KIC 009164938

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 ($S_\oplus$)
009164938-01	OBS	No	1.727792	132.142324	141.8	5.573	13.0	14.2	1.48	6953	2.42	4814.10
009164938-02	OBS	No	1.727714	133.155077	69.5	10.251	13.3	10.2	1.48	6953	1.47	4814.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009164938-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009164938-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

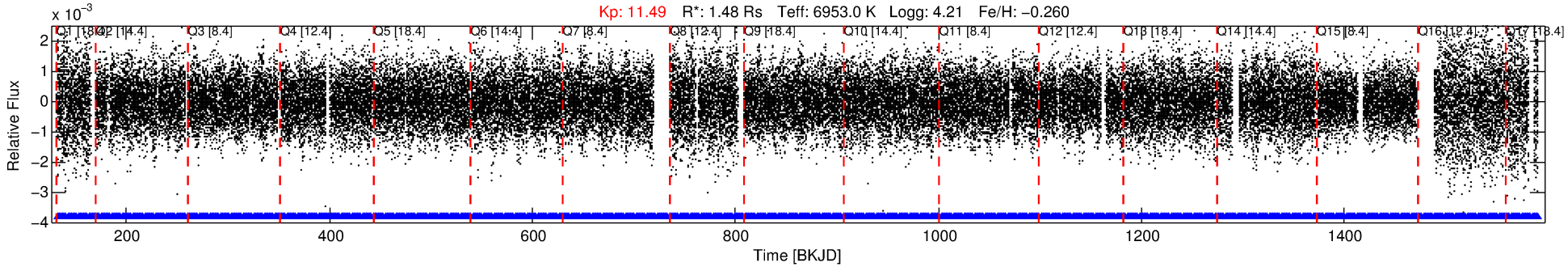
Ephemeris Match Information For 009164938-01

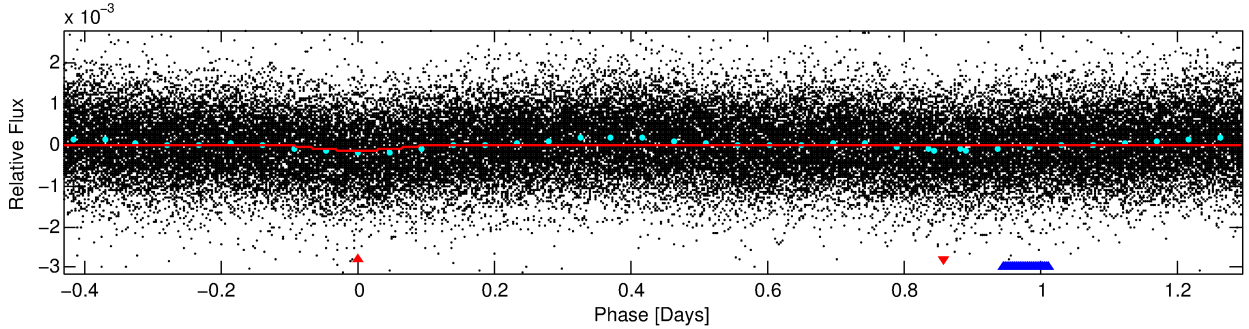
No Significant Match Found

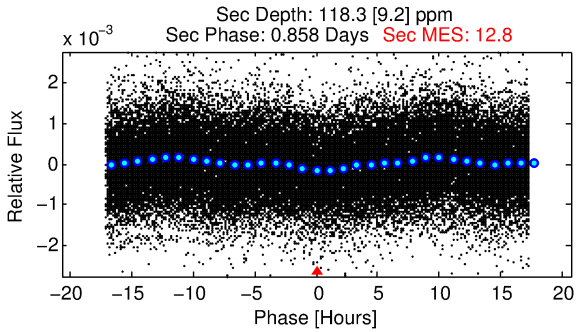
DV One-Page Summary

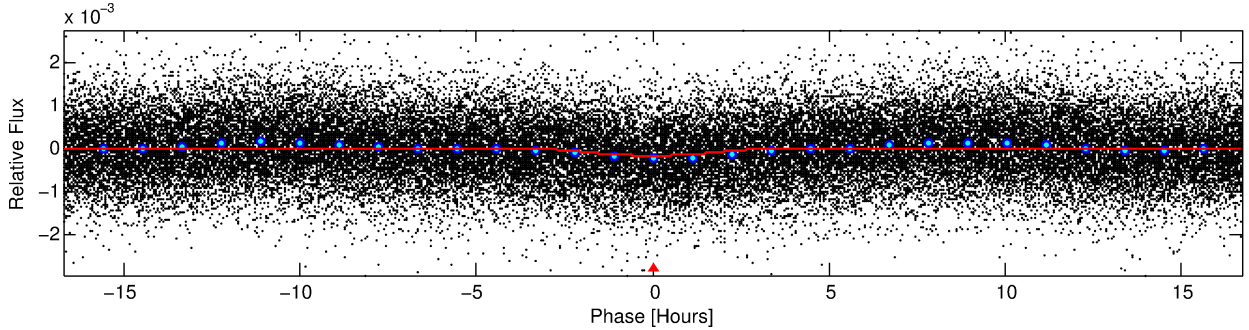
KIC: 9164938 Candidate: 1 of 2 Period: 1.728 d

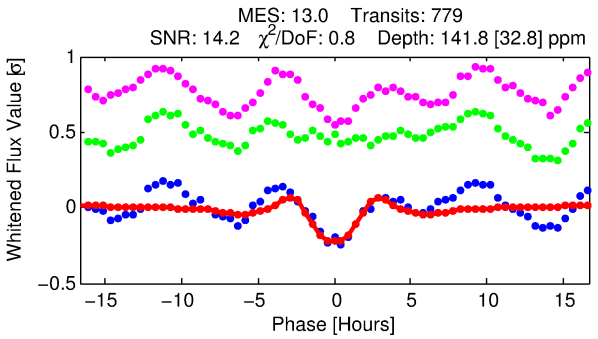
Kp: 11.49 R*: 1.48 Rs Teff: 6953.0 K Logg: 4.21 Fe/H: −0.260

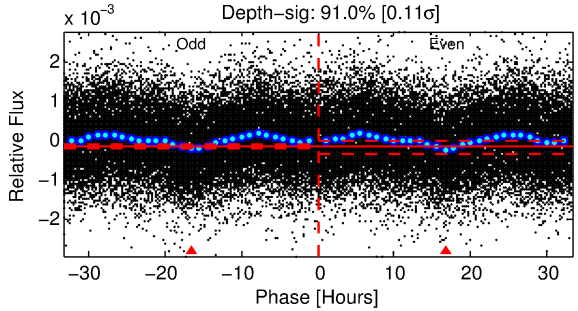


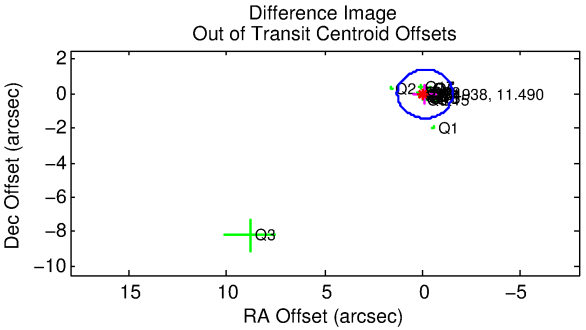












DV Fit Results:

Period = 1.72779 [0.00001] d
Epoch = 132.1423 [0.0050] BKJD
Rp/R* = 0.0150 [0.0030]
a/R* = 1.14 [0.04]
b = 0.99 [0.01]

Seff = 4814.10 [1909.79]
Teq = 2124 [211] K
Rp = 2.43 [0.88] Re
a = 0.0308 [0.0077] AU

Ag = 10.50 [5.70] [1.67σ]
Teffp = 5911 [657] K [5.49σ]

DV Diagnostic Results:

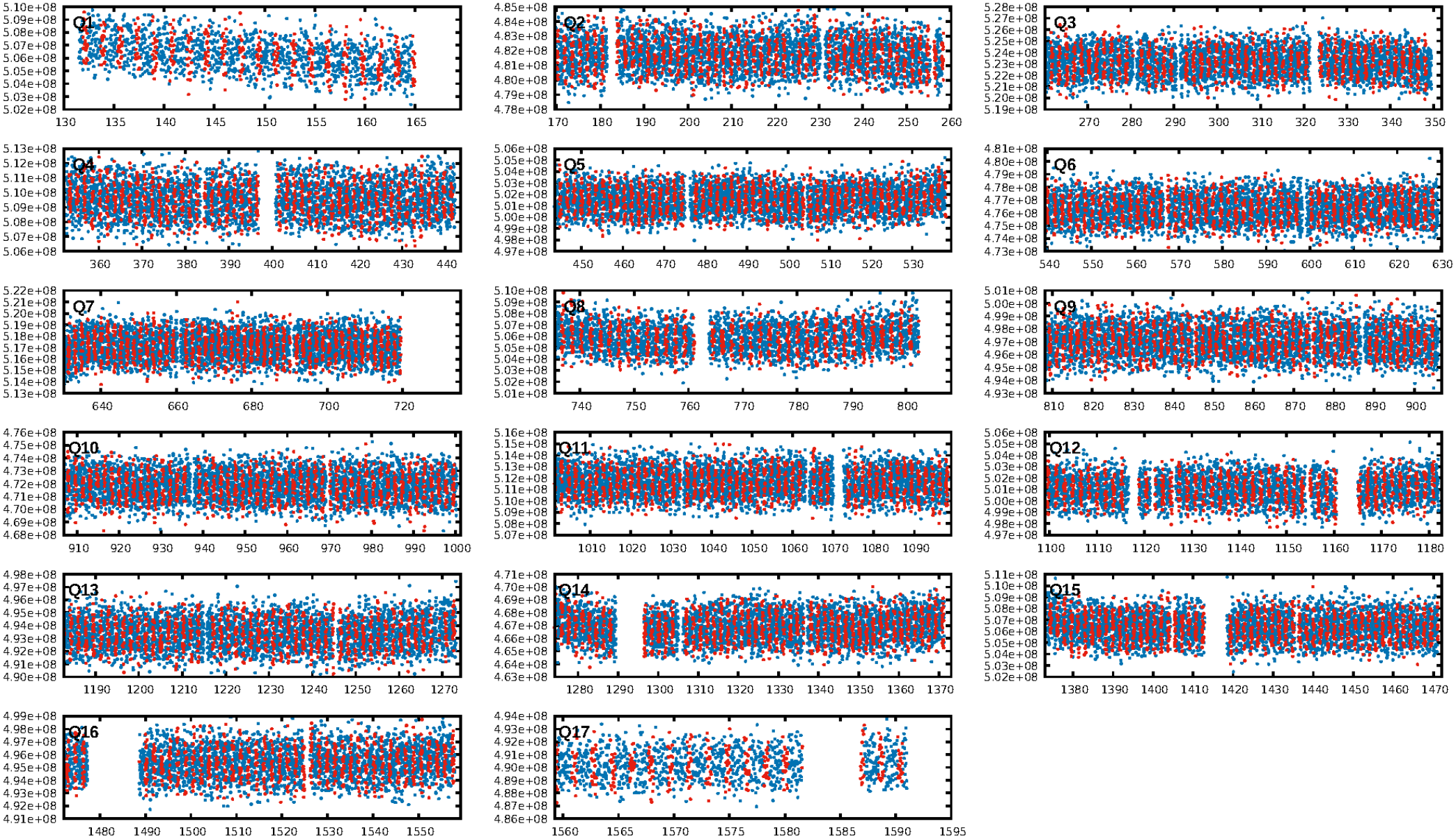
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [743/743]
GhostDiagnostic−chr: 1.48

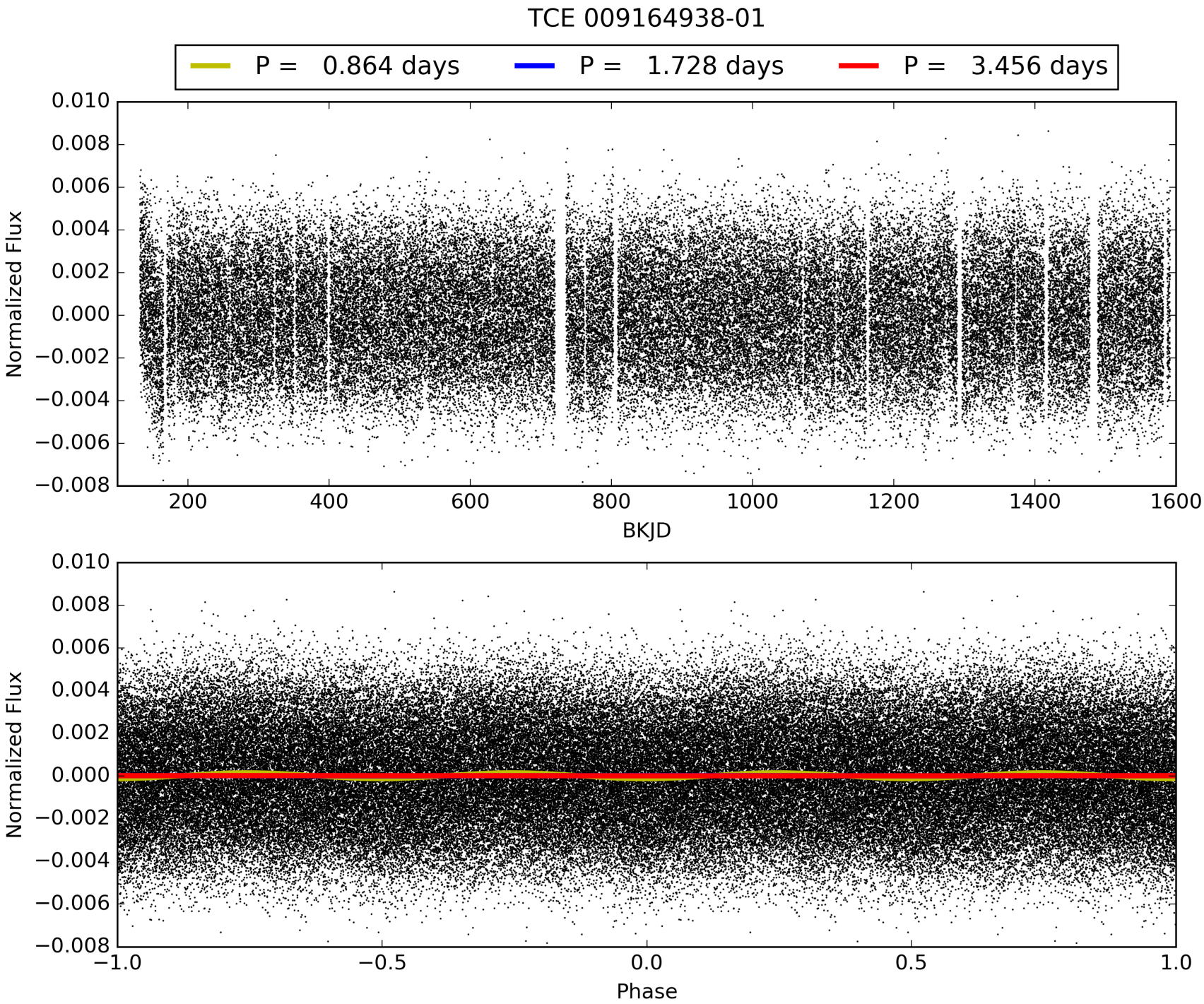
Centroid−sig: 0.0%
Centroid−so: 0.213 arcsec [2.29σ]
OotOffset−rm: 0.129 arcsec [0.28σ]
KicOffset−rm: 0.156 arcsec [0.26σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 0.94 [16/17]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 14:27:19 Z

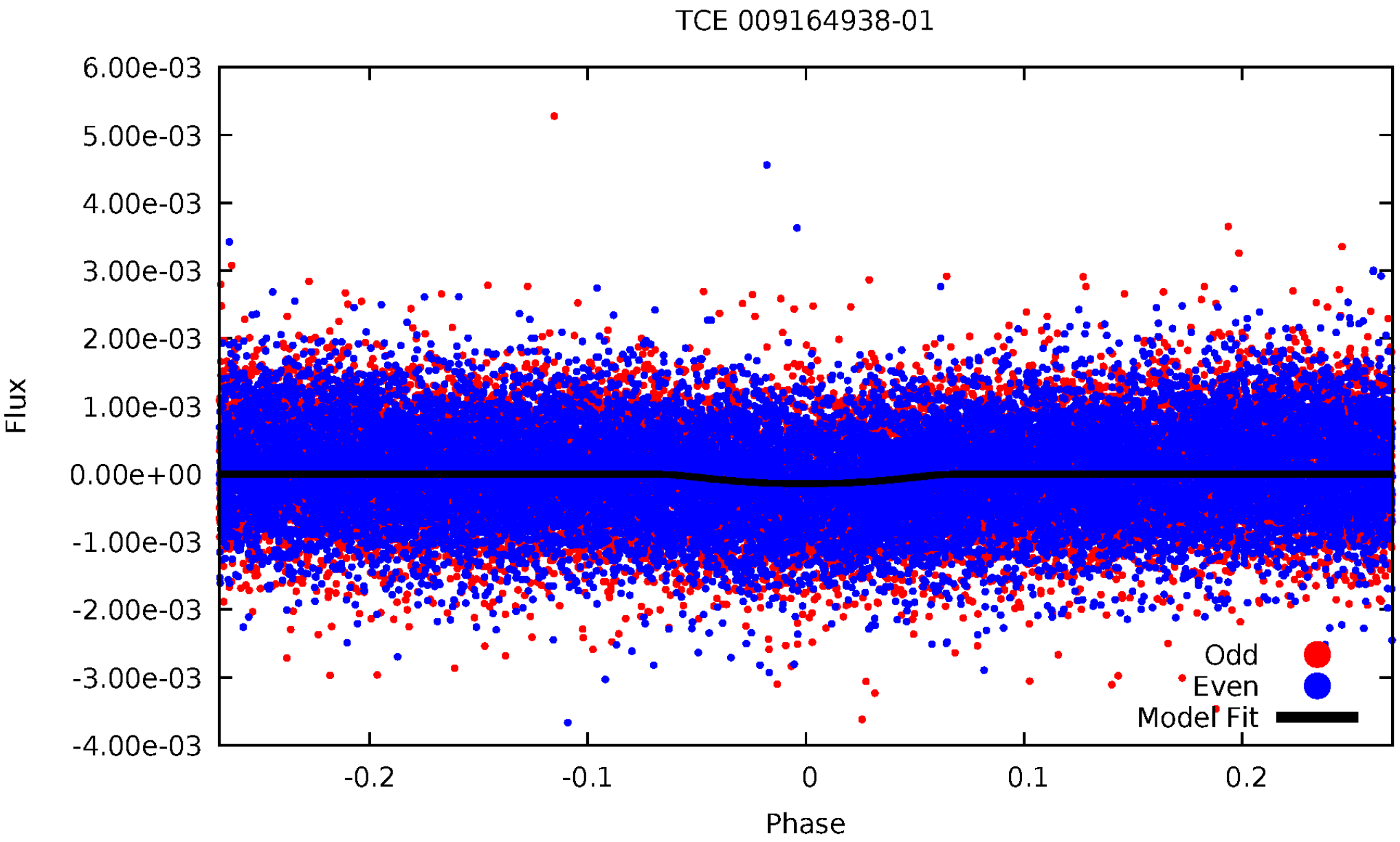
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009164938-01, PDC Light Curves

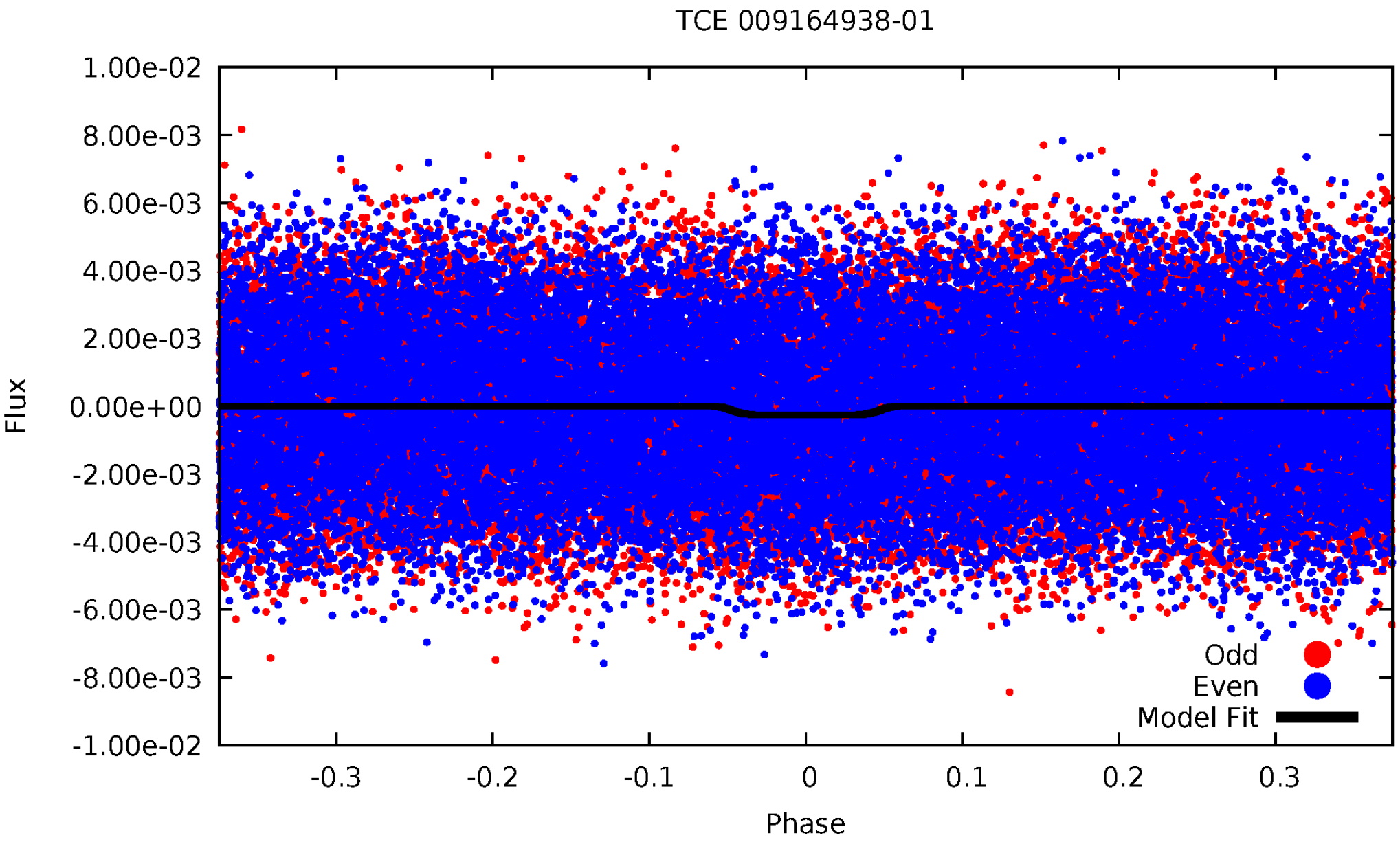



TCE 009164938-01
P = 0.864 days
P = 1.728 days
P = 3.456 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 009164938-01
6.00e-03
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
-0.2
-0.1
0
0.1
0.2
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009164938-01
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
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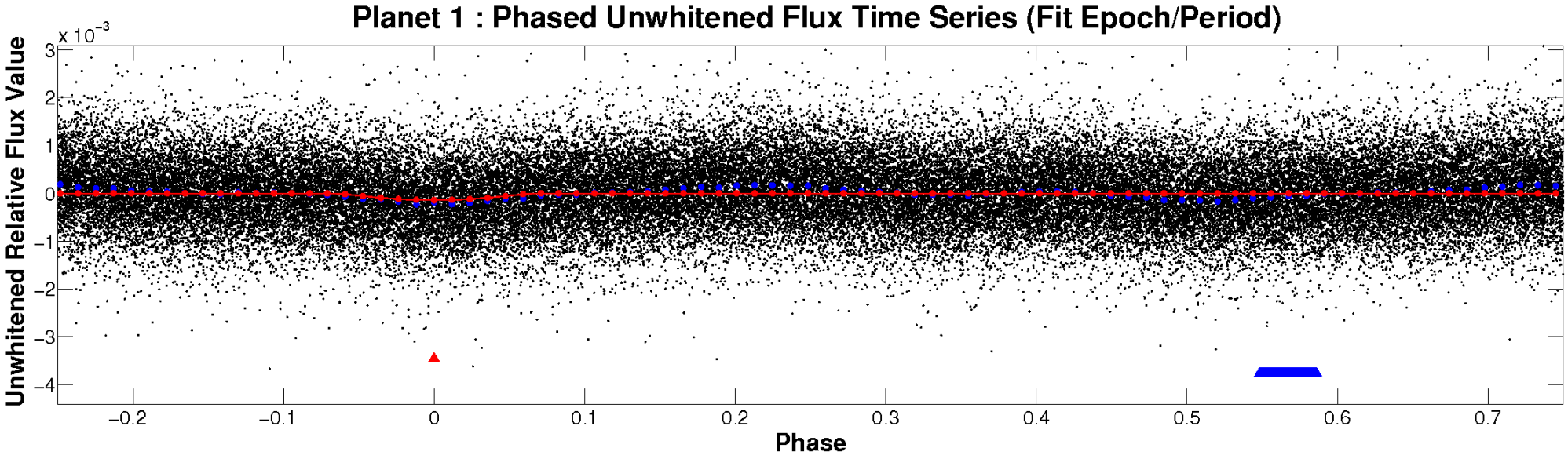
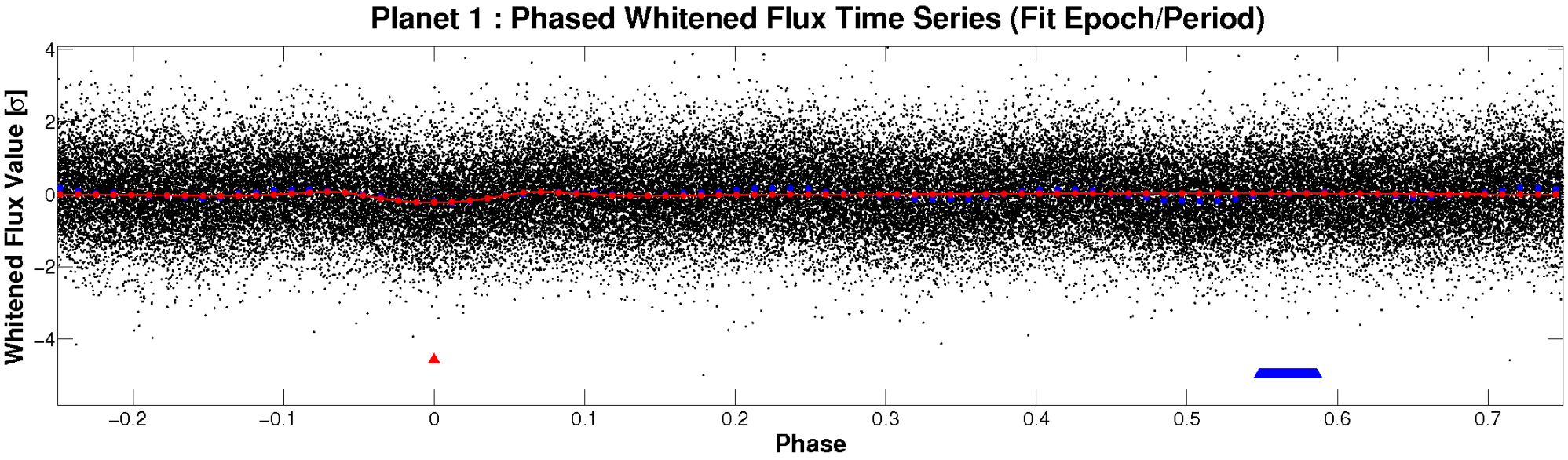
-4.00e-03
-6.00e-03
-8.00e-03
-1.00e-02
Flux
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit

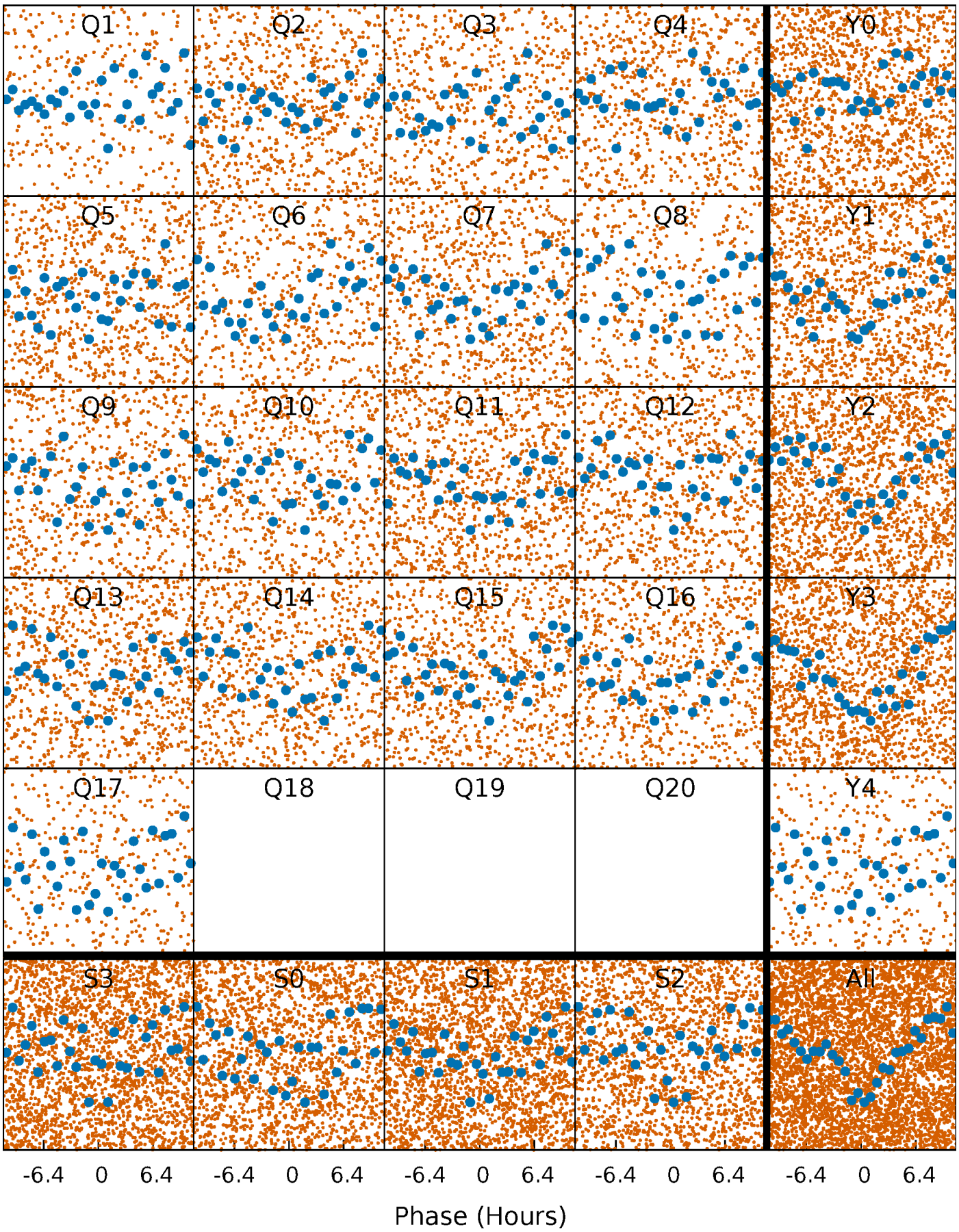
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009164938-01 P= 1.727792 Days T_0=132.142324 (BKJD)



DV Quarter-Phased Transit Curves

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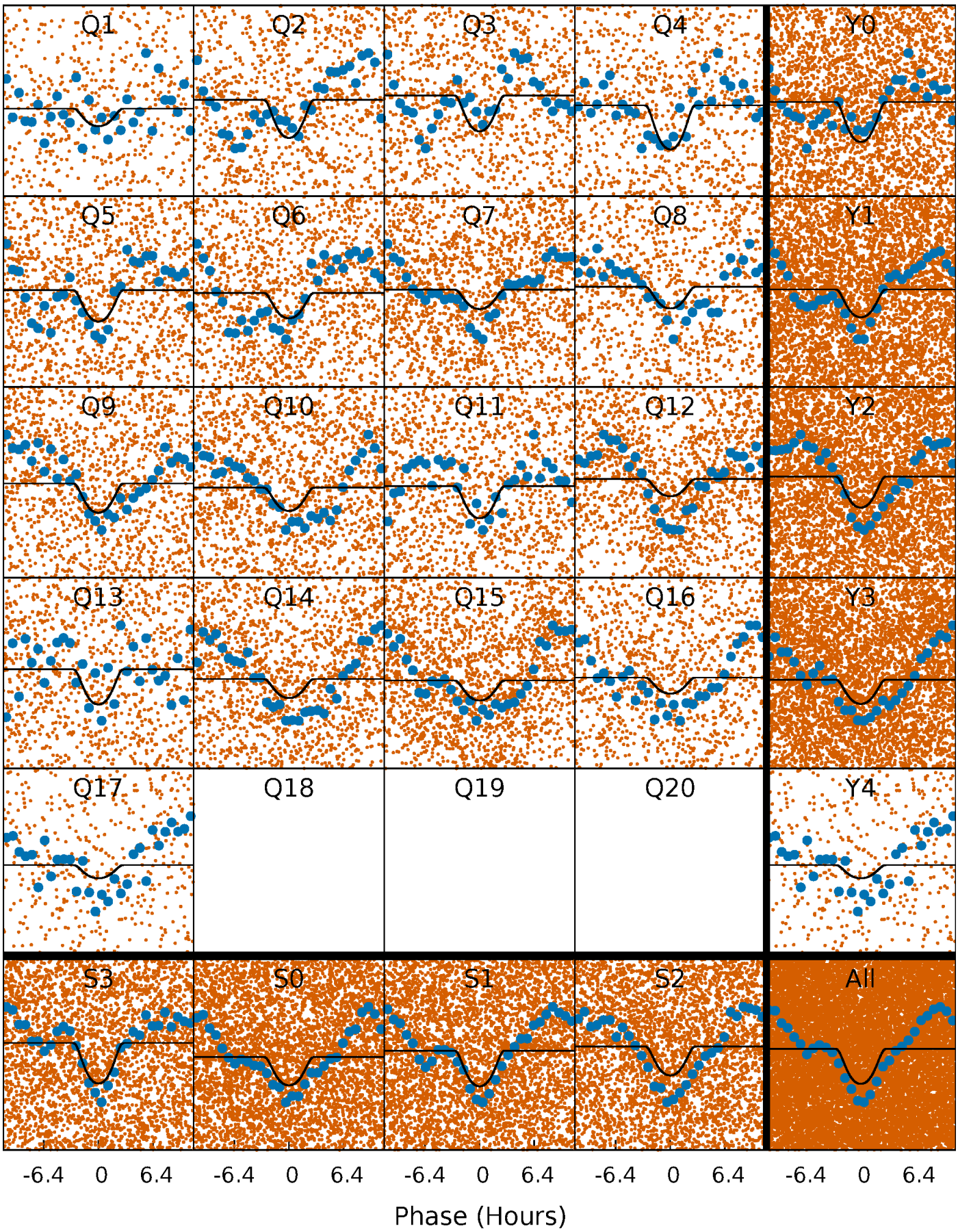
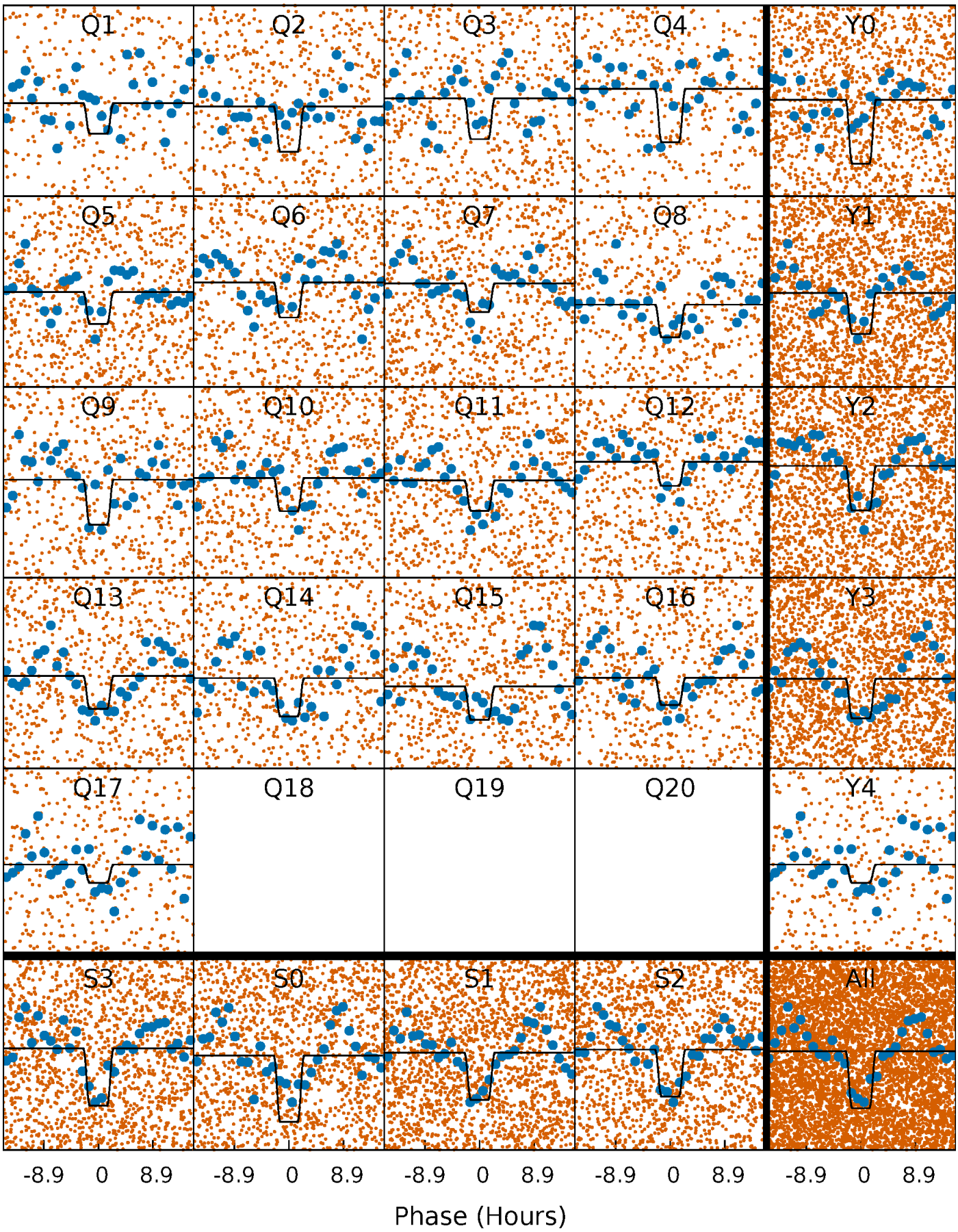


Alt. Detrend Quarter-Phased Transit Curves

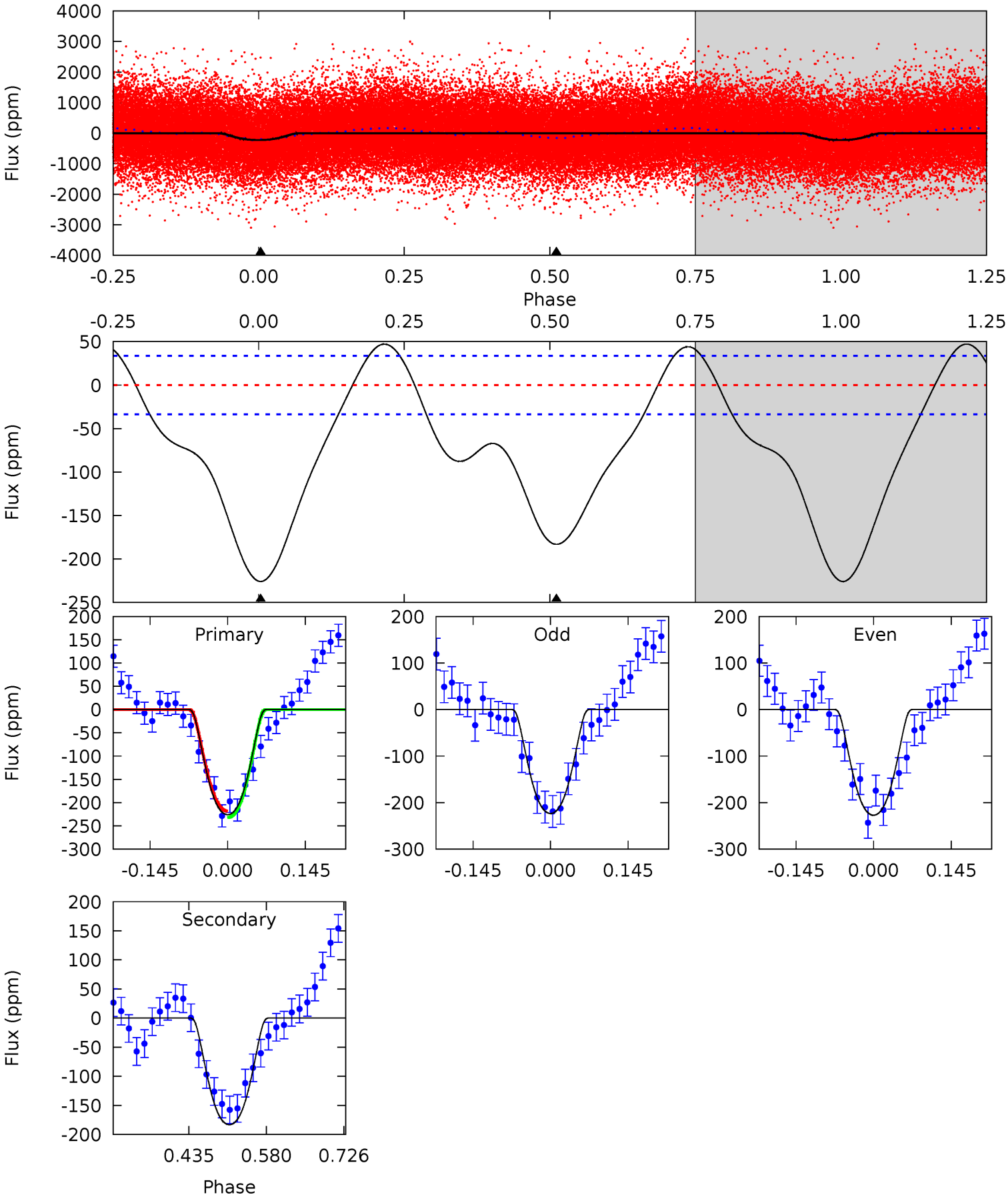
TCE 009164938-01 P= 1.727731 Days T_0=132.180687 (BKJD)



DV Model-Shift Uniqueness Test

009164938-01, P = 1.727792 Days, E = 130.414532 Days

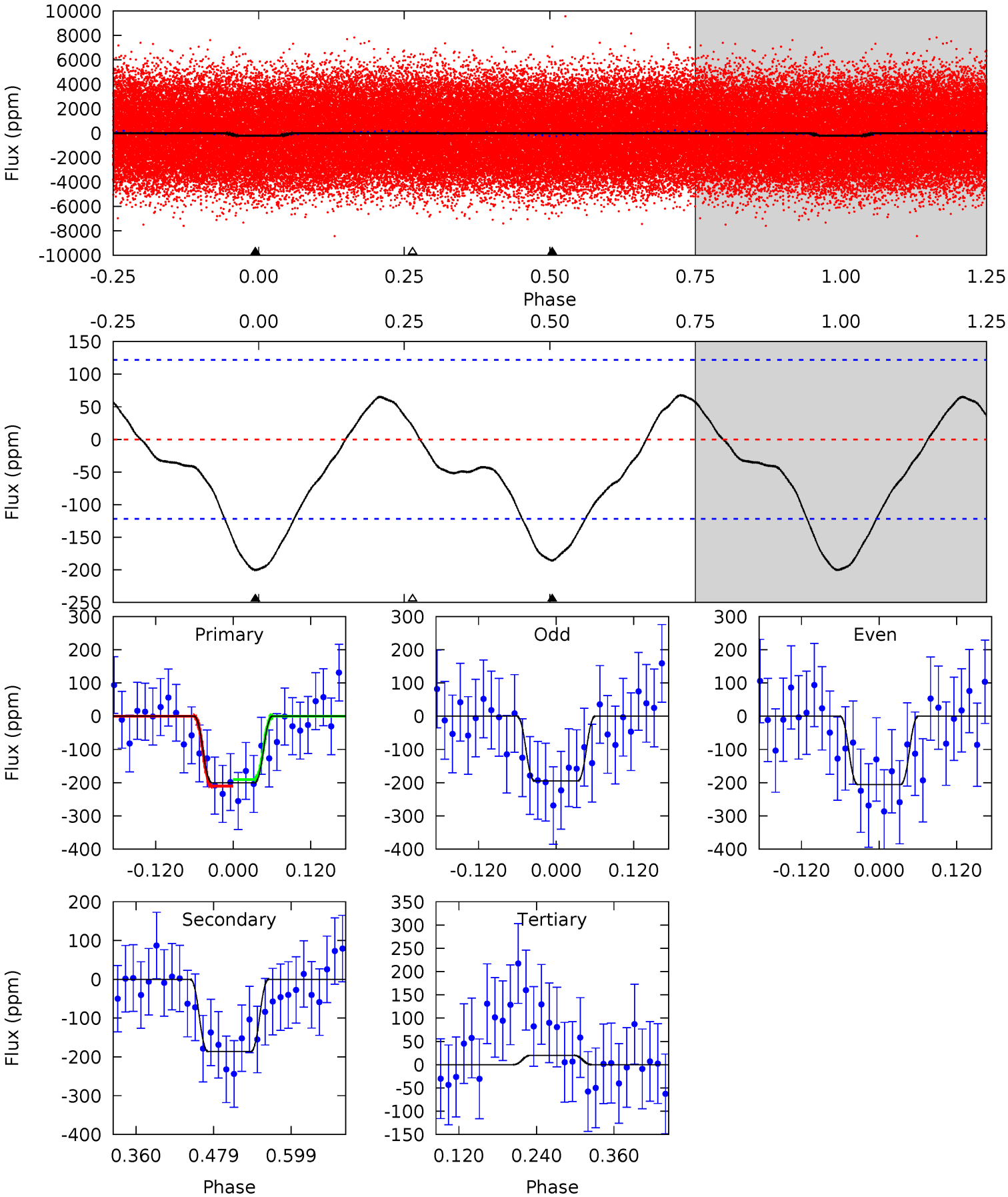
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.2	24.5	0	0	4.49	1.46	5.86	30.2	30.2	24.5	24.5	0.25	0.93	0.17	0.93



Alt Model-Shift Uniqueness Test

009164938-01, P = 1.727731 Days, E = 130.452956 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.44	6.90	-0.74	0	4.53	1.56	1.51	8.19	7.44	7.64	6.90	0.19	1.03	0.25	0.37



Stellar Parameters For KIC 009164938

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6953^{+219}_{-301}	$4.215^{+0.128}_{-0.192}$	$-0.260^{+0.250}_{-0.350}$	$1.477^{+0.446}_{-0.297}$	$1.316^{+0.198}_{-0.198}$	$0.575^{+0.365}_{-0.301}$
	+3%/-4%	+3%/-5%	+96%/-135%	+30%/-20%	+15%/-15%	+64%/-52%
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 009164938-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-183±7	$2.47^{+0.66}_{-0.57}$	2988^{+210}_{-201}	6494^{+1013}_{-651}	16^{+10}_{-6}
Alt.	-186±27	$2.54^{+0.66}_{-0.56}$	2983^{+254}_{-200}	6433^{+870}_{-675}	15^{+9}_{-6}

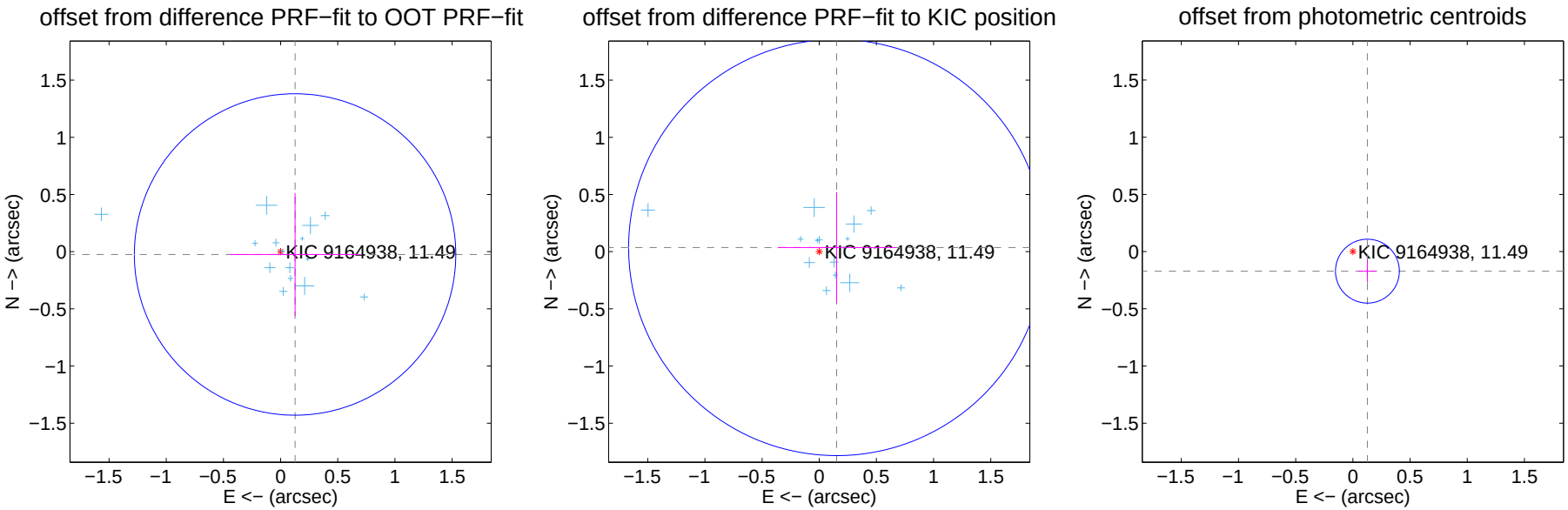
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

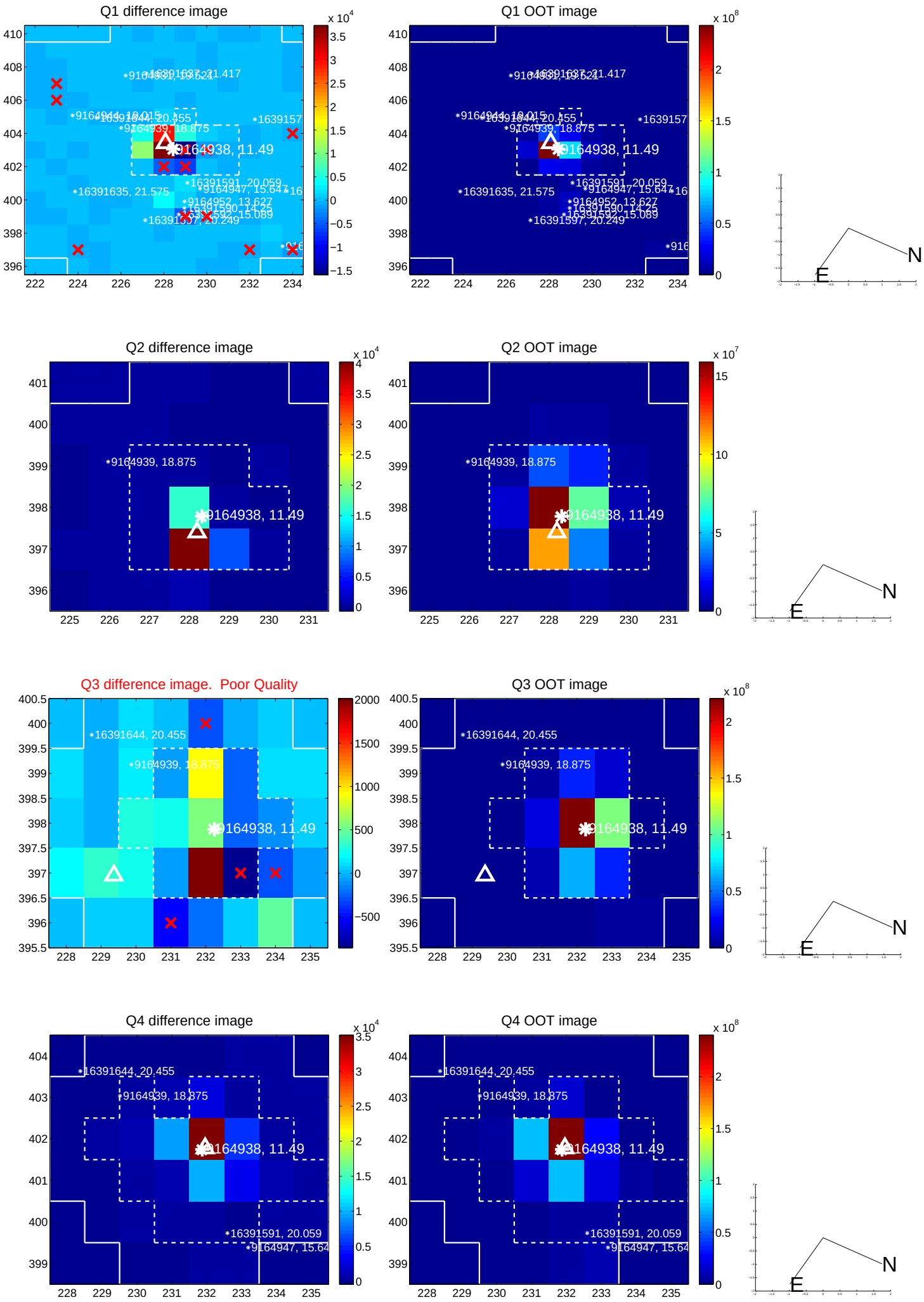
Supplemental centroid analysis for 009164938-01. Kepler magnitude: 11.49. Transit SNR 14.21
There are 16 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.468	0.28	-0.127 ± 0.569	-0.024 ± 0.537
PRF-fit source offset from KIC position	0.156 ± 0.606	0.26	-0.152 ± 0.517	0.036 ± 0.484
photometric centroid source offset	0.21 ± 0.09	2.29	-0.13 ± 0.08	-0.17 ± 0.10

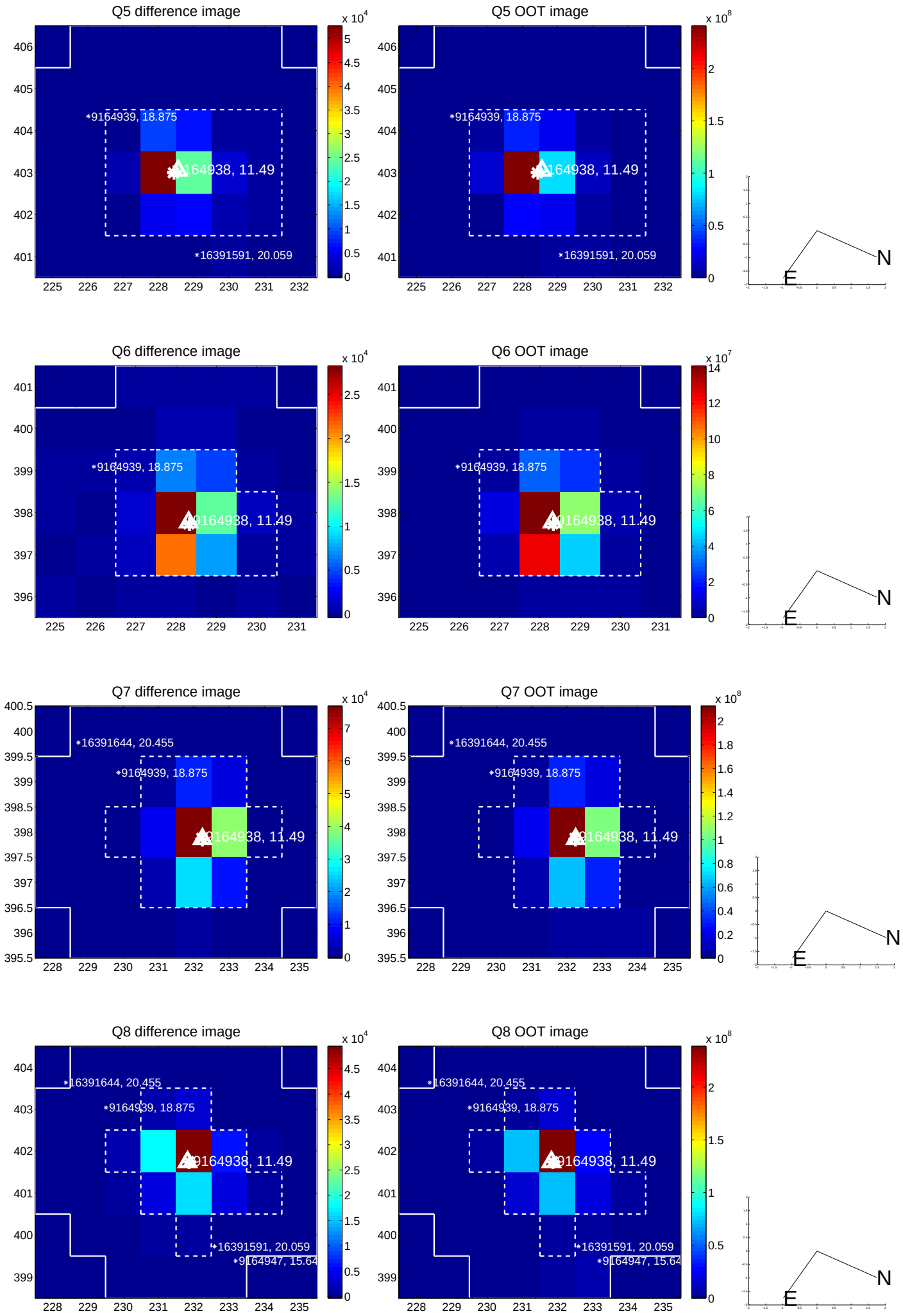


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

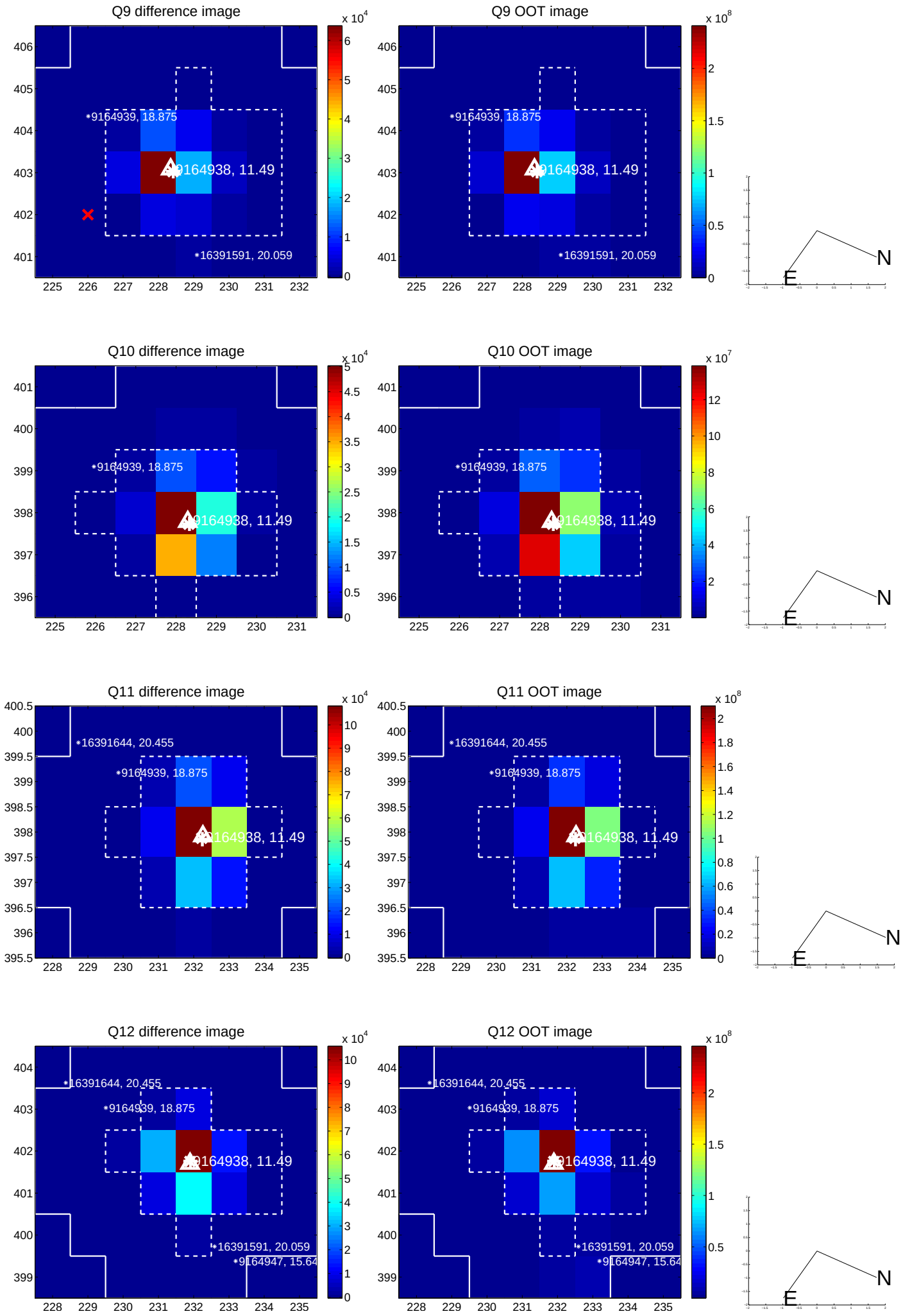
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



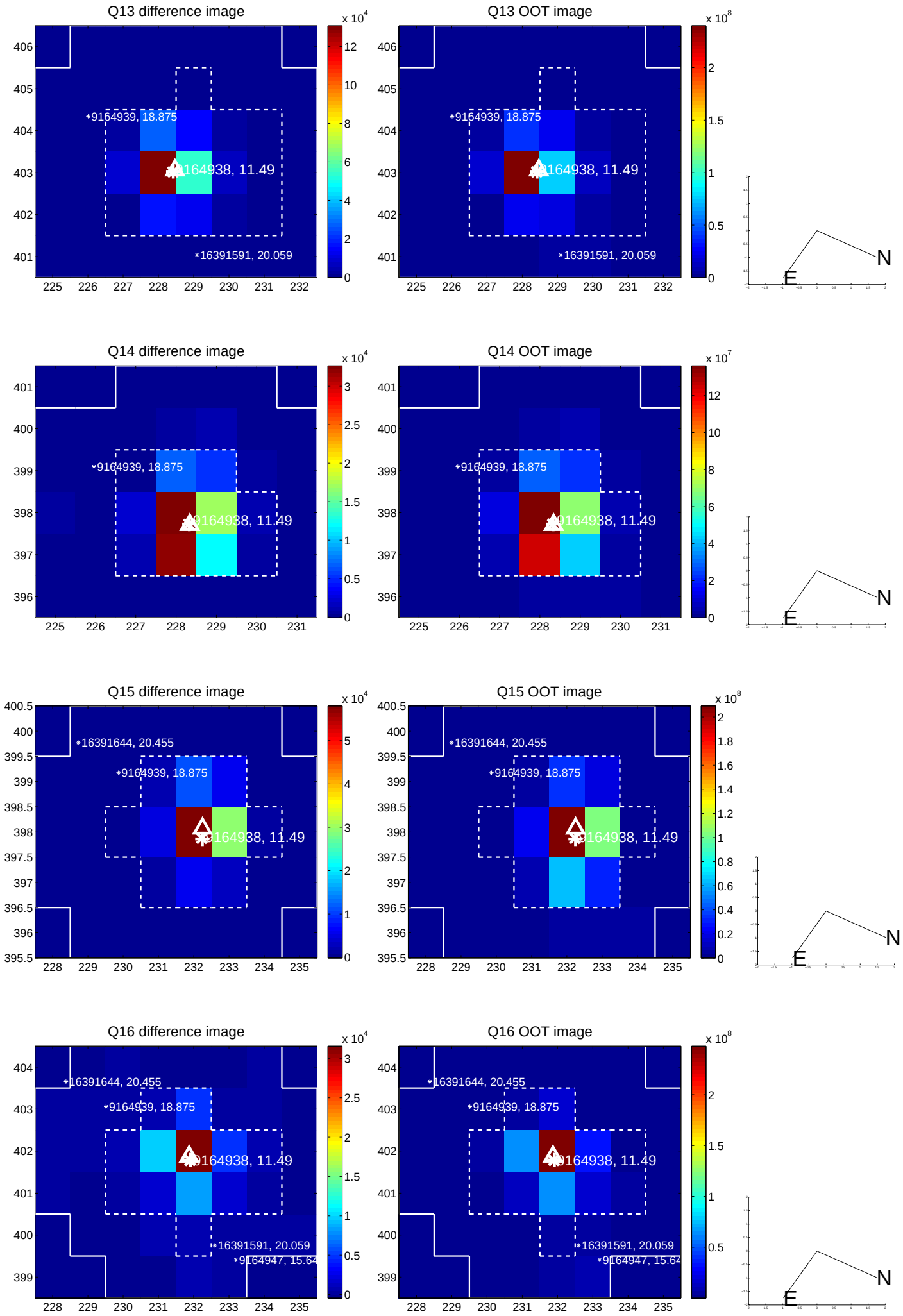
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



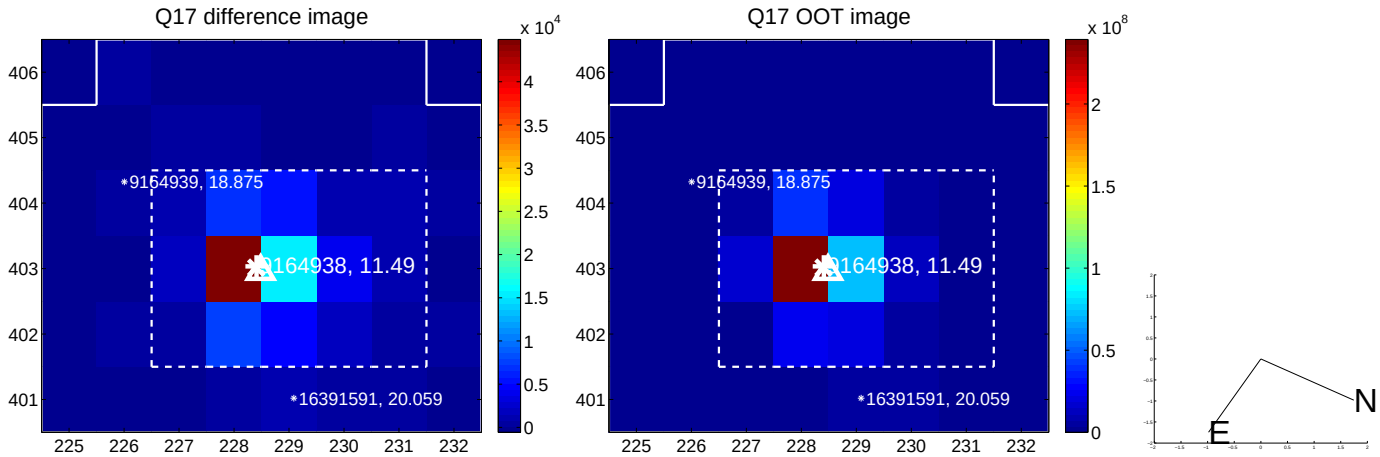
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

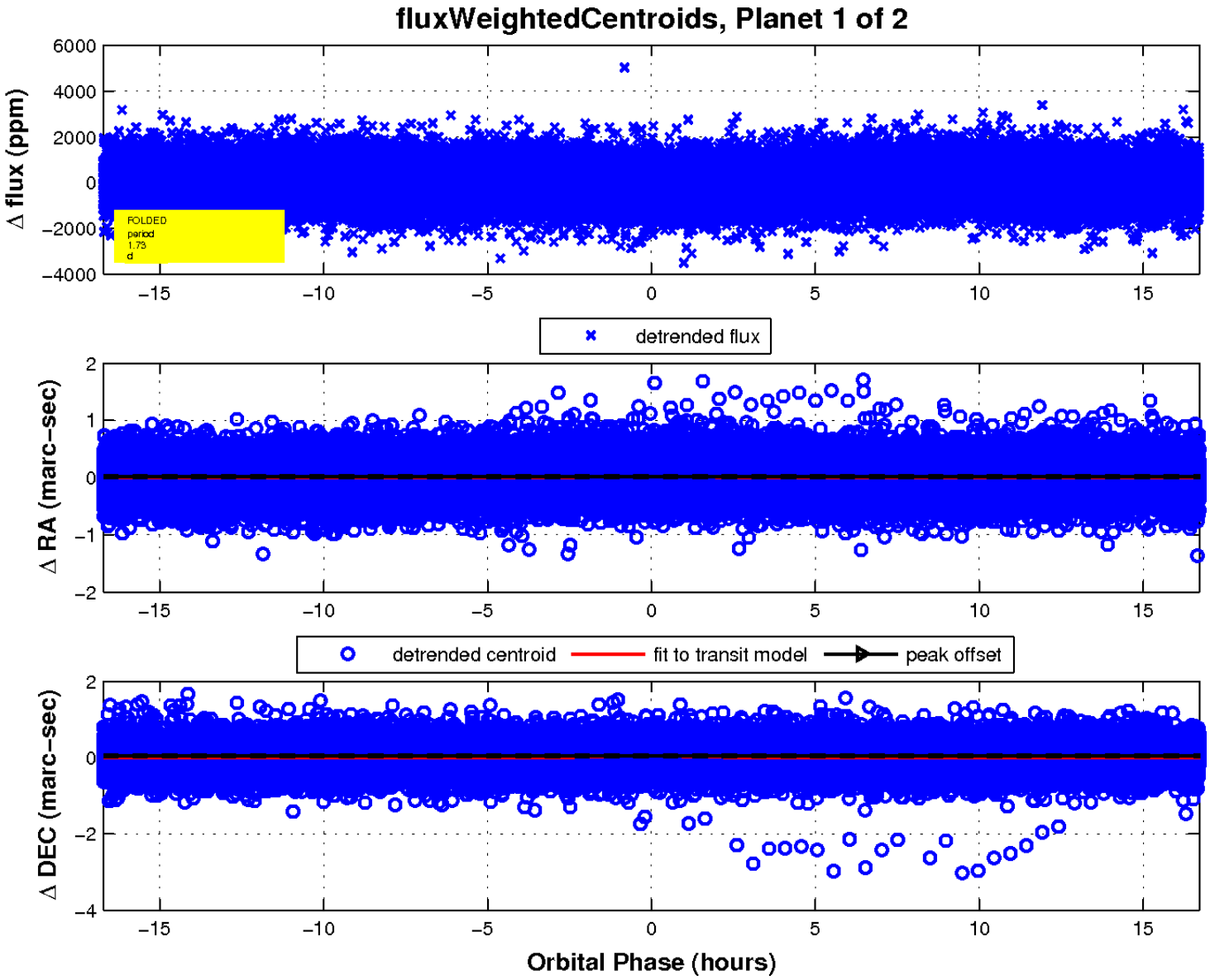


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

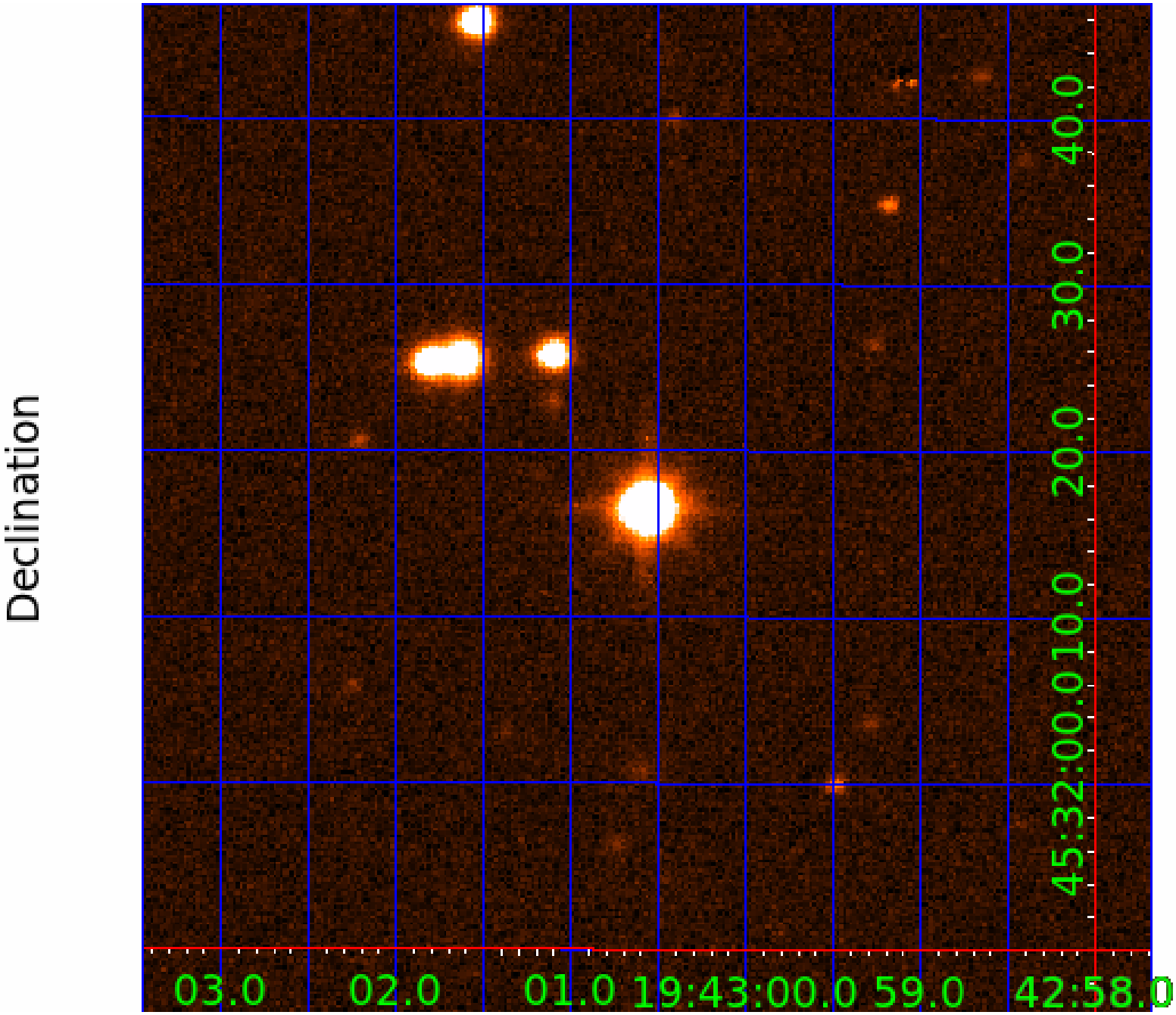


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
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42:58.0

KIC 009164938

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 ($S_\oplus$)
009164938-01	OBS	No	1.727792	132.142324	141.8	5.573	13.0	14.2	1.48	6953	2.42	4814.10
009164938-02	OBS	No	1.727714	133.155077	69.5	10.251	13.3	10.2	1.48	6953	1.47	4814.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009164938-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009164938-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

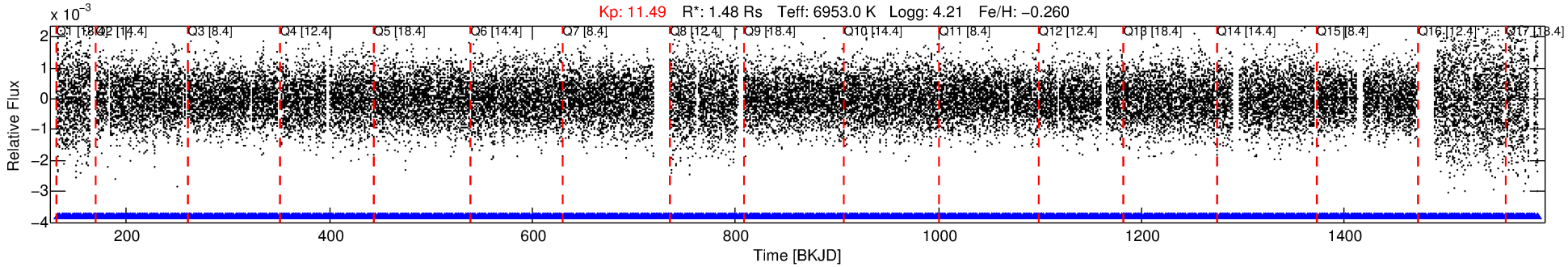
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

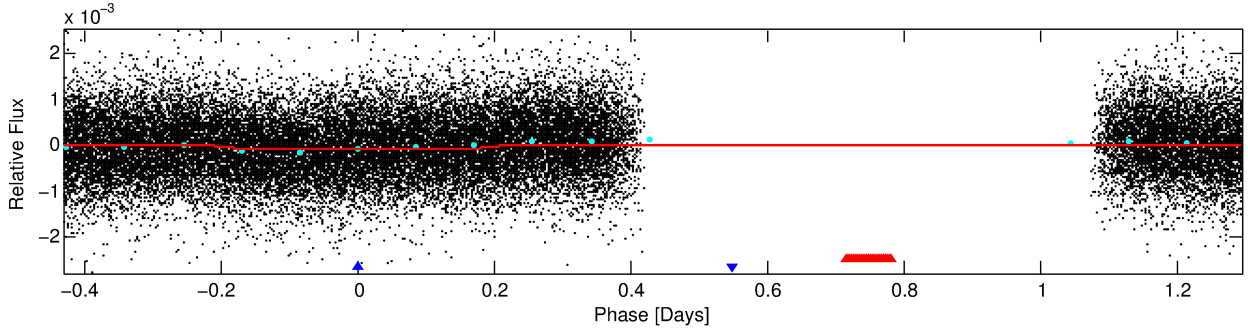
Ephemeris Match Information For 009164938-02

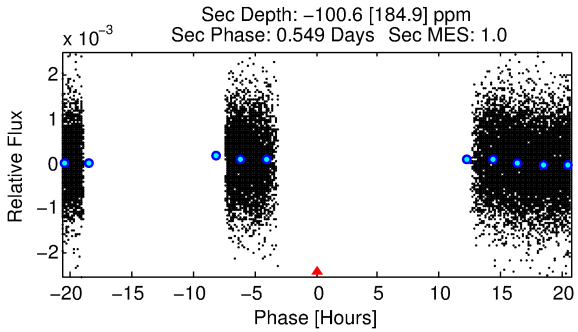
No Significant Match Found

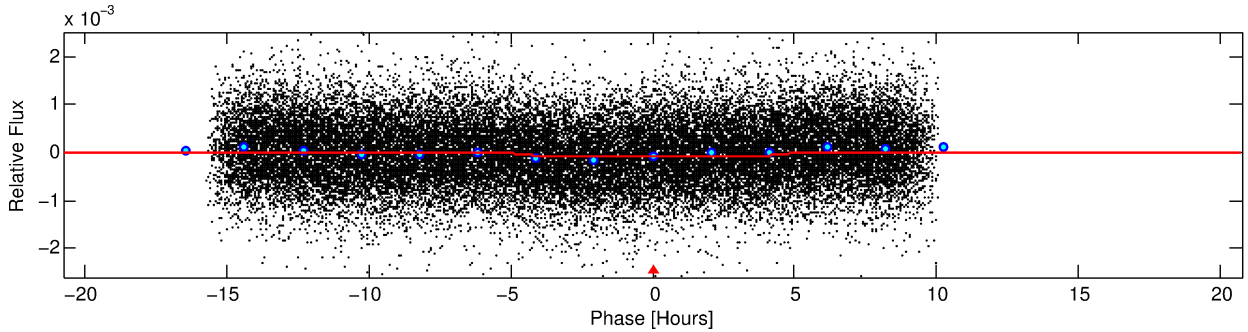
DV One-Page Summary

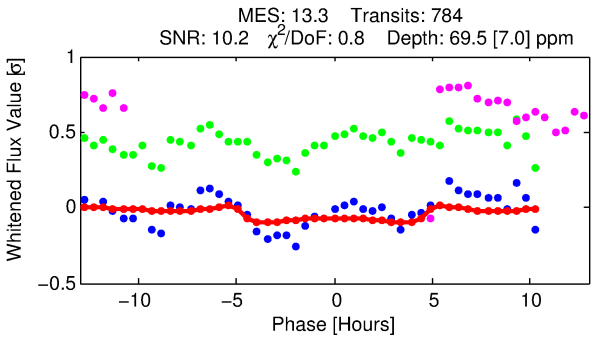
KIC: 9164938 Candidate: 2 of 2 Period: 1.728 d

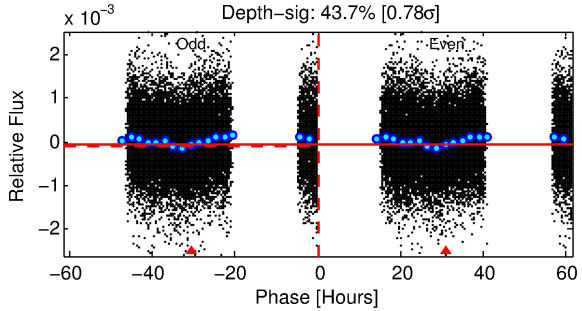


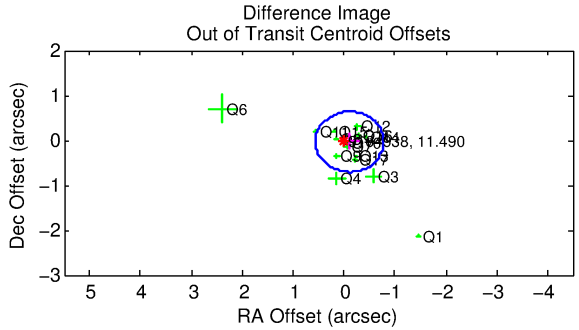












DV Fit Results:

Period = 1.72771 [0.00002] d
Epoch = 133.1551 [0.0077] BKJD
Rp/R* = 0.0091 [0.0011]
a/R* = 1.09 [0.11]
b = 0.93 [0.10]

Seff = 4814.39 [1909.90]
Teq = 2124 [211] K
Rp = 1.47 [0.48] Re
a = 0.0308 [0.0077] AU

Ag = N/A
Teffp = N/A

DV Diagnostic Results:

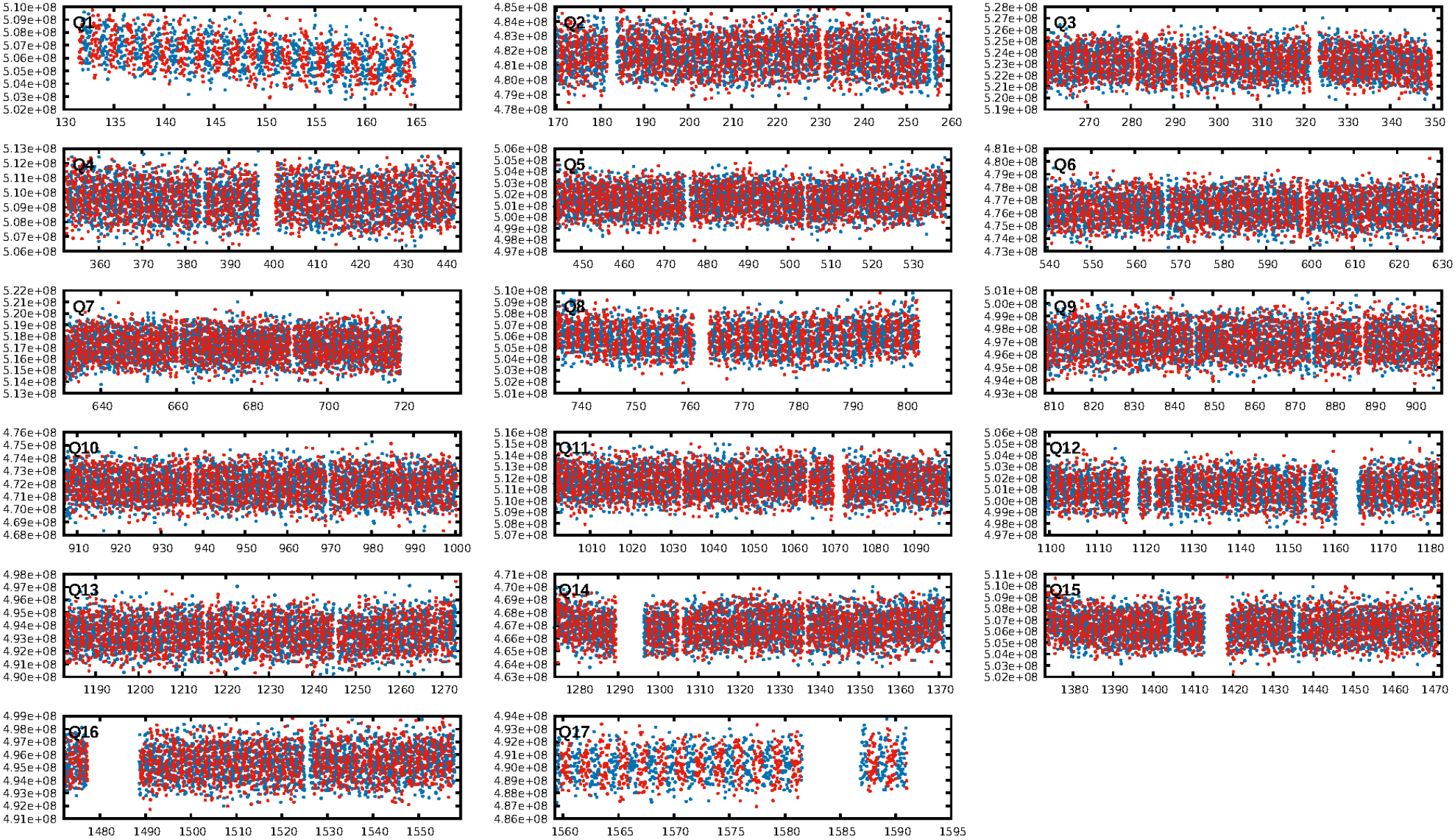
ShortPeriod−sig: N/A
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [749/749]
GhostDiagnostic−chr: 1.737

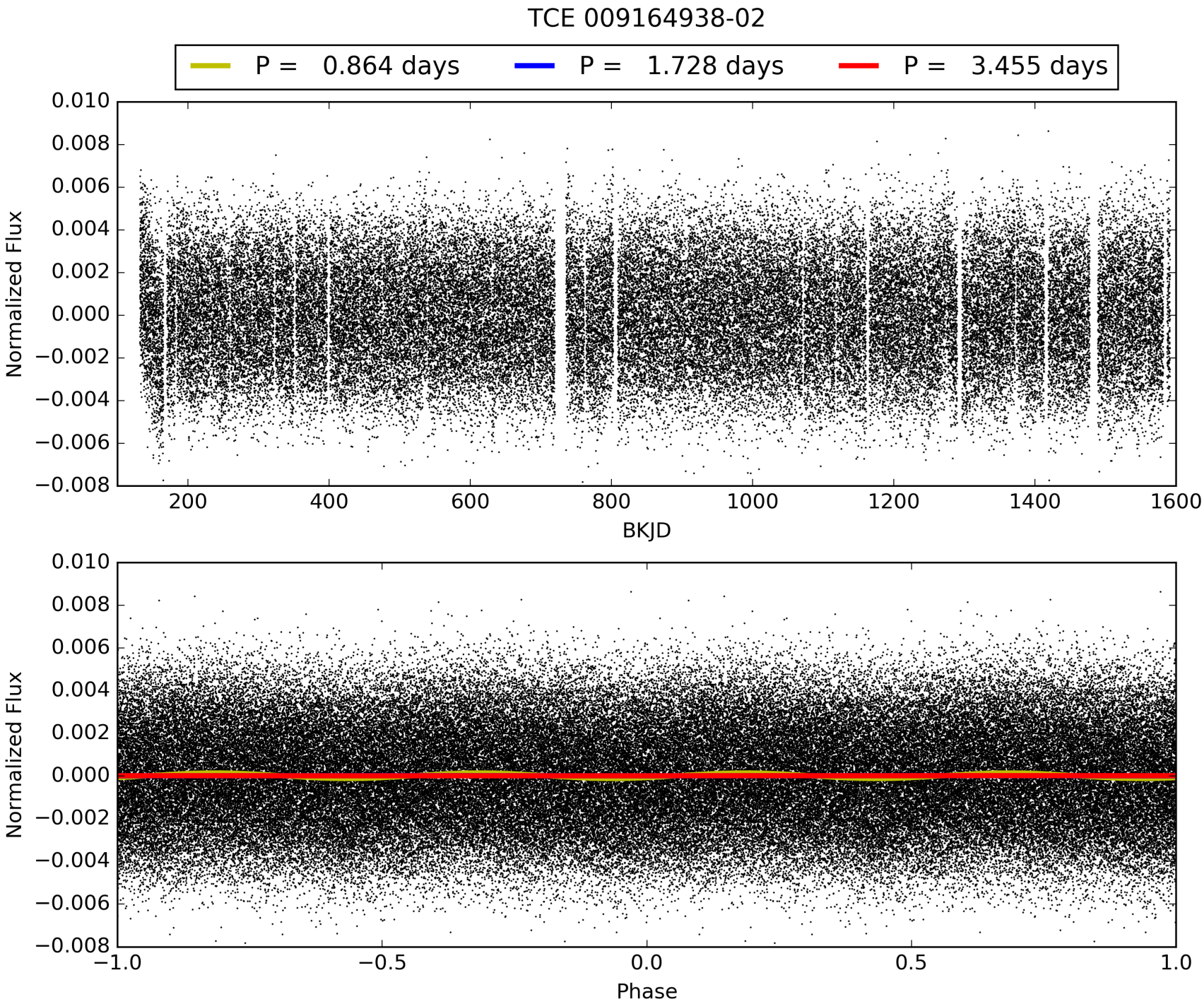
Centroid−sig: 0.0%
Centroid−so: 0.390 arcsec [3.24σ]
OotOffset−rm: 0.113 arcsec [0.50σ]
KicOffset−rm: 0.160 arcsec [0.79σ]
OotOffset−st: 3/4/4/4 [15]
KicOffset−st: 3/4/4/4 [15]
DiffImageQuality−fgm: 0.87 [13/15]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31−Jan−2016 14:27:32 Z

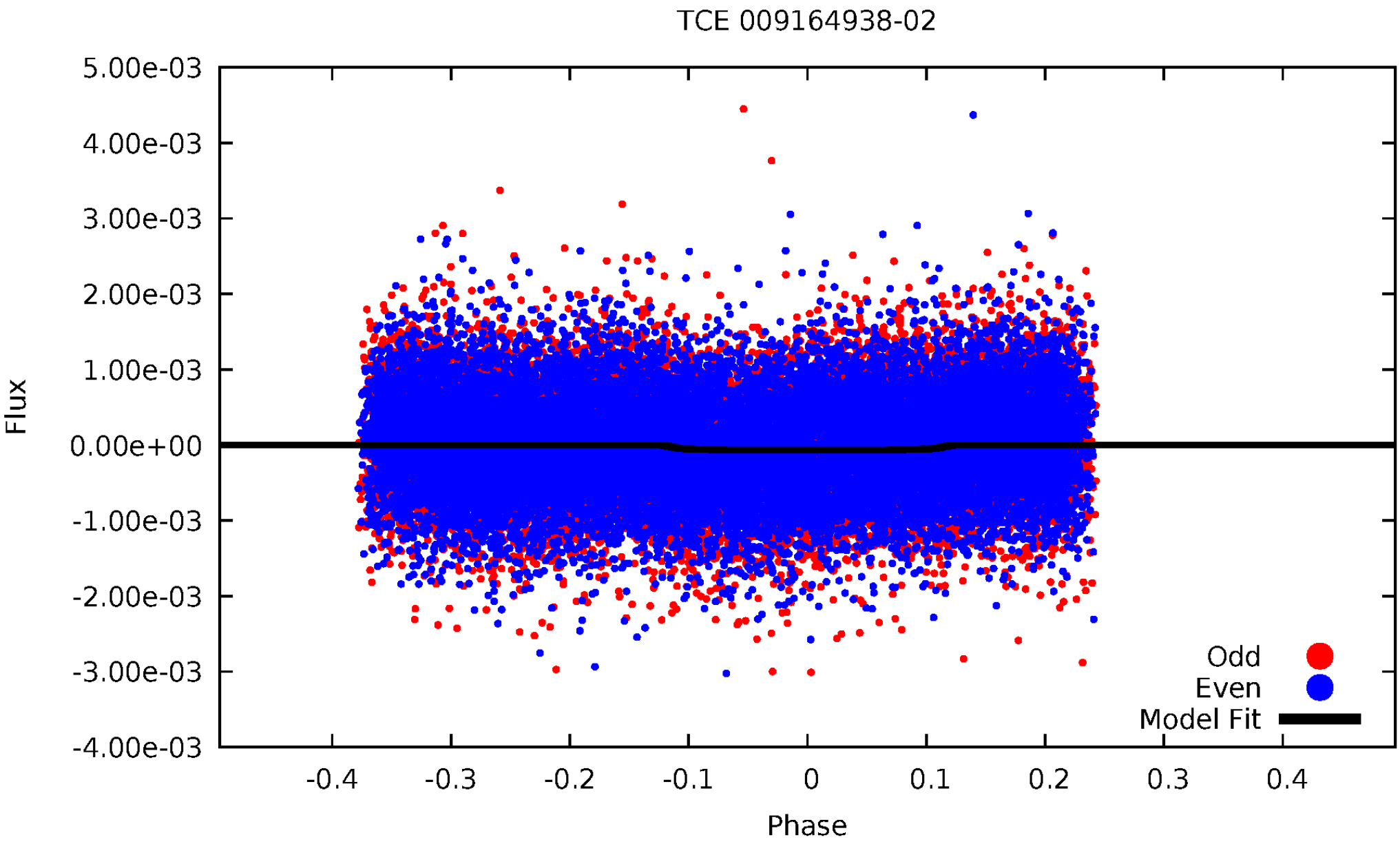
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009164938-02, PDC Light Curves

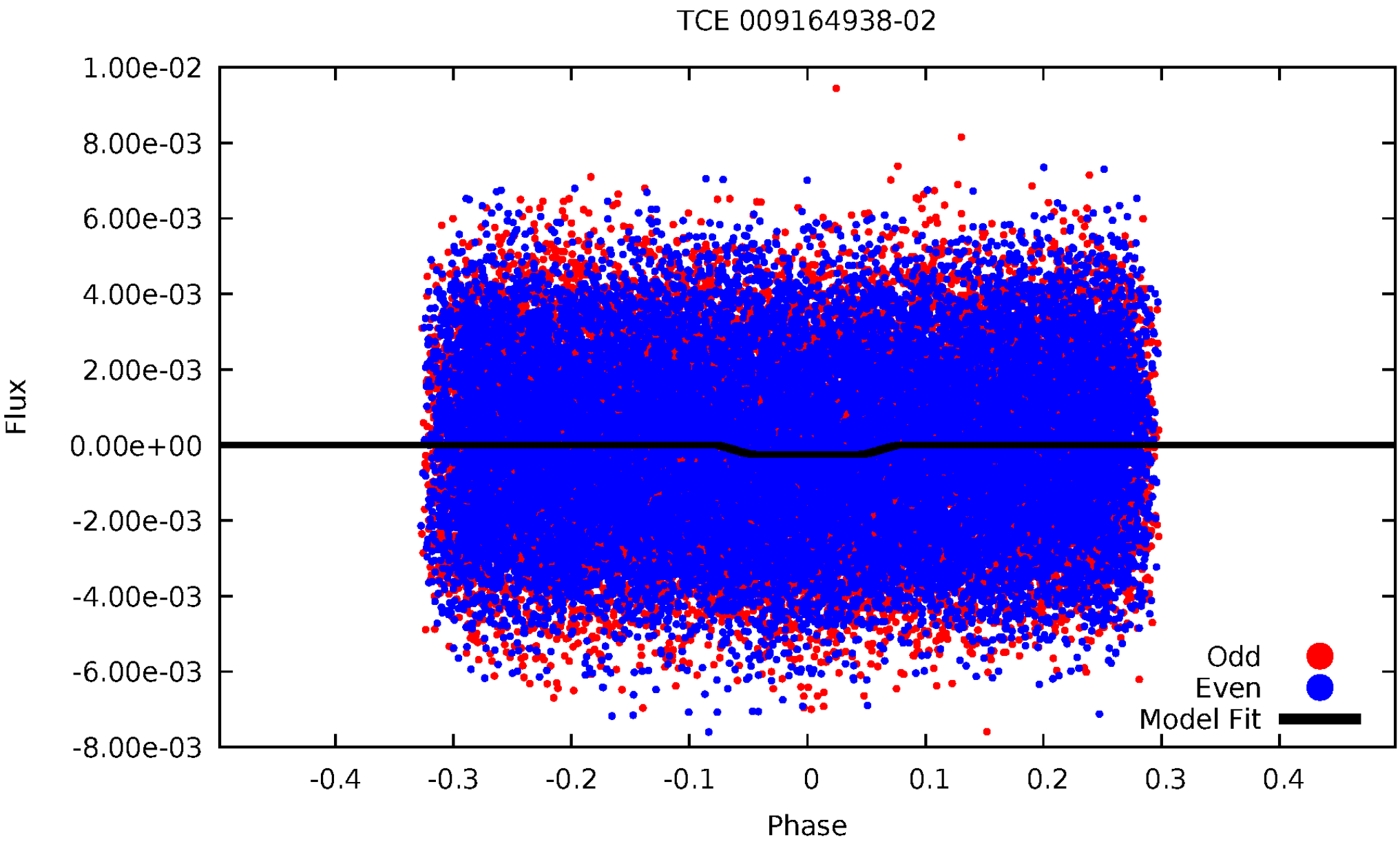



TCE 009164938-02
P = 0.864 days
P = 1.728 days
P = 3.455 days
Normalized Flux
BKJD
Normalized Flux
Phase

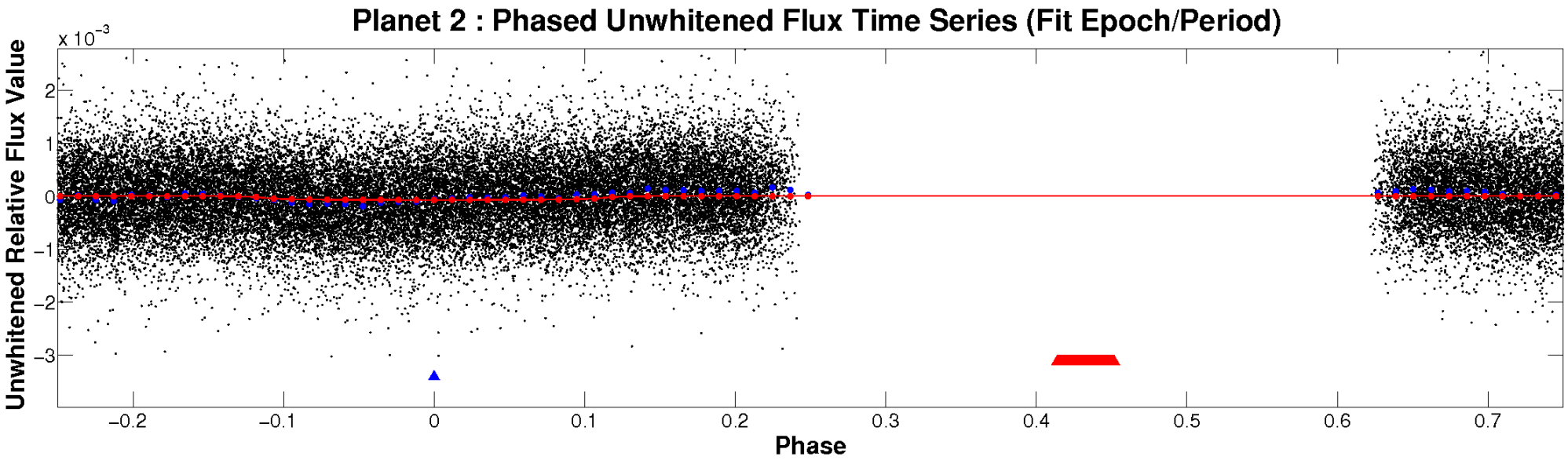
DV Odd/Even

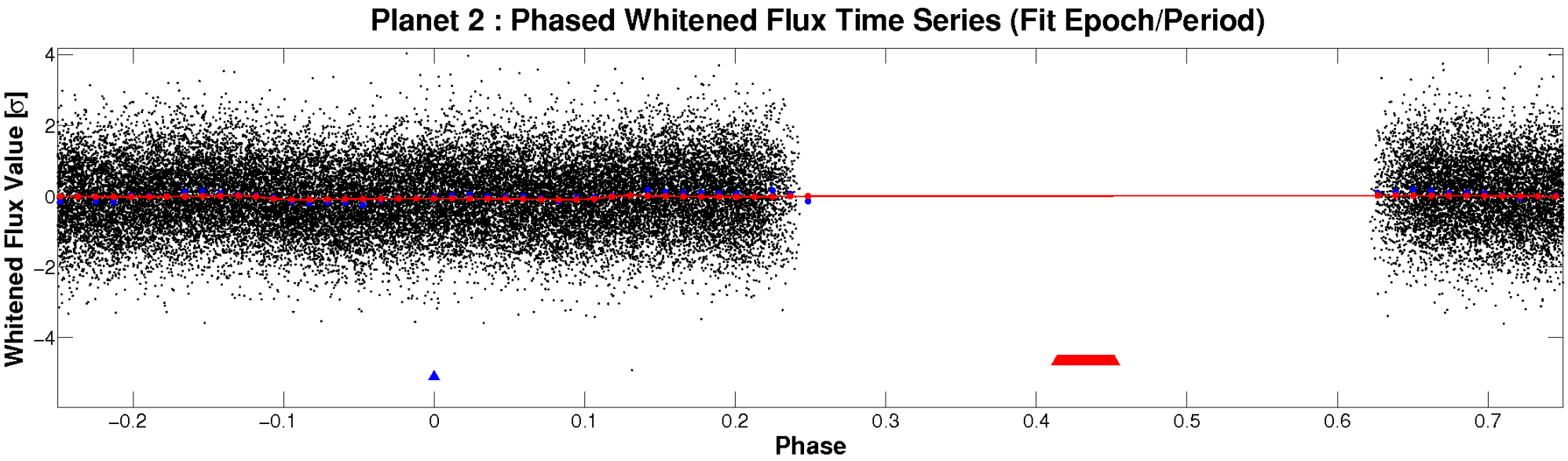

TCE 009164938-02
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009164938-02
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
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

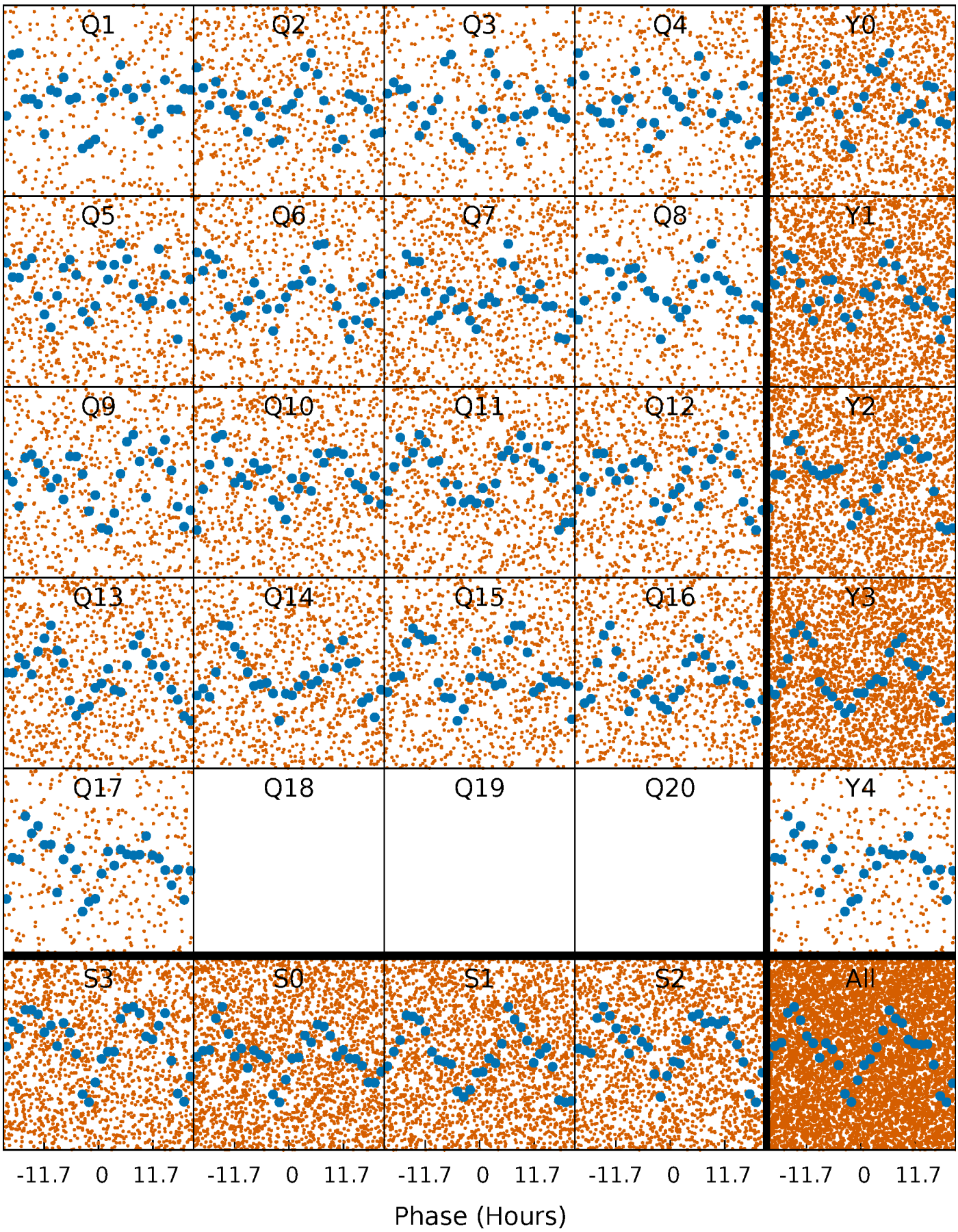
Non-Whitened Vs. Whitened Light Curve





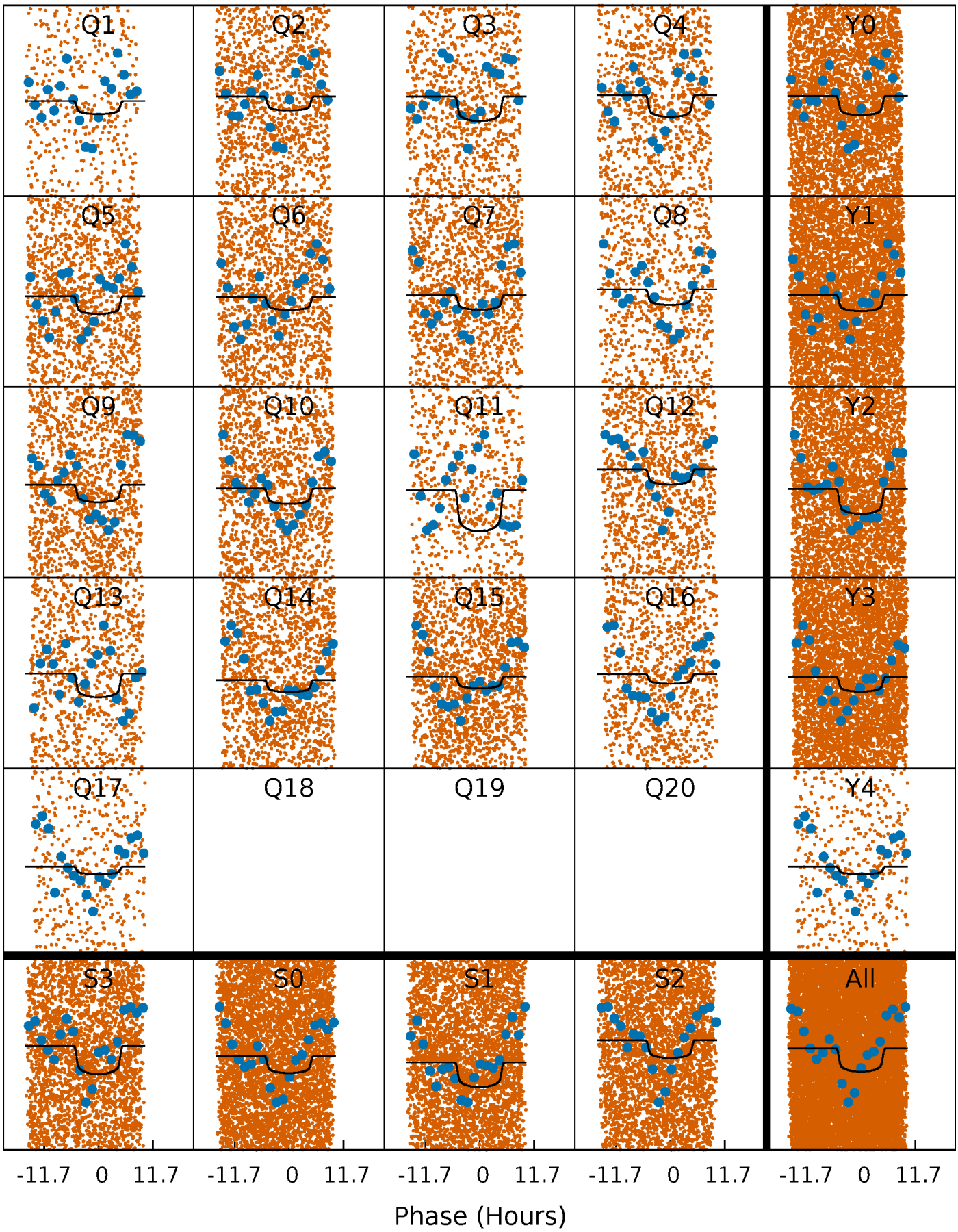
PDC Quarter-Phased Transit Curves

TCE 009164938-02 P= 1.727714 Days T_0=133.155077 (BKJD)



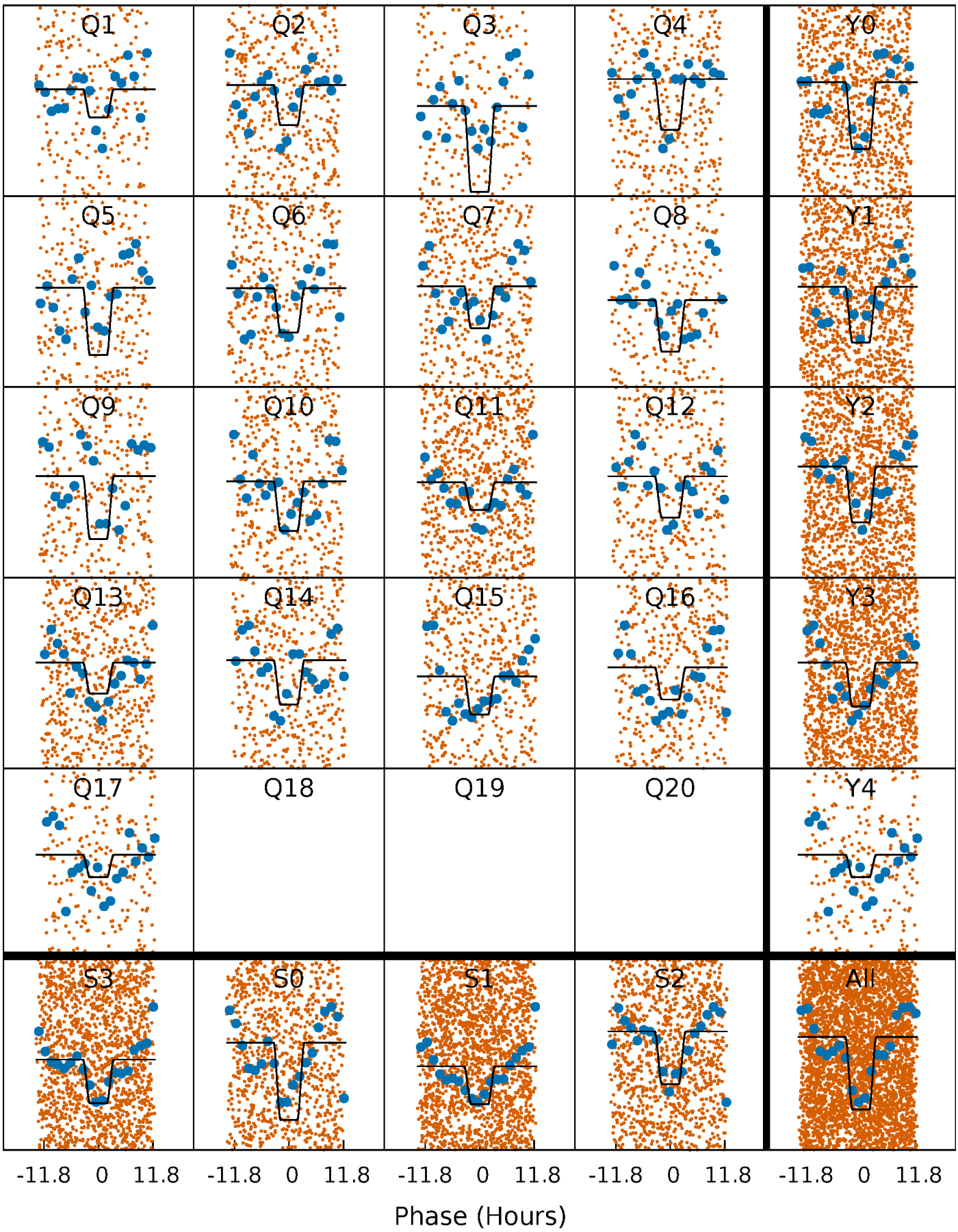
DV Quarter-Phased Transit Curves

TCE 009164938-02 P= 1.727714 Days T_0=133.155077 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

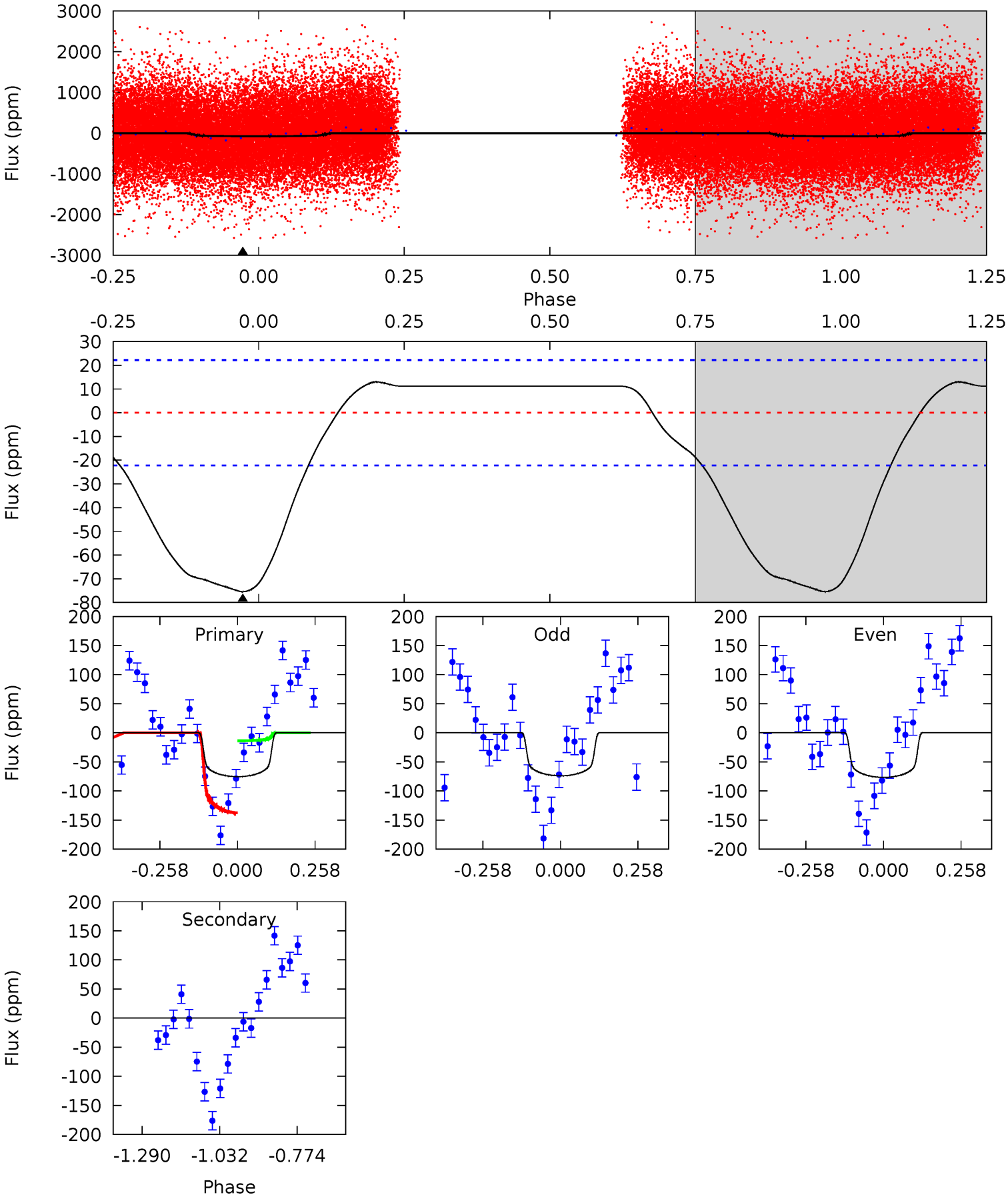
TCE 009164938-02 P= 1.727705 Days T_0=133.067848 (BKJD)



DV Model-Shift Uniqueness Test

009164938-02, P = 1.727714 Days, E = 131.427363 Days

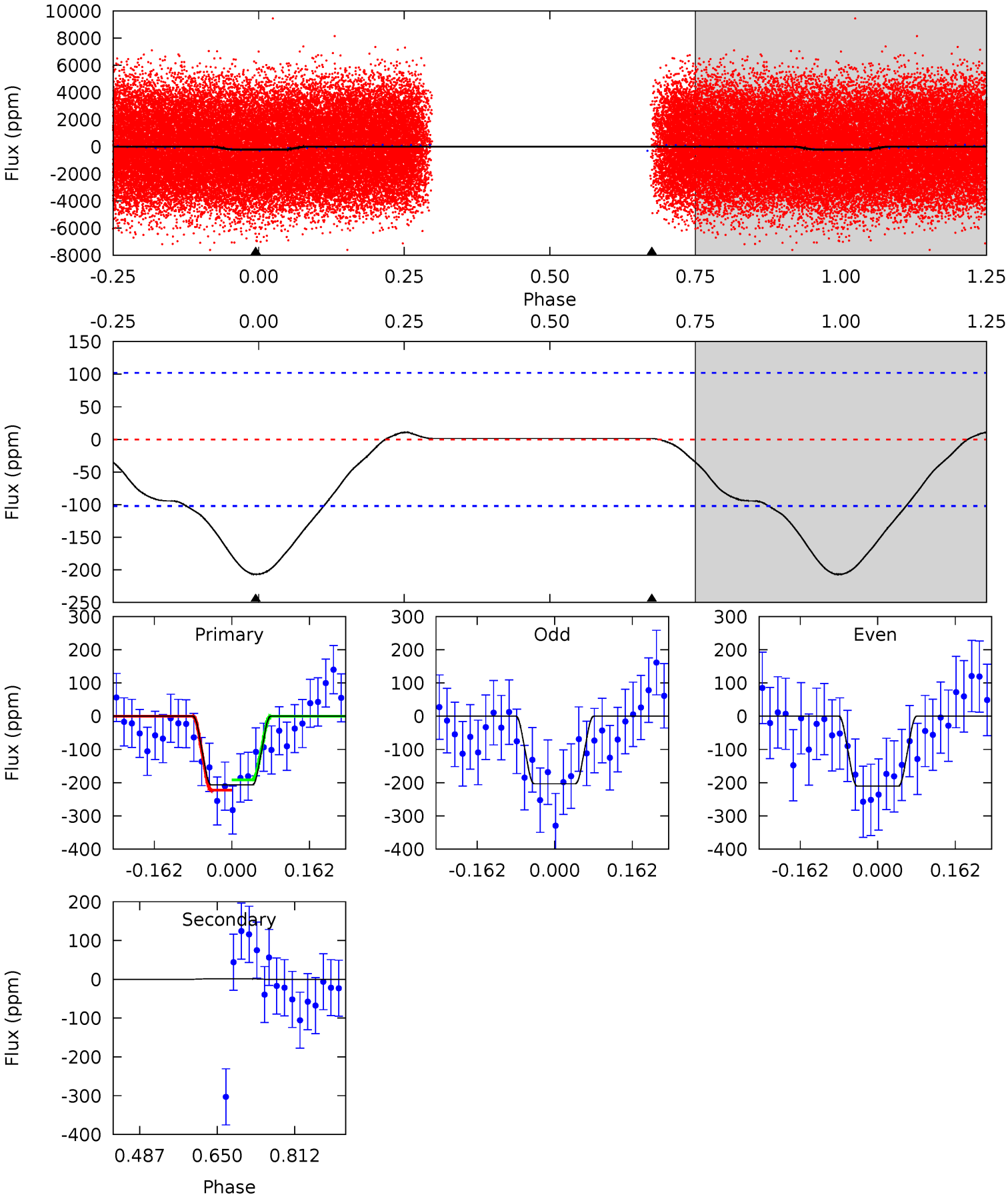
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	0	0	0	4.36	1.13	1.46	14.8	14.8	0	0	0.27	0.90	0.15	12.1



Alt Model-Shift Uniqueness Test

009164938-02, P = 1.727705 Days, E = 131.340143 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.06	-0.07	0	0	4.46	1.40	0.83	9.06	9.06	-0.07	-0.07	0.16	0.95	0.05	0.66



Stellar Parameters For KIC 009164938

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6953^{+219}_{-301}	$4.215^{+0.128}_{-0.192}$	$-0.260^{+0.250}_{-0.350}$	$1.477^{+0.446}_{-0.297}$	$1.316^{+0.198}_{-0.198}$	$0.575^{+0.365}_{-0.301}$
	+3%/-4%	+3%/-5%	+96%/-135%	+30%/-20%	+15%/-15%	+64%/-52%
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 009164938-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0±5	$1.51^{+0.30}_{-0.26}$	2998^{+240}_{-236}	-3046^{+6689}_{-901}	$0.005^{+1.214}_{-1.136}$
Alt.	1±23	$2.60^{+0.43}_{-0.37}$	2989^{+226}_{-218}	-3079^{+6996}_{-1187}	$-0.008^{+1.709}_{-1.848}$

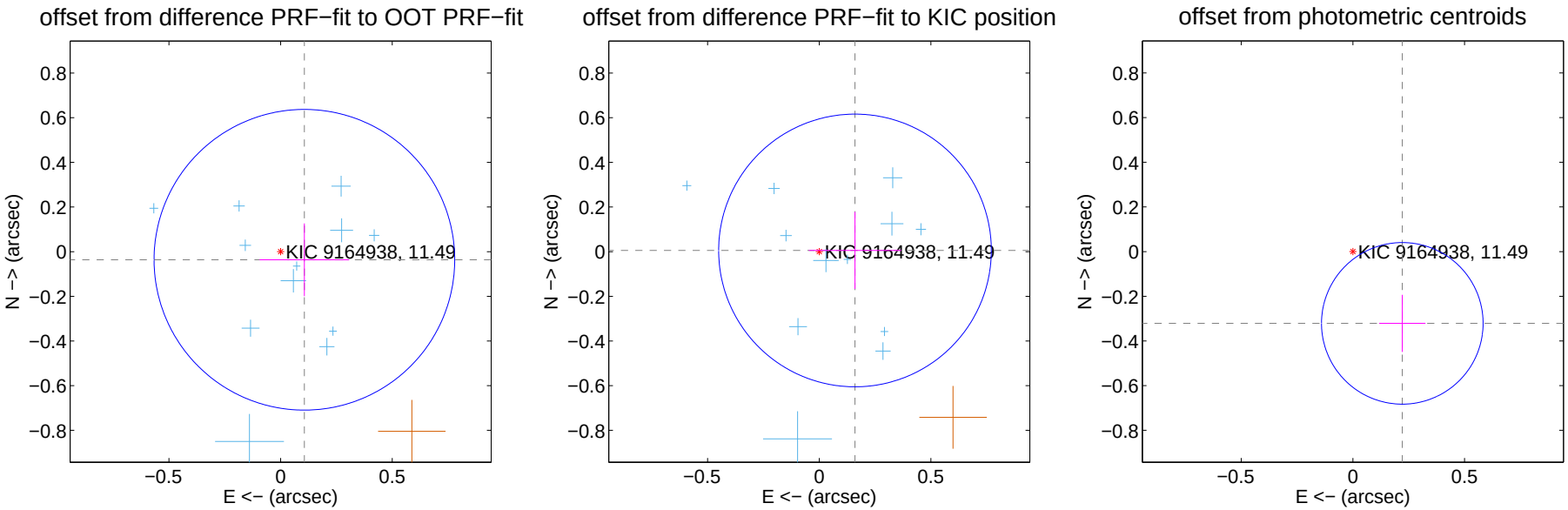
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

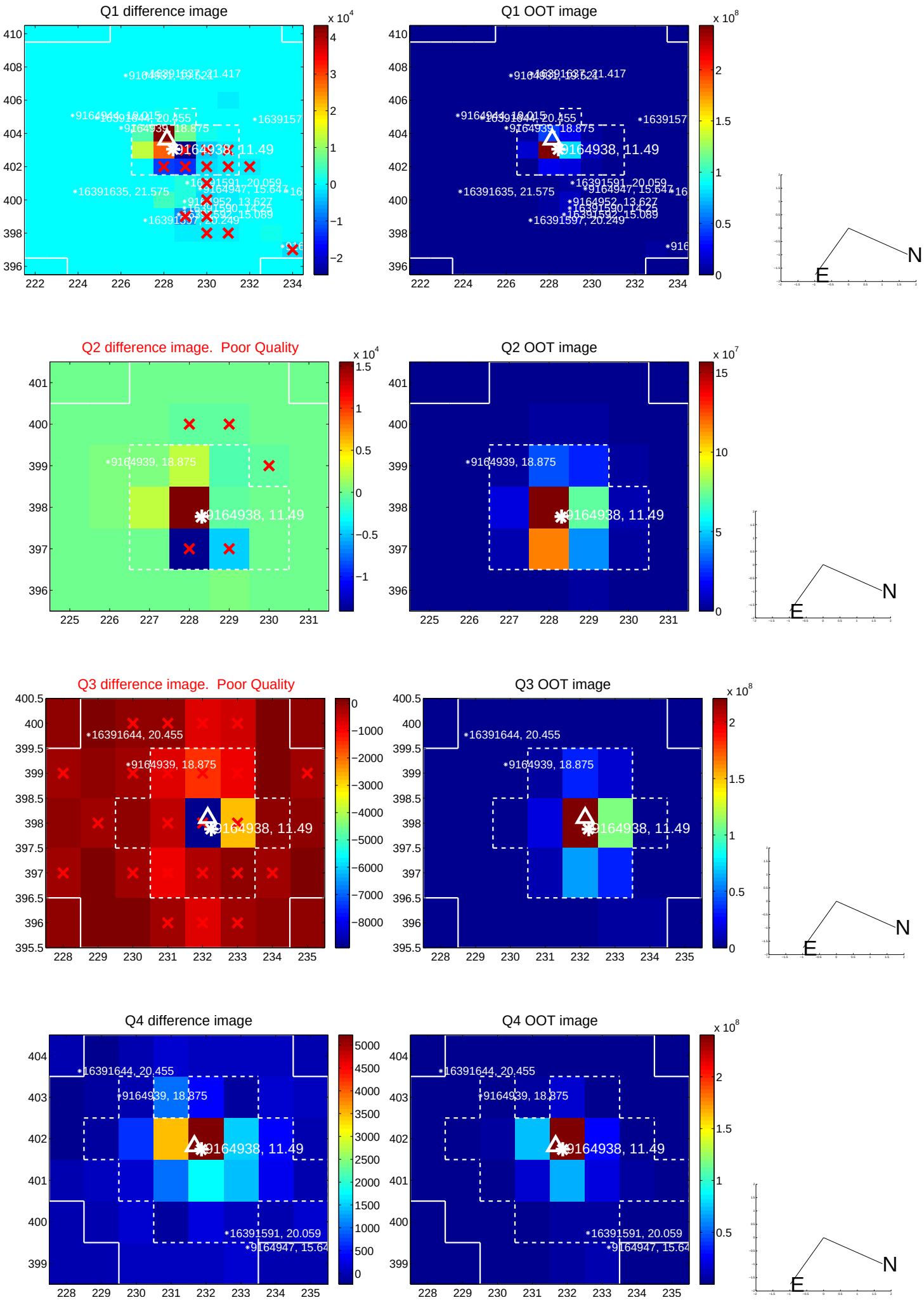
Supplemental centroid analysis for 009164938-02. Kepler magnitude: 11.49. Transit SNR 10.25
There are 13 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.113 ± 0.224	0.50	-0.107 ± 0.201	-0.036 ± 0.163
PRF-fit source offset from KIC position	0.160 ± 0.204	0.79	-0.160 ± 0.207	0.005 ± 0.172
photometric centroid source offset	0.39 ± 0.12	3.24	-0.22 ± 0.10	-0.32 ± 0.13

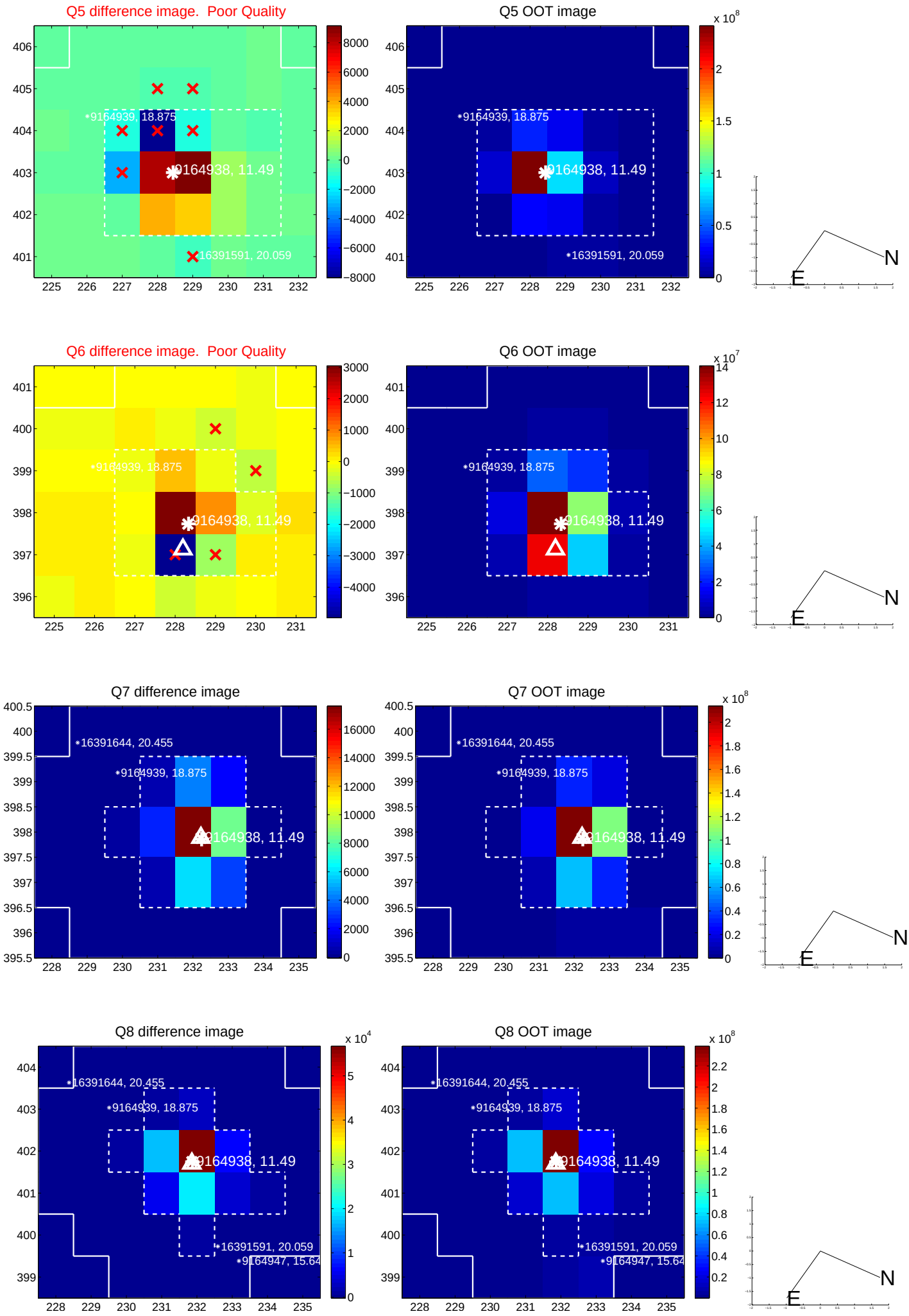


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

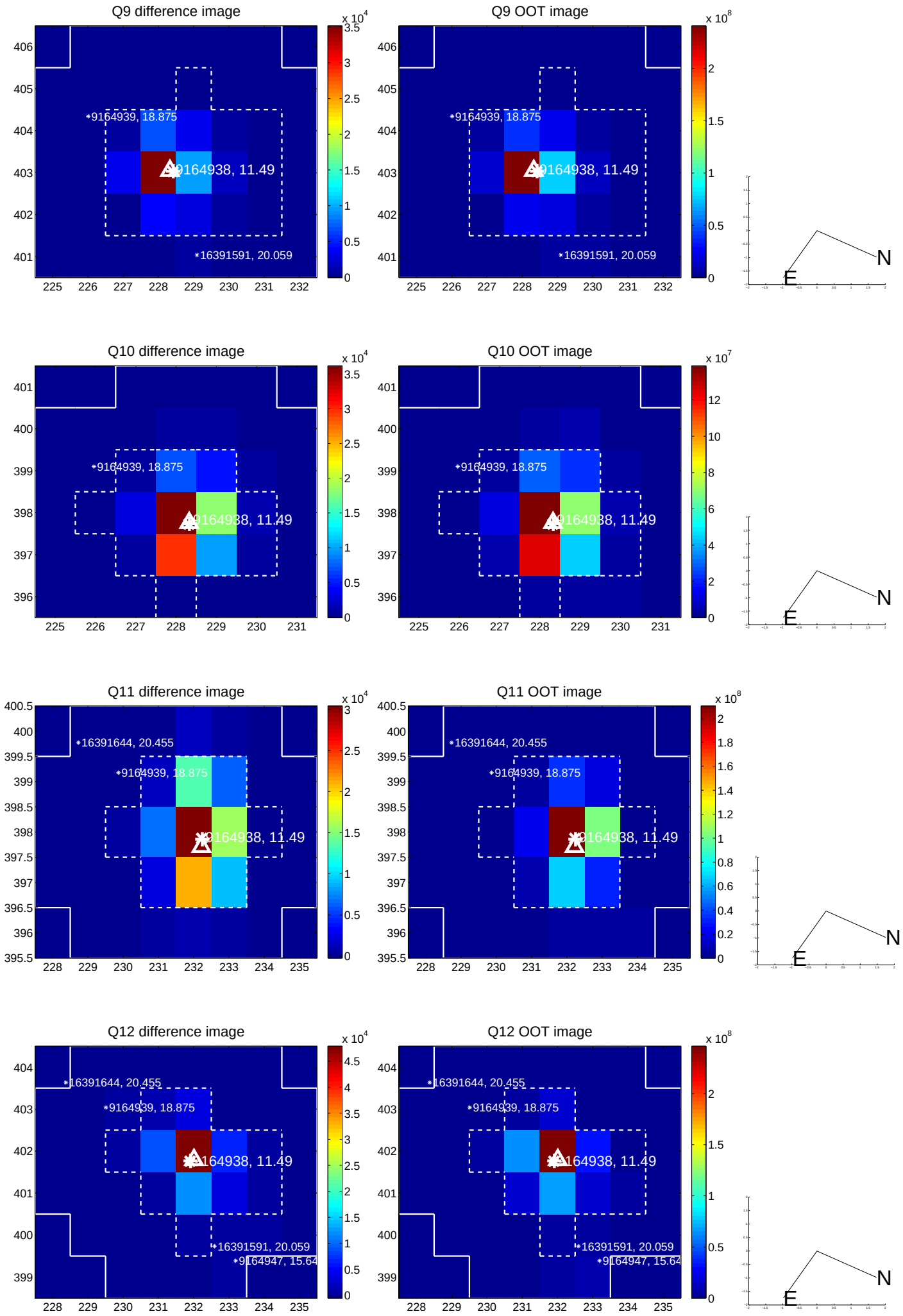
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



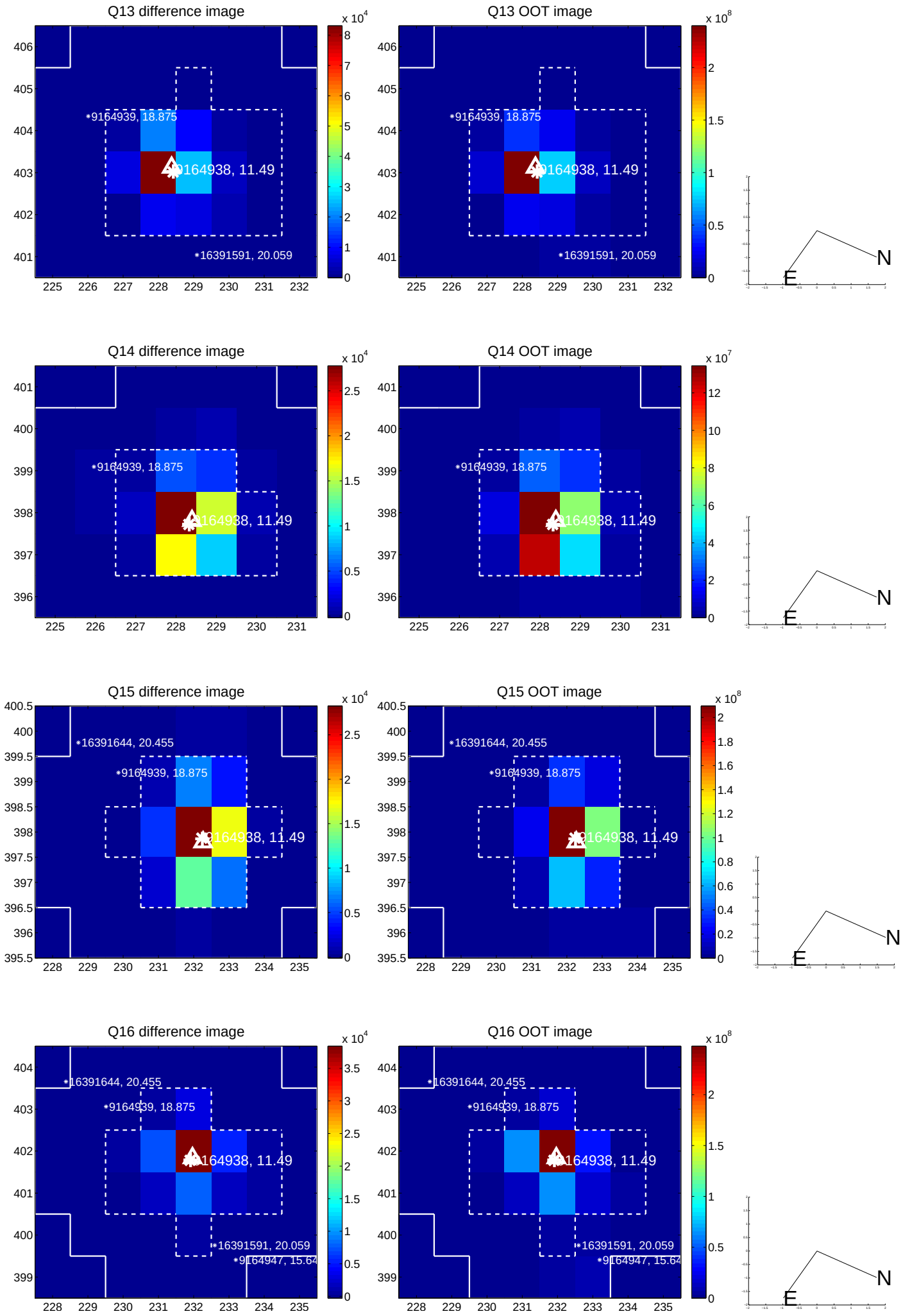
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



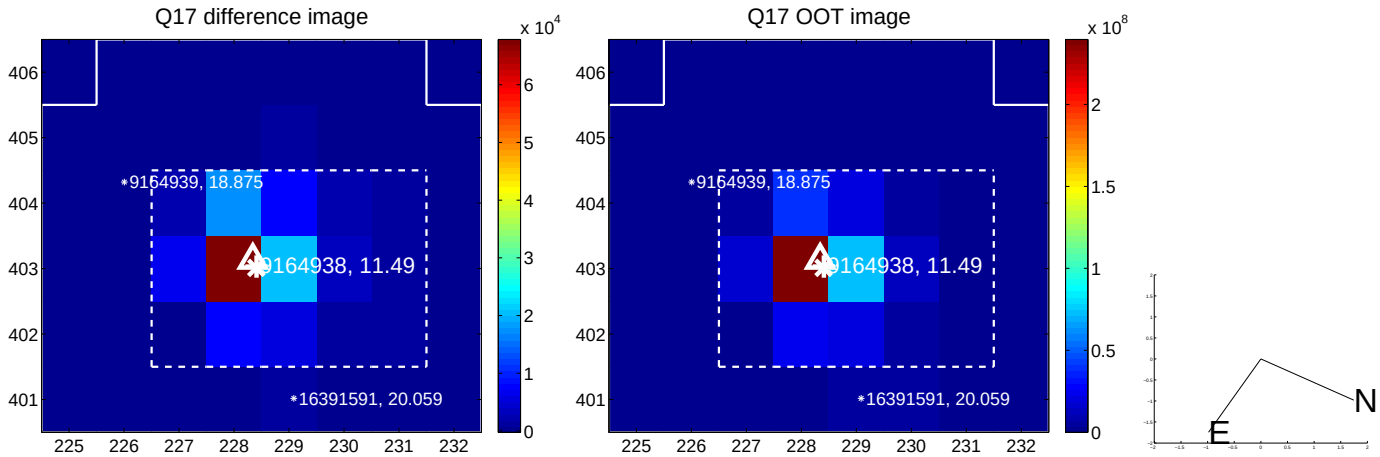
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

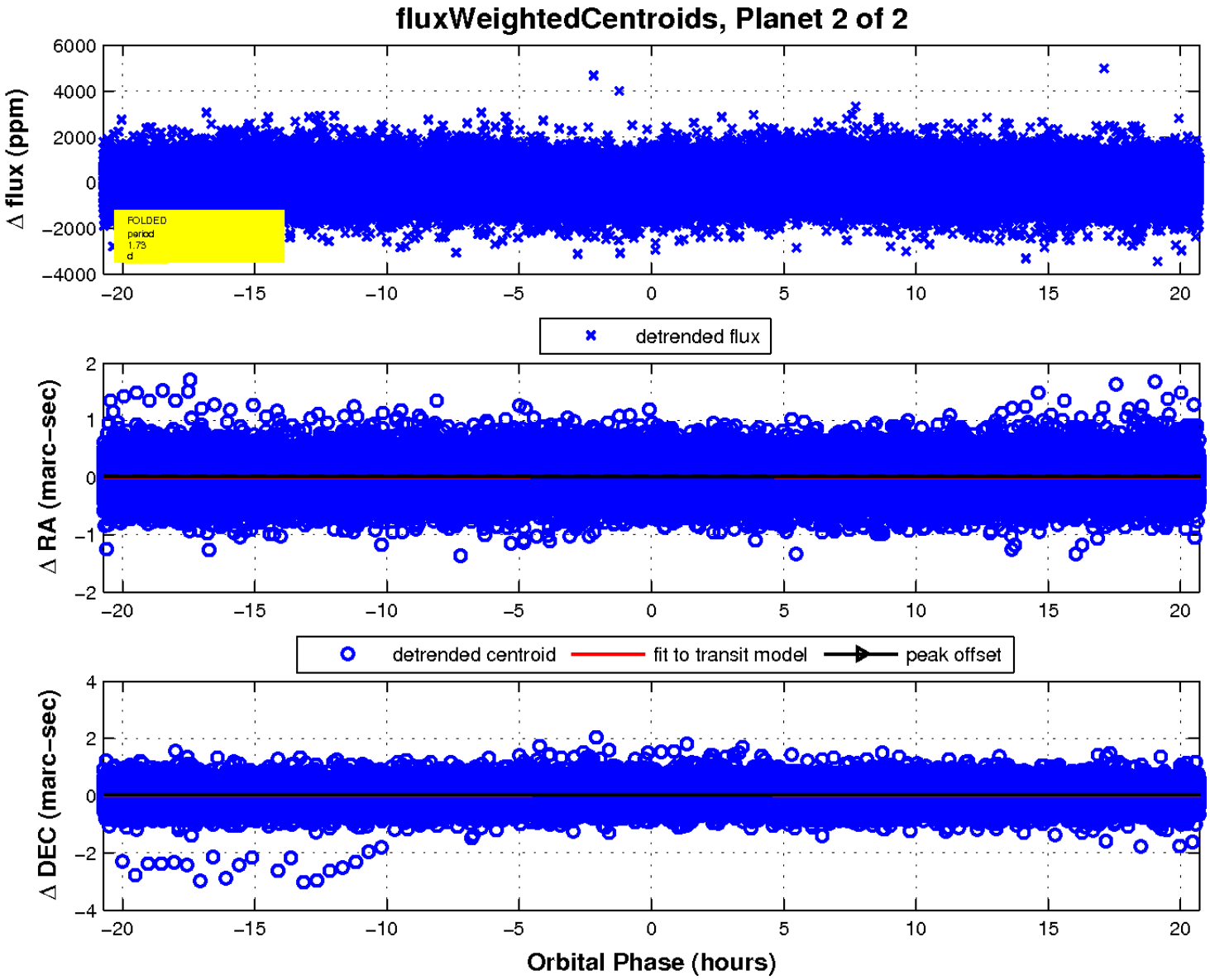


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

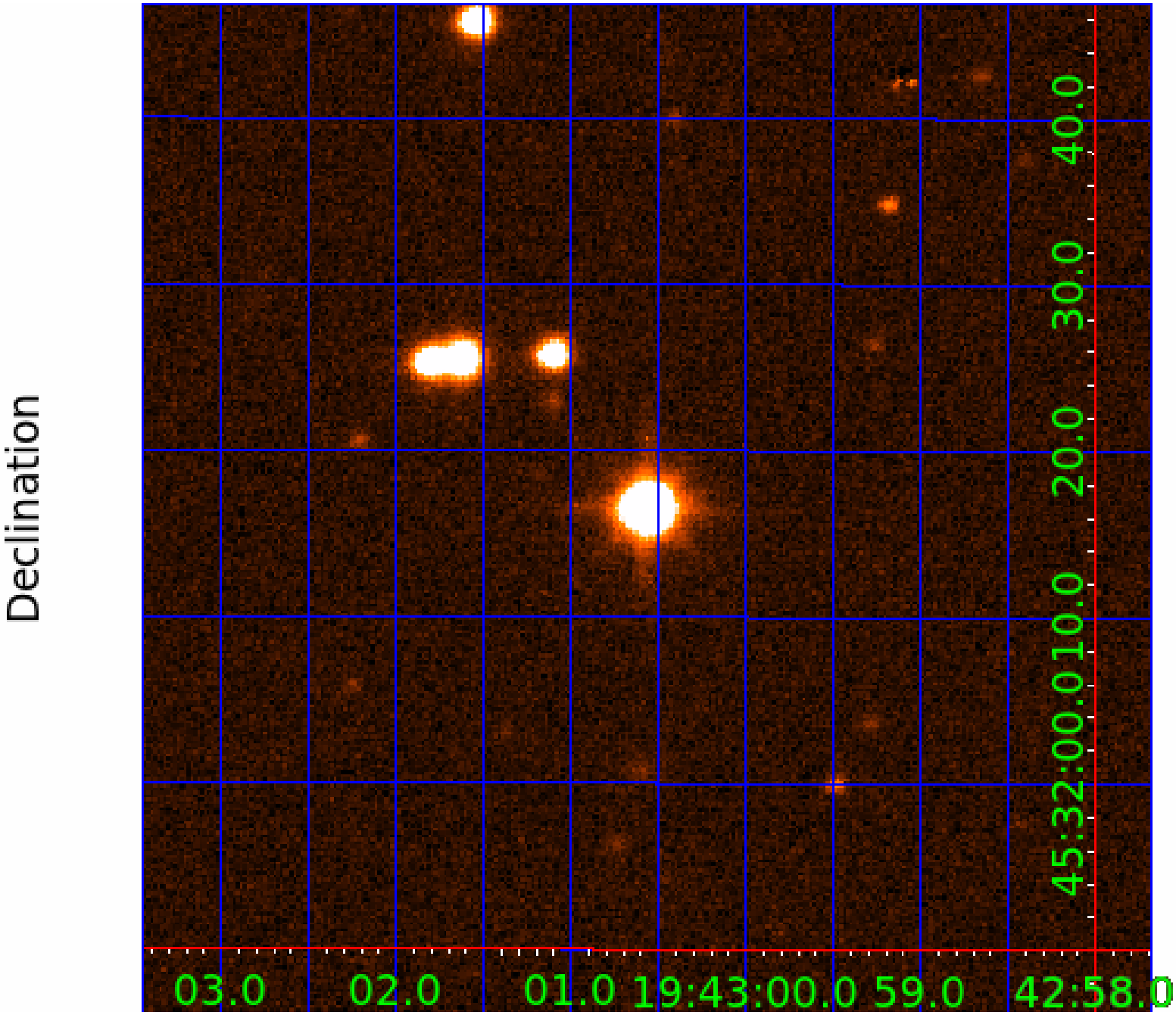


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
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01.0
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