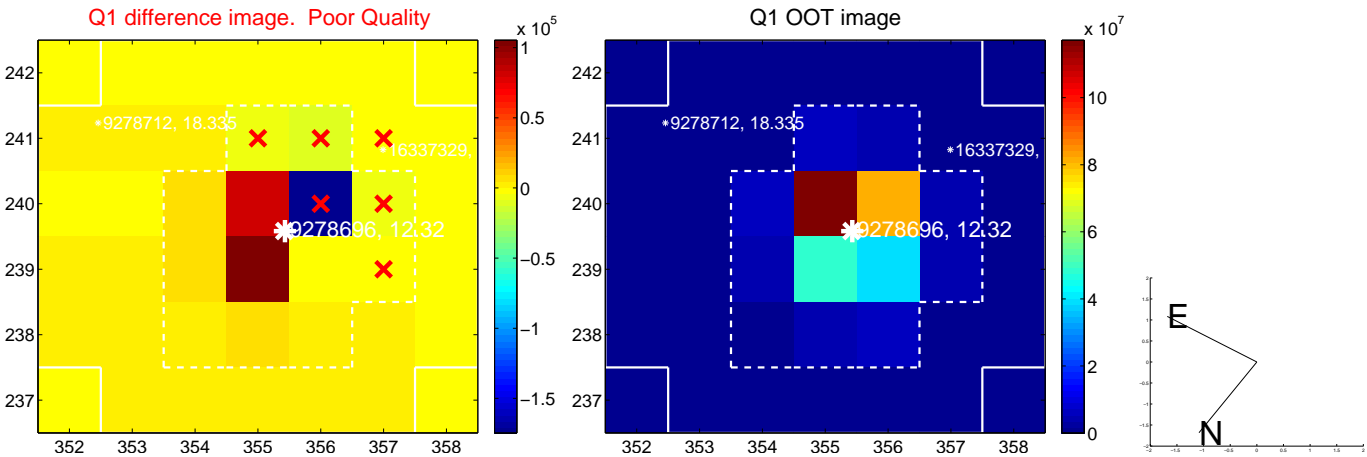


offset from photometric centroids

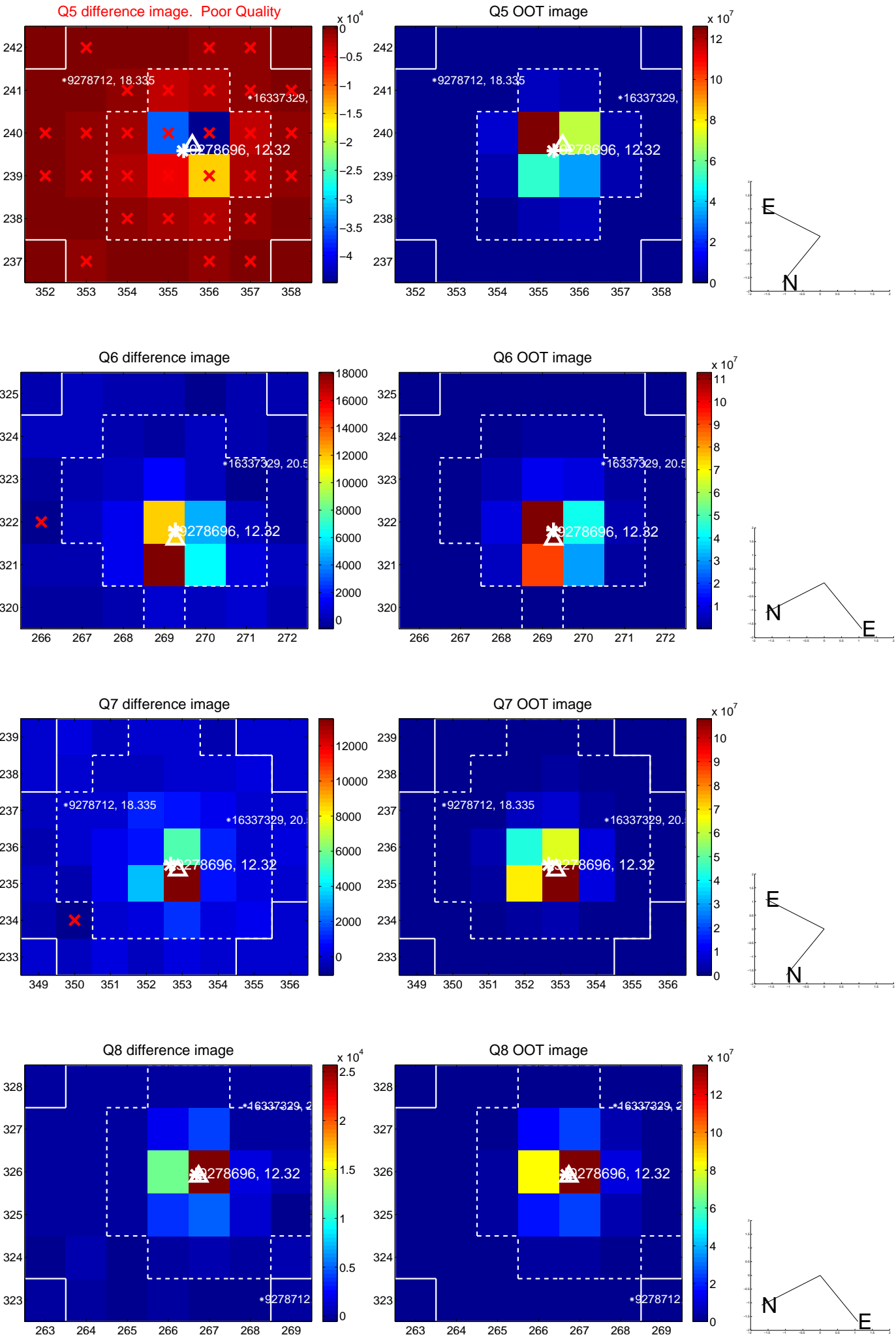


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

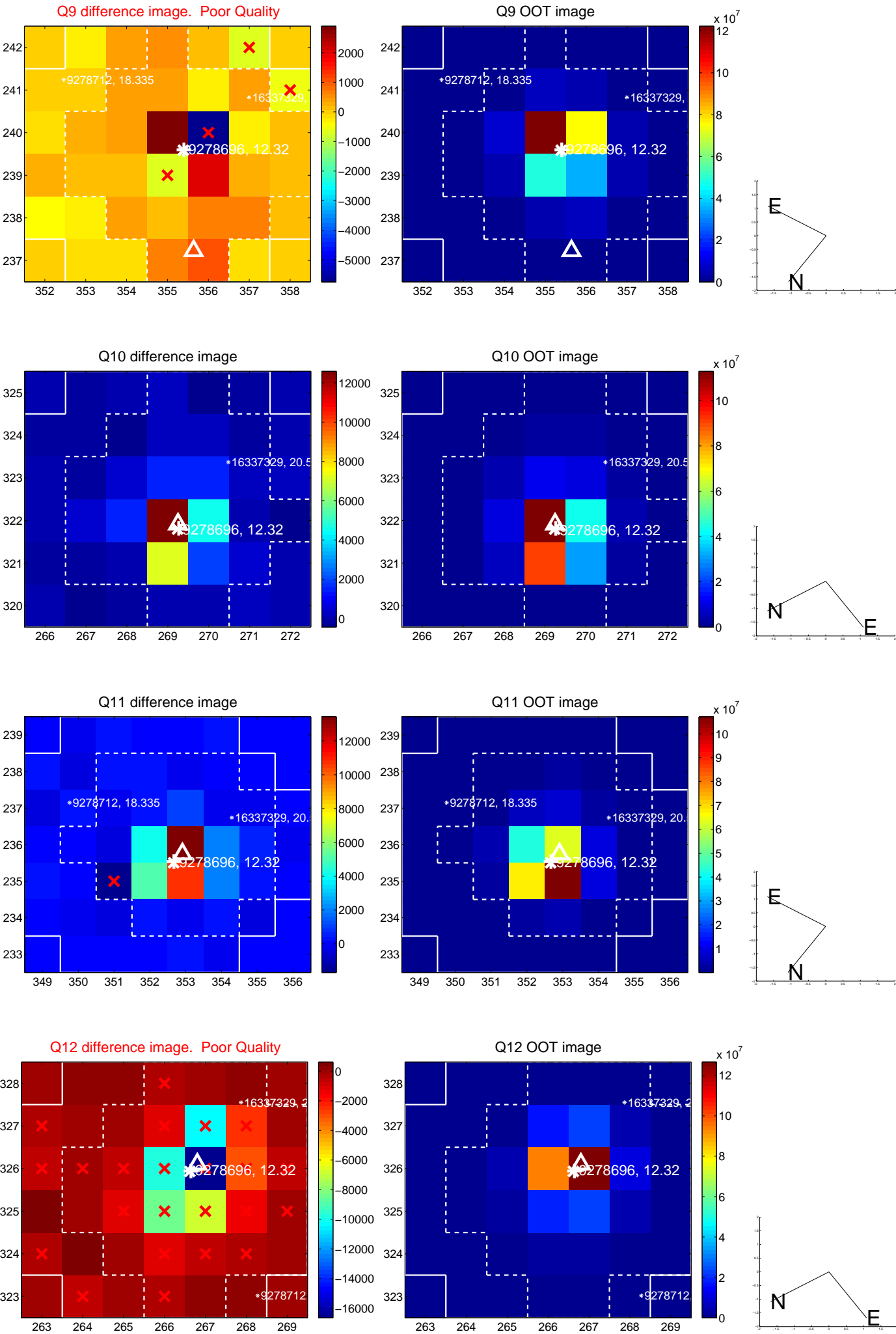
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



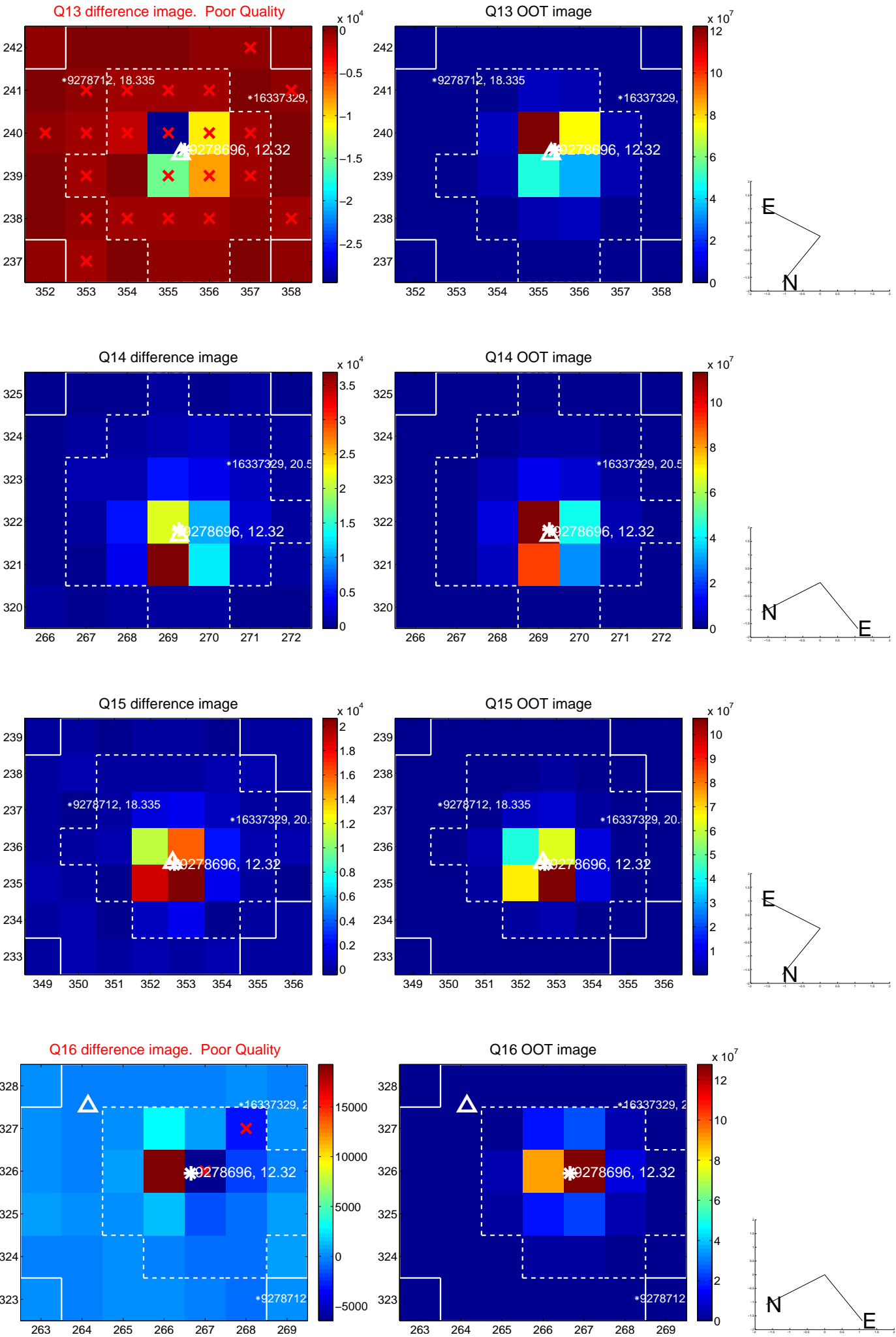
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



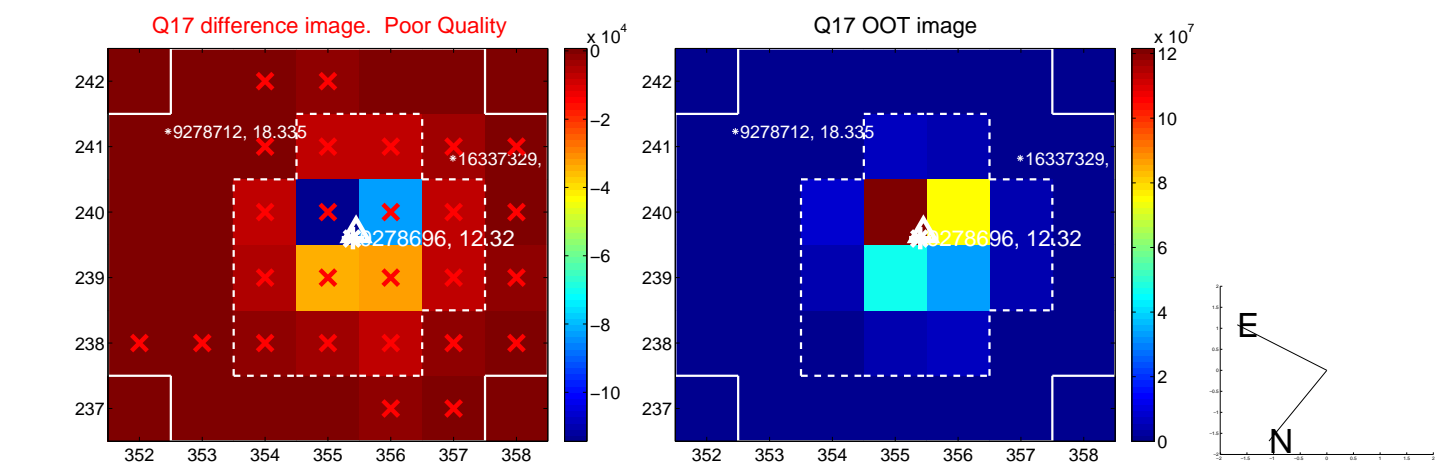
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



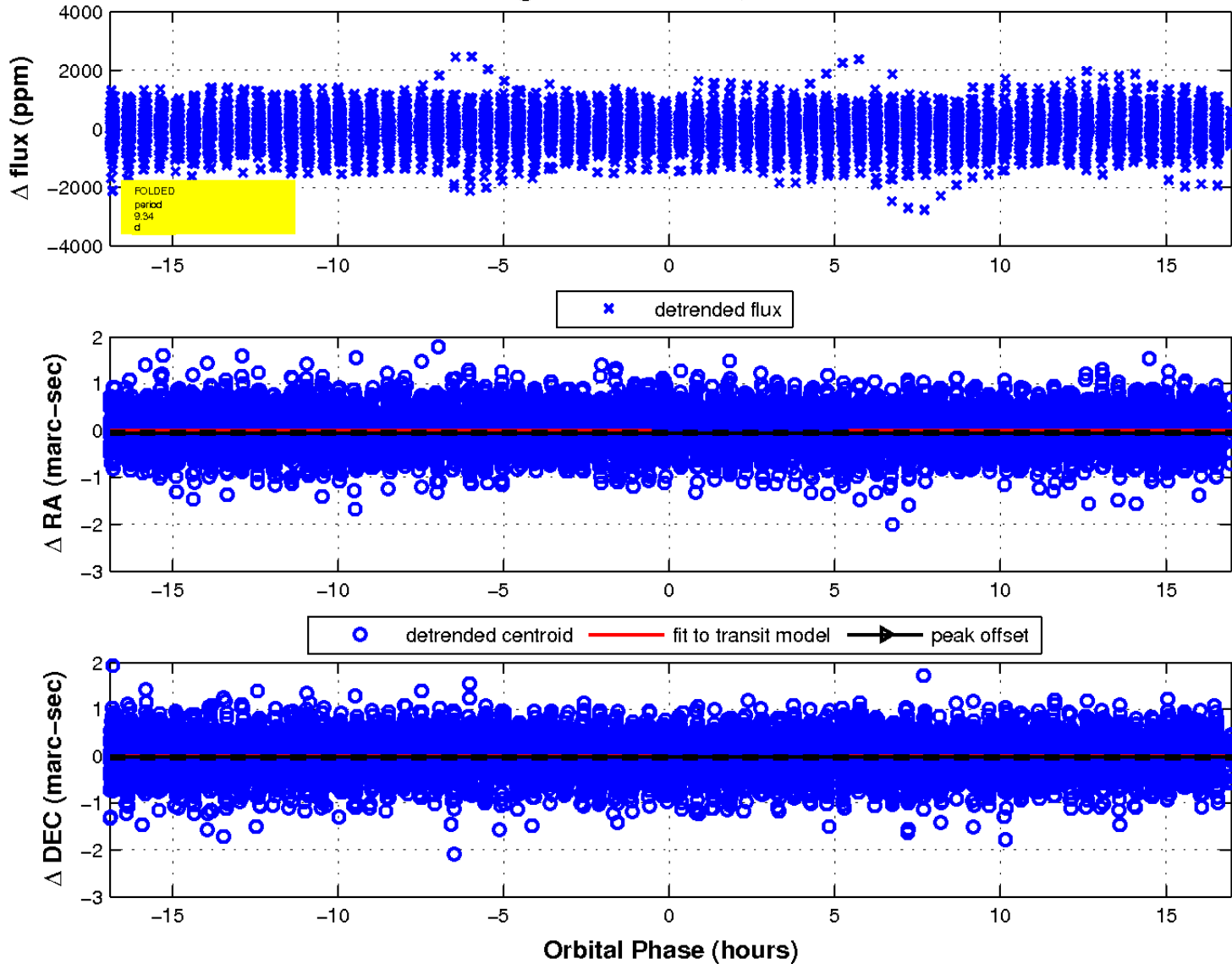
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 5



UKIRT Image



KIC 009278696

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})
009278696-01	OBS	No	0.671258	131.775162	70.8	2.129	13.9	13.9	1.87	6942	1.83	24184.71
009278696-02	OBS	No	0.671251	132.116488	72.2	2.502	12.5	12.9	1.87	6942	1.72	24185.06
009278696-03	OBS	No	9.338135	134.717444	209.4	2.000	9.4	-1.0	1.87	6942	2.74	722.85
009278696-05	OBS	No	42.738959	144.001570	995.6	5.785	7.4	6.7	1.87	6942	6.62	95.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009278696-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009278696-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009278696-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
009278696-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV

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

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

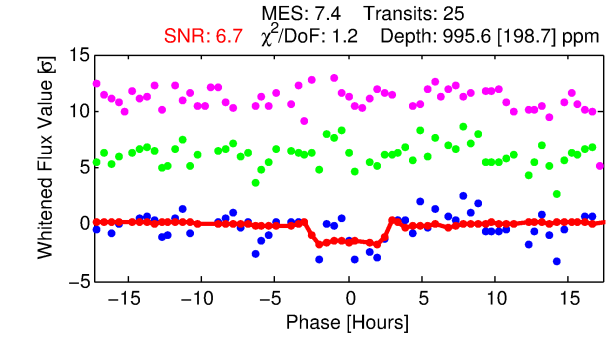
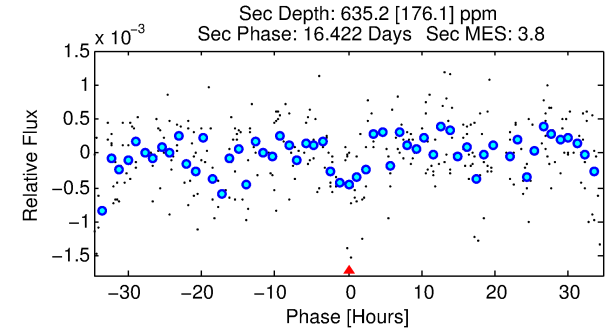
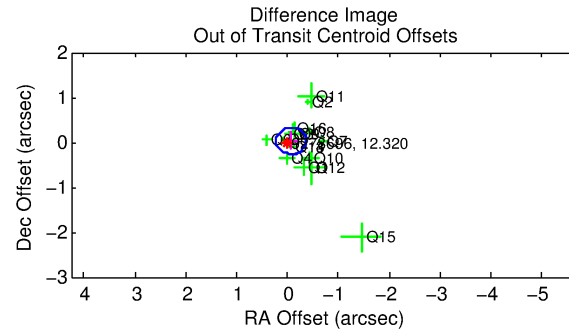
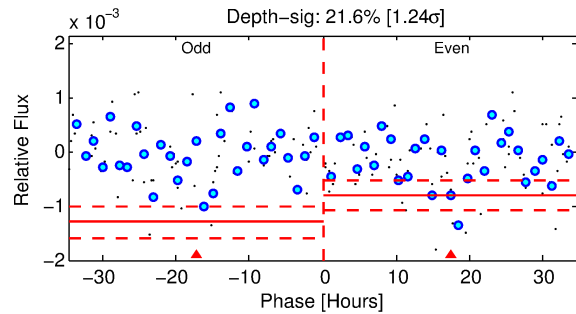
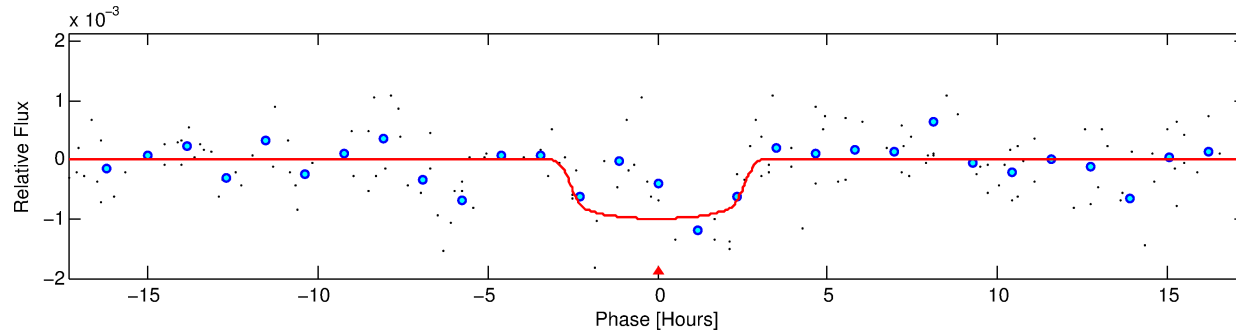
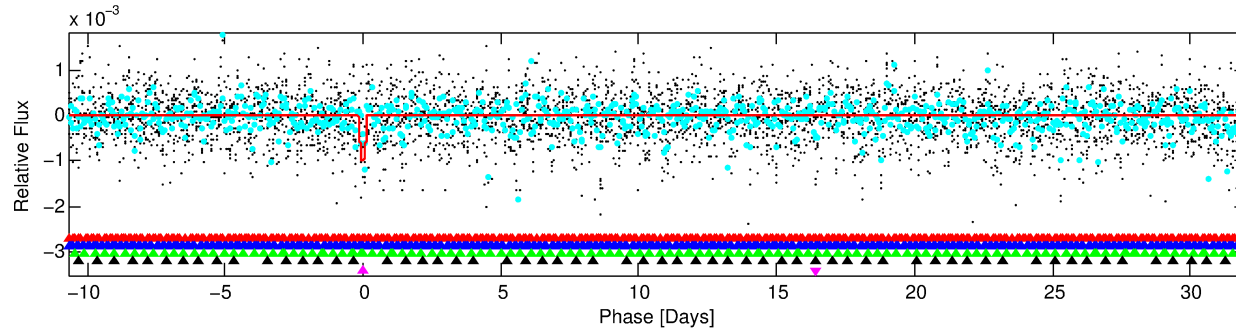
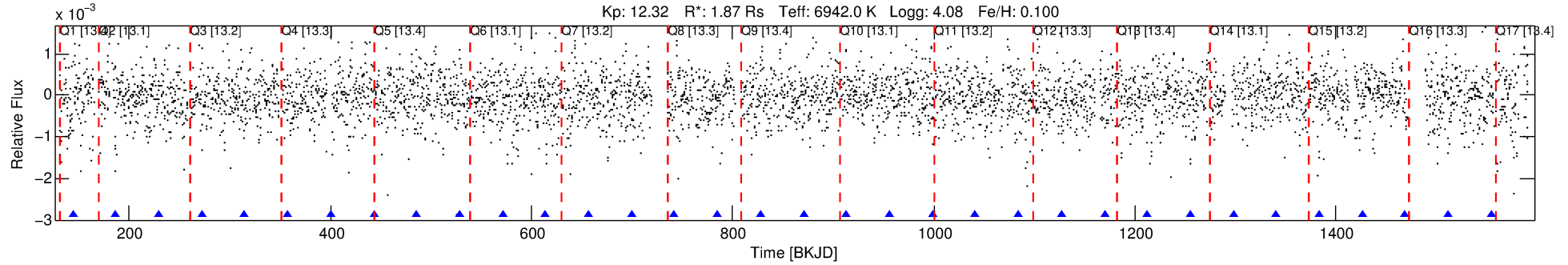
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009278696-05

No Significant Match Found

DV One-Page Summary

KIC: 9278696 Candidate: 5 of 5 Period: 42.739 d



DV Fit Results:

Period = 42.73896 [0.00121] d
Epoch = 144.0016 [0.0198] BKJD
Rp/R* = 0.0324 [0.0063]
a/R* = 33.90 [27.49]
b = 0.84 [0.29]
Seff = 95.13 [37.79]
Teq = 796 [79] K
Rp = 6.62 [2.35] Re
a = 0.2766 [0.0684] AU
Ag = 609.74 [364.04] [1.67 σ]
Teffp = 6118 [781] K [6.78 σ]

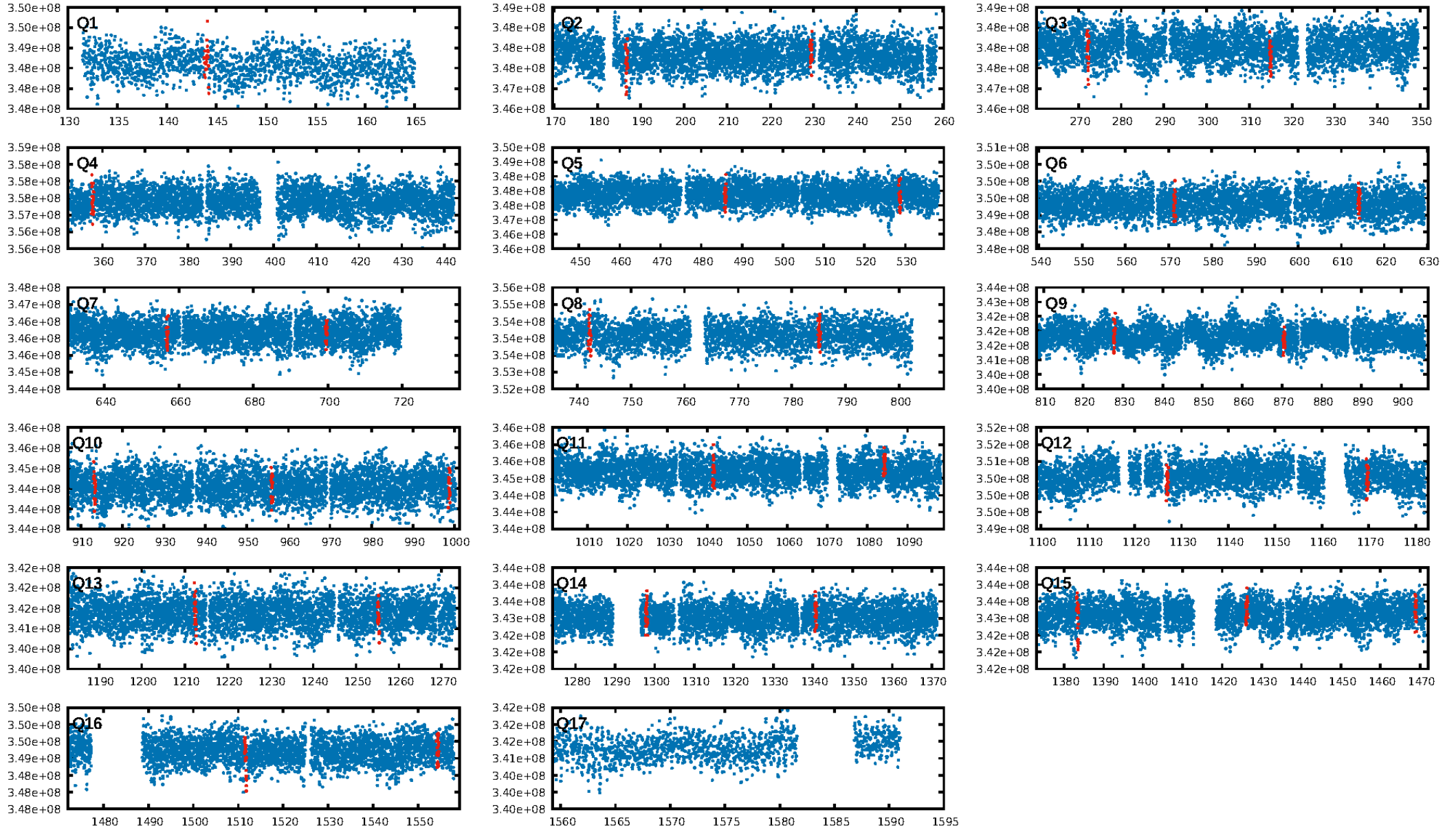
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [77.41 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 68.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.73e-12
RollingBand-fgt: 1.00 [25/25]
GhostDiagnostic-chr: 0.755
Centroid-sig: 0.4%
Centroid-so: 0.055 arcsec [0.76 σ]
OotOffset-rm: 0.080 arcsec [0.81 σ]
KicOffset-rm: 0.121 arcsec [0.77 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 0.00 [0/16]

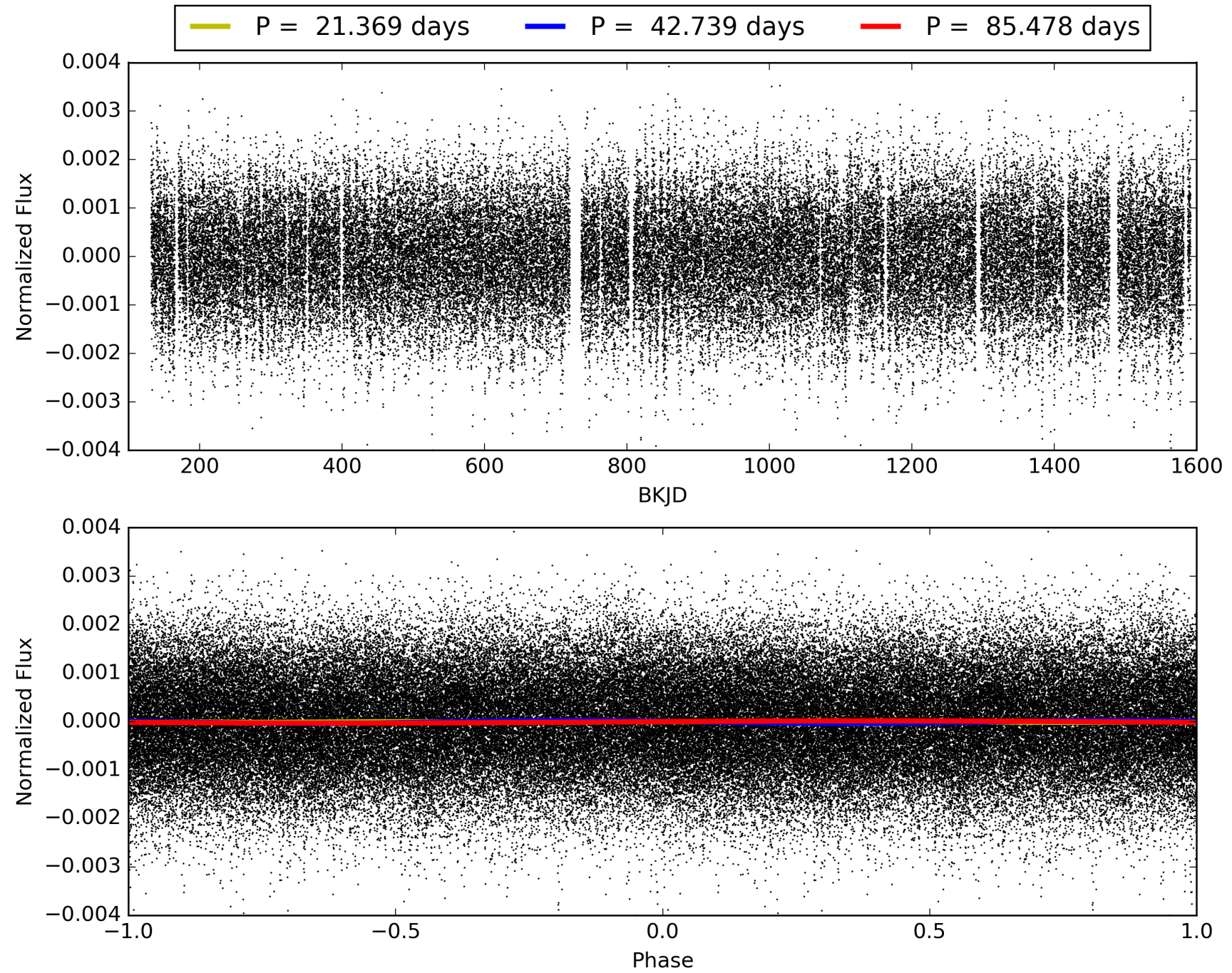
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:53:41 Z

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

TCE 009278696-05, PDC Light Curves

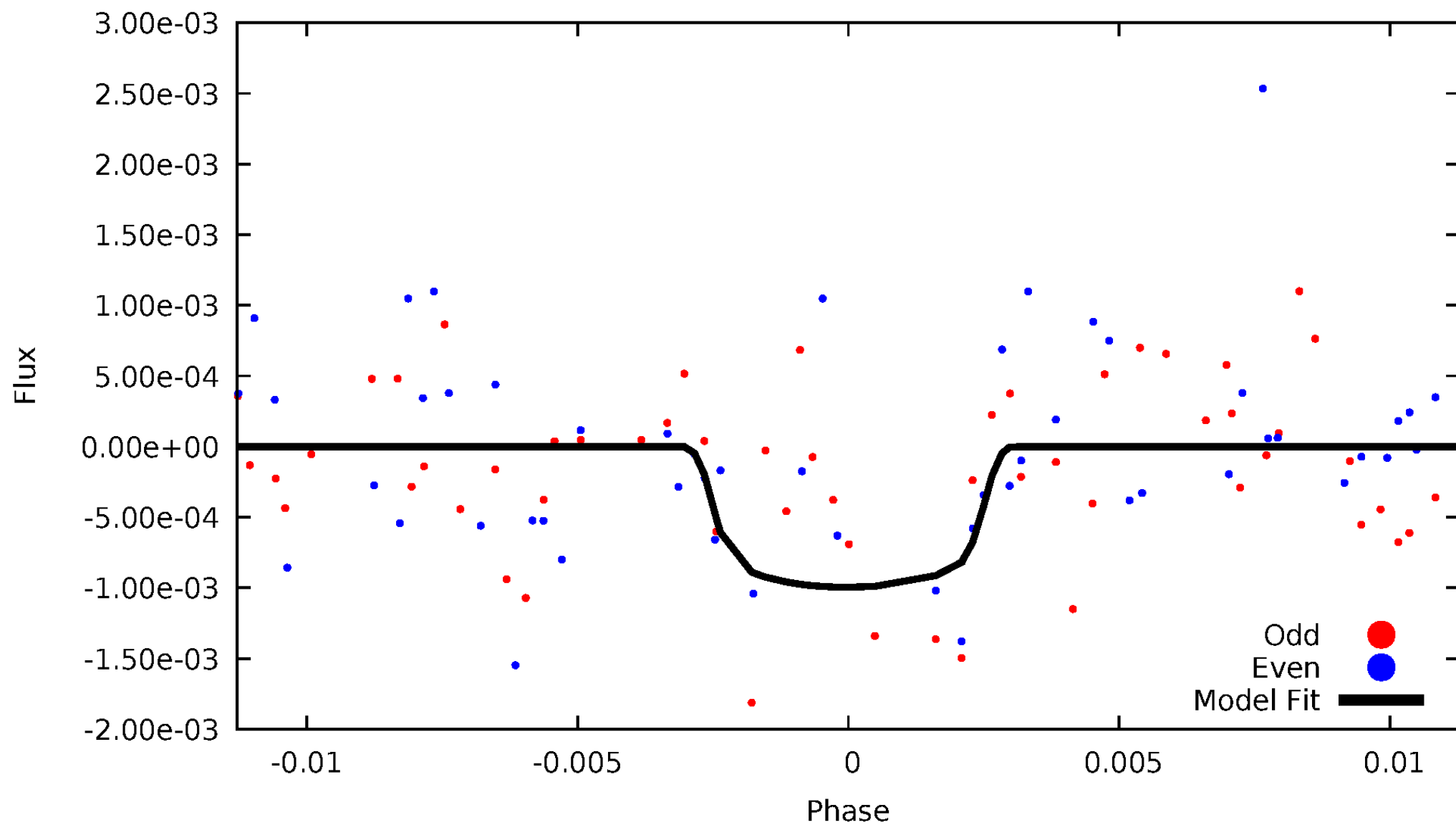


TCE 009278696-05



DV Odd/Even

TCE 009278696-05

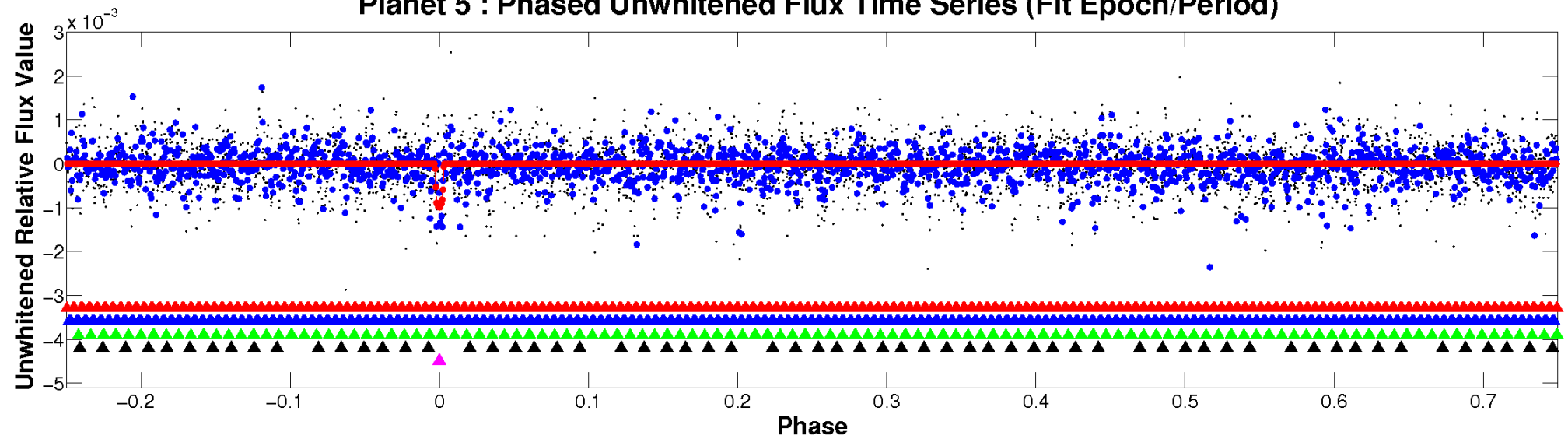


ALT Odd/Even

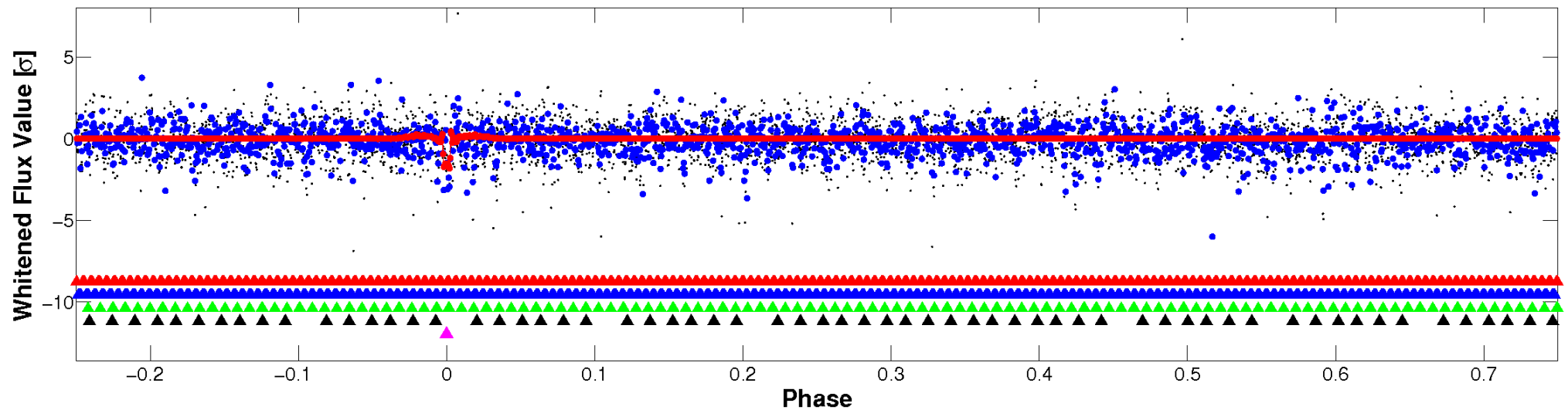
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

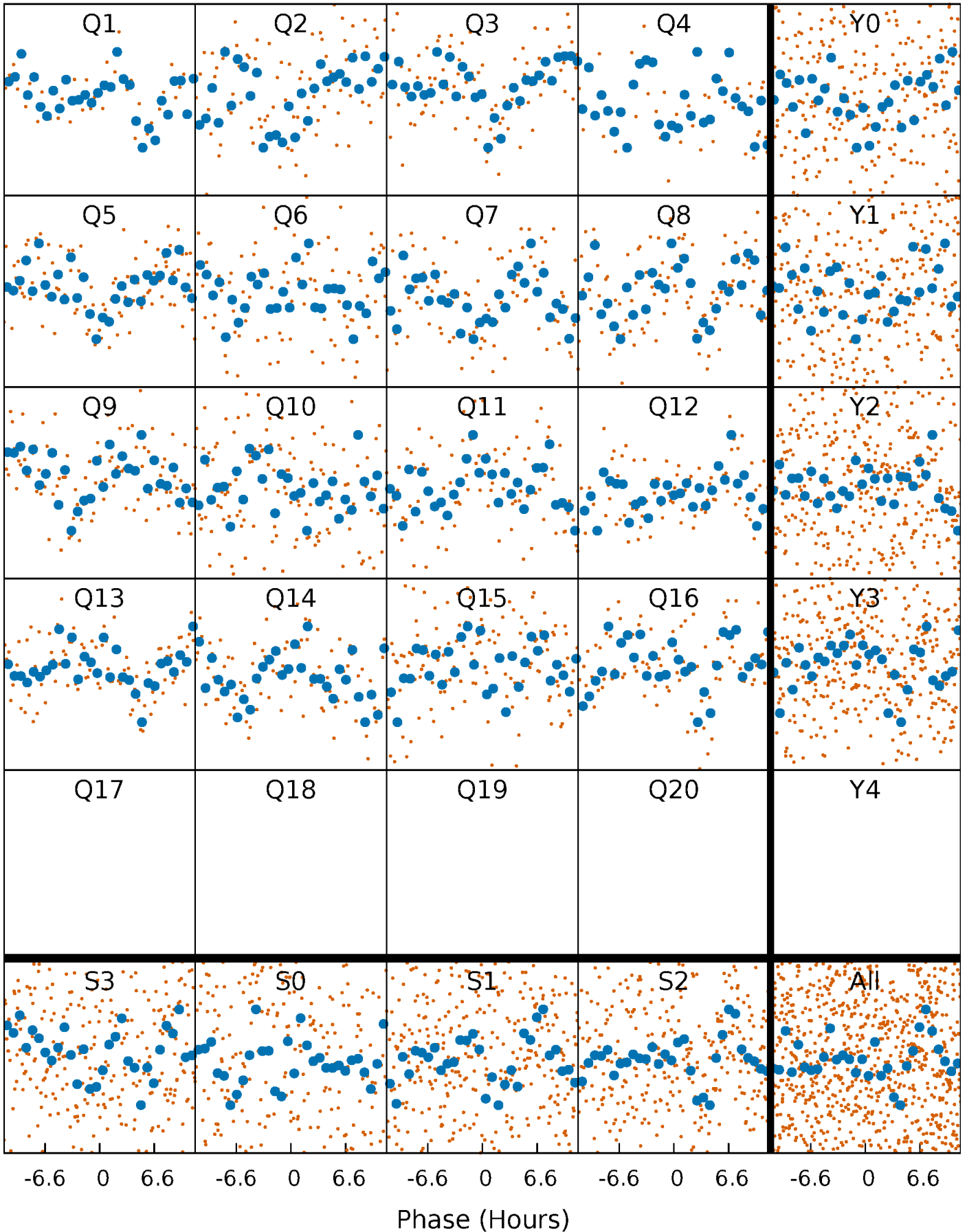


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



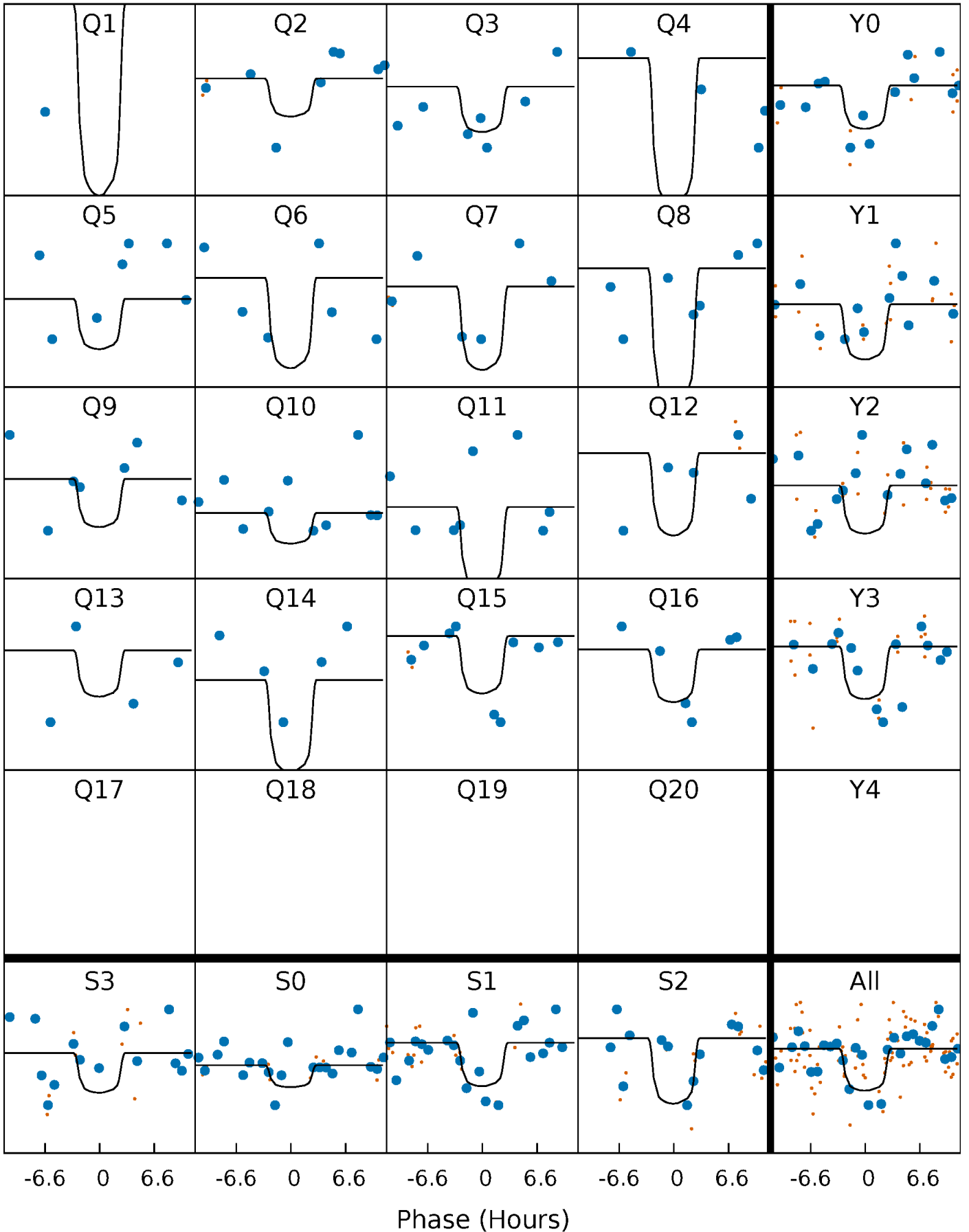
PDC Quarter-Phased Transit Curves

TCE 009278696-05 $P = 42.738959$ Days $T_0 = 144.001570$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009278696-05 $P = 42.738959$ Days $T_0 = 144.001570$ (BKJD)

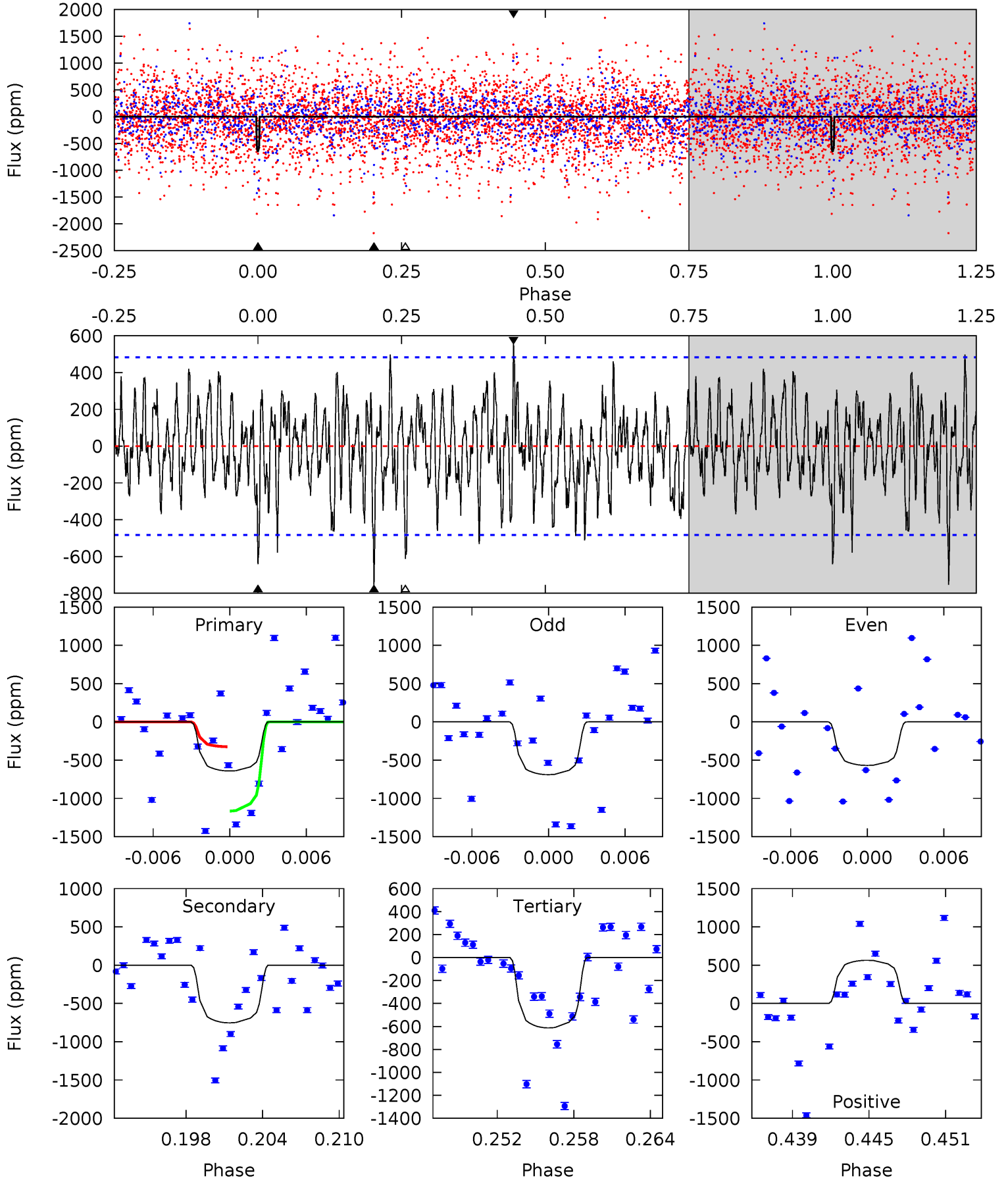


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009278696-05, P = 42.738959 Days, E = 101.262611 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.80	7.99	6.50	5.98	5.12	2.75	2.01	0.30	0.82	1.49	2.01	0.64	1.01	0.43	4.42



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009278696

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6942^{+194}_{-305}	$4.083^{+0.175}_{-0.193}$	$0.100^{+0.200}_{-0.350}$	$1.870^{+0.555}_{-0.454}$	$1.545^{+0.196}_{-0.269}$	$0.333^{+0.324}_{-0.162}$
	+3%/-4%	+4%/-5%	+200%/-350%	+30%/-24%	+13%/-17%	+97%/-49%
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 009278696-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-753 ± 94	$6.62^{+1.58}_{-1.52}$	1114^{+91}_{-87}	6337^{+901}_{-585}	721^{+511}_{-265}
Alt.	N/A	N/A	N/A	N/A	N/A

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

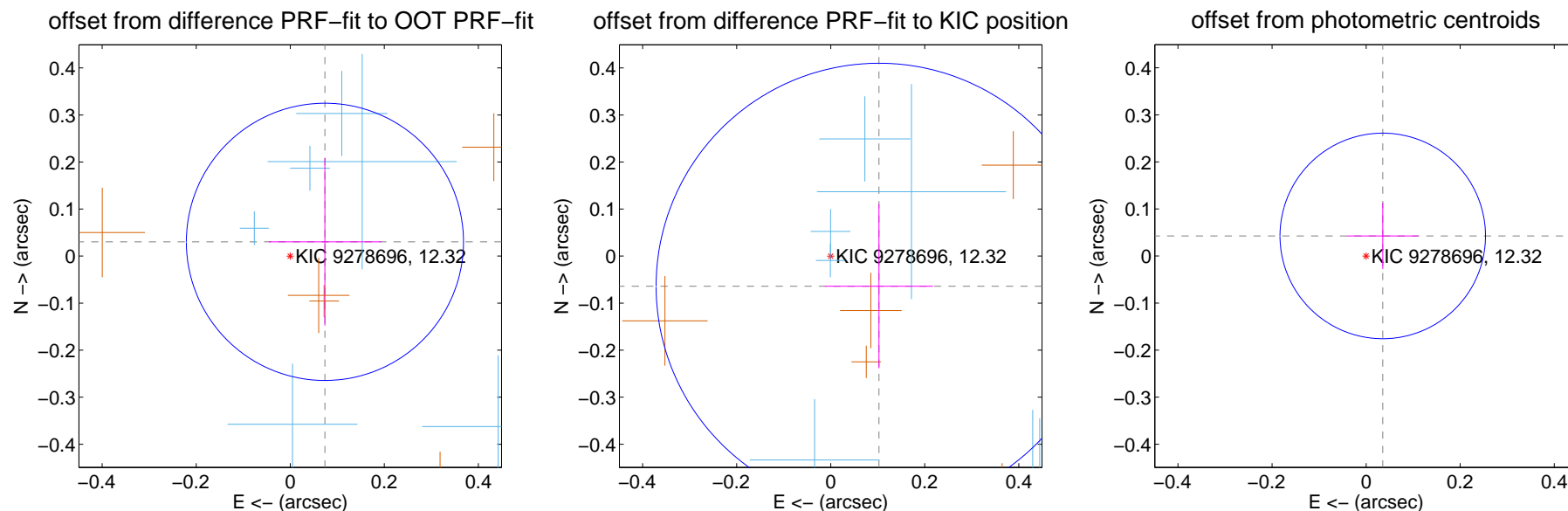
DV Centroid Data

Supplemental centroid analysis for 009278696-05. Kepler magnitude: 12.32. Transit SNR 6.67

There are 10 quarters with good PRF difference image offsets

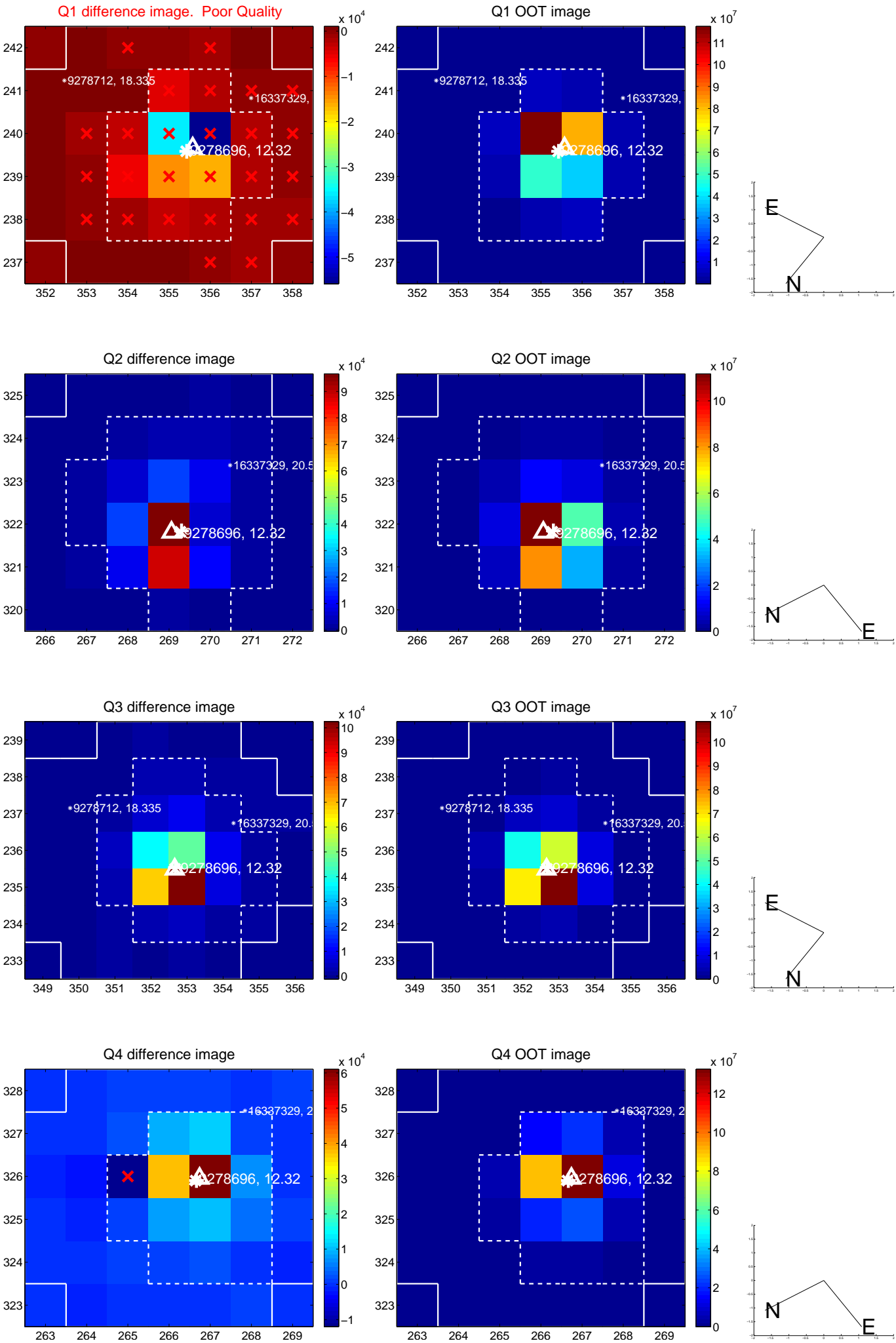
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.098	0.81	-0.074 ± 0.120	0.030 ± 0.178
PRF-fit source offset from KIC position	0.121 ± 0.158	0.77	-0.103 ± 0.115	-0.064 ± 0.175
photometric centroid source offset	0.06 ± 0.07	0.76	-0.04 ± 0.08	0.04 ± 0.07

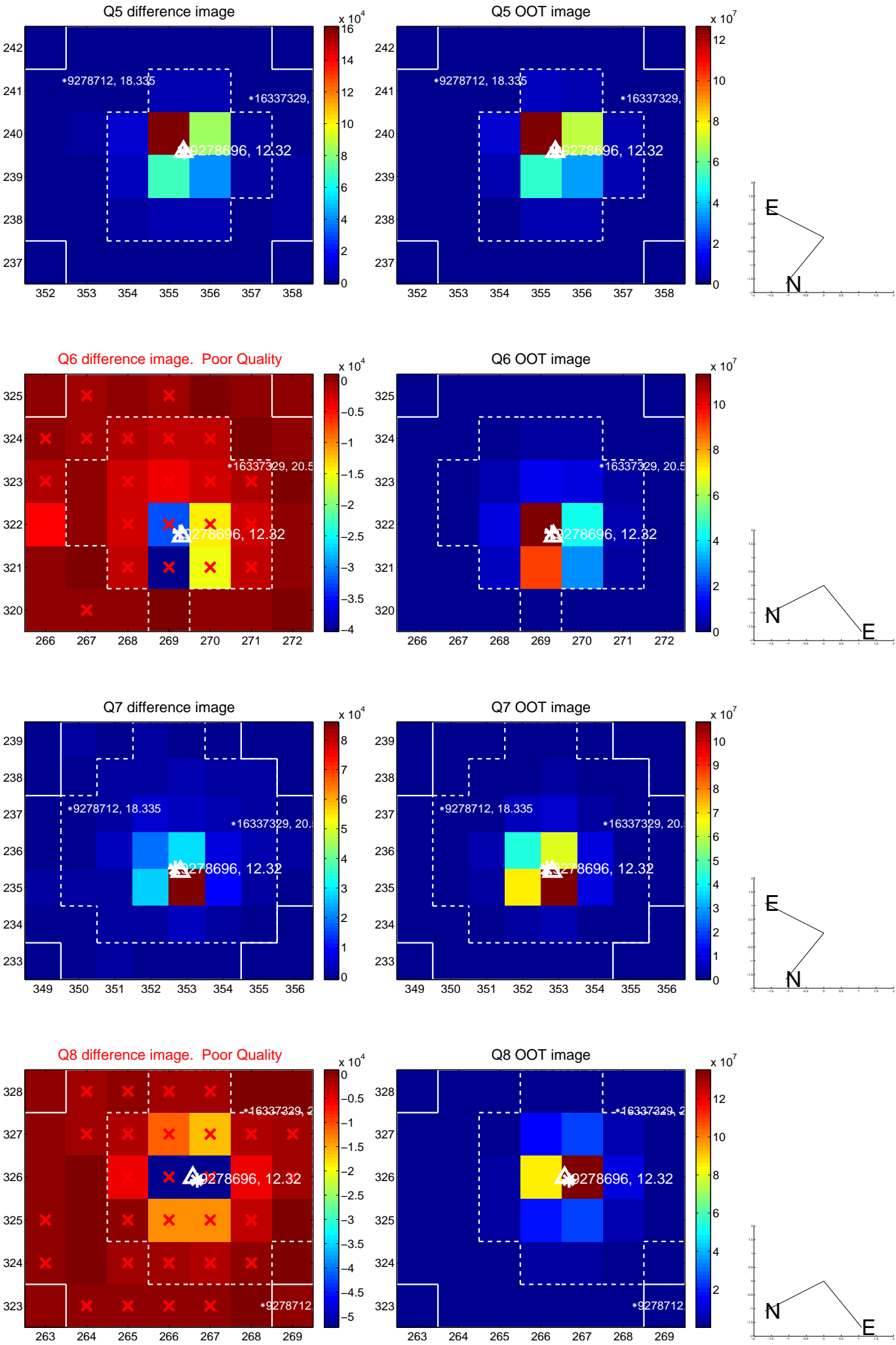


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

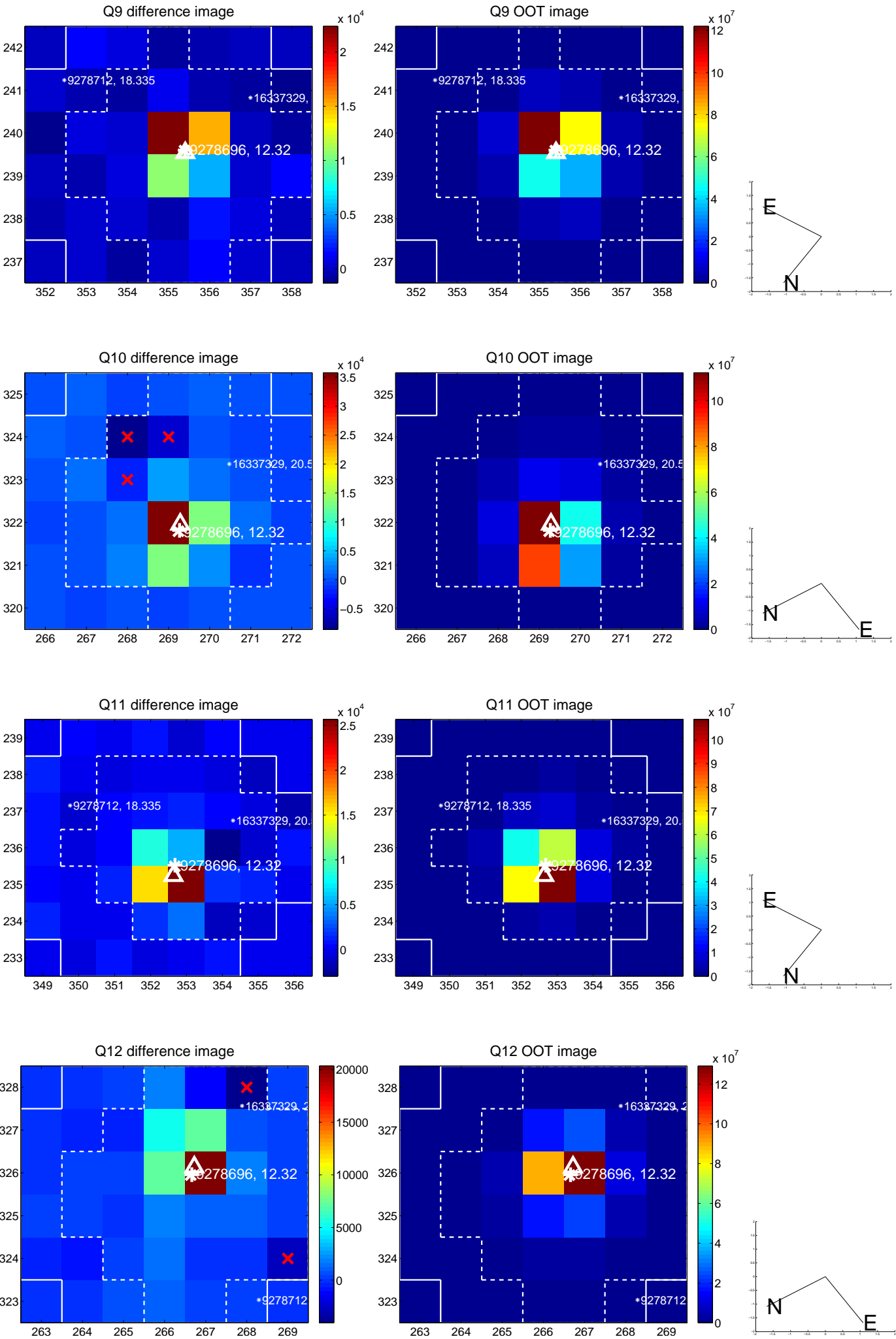
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



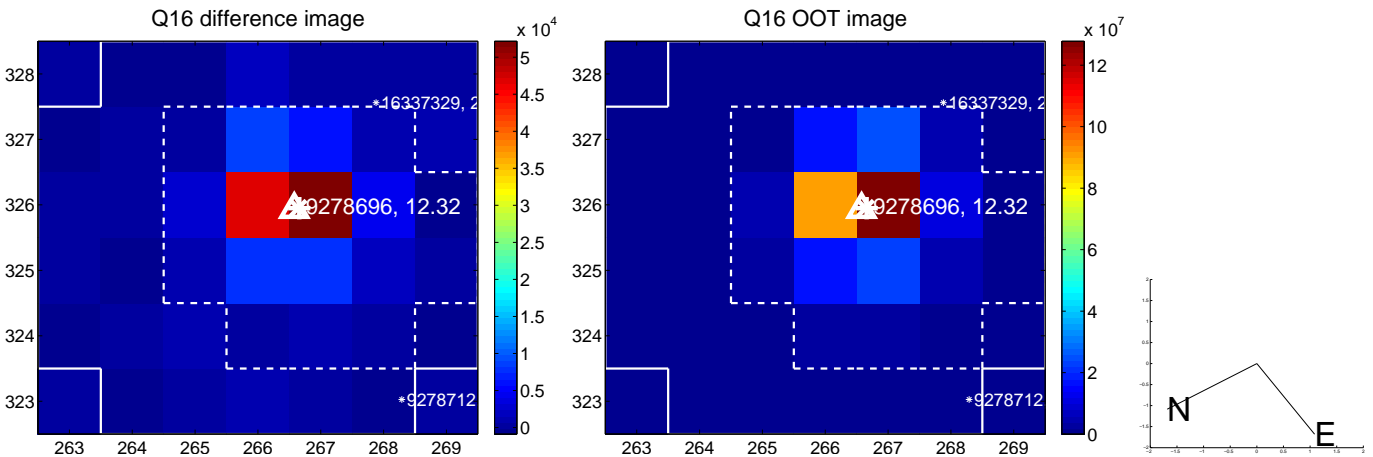
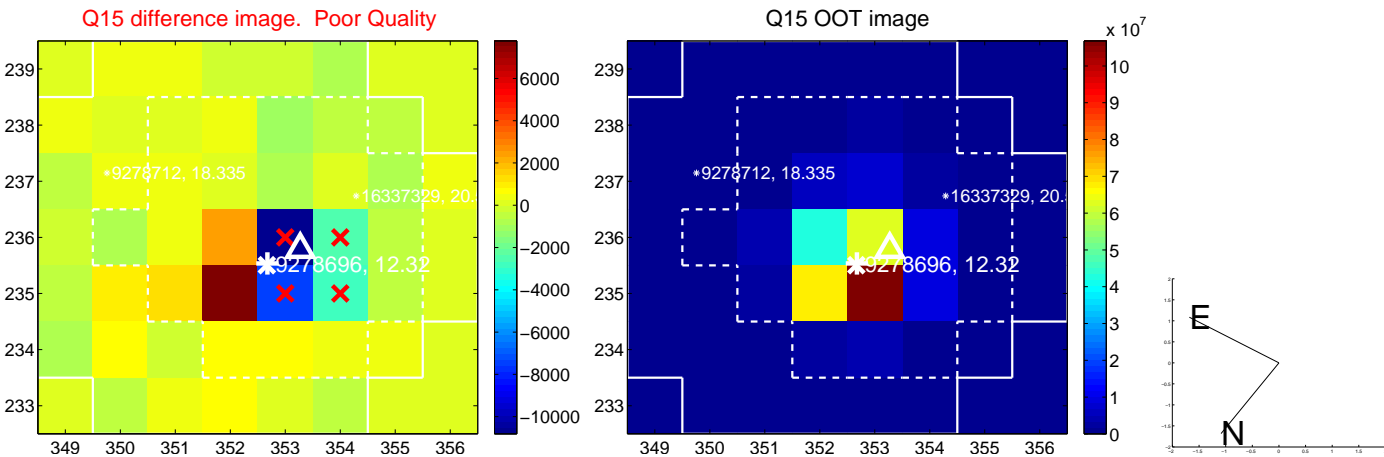
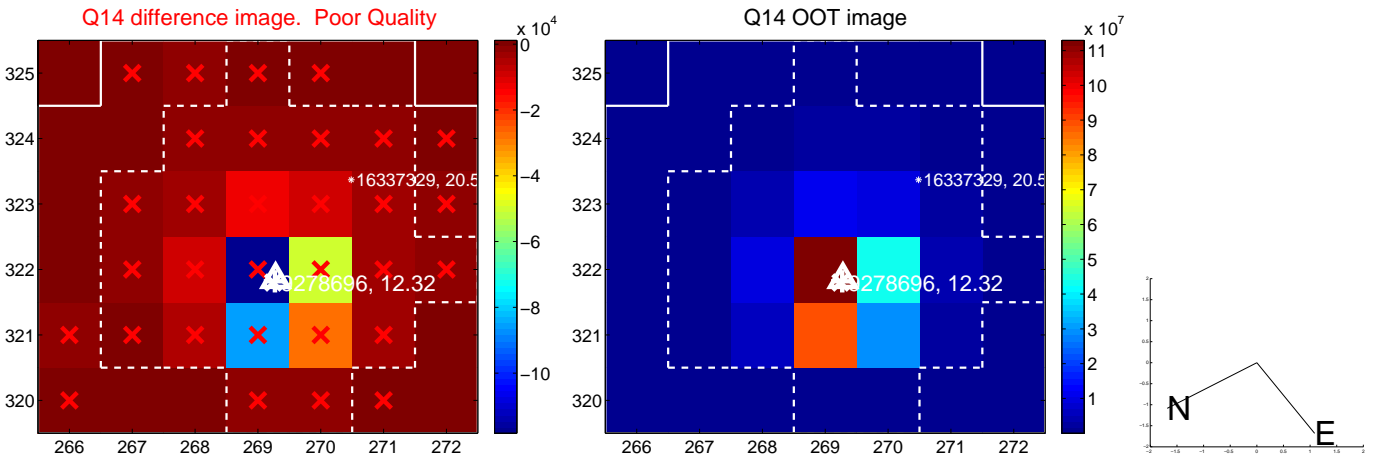
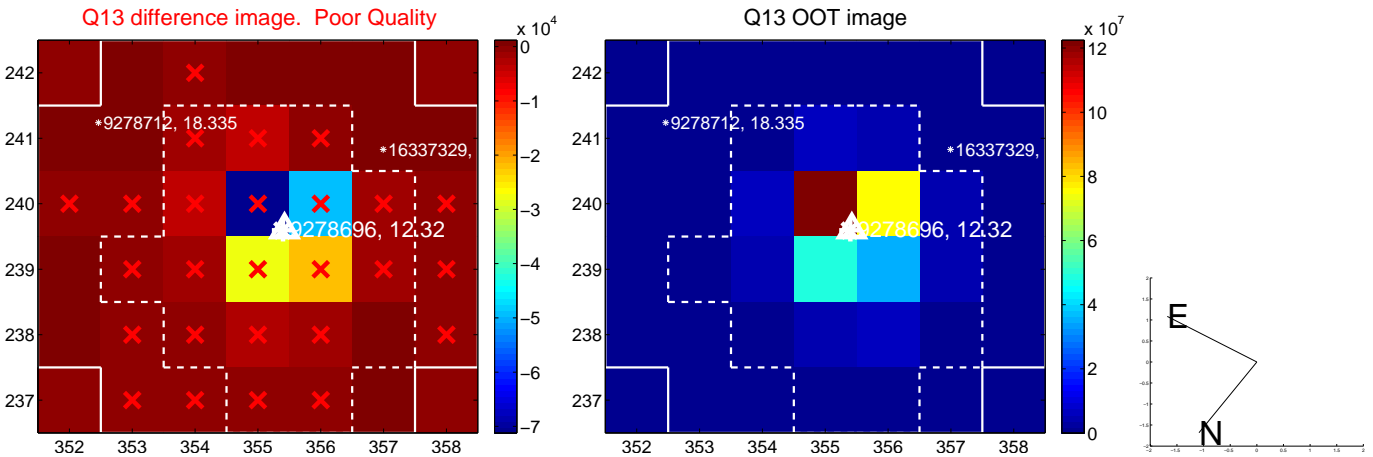
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



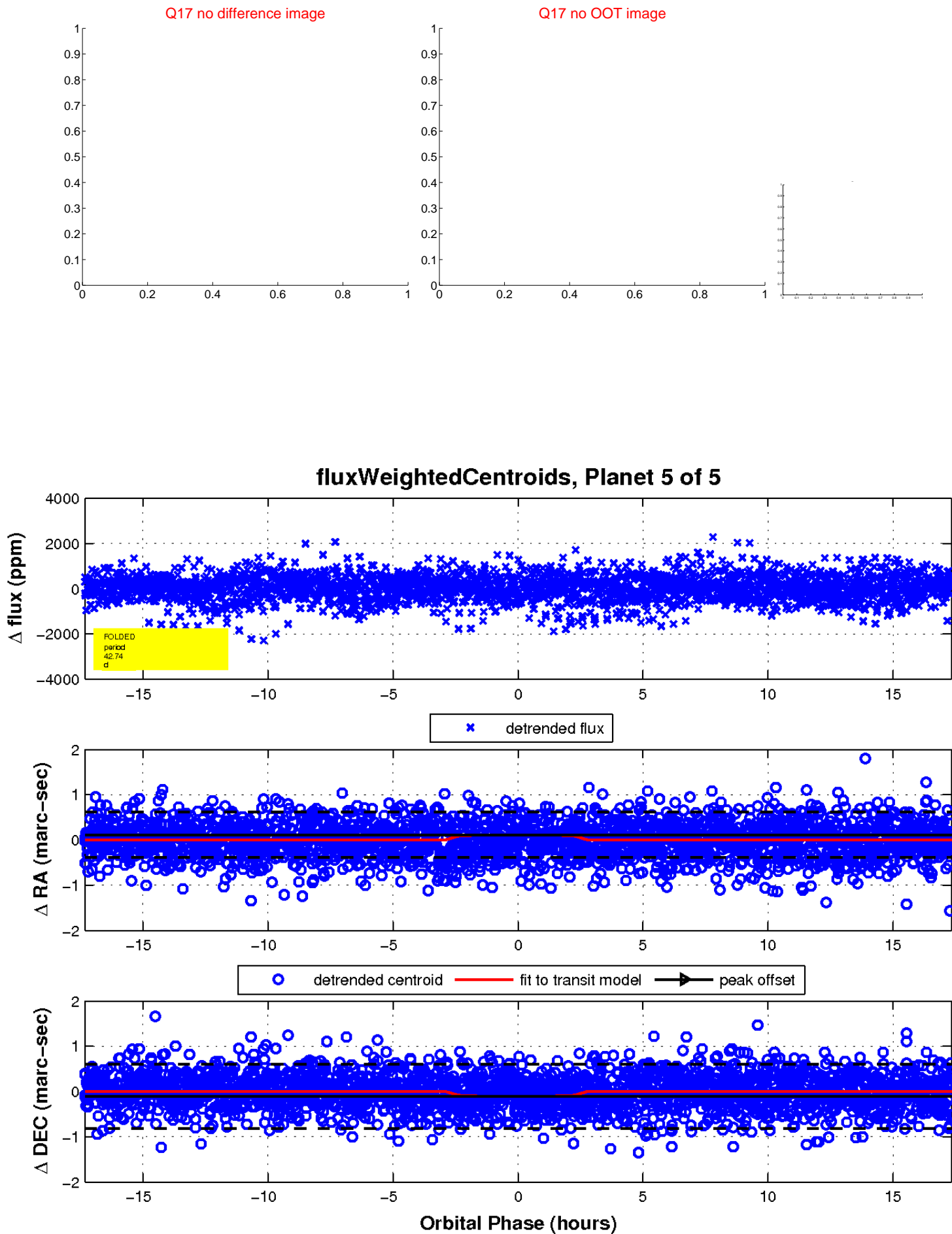
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

