KIC 009224836

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 ($S_\oplus$)
009224836-01	OBS	No	2.063031	132.198136	10.4	7.396	10.3	8.6	3.79	9038	1.27	49996.04
009224836-02	OBS	No	2.062898	133.276318	14.8	7.138	11.9	13.3	3.79	9038	1.69	50000.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009224836-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009224836-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

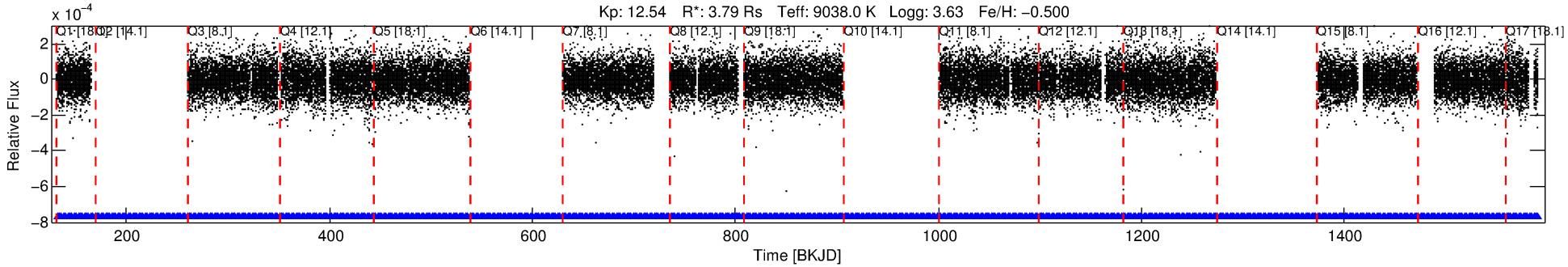
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

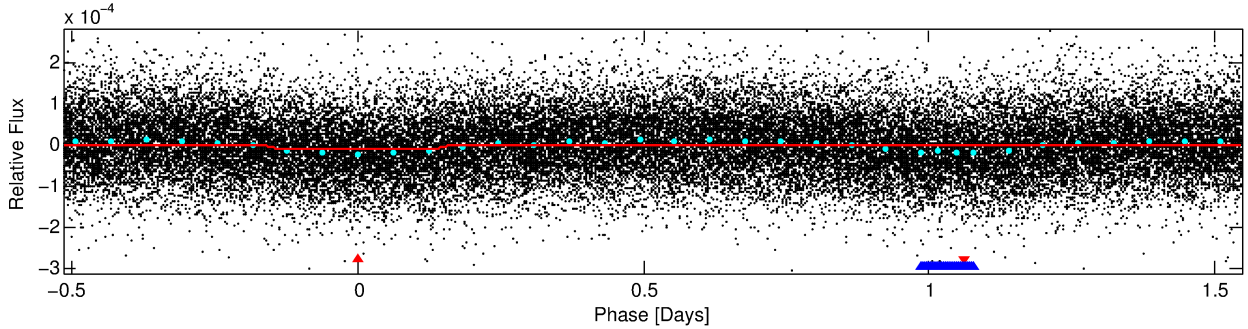
Ephemeris Match Information For 009224836-01

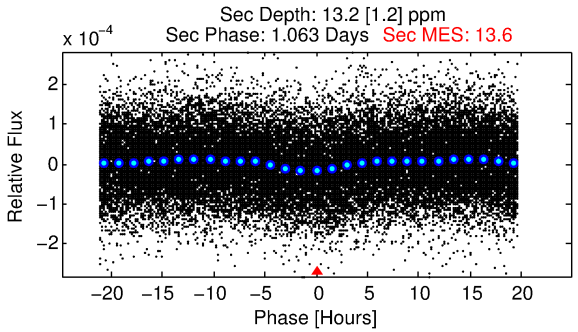
No Significant Match Found

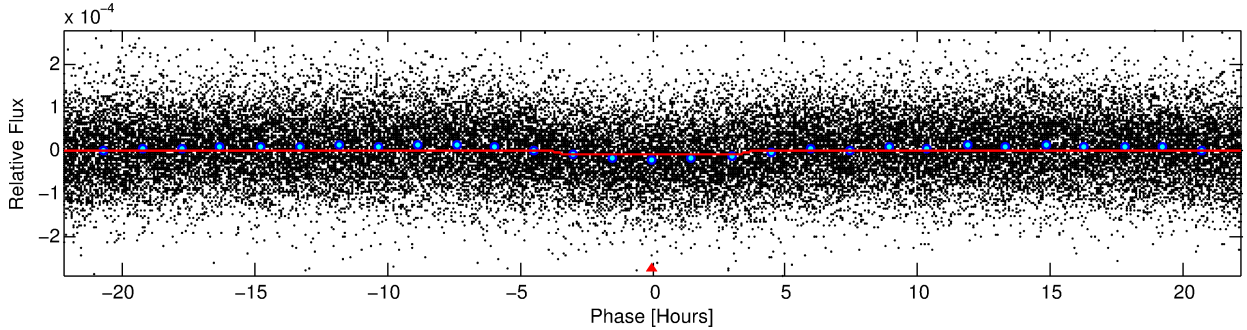
DV One-Page Summary

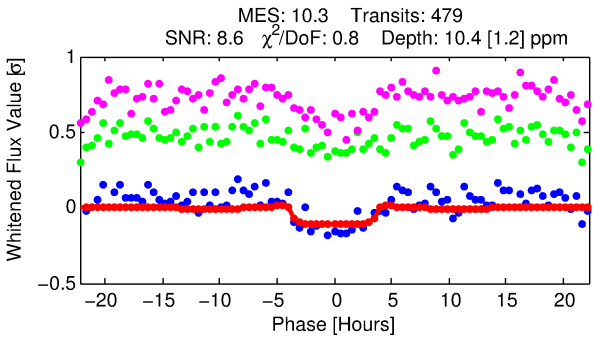
KIC: 9224836 Candidate: 1 of 2 Period: 2.063 d

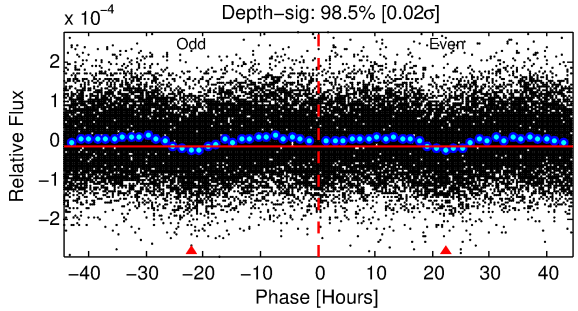


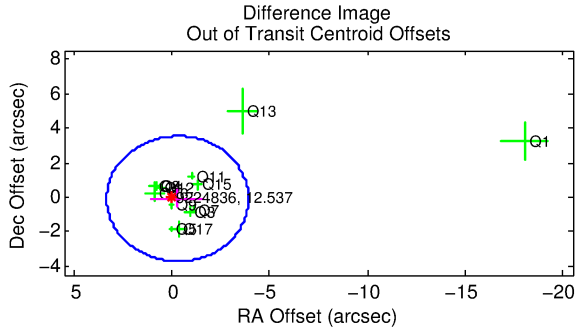












DV Fit Results:

Period = 2.06303 [0.00003] d
Epoch = 132.1981 [0.0070] BKJD
Rp/R* = 0.0031 [0.0005]
a/R* = 2.01 [1.61]
b = 0.48 [1.72]

Seff = 49996.04 [49756.81]
Teq = 3813 [949] K
Rp = 1.27 [0.77] Re
a = 0.0414 [0.0246] AU

Ag = 7.75 [8.08] [0.84σ]
Teffp = 9837 [988] K [4.40σ]

DV Diagnostic Results:

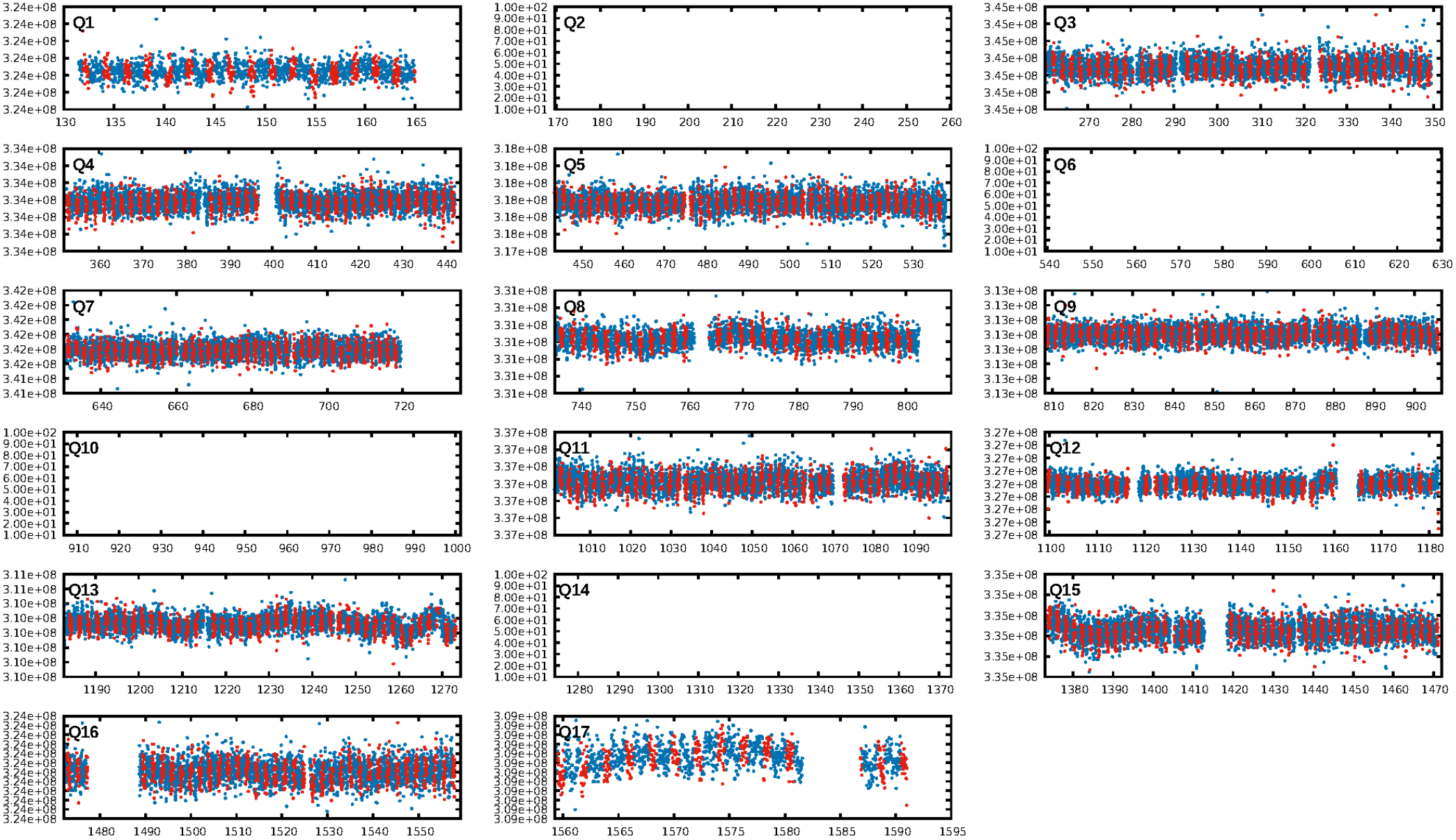
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 7.29e−43
RollingBand−fgt: 1.00 [450/450]
GhostDiagnostic−chr: −3.718

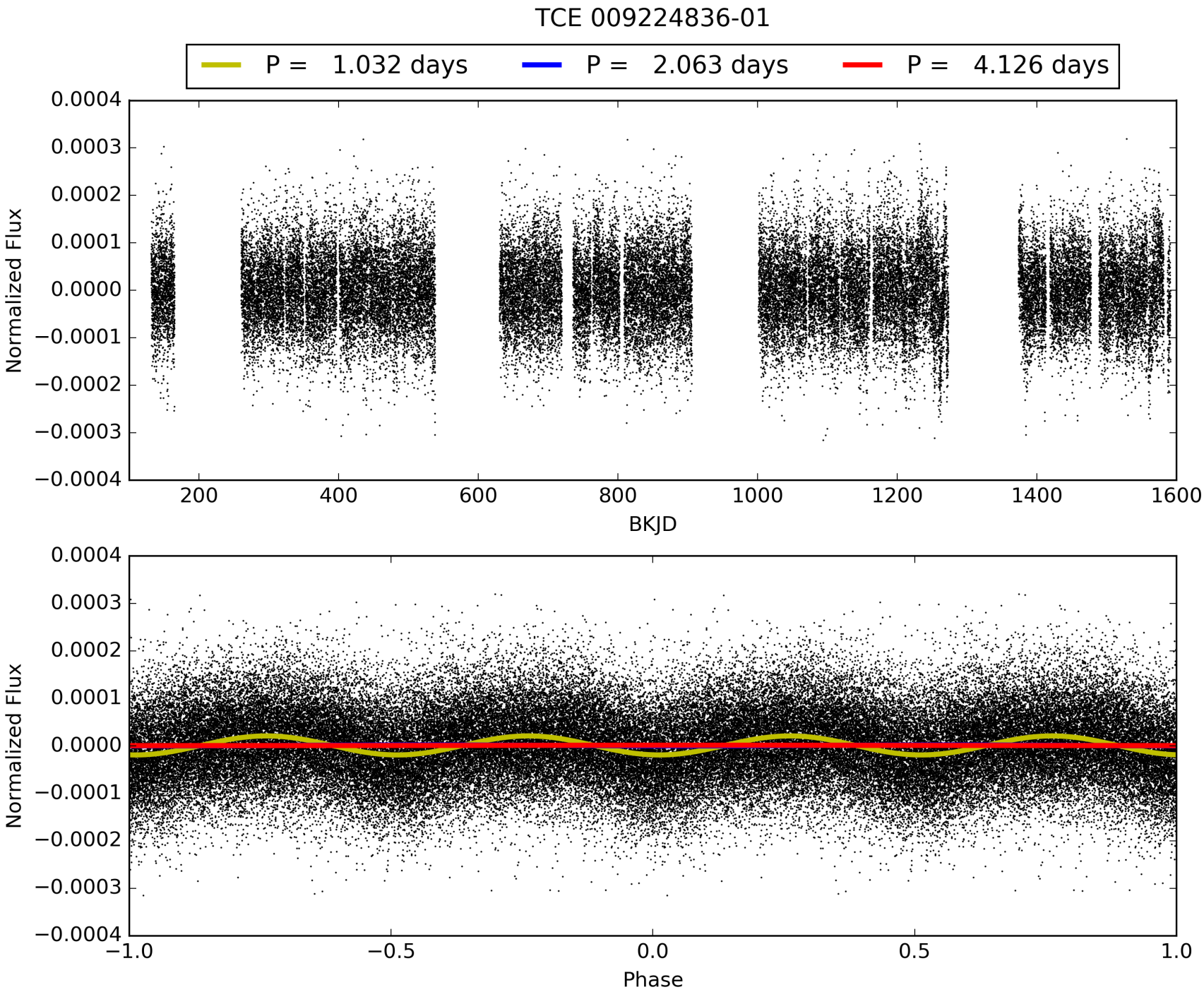
Centroid−sig: 13.5%
Centroid−so: 1.583 arcsec [1.19σ]
OotOffset−rm: 0.316 arcsec [0.26σ]
KicOffset−rm: 0.321 arcsec [0.24σ]
OotOffset−st: 0/4/4/5 [13]
KicOffset−st: 0/4/4/5 [13]
DiffImageQuality−fgm: 0.85 [11/13]
DiffImageOverlap−fno: 1.00 [13/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 01:34:36 Z

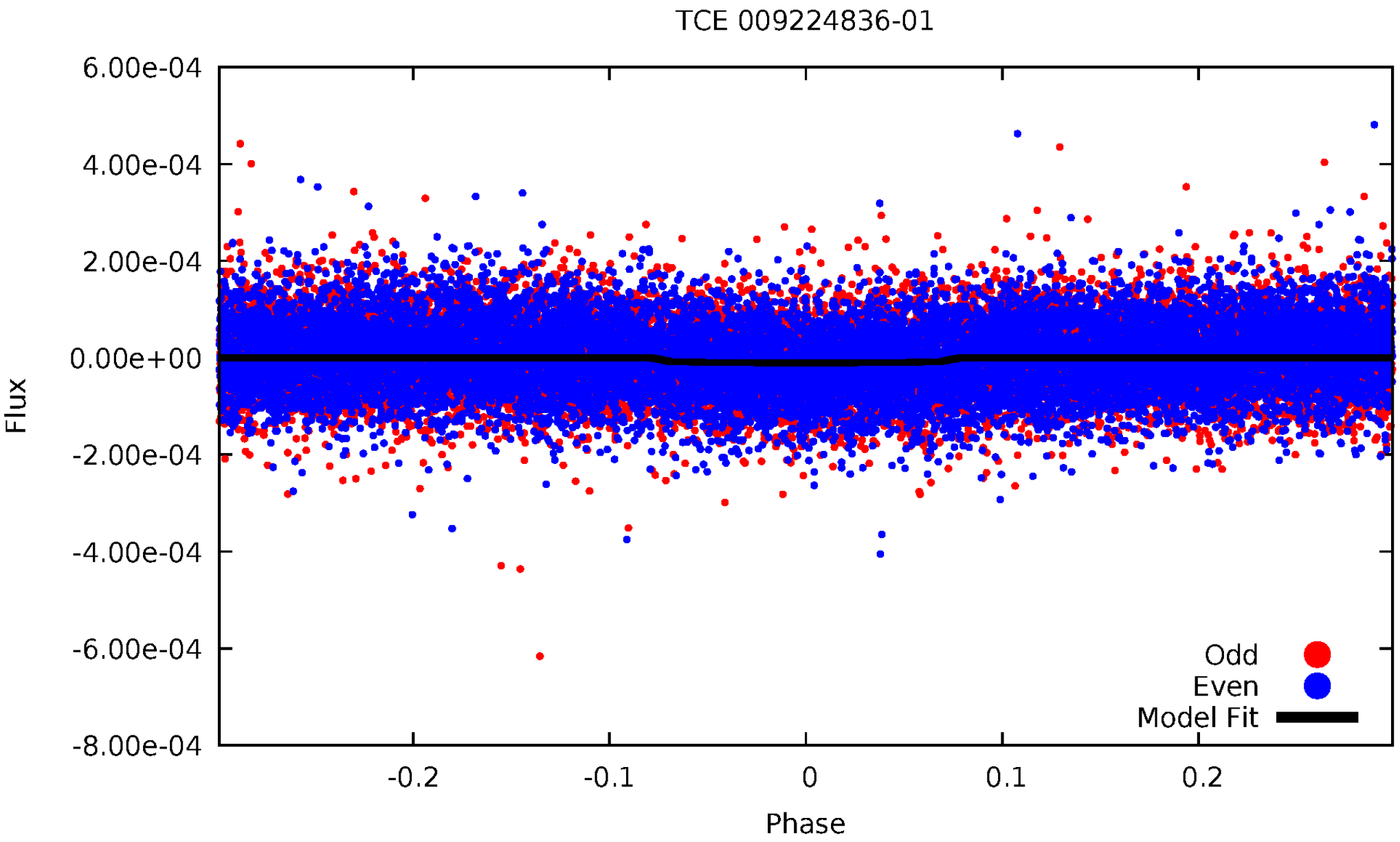
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009224836-01, PDC Light Curves

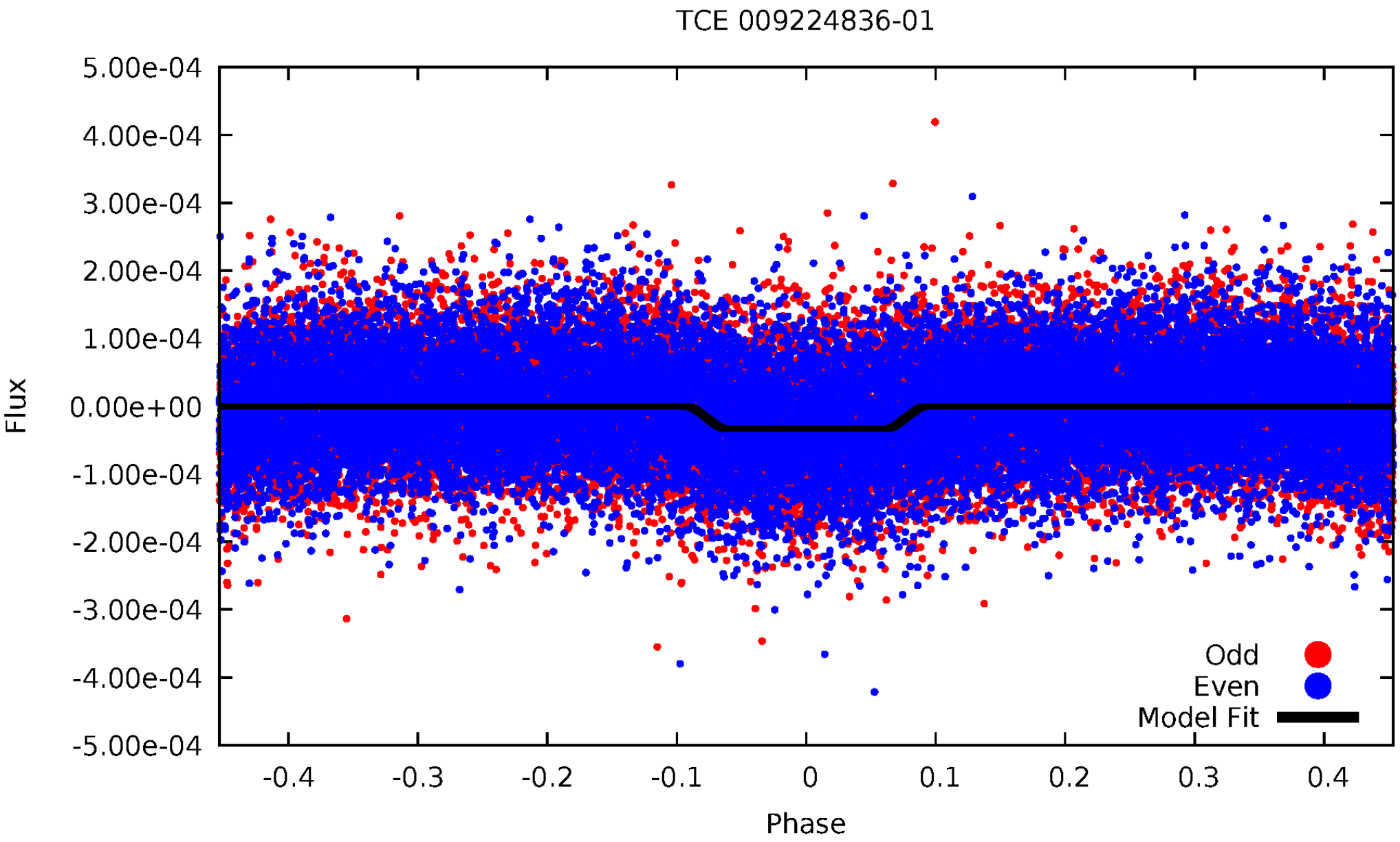



TCE 009224836-01
P = 1.032 days
P = 2.063 days
P = 4.126 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 009224836-01
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
Flux
-0.2
-0.1
0
0.1
0.2
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009224836-01
5.00e-04
4.00e-04
3.00e-04
2.00e-04
1.00e-04
0.00e+00
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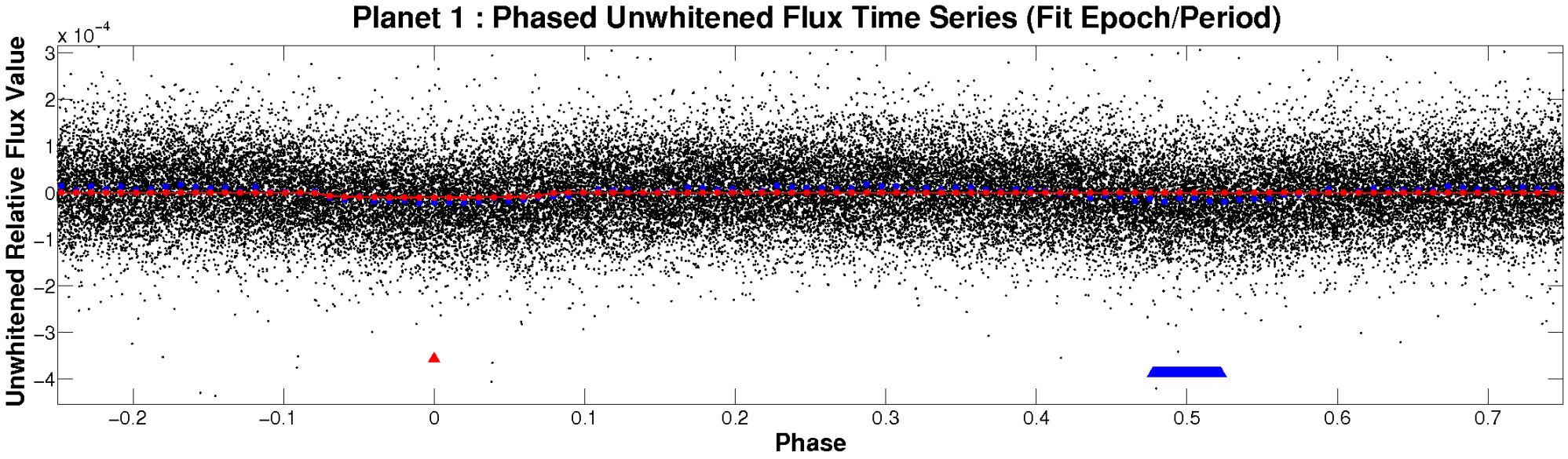
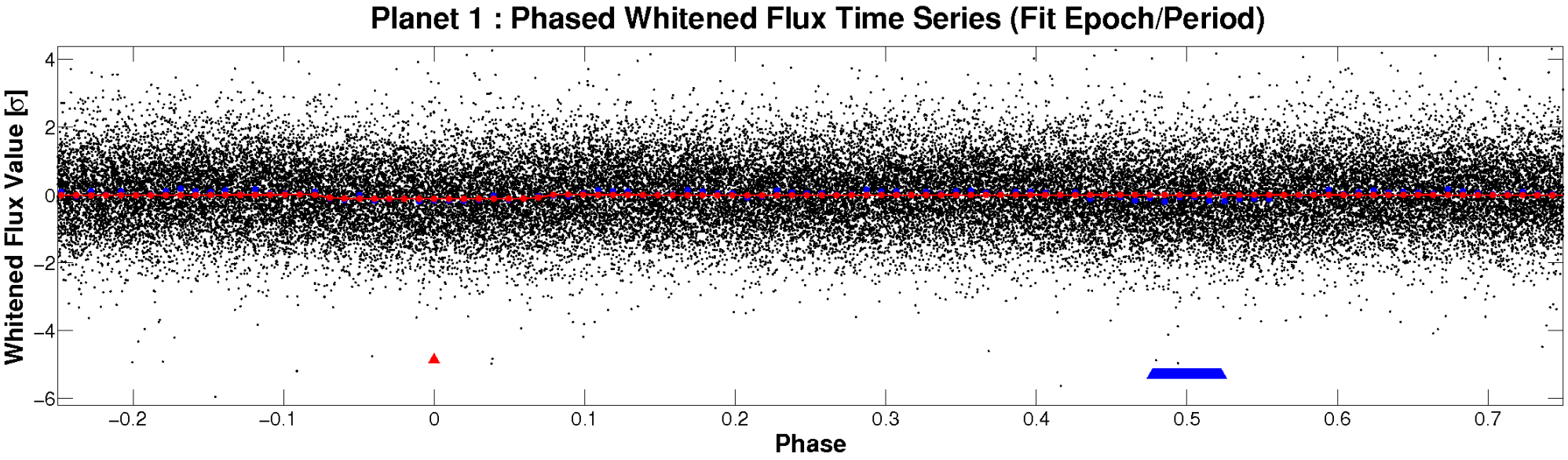
-2.00e-04
-3.00e-04
-4.00e-04
-5.00e-04
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

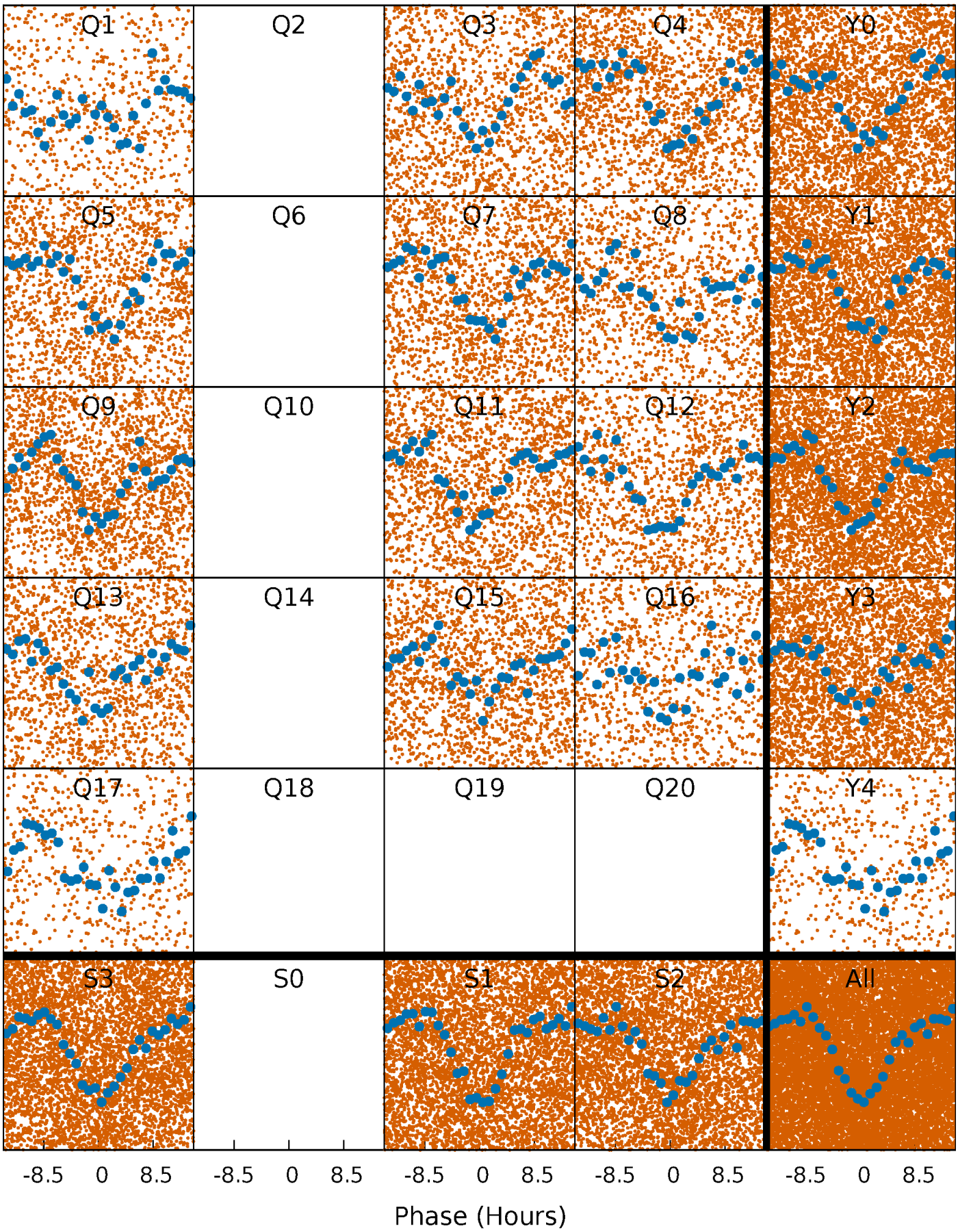
Non-Whitened Vs. Whitened Light Curve





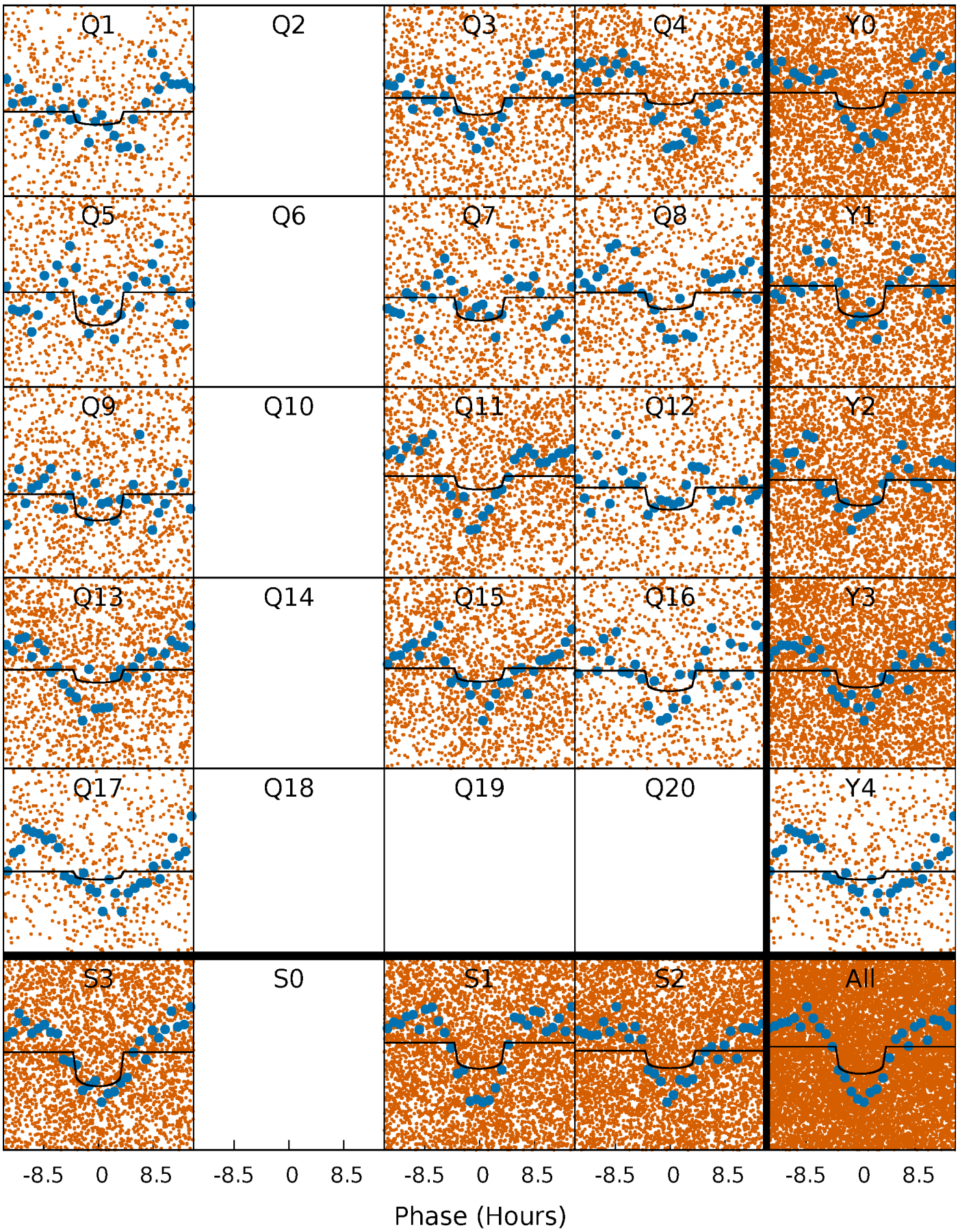
PDC Quarter-Phased Transit Curves

TCE 009224836-01 P= 2.063031 Days T_0=132.198136 (BKJD)



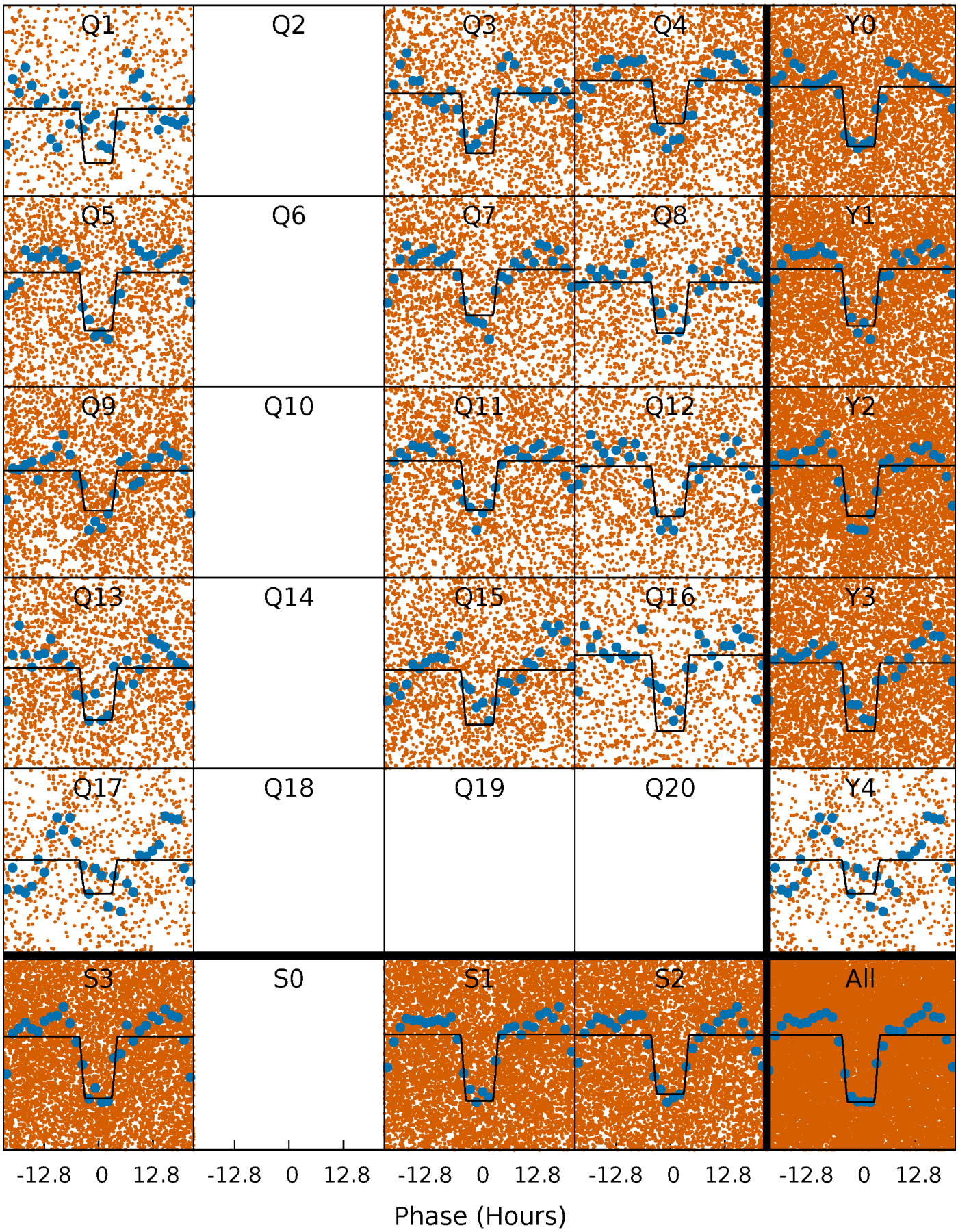
DV Quarter-Phased Transit Curves

TCE 009224836-01 P= 2.063031 Days T_0=132.198136 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

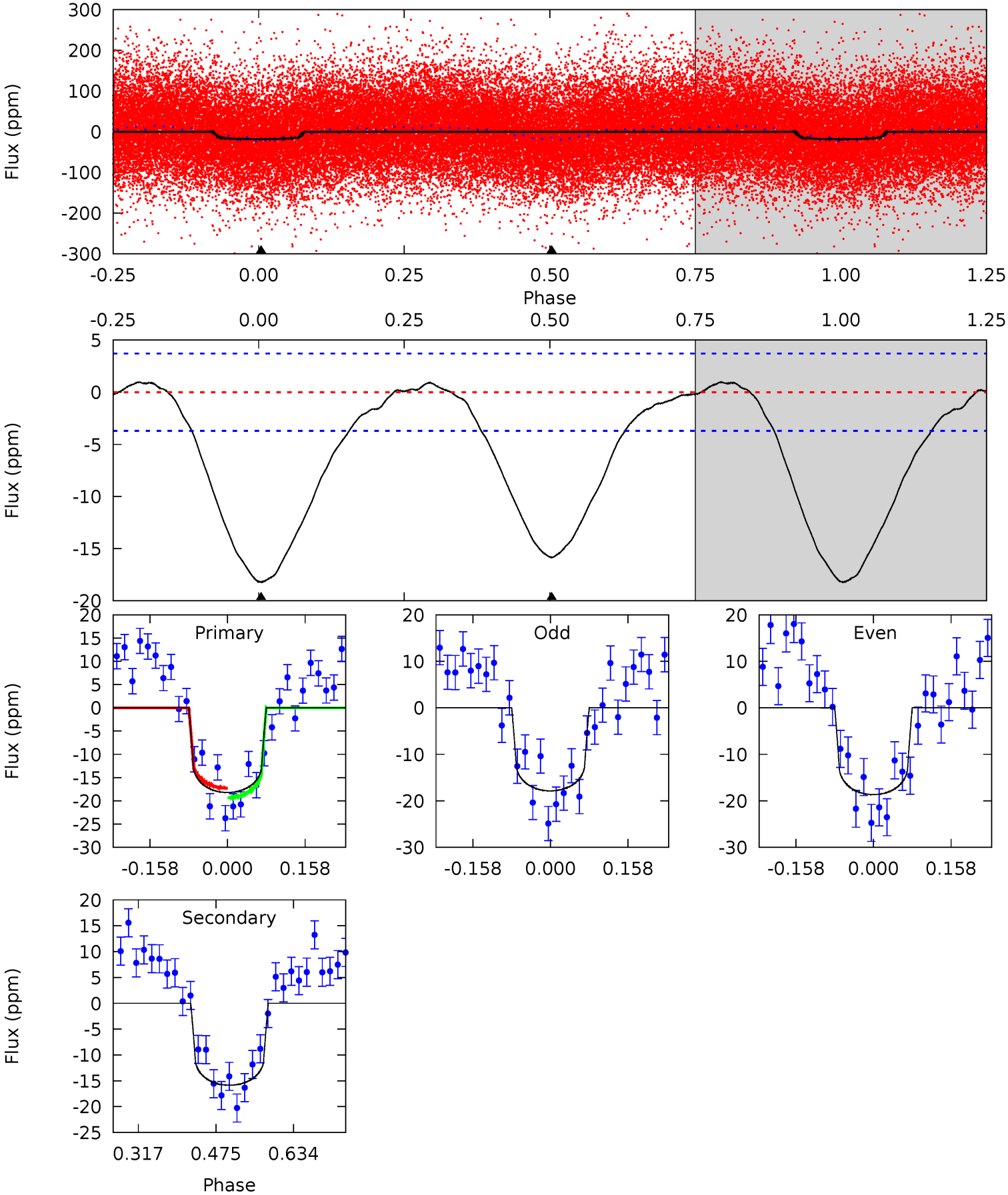
TCE 009224836-01 P= 2.062825 Days T_0=132.279819 (BKJD)



DV Model-Shift Uniqueness Test

009224836-01, P = 2.063031 Days, E = 130.135105 Days

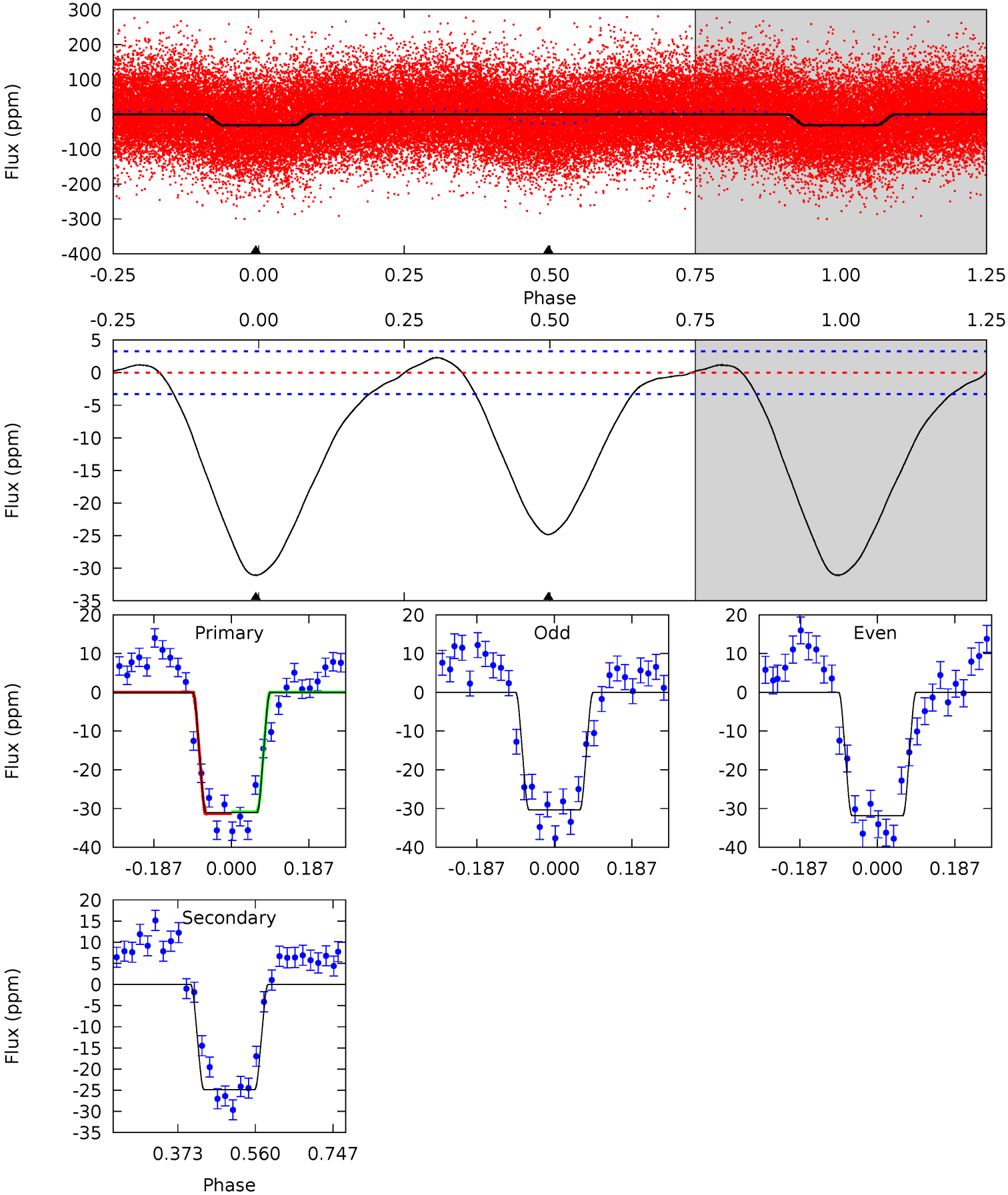
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	19.1	0	0	4.47	1.41	1.15	21.9	21.9	19.1	19.1	0.48	1.07	0.05	1.23



Alt Model-Shift Uniqueness Test

009224836-01, P = 2.062825 Days, E = 130.216994 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.9	33.4	0	0	4.43	1.32	1.95	41.9	41.9	33.4	33.4	1.01	1.05	0.07	0.33



Stellar Parameters For KIC 009224836

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	9038^{+251}_{-408}	$3.629^{+0.586}_{-0.103}$	$-0.500^{+0.150}_{-0.400}$	$3.790^{+0.940}_{-2.192}$	$2.228^{+0.361}_{-0.721}$	$0.058^{+0.437}_{-0.024}$
	+3%/-5%	+16%/-3%	+30%/-80%	+25%/-58%	+16%/-32%	+758%/-42%
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 009224836-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-16±1	$1.12^{+0.35}_{-0.35}$	5051^{+447}_{-719}	10724^{+2012}_{-1228}	12^{+11}_{-5}
Alt.	-25±1	$2.13^{+0.52}_{-0.64}$	5049^{+441}_{-730}	8053^{+650}_{-565}	$5.162^{+4.528}_{-1.705}$

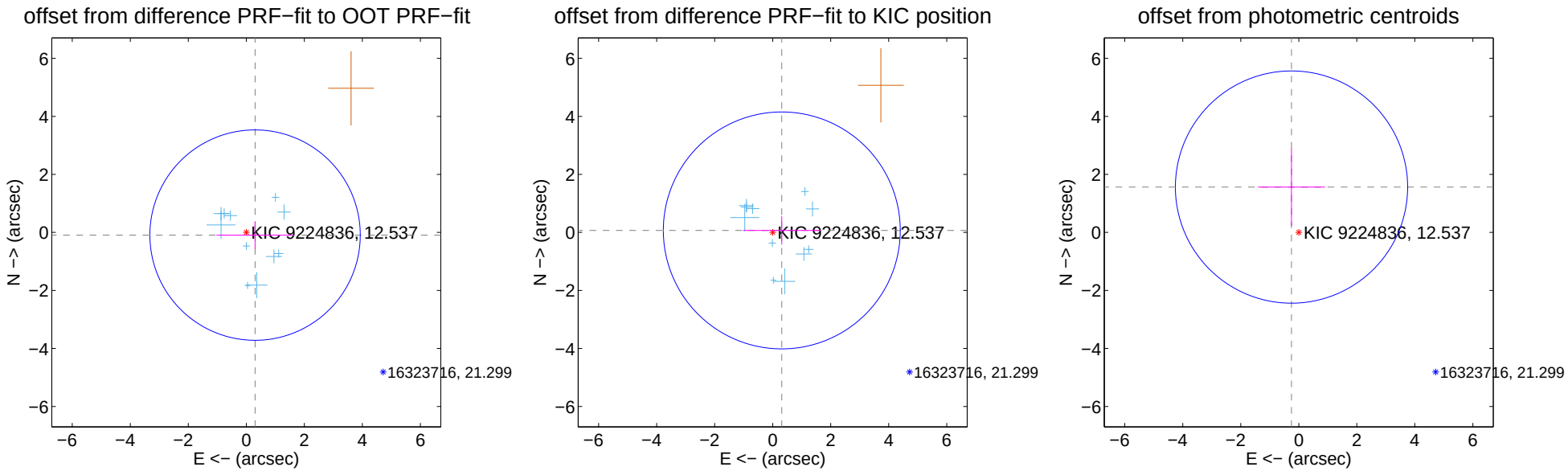
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

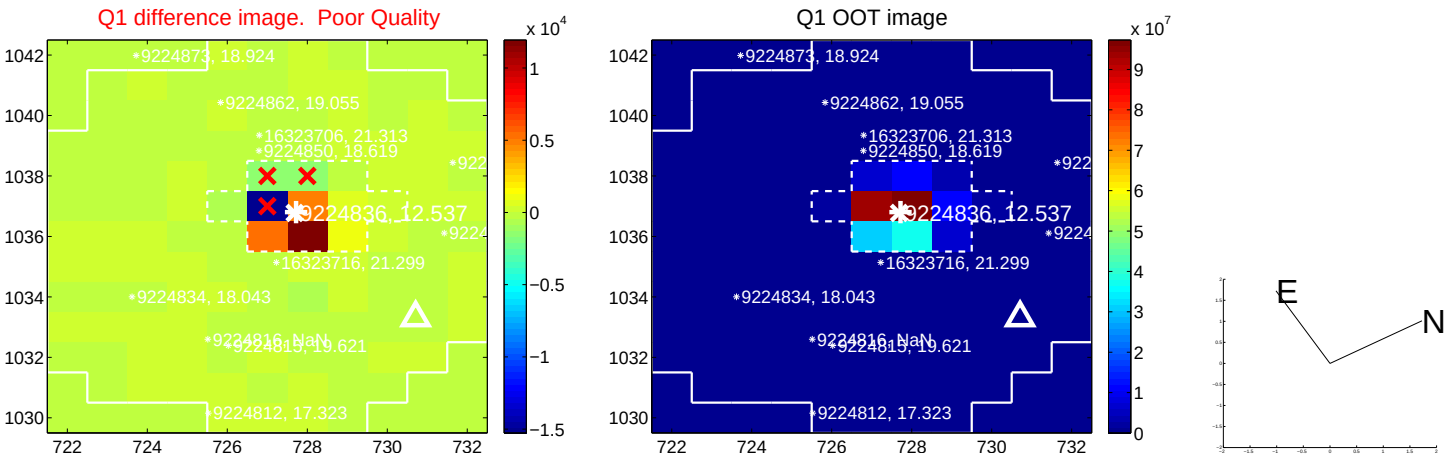
Supplemental centroid analysis for 009224836-01. Kepler magnitude: 12.54. Transit SNR 8.65
There are 11 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

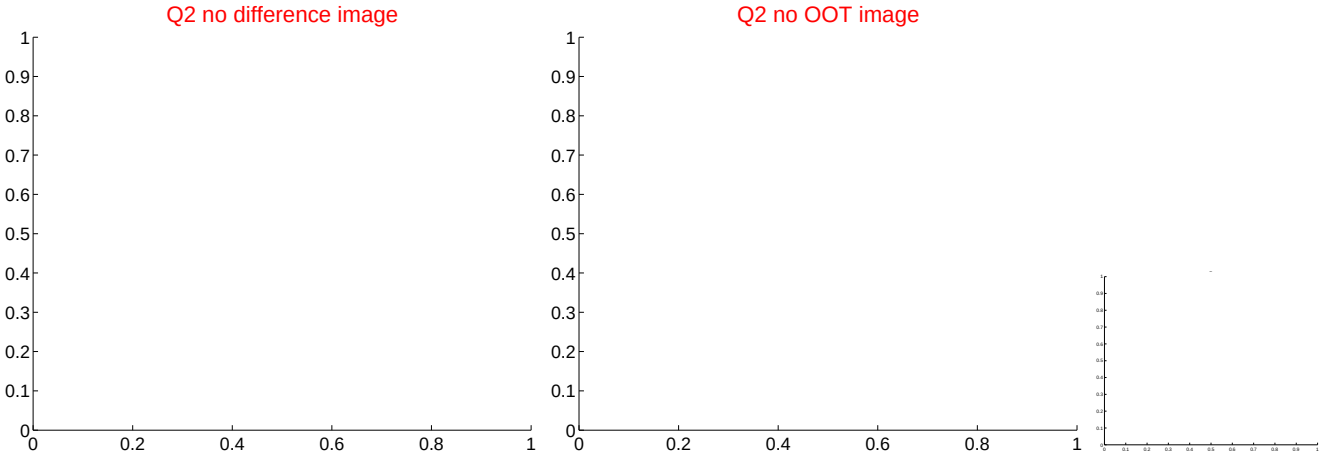
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.316 ± 1.209	0.26	-0.302 ± 1.331	-0.093 ± 0.474
PRF-fit source offset from KIC position	0.321 ± 1.361	0.24	-0.314 ± 1.339	0.069 ± 0.487
photometric centroid source offset	1.58 ± 1.33	1.19	0.25 ± 1.16	1.56 ± 1.34

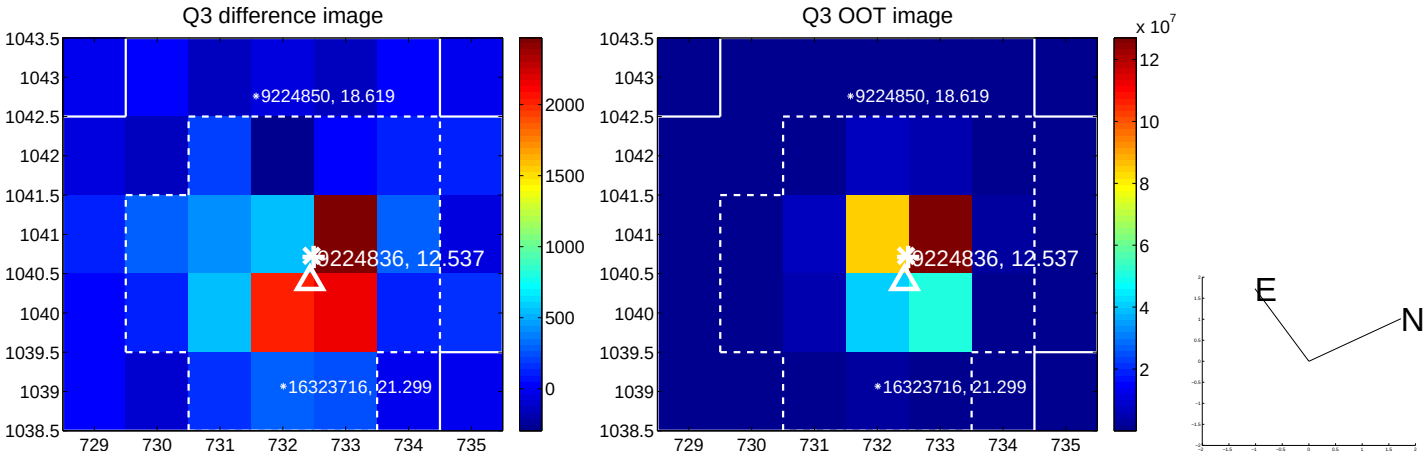


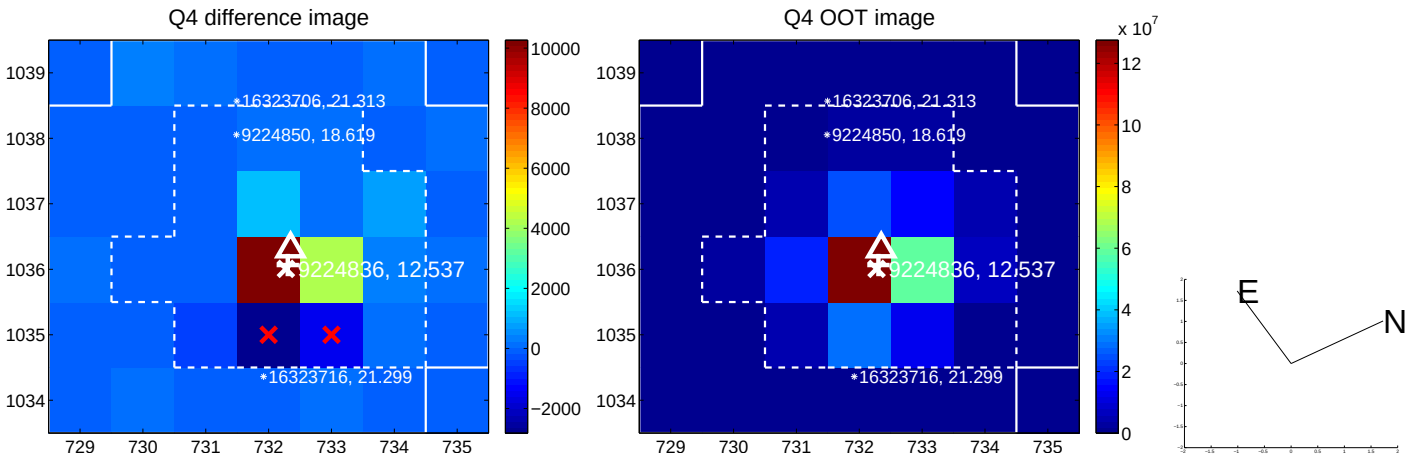
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red *: 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

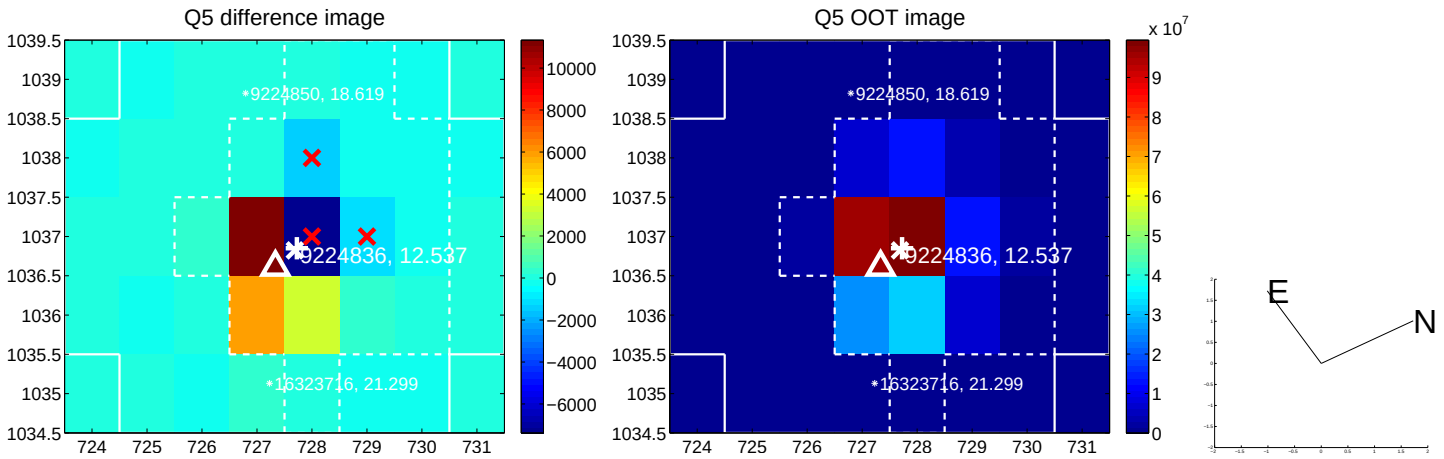


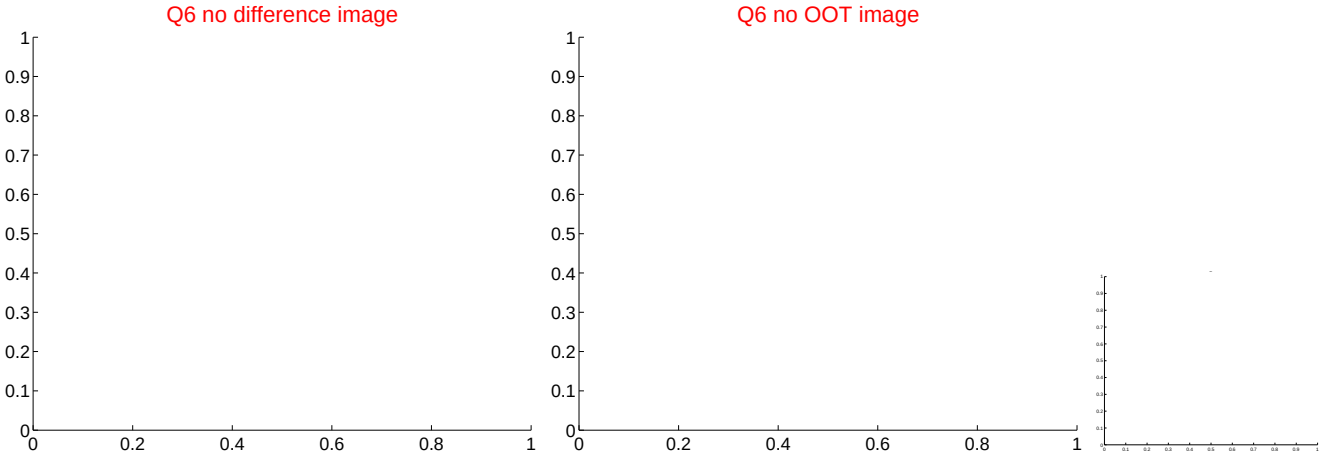


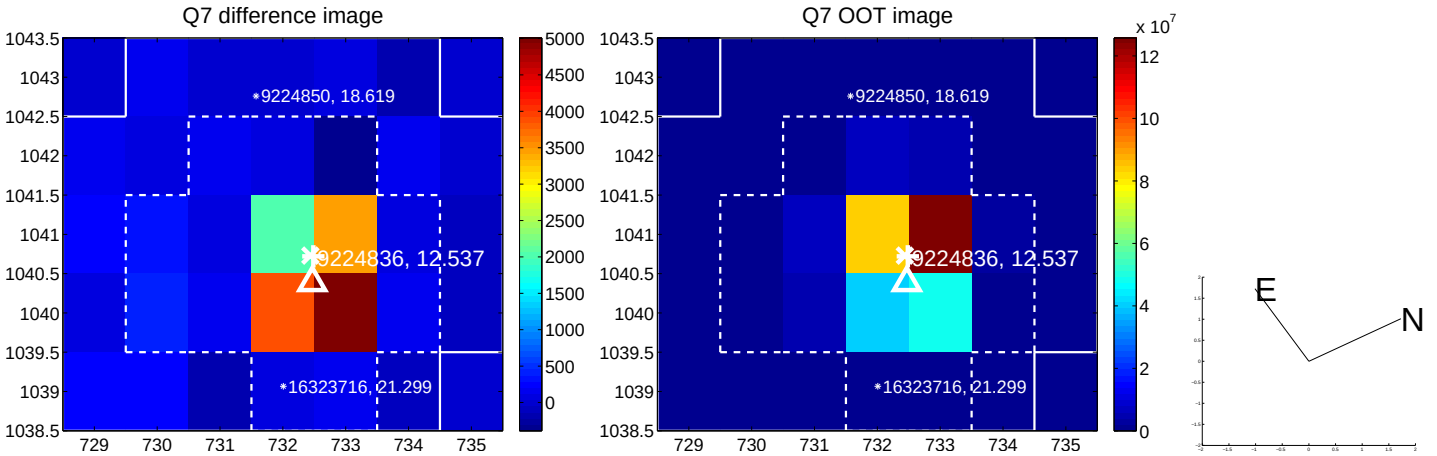


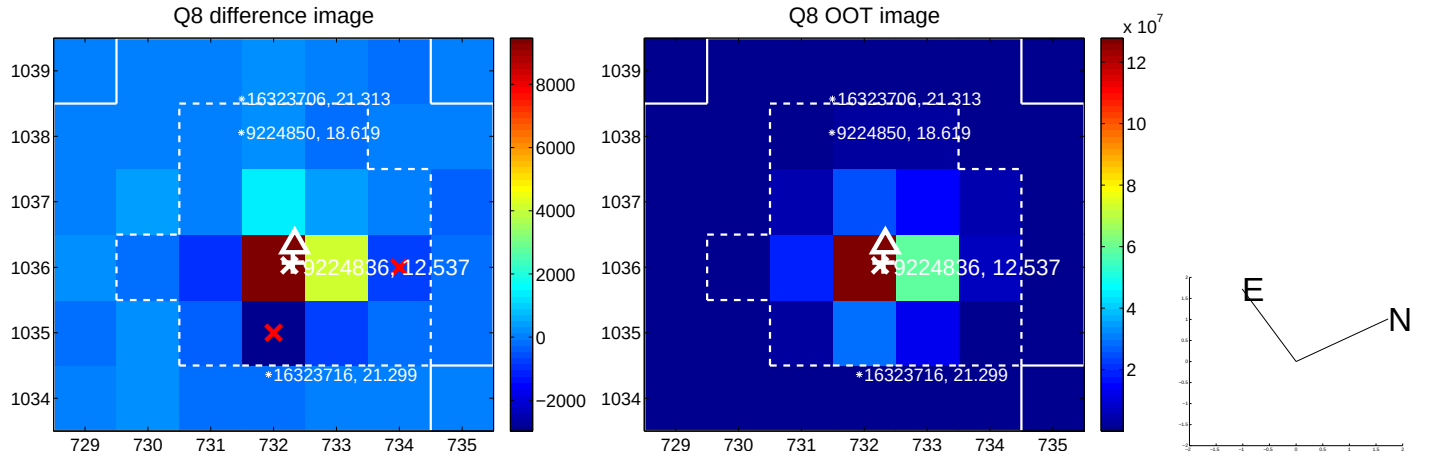


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

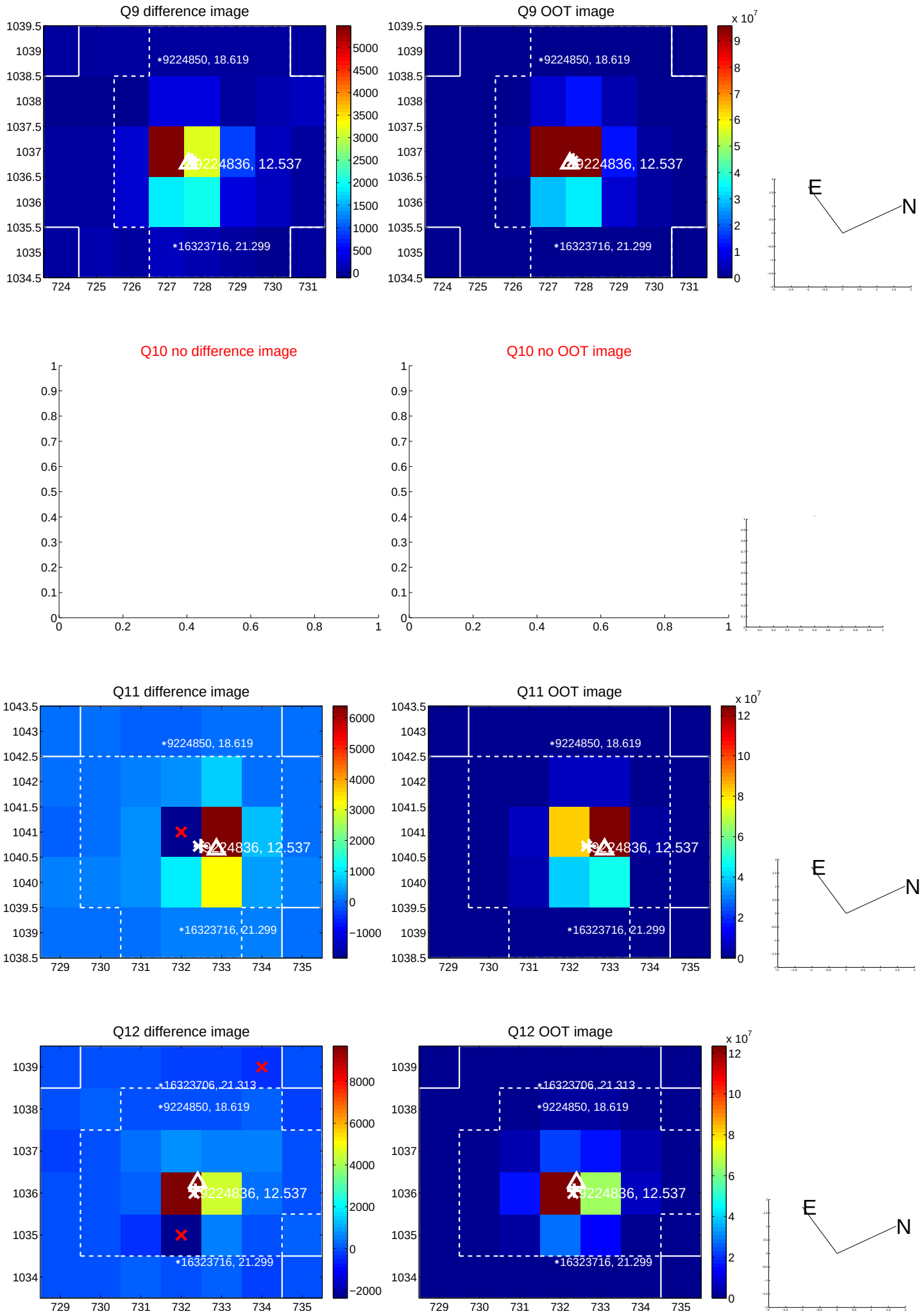




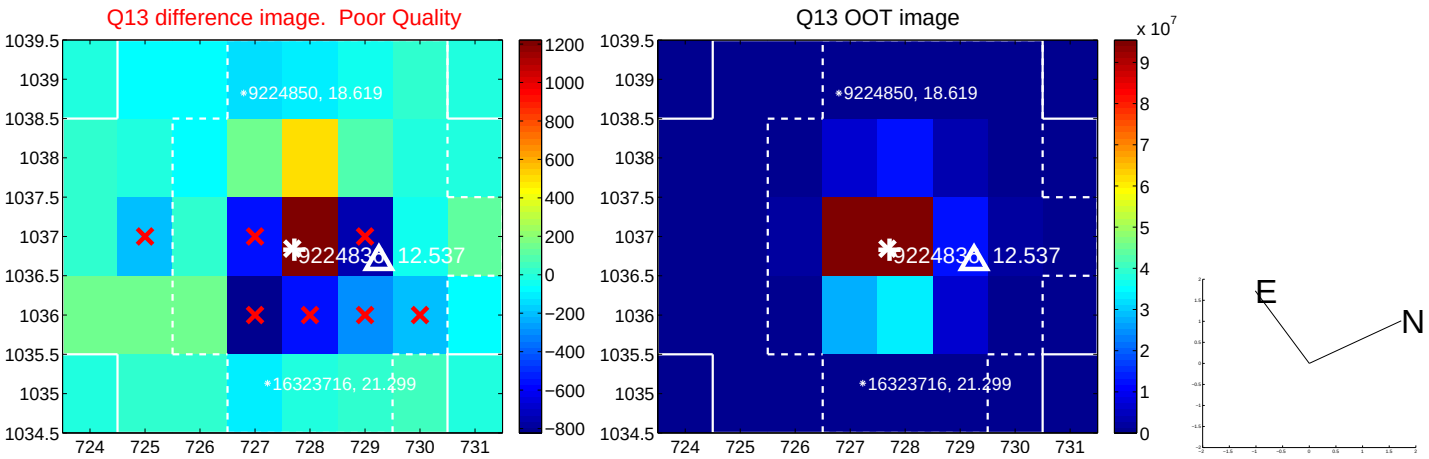


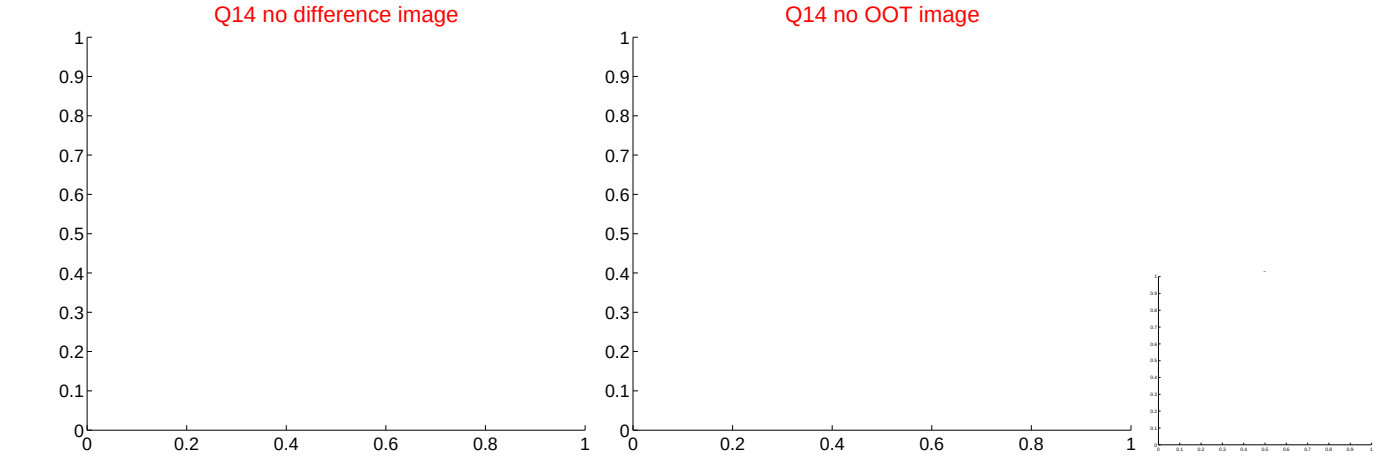


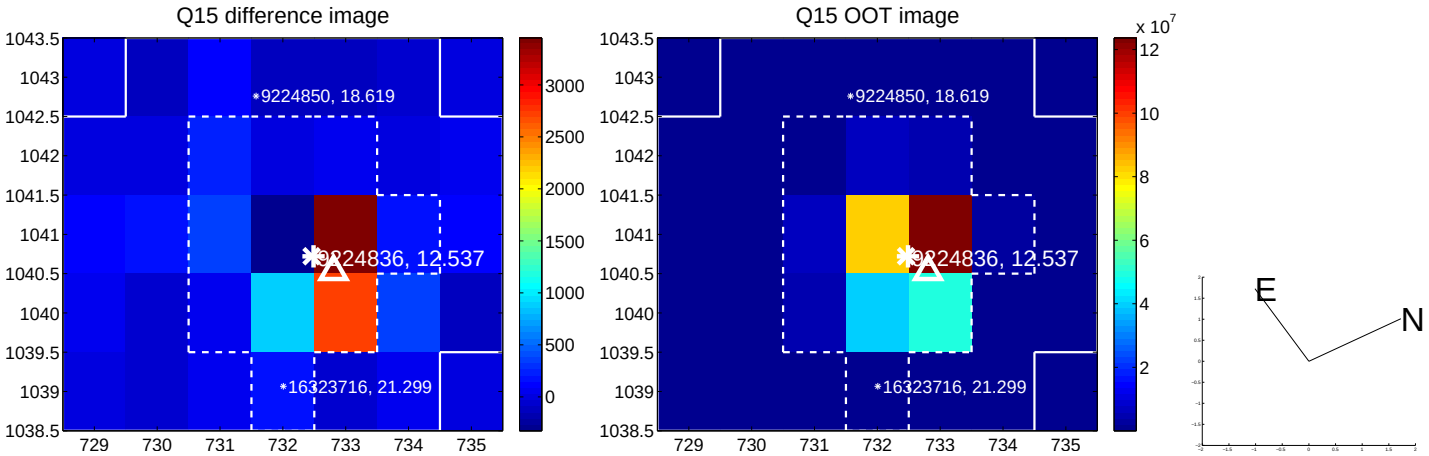
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

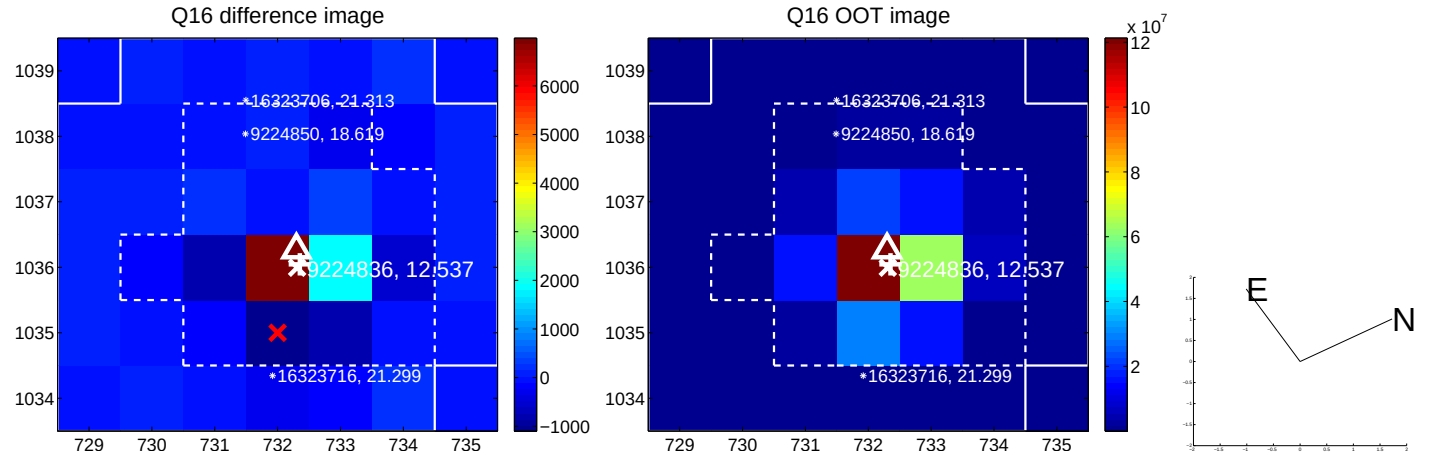


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

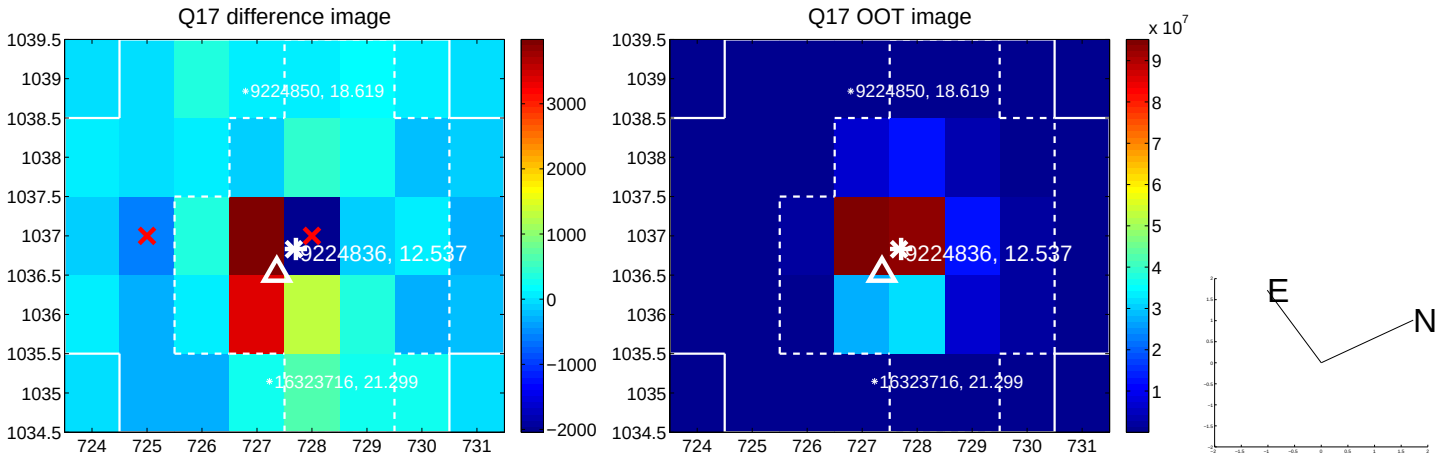


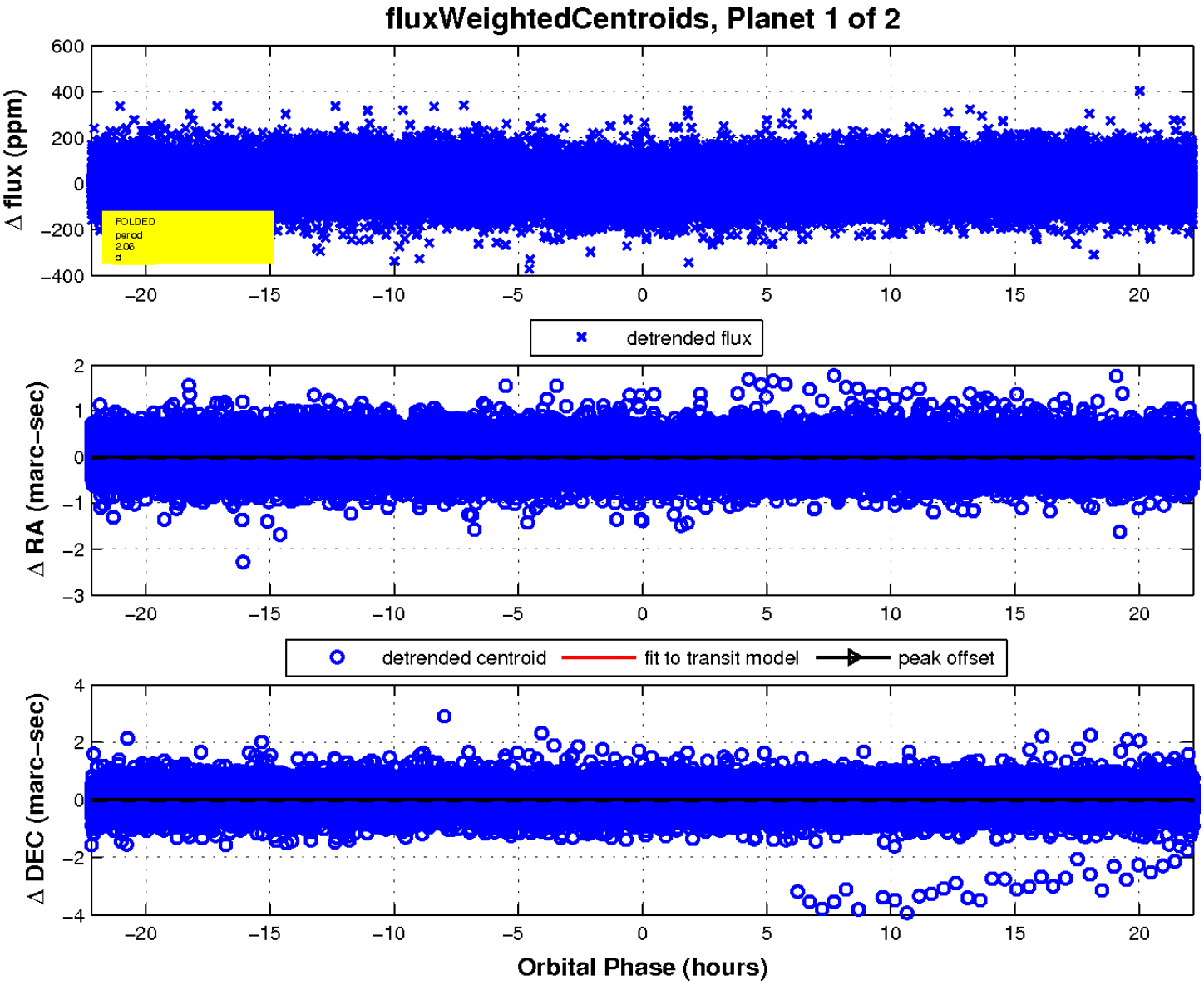




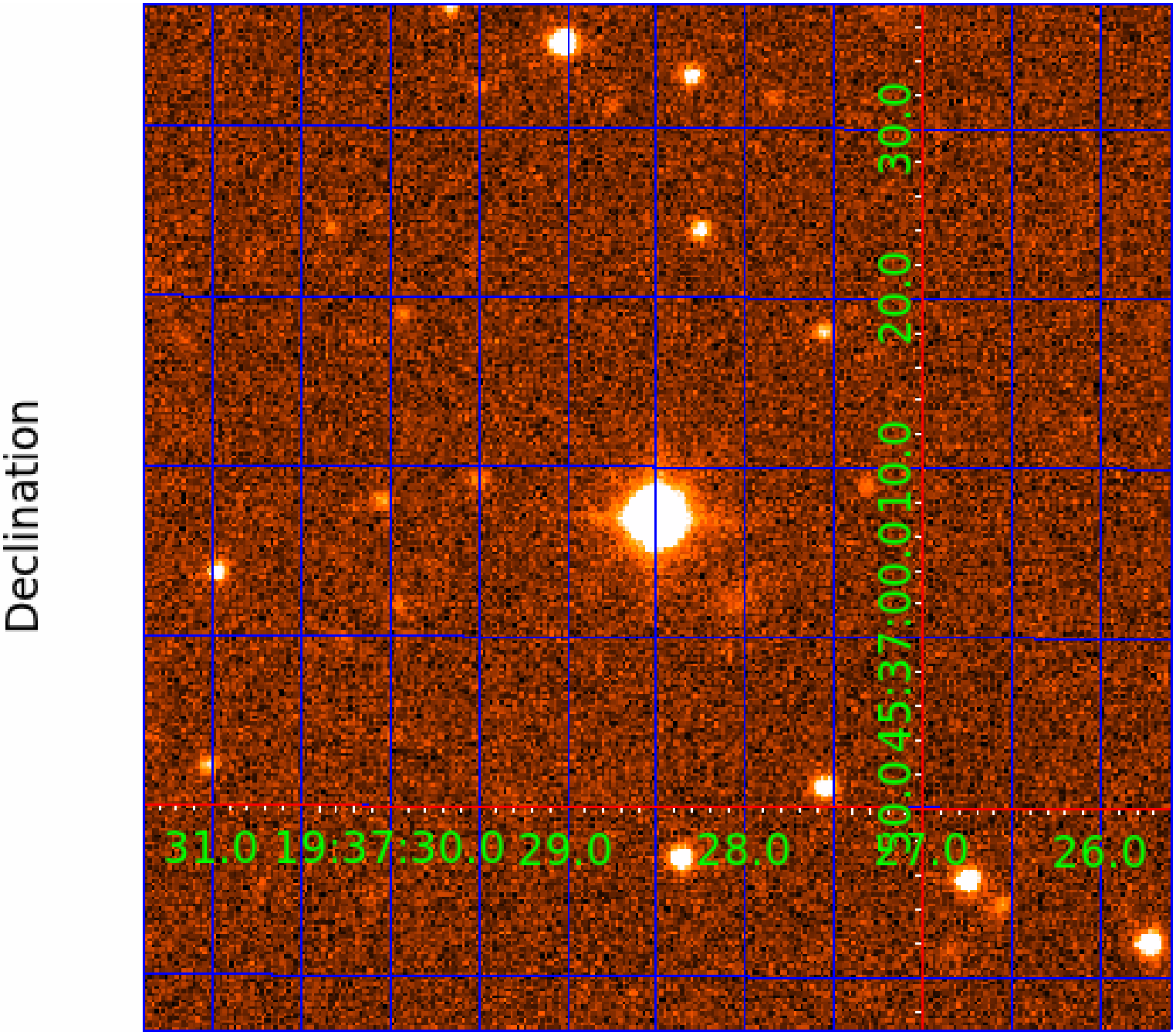


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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28.0
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30.0

KIC 009224836

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 ($S_\oplus$)
009224836-01	OBS	No	2.063031	132.198136	10.4	7.396	10.3	8.6	3.79	9038	1.27	49996.04
009224836-02	OBS	No	2.062898	133.276318	14.8	7.138	11.9	13.3	3.79	9038	1.69	50000.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009224836-01	OBS	FP	0.00	1	0	0	0	LPP_DV
009224836-02	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

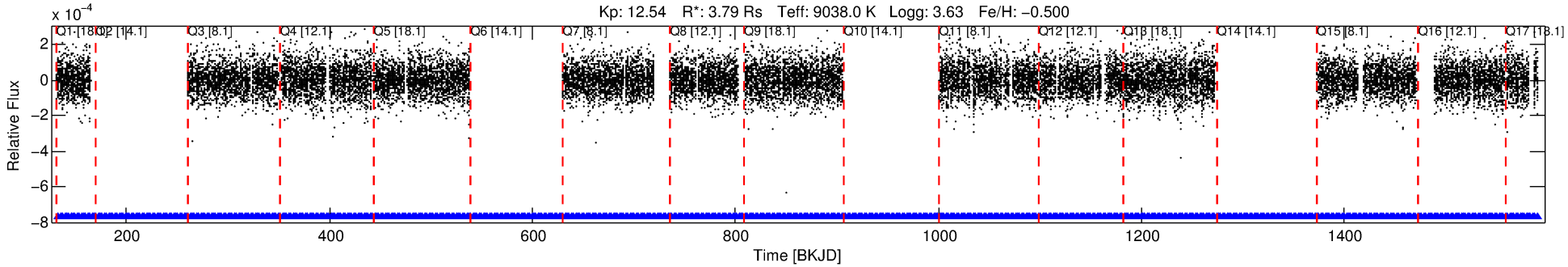
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

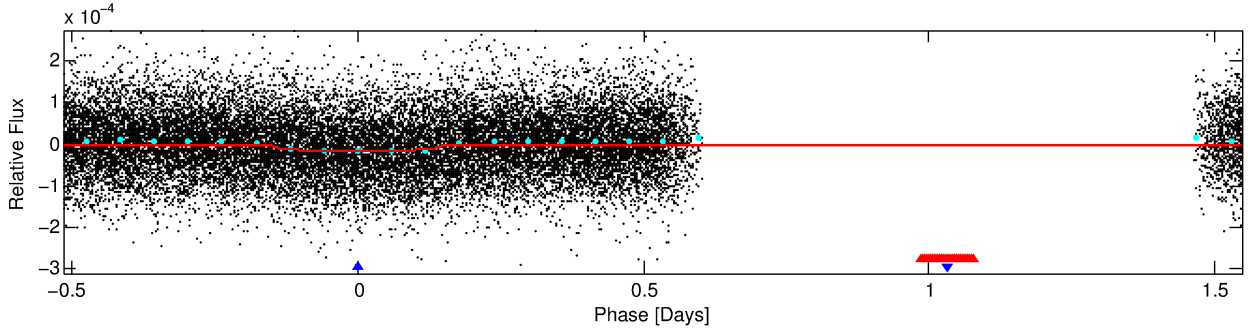
Ephemeris Match Information For 009224836-02

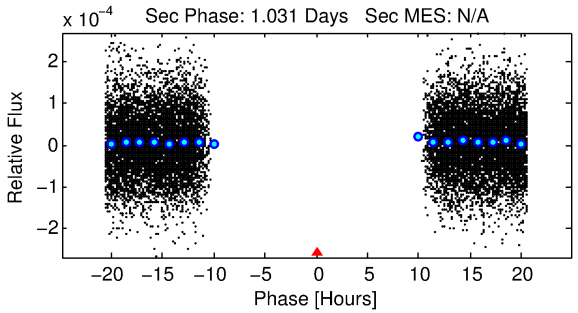
No Significant Match Found

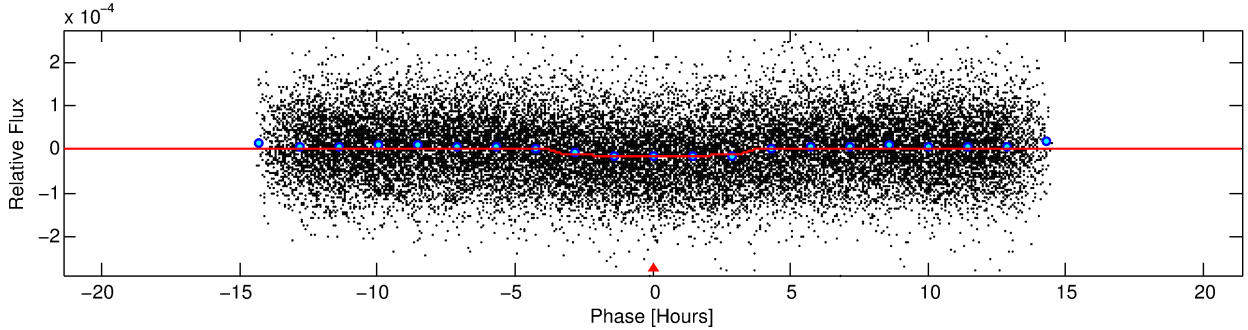
DV One-Page Summary

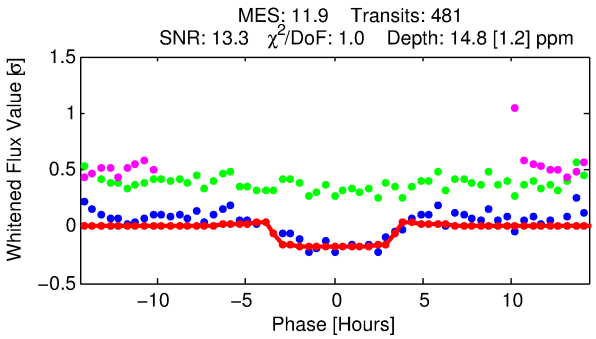
KIC: 9224836 Candidate: 2 of 2 Period: 2.063 d

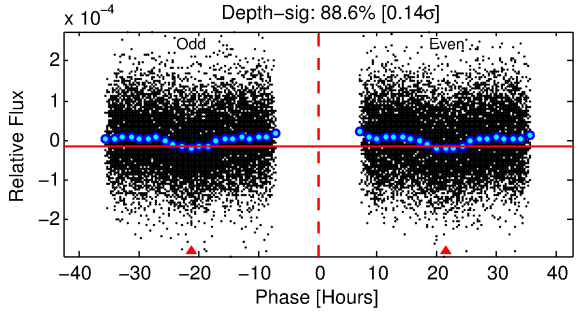


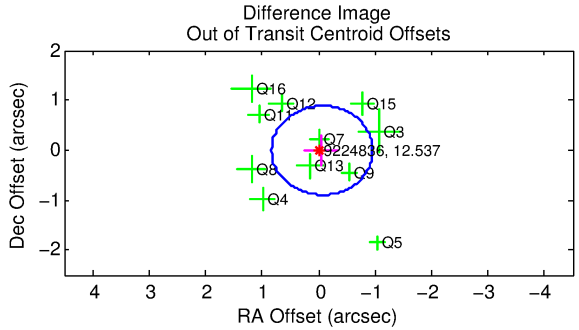












DV Fit Results:

Period = 2.06290 [0.00002] d
Epoch = 133.2763 [0.0049] BKJD
Rp/R* = 0.0041 [0.0006]
a/R* = 1.34 [0.62]
b = 0.91 [0.21]

Seff = 50000.32 [49761.06]
Teq = 3813 [949] K
Rp = 1.69 [1.01] Re
a = 0.0414 [0.0246] AU

DV Diagnostic Results:

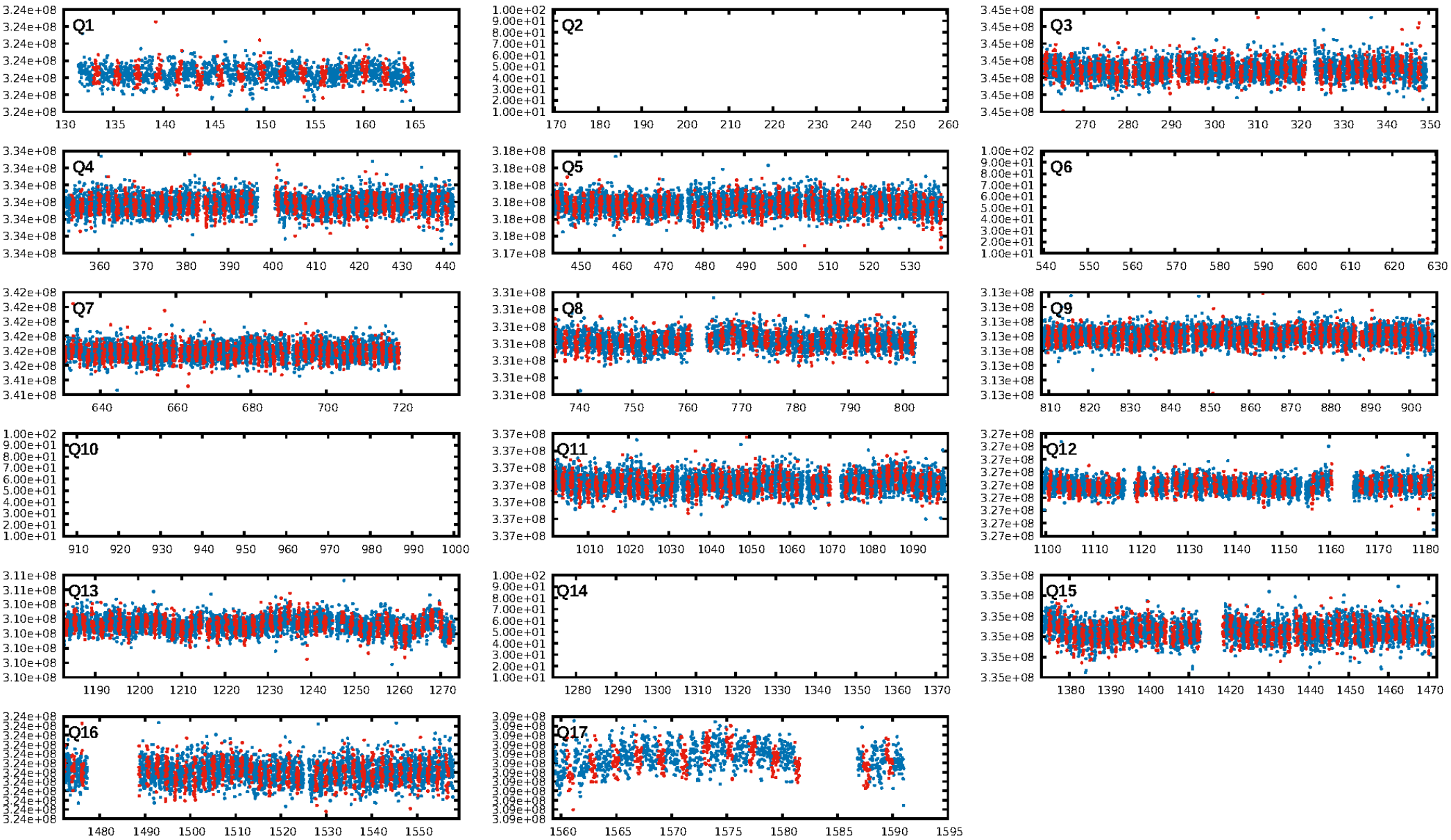
ShortPeriod−sig: N/A
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 4.87e−54
RollingBand−fgt: 1.00 [452/452]
GhostDiagnostic−chr: 2.785

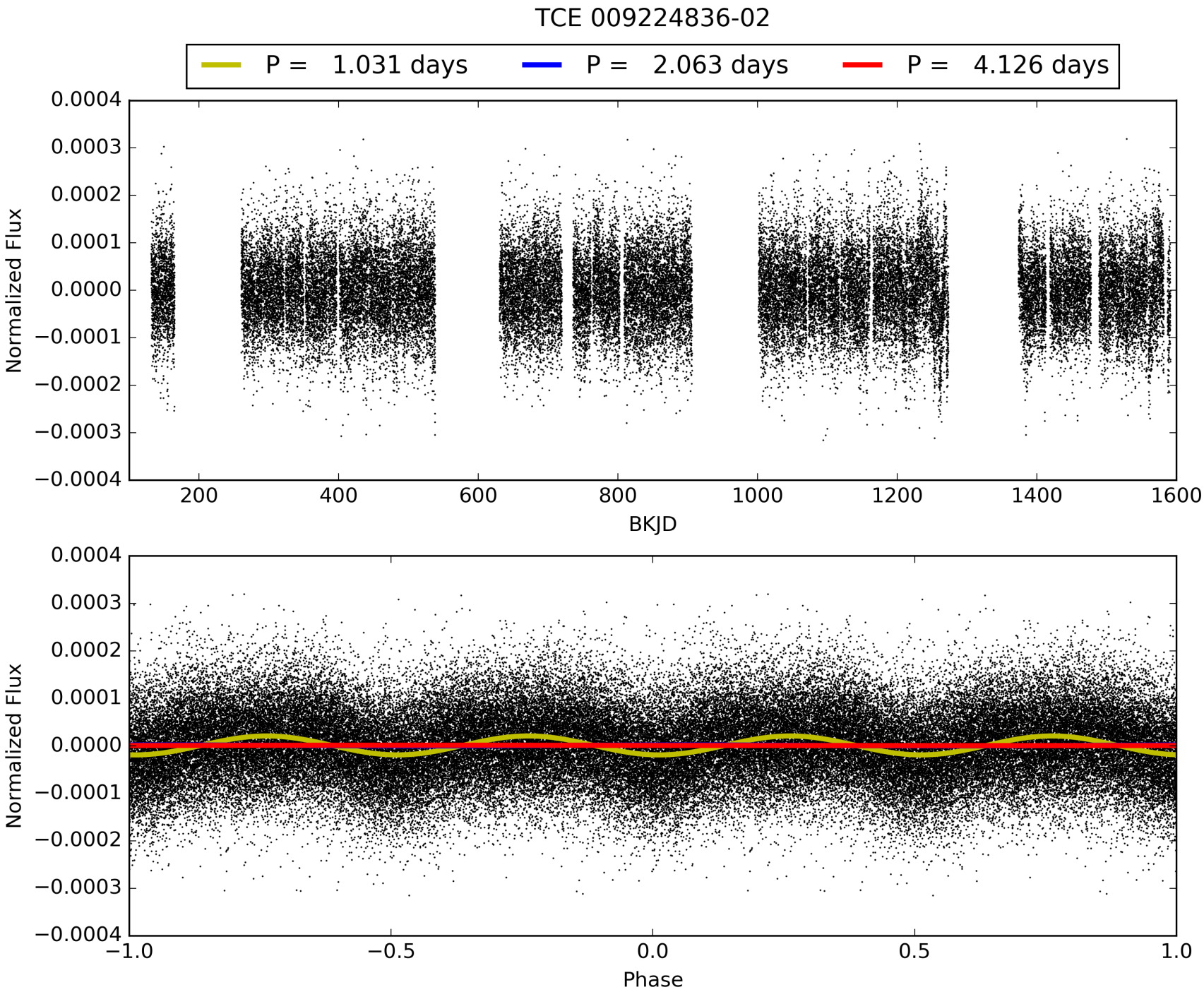
Centroid−sig: 0.9%
Centroid−so: 1.638 arcsec [1.87σ]
OotOffset−rm: 0.064 arcsec [0.21σ]
KicOffset−rm: 0.246 arcsec [0.80σ]
OotOffset−st: 0/4/4/3 [11]
KicOffset−st: 0/4/4/3 [11]
DiffImageQuality−fgm: 1.00 [11/11]
DiffImageOverlap−fno: 1.00 [13/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 01:34:47 Z

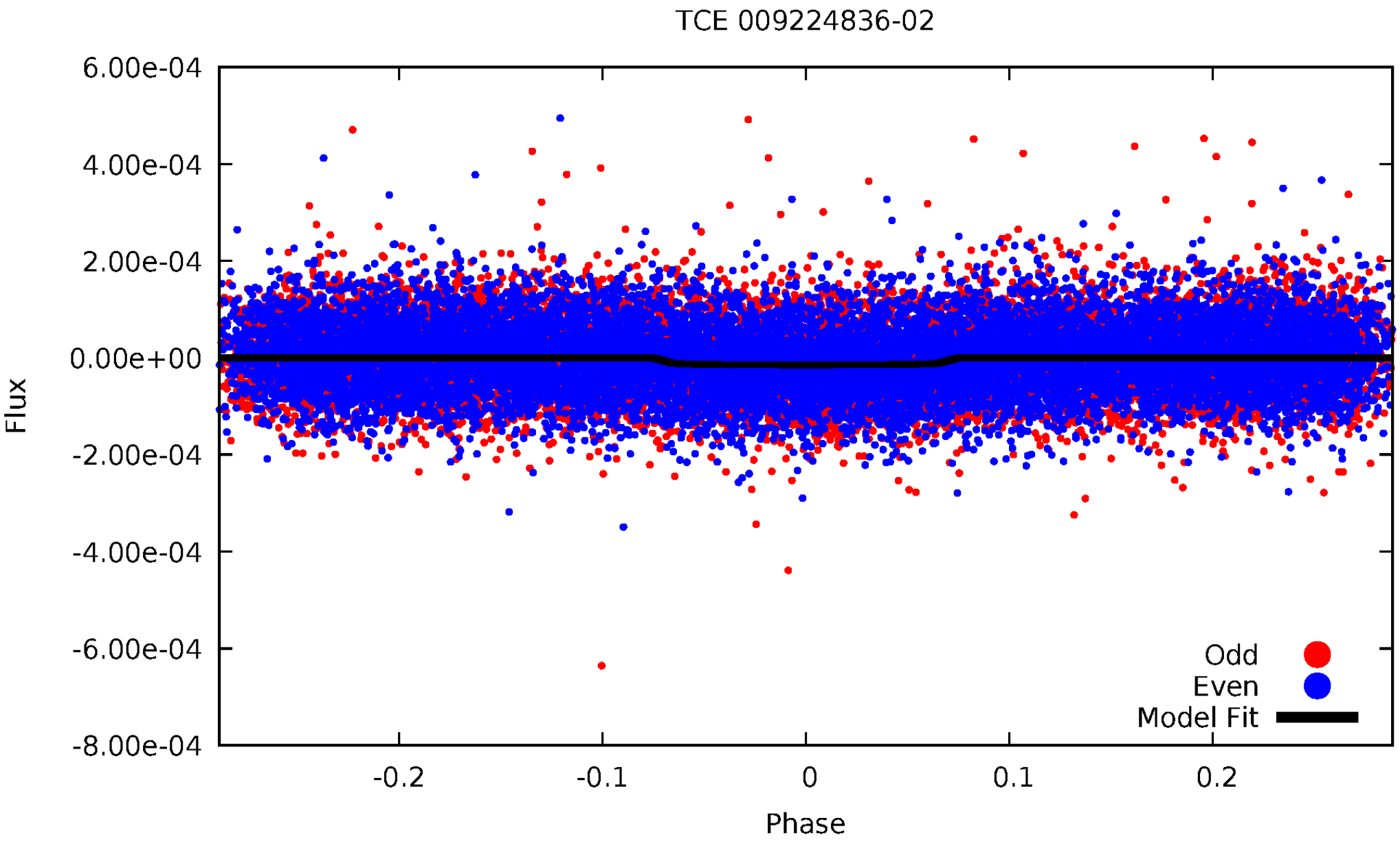
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009224836-02, PDC Light Curves

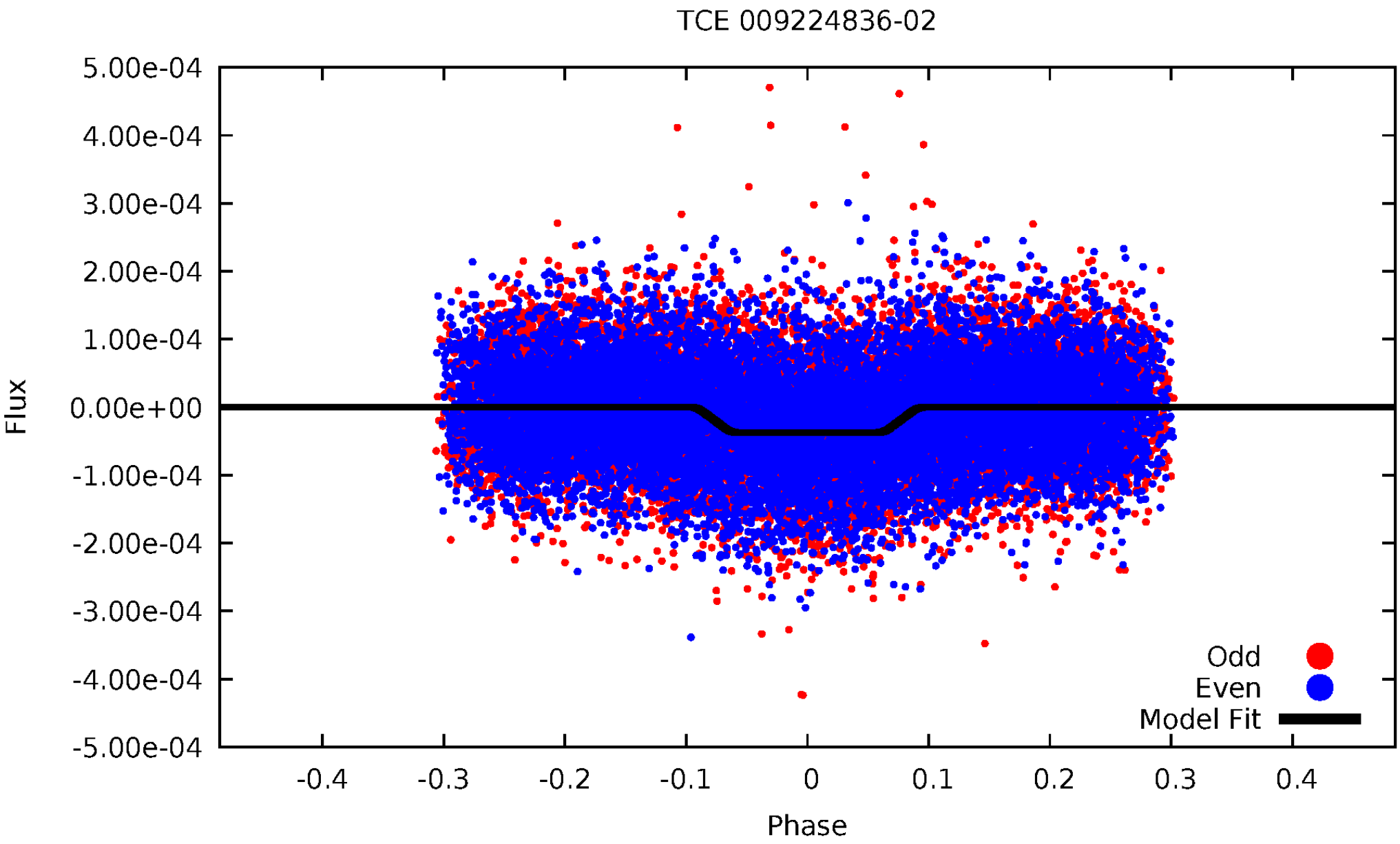



TCE 009224836-02
P = 1.031 days
P = 2.063 days
P = 4.126 days
Normalized Flux
BKJD
Normalized Flux
Phase

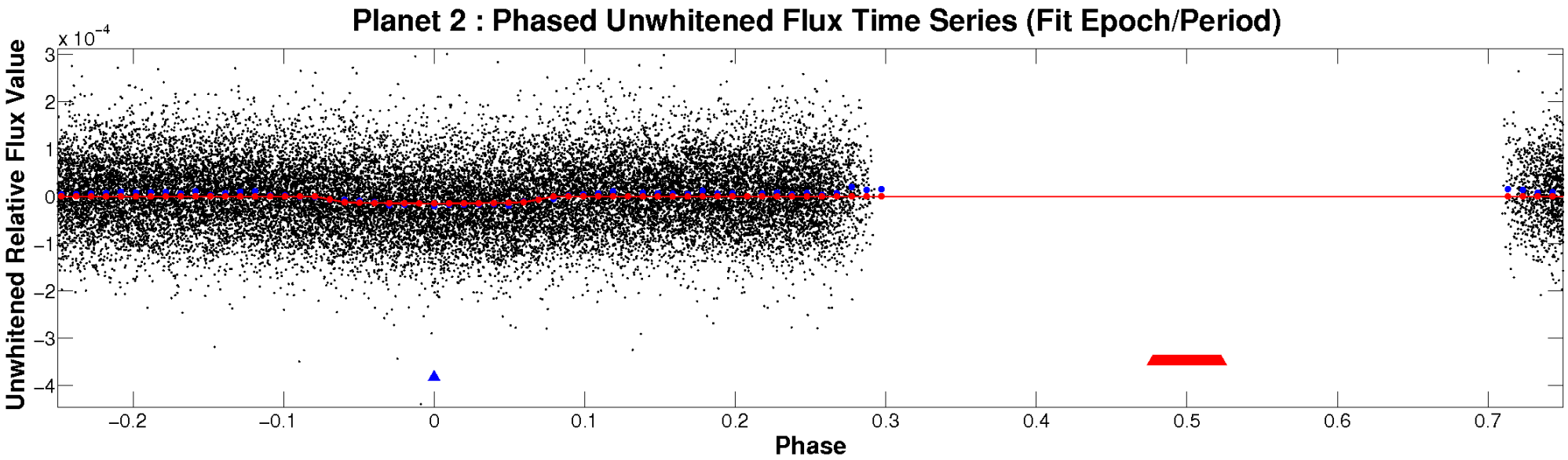
DV Odd/Even

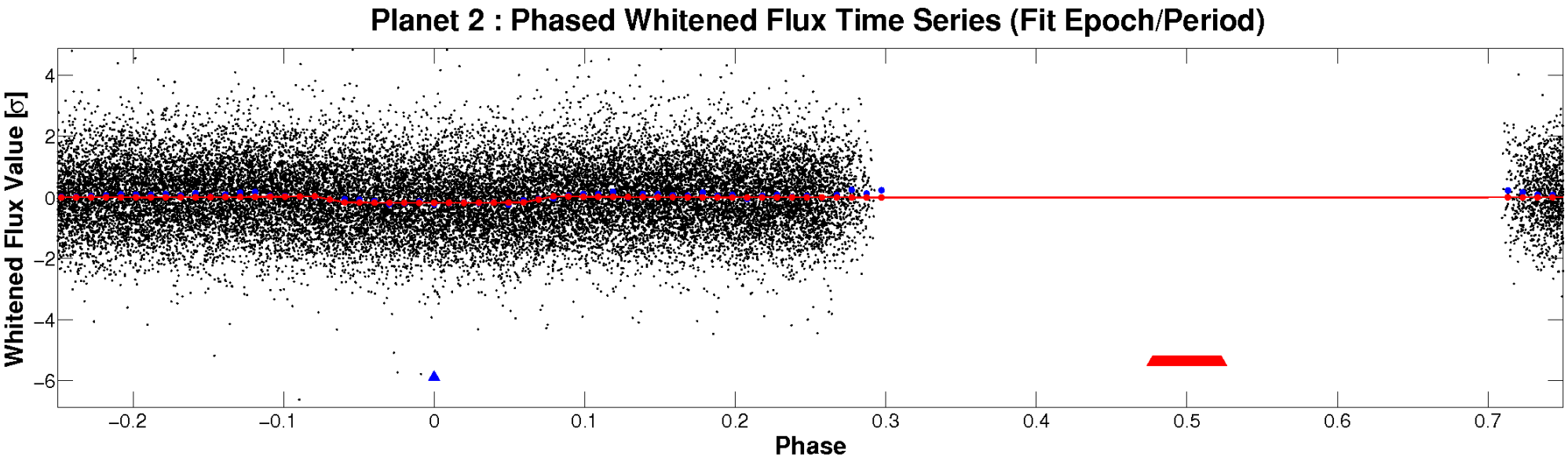

TCE 009224836-02
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
Flux
-0.2
-0.1
0
0.1
0.2
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009224836-02
5.00e-04
4.00e-04
3.00e-04
2.00e-04
1.00e-04
0.00e+00
-1.00e-04
-2.00e-04
-3.00e-04
-4.00e-04
-5.00e-04
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

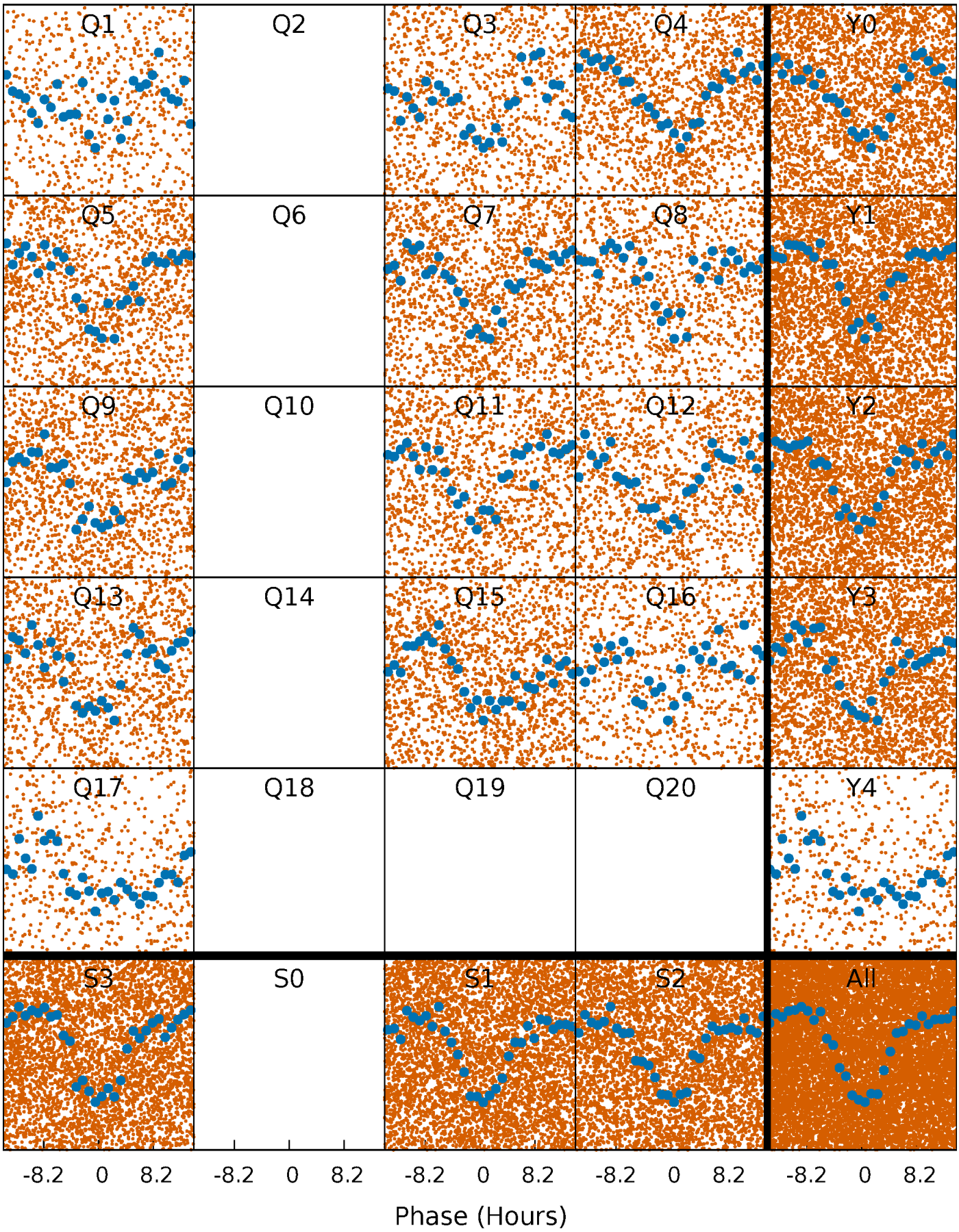
Non-Whitened Vs. Whitened Light Curve





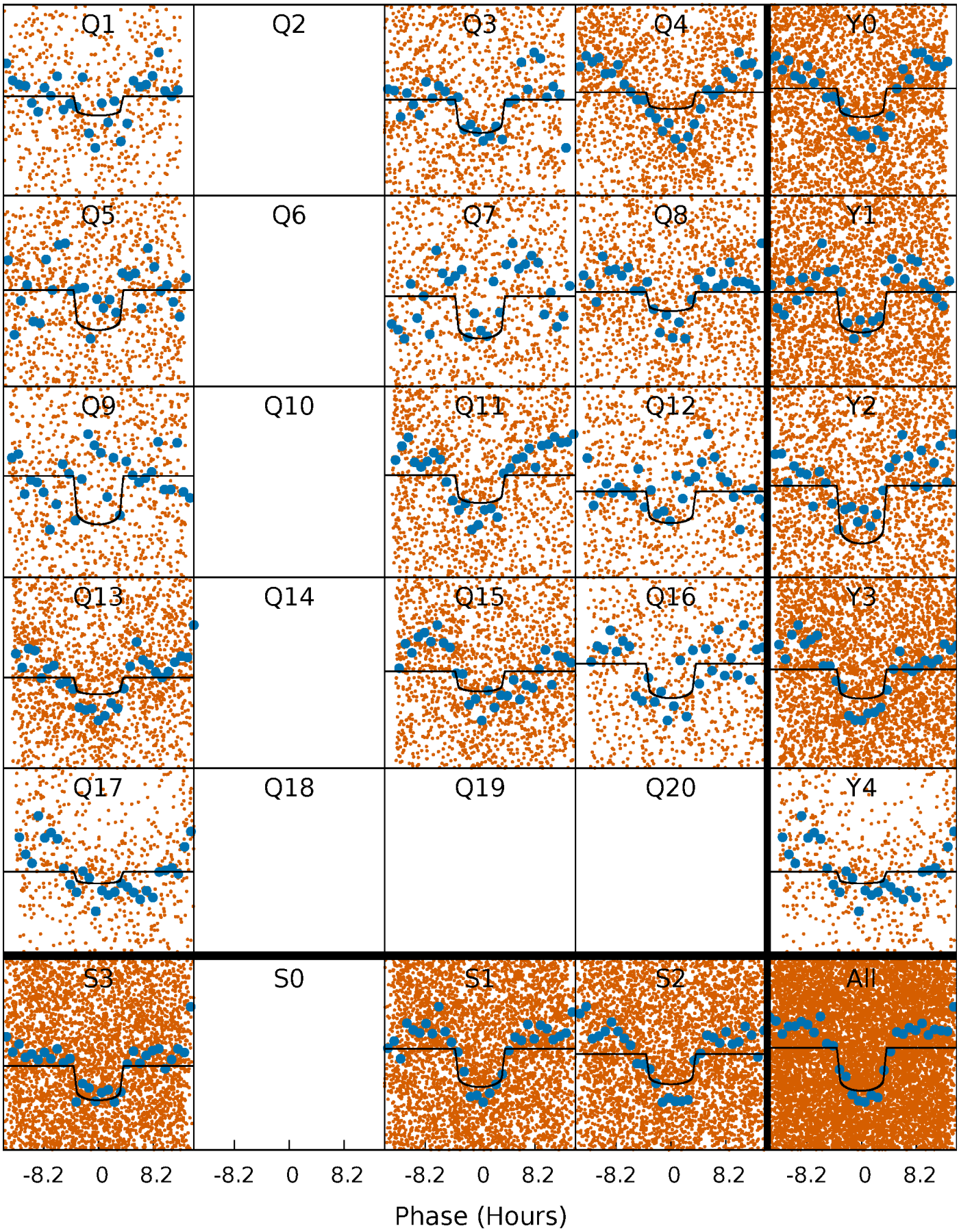
PDC Quarter-Phased Transit Curves

TCE 009224836-02 P= 2.062898 Days T_0=133.276318 (BKJD)



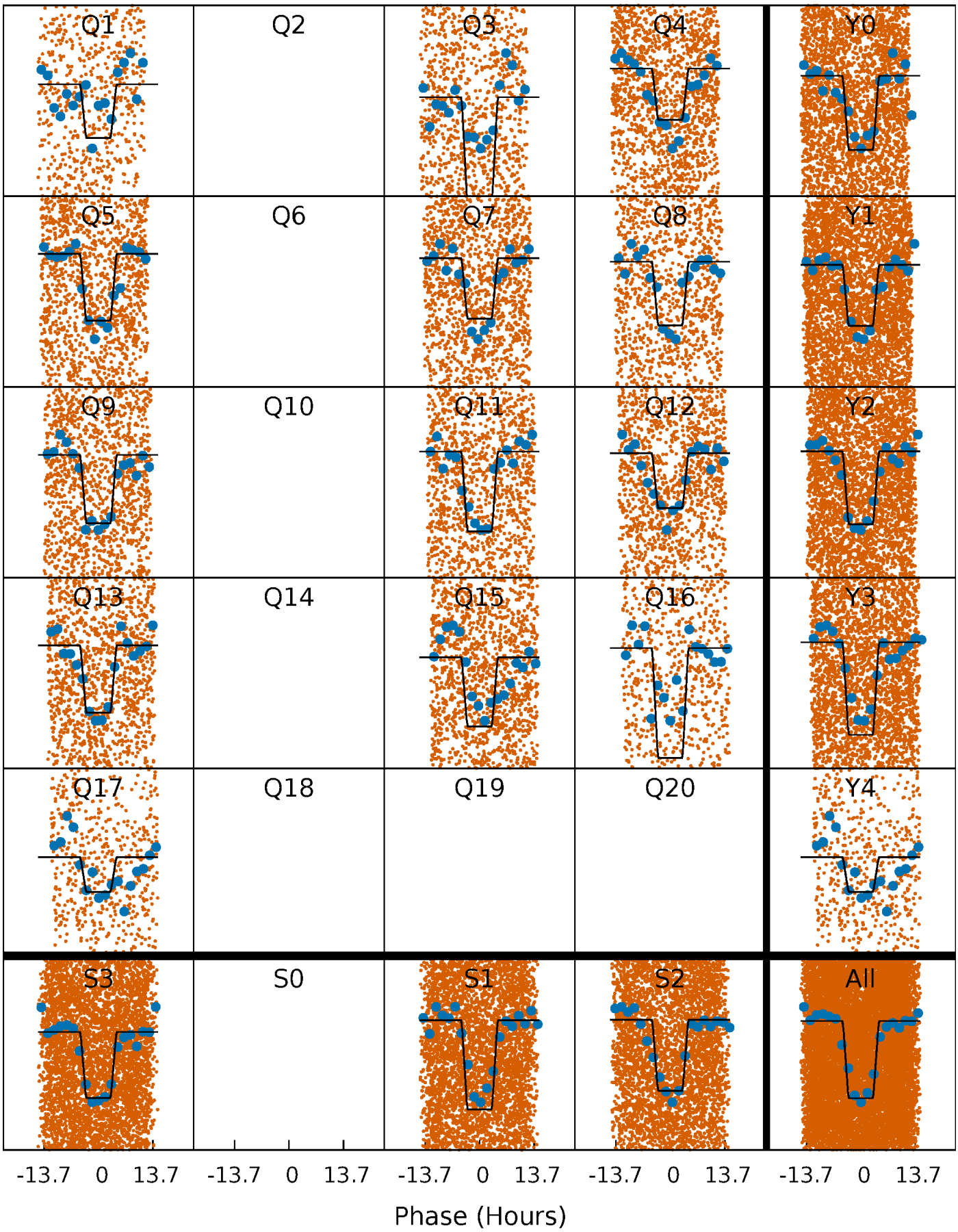
DV Quarter-Phased Transit Curves

TCE 009224836-02 P= 2.062898 Days T_0=133.276318 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

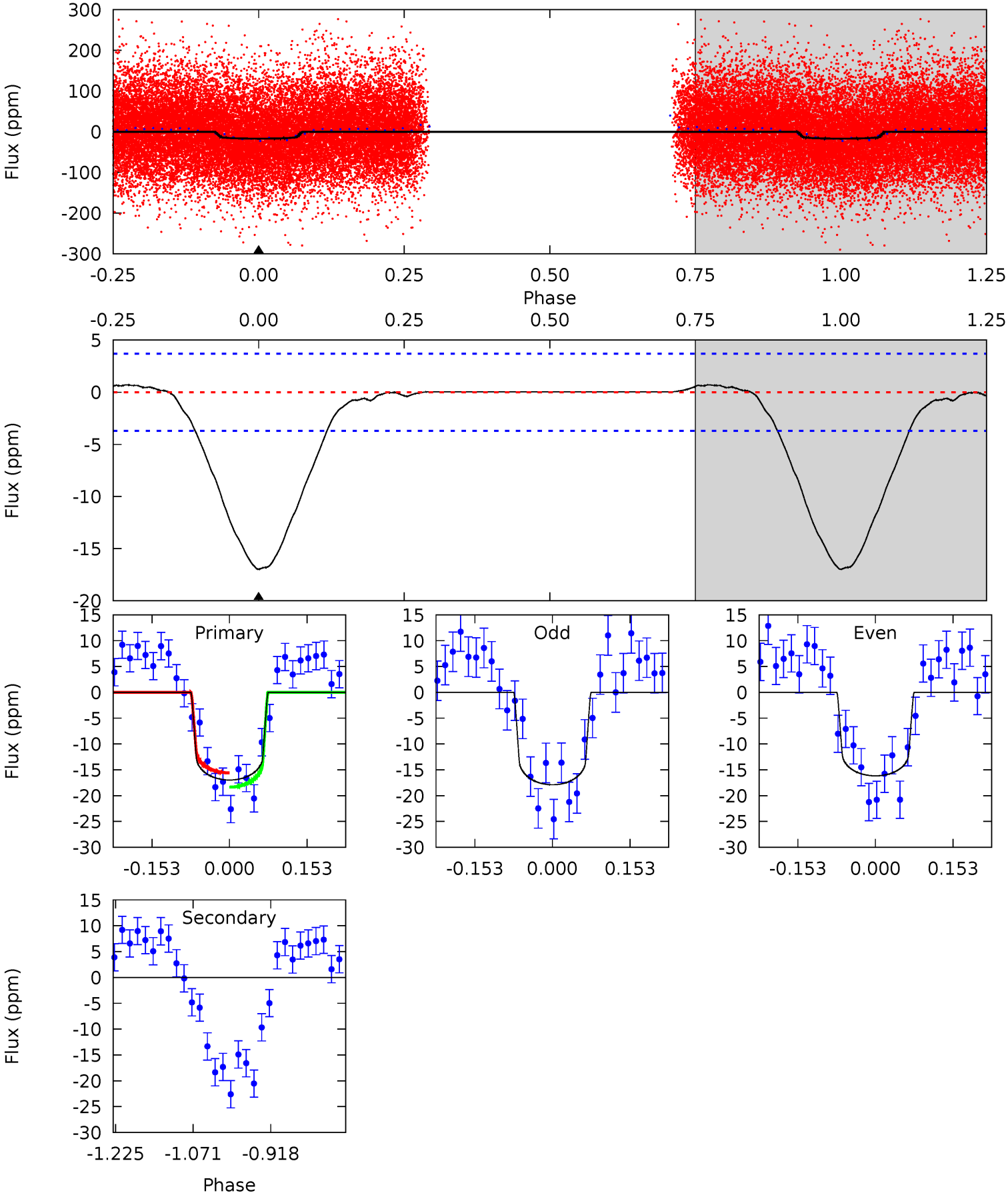
TCE 009224836-02 P= 2.062825 Days T_0=133.308236 (BKJD)



DV Model-Shift Uniqueness Test

009224836-02, P = 2.062898 Days, E = 131.213420 Days

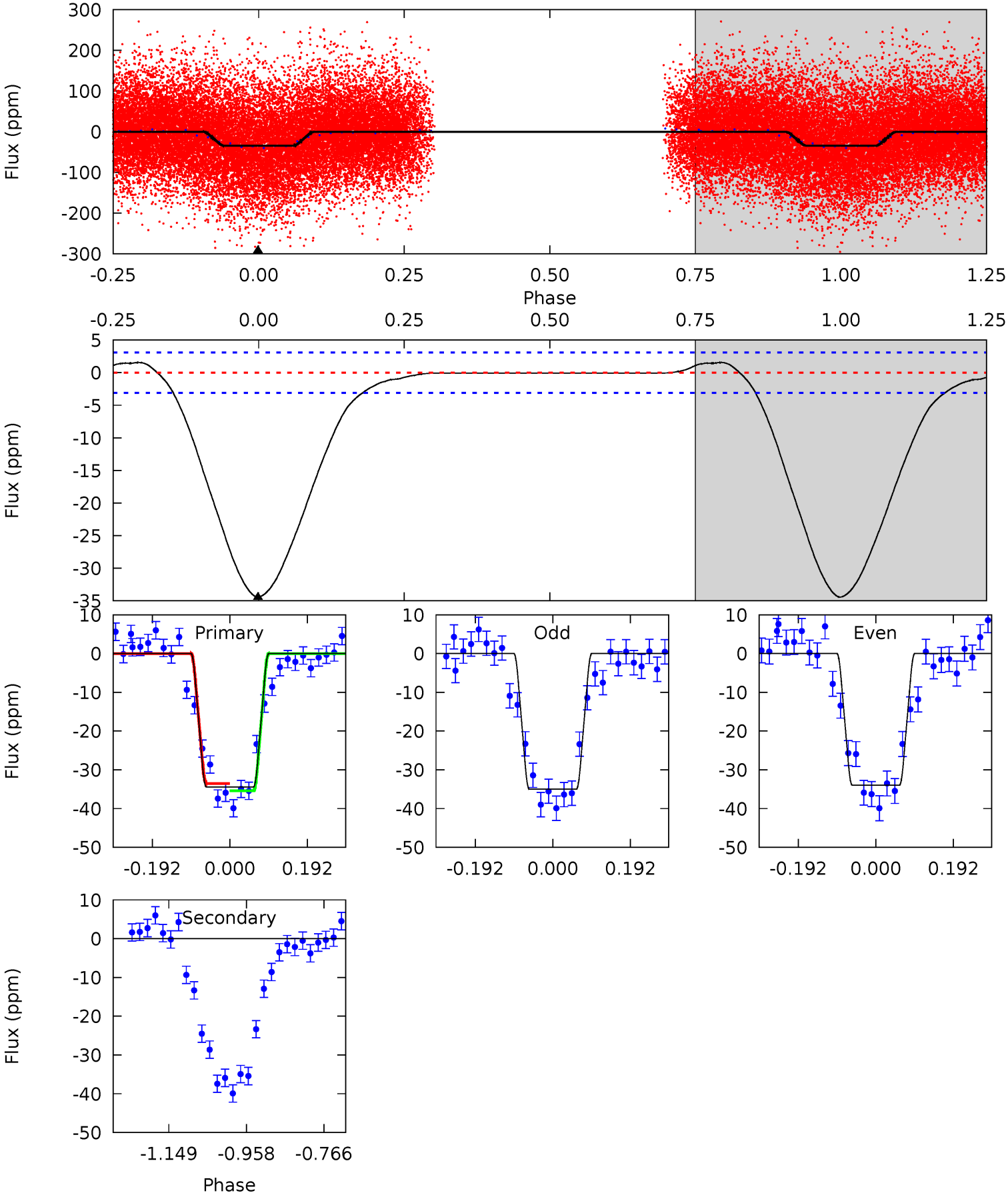
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	0	0	0	4.47	1.43	0.60	20.5	20.5	0	0	1.05	0.99	0.04	1.66



Alt Model-Shift Uniqueness Test

009224836-02, P = 2.062825 Days, E = 131.245411 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.1	0	0	0	4.43	1.31	1.79	49.1	49.1	0	0	0.72	0.97	0.04	1.15



Stellar Parameters For KIC 009224836

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	9038^{+251}_{-408}	$3.629^{+0.586}_{-0.103}$	$-0.500^{+0.150}_{-0.400}$	$3.790^{+0.940}_{-2.192}$	$2.228^{+0.361}_{-0.721}$	$0.058^{+0.437}_{-0.024}$
	+3%/-5%	+16%/-3%	+30%/-80%	+25%/-58%	+16%/-32%	+758%/-42%
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 009224836-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0±1	$1.55^{+0.42}_{-0.47}$	5087^{+450}_{-734}	-4172^{+7358}_{-685}	$0.003^{+0.372}_{-0.345}$
Alt.	0±1	$2.31^{+0.50}_{-0.69}$	5055^{+447}_{-724}	-4198^{+632}_{-375}	$-0.004^{+0.139}_{-0.137}$

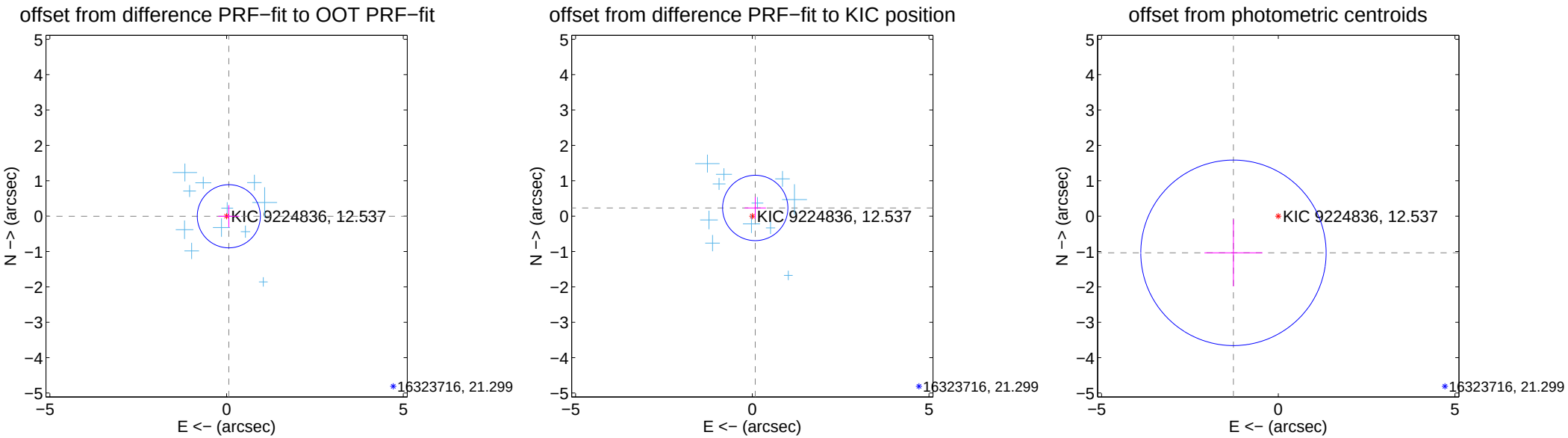
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

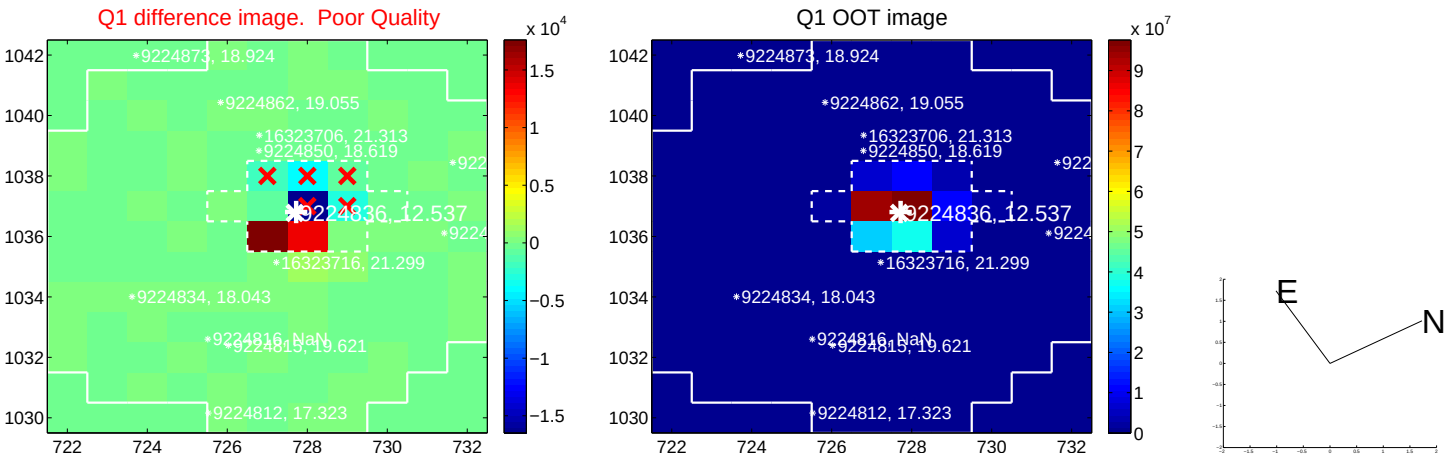
Supplemental centroid analysis for 009224836-02. Kepler magnitude: 12.54. Transit SNR 13.28
There are 11 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

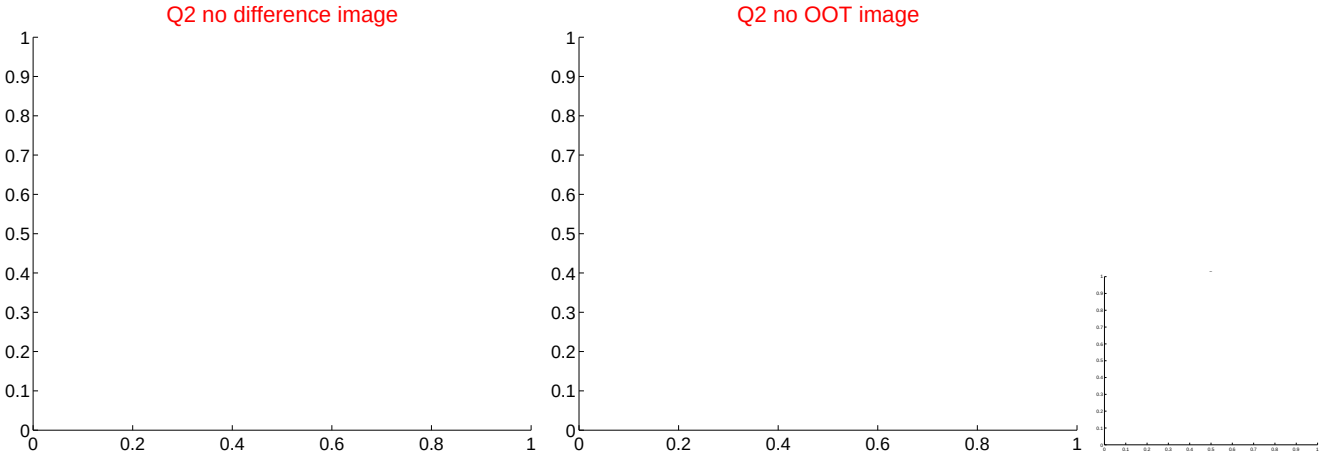
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.064 ± 0.298	0.21	-0.063 ± 0.297	-0.004 ± 0.315
PRF-fit source offset from KIC position	0.246 ± 0.308	0.80	-0.084 ± 0.302	0.232 ± 0.309
photometric centroid source offset	1.64 ± 0.87	1.87	1.27 ± 0.82	-1.04 ± 0.95

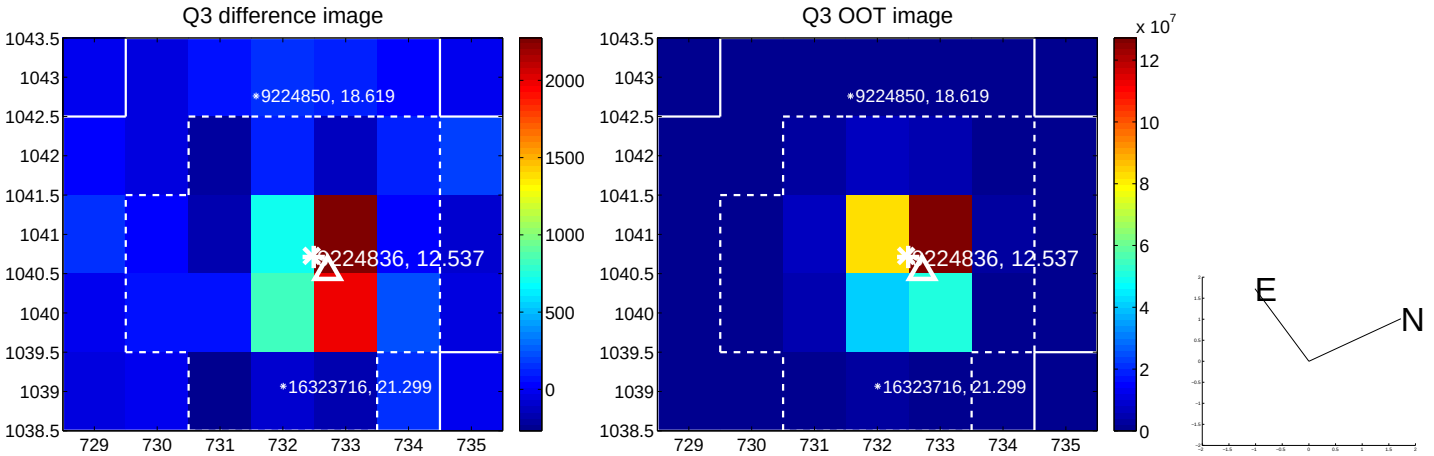


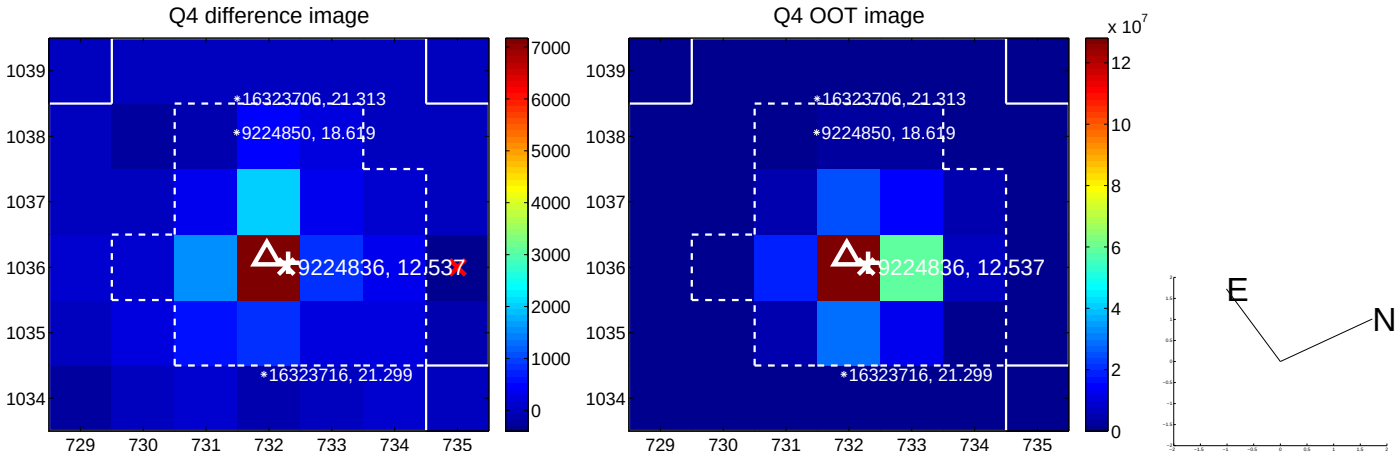
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red *: 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

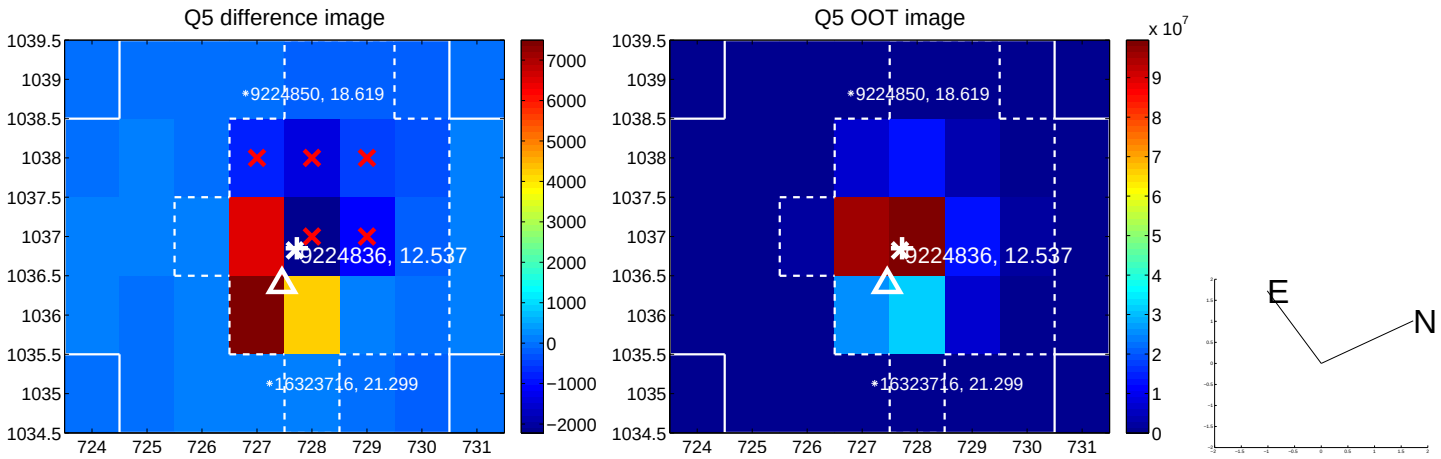


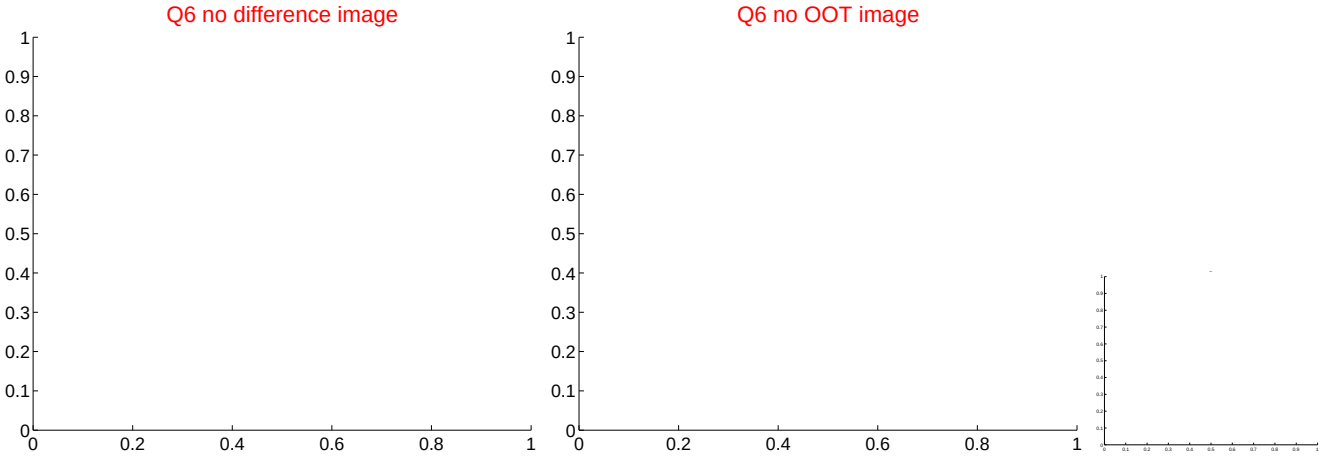


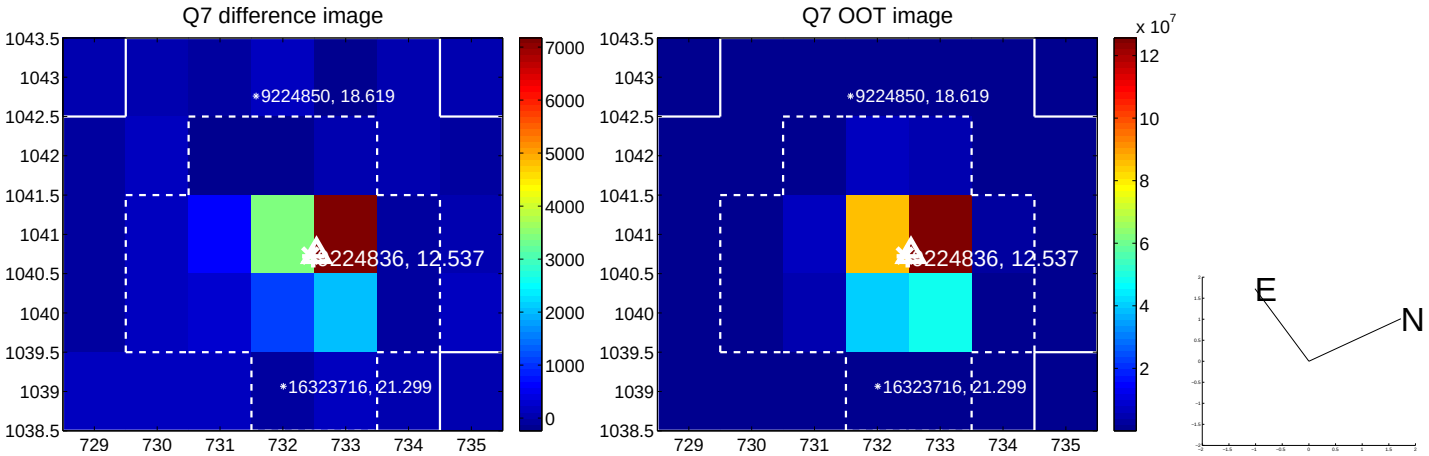


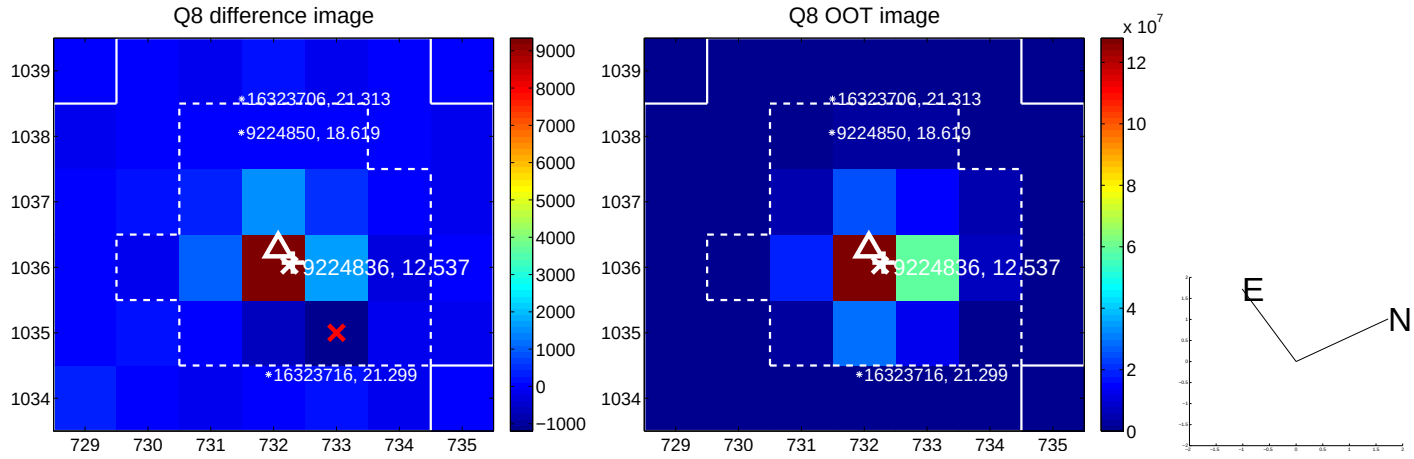


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

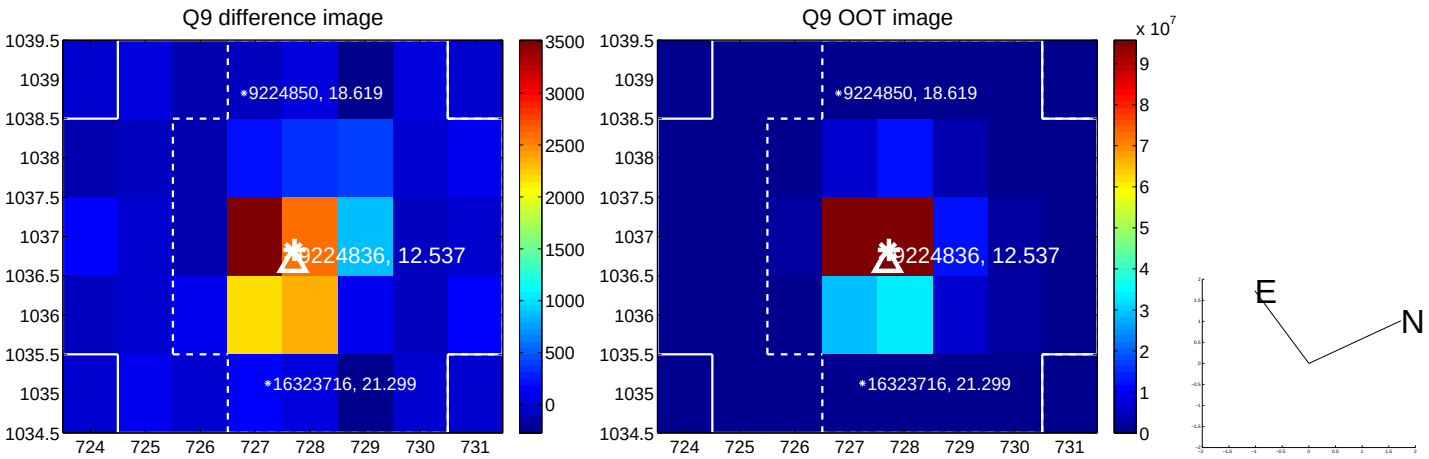


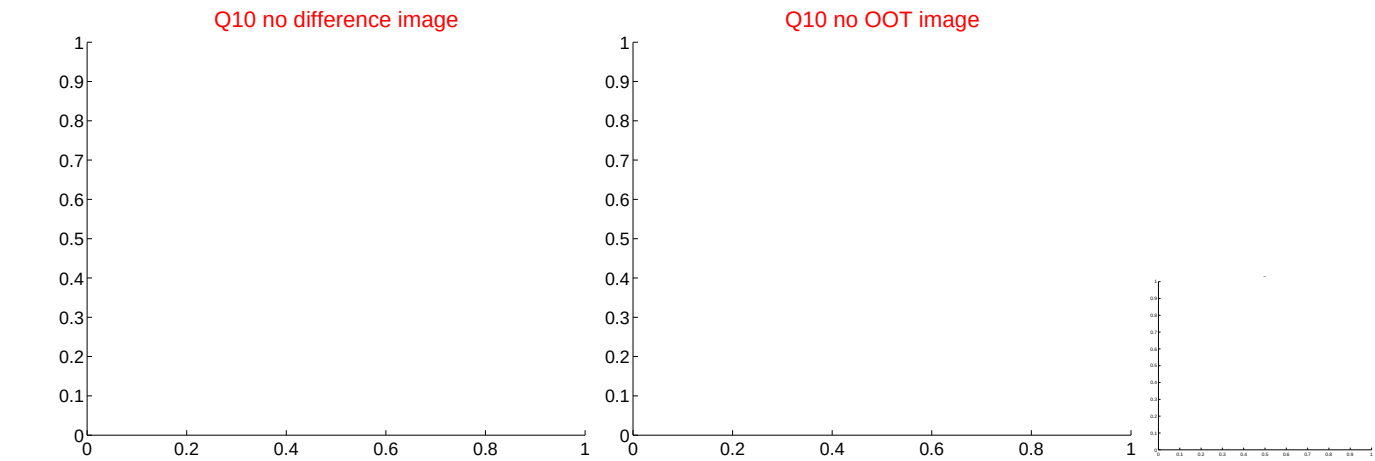


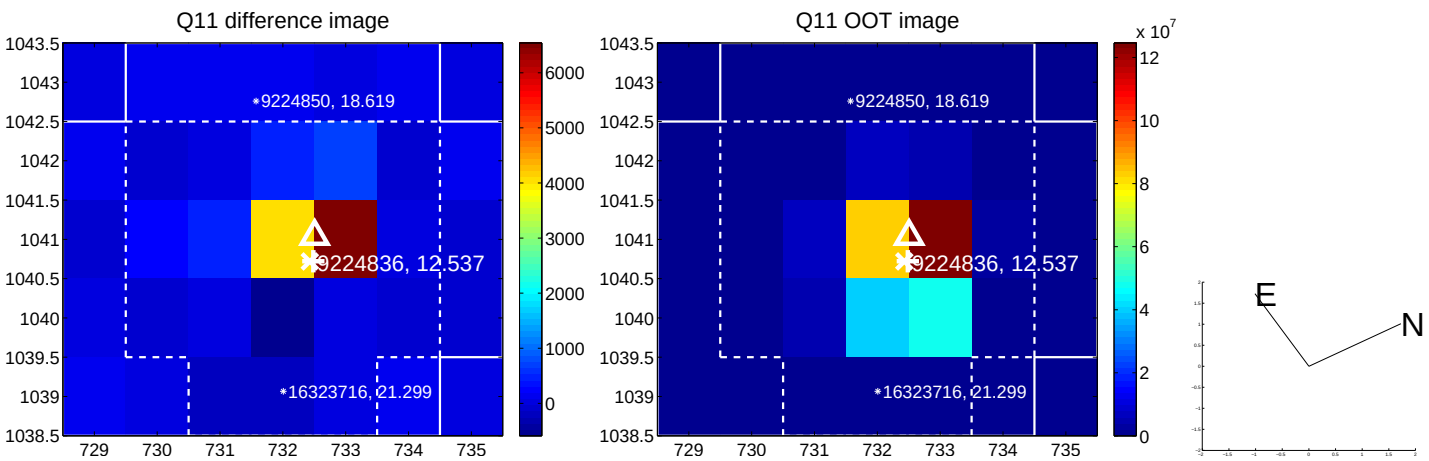


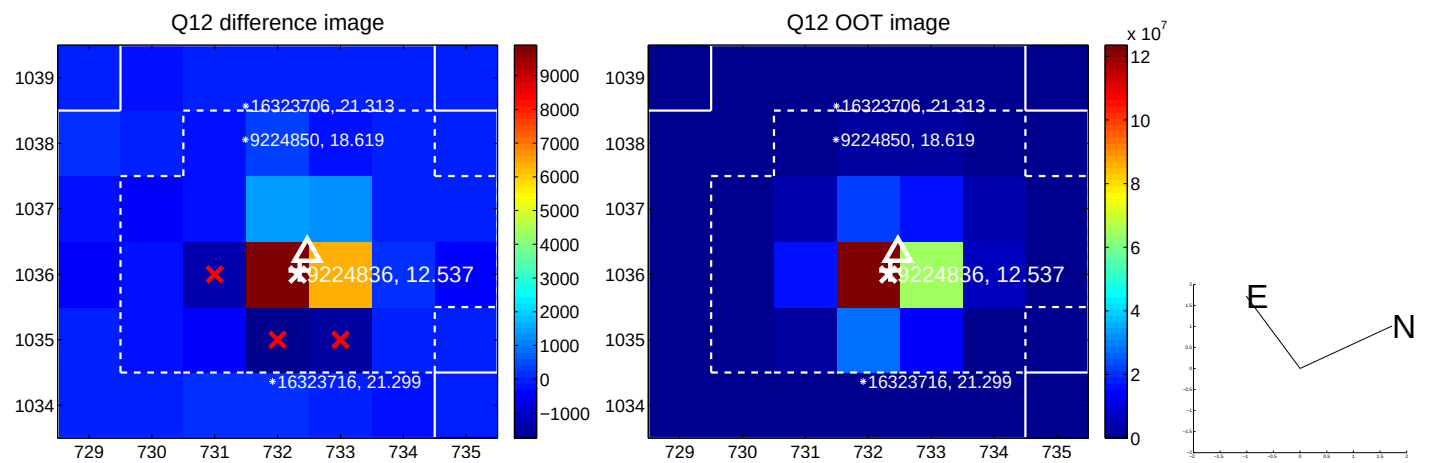


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

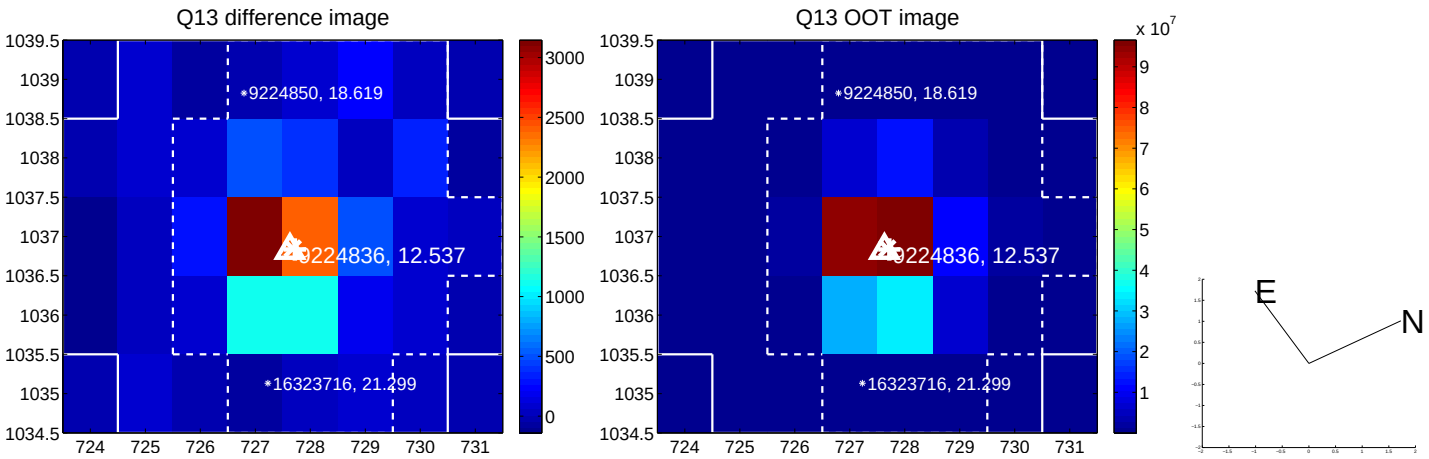


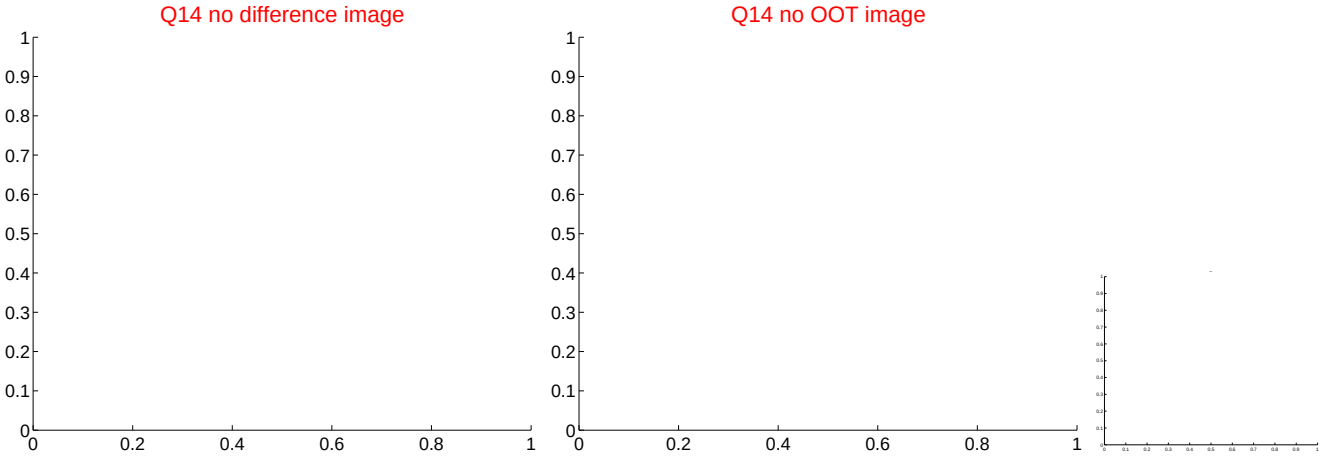


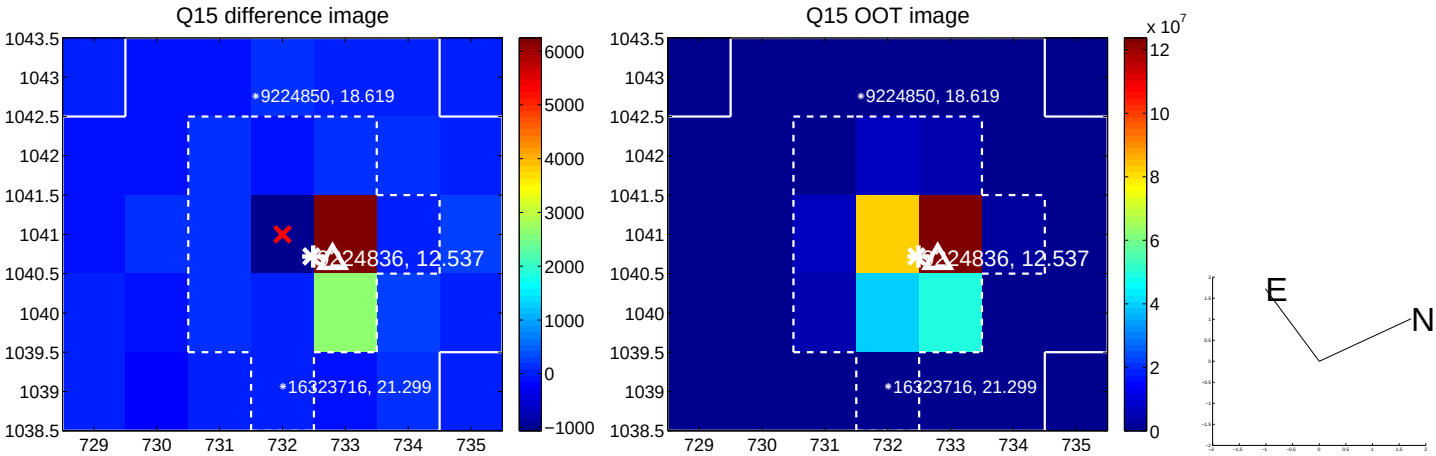


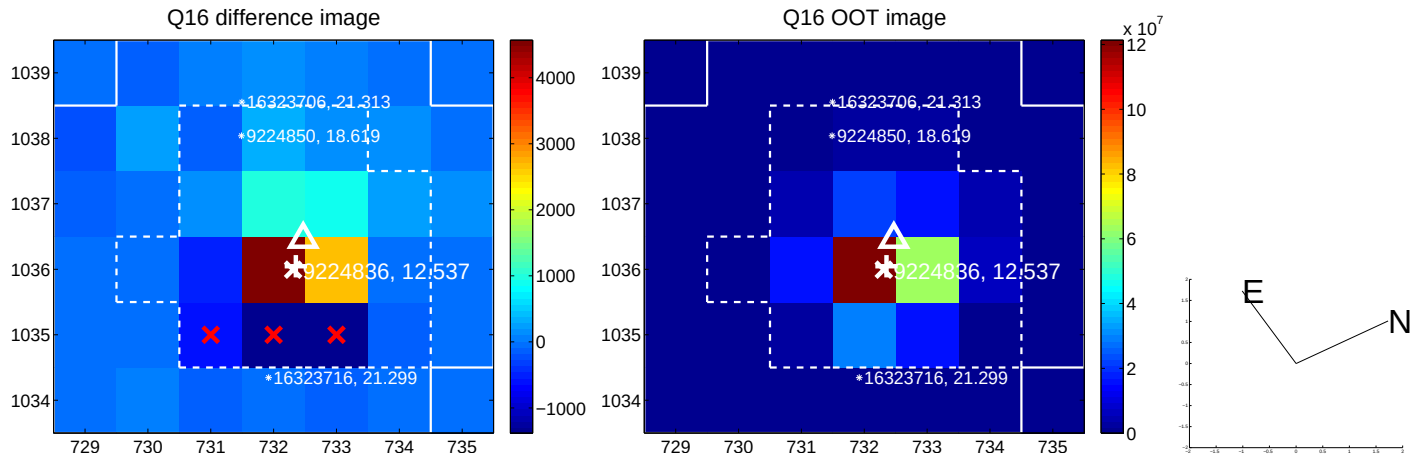


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

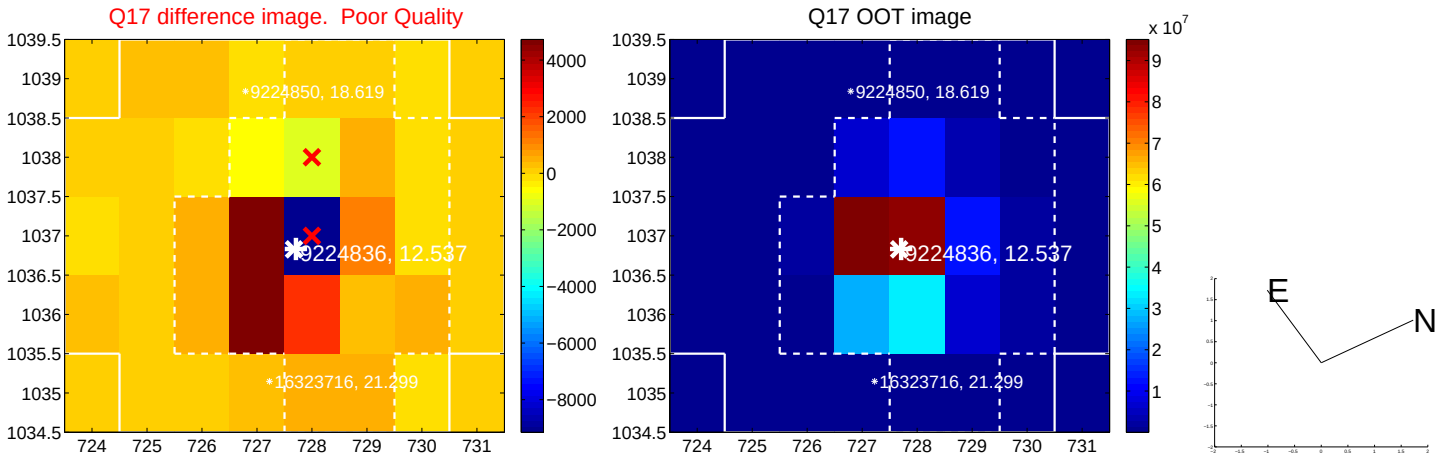


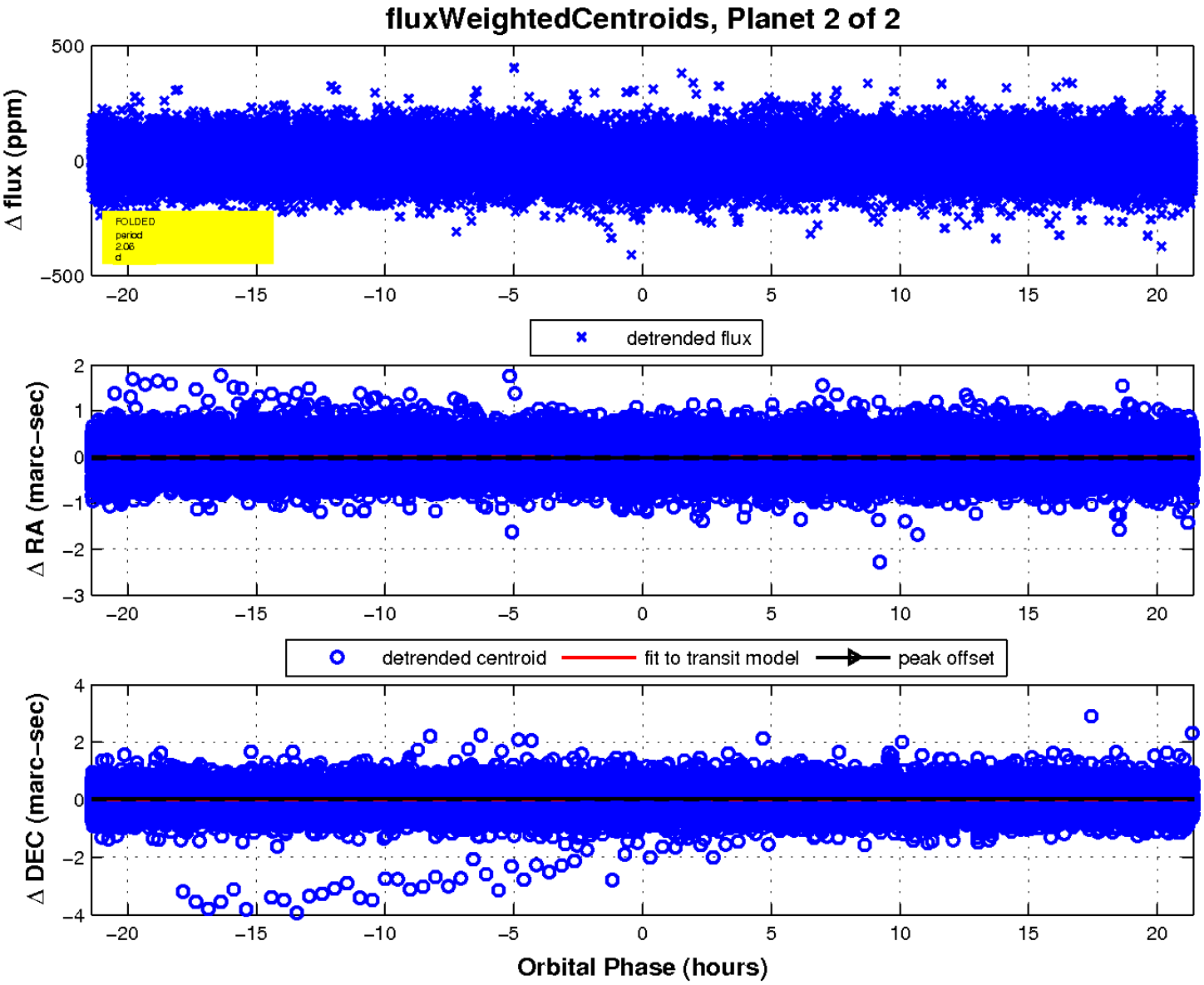




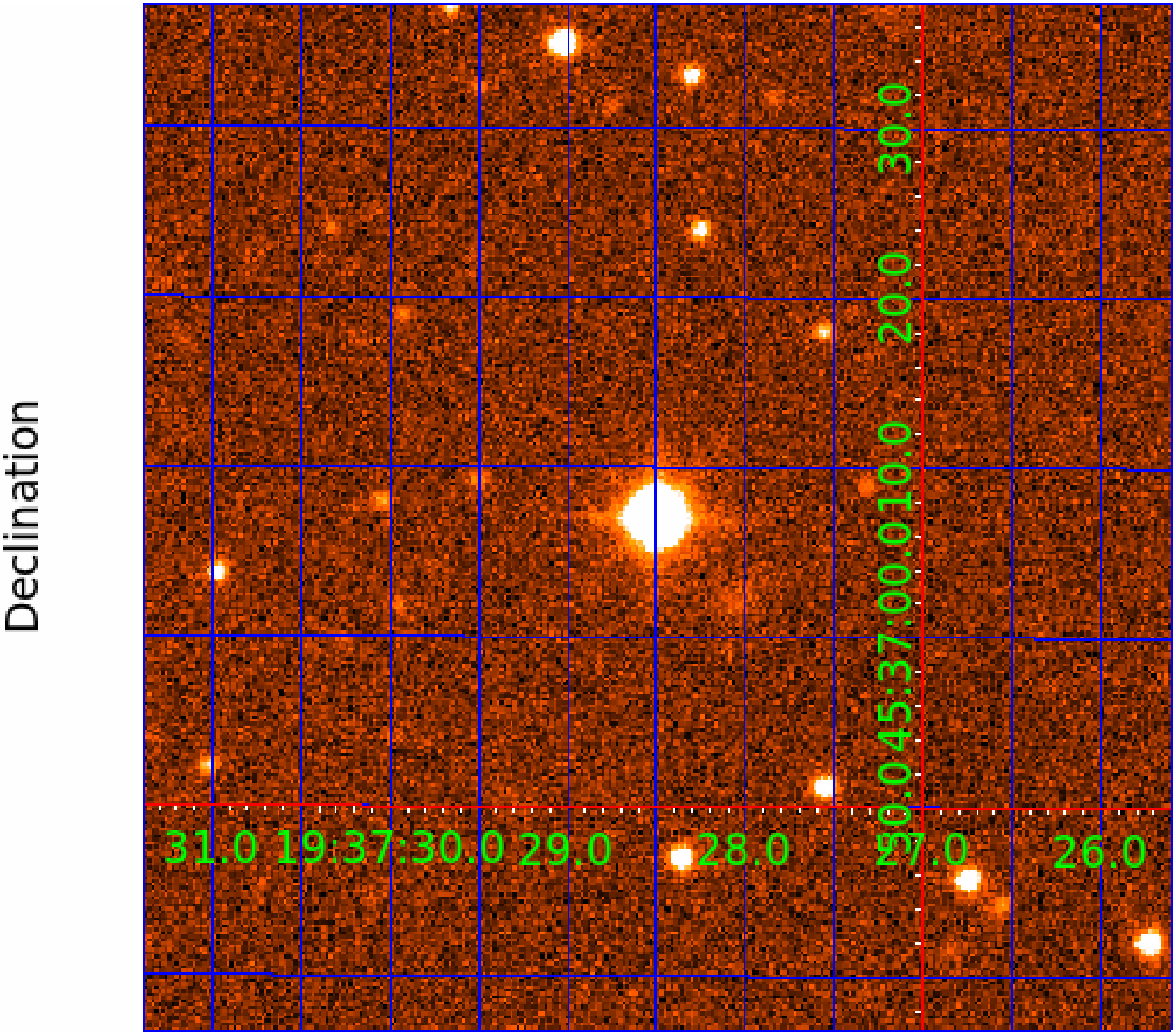


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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