KIC 008977223

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 ($S_\oplus$)
008977223-01	OBS	No	0.642226	131.965153	345.1	0.966	16.5	20.3	2.84	6499	5.69	47844.72
008977223-02	OBS	No	0.642235	131.638885	329.6	0.889	12.1	17.4	2.84	6499	6.07	47843.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008977223-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008977223-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

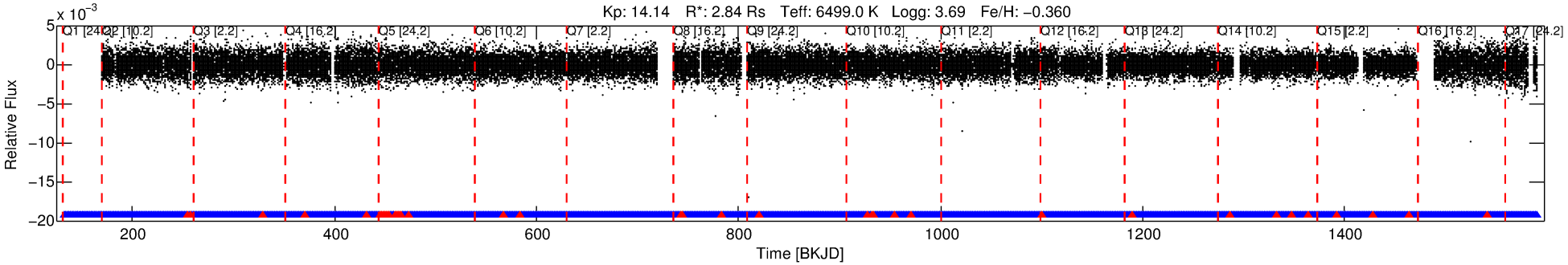
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

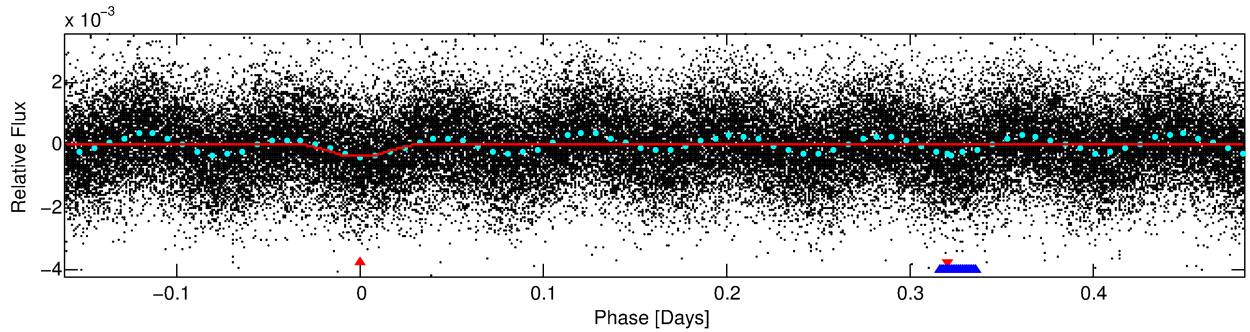
Ephemeris Match Information For 008977223-01

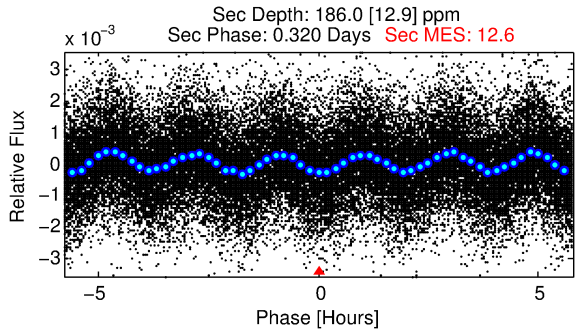
No Significant Match Found

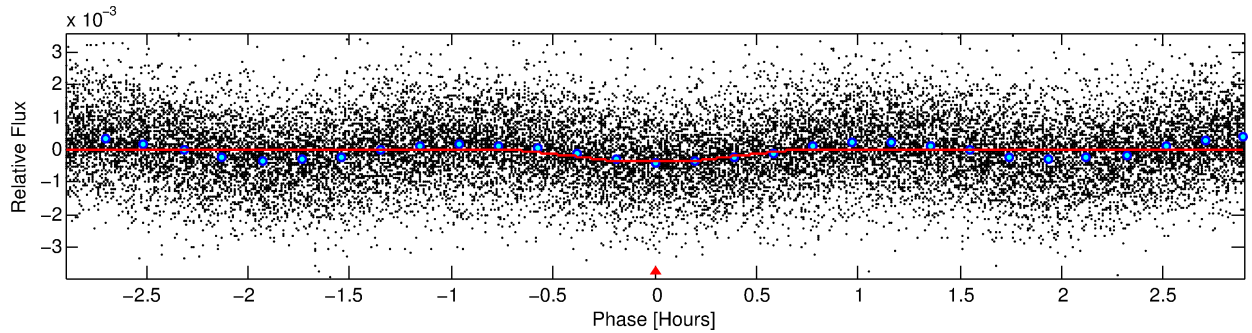
DV One-Page Summary

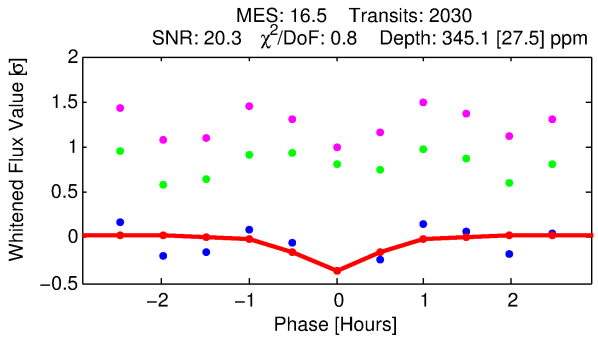
KIC: 8977223 Candidate: 1 of 2 Period: 0.642 d

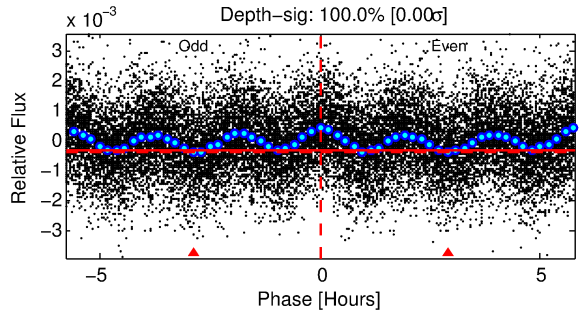


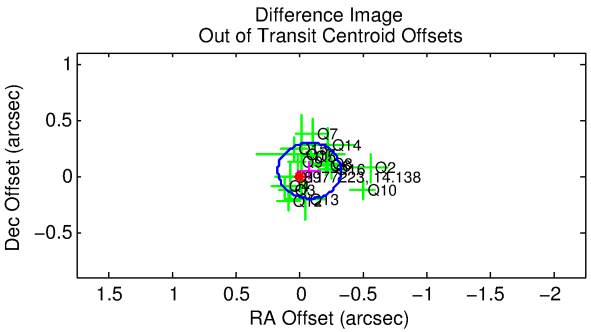












DV Fit Results:

Period = 0.64223 [0.00001] d
Epoch = 131.9652 [0.0009] BKJD
Rp/R* = 0.0184 [0.0046]
a/R* = 3.84 [4.94]
b = 0.70 [1.01]

Seff = 47844.73 [47757.90]
Teq = 3771 [941] K
Rp = 5.69 [3.48] Re
a = 0.0164 [0.0097] AU

Ag = 0.85 [0.94] [−0.16σ]
Teffp = 5597 [743] K [1.52σ]

DV Diagnostic Results:

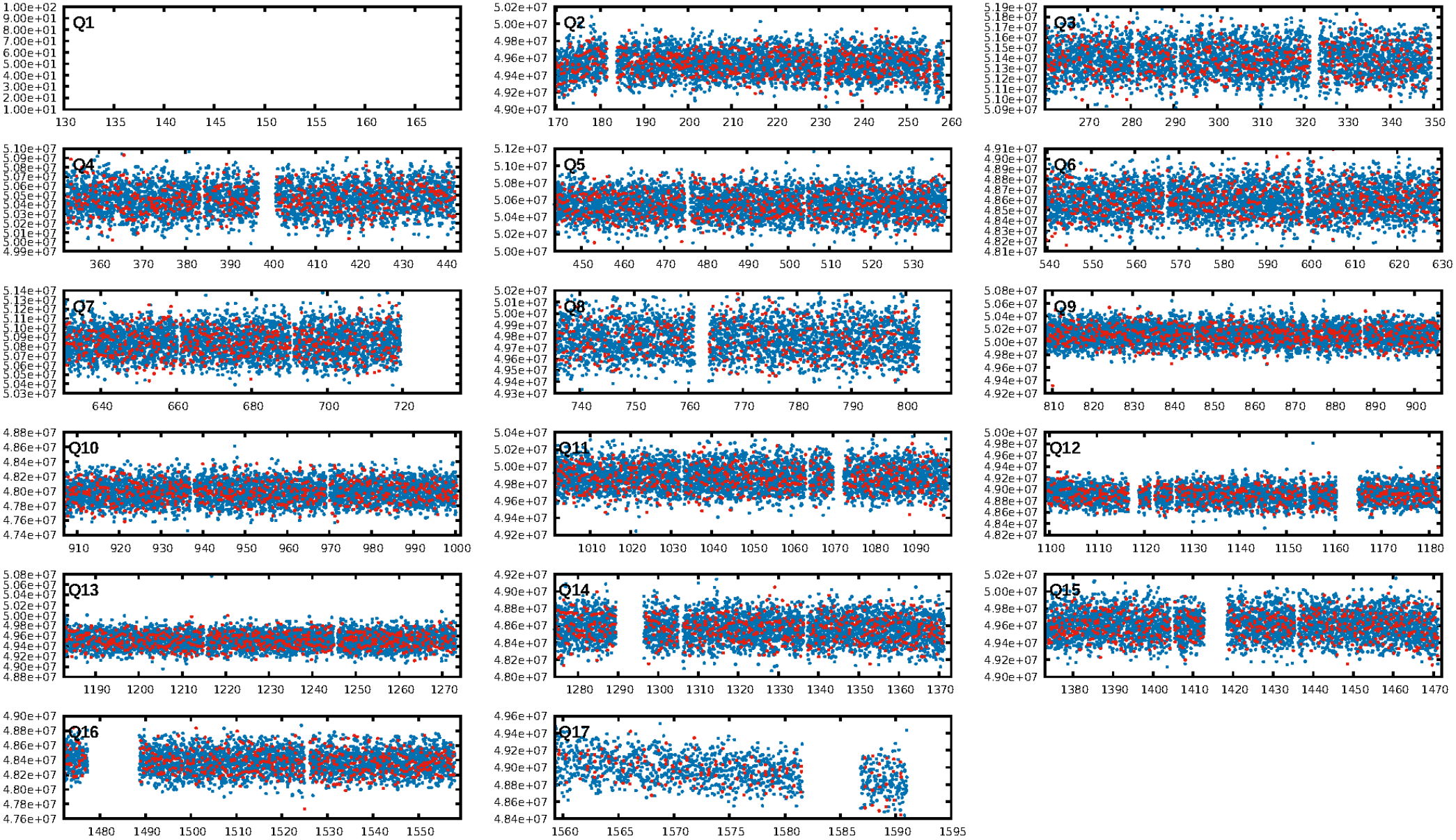
ShortPeriod−sig: N/A
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 1.78e−94
RollingBand−fgt: 0.98 [1945/1990]
GhostDiagnostic−chr: 1.324

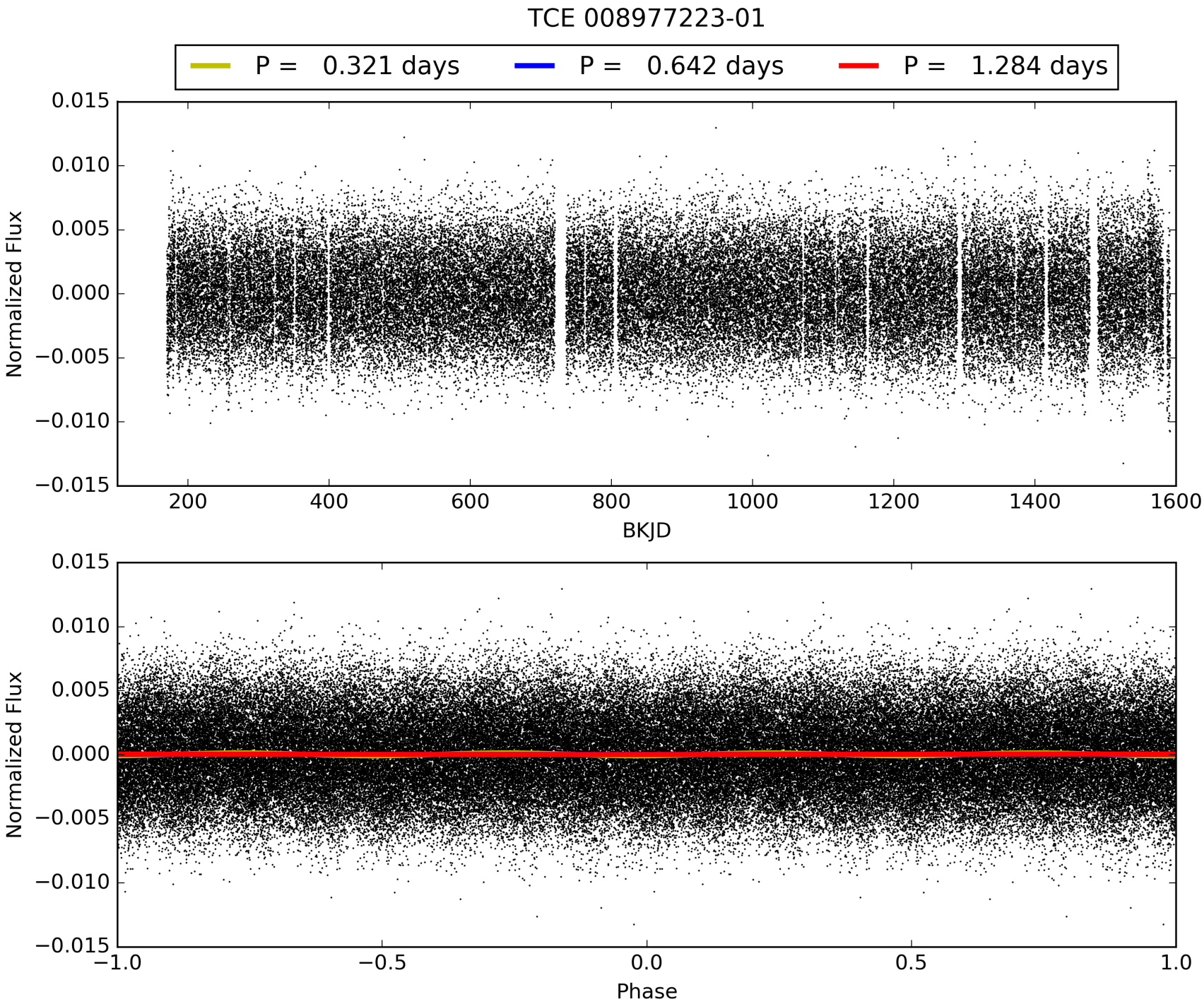
Centroid−sig: 18.2%
Centroid−so: 0.179 arcsec [1.05σ]
OotOffset−rm: 0.094 arcsec [1.14σ]
KicOffset−rm: 0.143 arcsec [1.75σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 0.94 [15/16]
DiffImageOverlap−fno: 0.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 16:34:21 Z

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

TCE 008977223-01, PDC Light Curves

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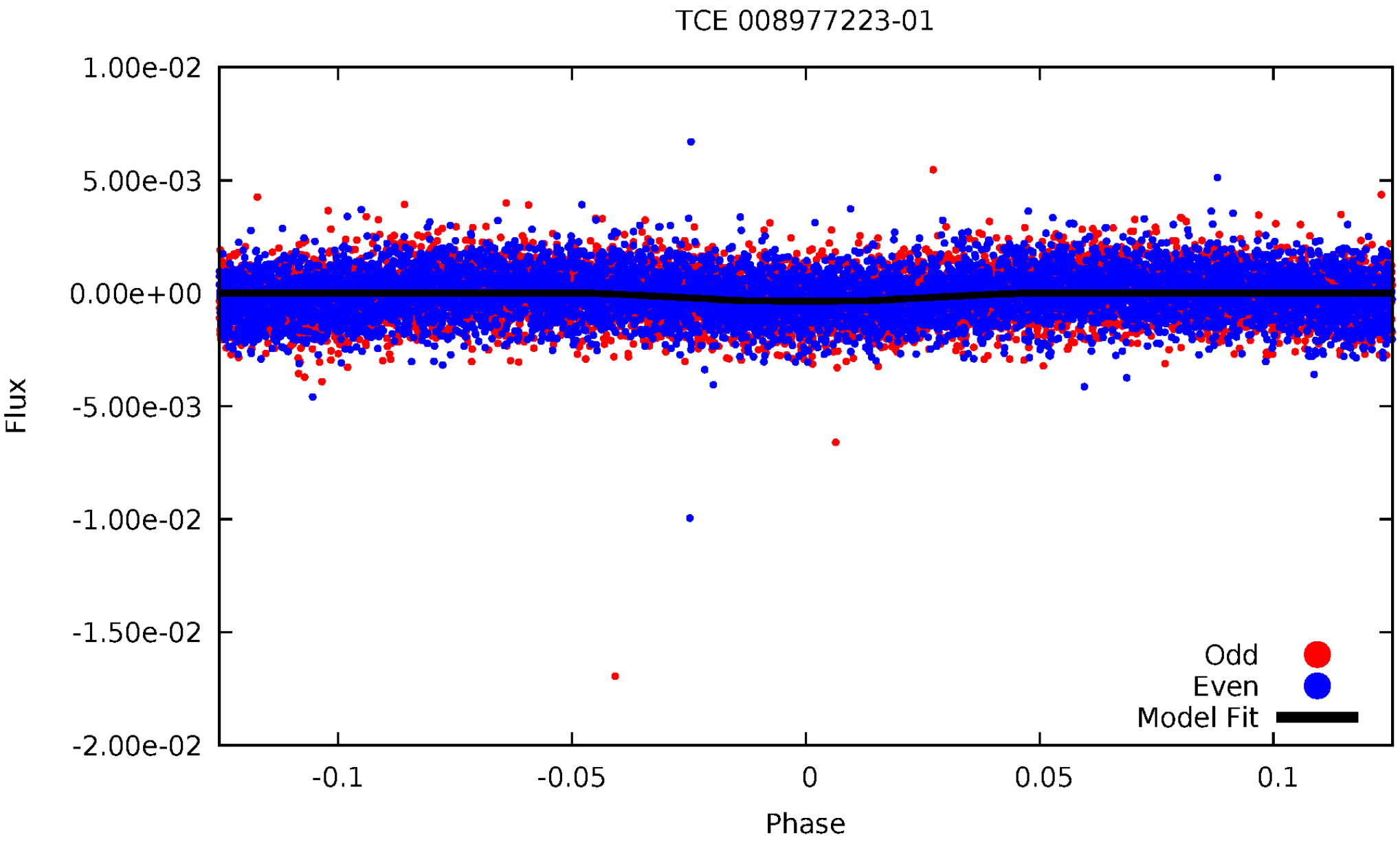
P = 0.321 days
P = 0.642 days
P = 1.284 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 008977223-01
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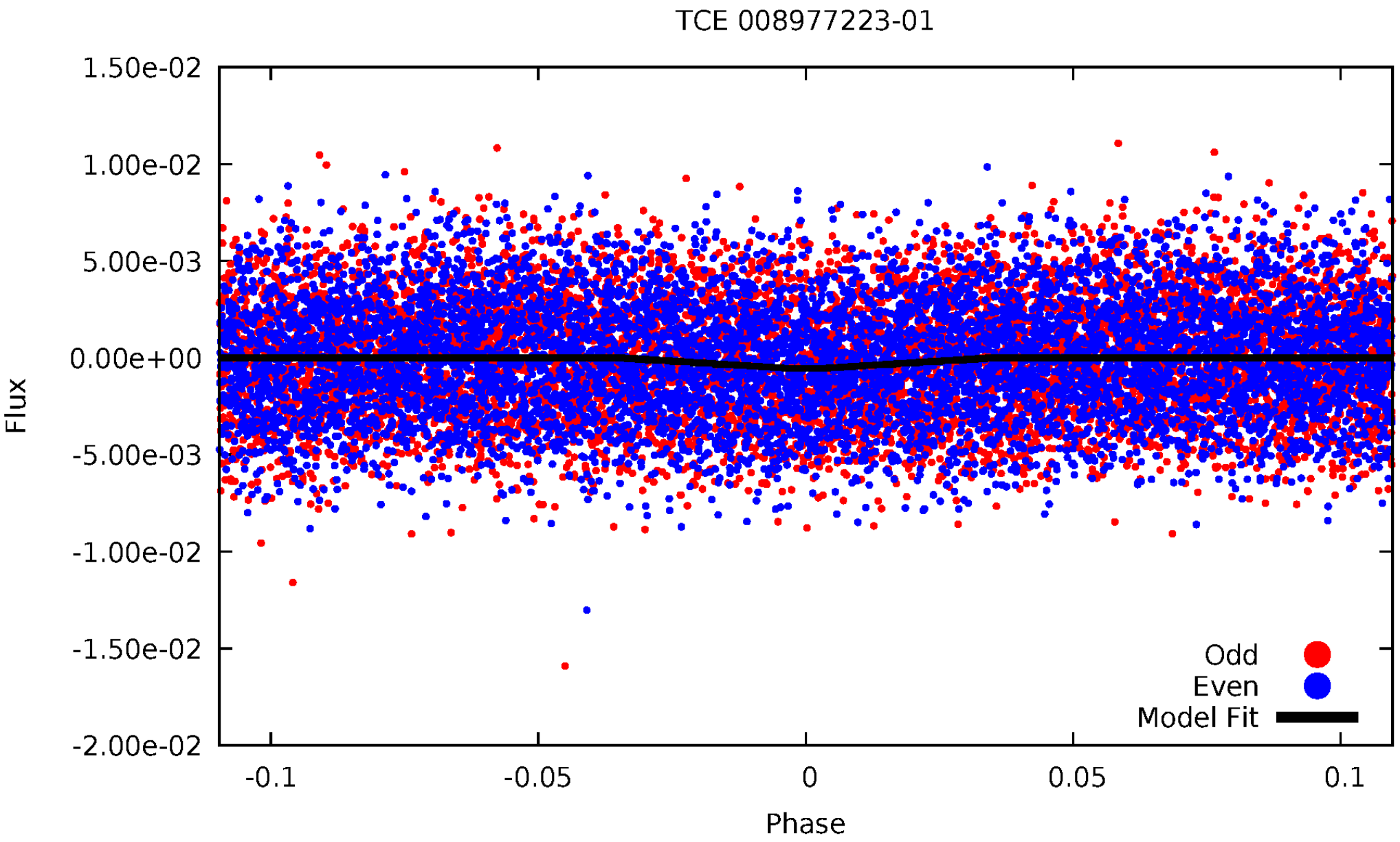
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
-1.50e-02
-2.00e-02
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008977223-01
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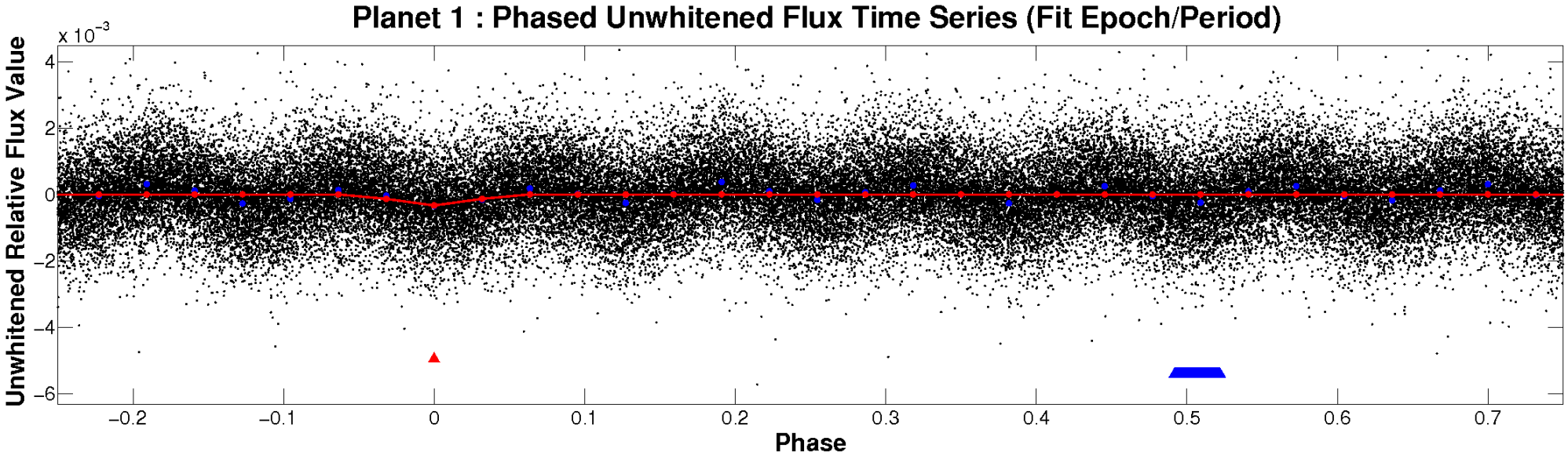
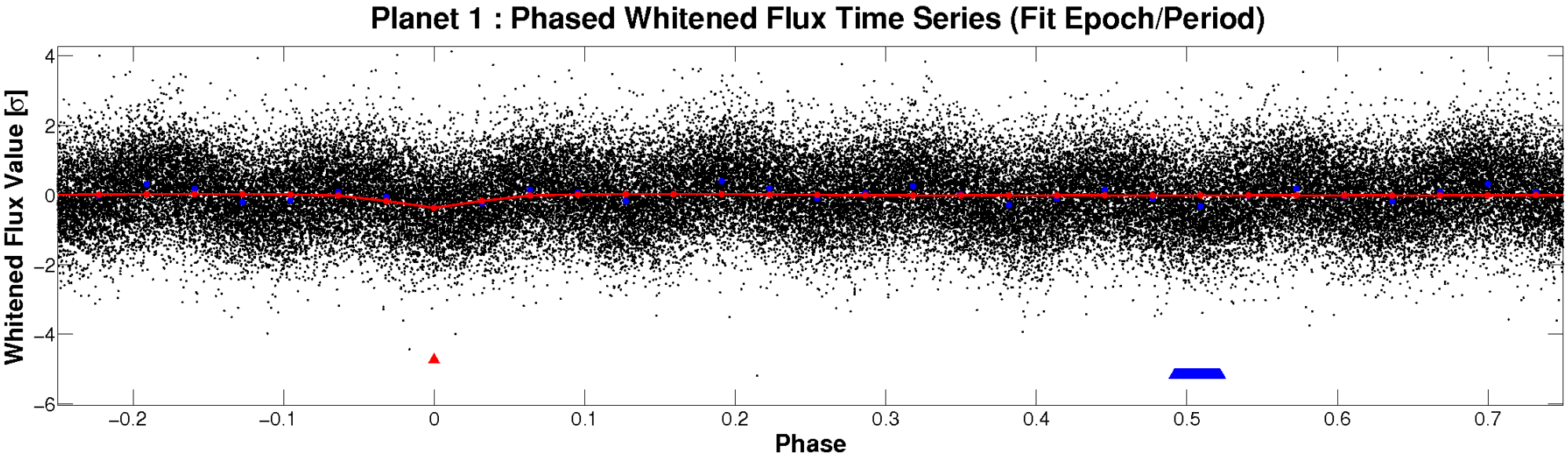
1.00e-02
5.00e-03
0.00e+00
-5.00e-03
-1.00e-02
-1.50e-02
-2.00e-02
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

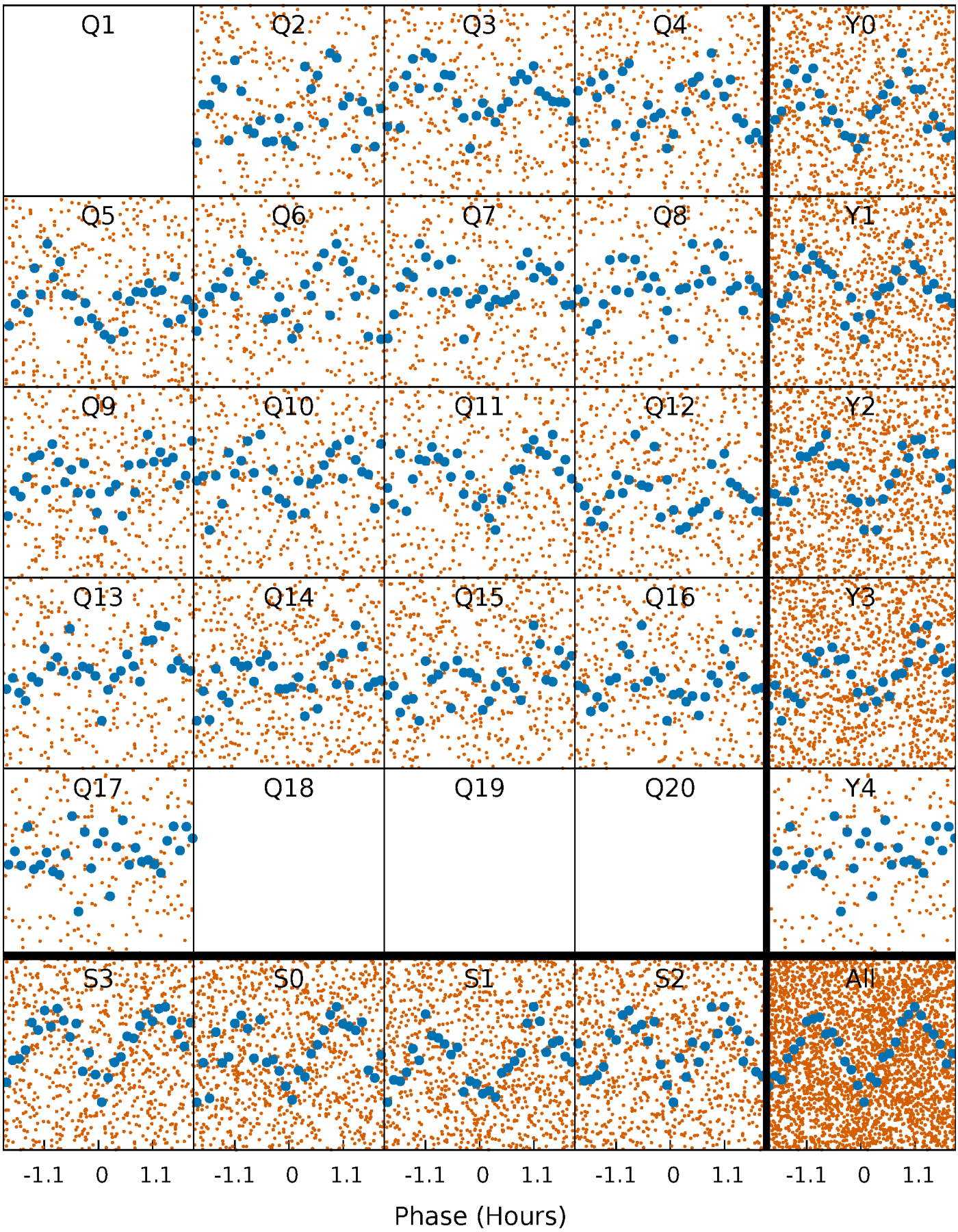
Non-Whitened Vs. Whitened Light Curve





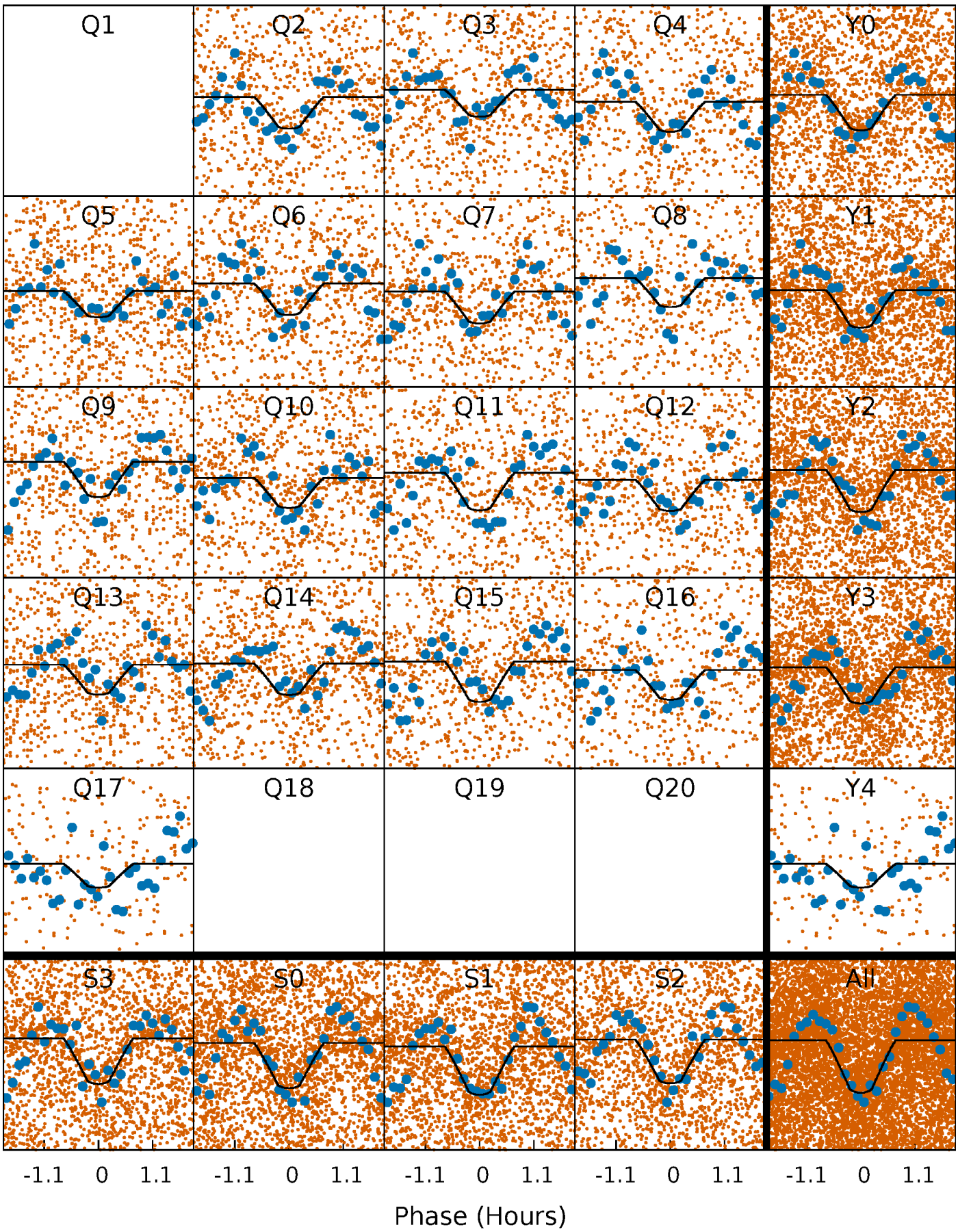
PDC Quarter-Phased Transit Curves

TCE 008977223-01 P= 0.642226 Days T_0=131.965153 (BKJD)



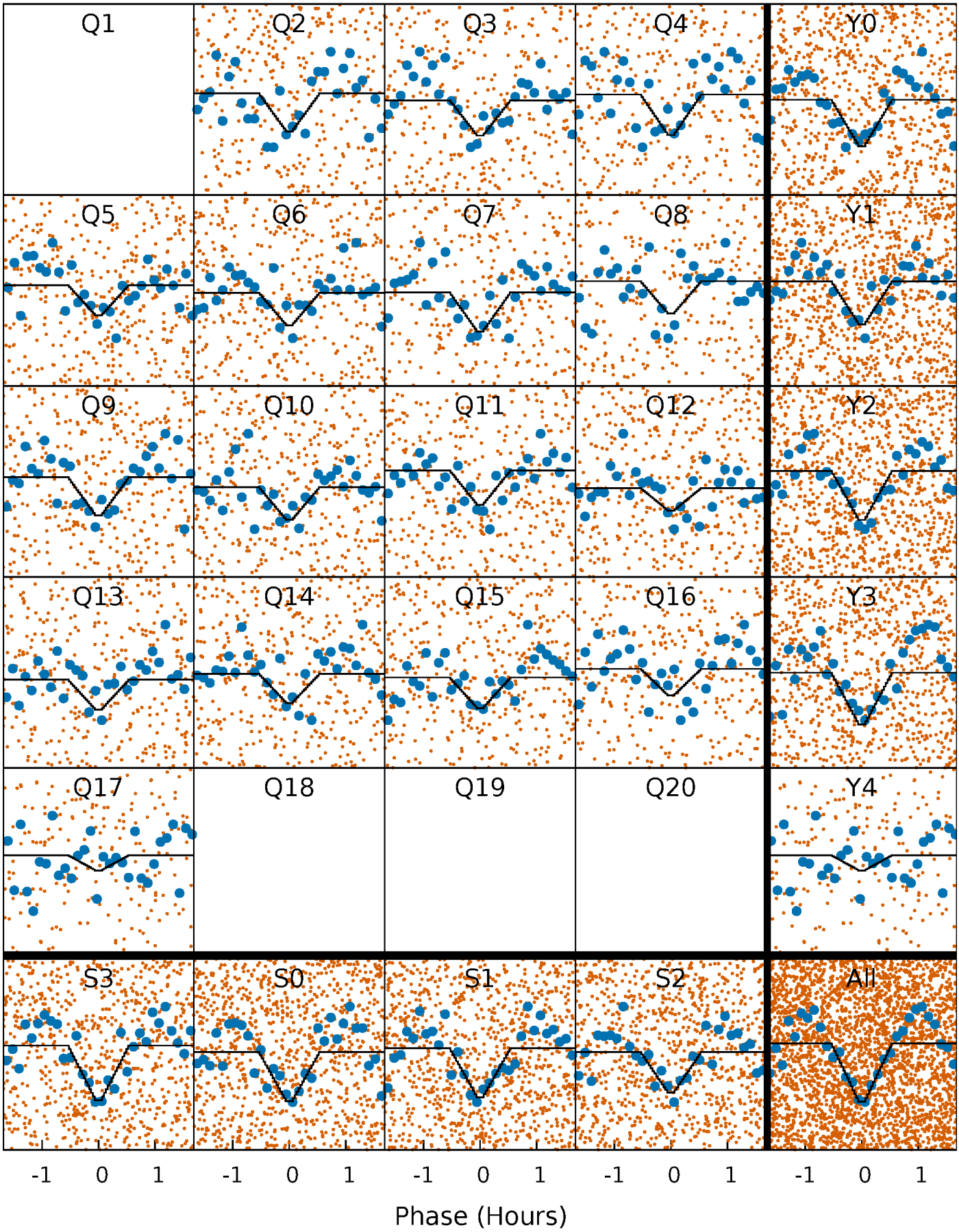
DV Quarter-Phased Transit Curves

TCE 008977223-01 P= 0.642226 Days T_0=131.965153 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

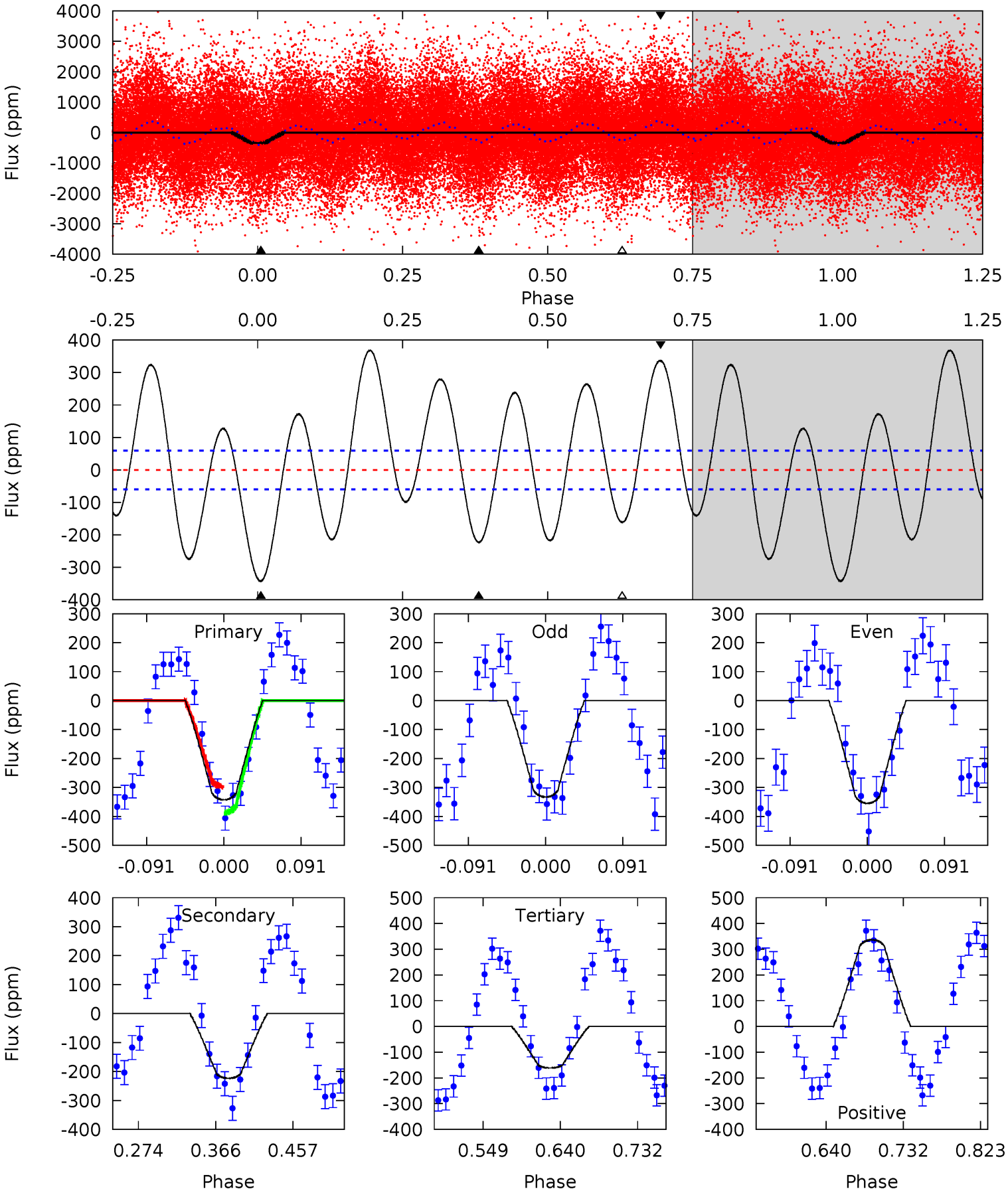
TCE 008977223-01 P= 0.642233 Days T_0=131.960720 (BKJD)



DV Model-Shift Uniqueness Test

008977223-01, P = 0.642226 Days, E = 131.965153 Days

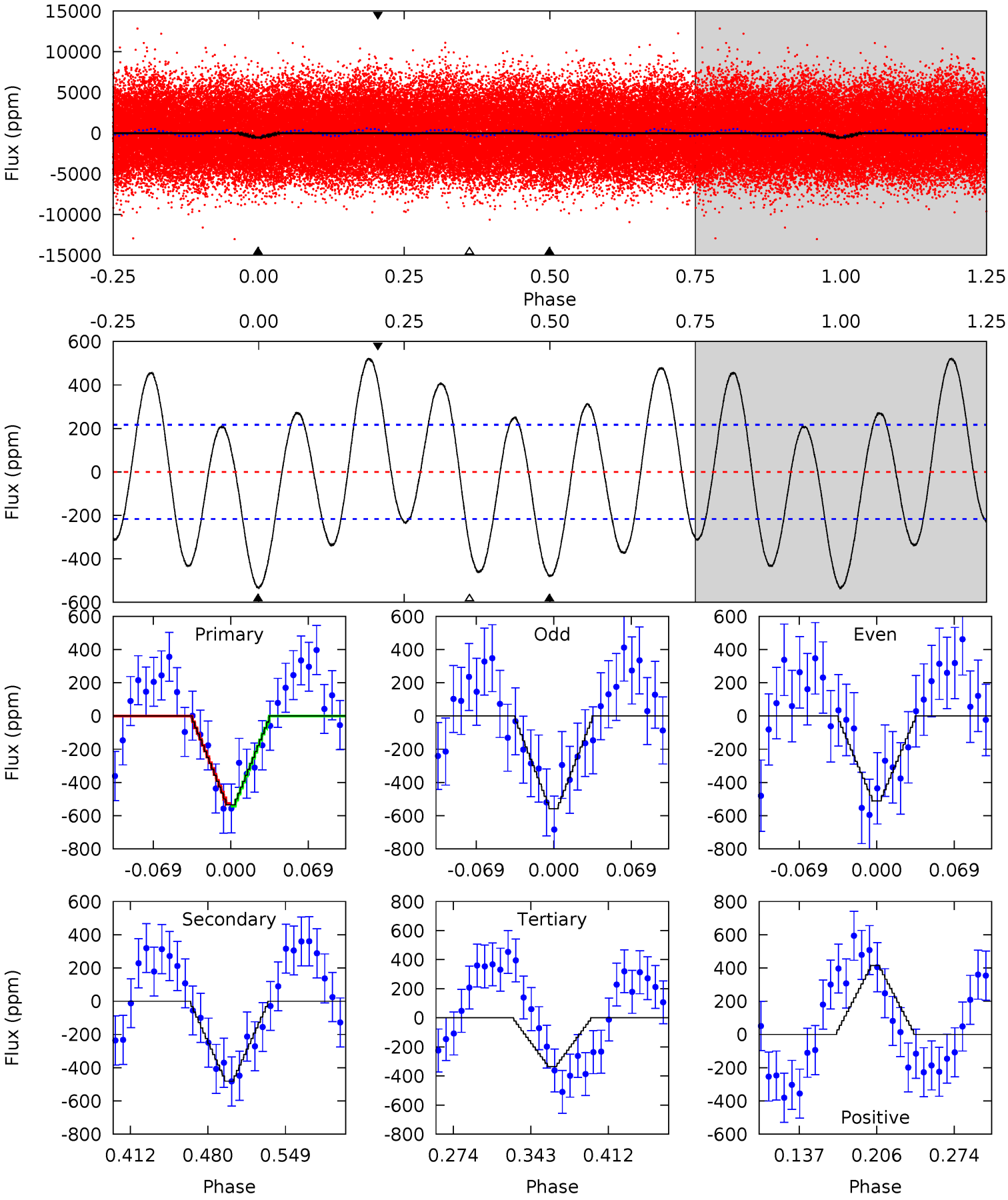
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.3	17.1	12.4	25.8	4.58	1.69	14.1	13.9	0.49	4.77	-8.66	0.84	1.01	0.52	3.47



Alt Model-Shift Uniqueness Test

008977223-01, P = 0.642233 Days, E = 131.960720 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	10.3	7.17	8.87	4.64	1.82	6.04	4.29	2.58	3.13	1.42	0.51	0.92	0.49	0.16



Stellar Parameters For KIC 008977223

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6499^{+205}_{-250}	$3.686^{+0.595}_{-0.105}$	$-0.360^{+0.300}_{-0.300}$	$2.836^{+0.528}_{-1.583}$	$1.423^{+0.202}_{-0.404}$	$0.088^{+0.685}_{-0.027}$
	+3%/-4%	+16%/-3%	+83%/-83%	+19%/-56%	+14%/-28%	+780%/-31%
Source	PHO1	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 008977223-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-223±13	$5.13^{+1.87}_{-1.82}$	5100^{+395}_{-762}	5446^{+1030}_{-792}	$1.278^{+1.586}_{-0.585}$
Alt.	-481±47	$6.44^{+2.06}_{-2.00}$	5096^{+397}_{-764}	5964^{+877}_{-669}	$1.699^{+1.748}_{-0.706}$

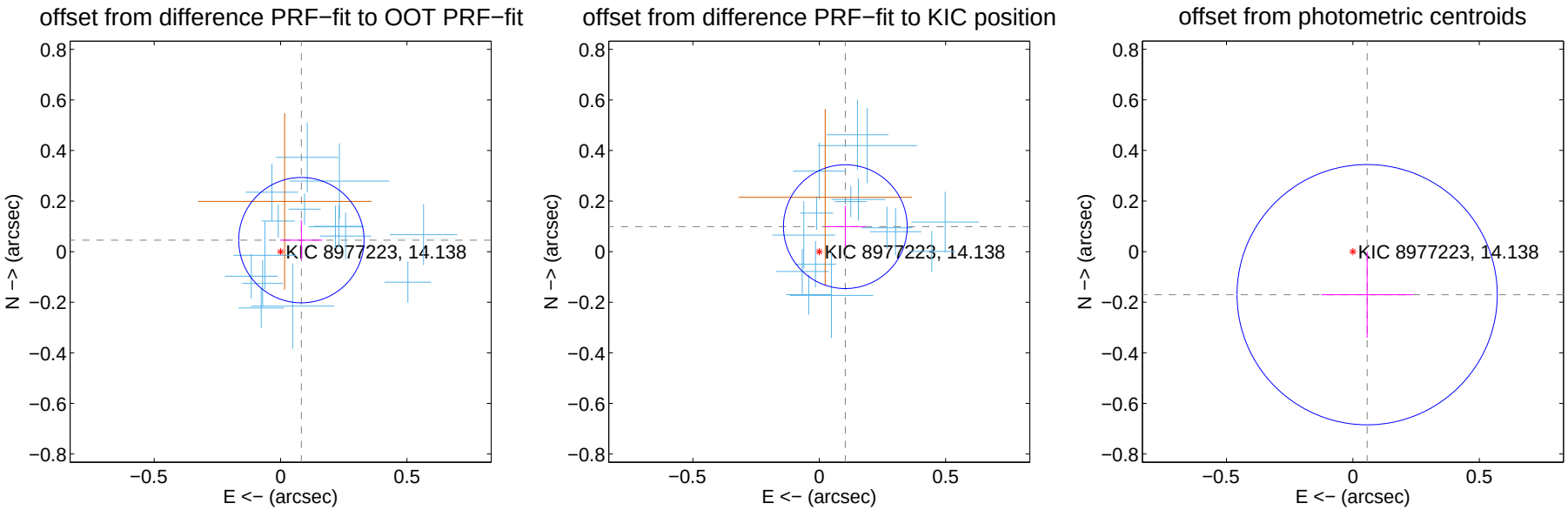
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

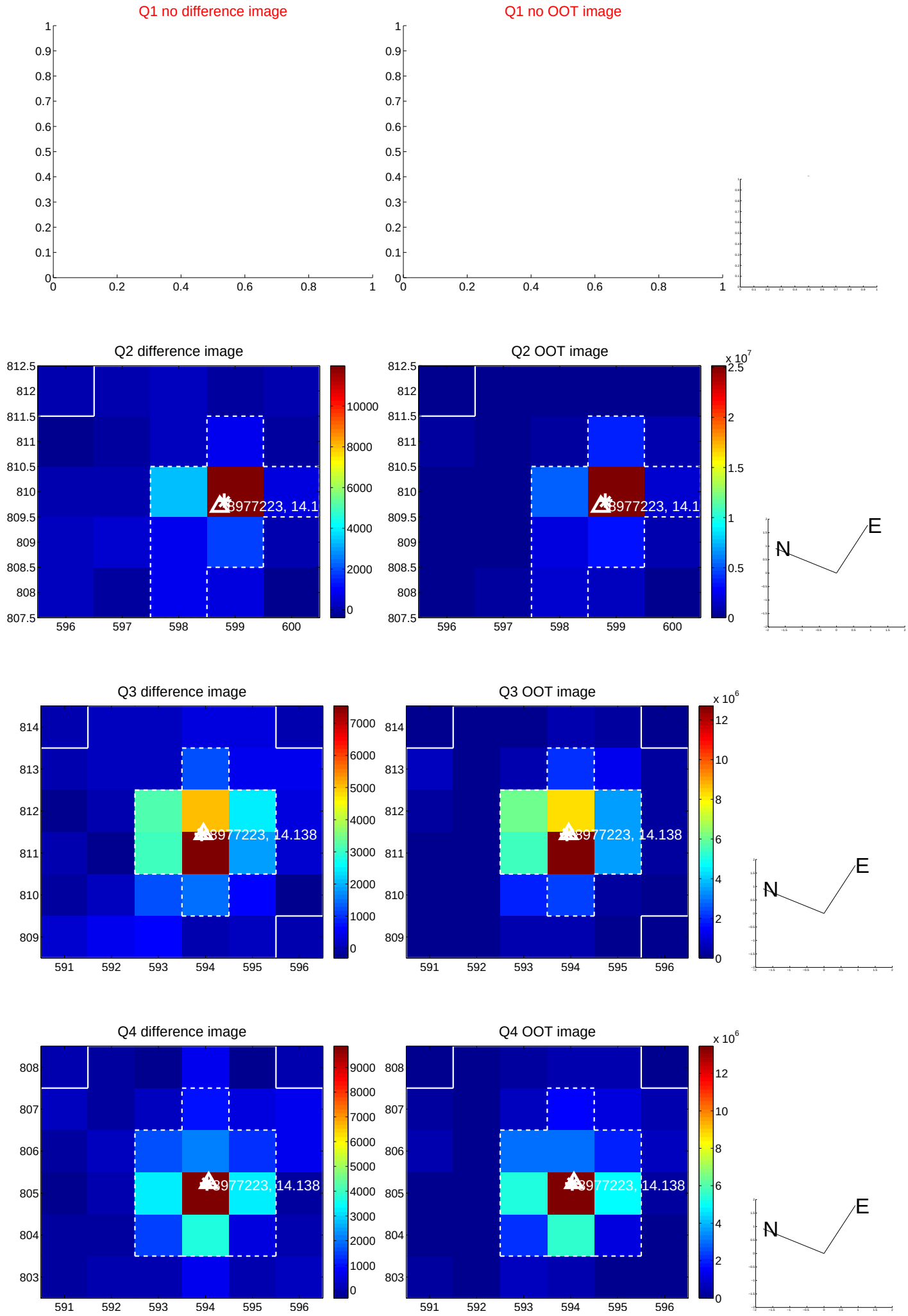
Supplemental centroid analysis for 008977223-01. Kepler magnitude: 14.14. Transit SNR 20.30
There are 15 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.094 ± 0.083	1.14	-0.082 ± 0.084	0.046 ± 0.078
PRF-fit source offset from KIC position	0.143 ± 0.082	1.75	-0.103 ± 0.079	0.099 ± 0.081
photometric centroid source offset	0.18 ± 0.17	1.05	-0.06 ± 0.18	-0.17 ± 0.17

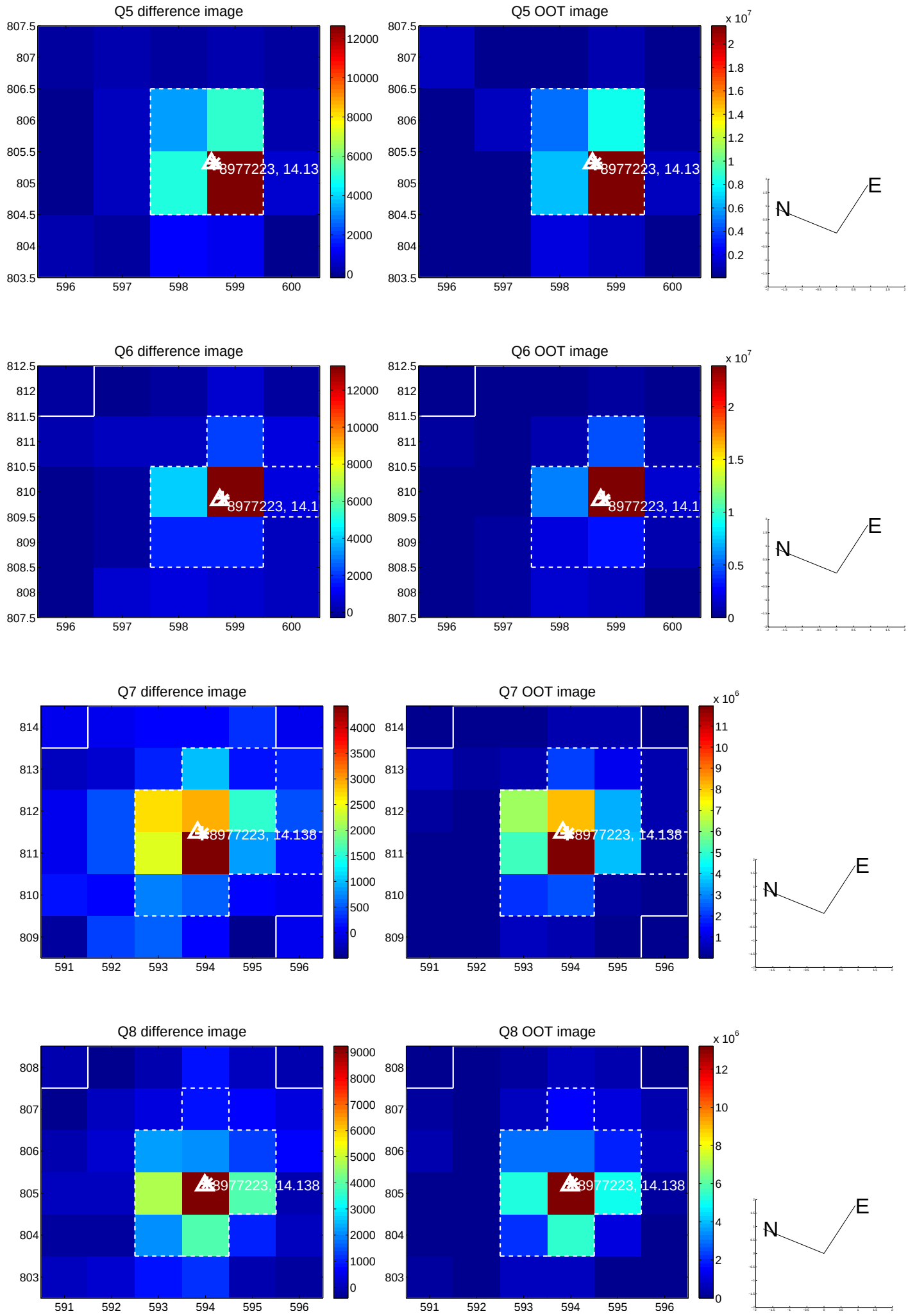


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

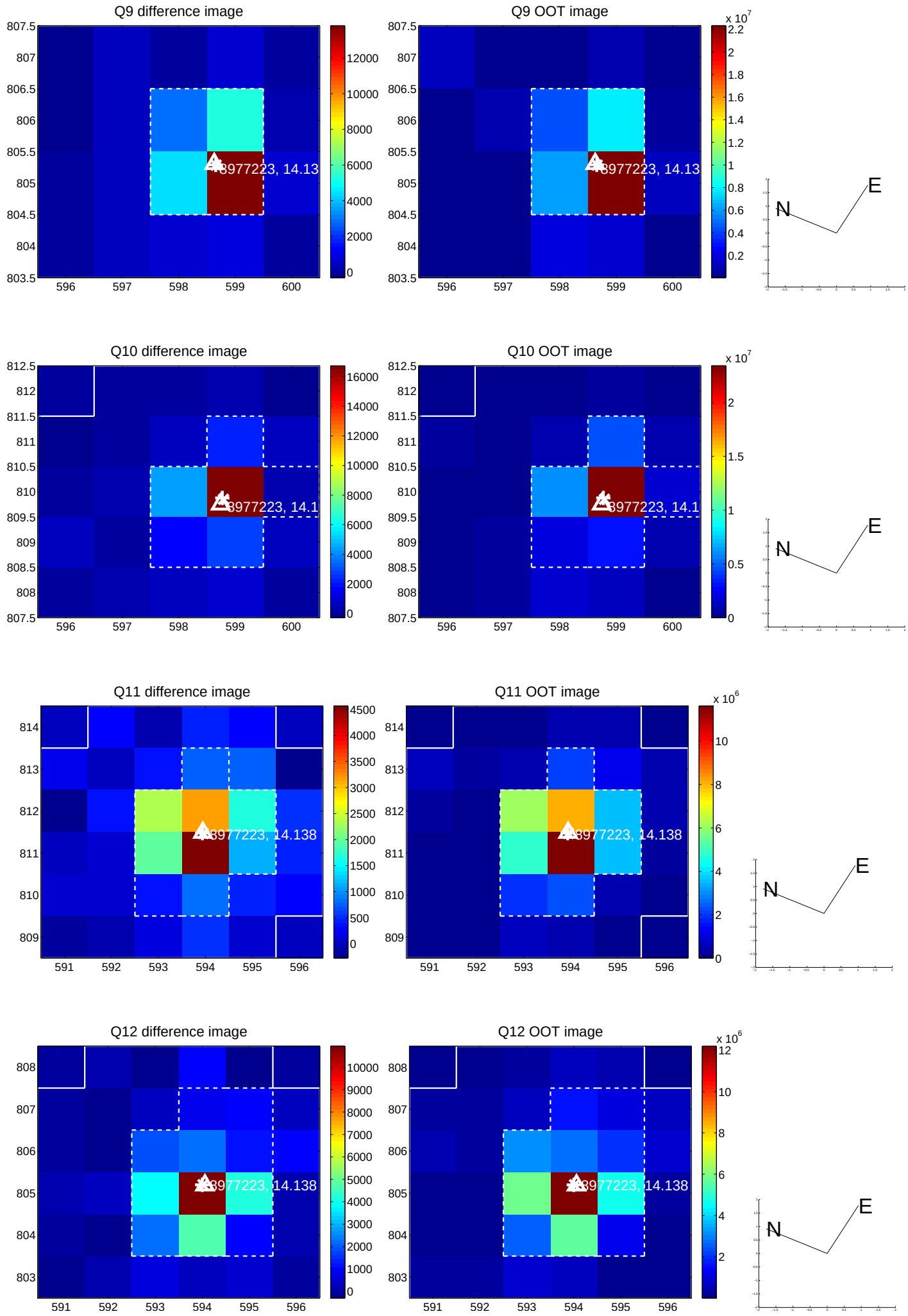
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



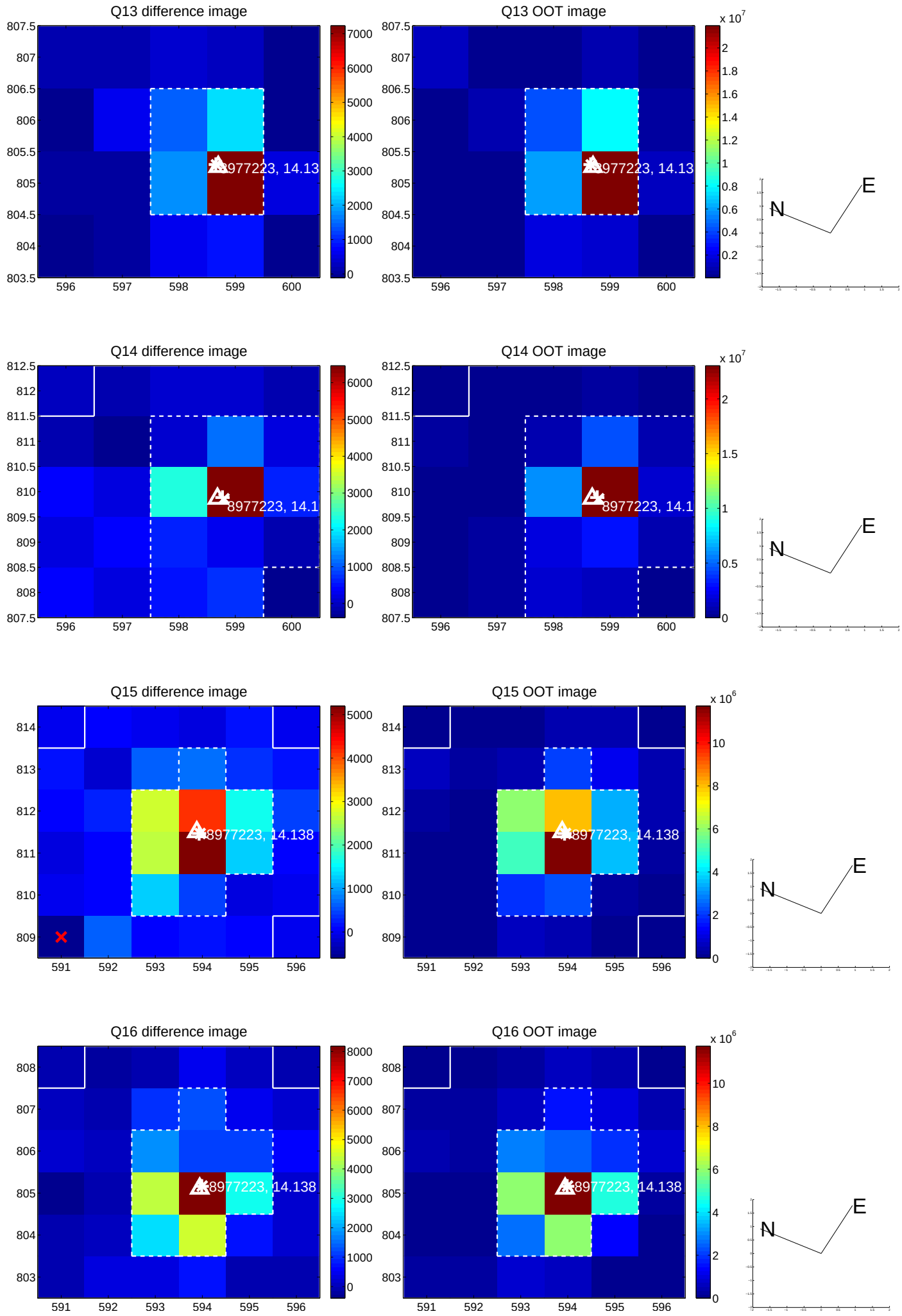
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



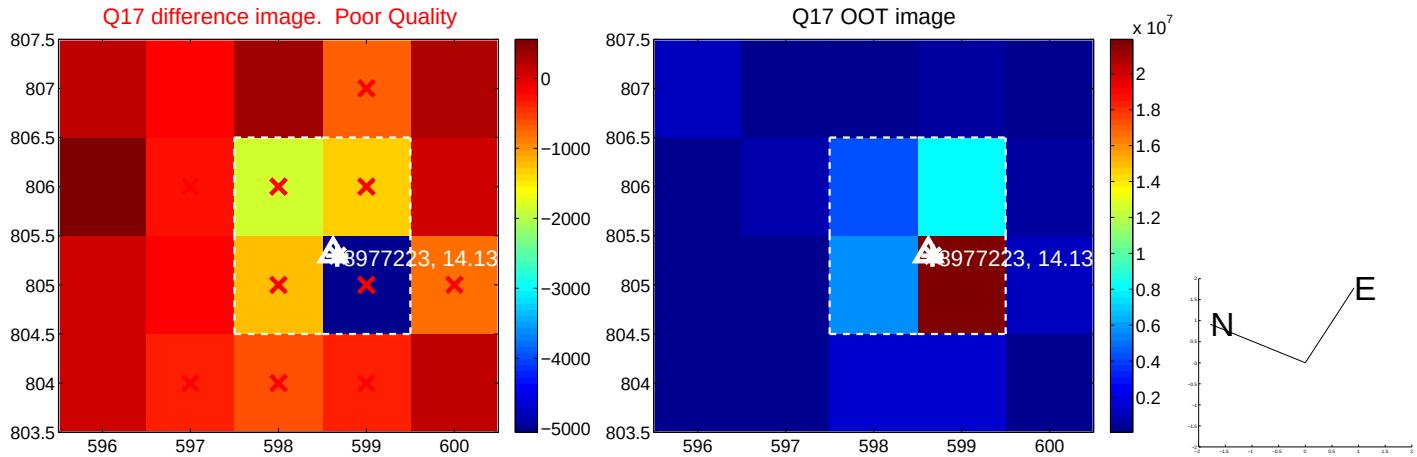
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

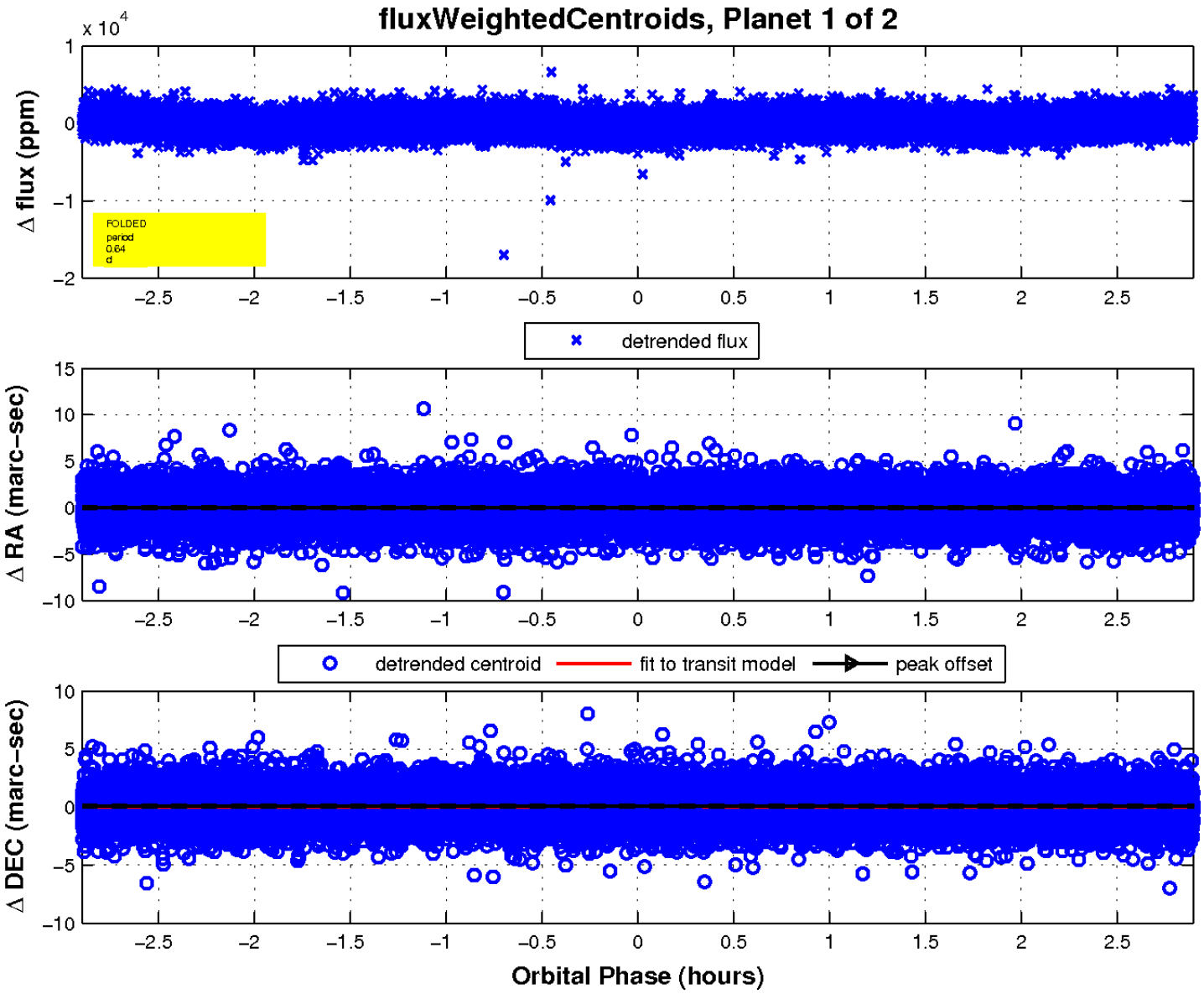


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

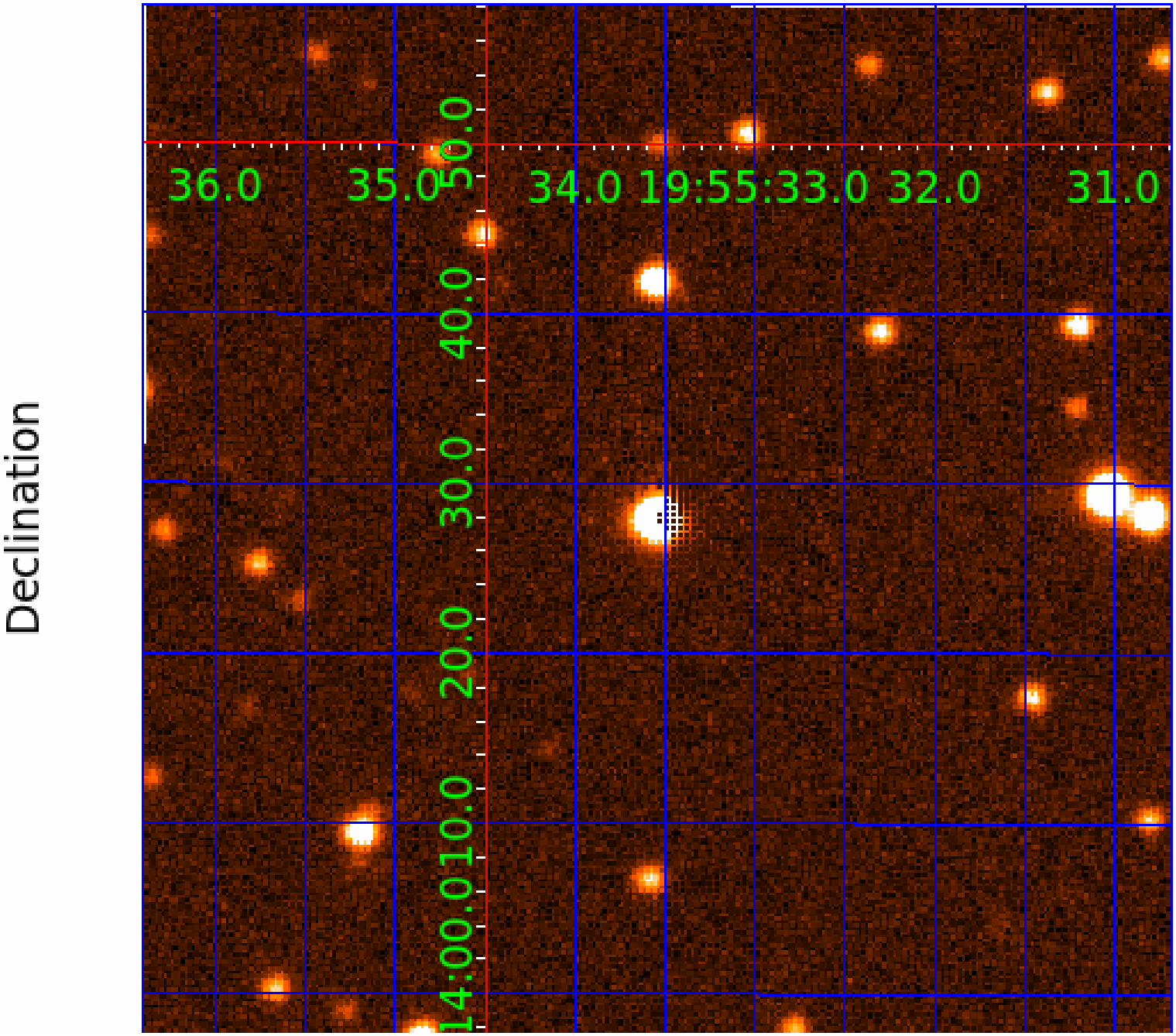


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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31.0

KIC 008977223

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 ($S_\oplus$)
008977223-01	OBS	No	0.642226	131.965153	345.1	0.966	16.5	20.3	2.84	6499	5.69	47844.72
008977223-02	OBS	No	0.642235	131.638885	329.6	0.889	12.1	17.4	2.84	6499	6.07	47843.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008977223-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008977223-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

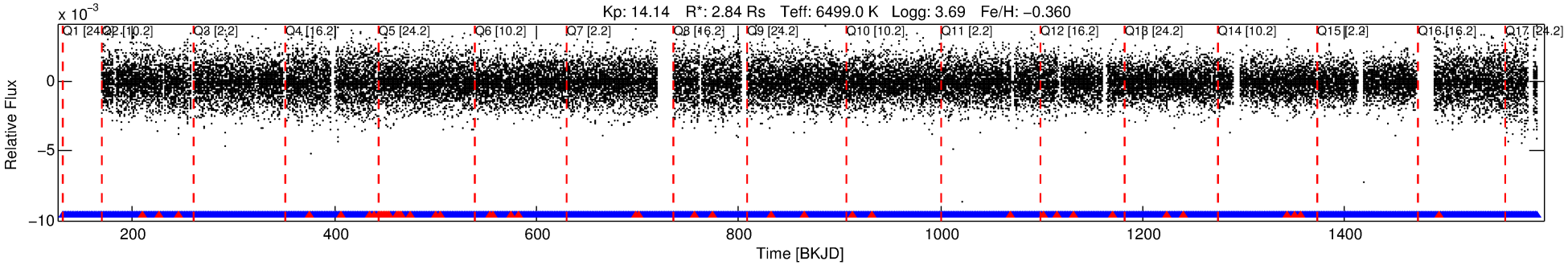
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

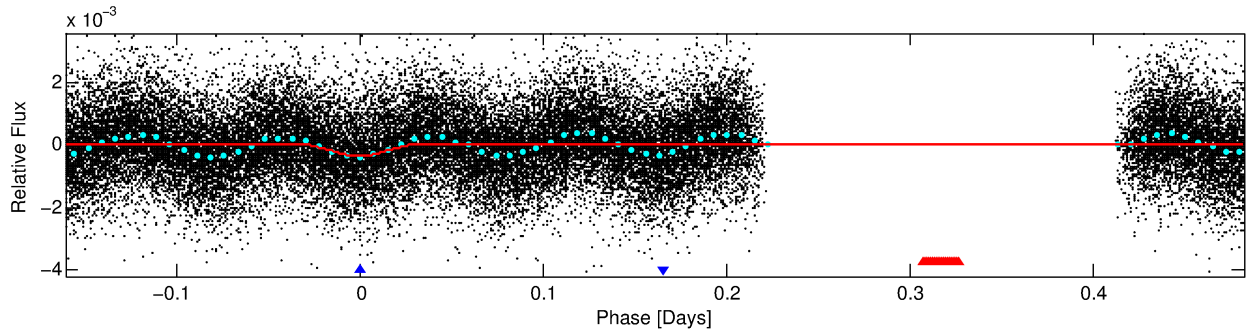
Ephemeris Match Information For 008977223-02

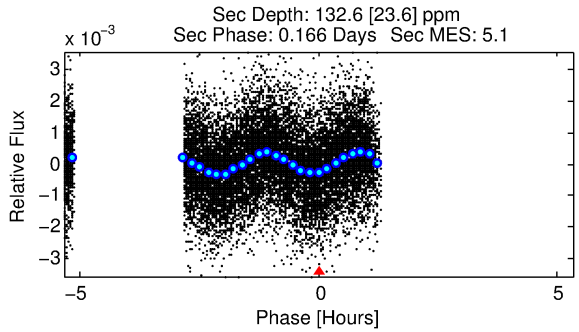
No Significant Match Found

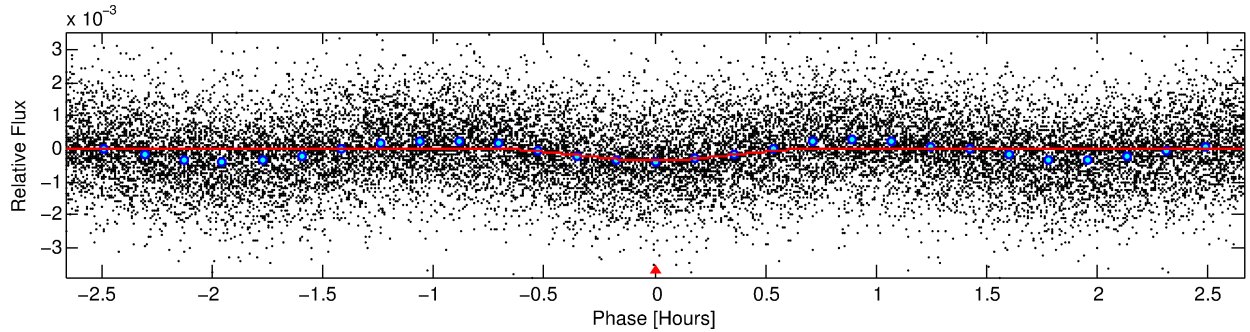
DV One-Page Summary

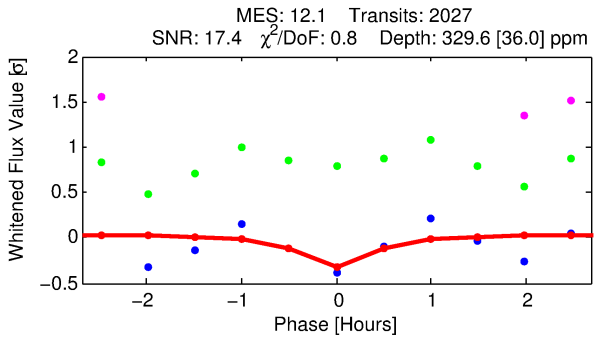
KIC: 8977223 Candidate: 2 of 2 Period: 0.642 d

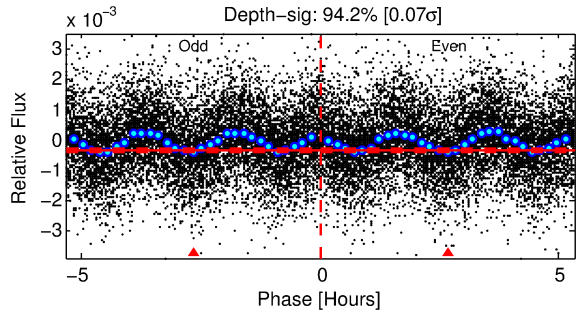


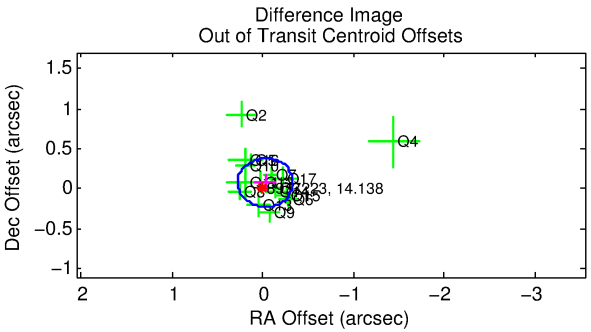












DV Fit Results:

Period = 0.64223 [0.00001] d
Epoch = 131.6389 [0.0010] BKJD
Rp/R* = 0.0196 [0.0074]
a/R* = 2.82 [5.25]
b = 0.90 [0.46]

Seff = 47843.88 [47757.06]
Teq = 3771 [941] K
Rp = 6.07 [4.09] Re
a = 0.0164 [0.0097] AU

Ag = 0.53 [0.67] [−0.70σ]
Teffp = 4980 [984] K [0.89σ]

DV Diagnostic Results:

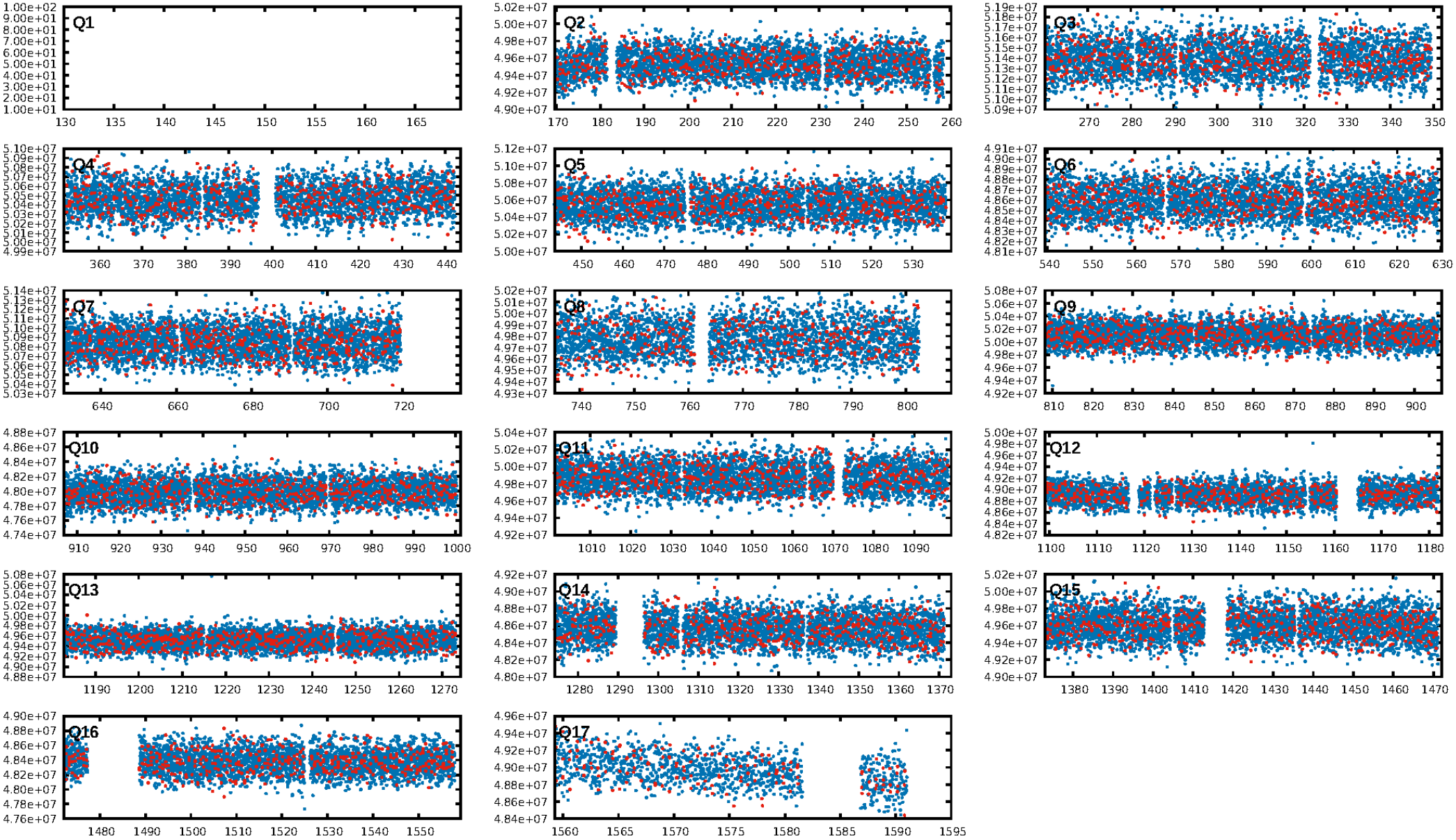
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 2.56e−57
RollingBand−fgt: 0.97 [1932/1985]
GhostDiagnostic−chr: 2.98

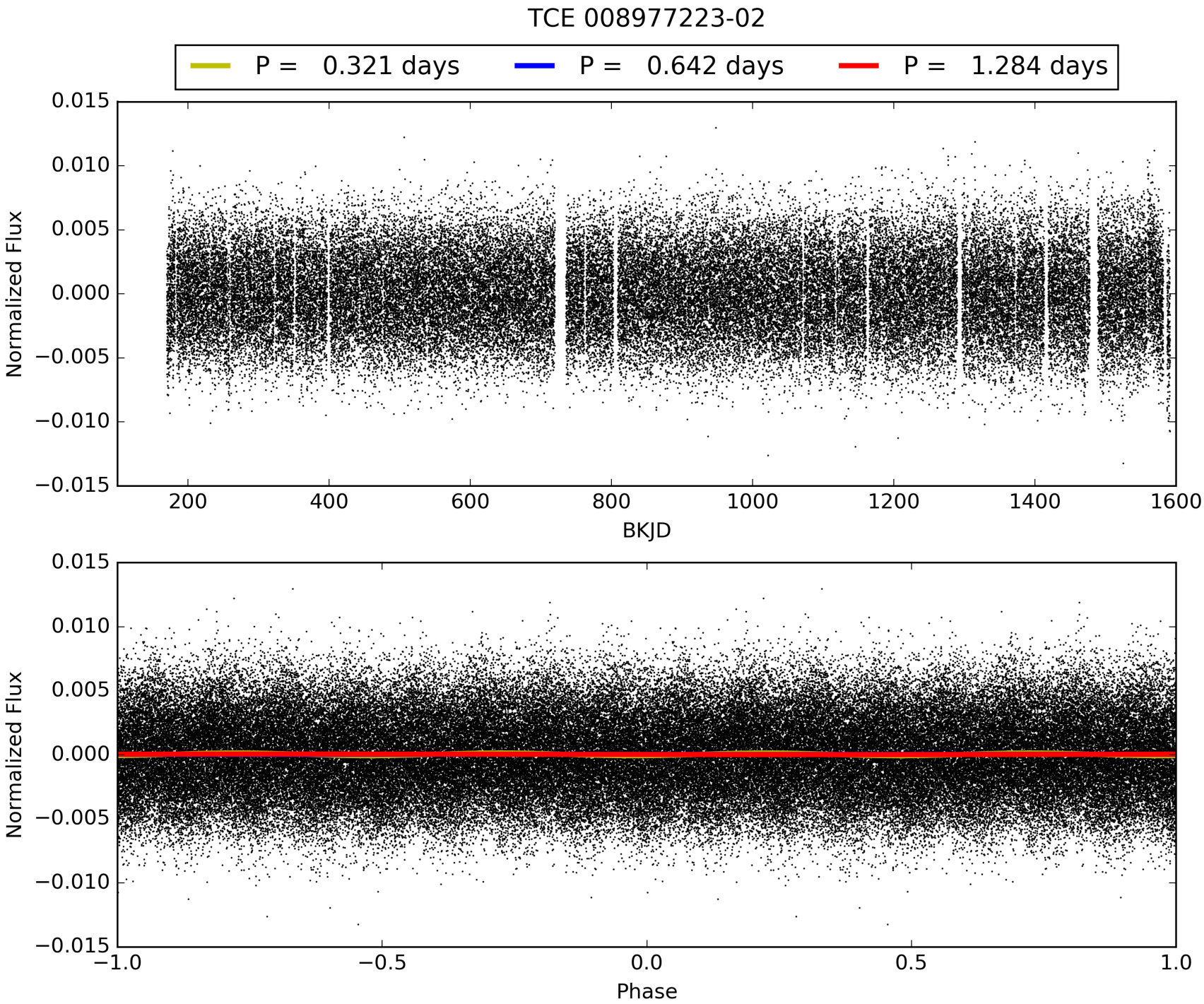
Centroid−sig: 0.0%
Centroid−so: 0.739 arcsec [3.84σ]
OotOffset−rm: 0.083 arcsec [0.82σ]
KicOffset−rm: 0.158 arcsec [1.54σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 1.00 [16/16]
DiffImageOverlap−fno: 1.00 [16/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 16:34:31 Z

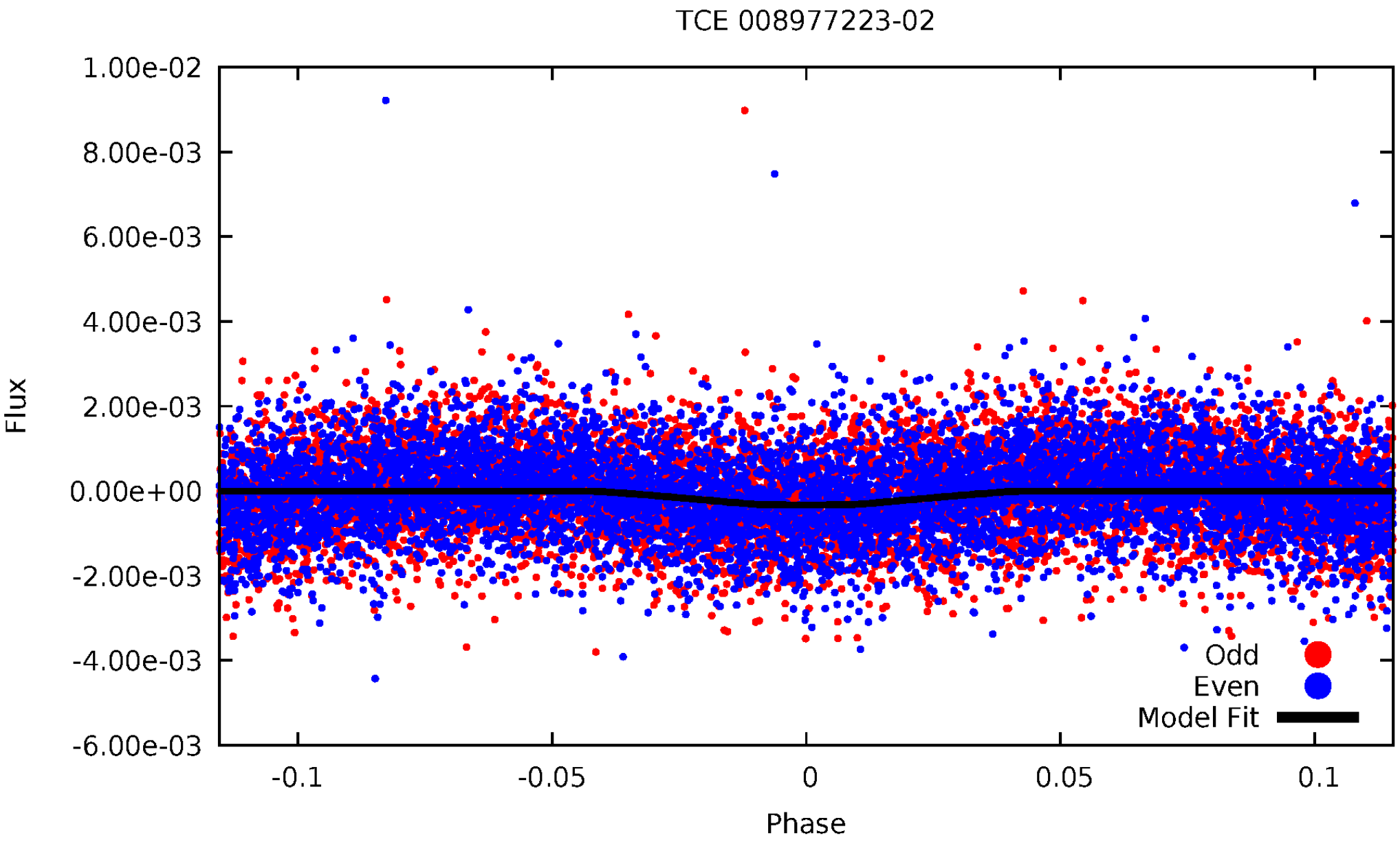
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008977223-02, PDC Light Curves

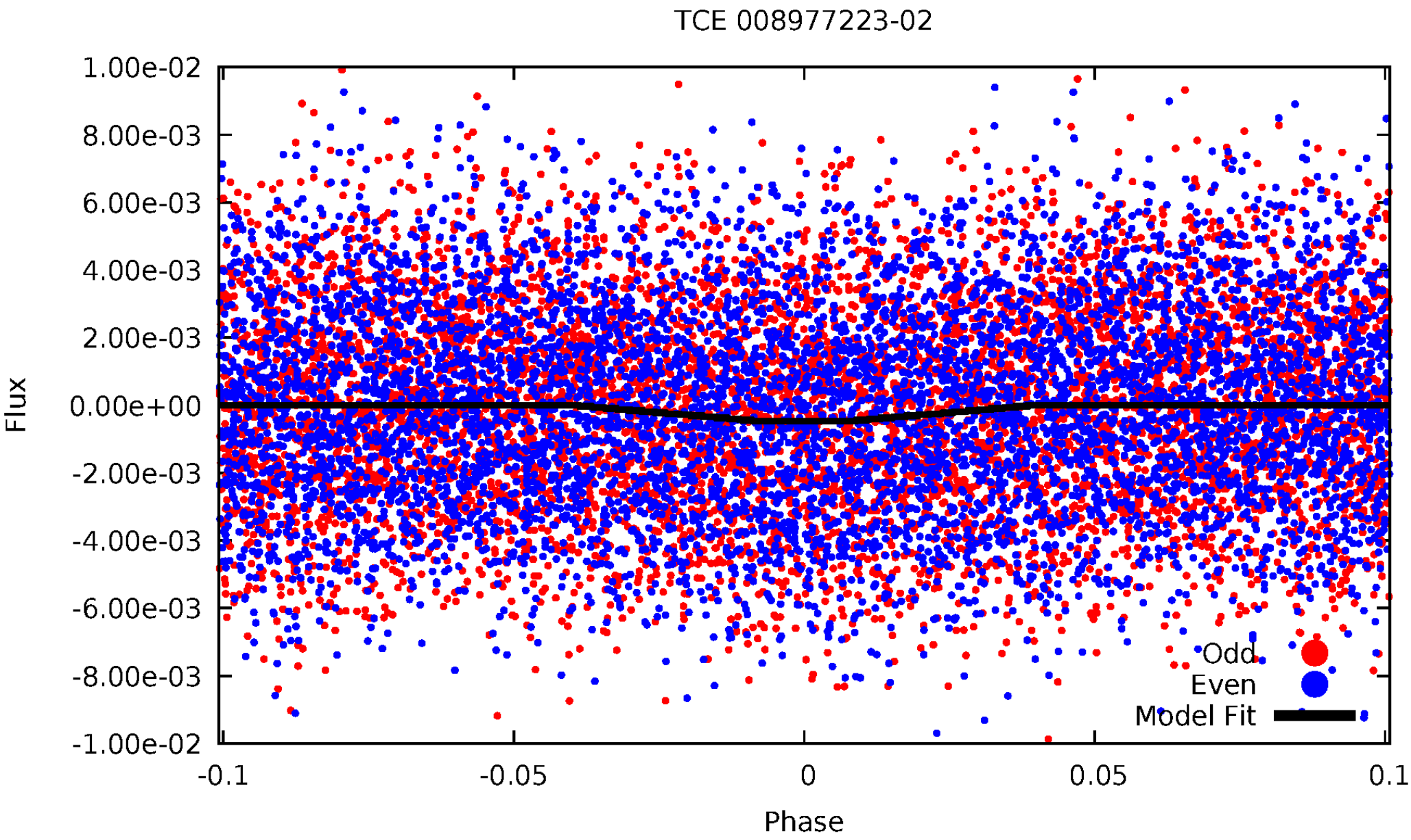



TCE 008977223-02
P = 0.321 days
P = 0.642 days
P = 1.284 days
Normalized Flux
BKJD
Normalized Flux
Phase

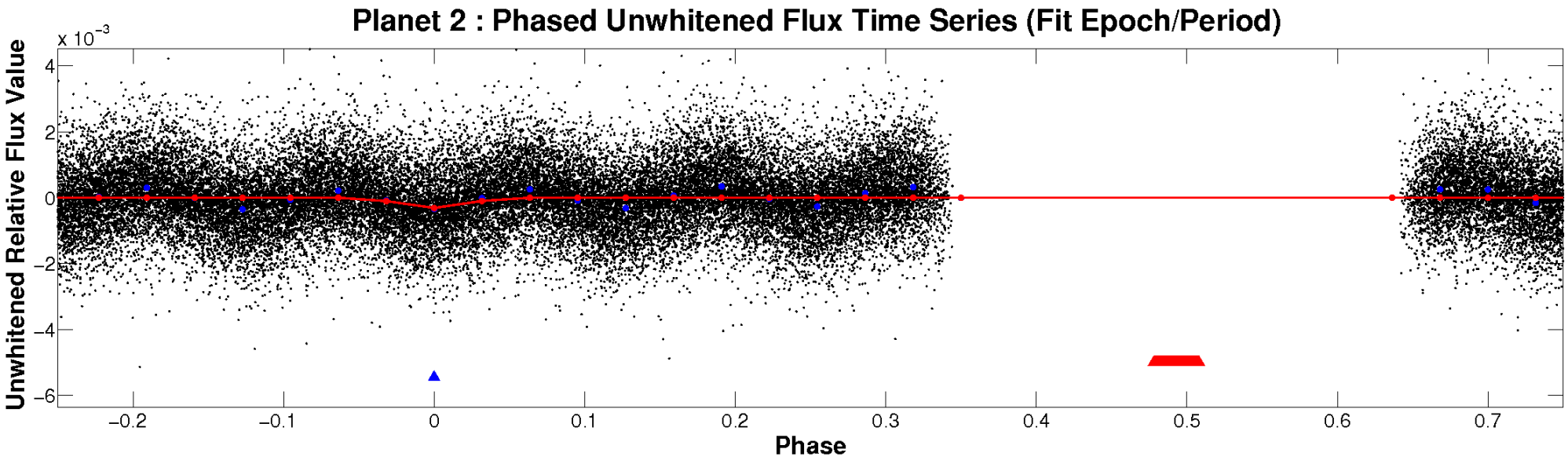
DV Odd/Even

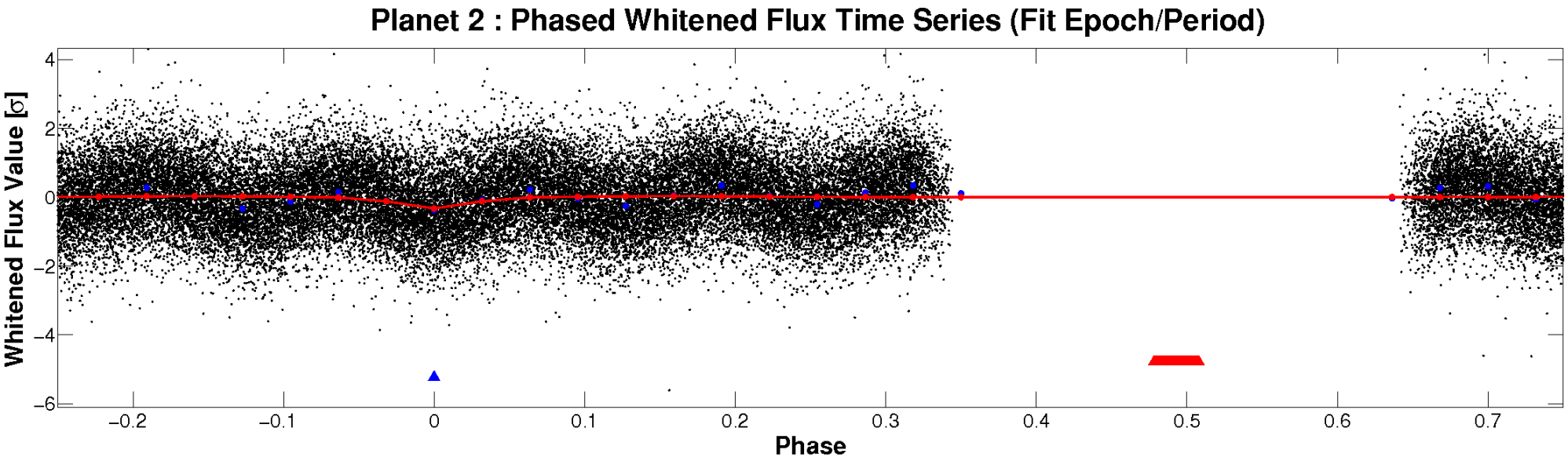

TCE 008977223-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008977223-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
-8.00e-03
-1.00e-02
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

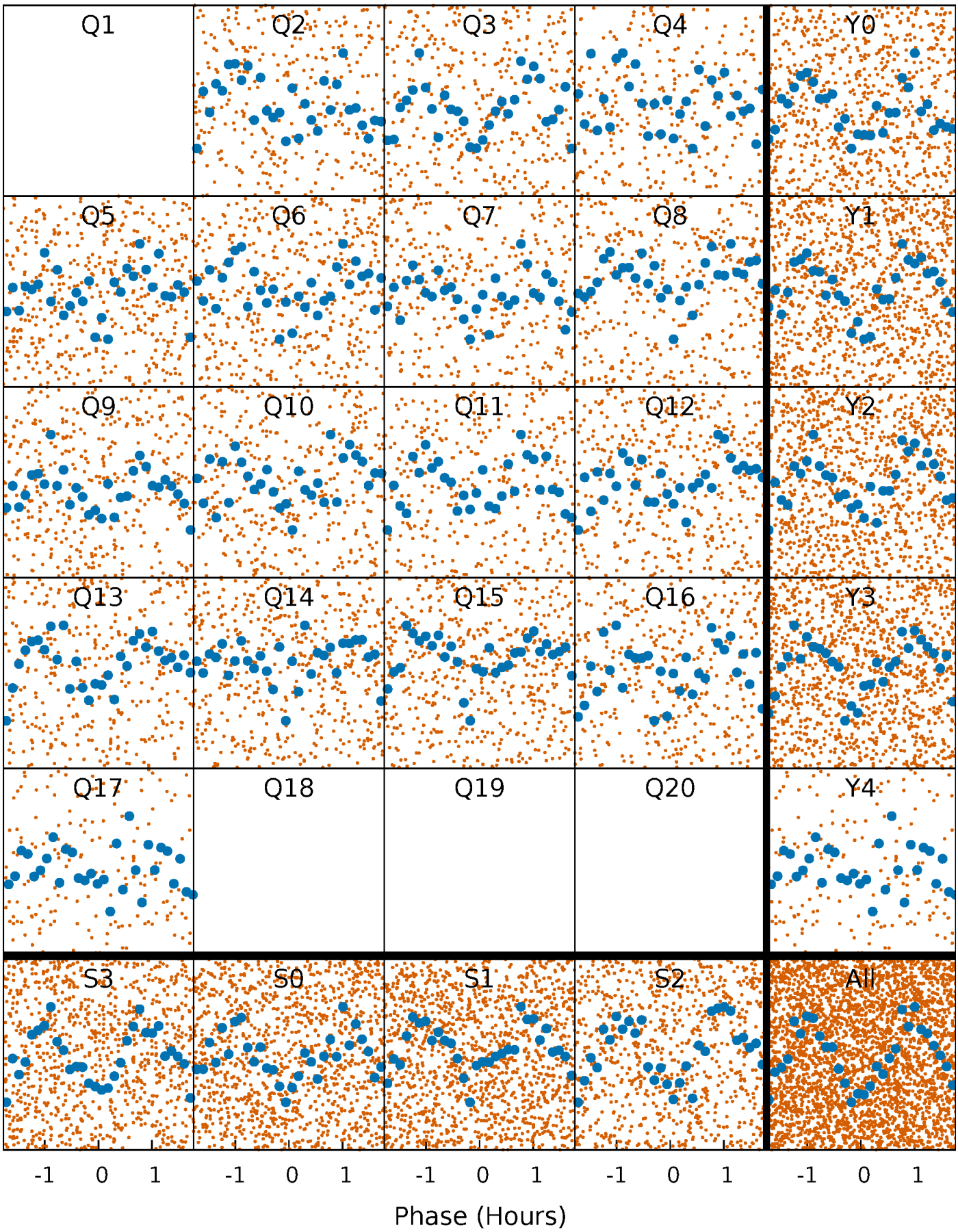
Non-Whitened Vs. Whitened Light Curve





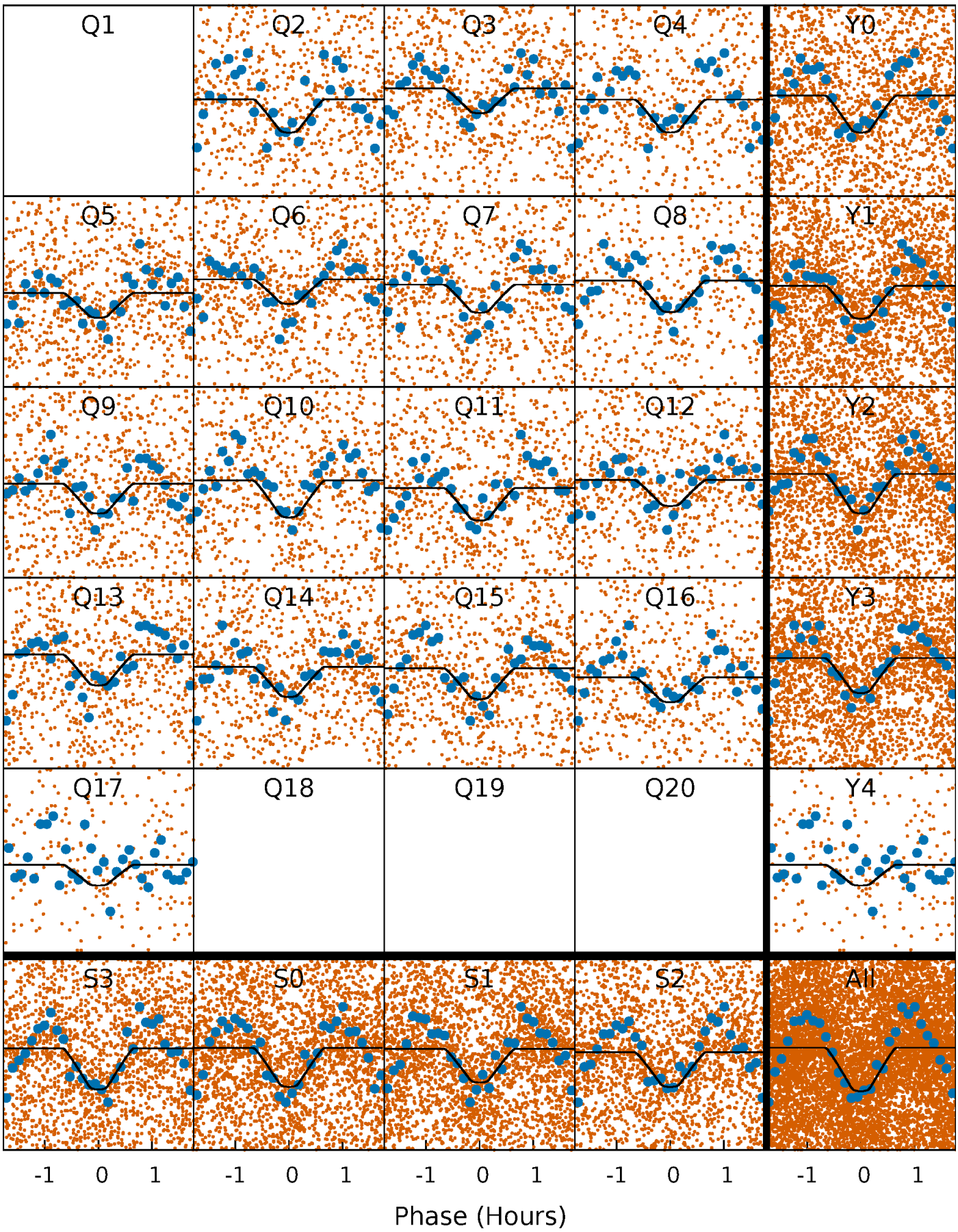
PDC Quarter-Phased Transit Curves

TCE 008977223-02 P= 0.642235 Days T_0=131.638885 (BKJD)



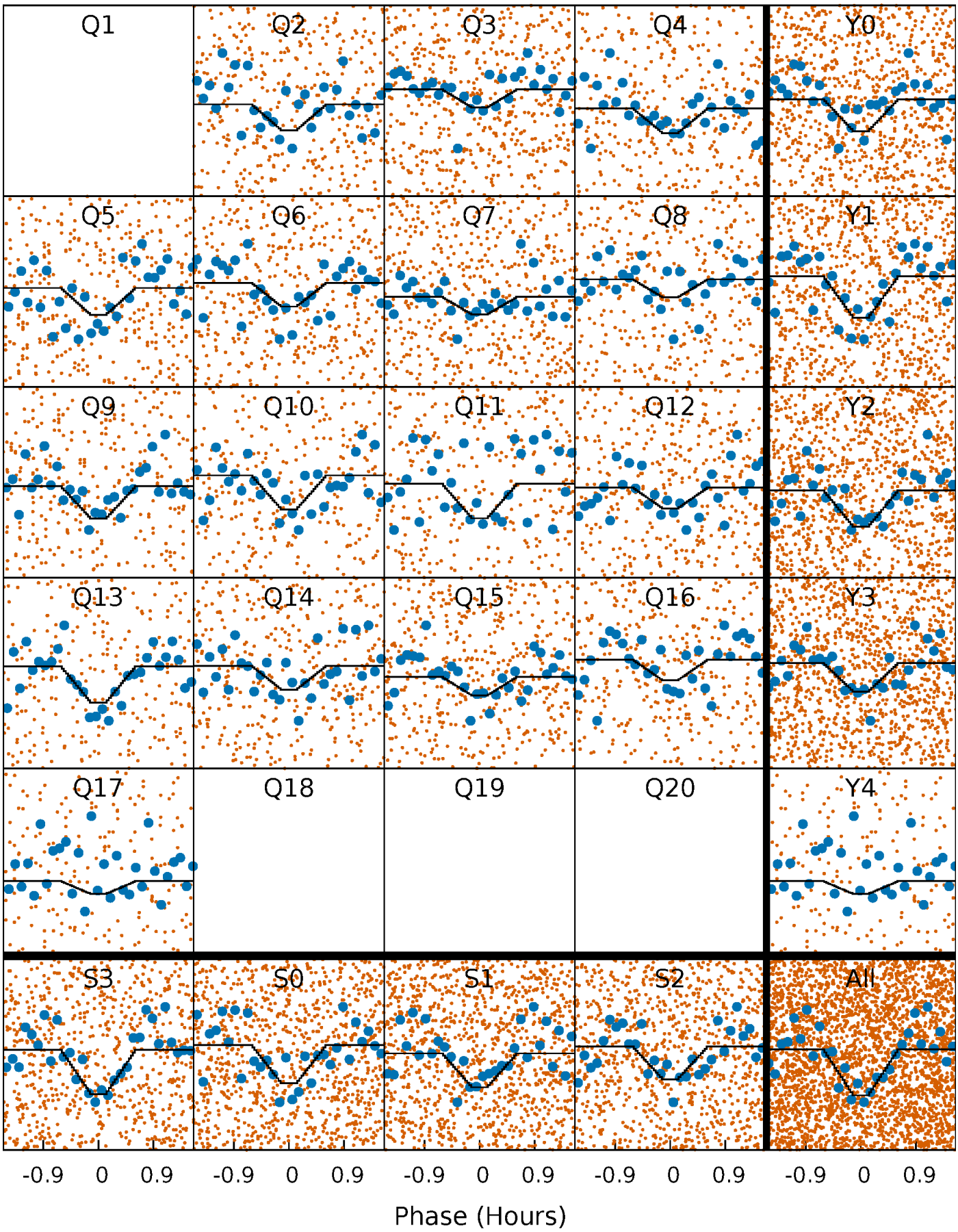
DV Quarter-Phased Transit Curves

TCE 008977223-02 P= 0.642235 Days T_0=131.638885 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

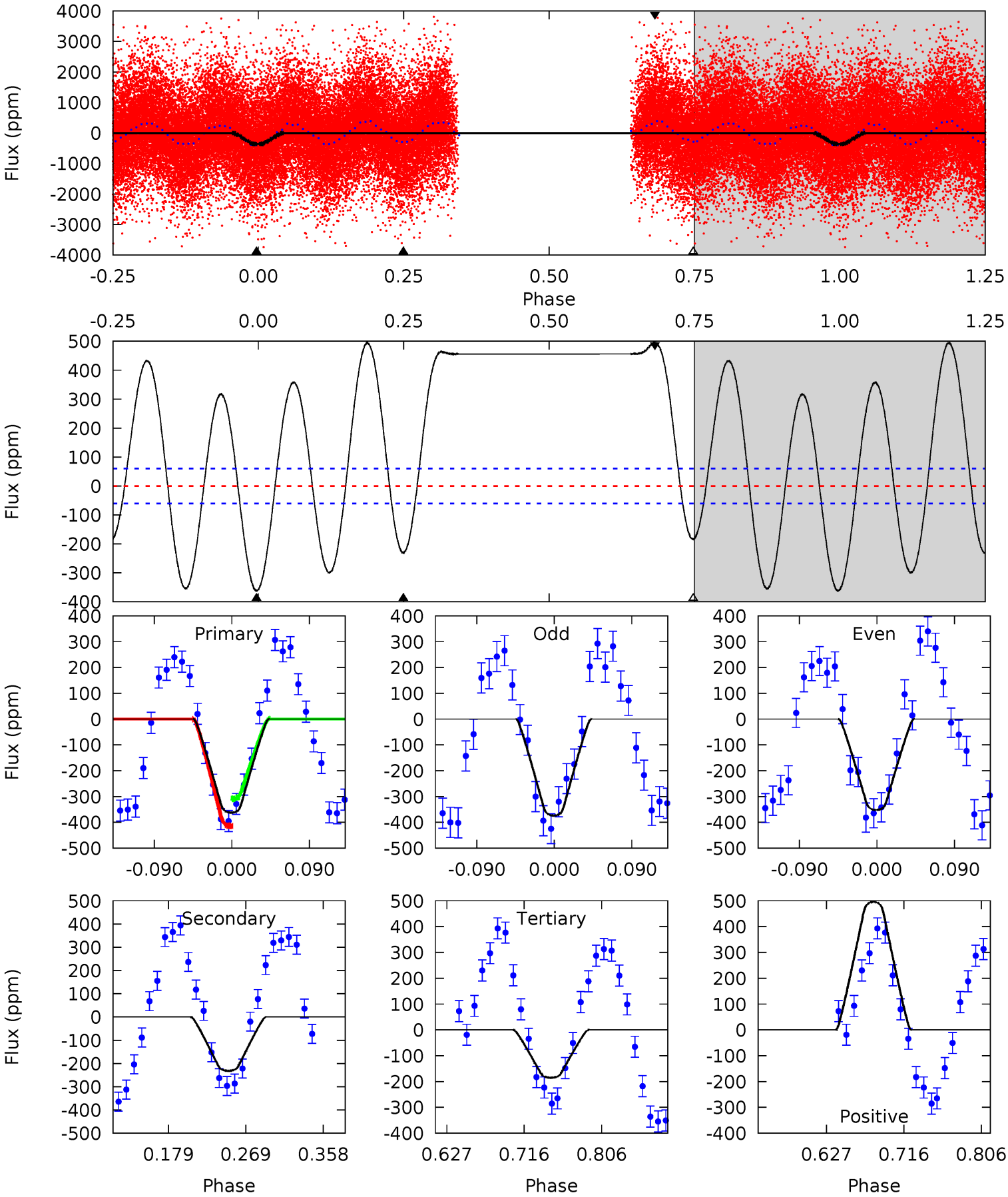
TCE 008977223-02 P= 0.642227 Days T_0=131.645853 (BKJD)



DV Model-Shift Uniqueness Test

008977223-02, P = 0.642235 Days, E = 131.638885 Days

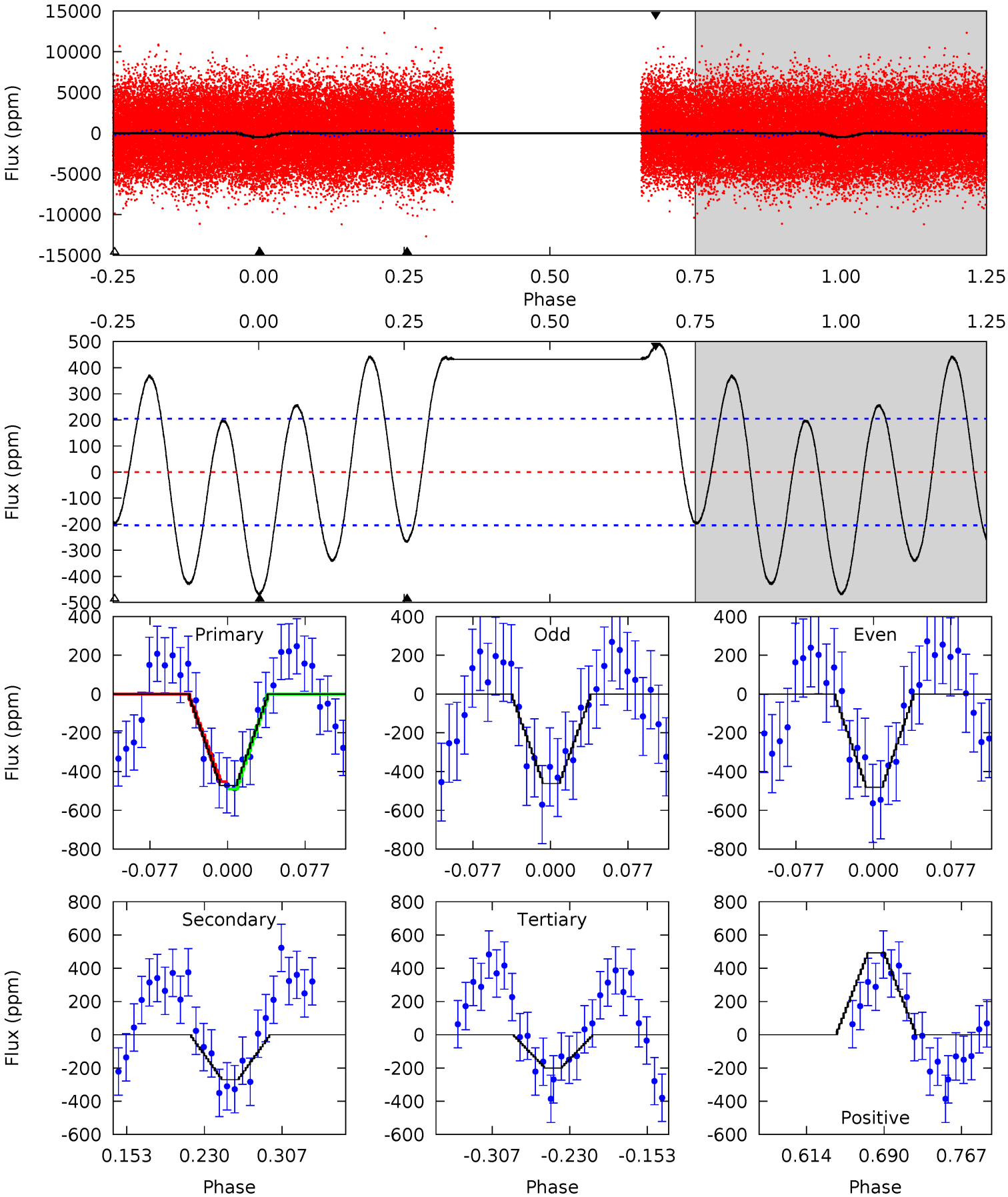
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.6	17.6	14.1	37.7	4.59	1.70	21.0	13.5	-10.1	3.54	-20.1	0.82	0.94	0.58	3.98



Alt Model-Shift Uniqueness Test

008977223-02, P = 0.642227 Days, E = 131.645853 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	6.12	4.54	11.2	4.62	1.77	6.25	6.13	-0.49	1.58	-5.04	0.22	0.95	0.51	0.43



Stellar Parameters For KIC 008977223

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6499^{+205}_{-250}	$3.686^{+0.595}_{-0.105}$	$-0.360^{+0.300}_{-0.300}$	$2.836^{+0.528}_{-1.583}$	$1.423^{+0.202}_{-0.404}$	$0.088^{+0.685}_{-0.027}$
	+3%/-4%	+16%/-3%	+83%/-83%	+19%/-56%	+14%/-28%	+780%/-31%
Source	PHO1	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 008977223-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-232±13	$5.52^{+2.65}_{-2.35}$	5104^{+402}_{-712}	5214^{+1797}_{-1075}	$1.116^{+2.200}_{-0.597}$
Alt.	-270±44	$5.86^{+2.83}_{-2.29}$	5103^{+424}_{-749}	5220^{+1494}_{-1065}	$1.106^{+1.881}_{-0.589}$

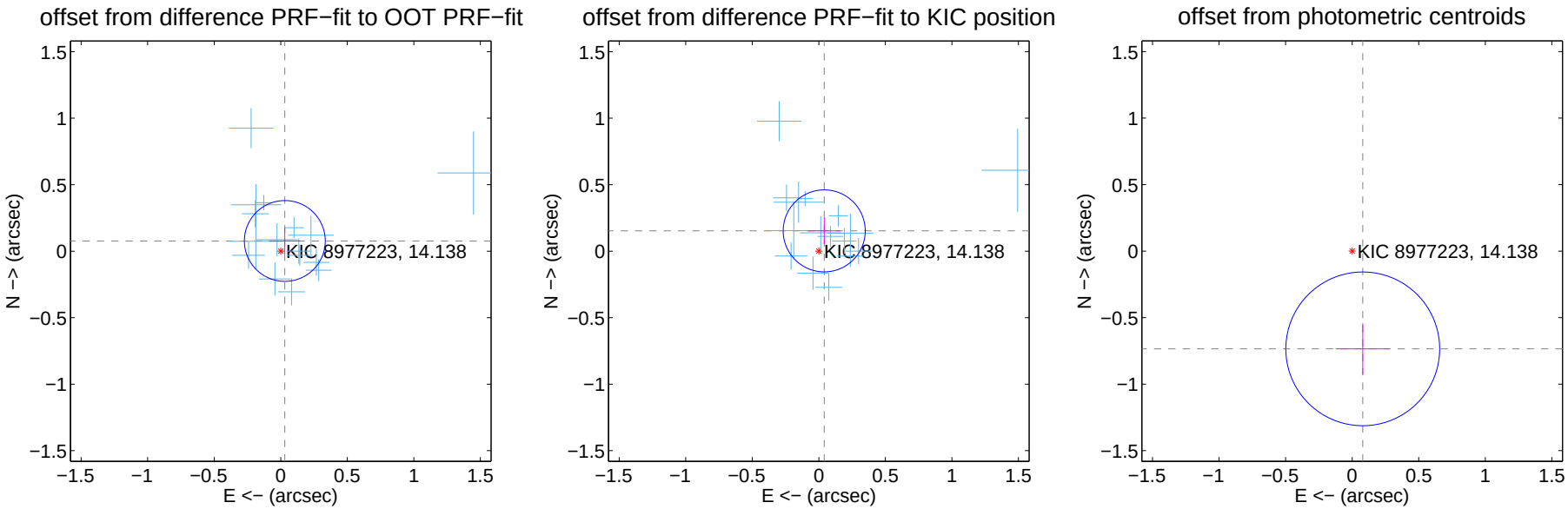
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

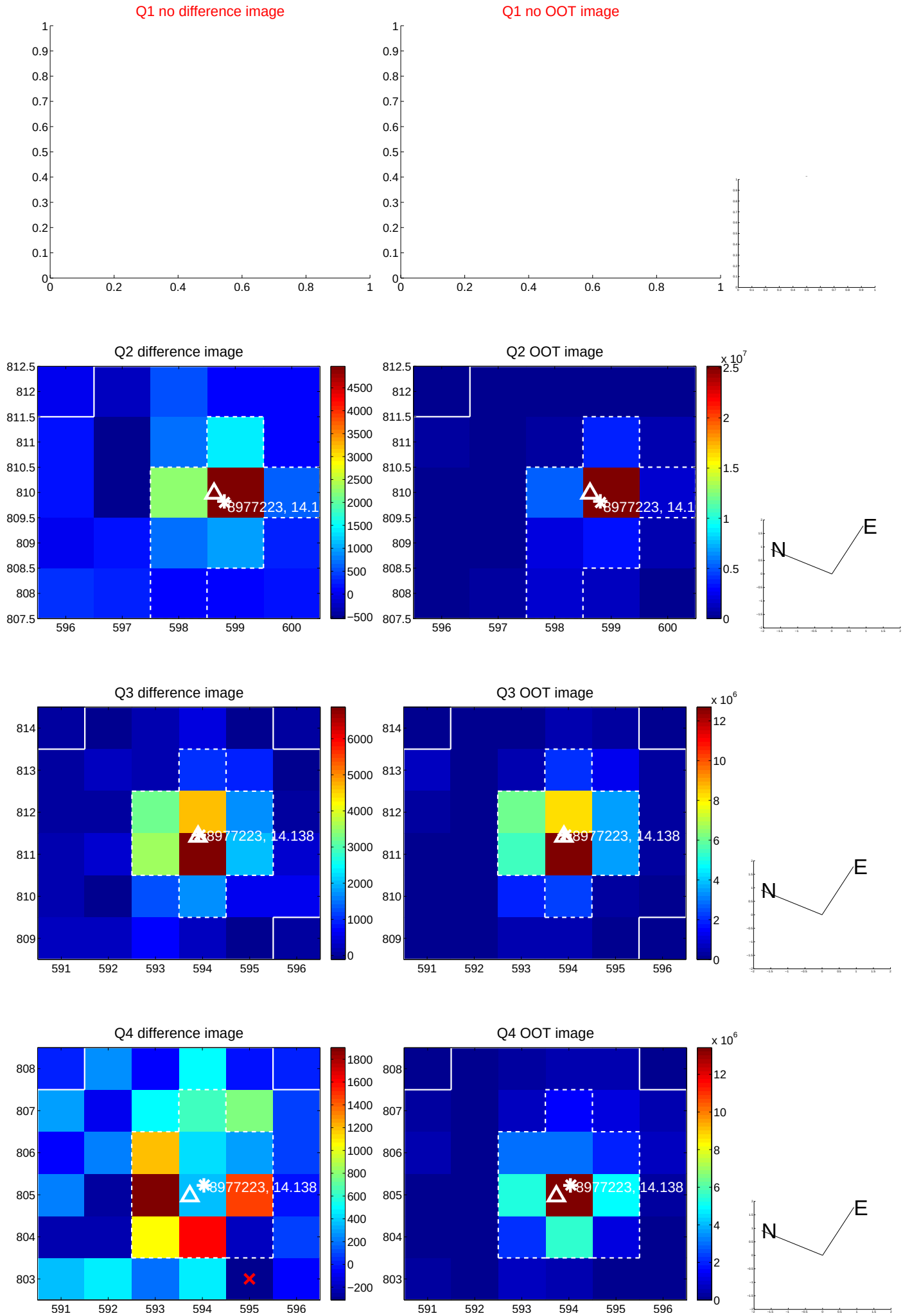
Supplemental centroid analysis for 008977223-02. Kepler magnitude: 14.14. Transit SNR 17.41
There are 16 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.083 ± 0.101	0.82	-0.031 ± 0.117	0.077 ± 0.099
PRF-fit source offset from KIC position	0.158 ± 0.103	1.54	-0.041 ± 0.122	0.153 ± 0.101
photometric centroid source offset	0.74 ± 0.19	3.84	-0.08 ± 0.20	-0.73 ± 0.19

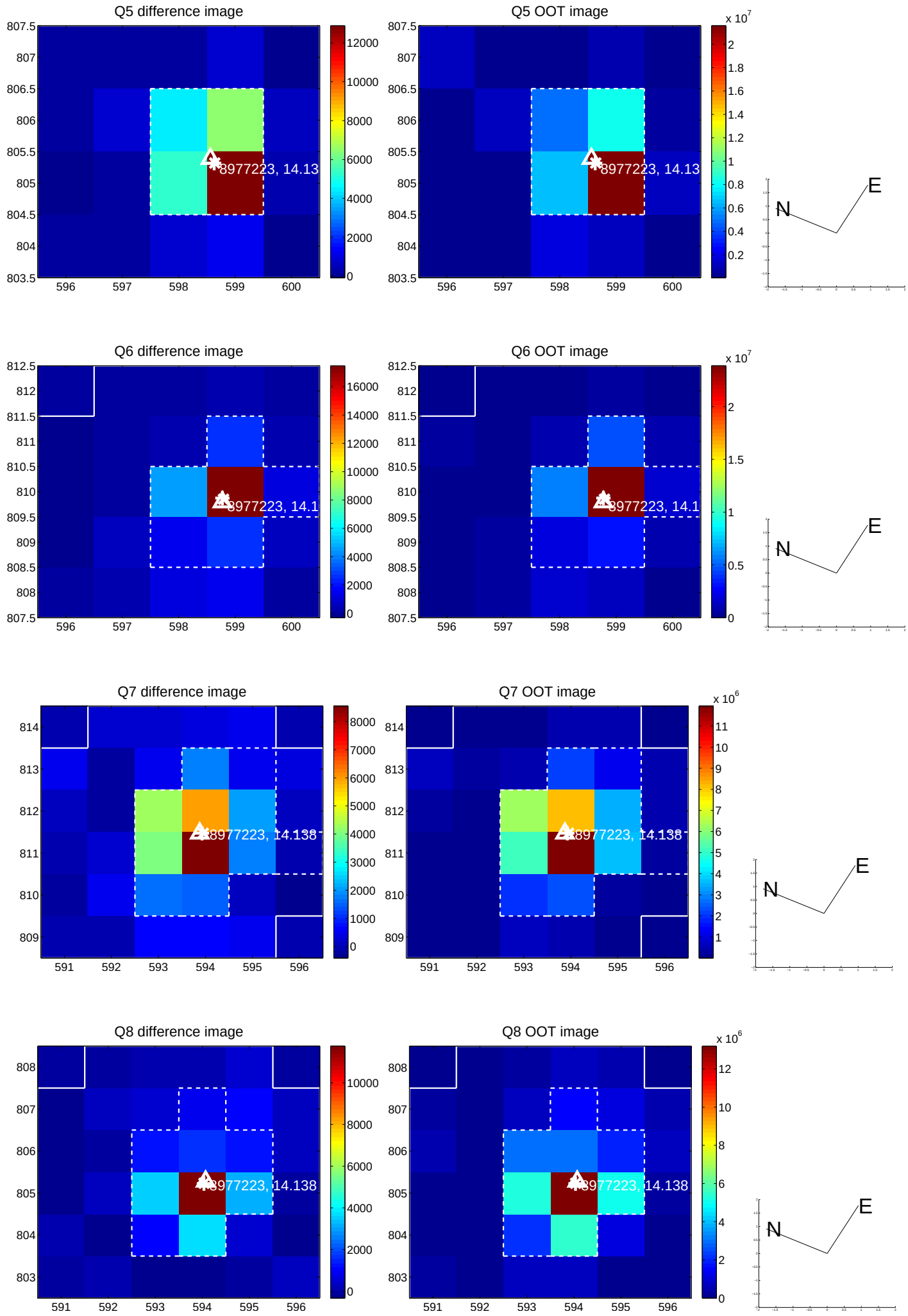


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

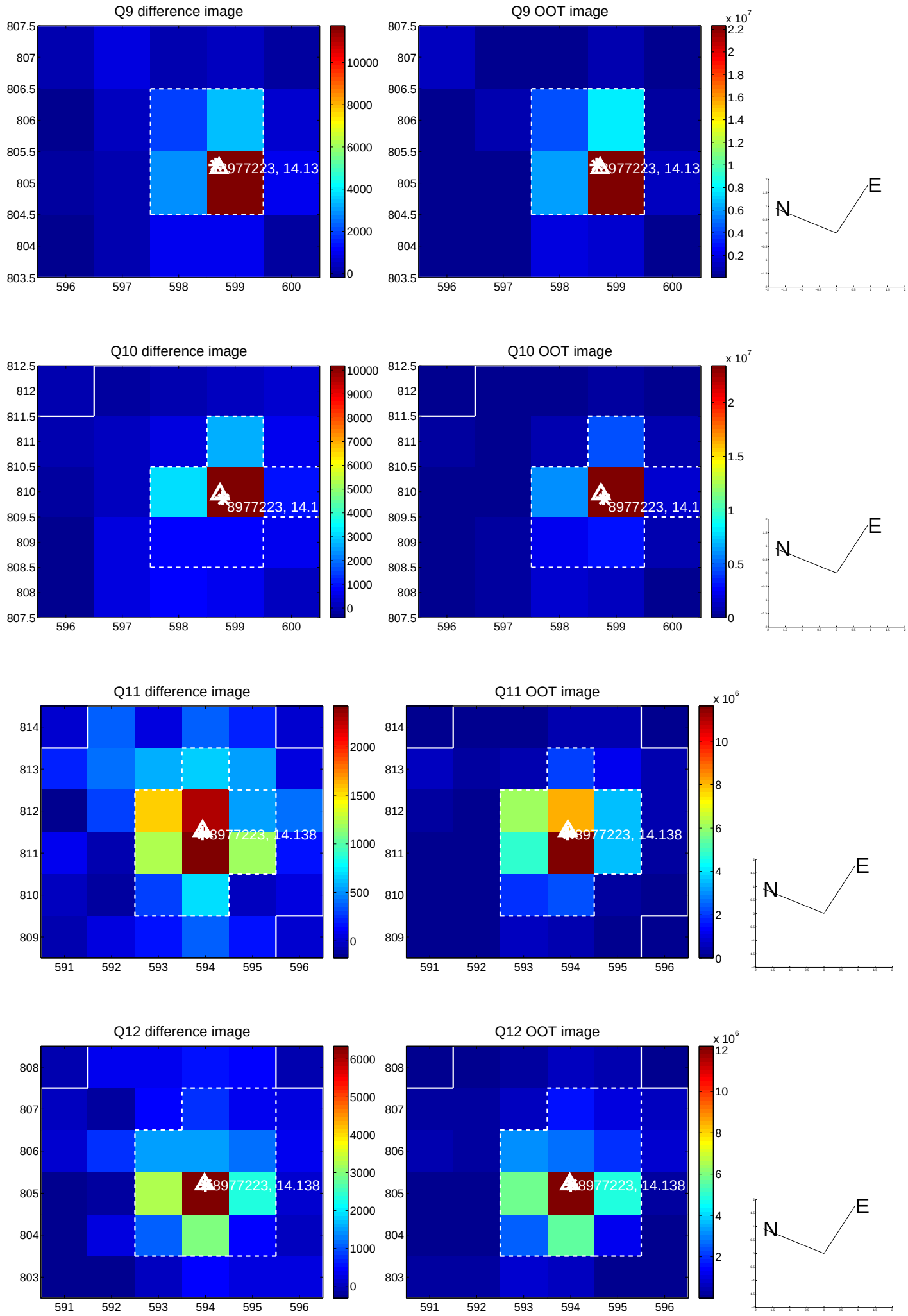
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



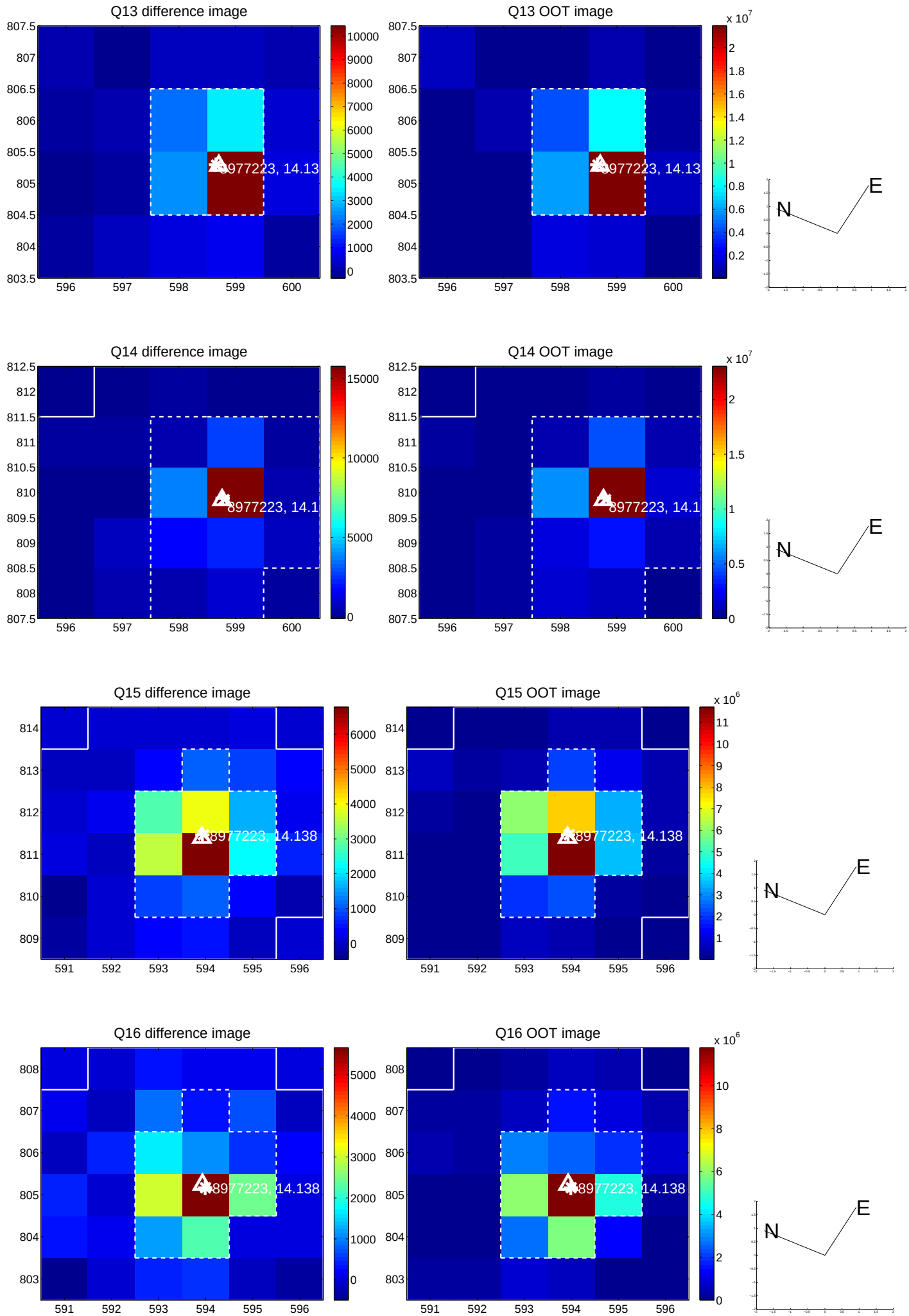
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



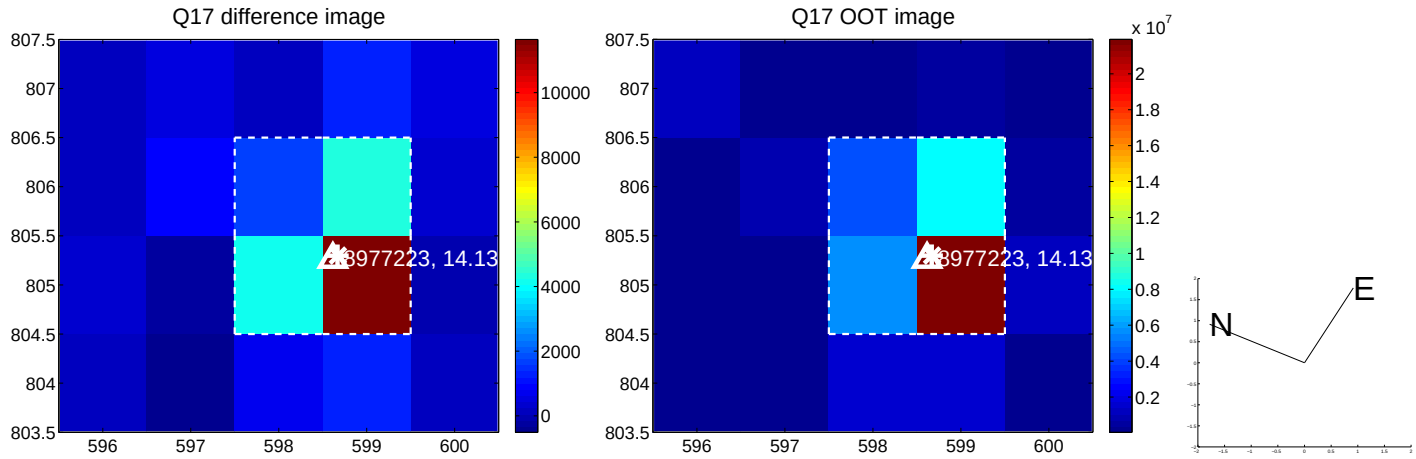
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

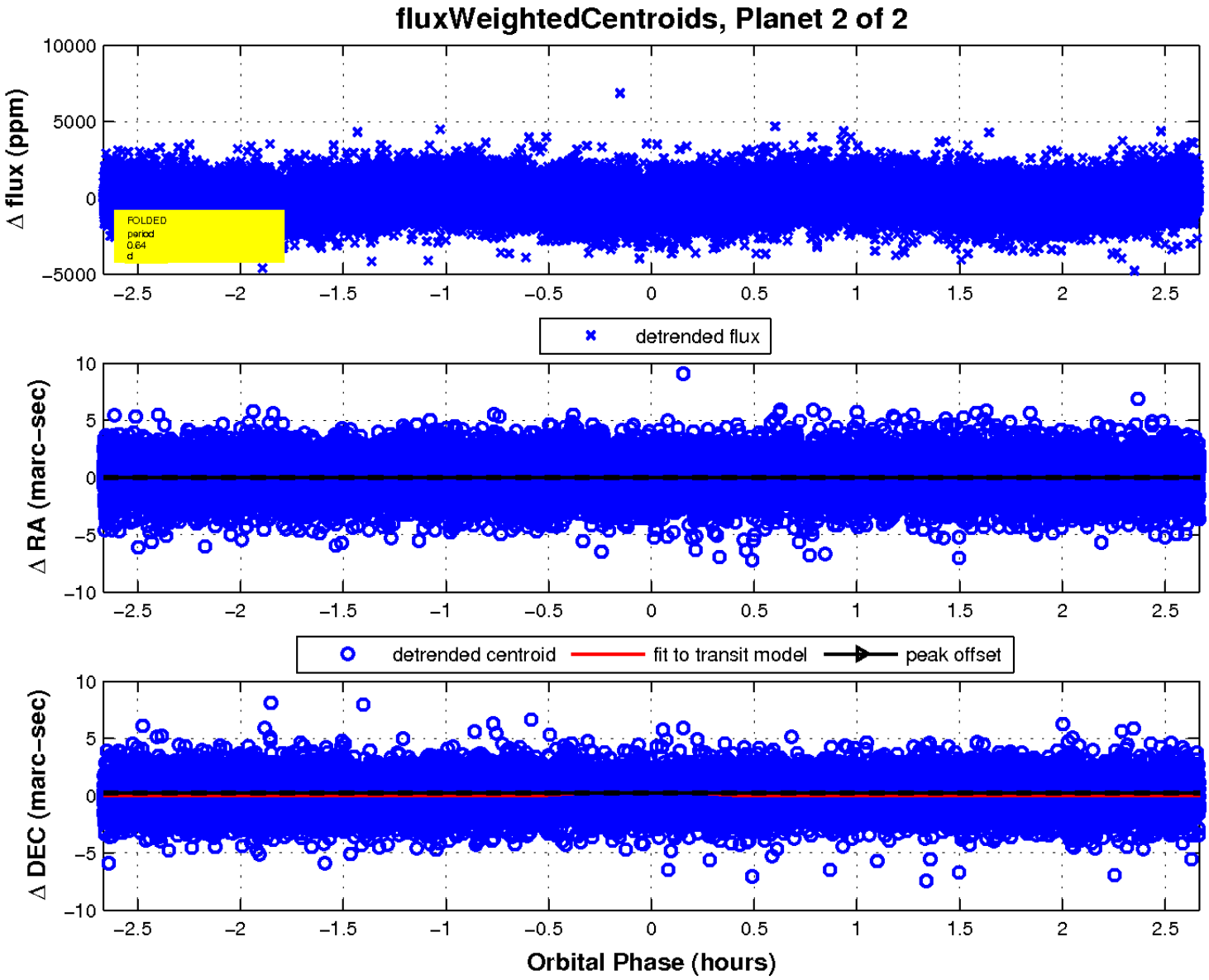


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

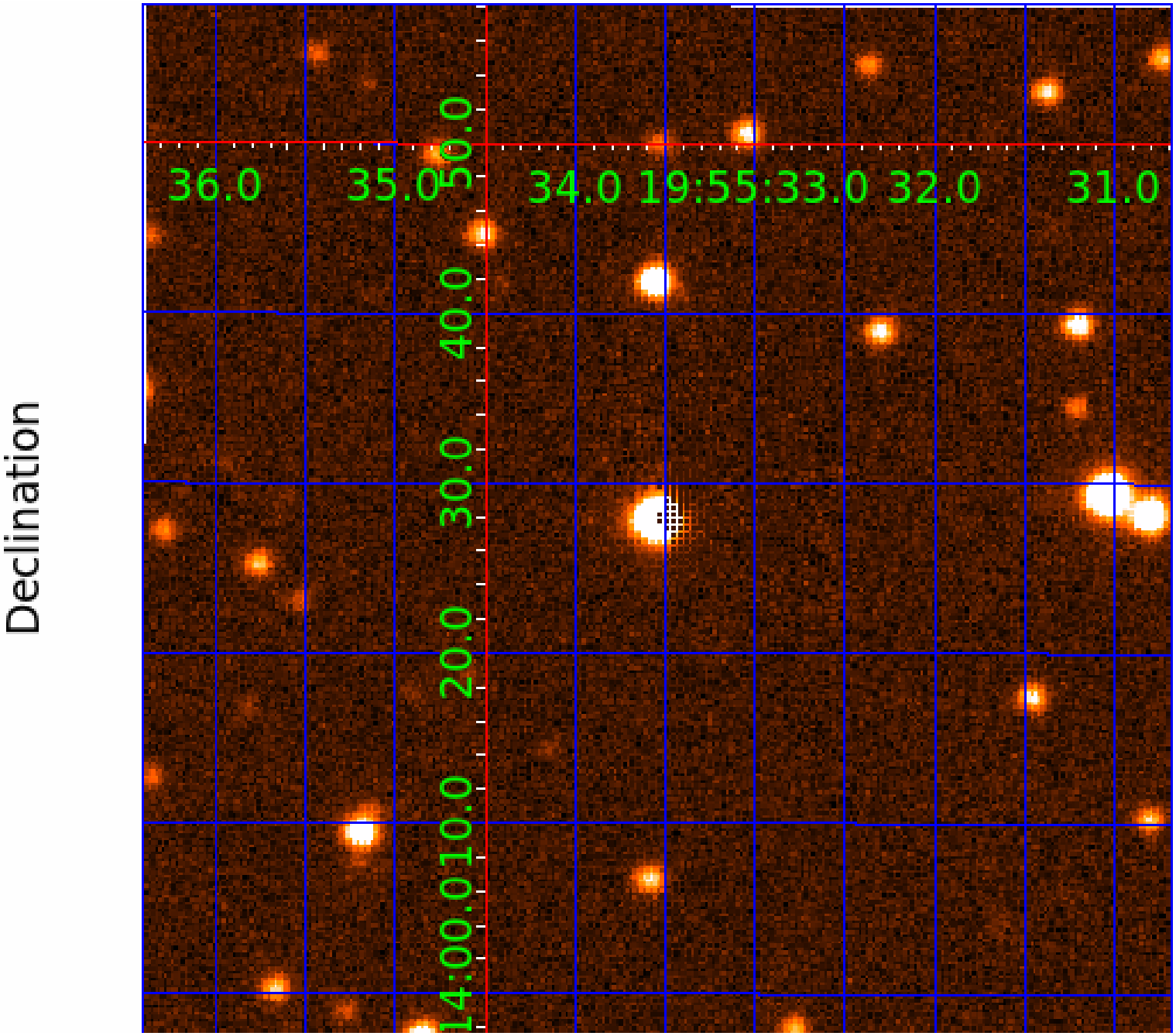


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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