KIC 010398088

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 ($S_\oplus$)
010398088-01	OBS	No	611.592270	160.961645	239.3	7.022	12.6	7.2	1.56	5585	2.59	1.23
010398088-02	OBS	No	5.611509	136.227722	33.4	7.675	11.3	11.6	1.56	5585	1.05	638.59
010398088-03	OBS	No	5.611415	137.656414	0.0	0.749	8.8	0.0	1.56	5585	0.00	638.61
010398088-04	OBS	No	5.611921	137.675688	0.0	6.667	8.8	0.0	1.56	5585	0.03	638.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398088-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398088-02	OBS	FP	0.00	1	0	0	0	LPP_DV
010398088-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
010398088-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_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.

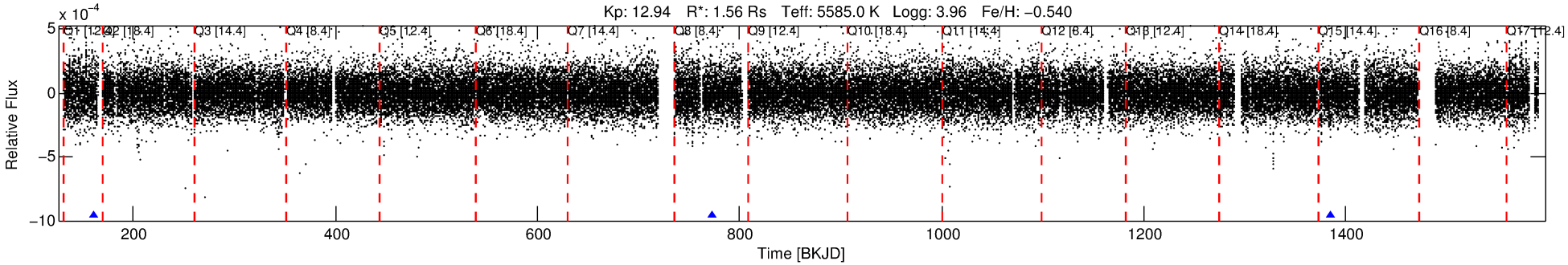
Ephemeris Match Information For 010398088-01

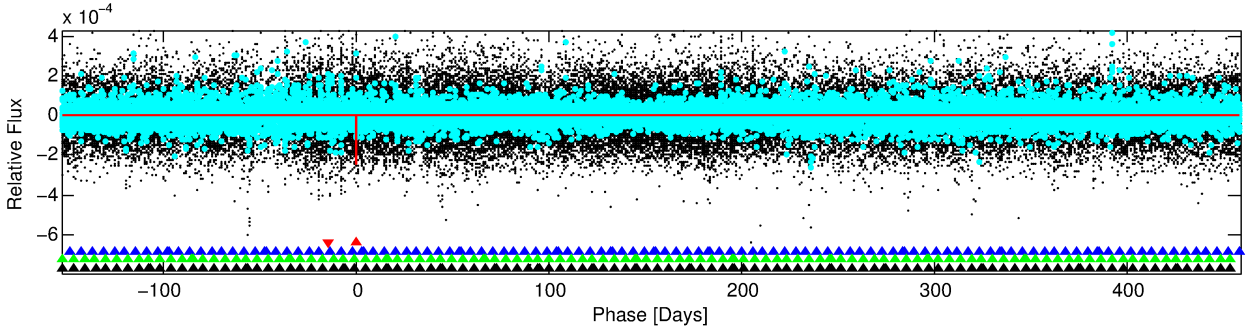
No Significant Match Found

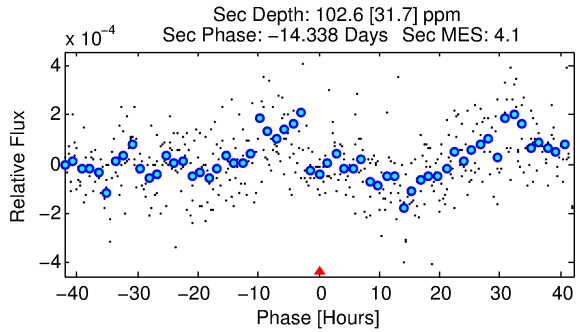
DV One-Page Summary

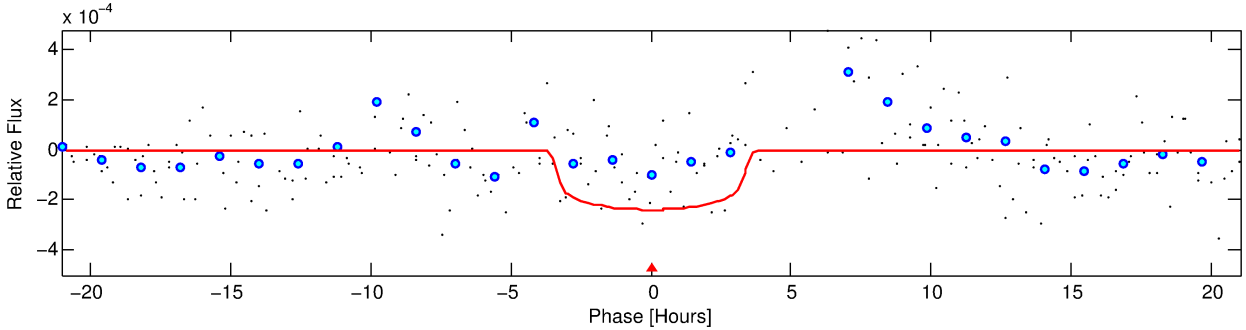
KIC: 10398088 Candidate: 1 of 4 Period: 611.592 d

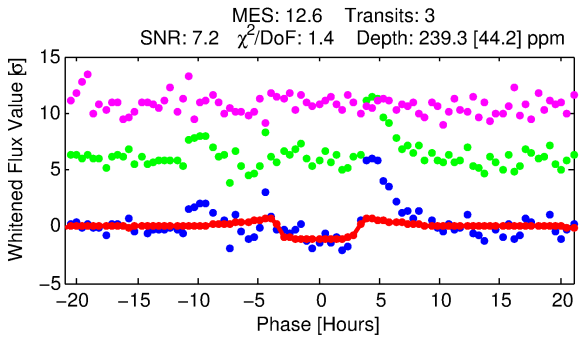
Kp: 12.94 R*: 1.56 Rs Teff: 5585.0 K Logg: 3.96 Fe/H: −0.540

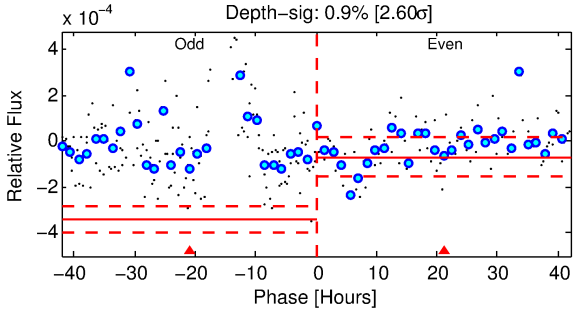


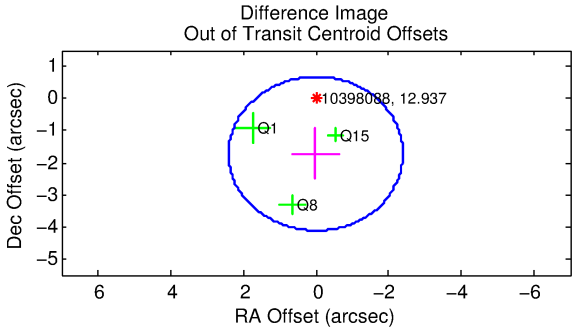












DV Fit Results:

Period = 611.59227 [0.01077] d
Epoch = 160.9616 [0.0130] BKJD
Rp/R* = 0.0152 [0.0207]
a/R* = 486.68 [3057.52]
b = 0.70 [4.54]

Seff = 1.23 [1.11]
Teq = 268 [61] K
Rp = 2.59 [3.75] Re
a = 1.3193 [0.6964] AU

Ag = 14668.70 [42391.82] [0.35σ]
Teffp = 4566 [3140] K [1.37σ]

DV Diagnostic Results:

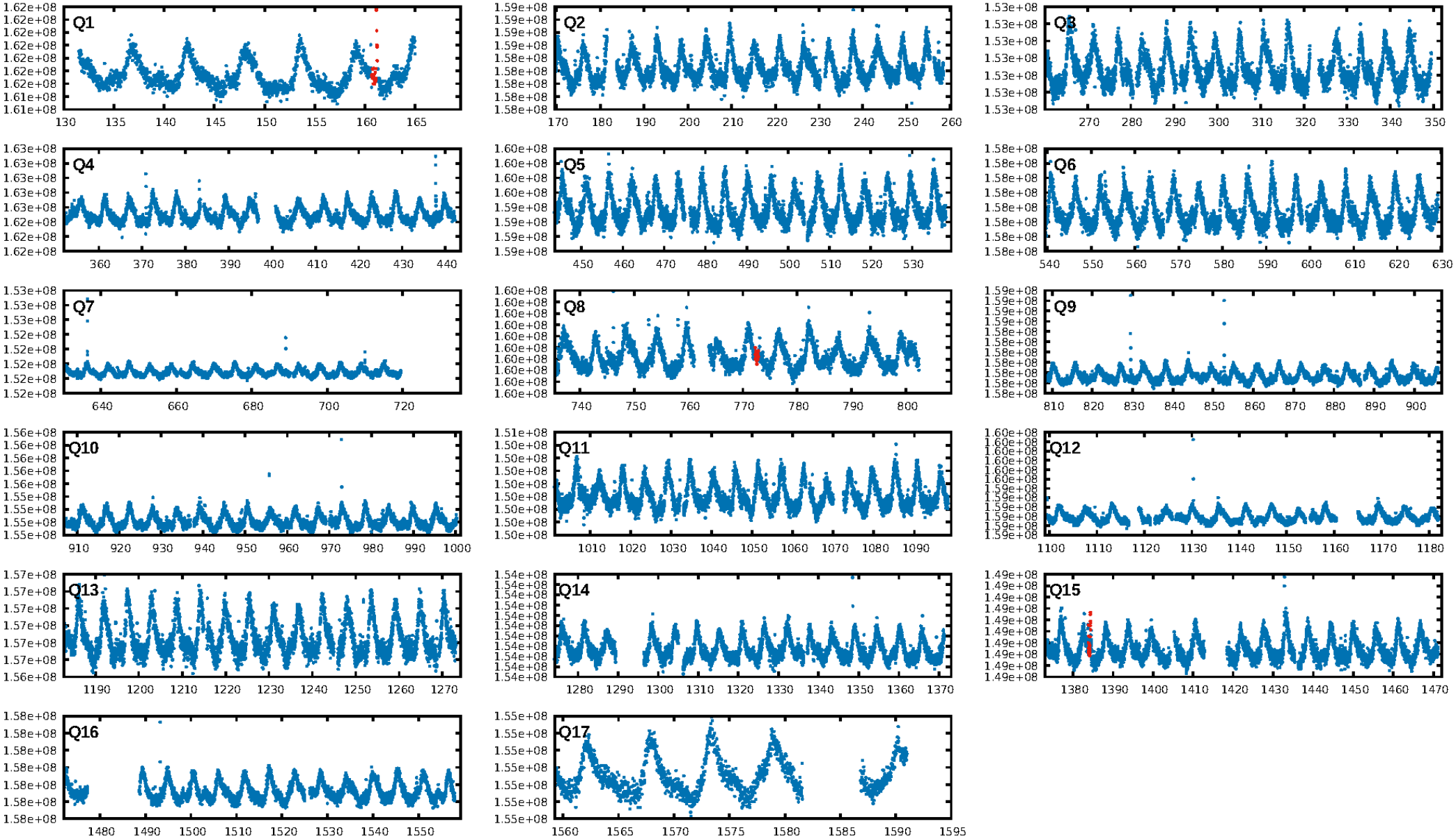
ShortPeriod−sig: 100.0% [1501.90σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 0.2%
ModelChiSquareGof−sig: 48.6%
Bootstrap−pfa: 9.74e−21
RollingBand−fgt: 1.00 [2/2]
GhostDiagnostic−chr: 0.9708

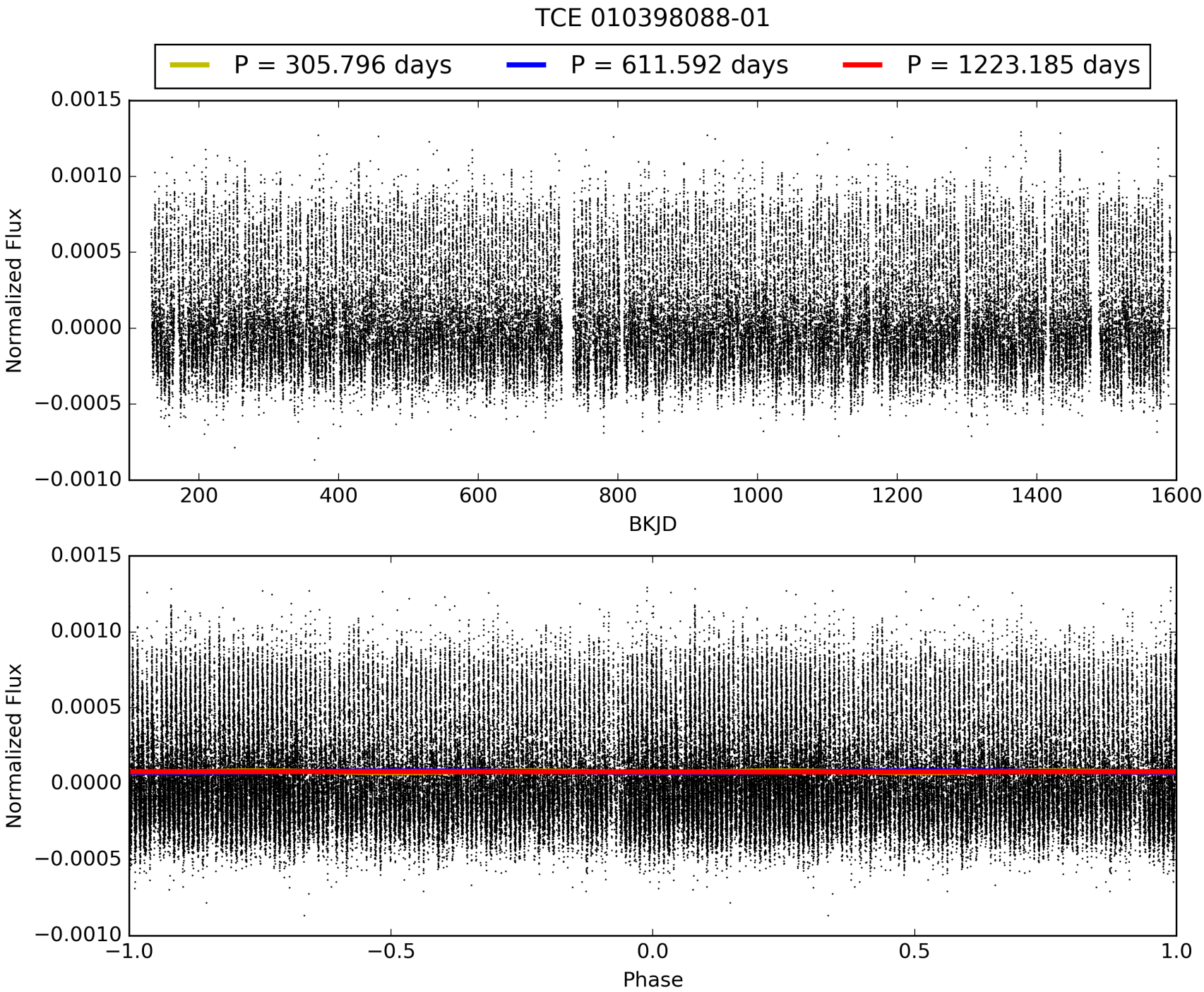
Centroid−sig: 23.6%
Centroid−so: 1.025 arcsec [0.94σ]
OotOffset−rm: 1.721 arcsec [2.15σ]
KicOffset−rm: 1.766 arcsec [2.16σ]
OotOffset−st: 0/1/1/1 [3]
KicOffset−st: 0/1/1/1 [3]
DiffImageQuality−fgm: 0.33 [1/3]
DiffImageOverlap−fno: 0.67 [2/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 07:44:28 Z

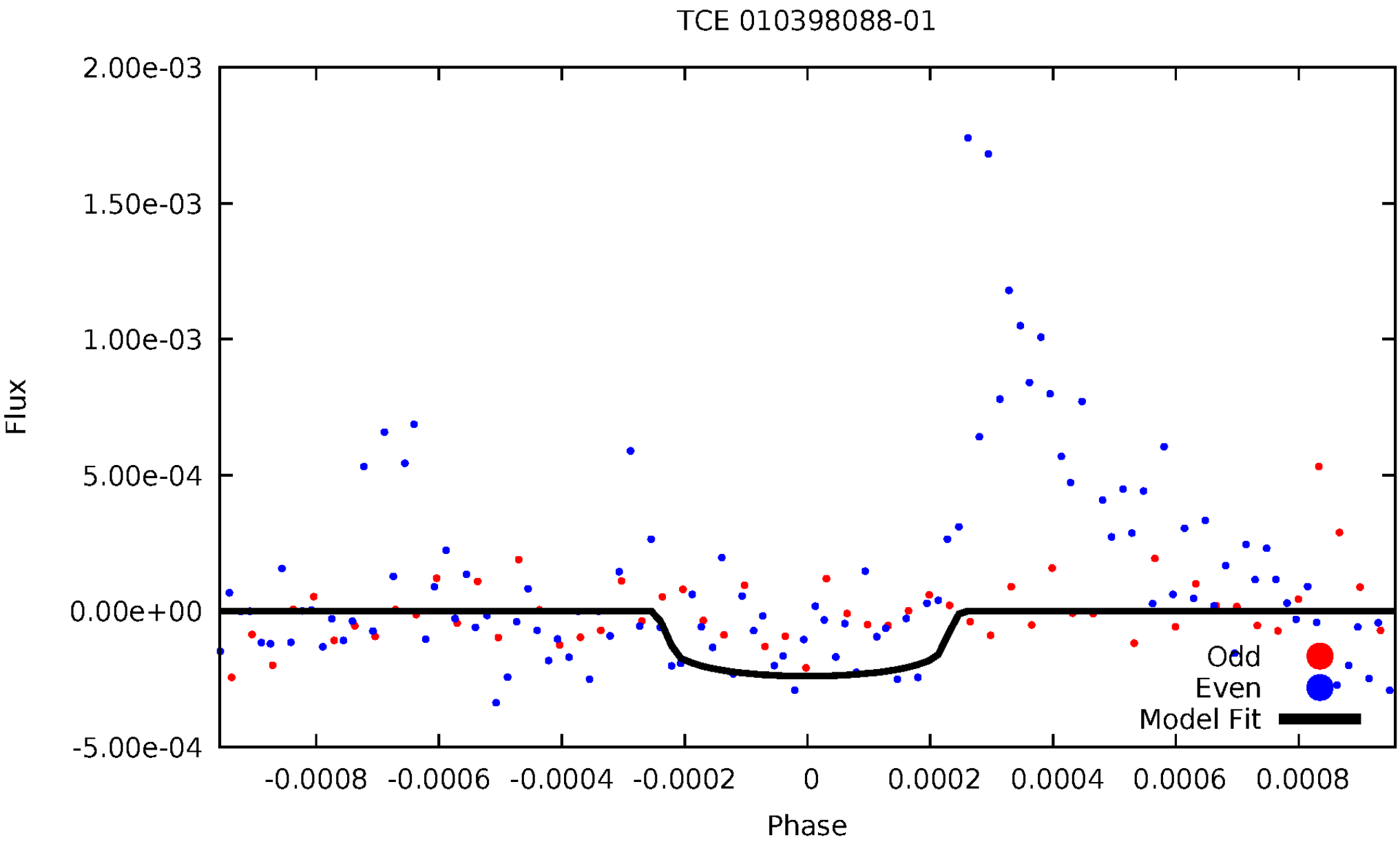
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010398088-01, PDC Light Curves

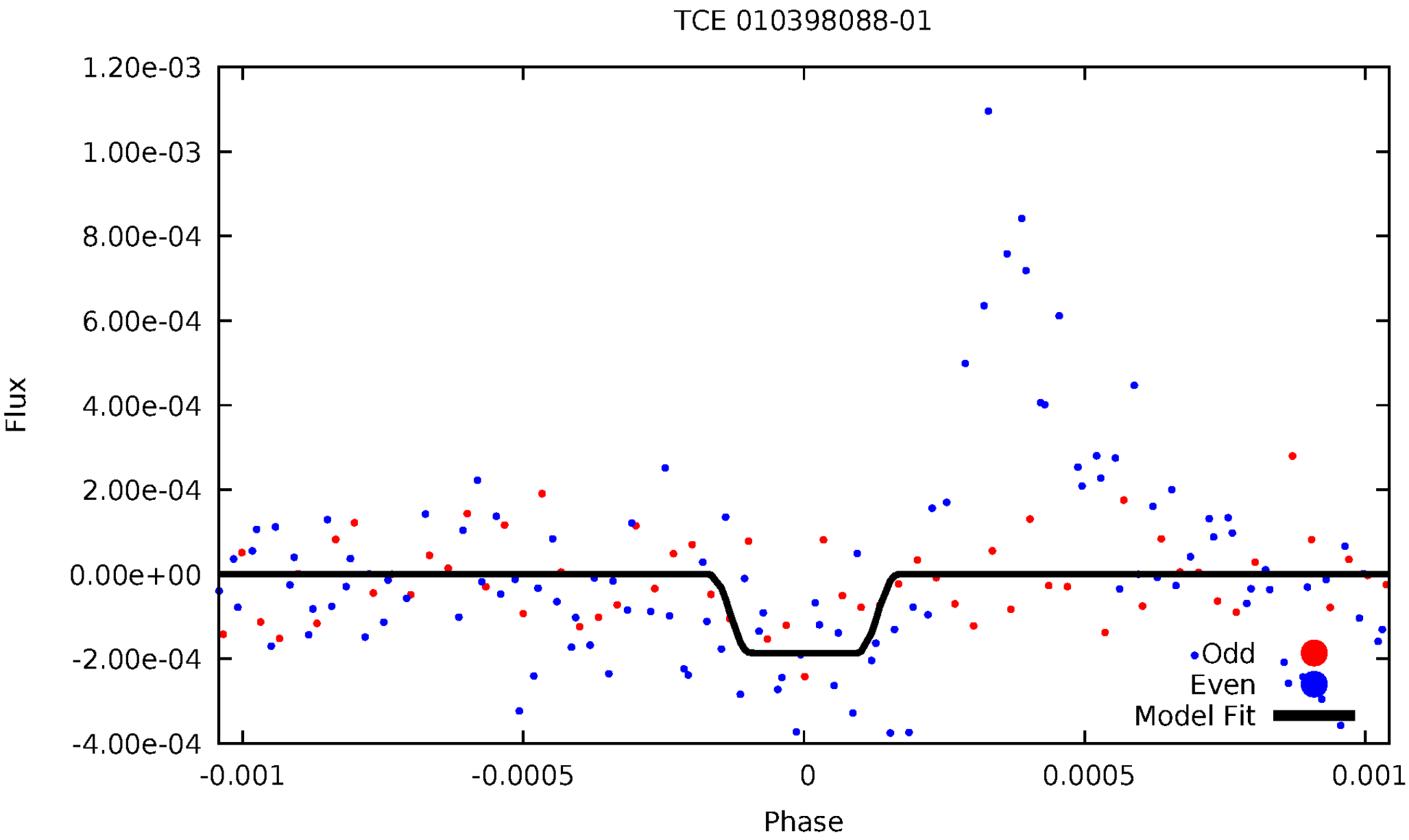



TCE 010398088-01
P = 305.796 days
P = 611.592 days
P = 1223.185 days
Normalized Flux
0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−1.0
−0.5
0.0
0.5
1.0
Phase

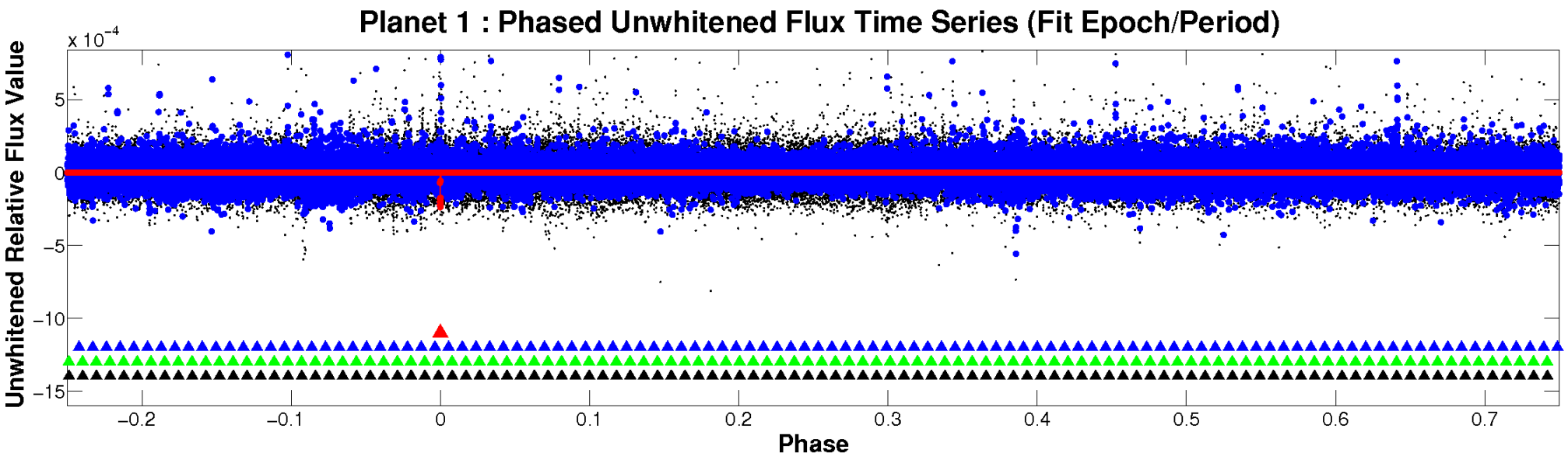
DV Odd/Even

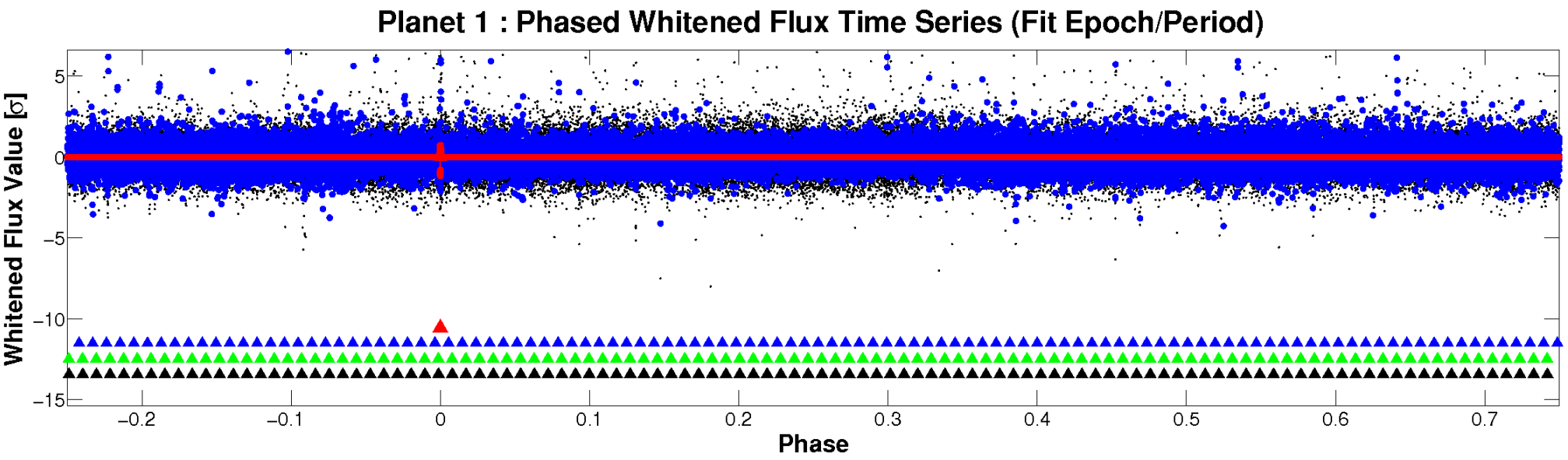

TCE 010398088-01
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
Flux
-0.0008
-0.0006
-0.0004
-0.0002
0
0.0002
0.0004
0.0006
0.0008
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 010398088-01
1.20e-03
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

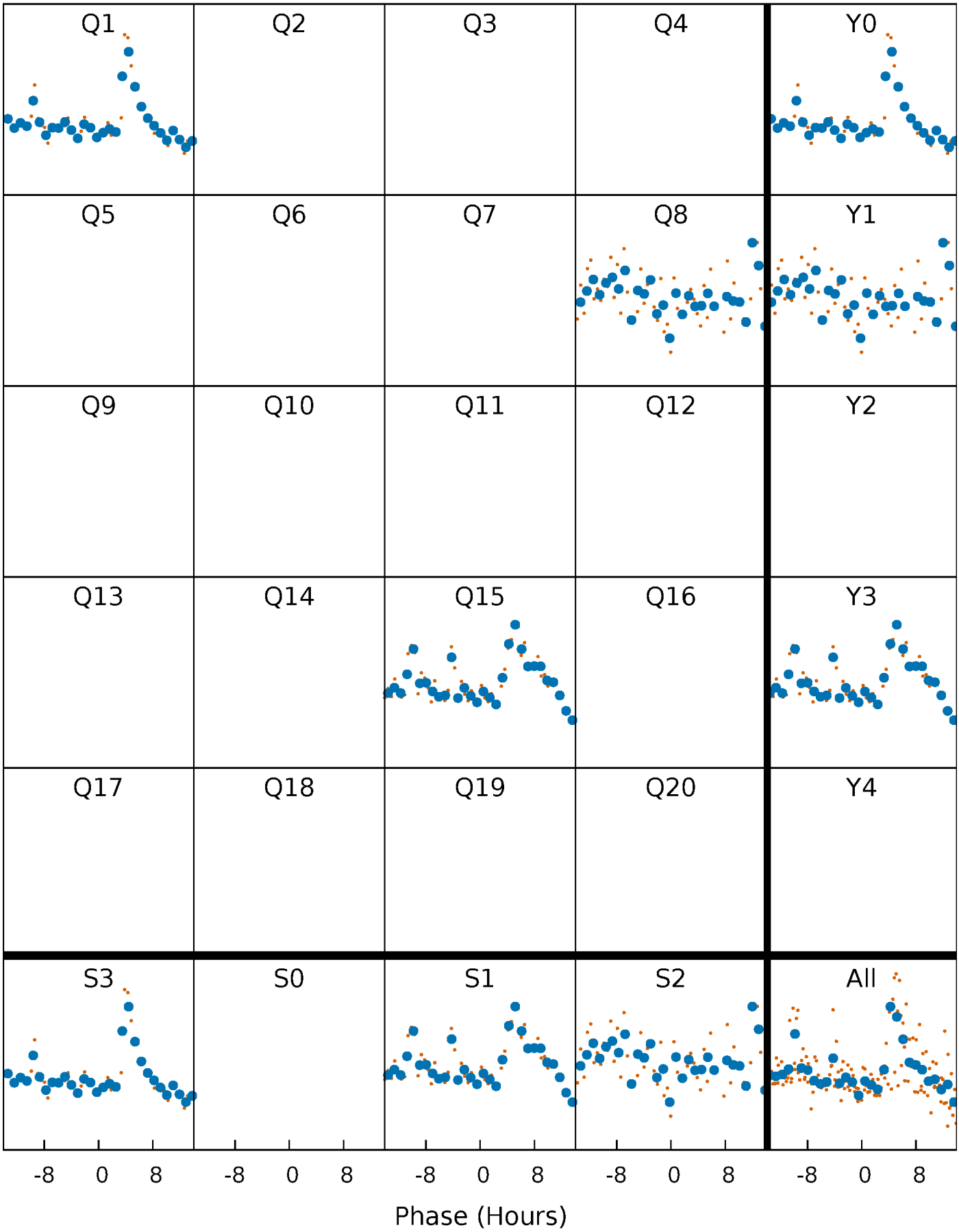
Non-Whitened Vs. Whitened Light Curve





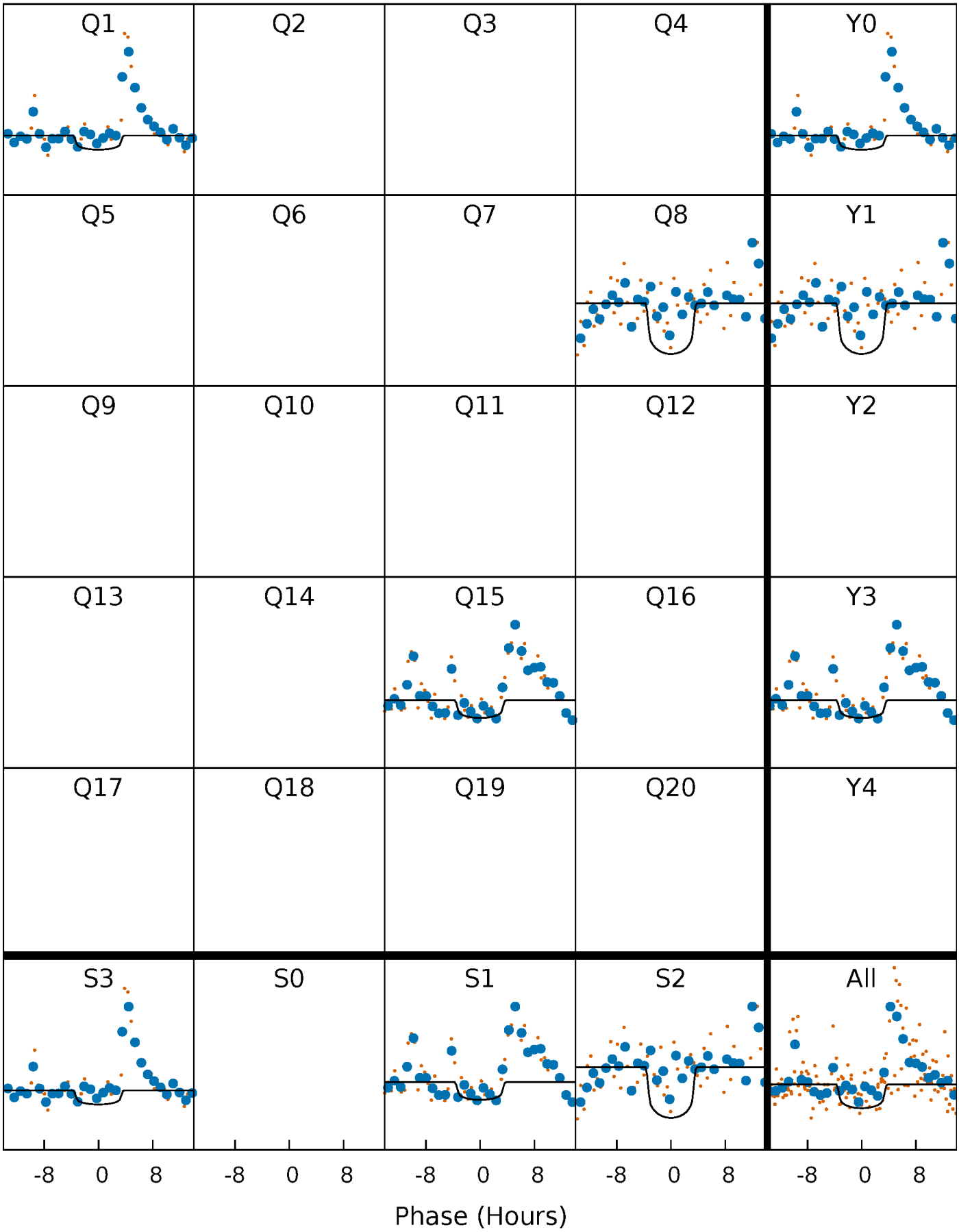
PDC Quarter-Phased Transit Curves

TCE 010398088-01 P=611.592270 Days T_0=160.961645 (BKJD)



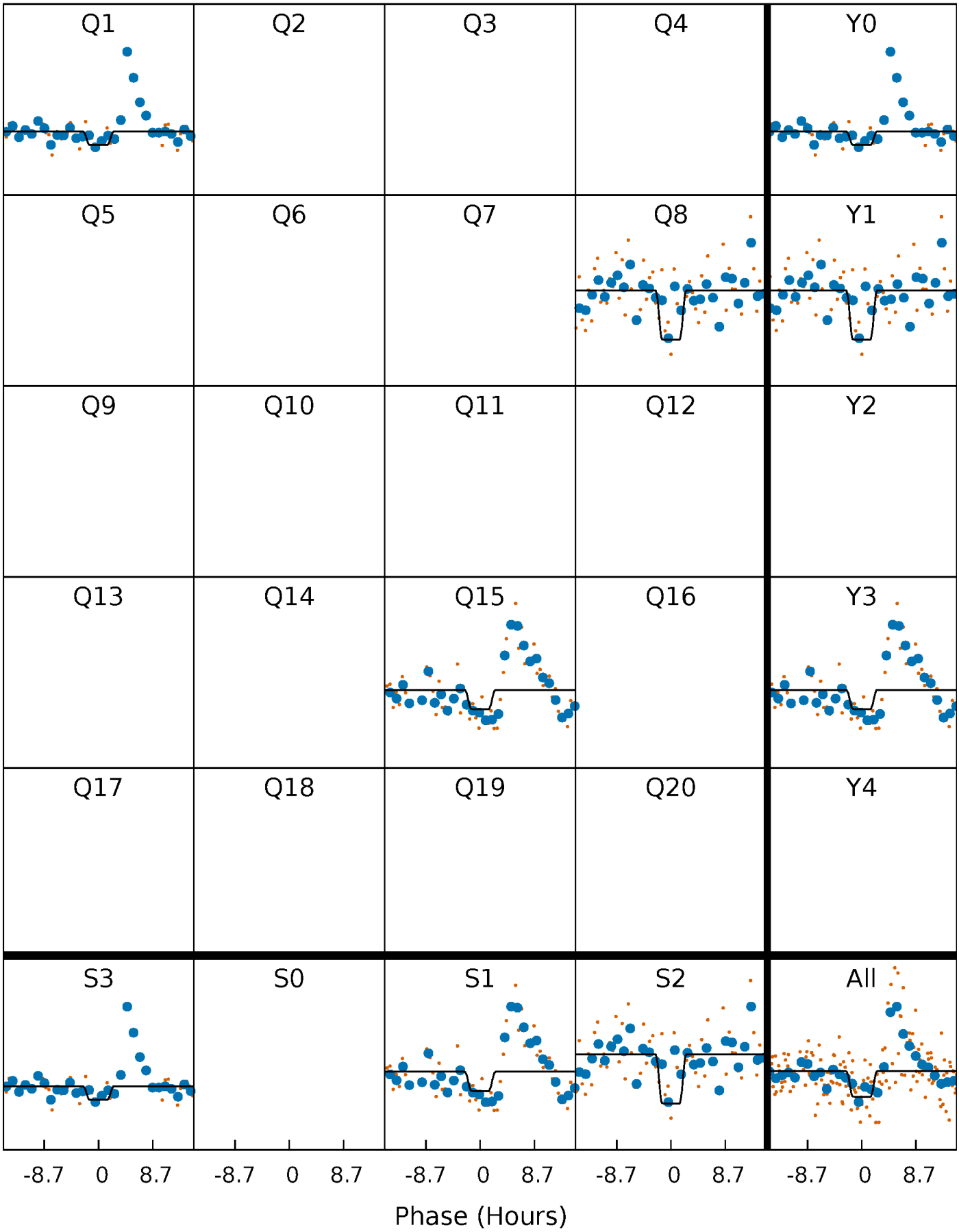
DV Quarter-Phased Transit Curves

TCE 010398088-01 P=611.592270 Days T_0=160.961645 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

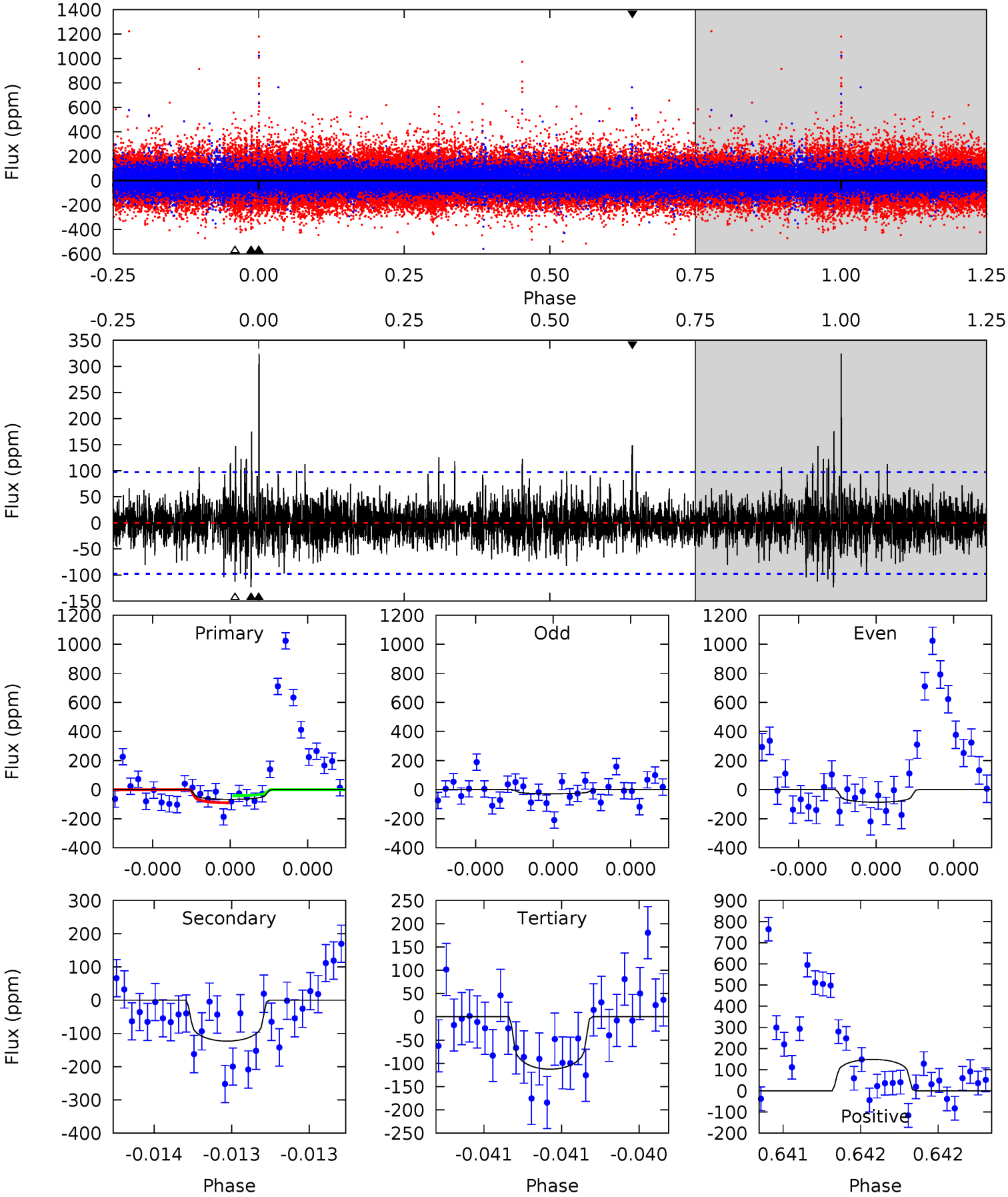
TCE 010398088-01 P=611.590073 Days T_0=160.961466 (BKJD)



DV Model-Shift Uniqueness Test

010398088-01, P = 611.592270 Days, E = 160.961645 Days

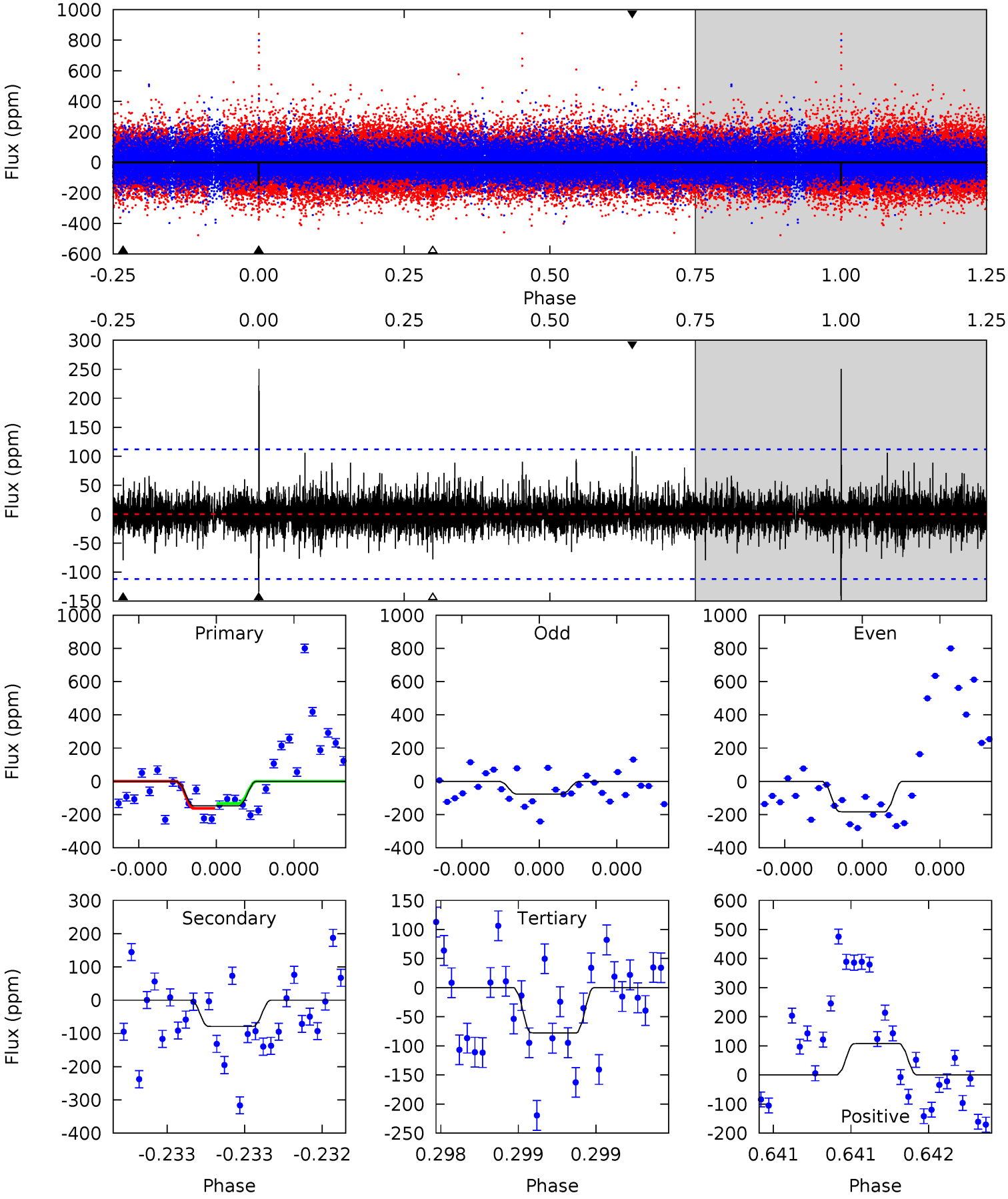
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.84	7.05	6.44	8.49	5.58	3.49	1.61	-2.60	-4.65	0.61	-1.45	1.47	2.40	0.72	1.40



Alt Model-Shift Uniqueness Test

010398088-01, P = 611.590073 Days, E = 160.961466 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.47	4.00	3.94	5.47	5.65	3.59	0.99	3.54	2.01	0.06	-1.47	2.52	1.36	0.63	0.77



Stellar Parameters For KIC 010398088

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5585^{+184}_{-134}	$3.962^{+0.544}_{-0.136}$	$-0.540^{+0.350}_{-0.250}$	$1.565^{+0.379}_{-0.758}$	$0.819^{+0.100}_{-0.075}$	$0.301^{+1.604}_{-0.142}$
	+3%/-2%	+14%/-3%	+65%/-46%	+24%/-48%	+12%/-9%	+533%/-47%
Source	PHO1	FLK73	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 010398088-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-123±17	$3.07^{+2.94}_{-2.01}$	370^{+30}_{-54}	4369^{+2724}_{-893}	12713^{+95975}_{-9504}
Alt.	-79±20	$3.19^{+2.69}_{-2.08}$	366^{+31}_{-50}	3984^{+2218}_{-715}	7449^{+57349}_{-5389}

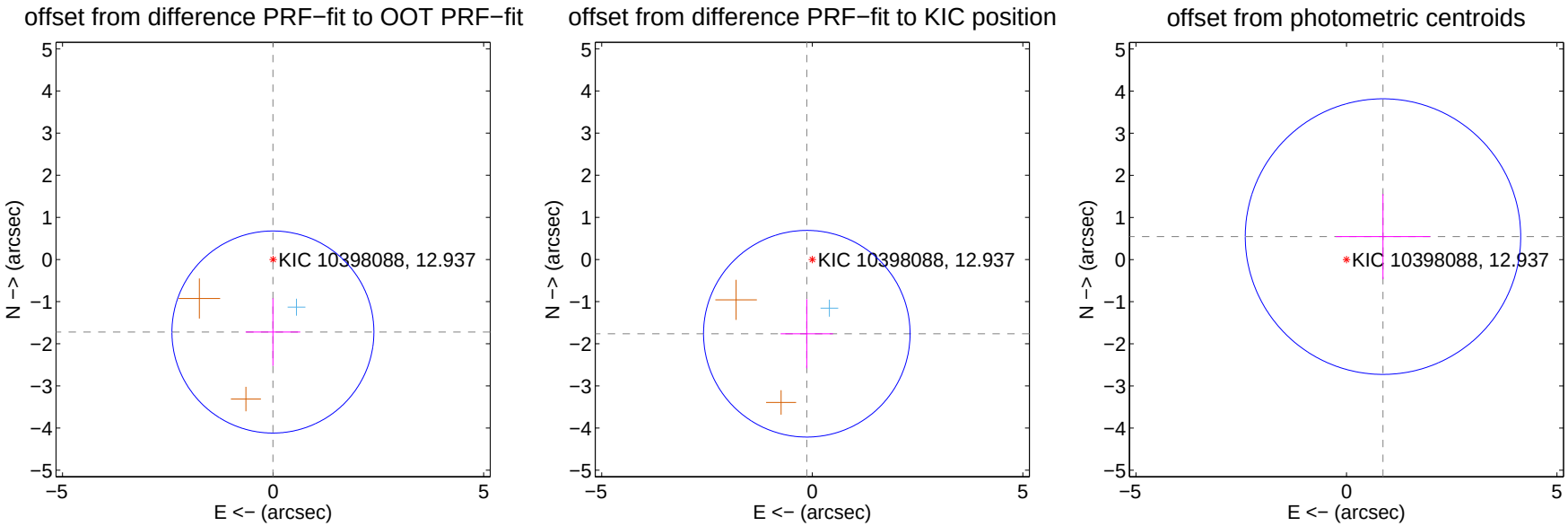
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

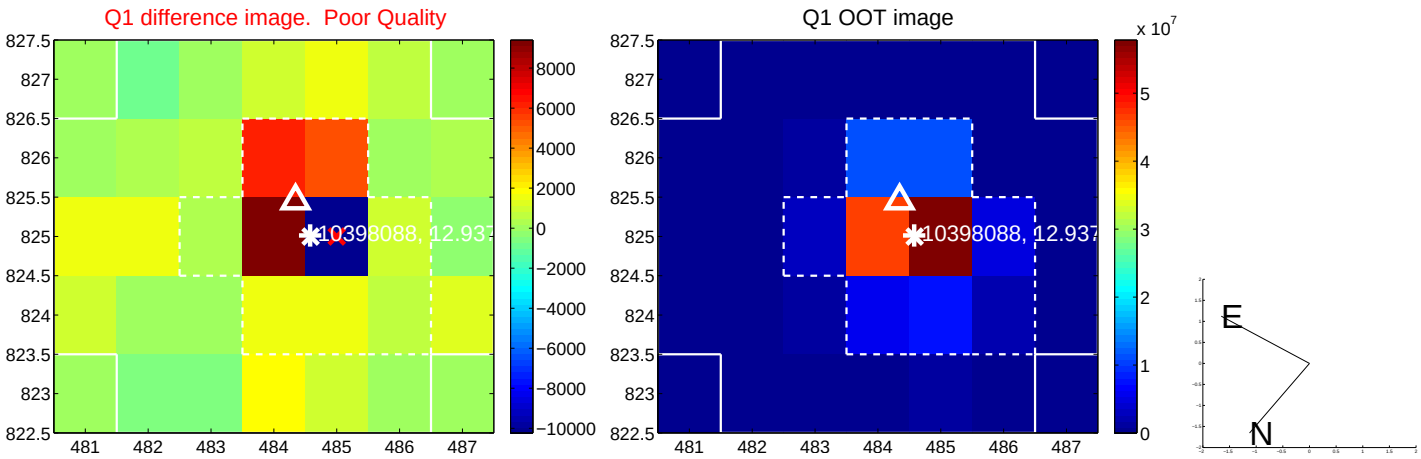
Supplemental centroid analysis for 010398088-01. Kepler magnitude: 12.94. Transit SNR 7.22
There are 1 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

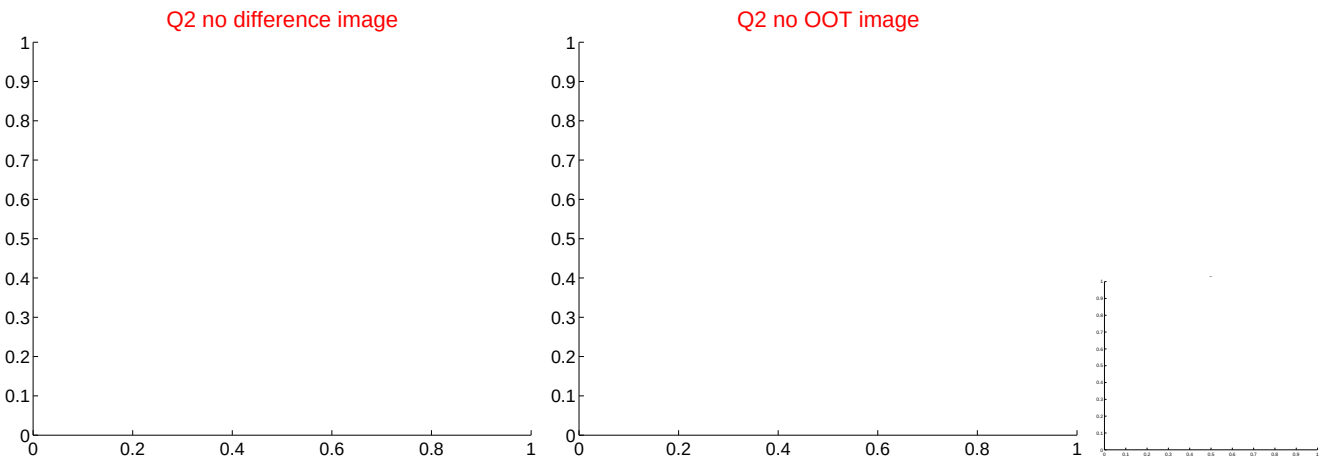
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.721 ± 0.799	2.15	0.004 ± 0.648	-1.721 ± 0.799
PRF-fit source offset from KIC position	1.766 ± 0.817	2.16	0.130 ± 0.622	-1.761 ± 0.818
photometric centroid source offset	1.02 ± 1.09	0.94	-0.87 ± 1.12	0.55 ± 1.01

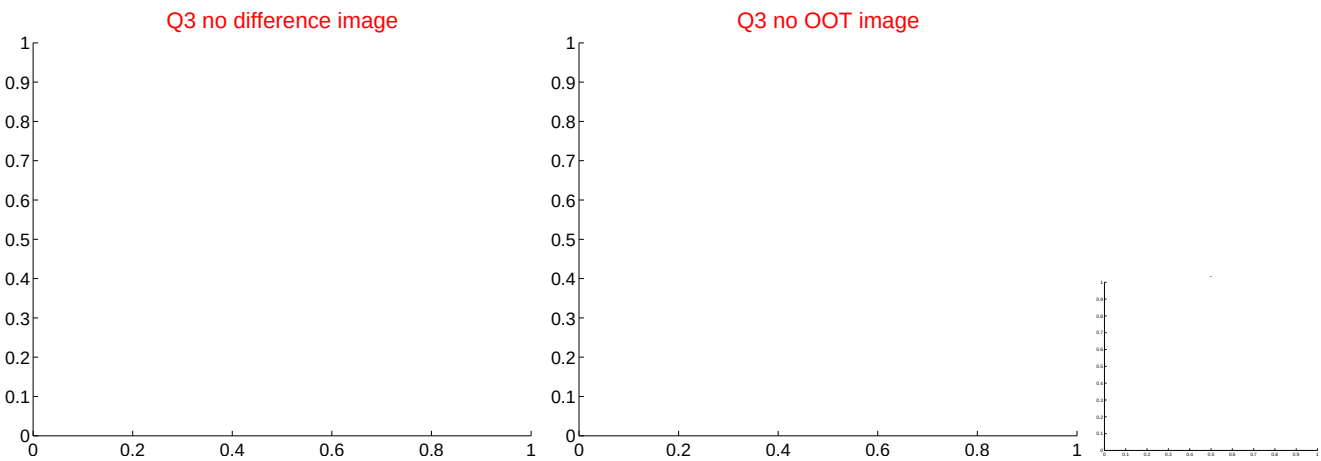


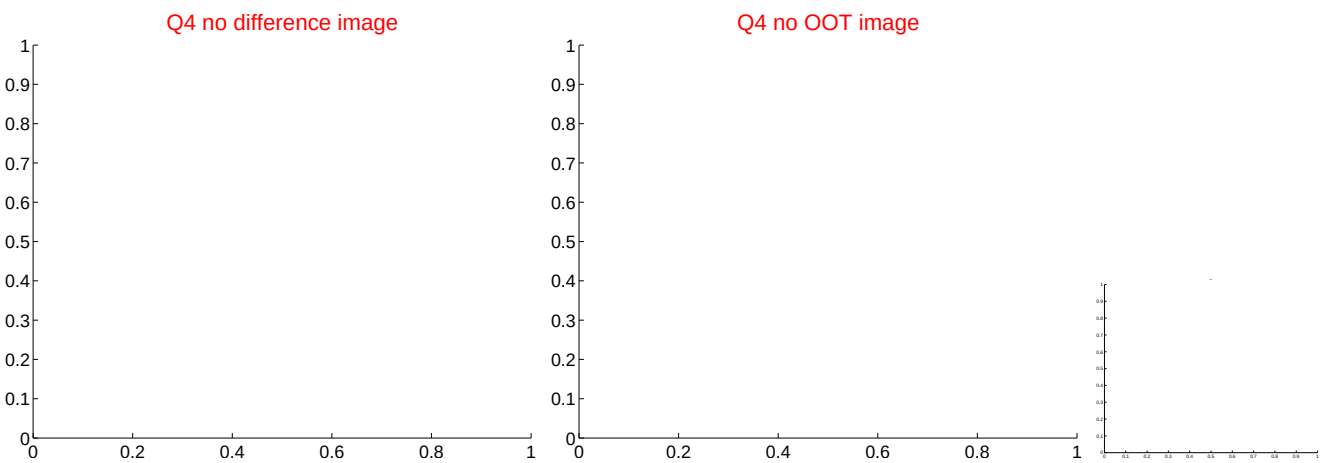
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

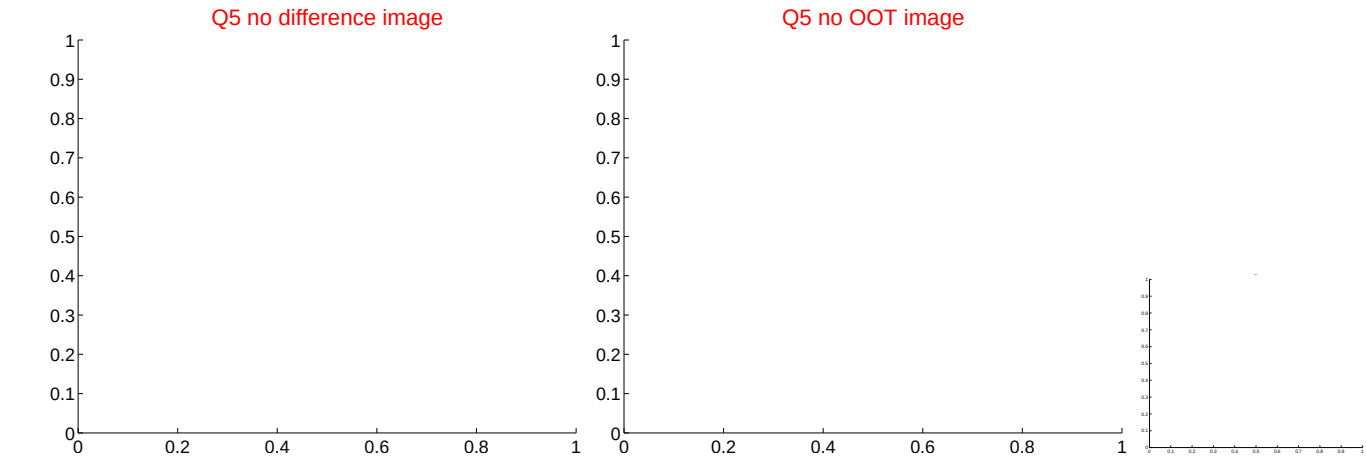


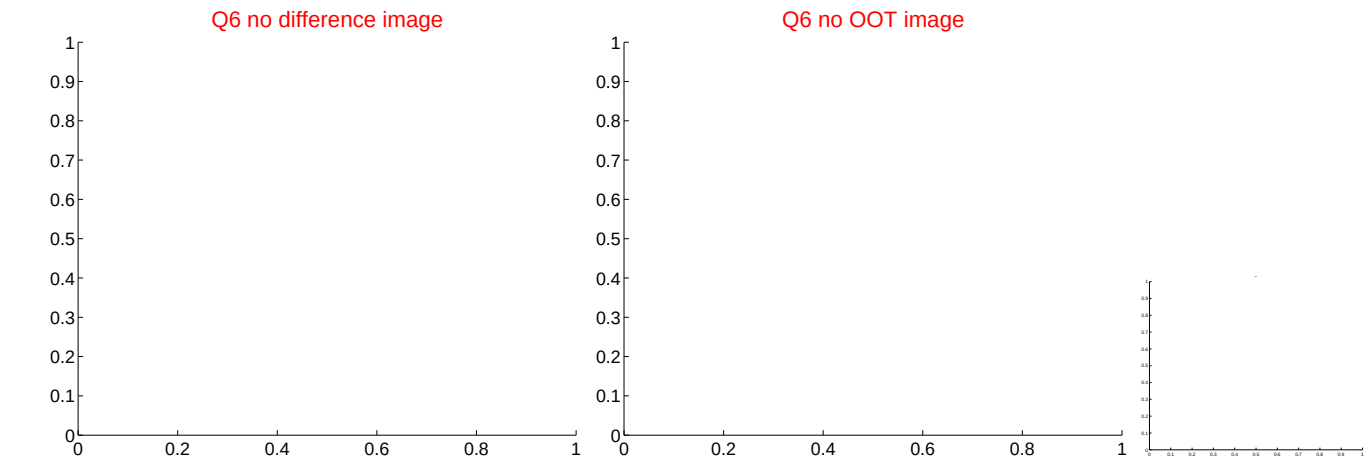


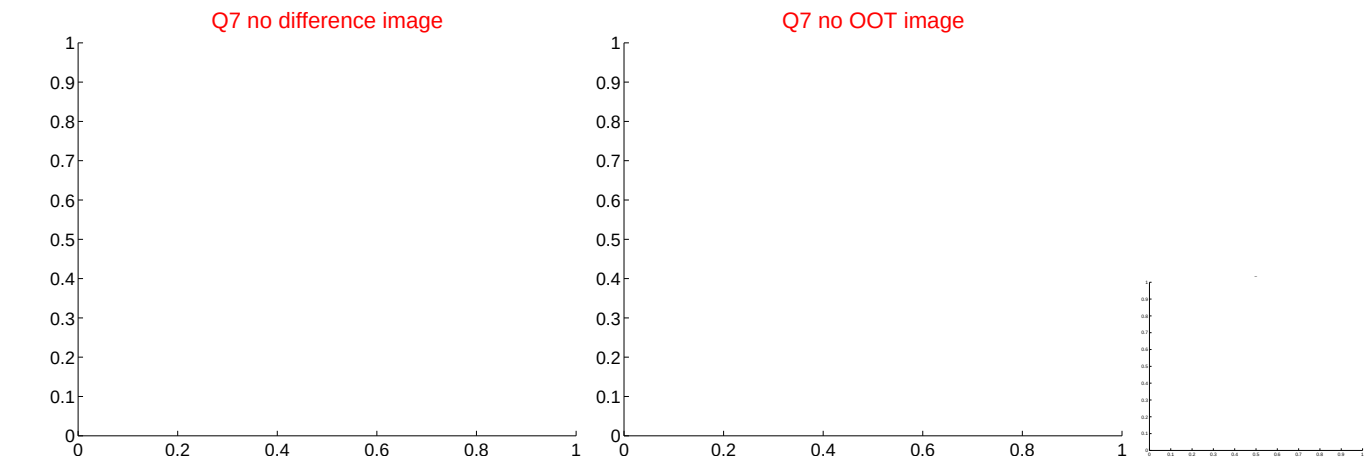


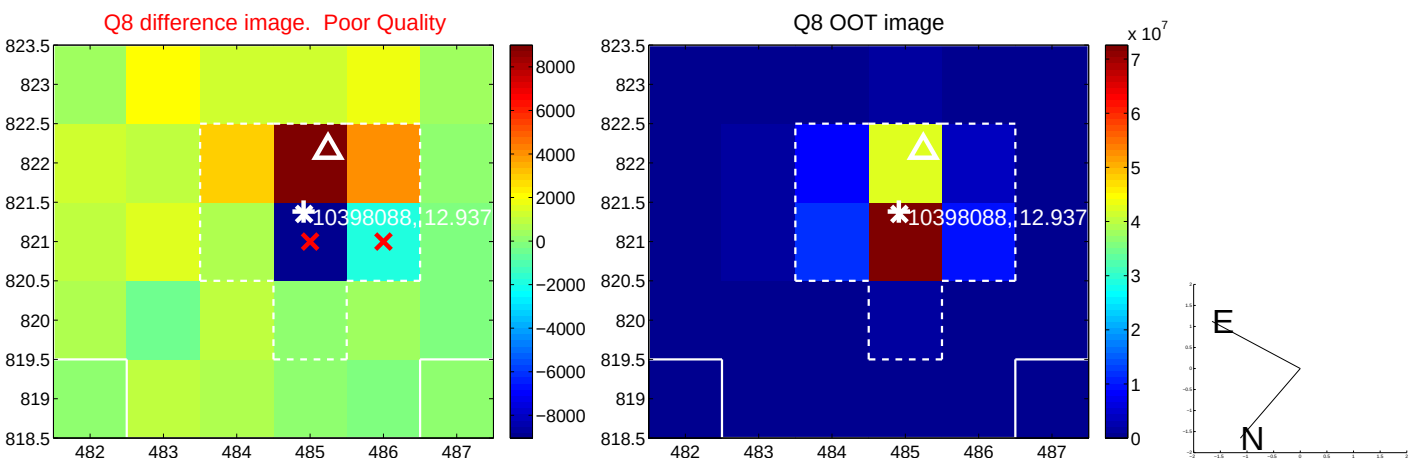


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

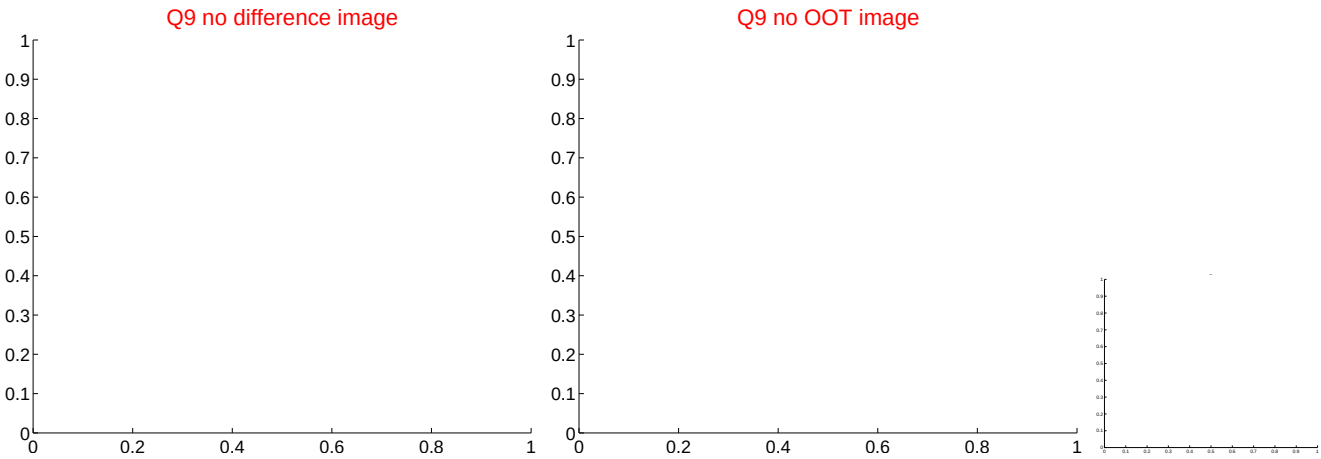


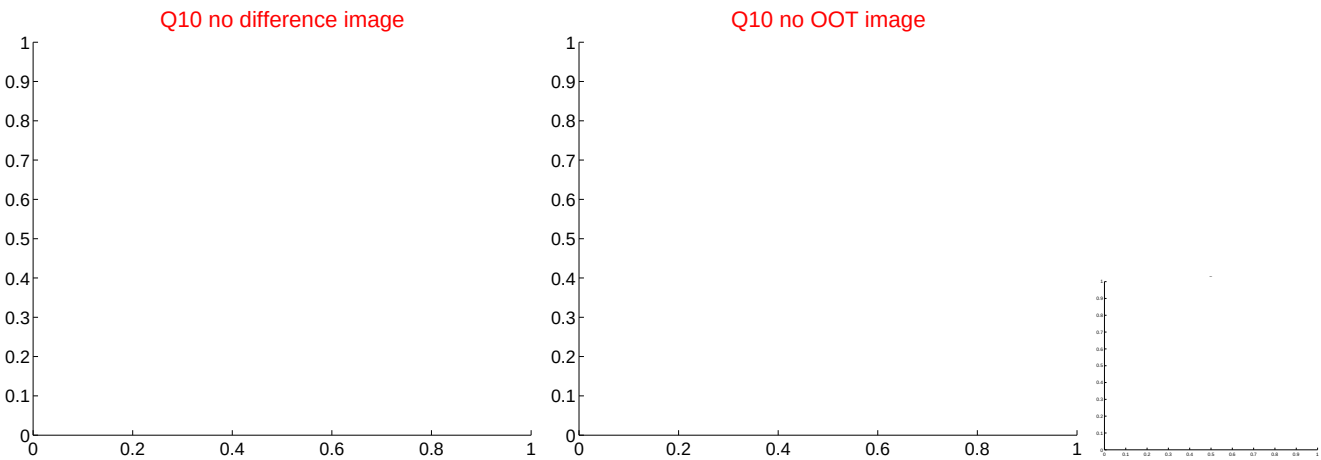


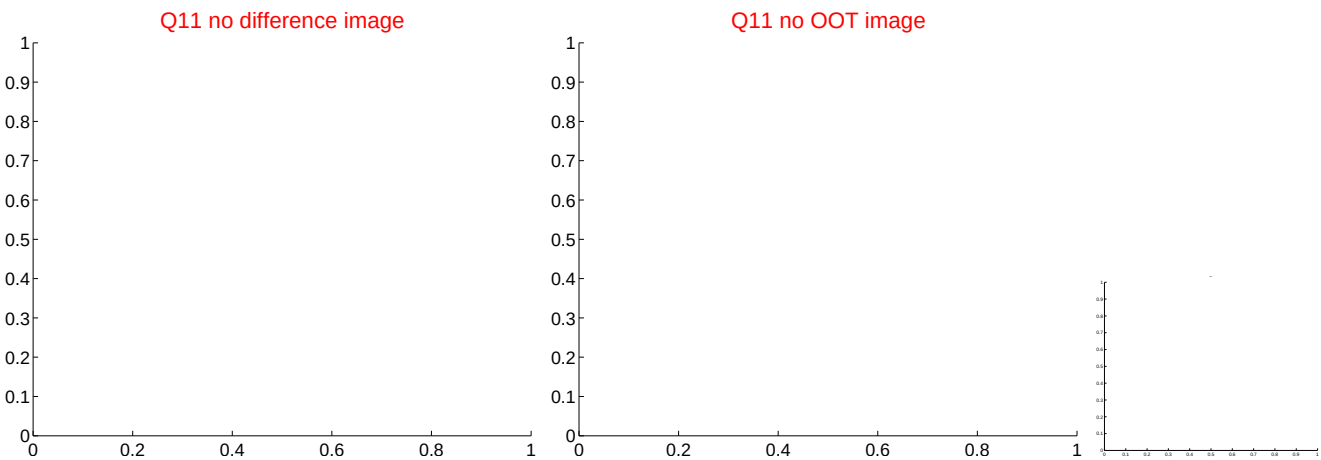


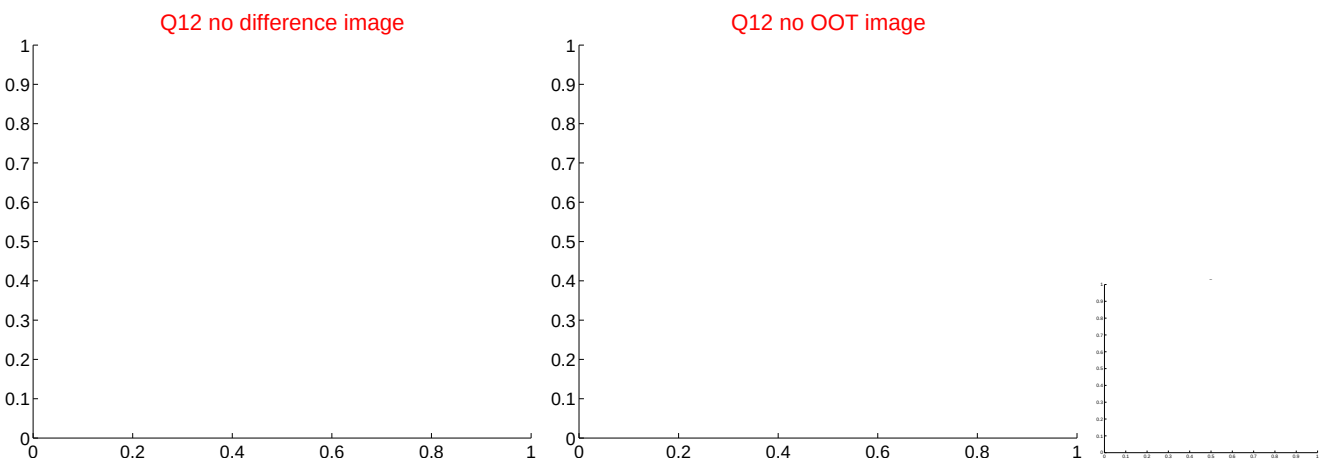


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

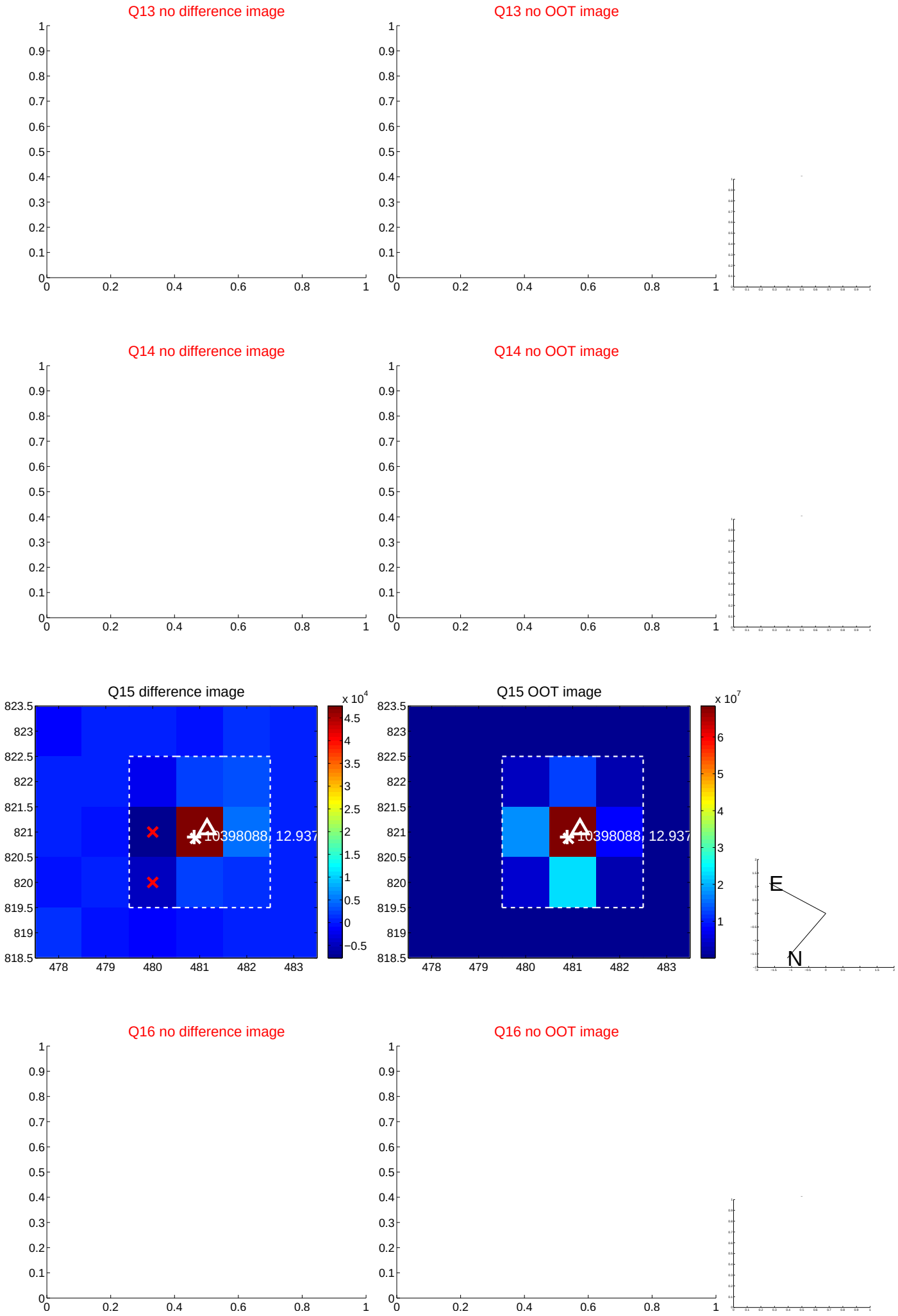




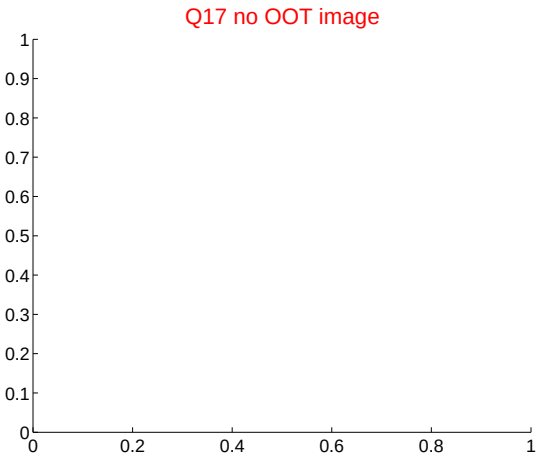


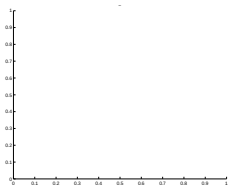


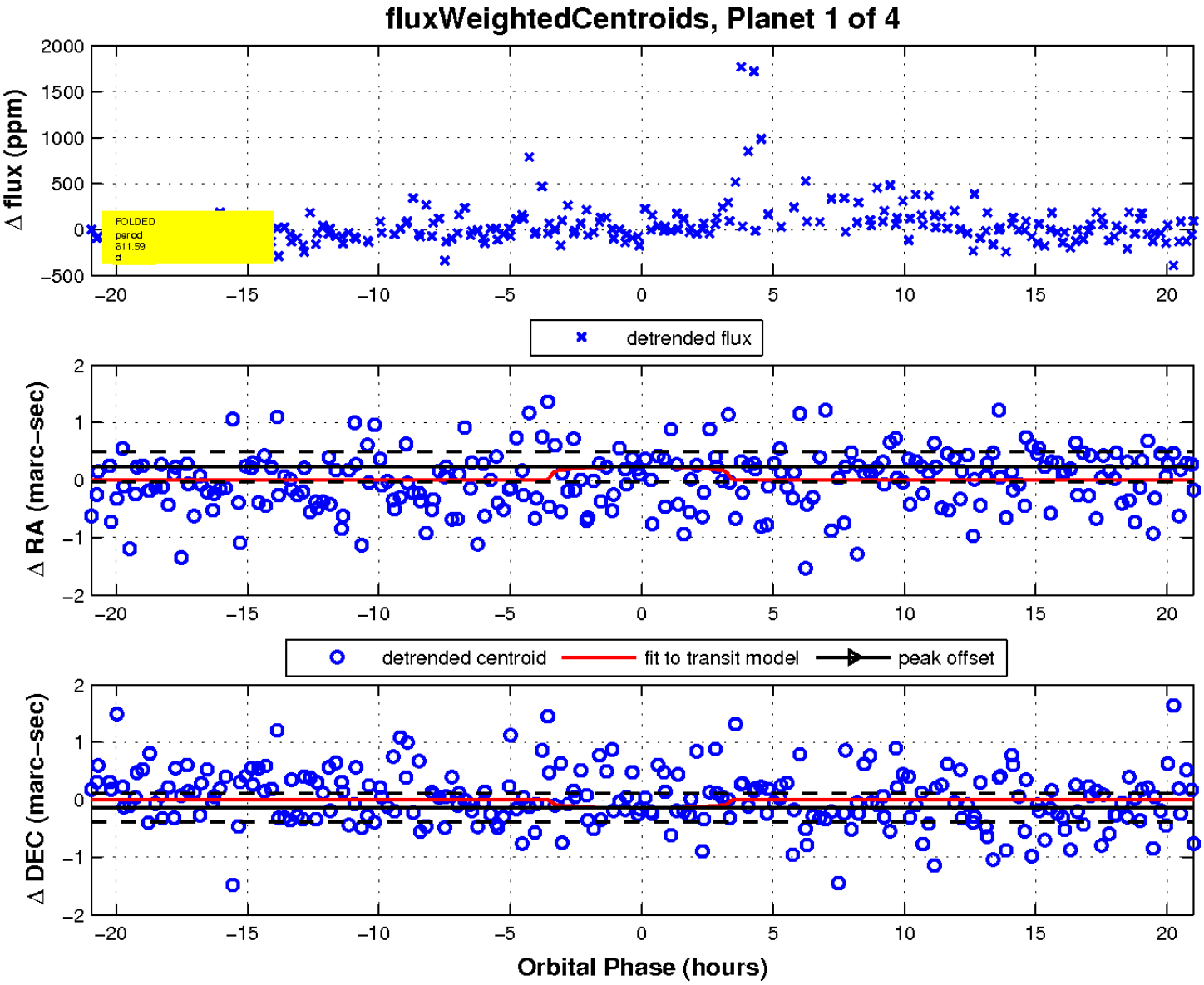
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



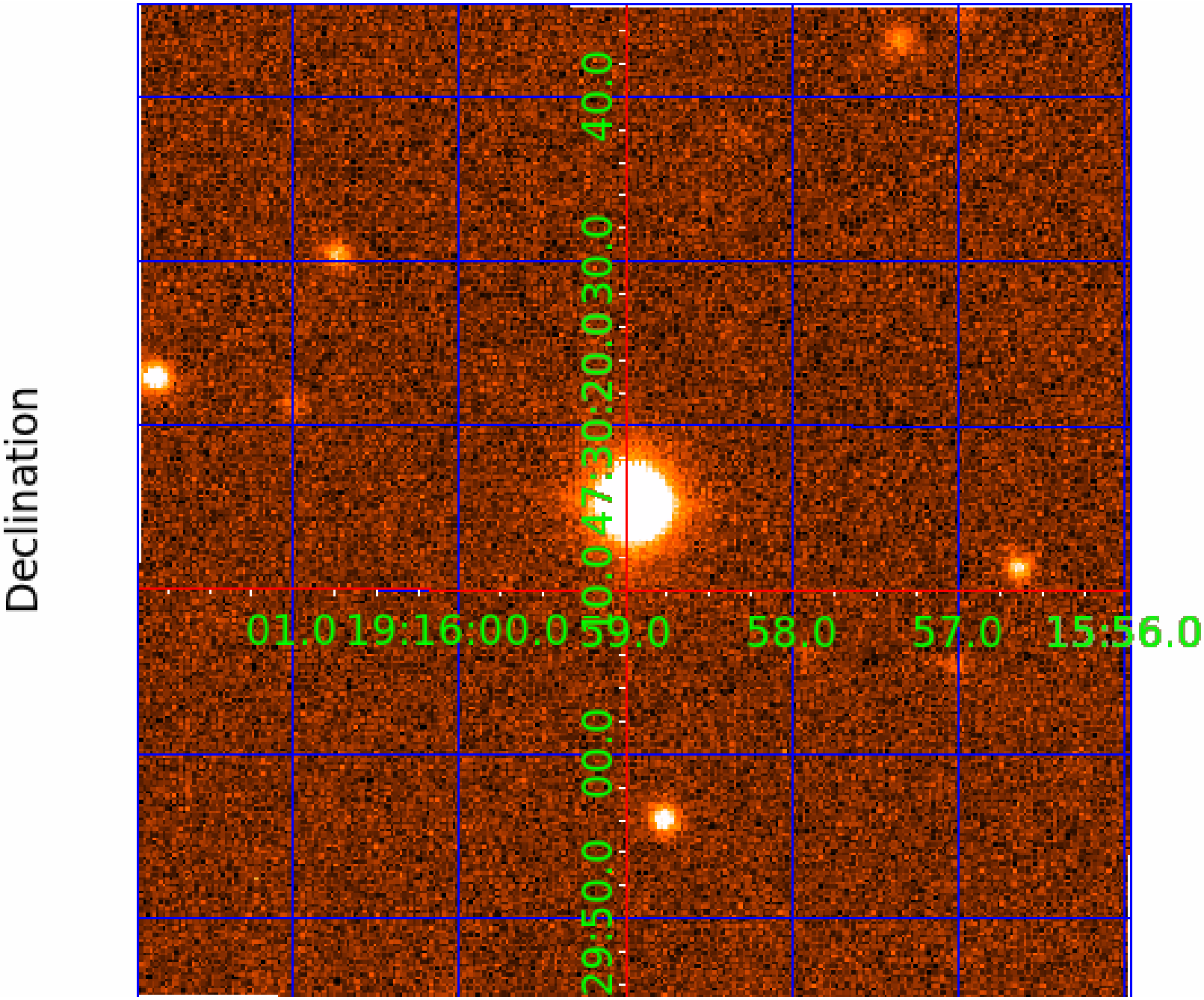
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image


Declination
01.0
19:16:00.0
59.0
58.0
57.0
15:56.0
29:50.0
00.0
50.0
47:30:20.0
30.0
40.0

KIC 010398088

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 ($S_\oplus$)
010398088-01	OBS	No	611.592270	160.961645	239.3	7.022	12.6	7.2	1.56	5585	2.59	1.23
010398088-02	OBS	No	5.611509	136.227722	33.4	7.675	11.3	11.6	1.56	5585	1.05	638.59
010398088-03	OBS	No	5.611415	137.656414	0.0	0.749	8.8	0.0	1.56	5585	0.00	638.61
010398088-04	OBS	No	5.611921	137.675688	0.0	6.667	8.8	0.0	1.56	5585	0.03	638.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398088-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398088-02	OBS	FP	0.00	1	0	0	0	LPP_DV
010398088-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
010398088-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

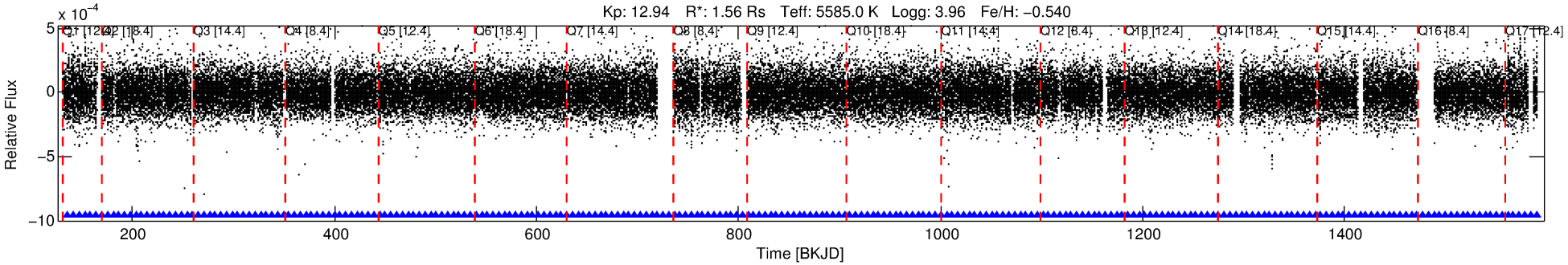
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

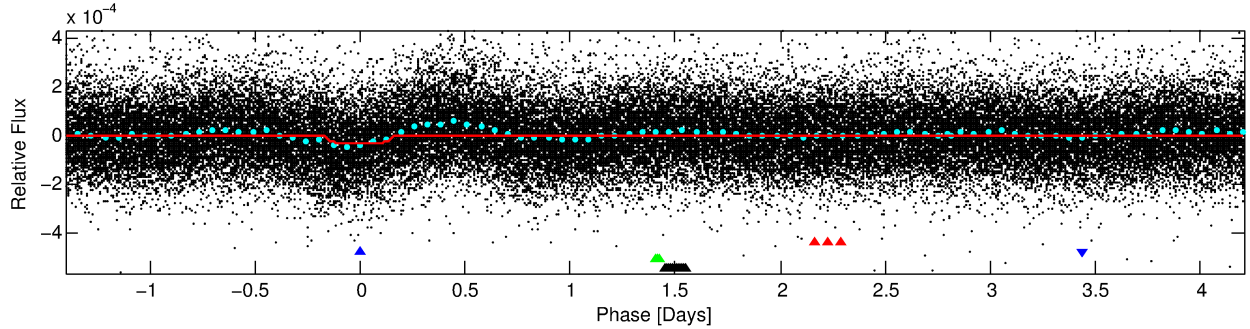
Ephemeris Match Information For 010398088-02

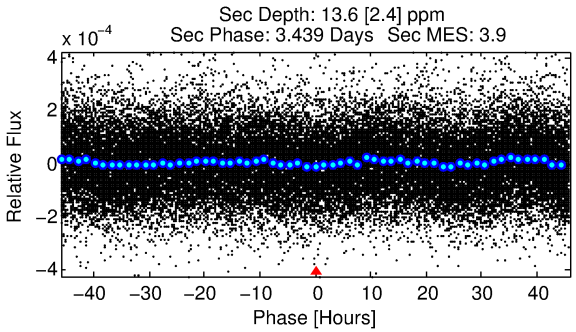
No Significant Match Found

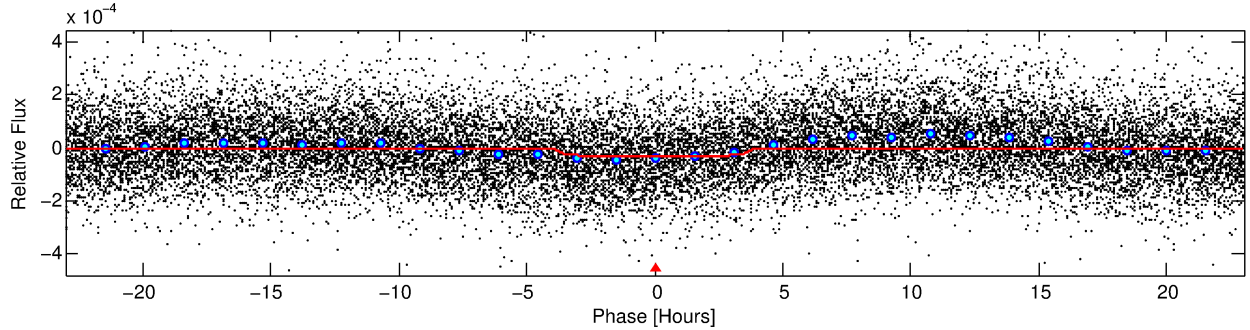
DV One-Page Summary

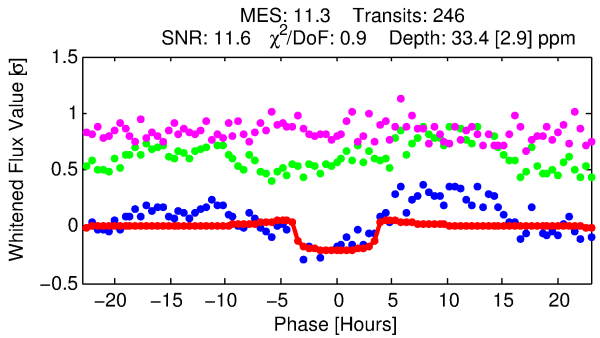
KIC: 10398088 Candidate: 2 of 4 Period: 5.612 d

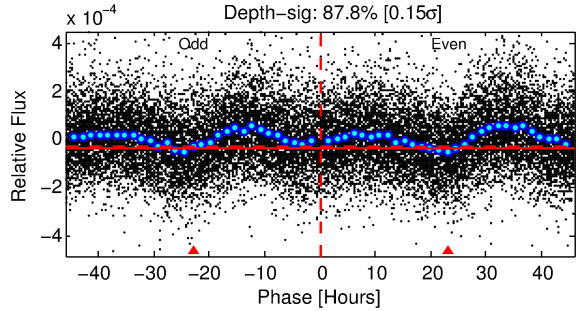


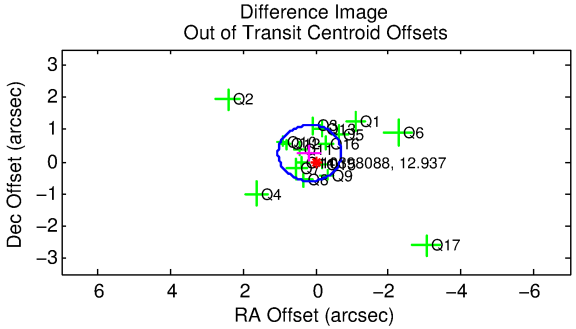












DV Fit Results:

Period = 5.61151 [0.00006] d
Epoch = 136.2277 [0.0072] BKJD
Rp/R* = 0.0062 [0.0016]
a/R* = 2.86 [3.21]
b = 0.88 [0.33]

Seff = 638.59 [577.91]
Teq = 1282 [290] K
Rp = 1.05 [0.58] Re
a = 0.0578 [0.0305] AU

Ag = 22.54 [23.74] [0.91σ]
Teffp = 4318 [616] K [4.46σ]

DV Diagnostic Results:

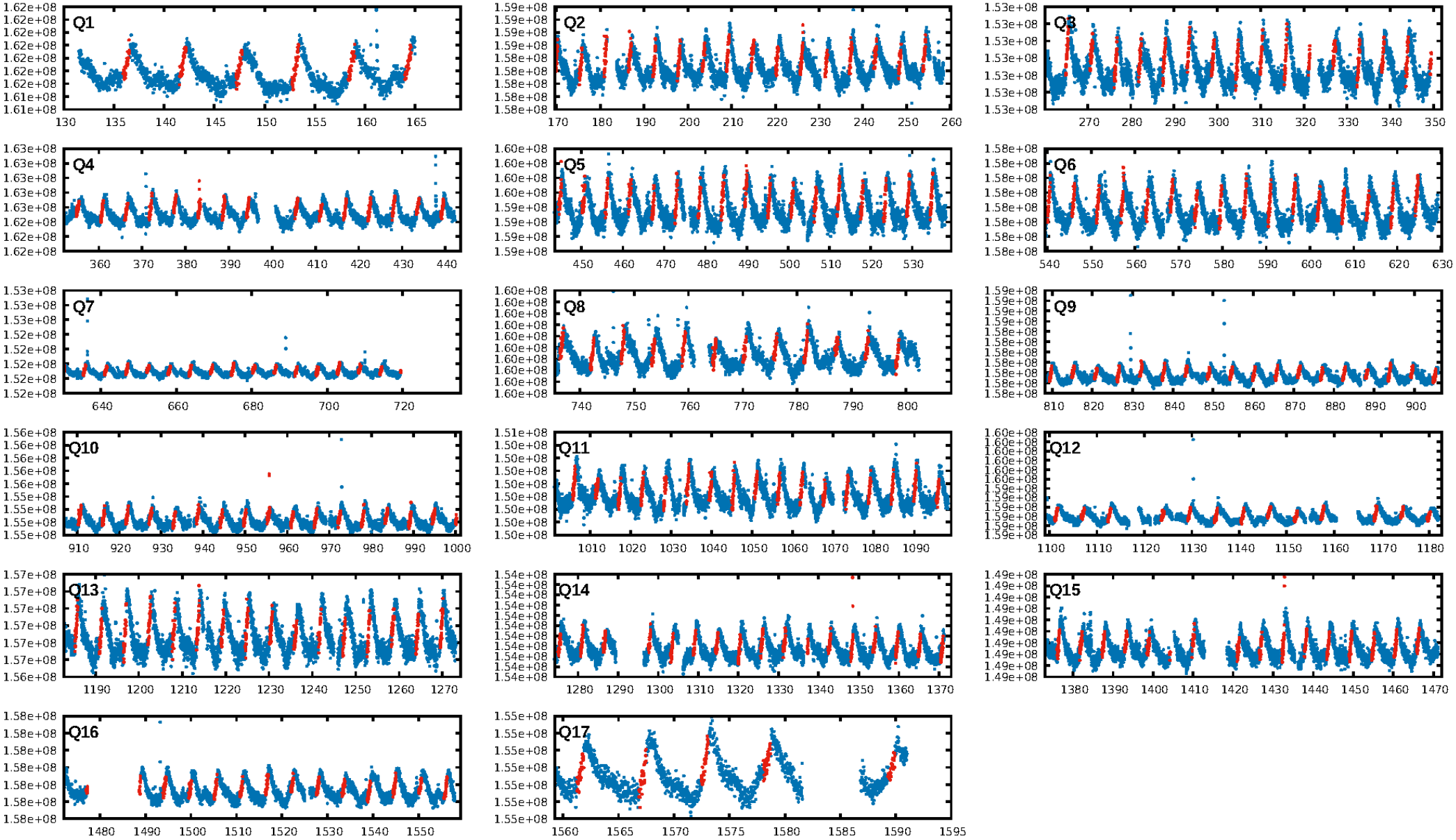
ShortPeriod−sig: 0.0% [0.00σ]
LongPeriod−sig: 0.1% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 1.49e−24
RollingBand−fgt: 1.00 [235/235]
GhostDiagnostic−chr: 2.252

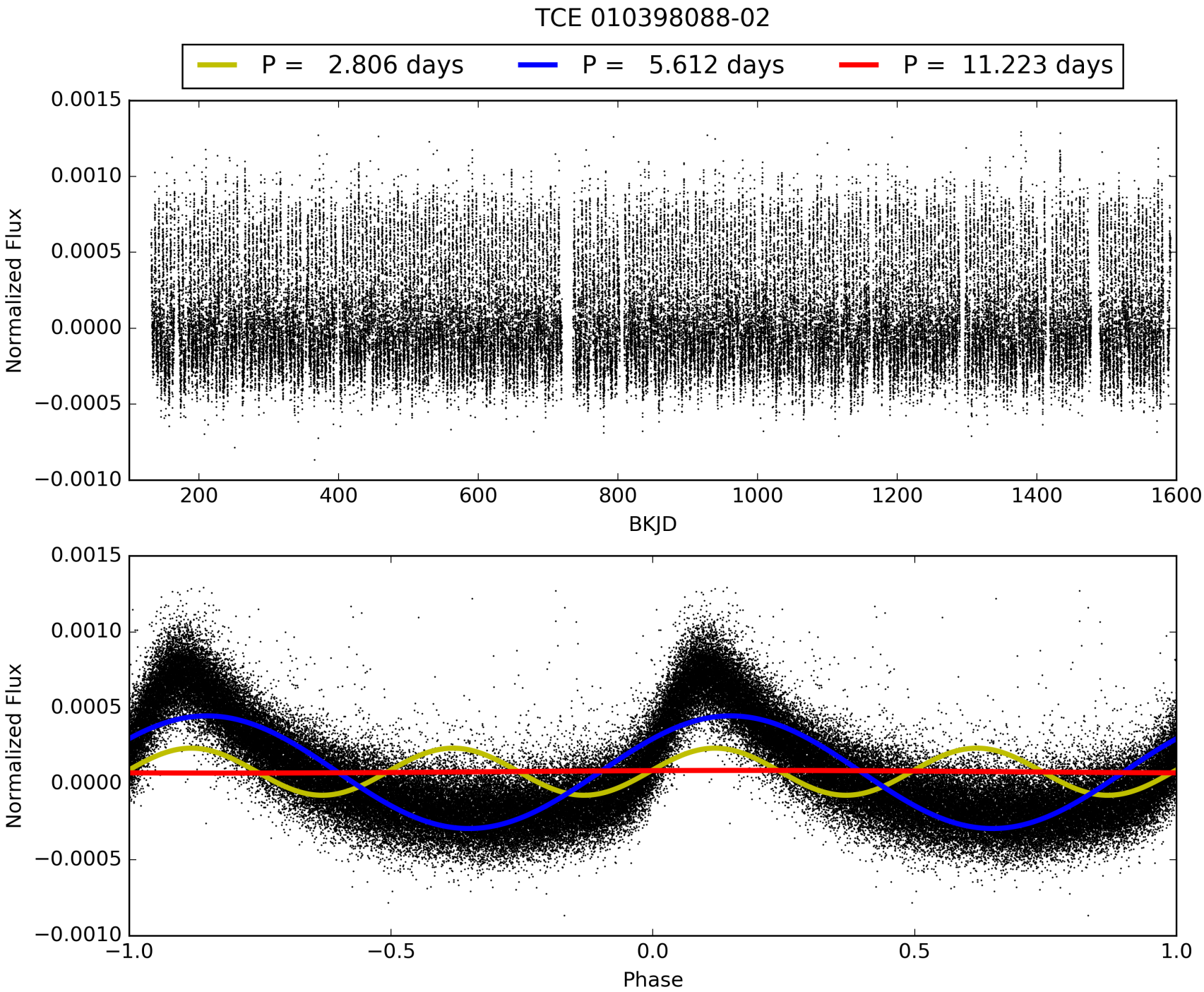
Centroid−sig: 0.0%
Centroid−so: 3.024 arcsec [3.66σ]
OotOffset−rm: 0.313 arcsec [1.08σ]
KicOffset−rm: 0.362 arcsec [1.10σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 0.94 [16/17]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 07:44:35 Z

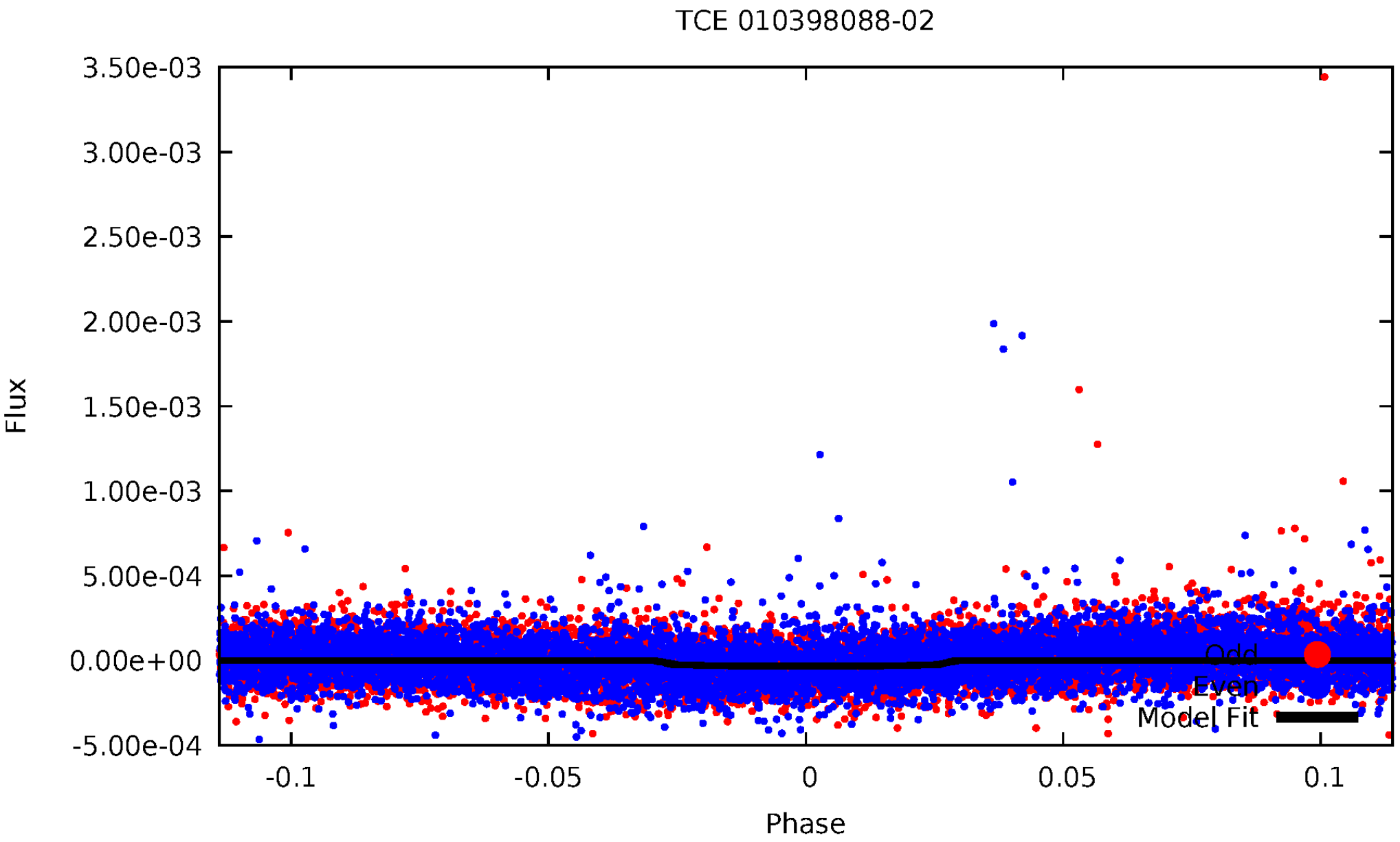
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010398088-02, PDC Light Curves

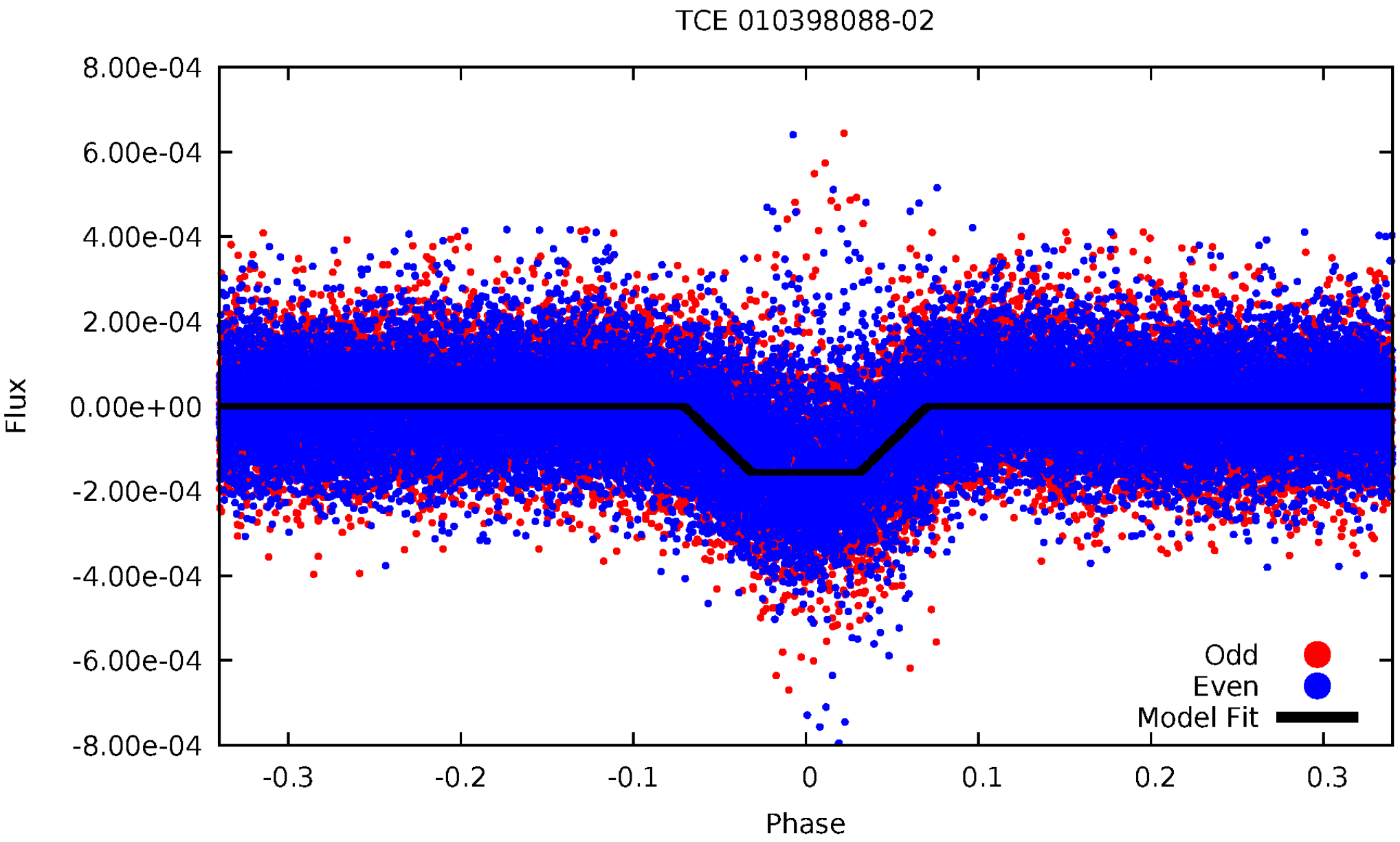



TCE 010398088-02
P = 2.806 days
P = 5.612 days
P = 11.223 days
Normalized Flux
BKJD
Normalized Flux
Phase

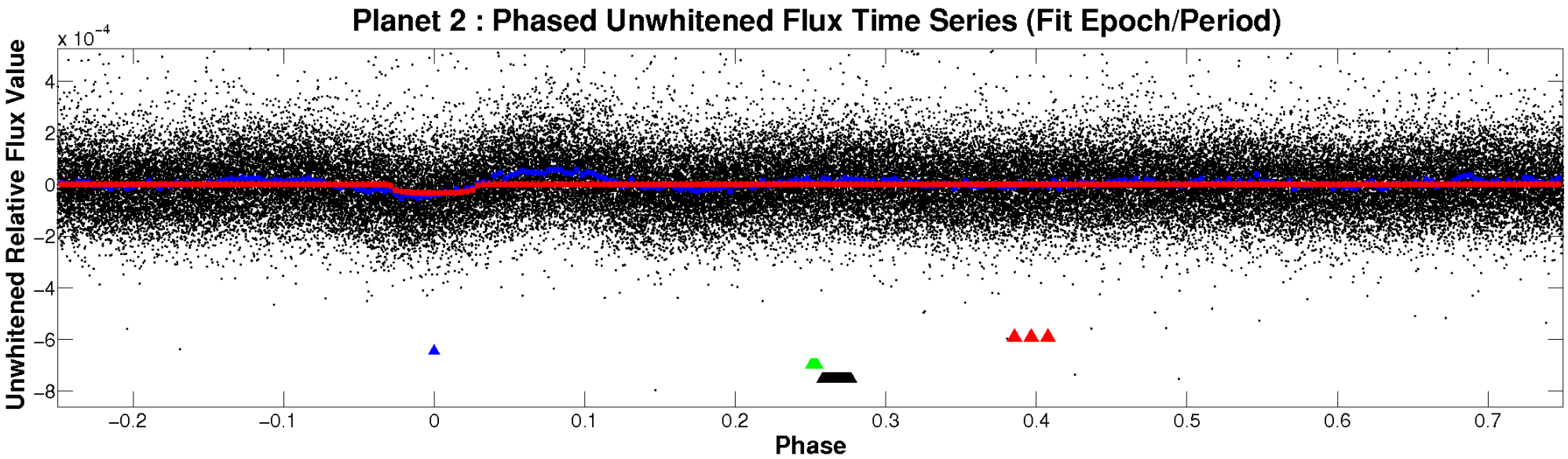
DV Odd/Even

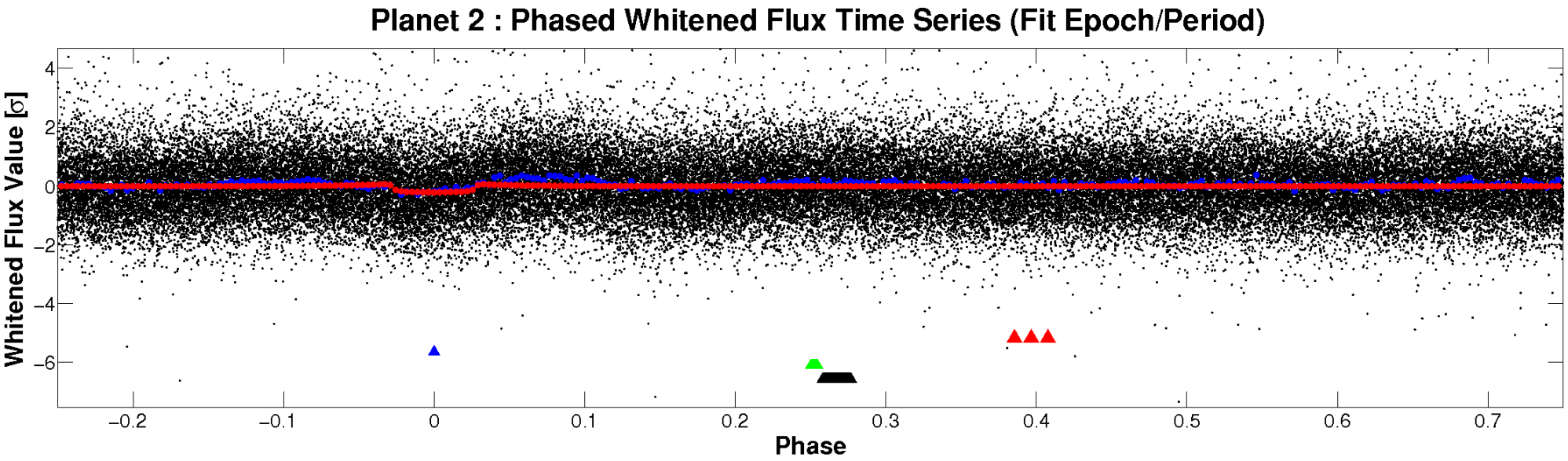

TCE 010398088-02
3.50e-03
3.00e-03
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 010398088-02
8.00e-04
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
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit

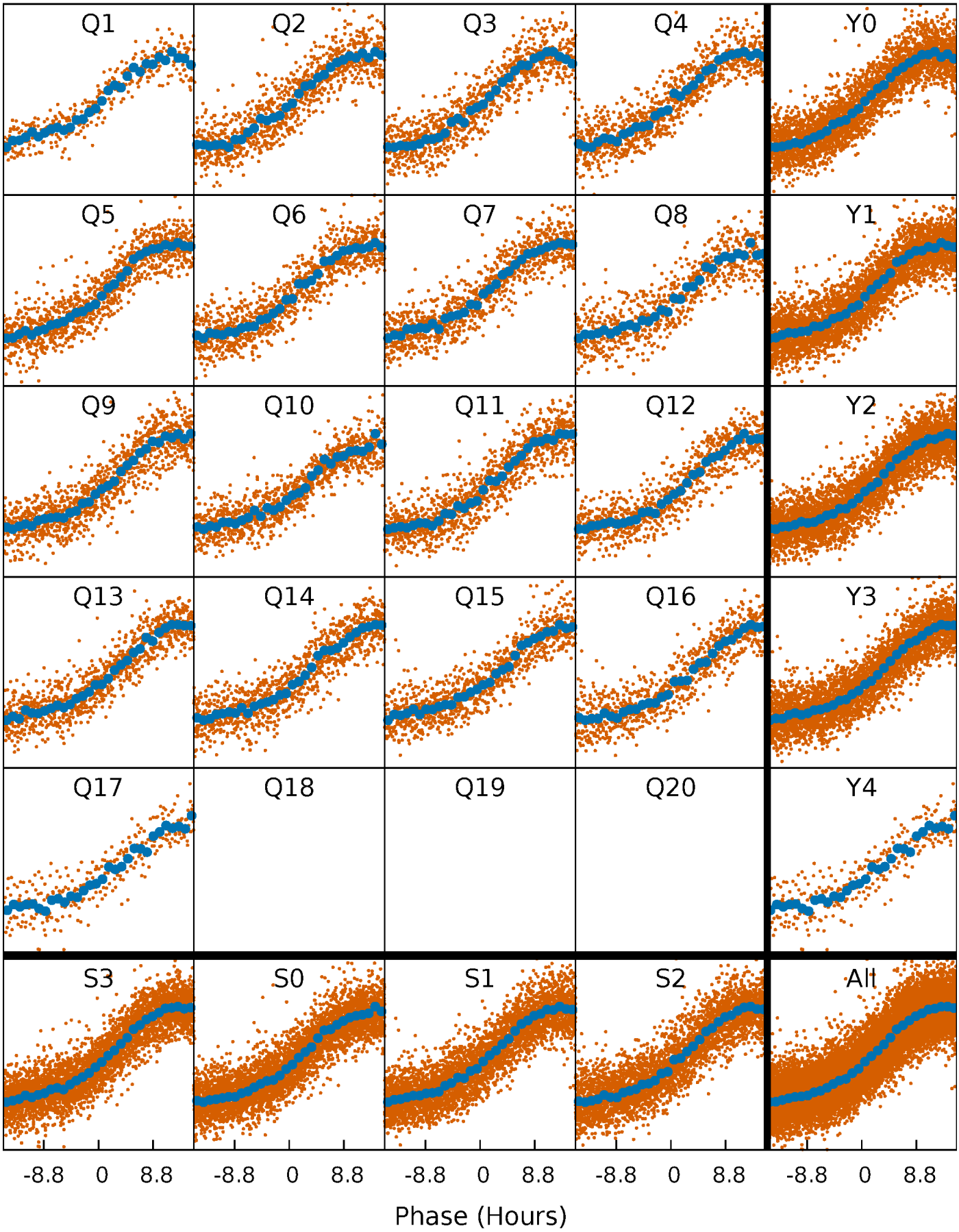
Non-Whitened Vs. Whitened Light Curve





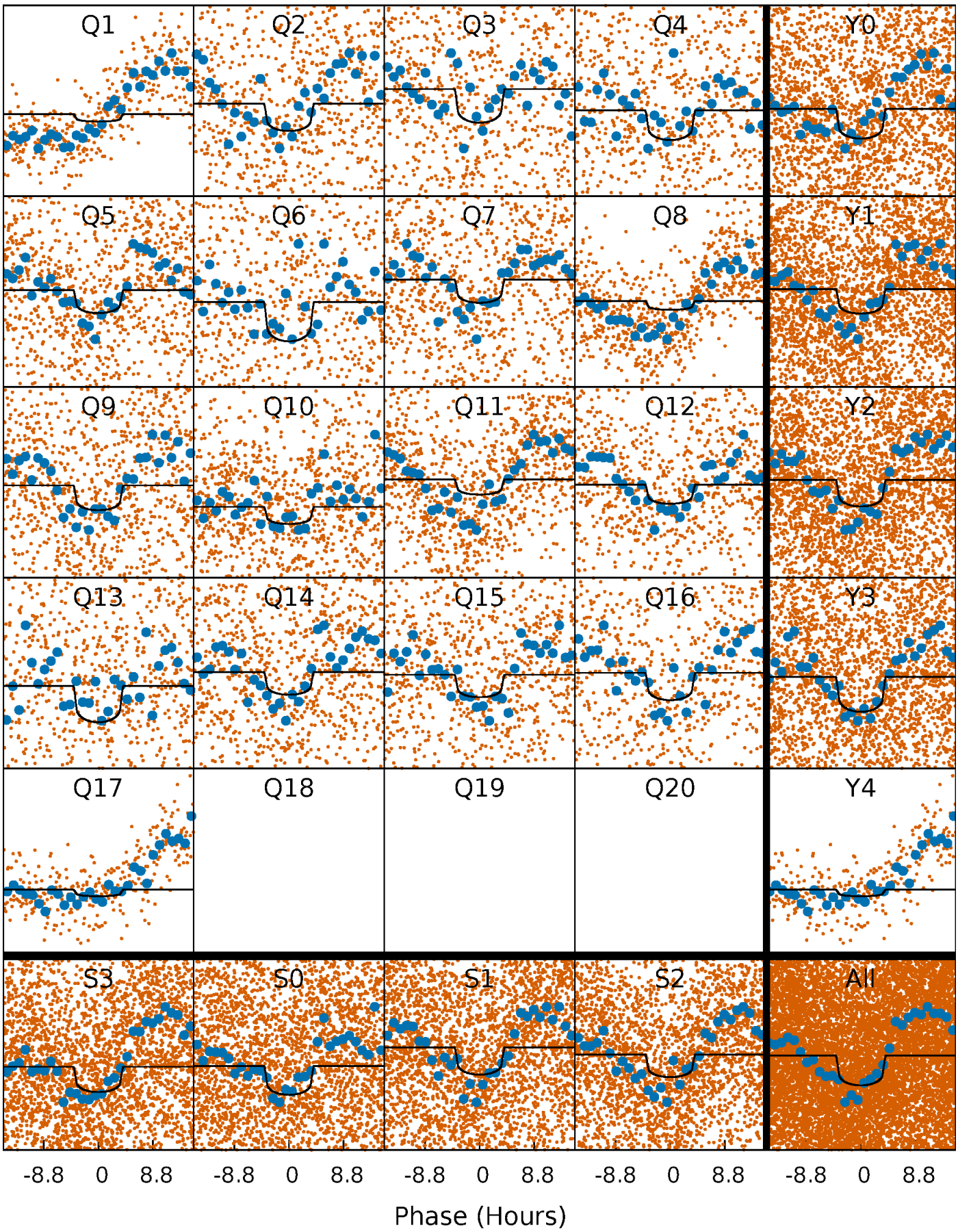
PDC Quarter-Phased Transit Curves

TCE 010398088-02 P= 5.611509 Days T_0=136.227722 (BKJD)



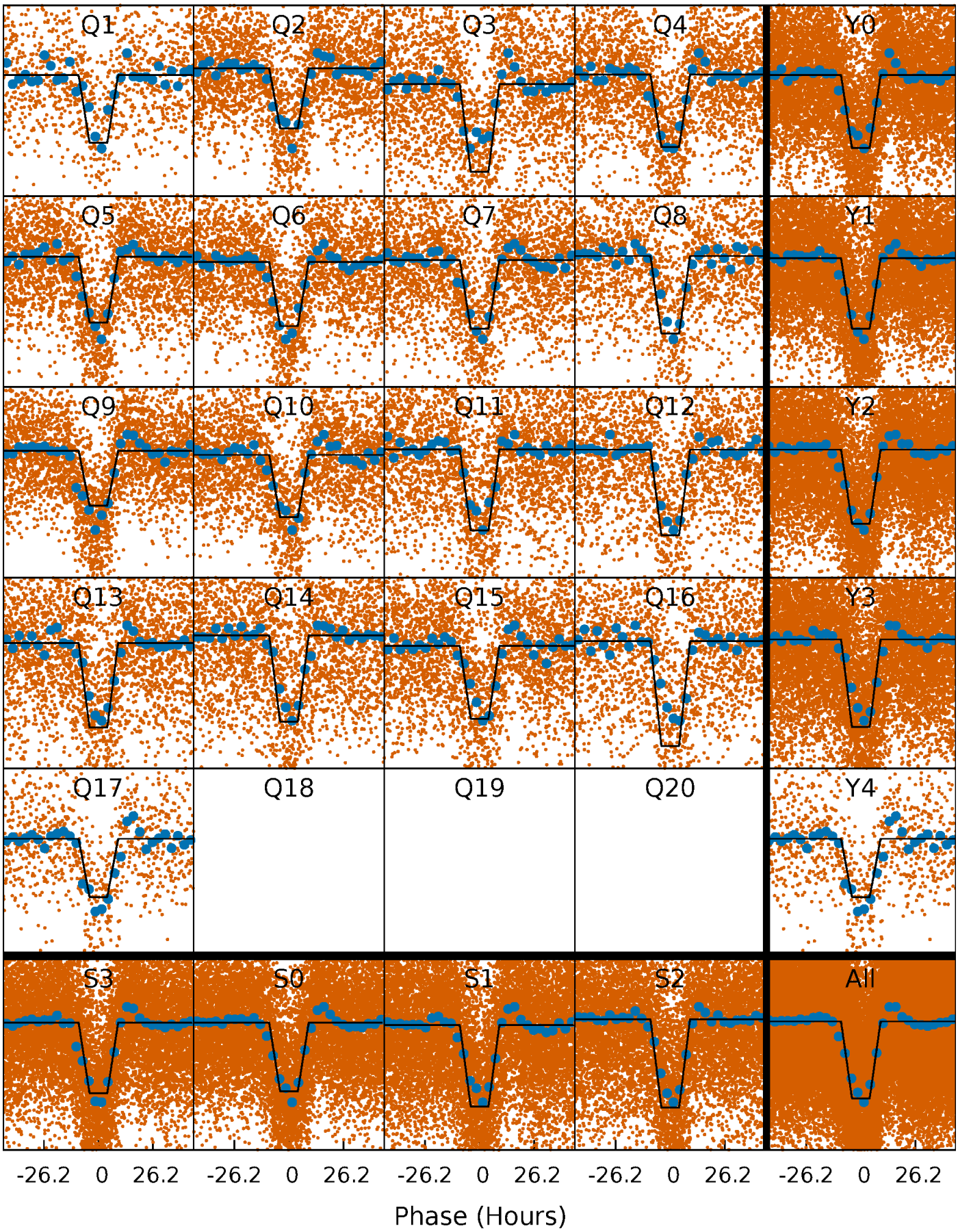
DV Quarter-Phased Transit Curves

TCE 010398088-02 P= 5.611509 Days T_0=136.227722 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

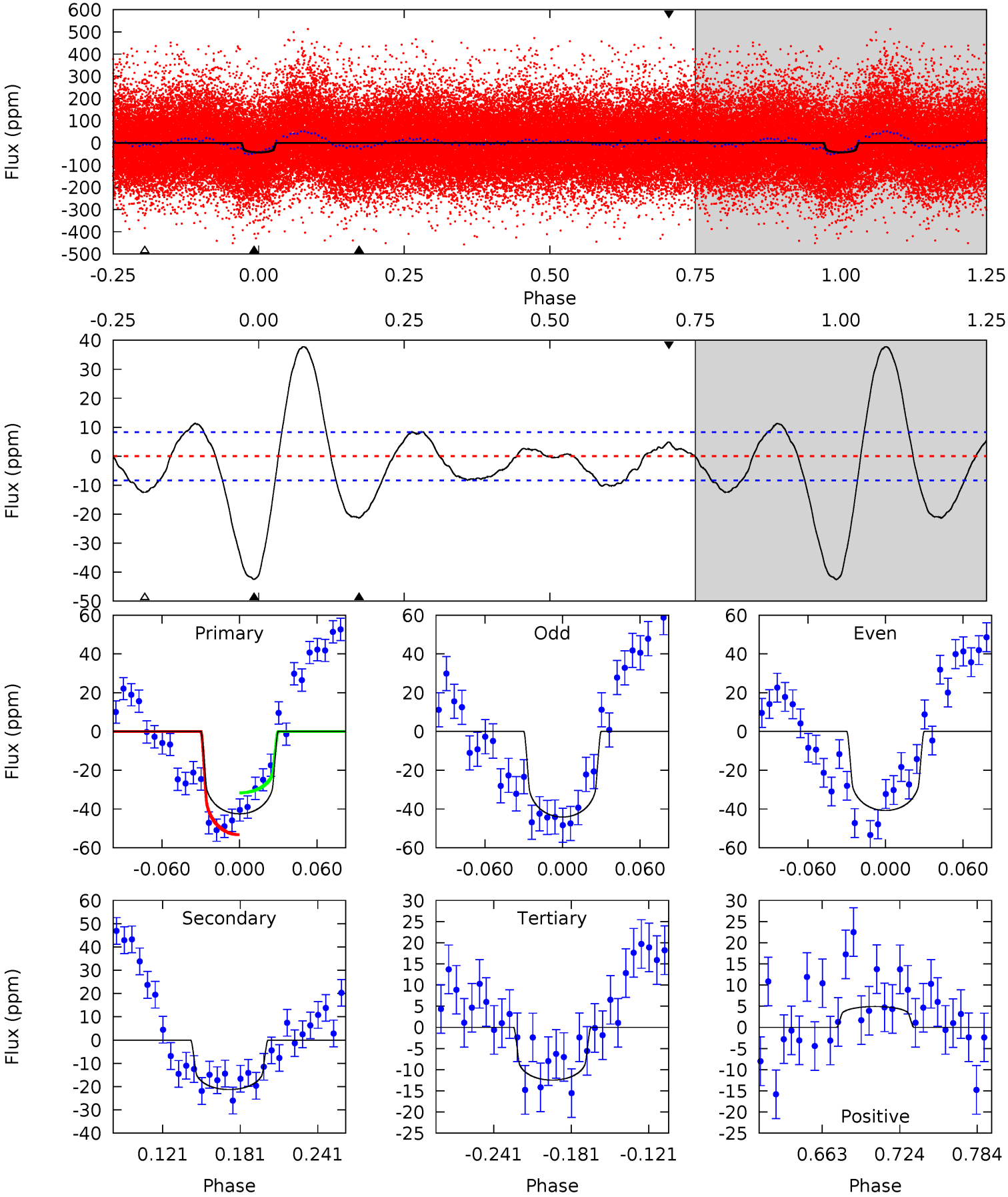
TCE 010398088-02 P= 5.611713 Days T_0=136.090316 (BKJD)



DV Model-Shift Uniqueness Test

010398088-02, P = 5.611509 Days, E = 130.616213 Days

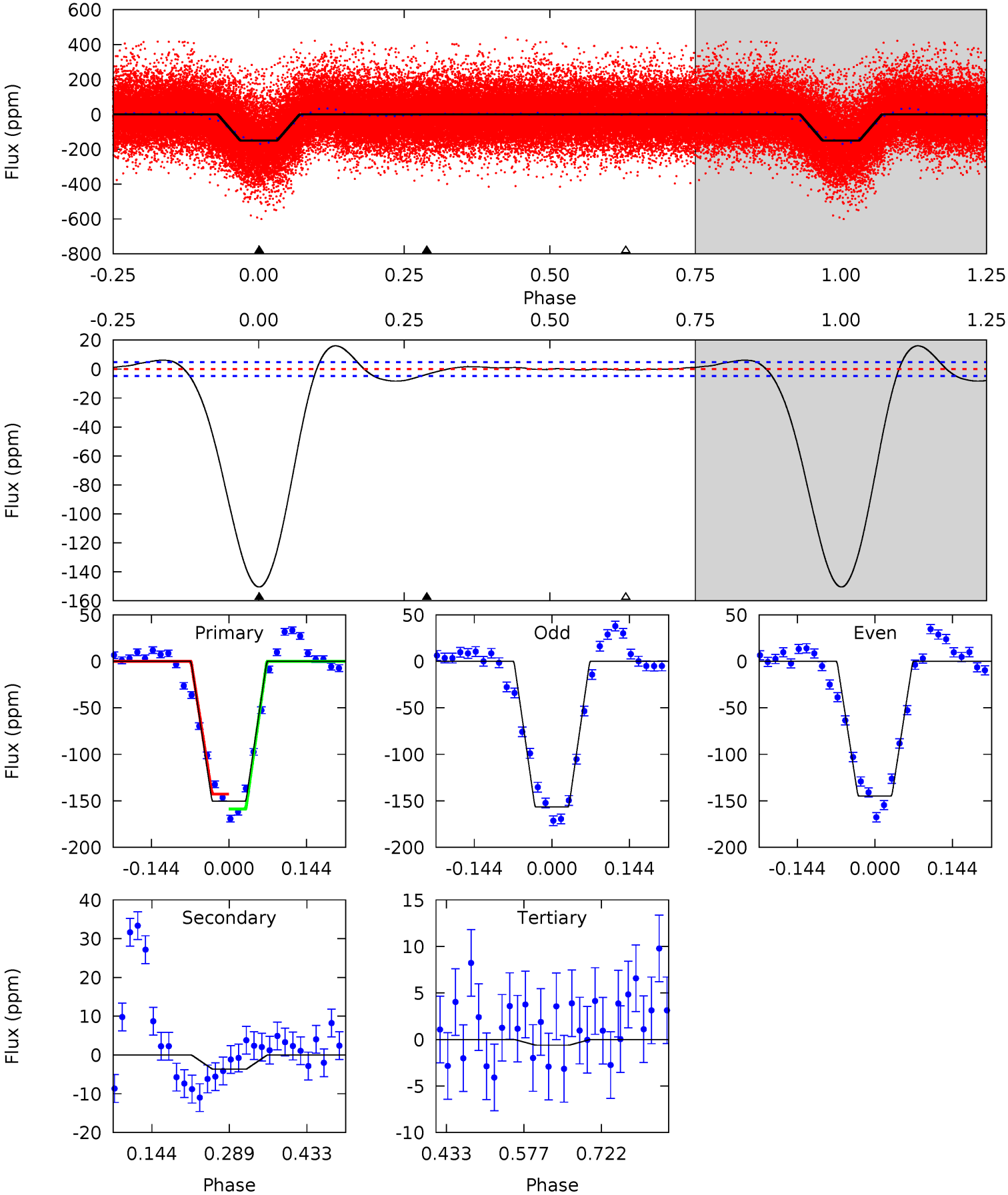
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	11.9	7.00	2.77	4.67	1.88	5.96	16.9	21.1	4.94	9.17	0.95	1.16	0.47	6.06



Alt Model-Shift Uniqueness Test

010398088-02, P = 5.611713 Days, E = 130.478603 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
142.4	3.46	0.58	0	4.49	1.46	1.89	141.8	142.4	2.89	3.46	5.56	1.02	0.10	7.53



Stellar Parameters For KIC 010398088

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5585^{+184}_{-134}	$3.962^{+0.544}_{-0.136}$	$-0.540^{+0.350}_{-0.250}$	$1.565^{+0.379}_{-0.758}$	$0.819^{+0.100}_{-0.075}$	$0.301^{+1.604}_{-0.142}$
	+3%/-2%	+14%/-3%	+65%/-46%	+24%/-48%	+12%/-9%	+533%/-47%
Source	PHO1	FLK73	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 010398088-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21±2	$0.92^{+0.37}_{-0.32}$	1742^{+156}_{-231}	4989^{+744}_{-518}	46^{+60}_{-23}
Alt.	-4±1	$2.01^{+0.48}_{-0.53}$	1763^{+141}_{-248}	2810^{+202}_{-206}	$1.639^{+1.566}_{-0.685}$

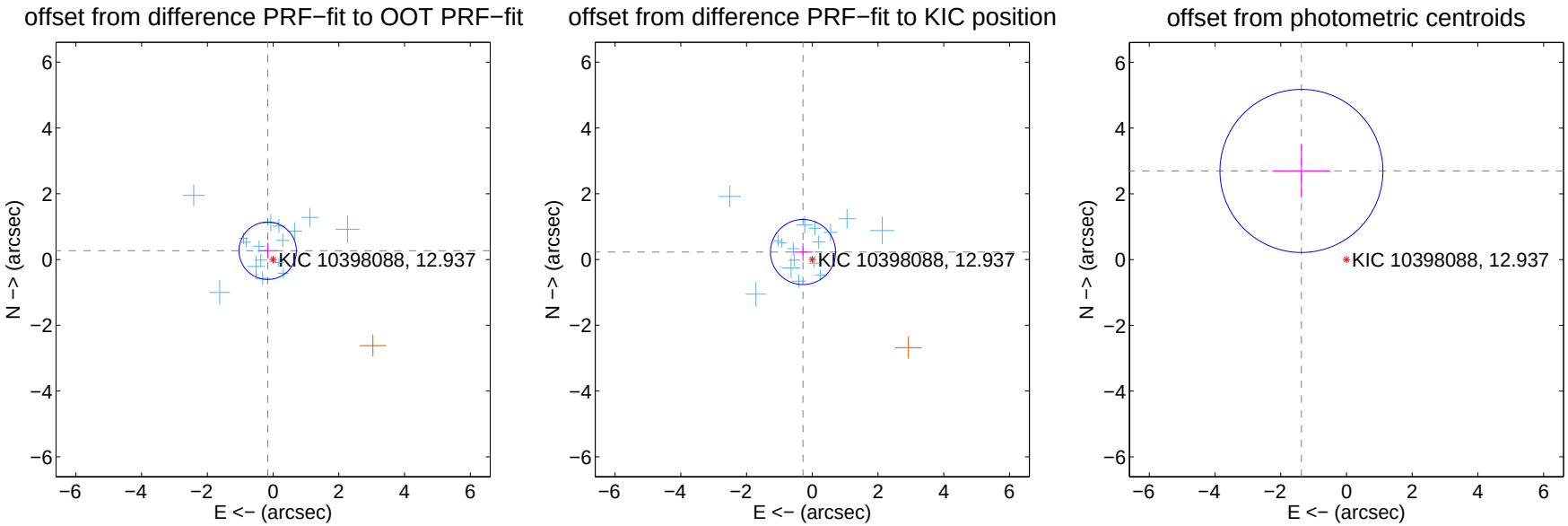
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

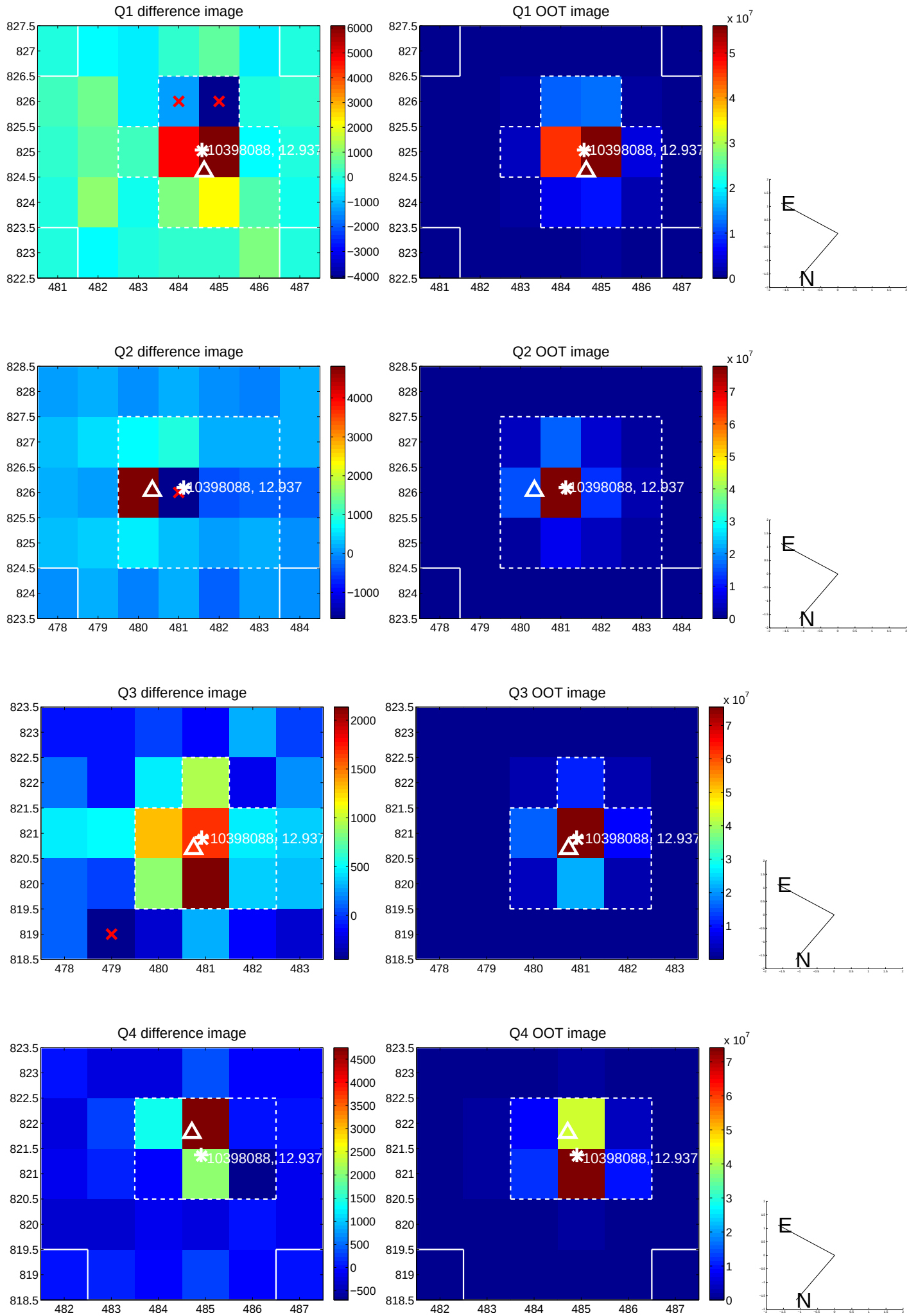
Supplemental centroid analysis for 010398088-02. Kepler magnitude: 12.94. Transit SNR 11.59
There are 16 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.313 ± 0.291	1.08	0.164 ± 0.301	0.266 ± 0.241
PRF-fit source offset from KIC position	0.362 ± 0.330	1.10	0.282 ± 0.295	0.228 ± 0.268
photometric centroid source offset	3.02 ± 0.83	3.66	1.37 ± 0.88	2.70 ± 0.81

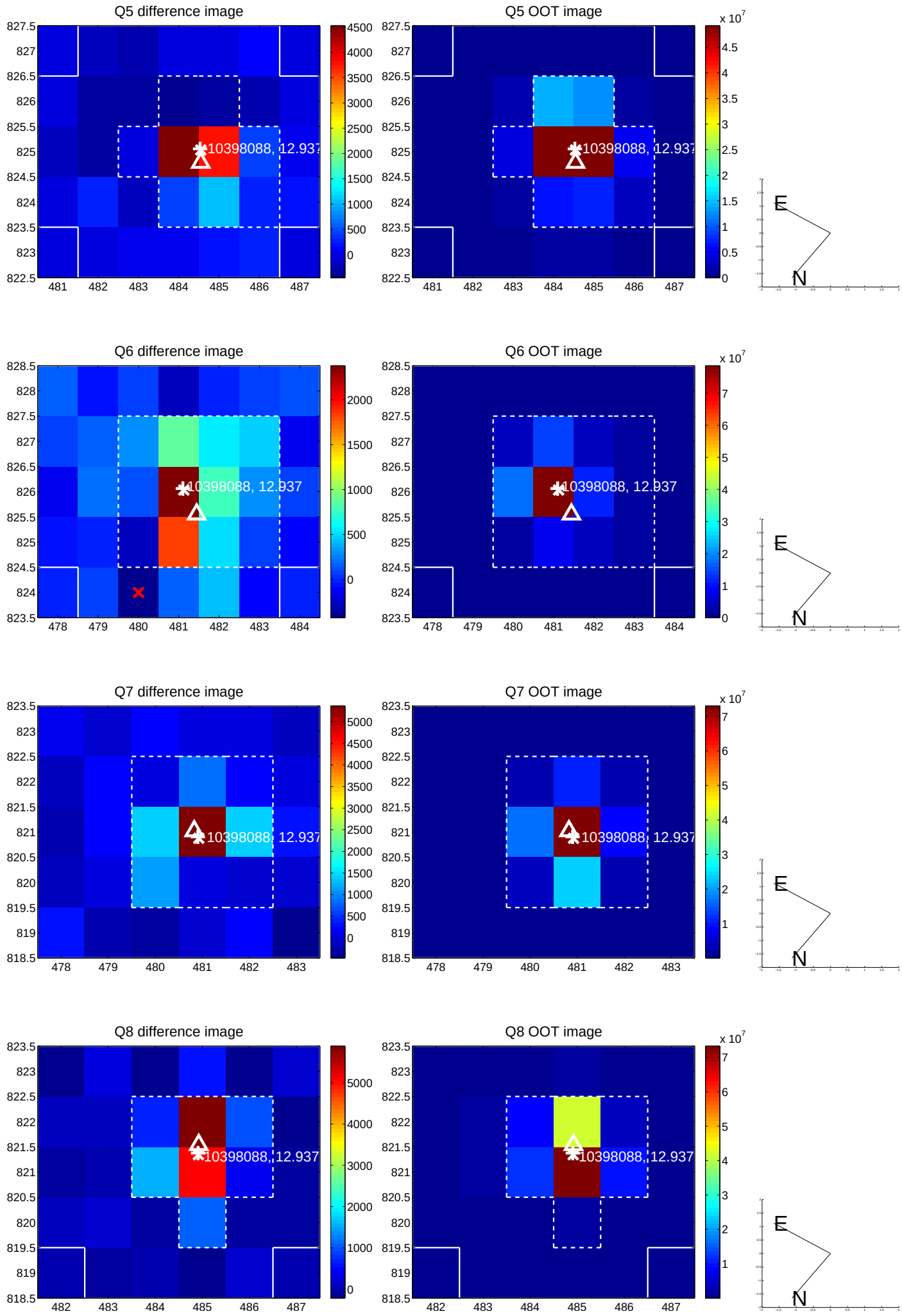


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

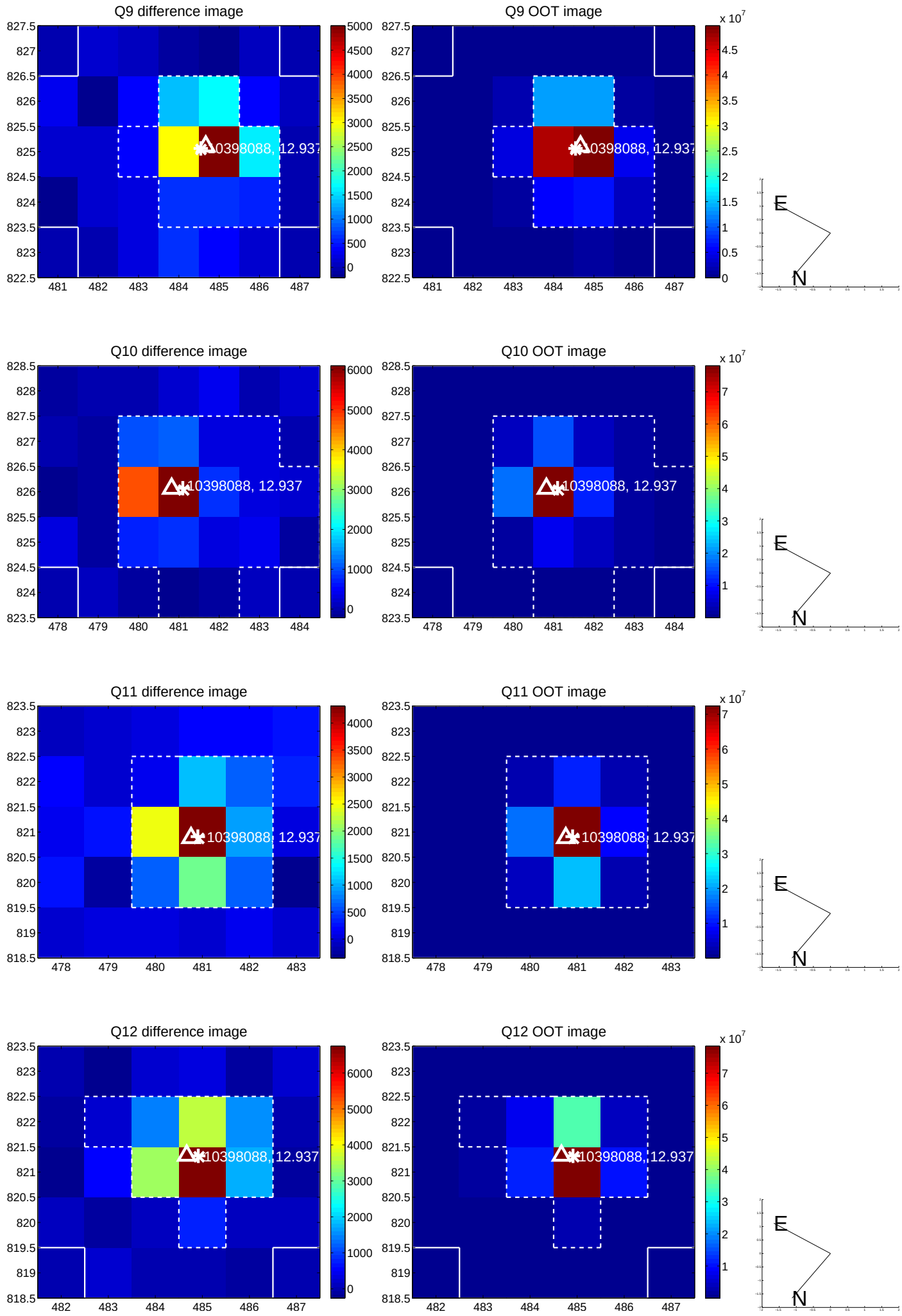
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



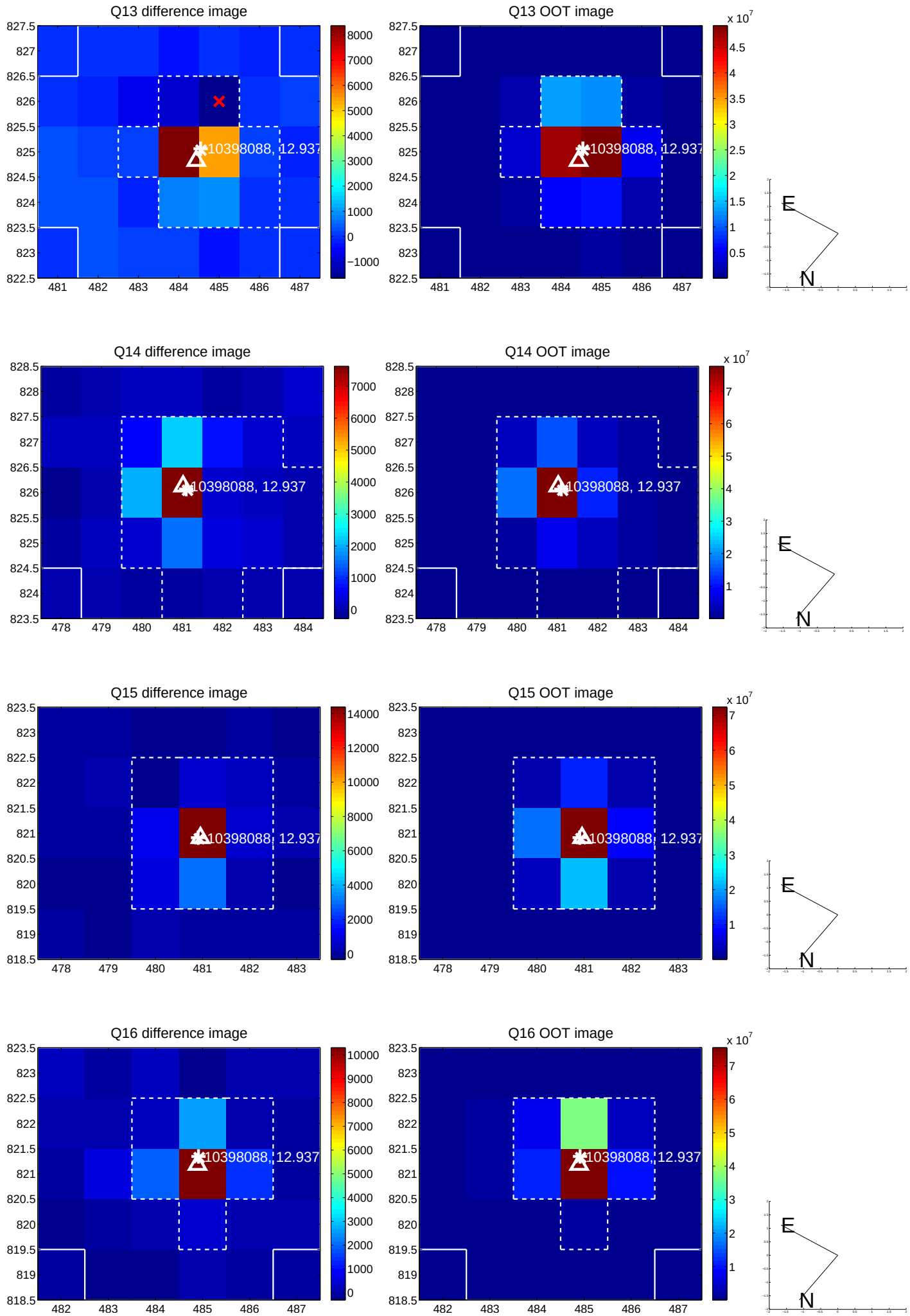
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



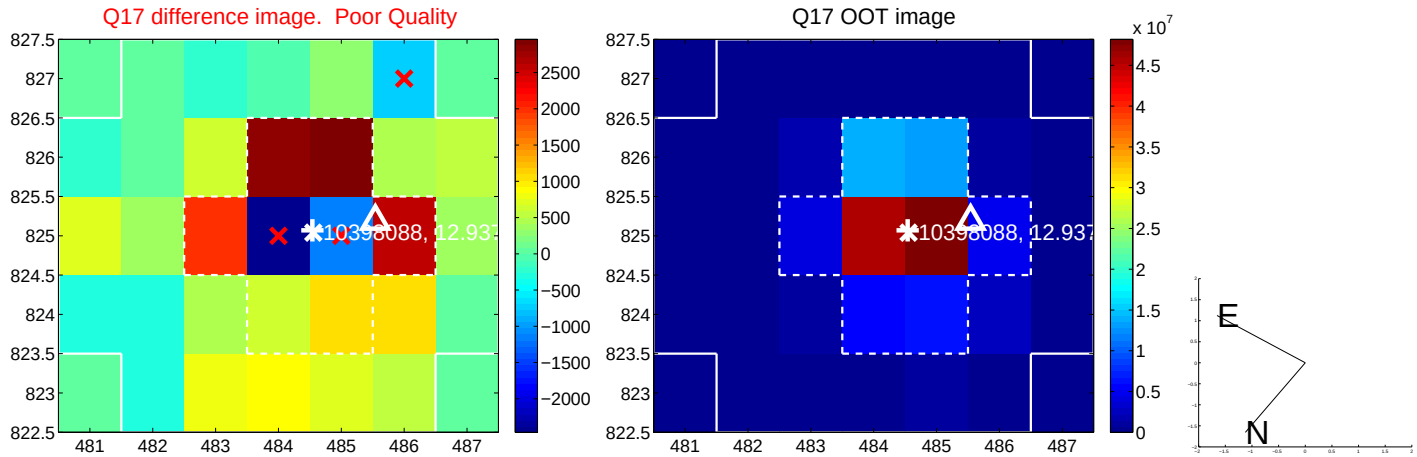
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

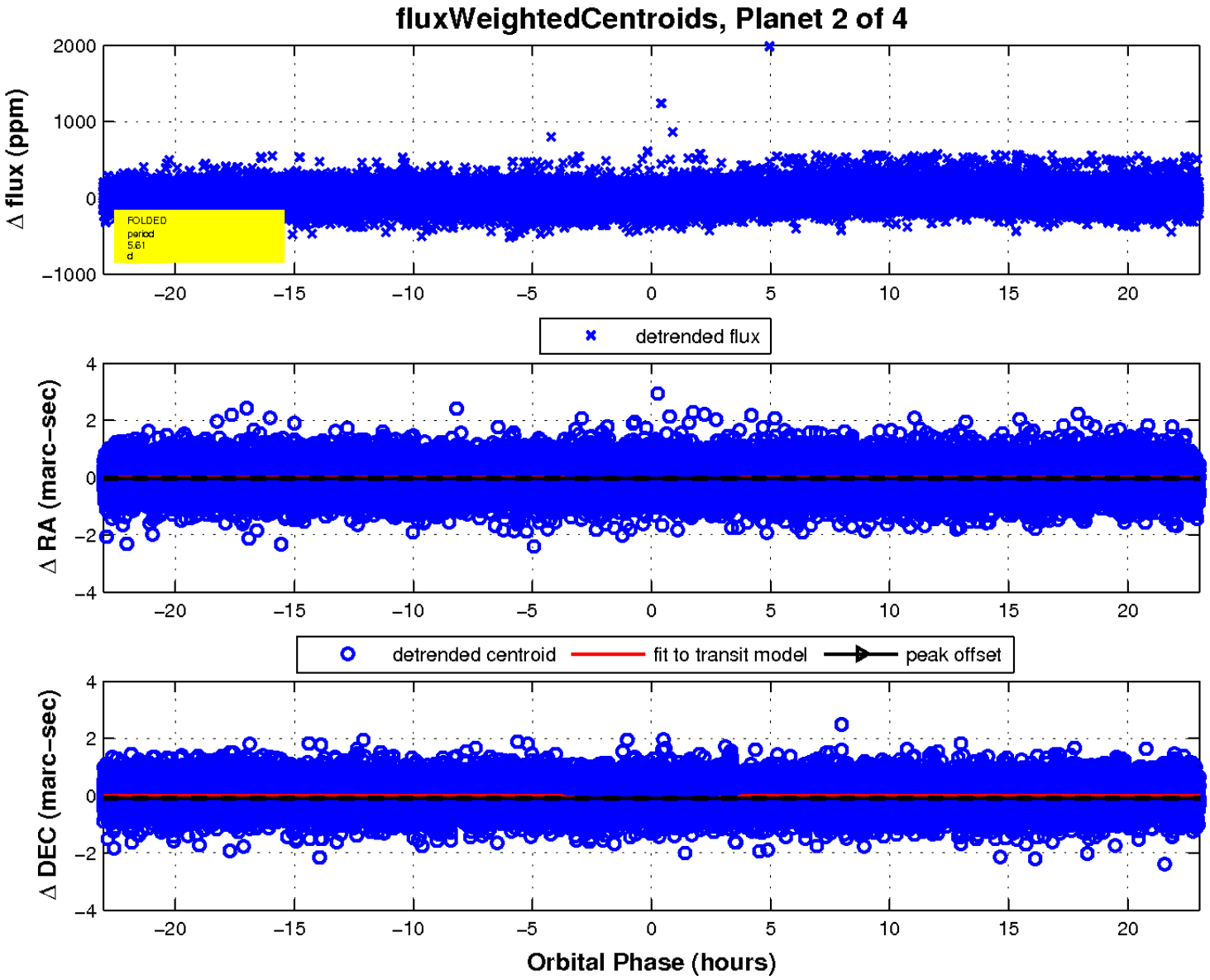


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

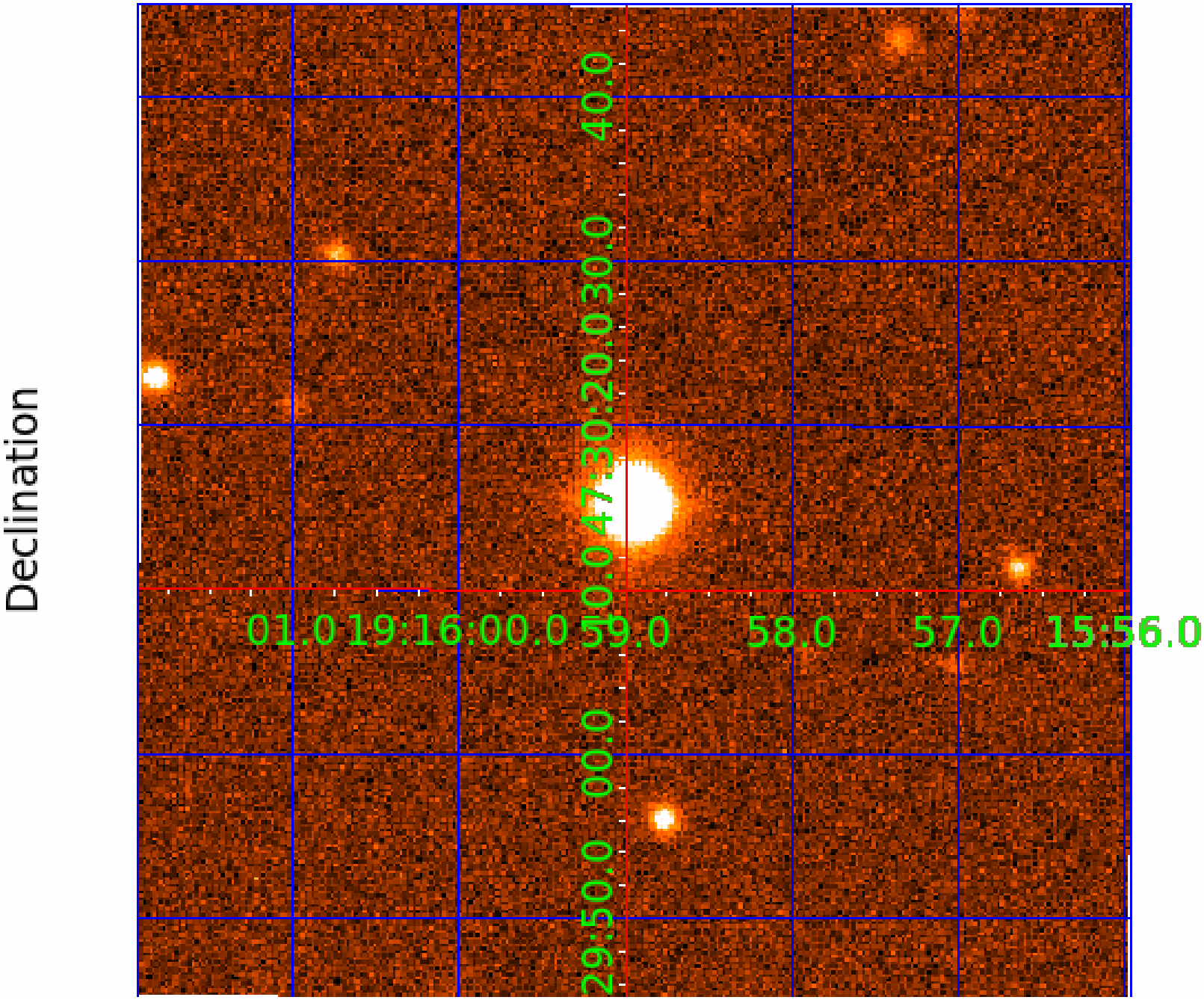


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
01.0
19:16:00.0
59.0
58.0
57.0
15:56.0
29:50.0
00.0
50.0
47:30:20.0
30.0
40.0

KIC 010398088

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 ($S_\oplus$)
010398088-01	OBS	No	611.592270	160.961645	239.3	7.022	12.6	7.2	1.56	5585	2.59	1.23
010398088-02	OBS	No	5.611509	136.227722	33.4	7.675	11.3	11.6	1.56	5585	1.05	638.59
010398088-03	OBS	No	5.611415	137.656414	0.0	0.749	8.8	0.0	1.56	5585	0.00	638.61
010398088-04	OBS	No	5.611921	137.675688	0.0	6.667	8.8	0.0	1.56	5585	0.03	638.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398088-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398088-02	OBS	FP	0.00	1	0	0	0	LPP_DV
010398088-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
010398088-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

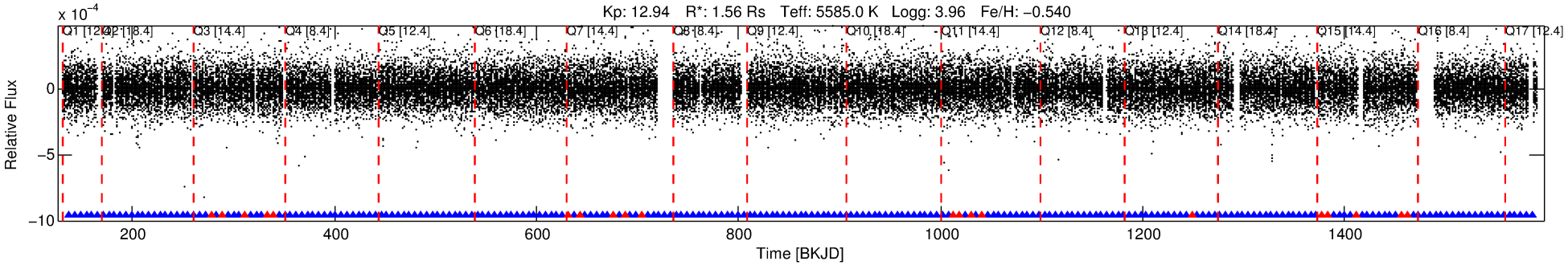
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

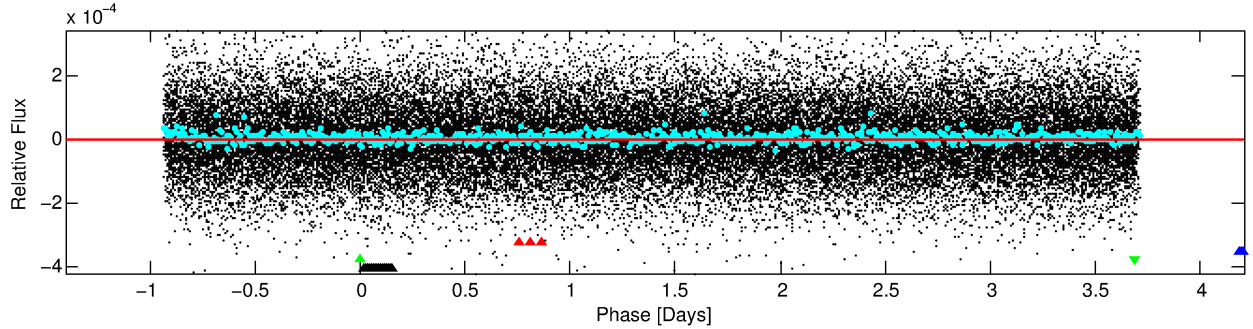
Ephemeris Match Information For 010398088-03

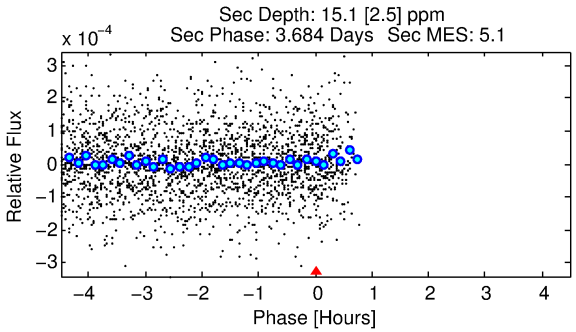
No Significant Match Found

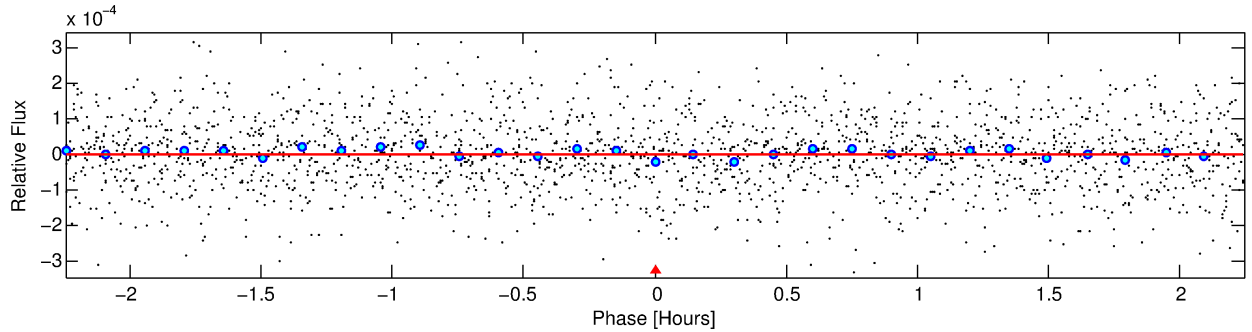
DV One-Page Summary

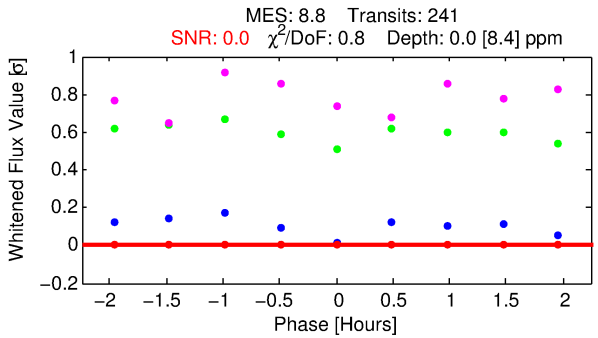
KIC: 10398088 Candidate: 3 of 4 Period: 5.611 d

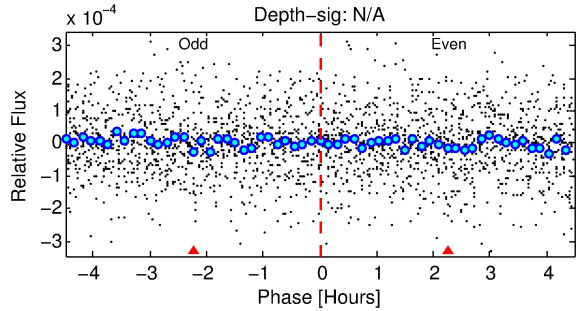


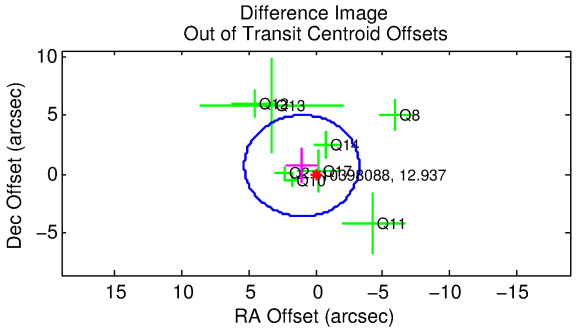












DV Fit Results:

Period = 5.61141 [2.87737] d
Epoch = 137.6564 [323.2006] BKJD
Rp/R* = 0.0000 [0.2158]
a/R* = 30.59 [853543.37]
b = 0.85 [1766.62]

Seff = 638.61 [724.31]
Teq = 1282 [363] K
Rp = 0.00 [36.86] Re
a = 0.0578 [0.0364] AU

Ag = 1911065.00 [36978389593.94] [0.00σ]
Teffp = 73688 [356462298] K [0.00σ]

DV Diagnostic Results:

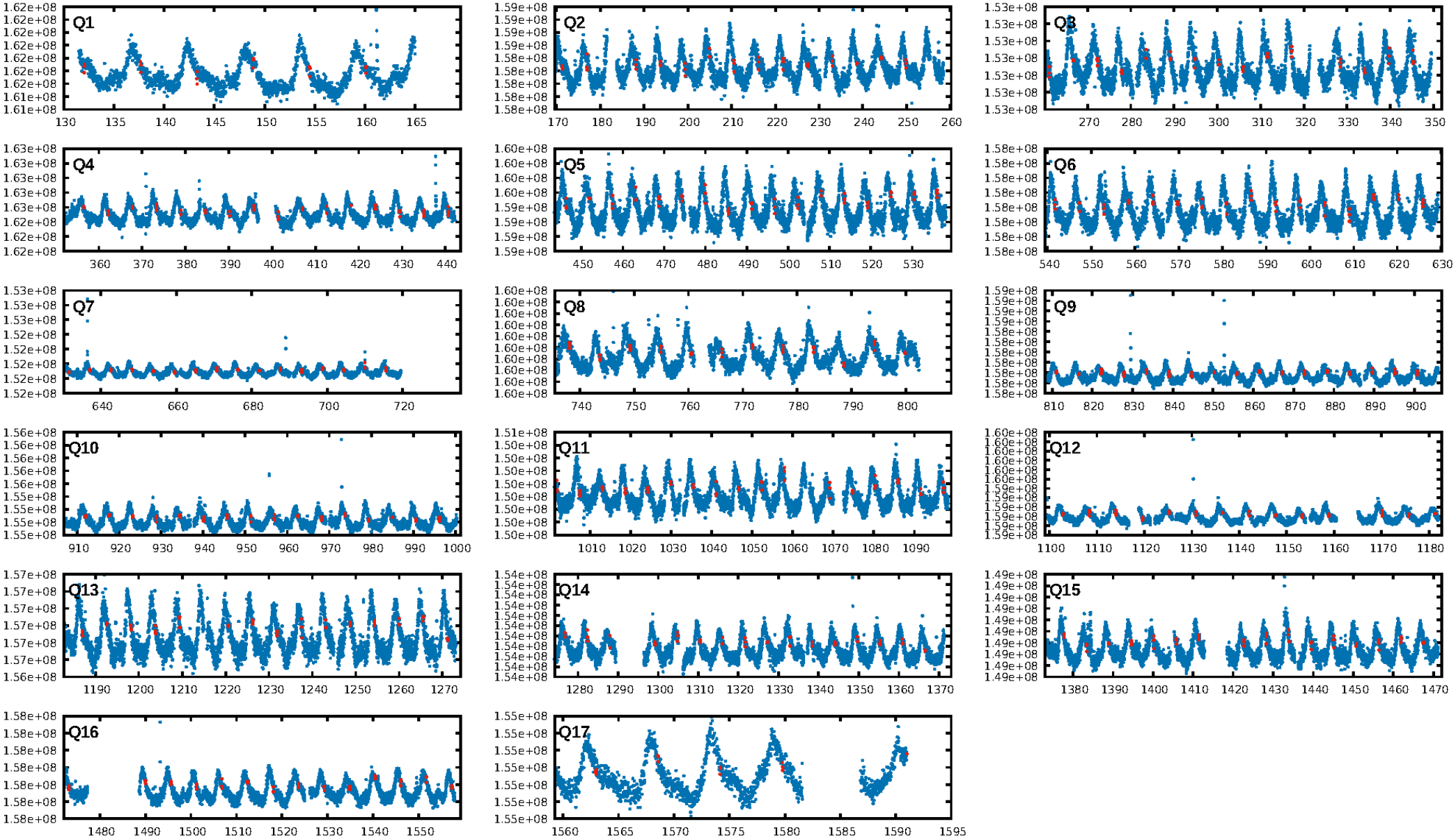
ShortPeriod−sig: N/A
LongPeriod−sig: 0.0% [0.00σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 3.53e−15
RollingBand−fgt: 0.91 [210/230]
GhostDiagnostic−chr: N/A

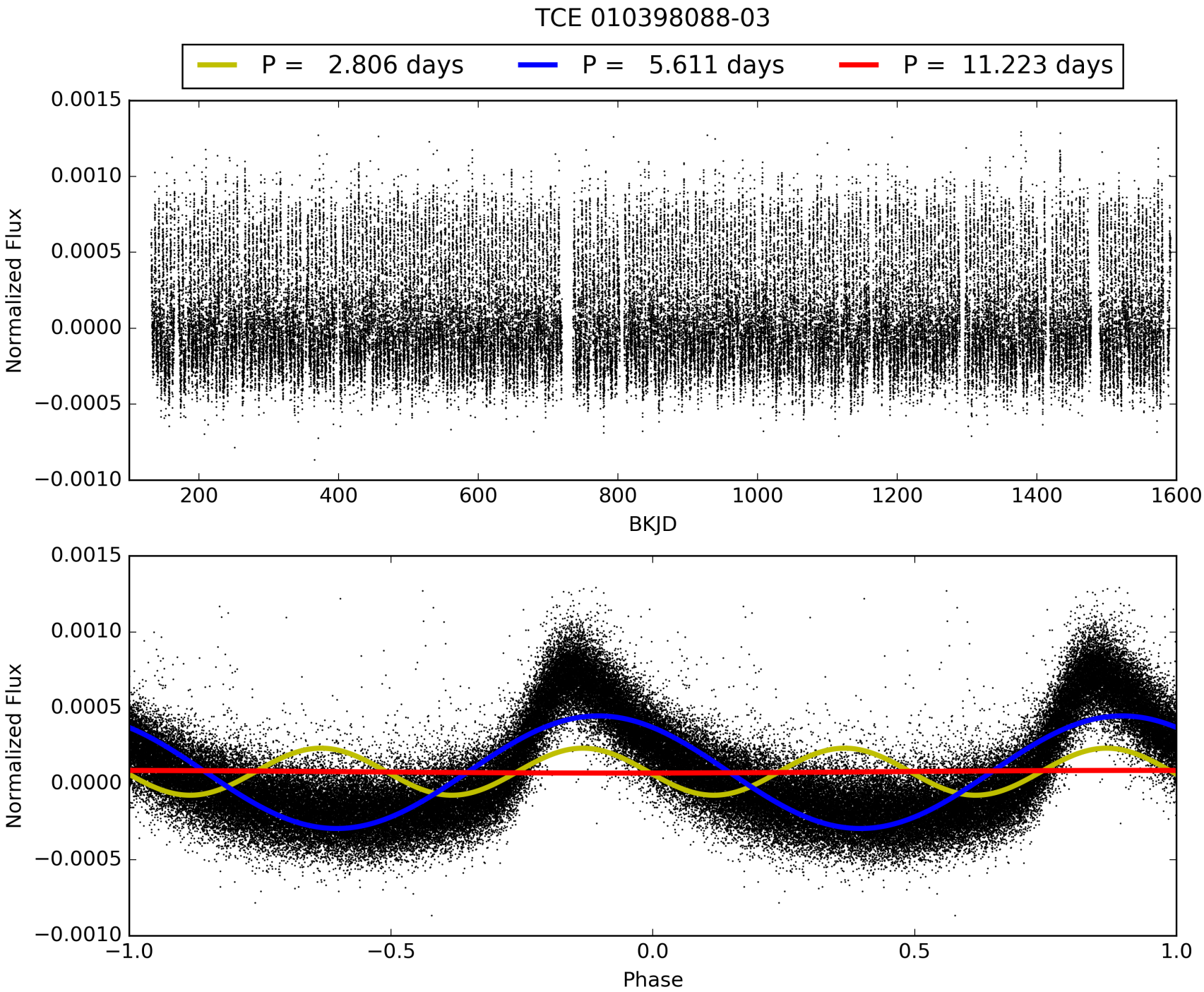
Centroid−sig: N/A
Centroid−so: N/A
OotOffset−rm: 1.270 arcsec [0.89σ]
KicOffset−rm: 1.360 arcsec [0.80σ]
OotOffset−st: 3/1/2/2 [8]
KicOffset−st: 3/1/2/2 [8]
DiffImageQuality−fgm: 0.25 [2/8]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 07:44:44 Z

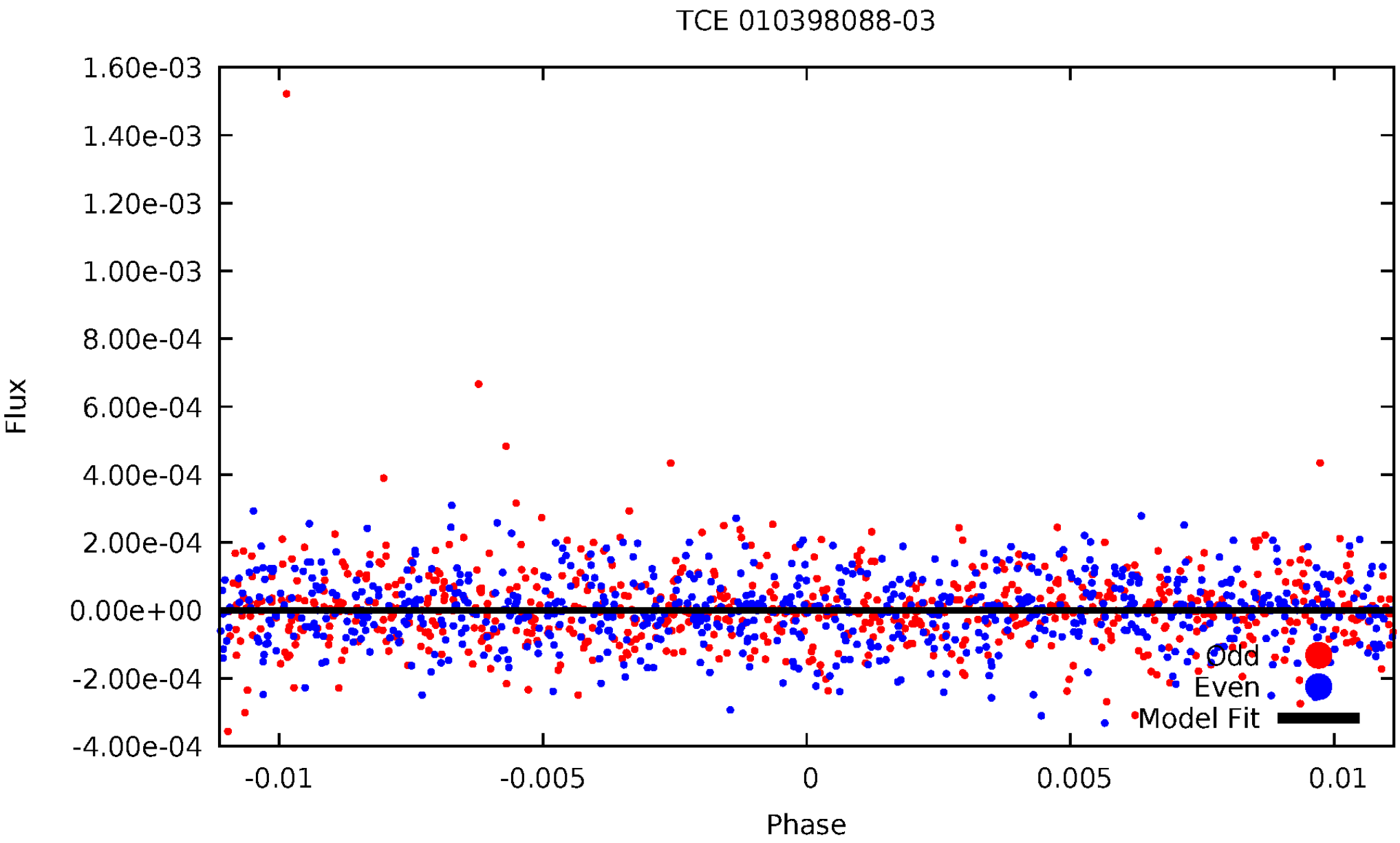
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010398088-03, PDC Light Curves

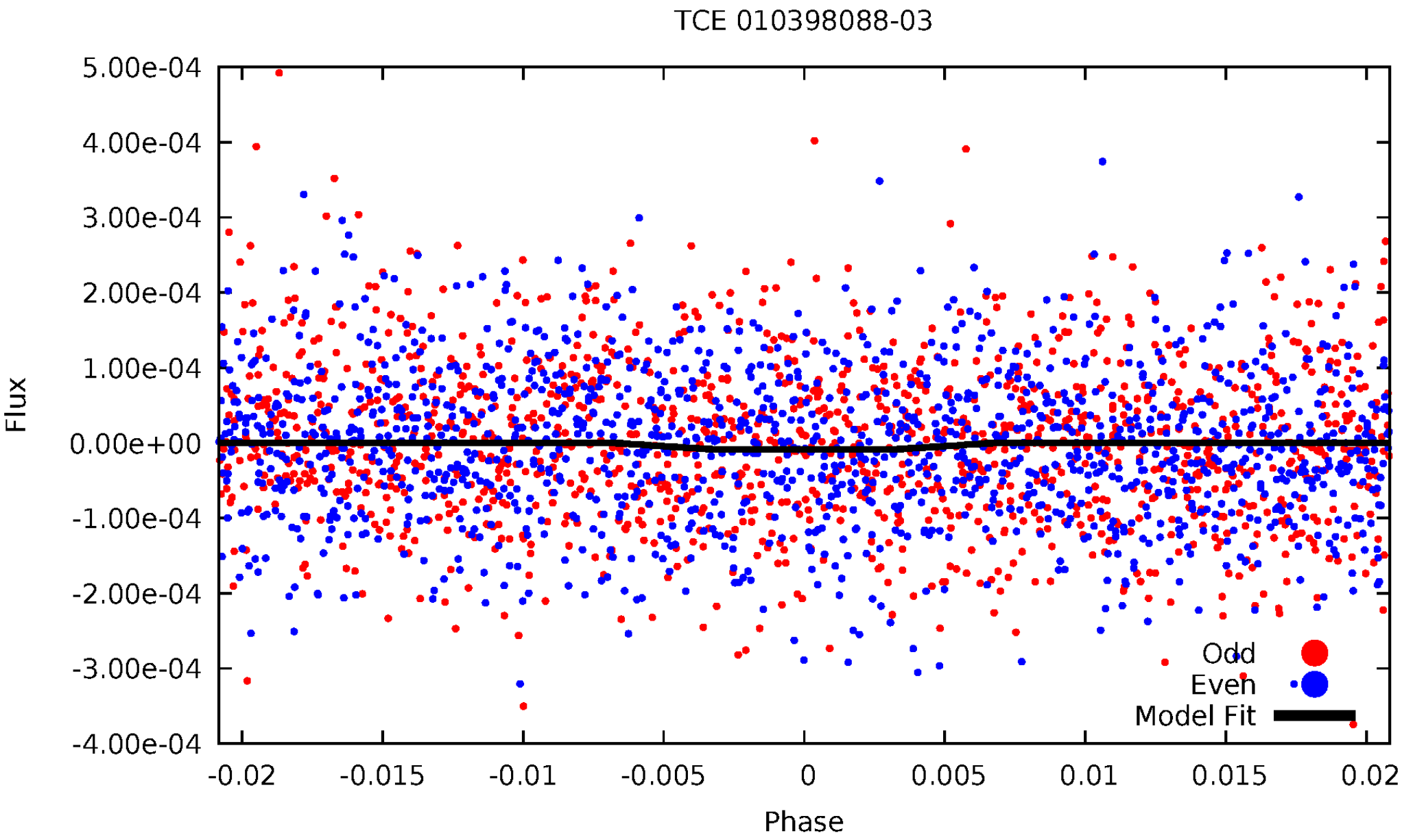



TCE 010398088-03
P = 2.806 days
P = 5.611 days
P = 11.223 days
Normalized Flux
BKJD
Normalized Flux
Phase

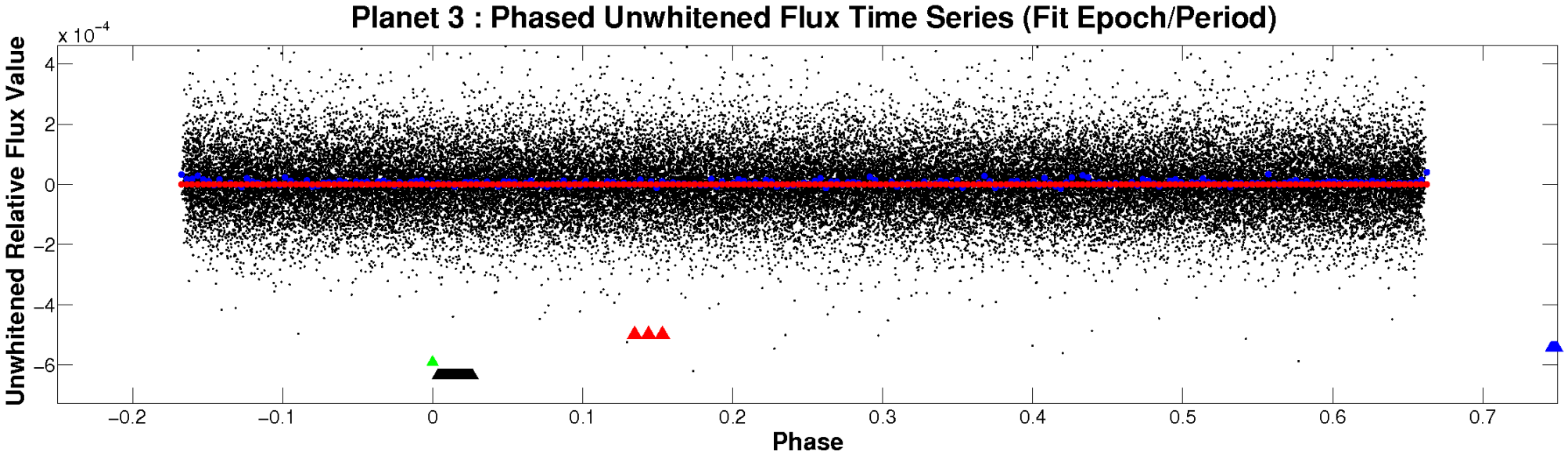
DV Odd/Even

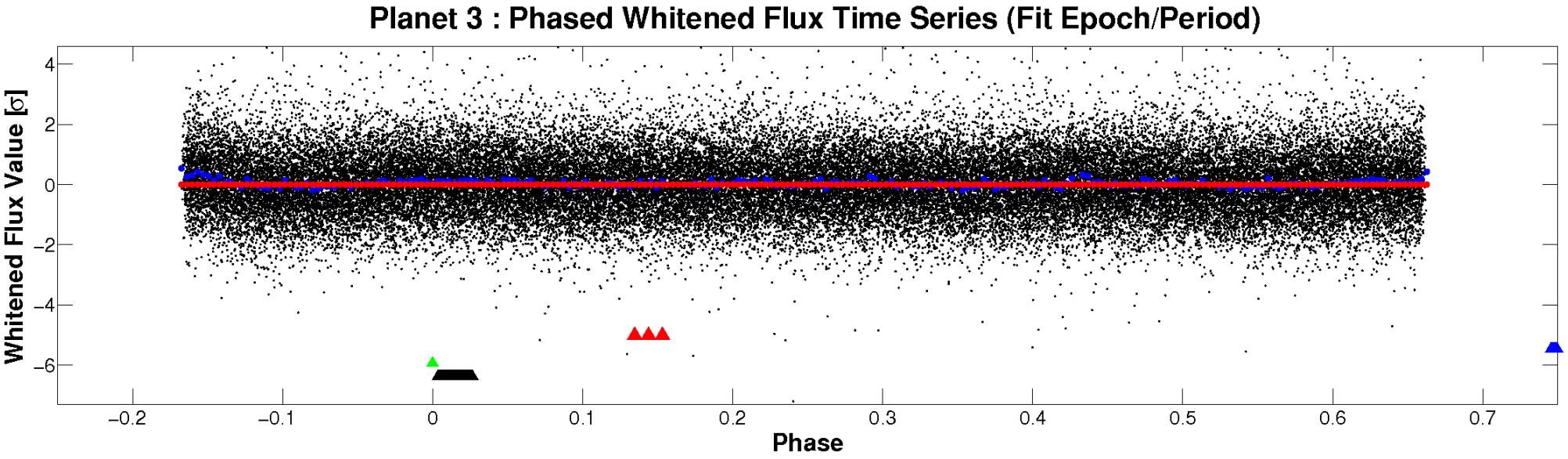

TCE 010398088-03
1.60e-03
1.40e-03
1.20e-03
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 010398088-03
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
Flux
-0.02
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
0.02
Phase
Odd
Even
Model Fit

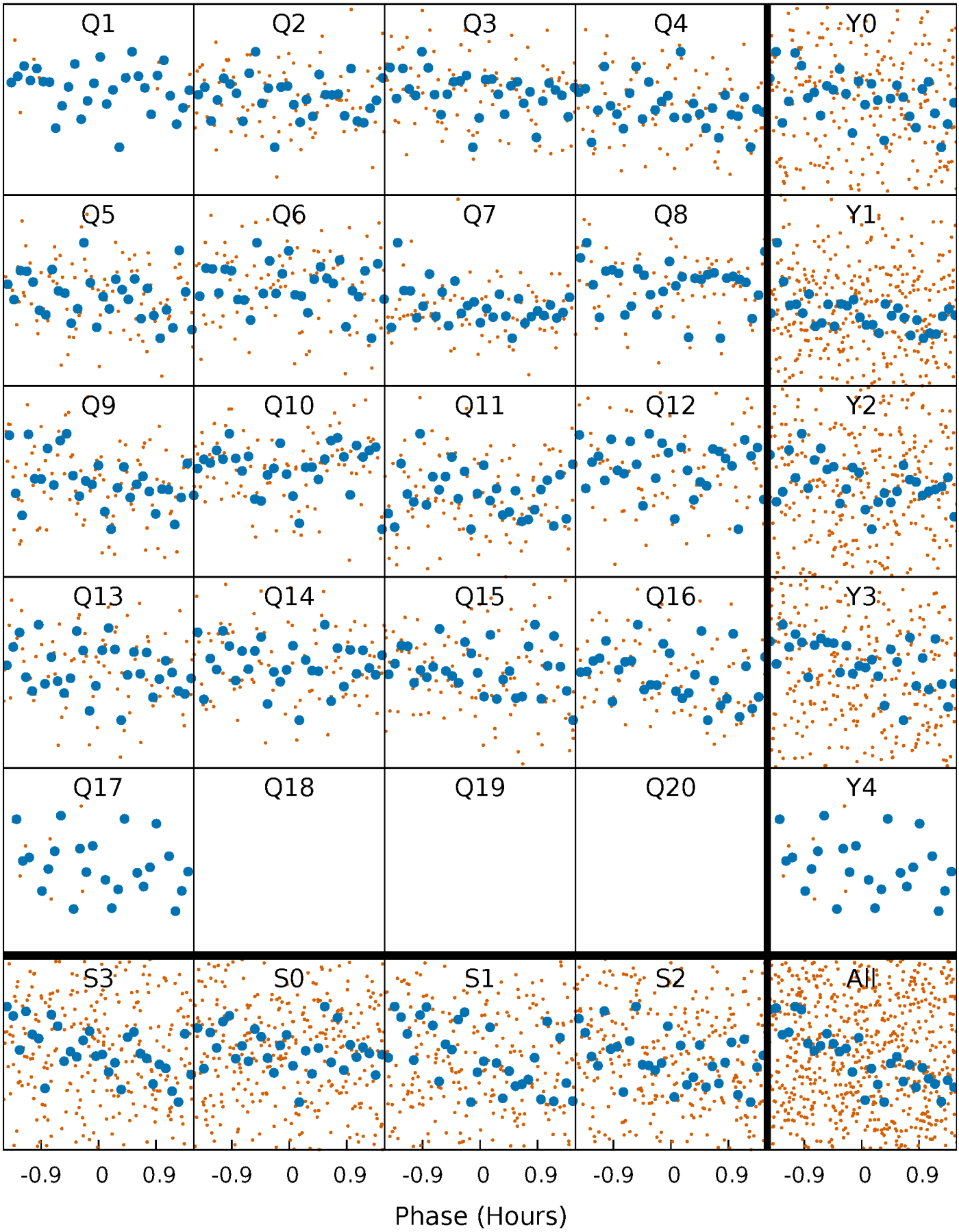
Non-Whitened Vs. Whitened Light Curve





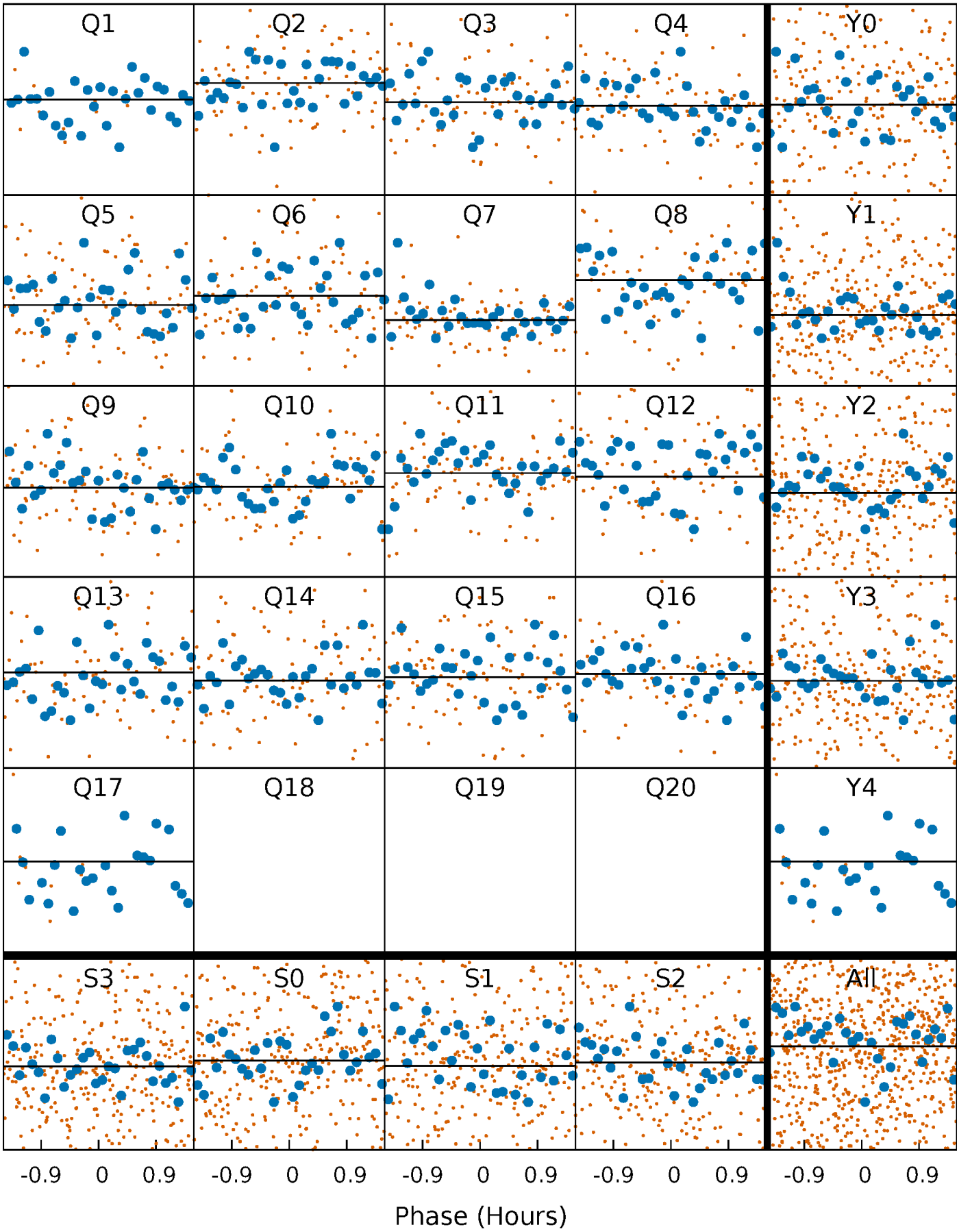
PDC Quarter-Phased Transit Curves

TCE 010398088-03 P= 5.611415 Days T_0=137.656414 (BKJD)



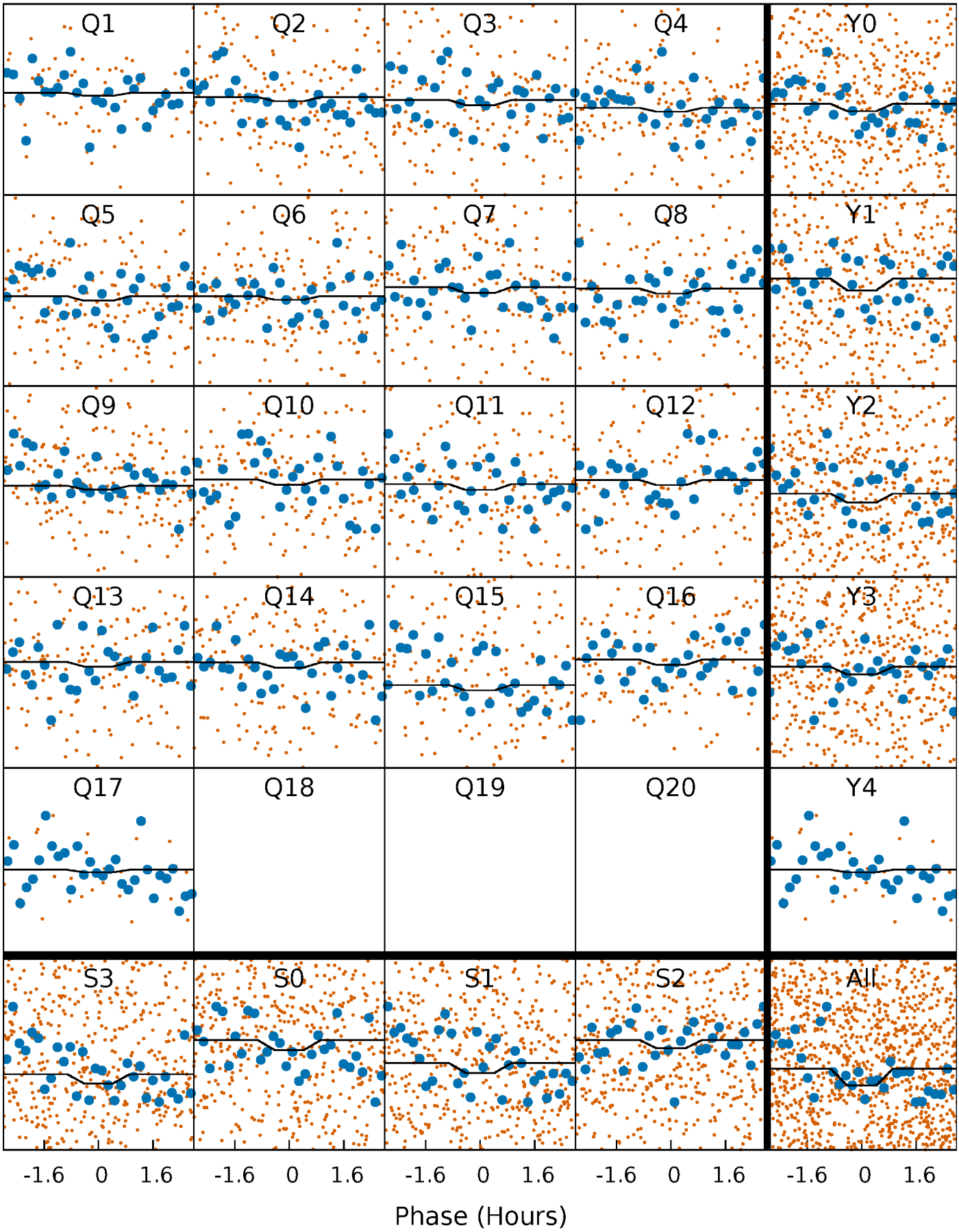
DV Quarter-Phased Transit Curves

TCE 010398088-03 P= 5.611415 Days T_0=137.656414 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

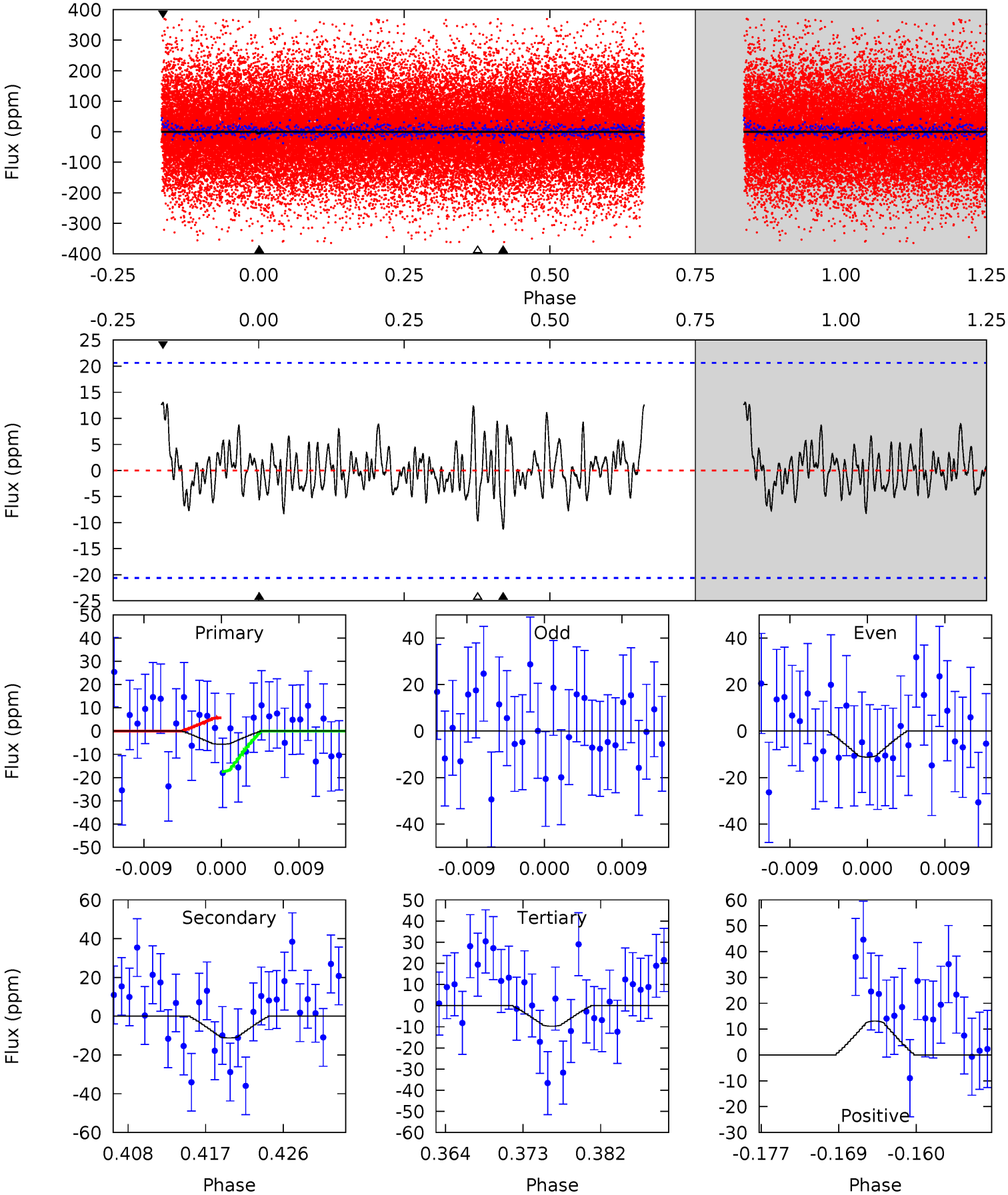
TCE 010398088-03 P= 5.612046 Days T_0=137.643362 (BKJD)



DV Model-Shift Uniqueness Test

010398088-03, P = 5.611415 Days, E = 126.433584 Days

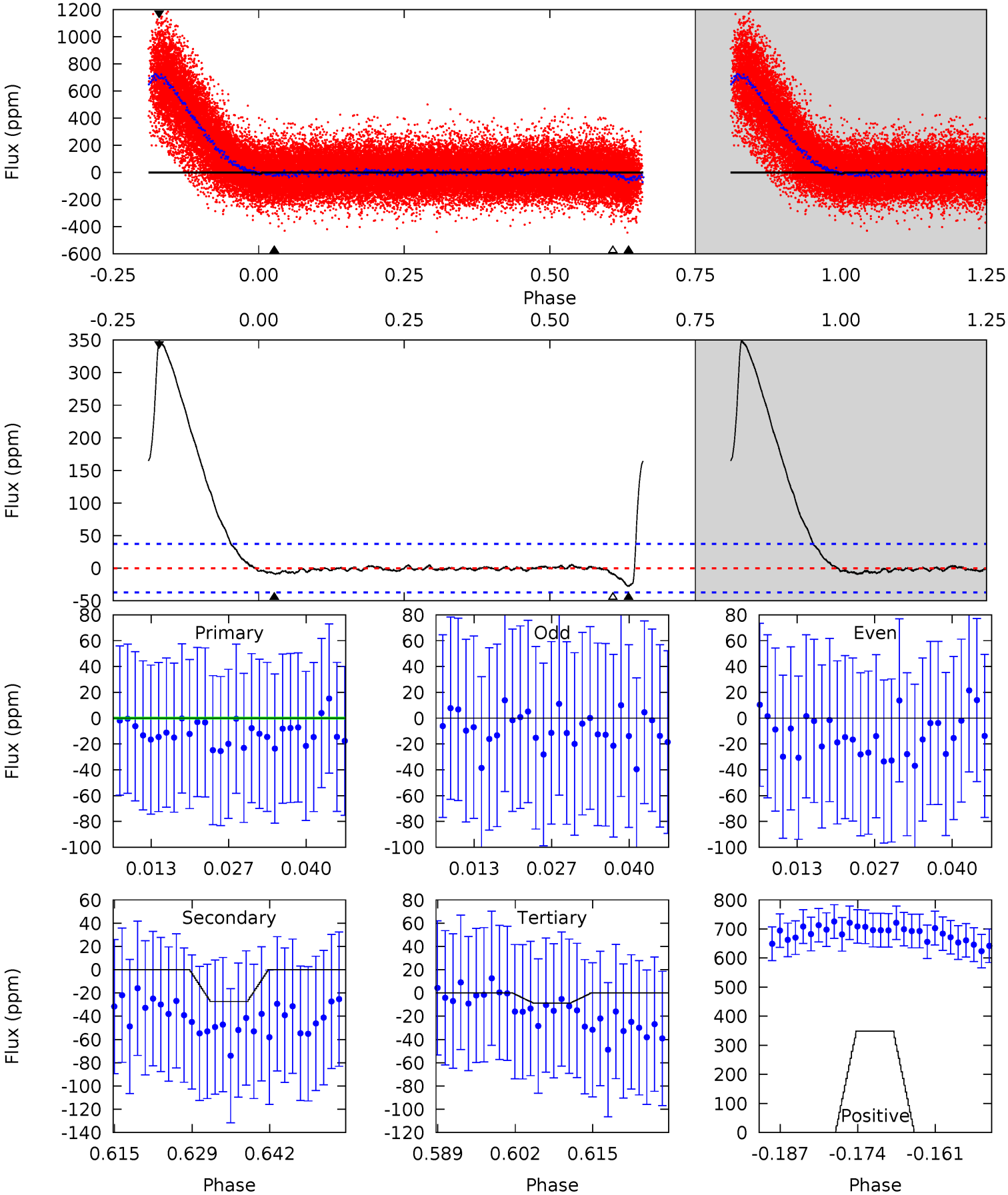
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.39	2.75	2.38	3.21	5.05	2.62	0.91	-0.99	-1.82	0.37	-0.46	1.38	0.49	0.54	1.45



Alt Model-Shift Uniqueness Test

010398088-03, P = 5.612046 Days, E = 126.419270 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.11	3.65	1.16	46.6	4.97	2.47	11.2	-0.05	-45.5	2.49	-42.9	0.54	1.63	0.93	0.31



Stellar Parameters For KIC 010398088

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5585^{+184}_{-134}	$3.962^{+0.544}_{-0.136}$	$-0.540^{+0.350}_{-0.250}$	$1.565^{+0.379}_{-0.758}$	$0.819^{+0.100}_{-0.075}$	$0.301^{+1.604}_{-0.142}$
	+3%/-2%	+14%/-3%	+65%/-46%	+24%/-48%	+12%/-9%	+533%/-47%
Source	PHO1	FLK73	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 010398088-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-11±4	$20.99^{+27.98}_{-15.03}$	1733^{+444}_{-289}	-2238^{+4420}_{-310}	$0.039^{+0.510}_{-0.033}$
Alt.	-27±7	$21.26^{+30.60}_{-14.87}$	1729^{+422}_{-300}	-2158^{+4781}_{-346}	$0.092^{+1.506}_{-0.077}$

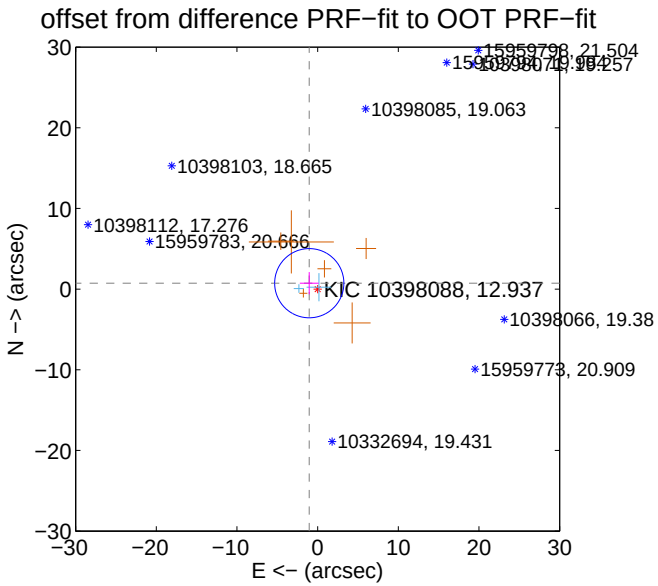
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

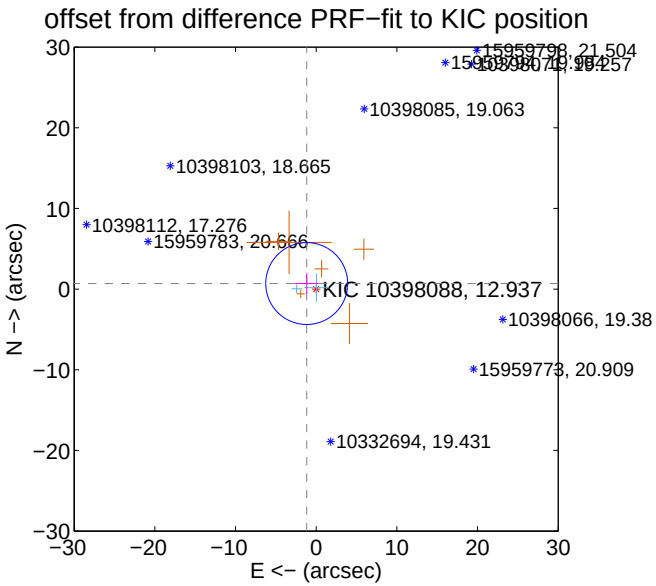
If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

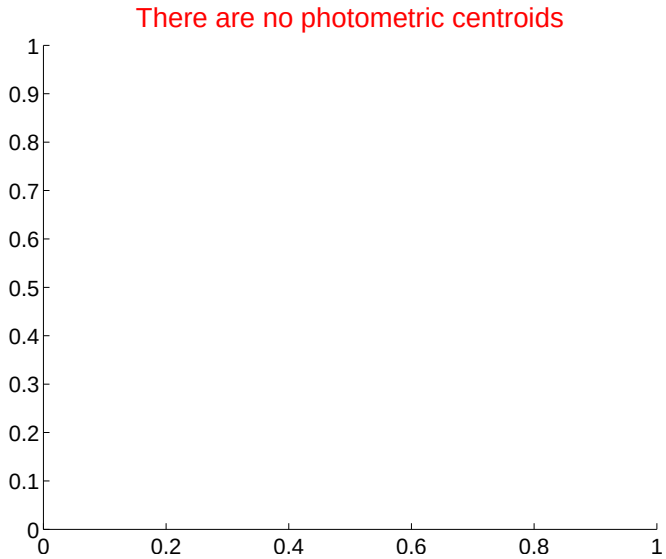
DV Centroid Data

Supplemental centroid analysis for 010398088-03. Kepler magnitude: 12.94. Transit SNR 0.00
There are 2 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.270 ± 1.430	0.89	1.037 ± 1.176	0.732 ± 1.376
PRF-fit source offset from KIC position	1.360 ± 1.692	0.80	1.173 ± 1.483	0.688 ± 1.293
photometric centroid source offset	—	—	—	—

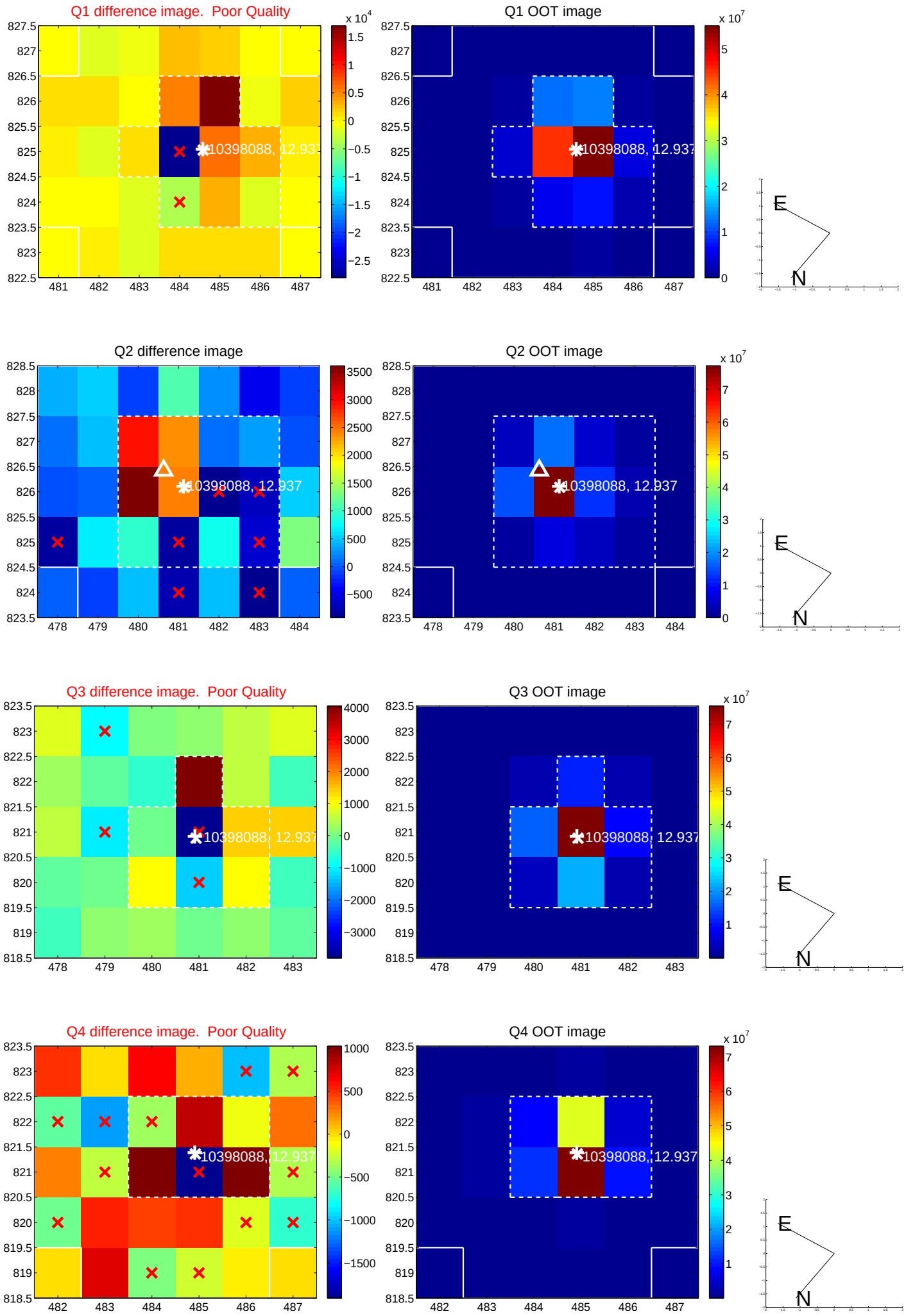




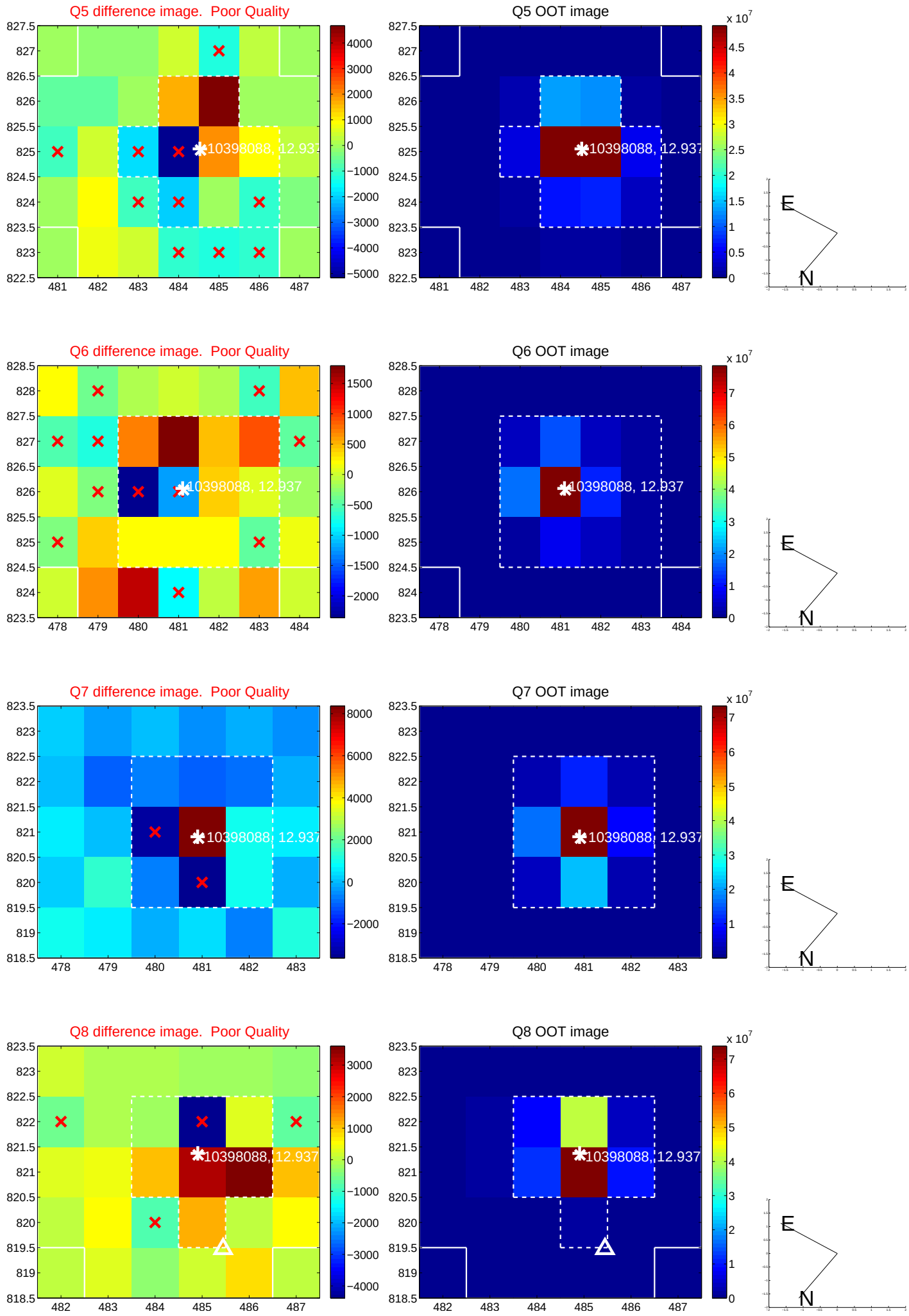


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

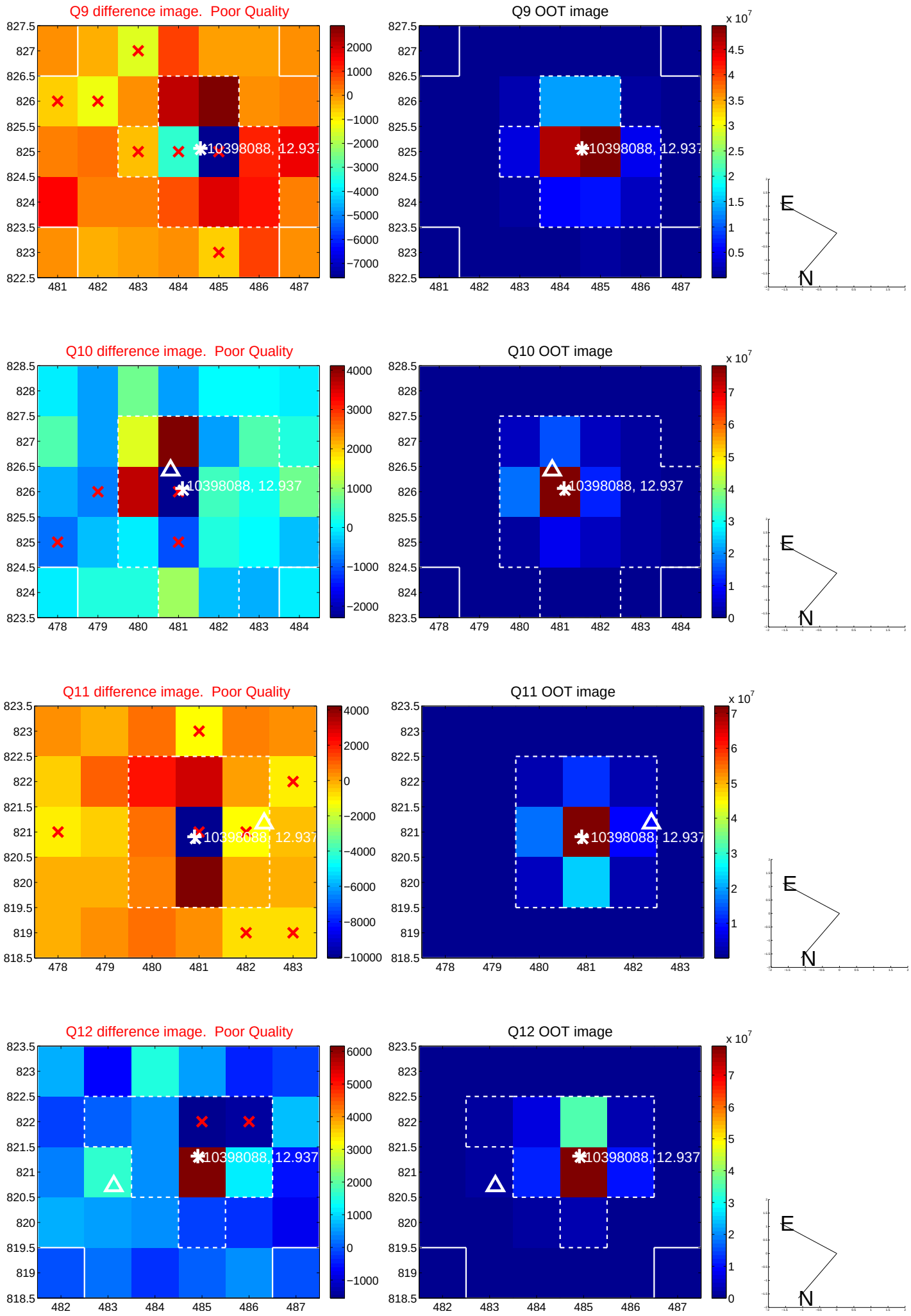
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



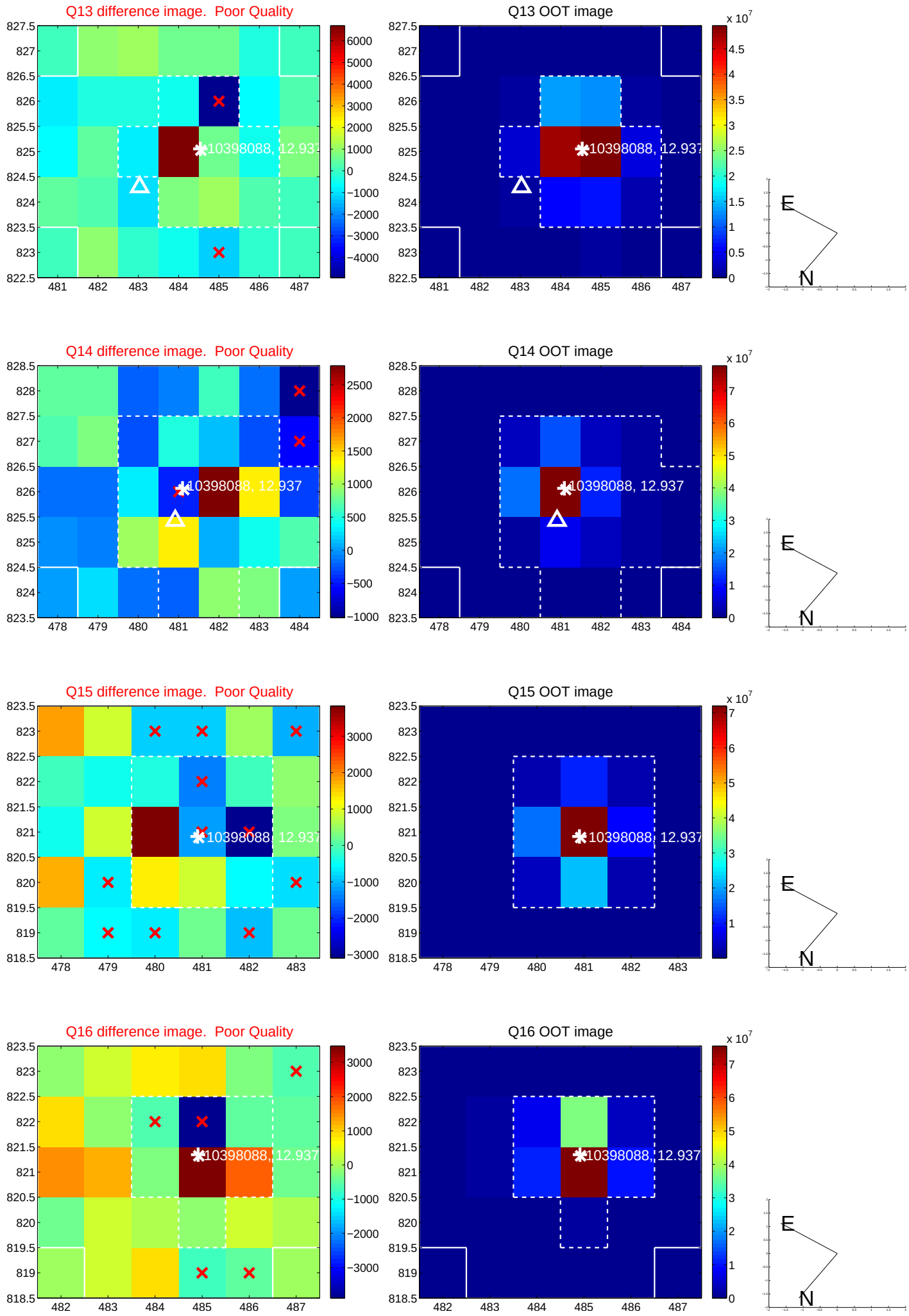
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



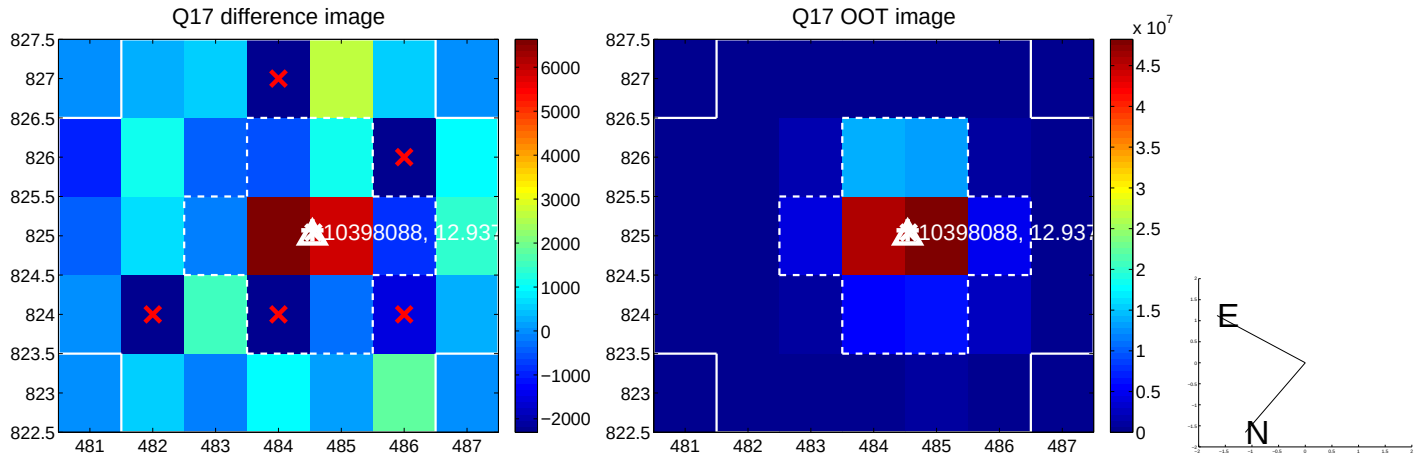
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

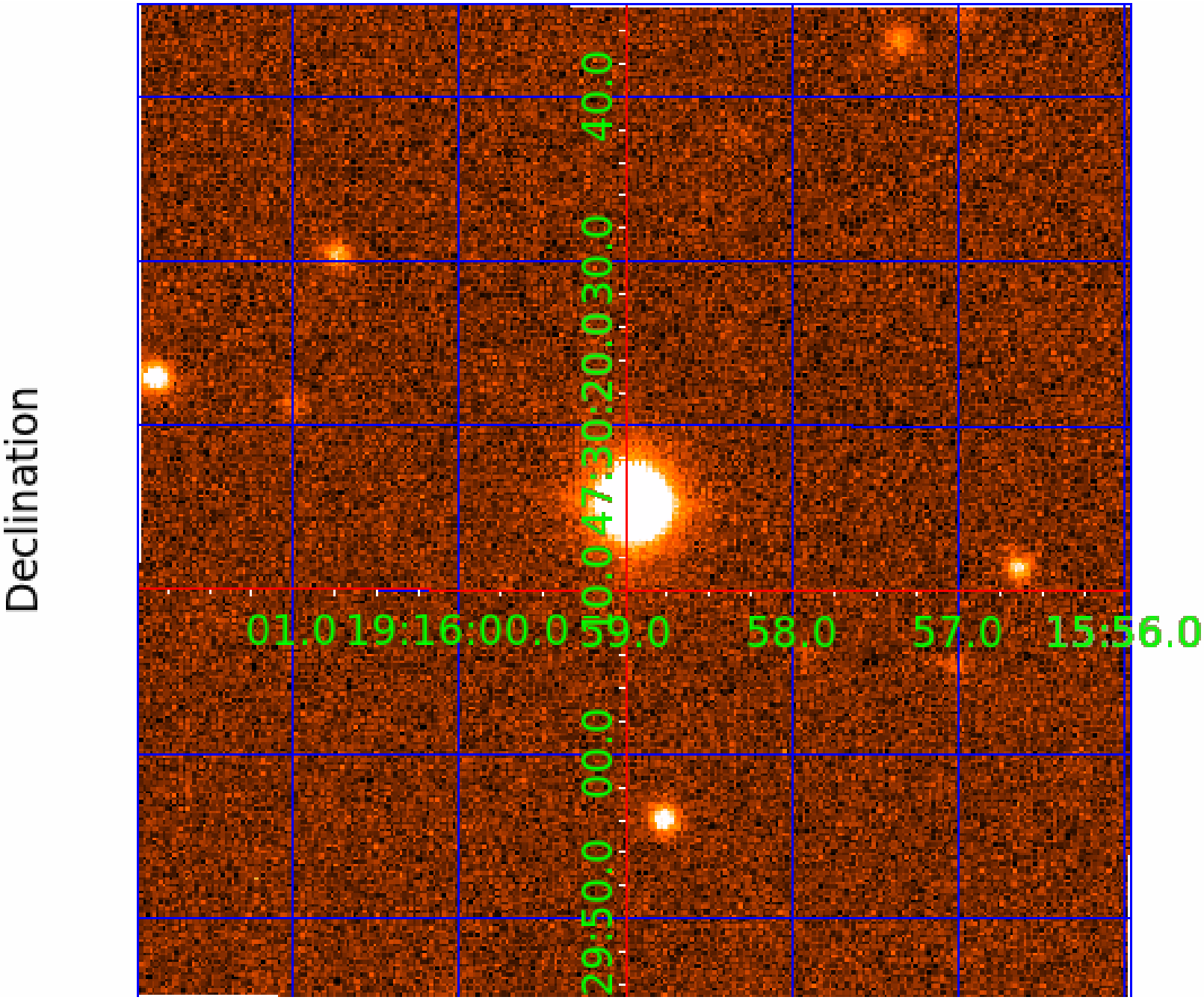


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



olded centroid time series figure for this object.

UKIRT Image


Declination
01.0
19:16:00.0
59.0
58.0
57.0
15:56.0
29:50.0
00.0
50.0
47:30:20.0
30.0
40.0

KIC 010398088

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 ($S_\oplus$)
010398088-01	OBS	No	611.592270	160.961645	239.3	7.022	12.6	7.2	1.56	5585	2.59	1.23
010398088-02	OBS	No	5.611509	136.227722	33.4	7.675	11.3	11.6	1.56	5585	1.05	638.59
010398088-03	OBS	No	5.611415	137.656414	0.0	0.749	8.8	0.0	1.56	5585	0.00	638.61
010398088-04	OBS	No	5.611921	137.675688	0.0	6.667	8.8	0.0	1.56	5585	0.03	638.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010398088-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010398088-02	OBS	FP	0.00	1	0	0	0	LPP_DV
010398088-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
010398088-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

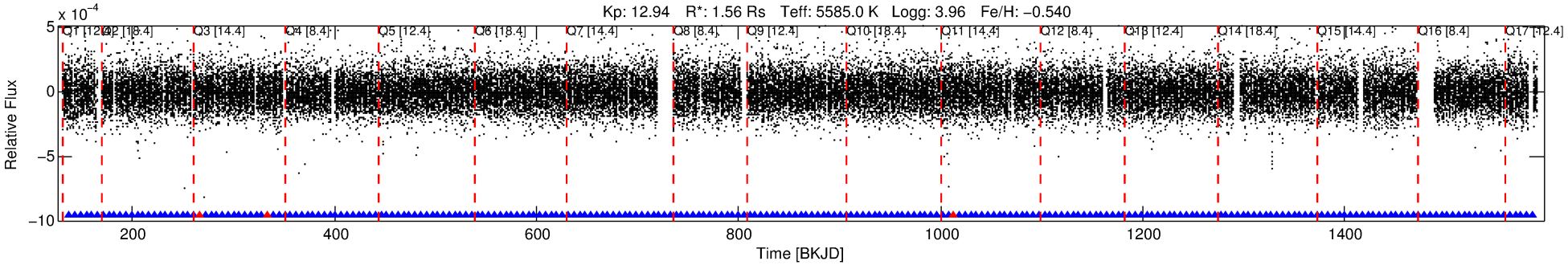
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

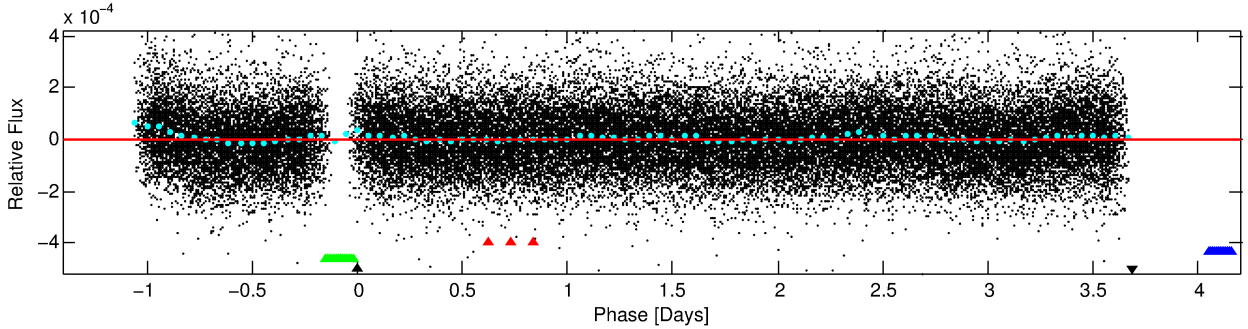
Ephemeris Match Information For 010398088-04

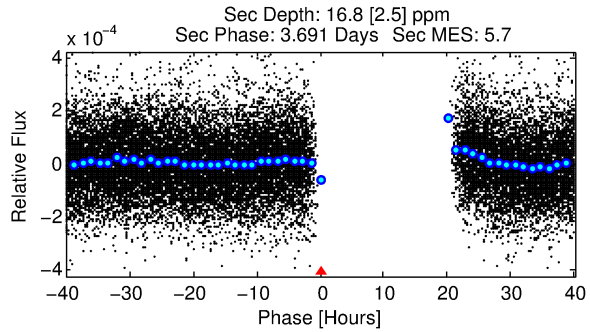
No Significant Match Found

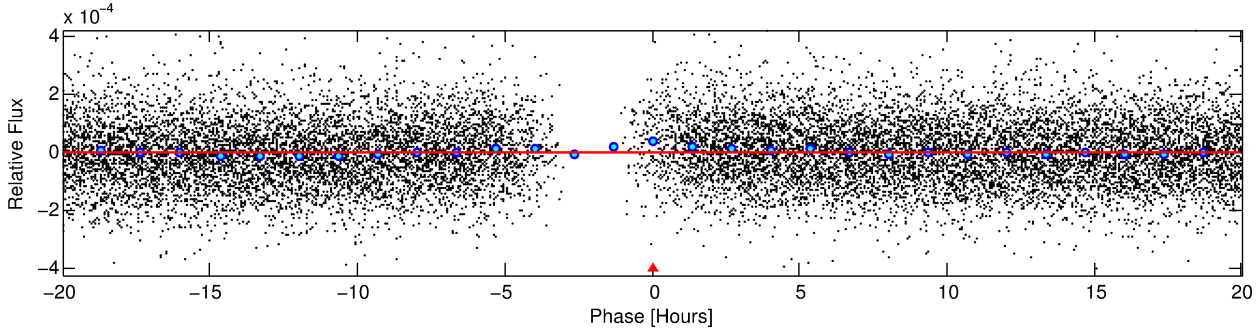
DV One-Page Summary

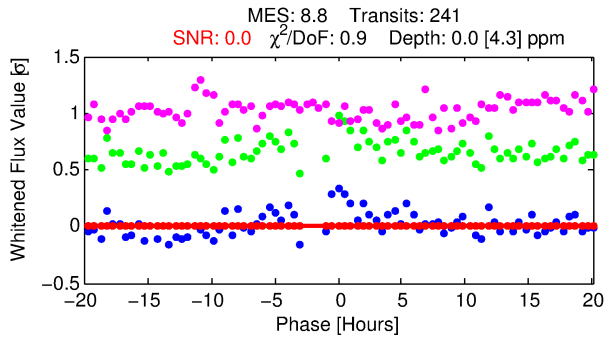
KIC: 10398088 Candidate: 4 of 4 Period: 5.612 d

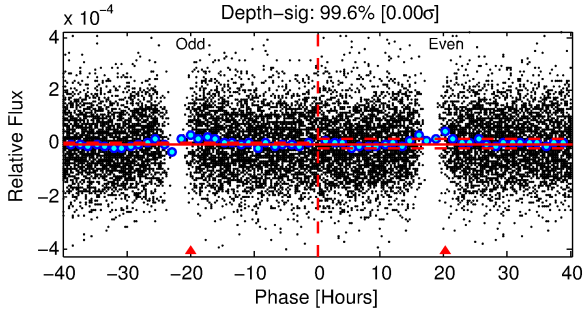


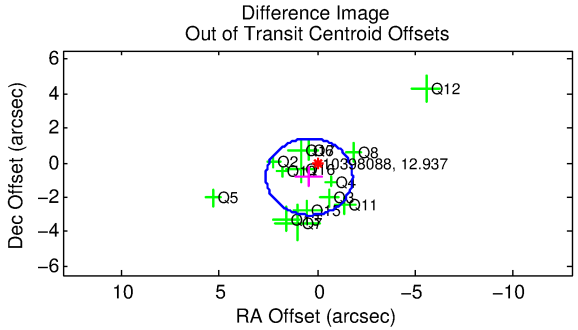












DV Fit Results:

Period = 5.61192 [0.08238] d
Epoch = 137.6757 [10.4659] BKJD
Rp/R* = 0.0002 [0.0146]
a/R* = 2.91 [84.96]
b = 0.90 [13.92]

Seff = 638.53 [577.99]
Teq = 1282 [290] K
Rp = 0.03 [2.49] Re
a = 0.0578 [0.0305] AU

Ag = 32062.59 [5147127.22] [0.01σ]
Teffp = 26519 [1064301] K [0.02σ]

DV Diagnostic Results:

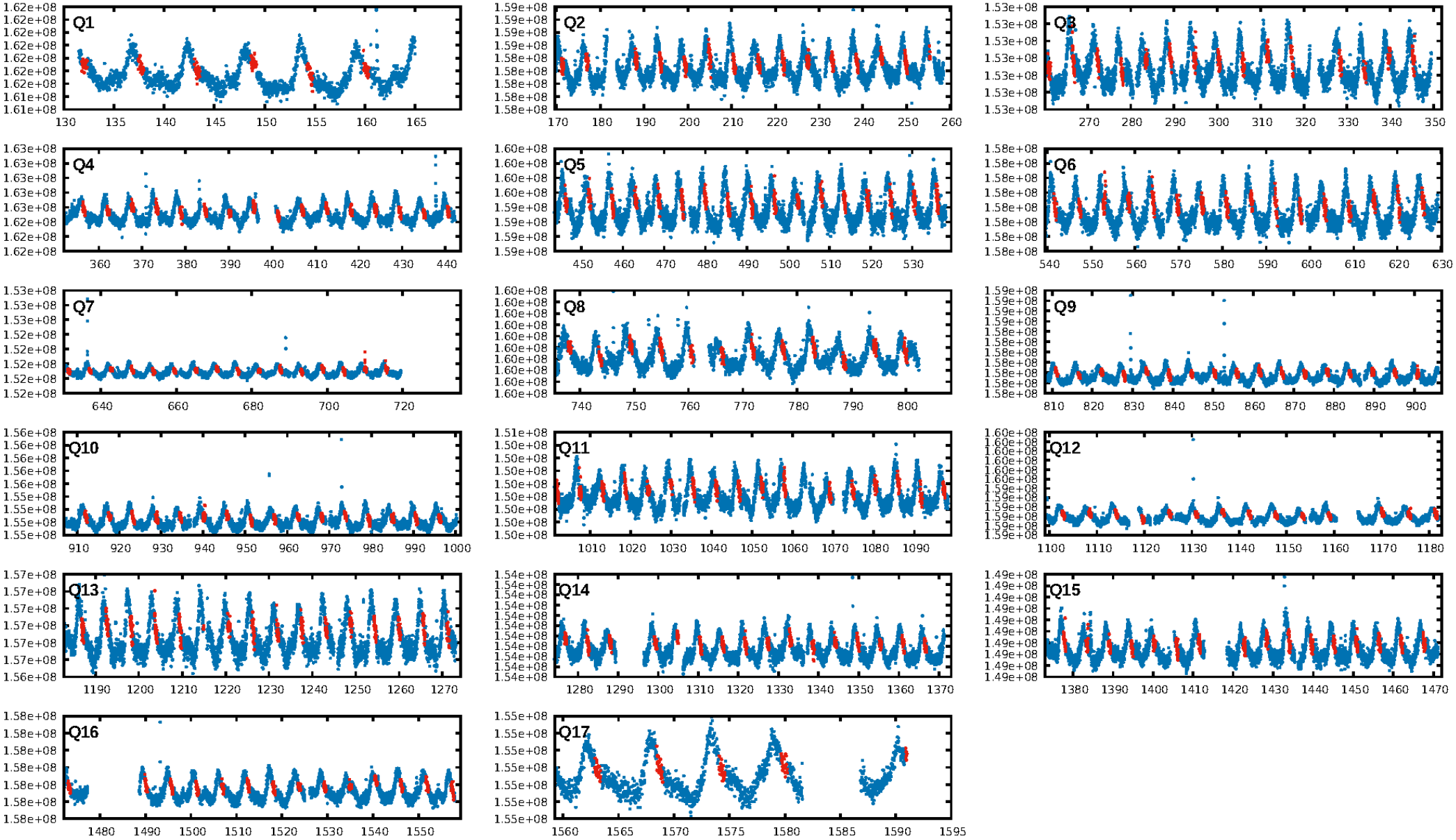
ShortPeriod−sig: 0.1% [0.00σ]
LongPeriod−sig: 100.0% [1501.90σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 4.40e−15
RollingBand−fgt: 0.99 [228/231]
GhostDiagnostic−chr: N/A

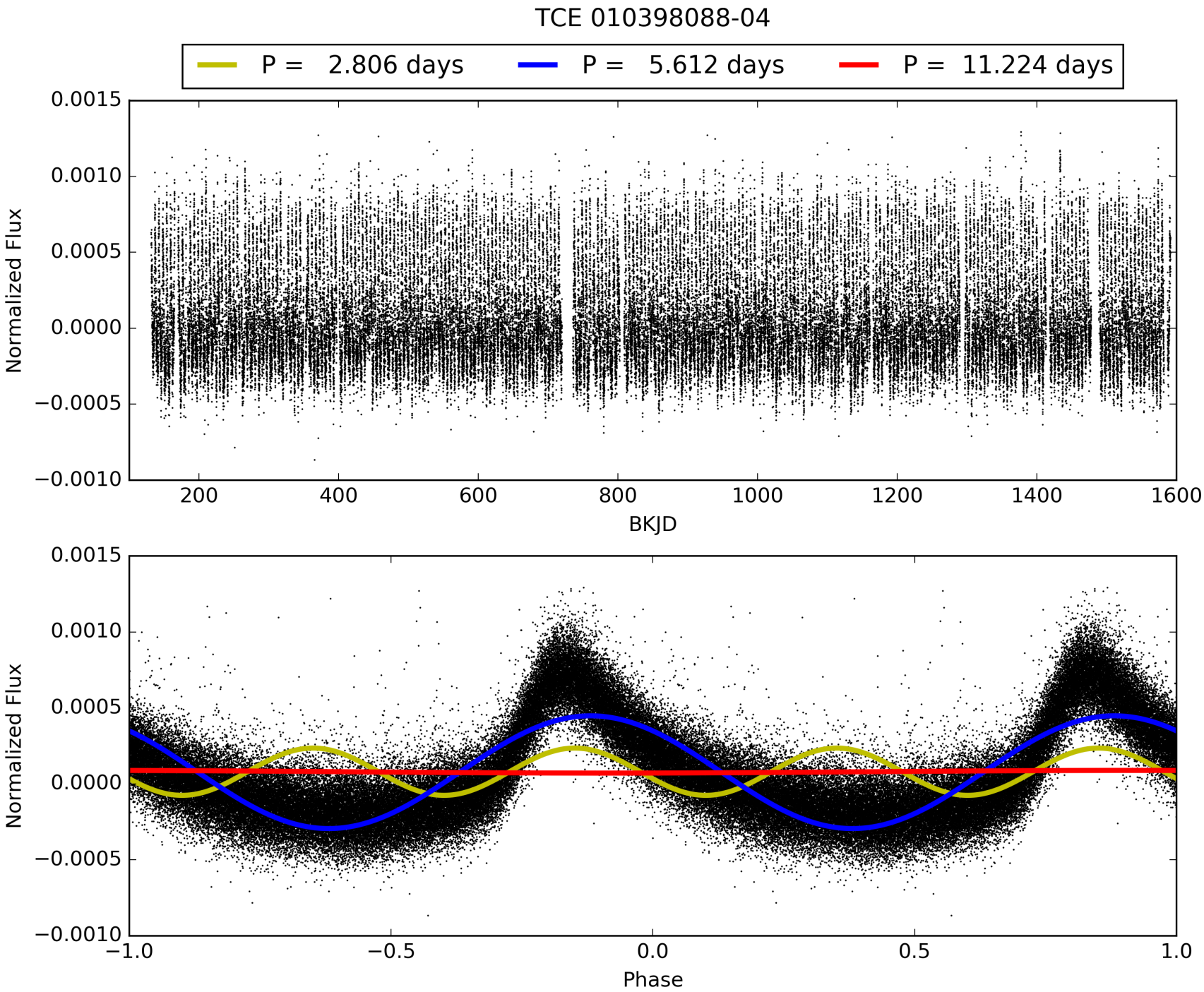
Centroid−sig: N/A
Centroid−so: N/A
OotOffset−rm: 0.914 arcsec [1.23σ]
KicOffset−rm: 1.002 arcsec [1.34σ]
OotOffset−st: 3/4/4/3 [14]
KicOffset−st: 3/4/4/3 [14]
DiffImageQuality−fgm: 0.64 [9/14]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29−Jan−2016 07:44:50 Z

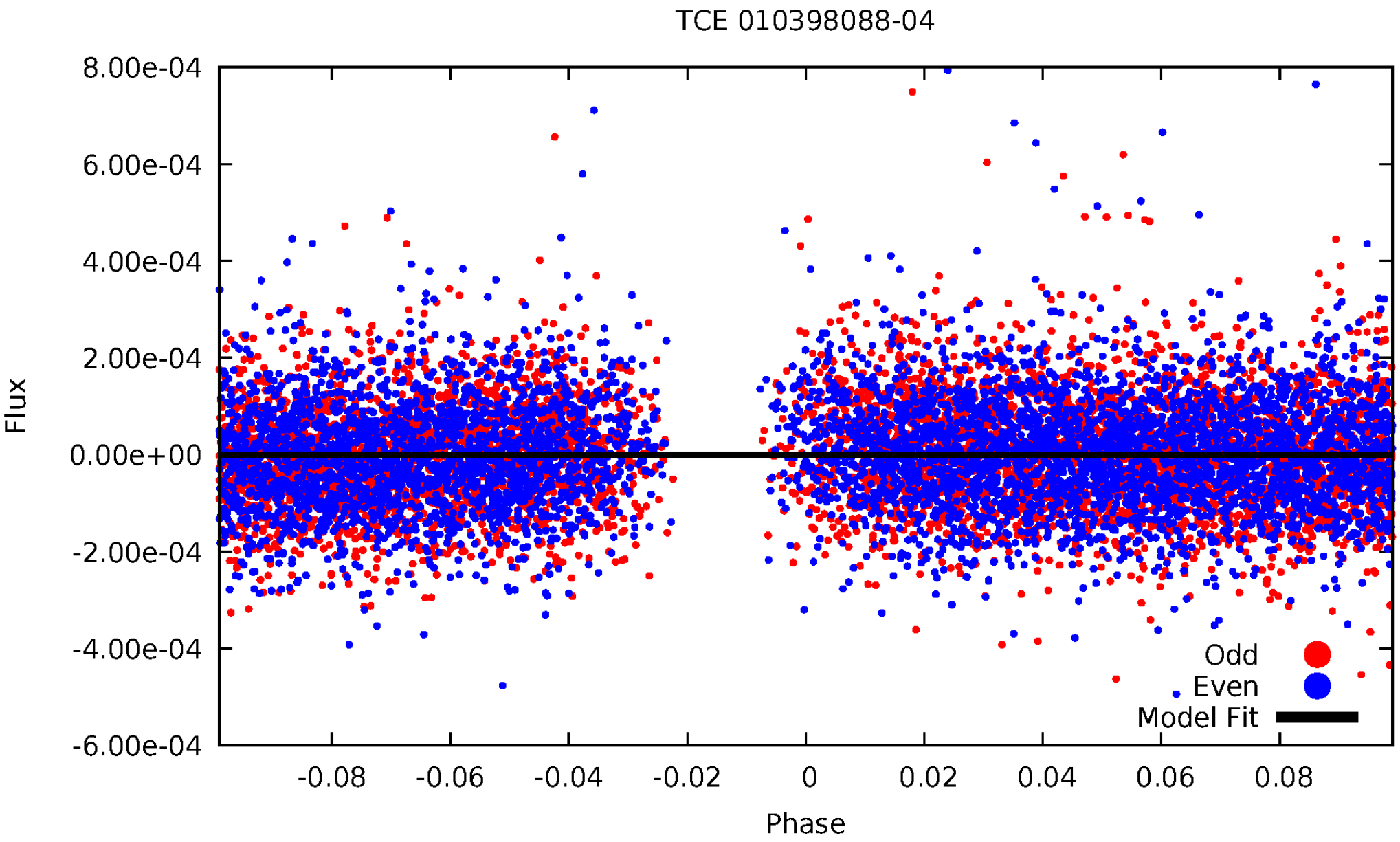
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010398088-04, PDC Light Curves

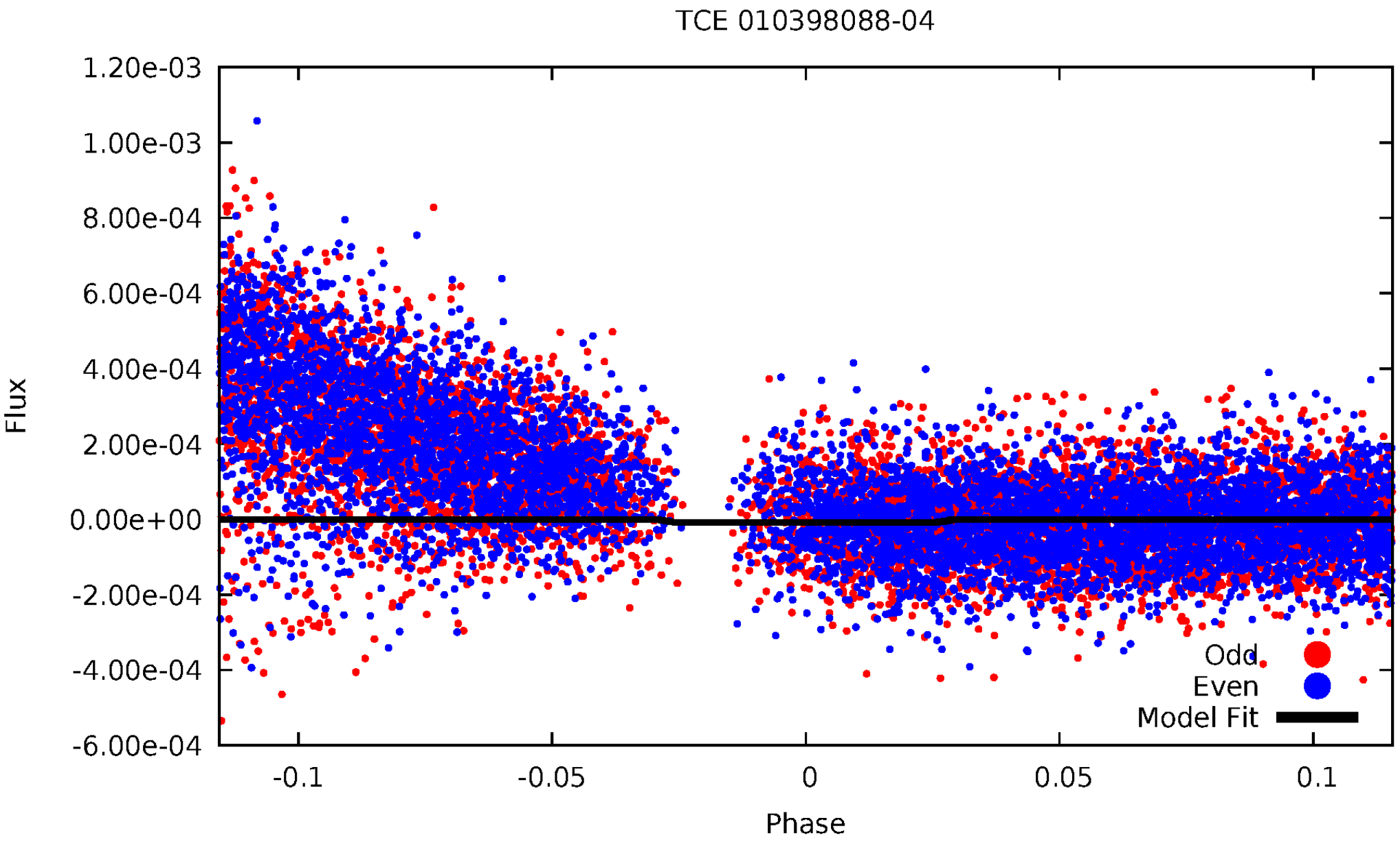



TCE 010398088-04
P = 2.806 days
P = 5.612 days
P = 11.224 days
Normalized Flux
BKJD
Normalized Flux
Phase

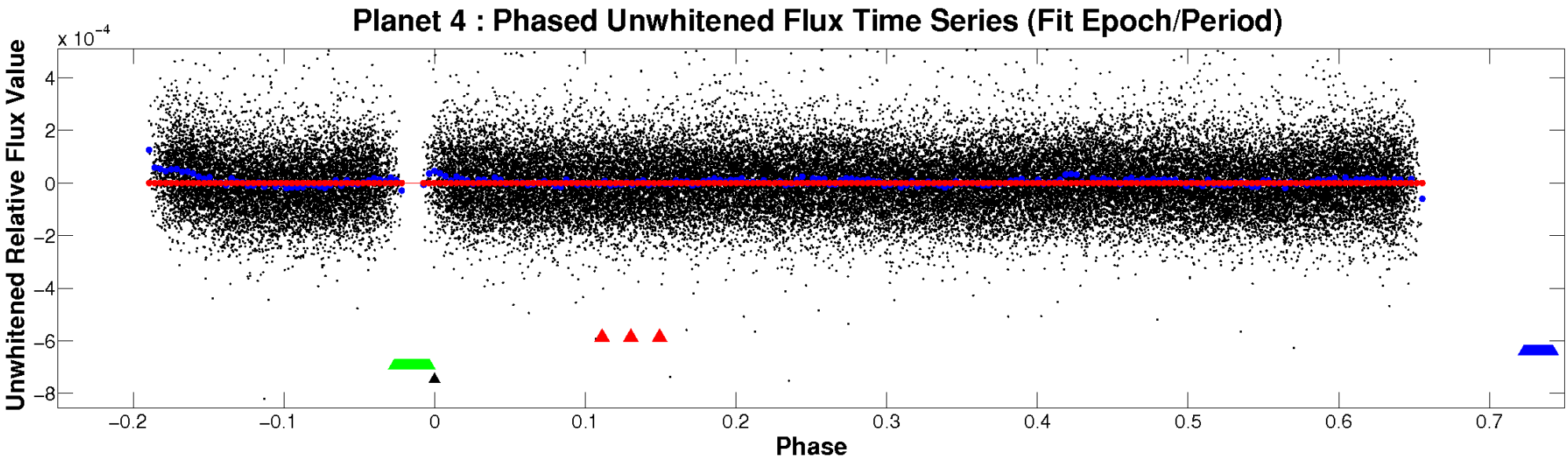
DV Odd/Even

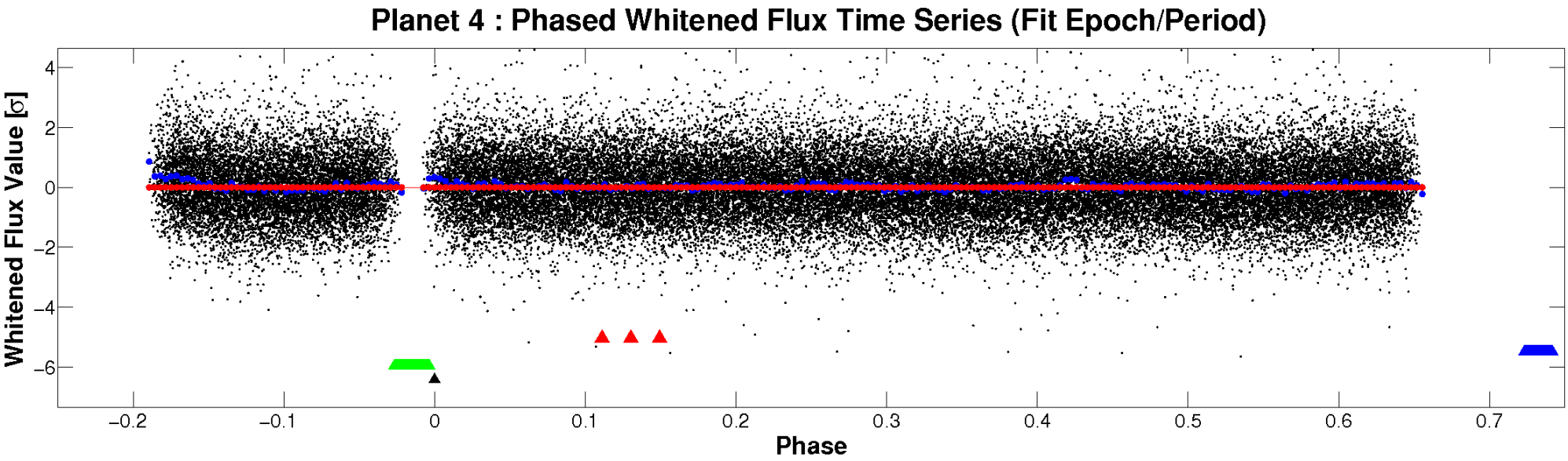

TCE 010398088-04
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
Flux
-0.08
-0.06
-0.04
-0.02
0
0.02
0.04
0.06
0.08
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 010398088-04
1.20e-03
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

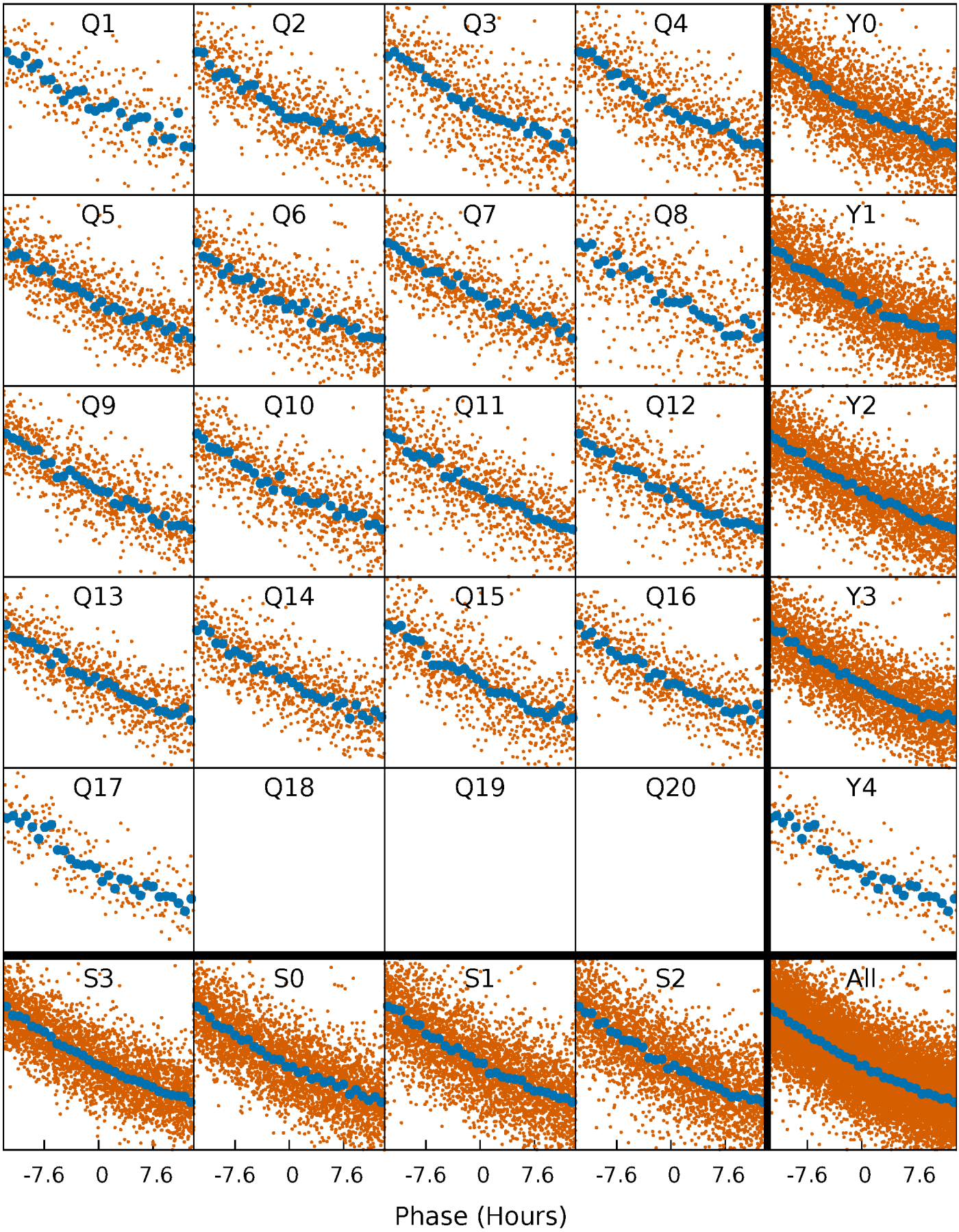
Non-Whitened Vs. Whitened Light Curve





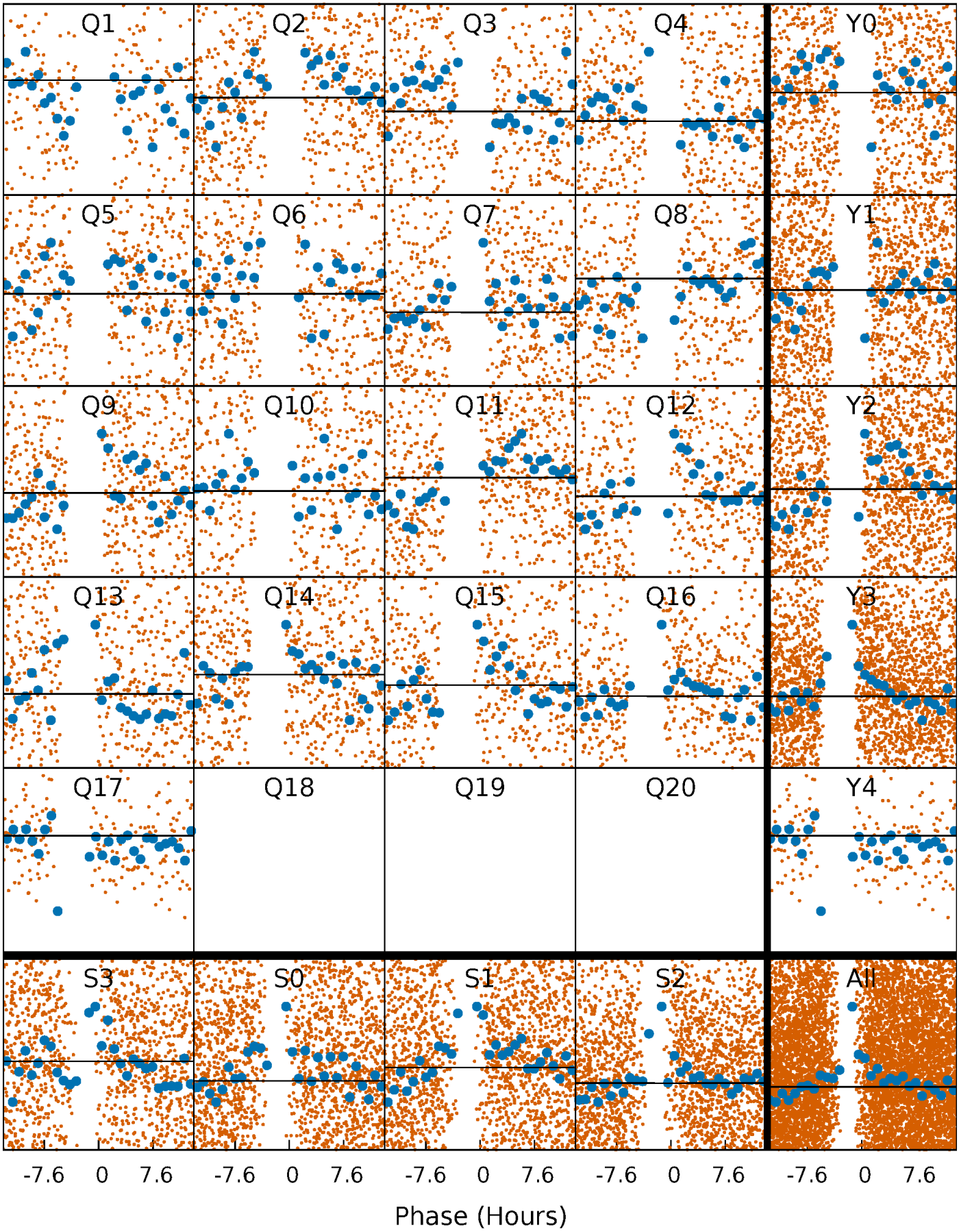
PDC Quarter-Phased Transit Curves

TCE 010398088-04 P= 5.611921 Days T_0=137.675688 (BKJD)



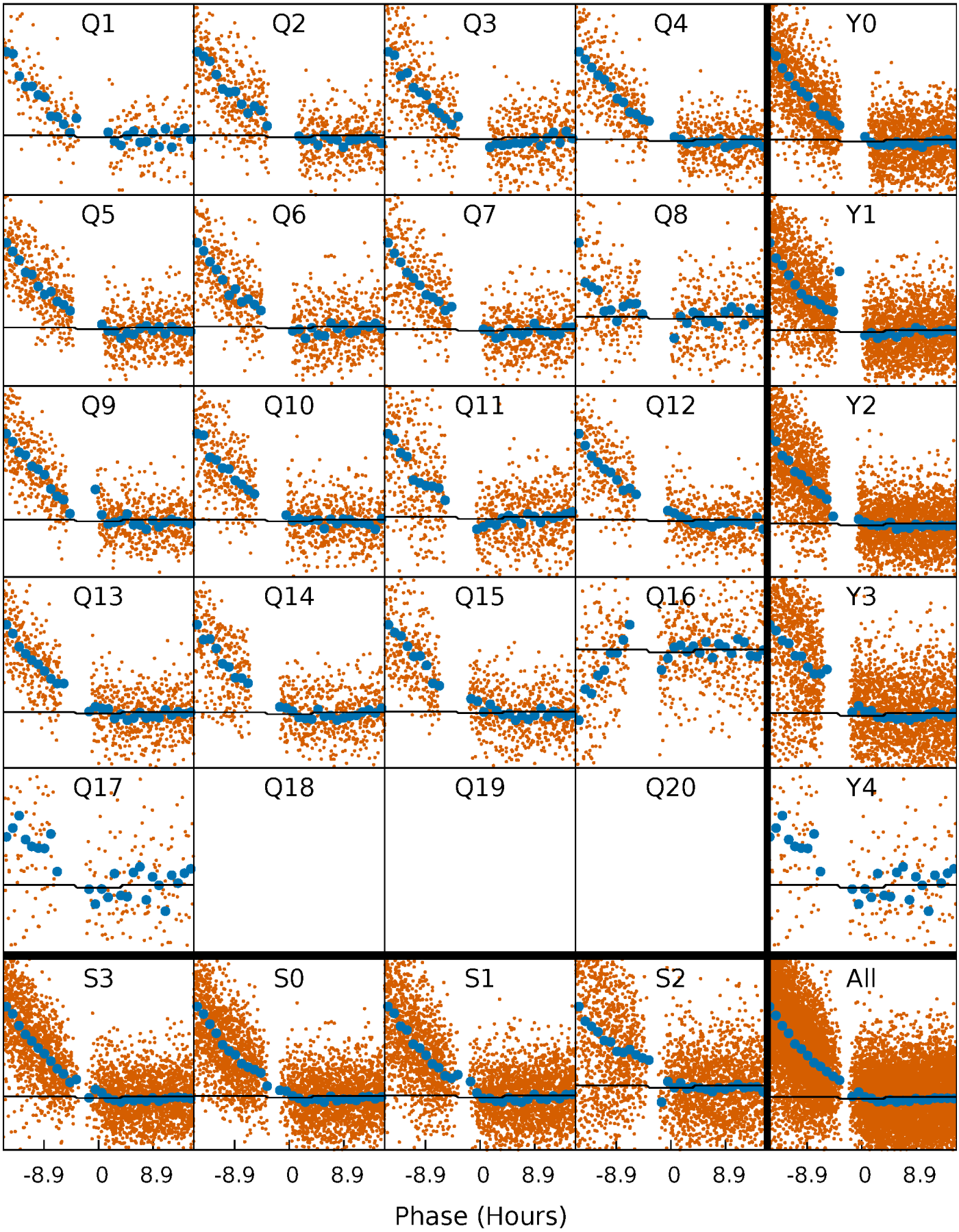
DV Quarter-Phased Transit Curves

TCE 010398088-04 P= 5.611921 Days T_0=137.675688 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

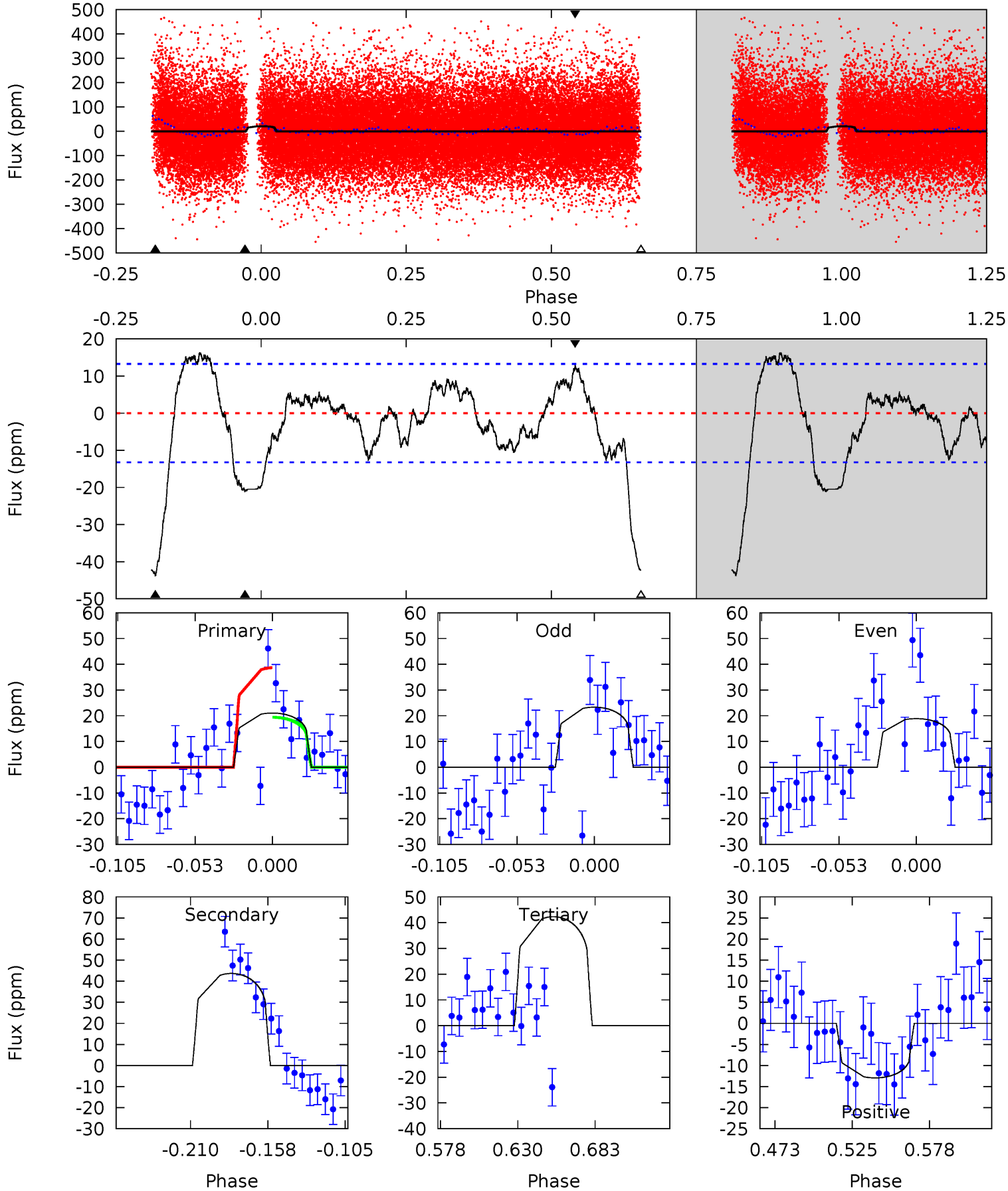
TCE 010398088-04 P= 5.612046 Days T_0=137.685775 (BKJD)



DV Model-Shift Uniqueness Test

010398088-04, P = 5.611921 Days, E = 126.451846 Days

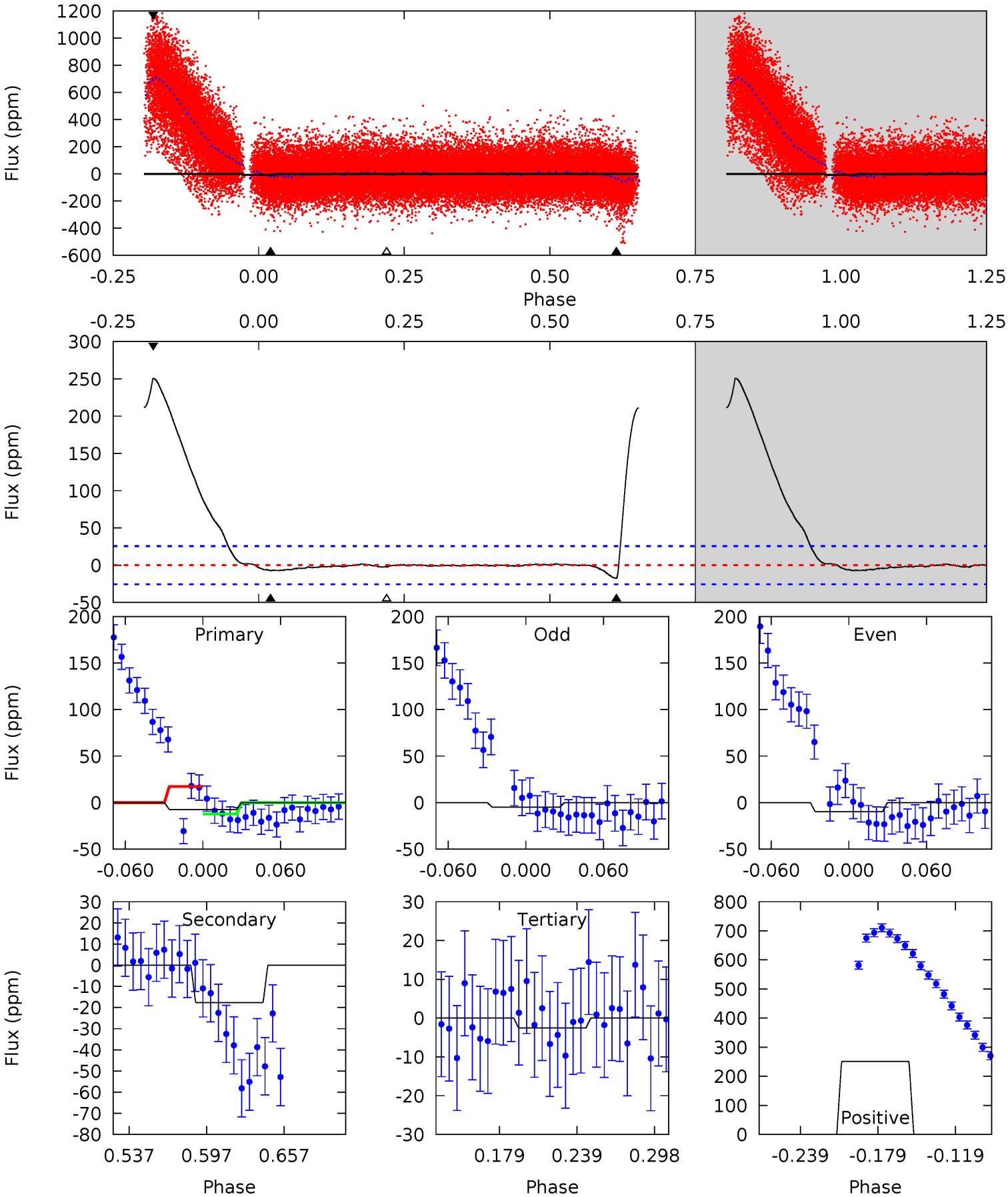
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.46	15.5	15.0	4.59	4.70	1.94	3.00	-7.54	2.88	0.48	10.9	0.79	1.13	0.27	1.81



Alt Model-Shift Uniqueness Test

010398088-04, P = 5.612046 Days, E = 126.461683 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.35	3.21	0.46	45.7	4.67	1.88	11.8	0.88	-44.4	2.75	-42.5	0.43	1.31	0.93	0.73



Stellar Parameters For KIC 010398088

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5585^{+184}_{-134}	$3.962^{+0.544}_{-0.136}$	$-0.540^{+0.350}_{-0.250}$	$1.565^{+0.379}_{-0.758}$	$0.819^{+0.100}_{-0.075}$	$0.301^{+1.604}_{-0.142}$
	+3%/-2%	+14%/-3%	+65%/-46%	+24%/-48%	+12%/-9%	+533%/-47%
Source	PHO1	FLK73	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 010398088-04 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-44±3	$1.56^{+1.98}_{-1.15}$	1756^{+134}_{-230}	4647^{+4246}_{-1086}	33^{+435}_{-27}
Alt.	-18±5	$1.77^{+2.04}_{-1.29}$	1763^{+139}_{-219}	3760^{+2564}_{-822}	10^{+136}_{-8}

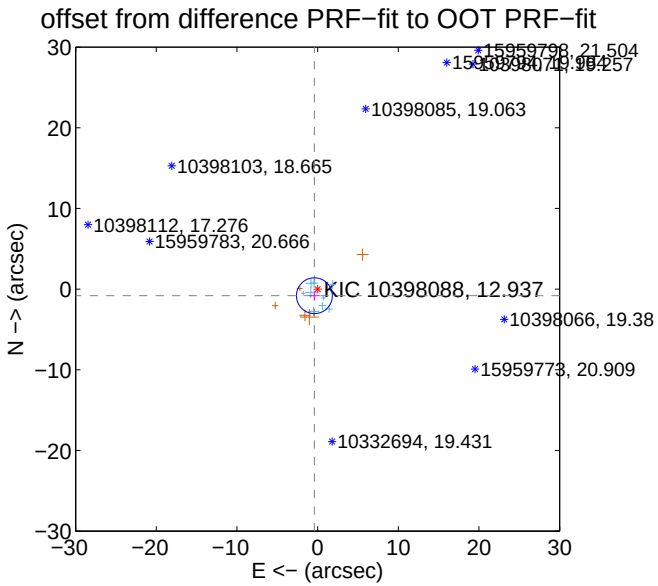
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

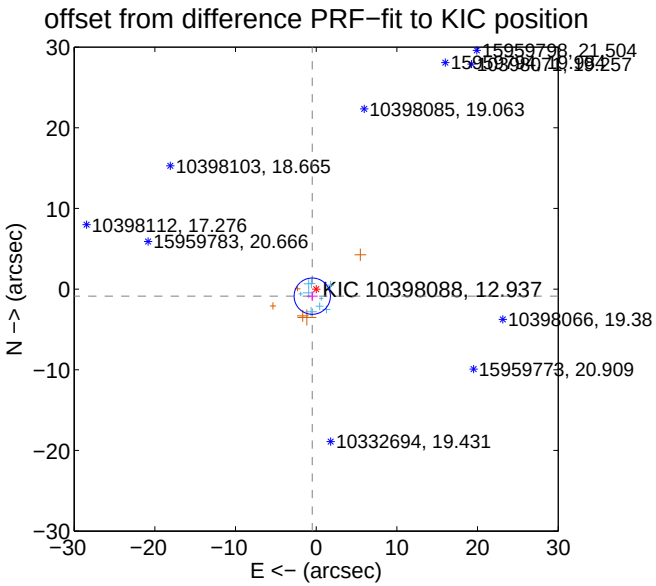
If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

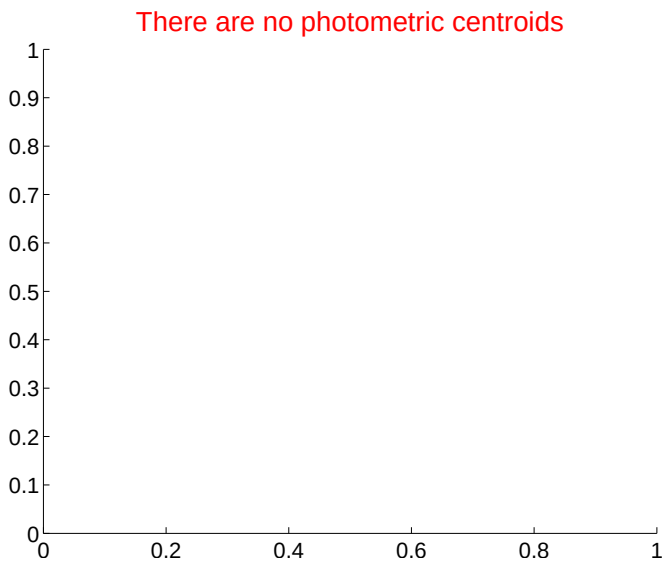
DV Centroid Data

Supplemental centroid analysis for 010398088-04. Kepler magnitude: 12.94. Transit SNR 0.01
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.914 ± 0.740	1.23	0.401 ± 0.660	-0.821 ± 0.578
PRF-fit source offset from KIC position	1.002 ± 0.750	1.34	0.487 ± 0.672	-0.876 ± 0.570
photometric centroid source offset	—	—	—	—

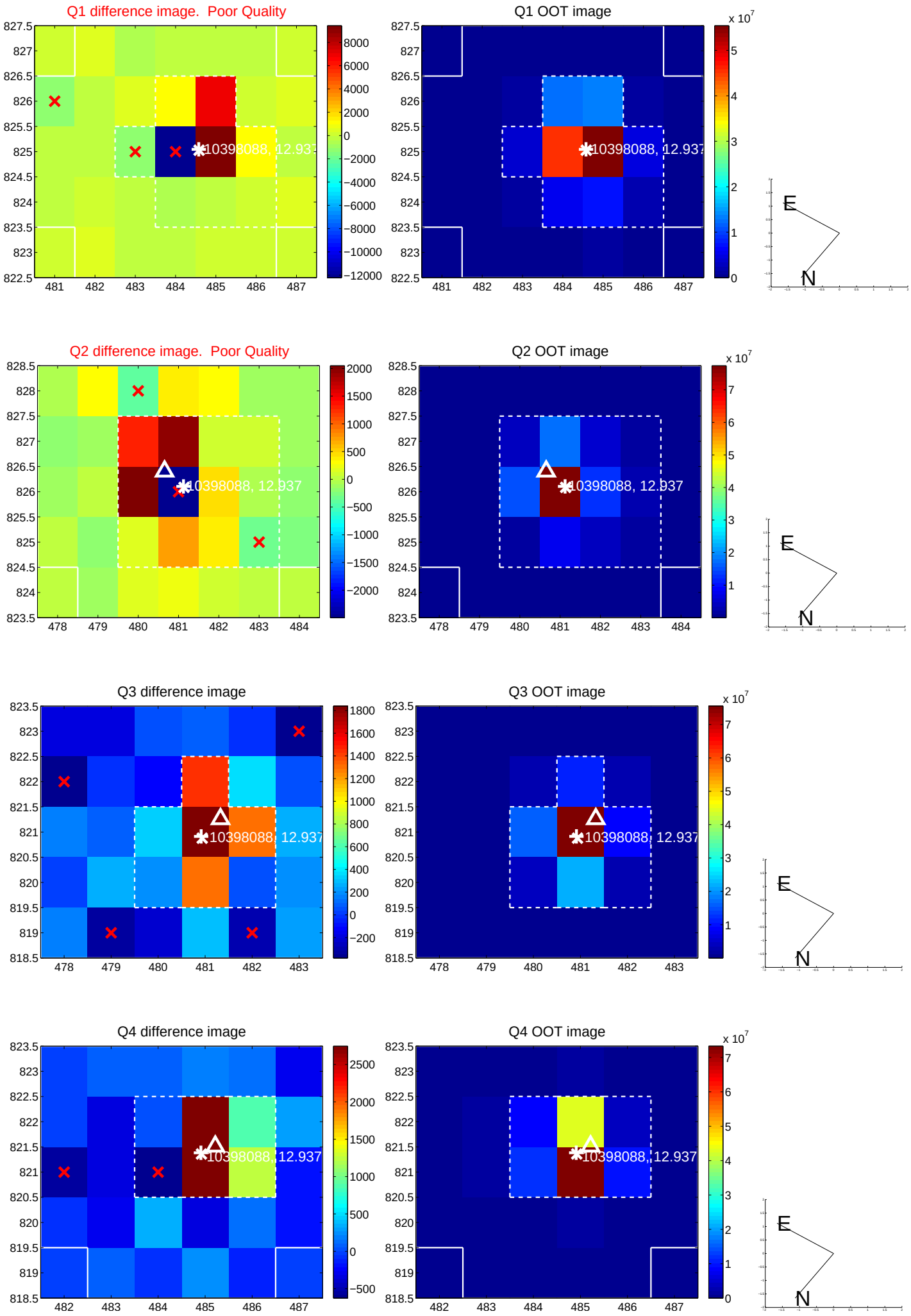




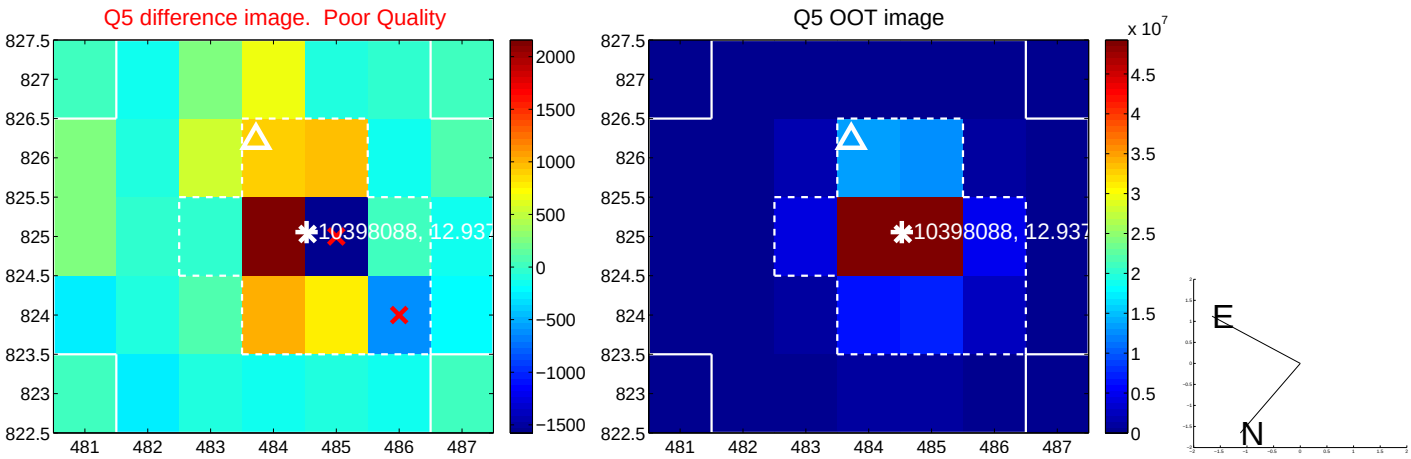


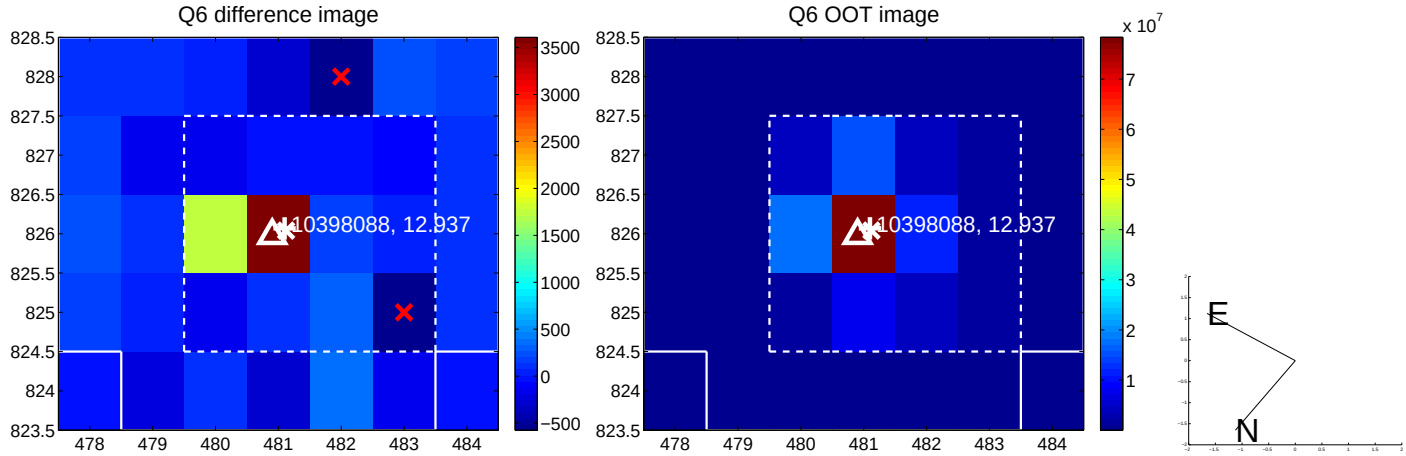
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

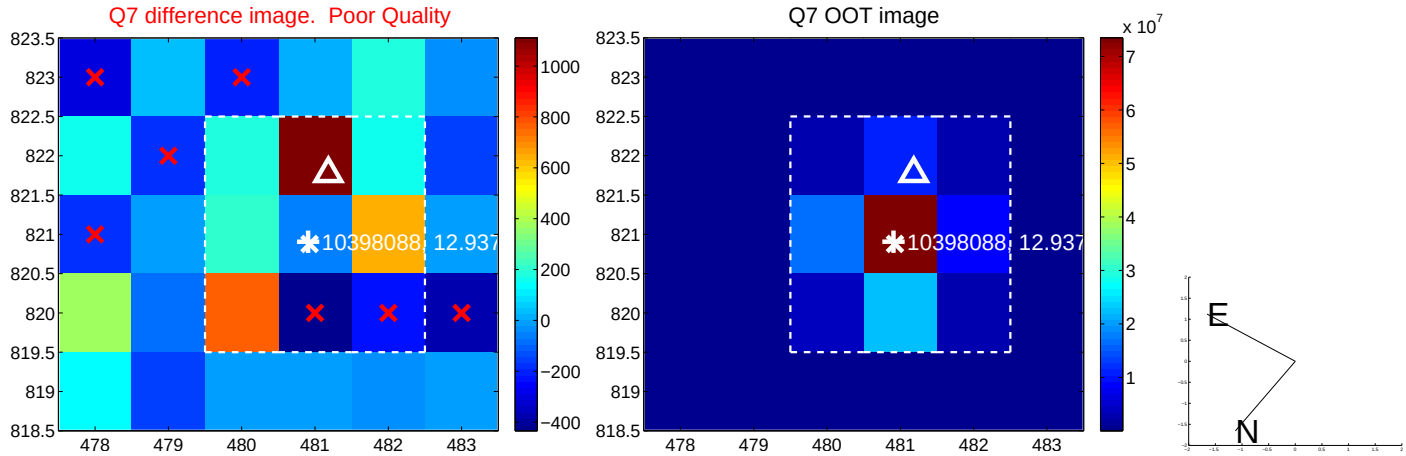
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

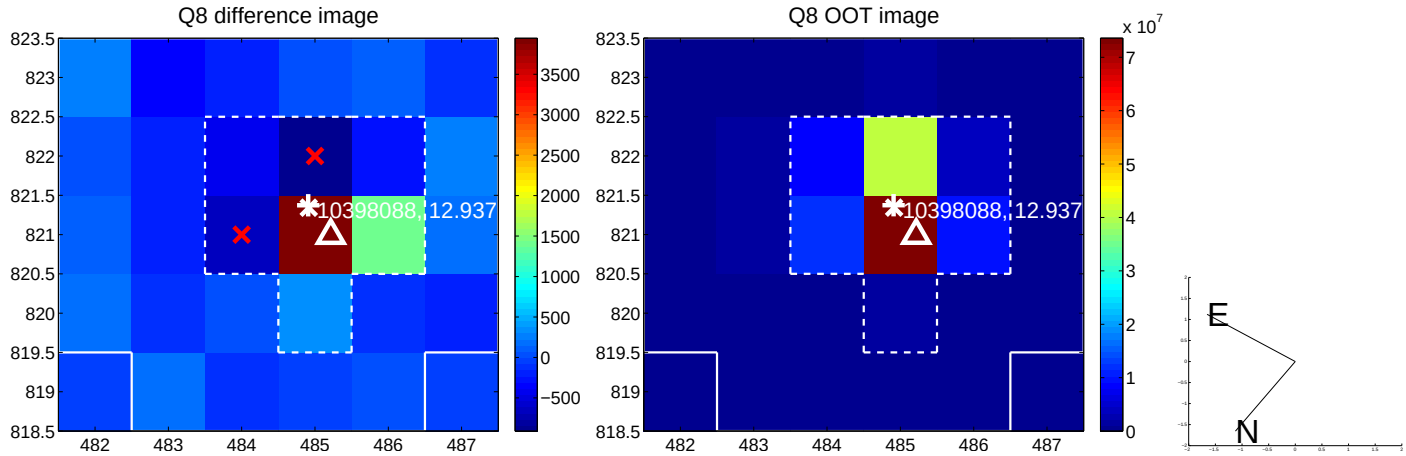


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

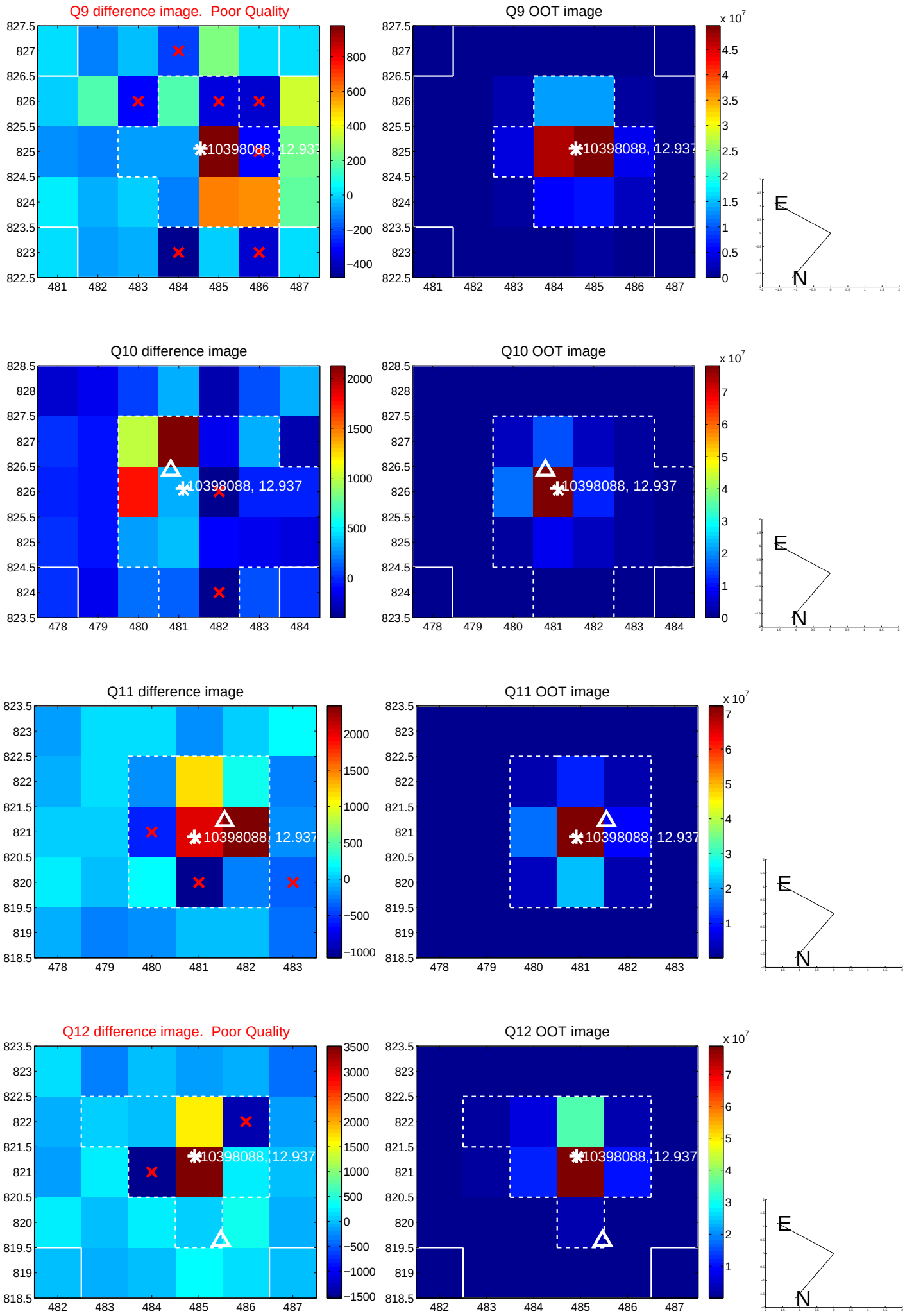




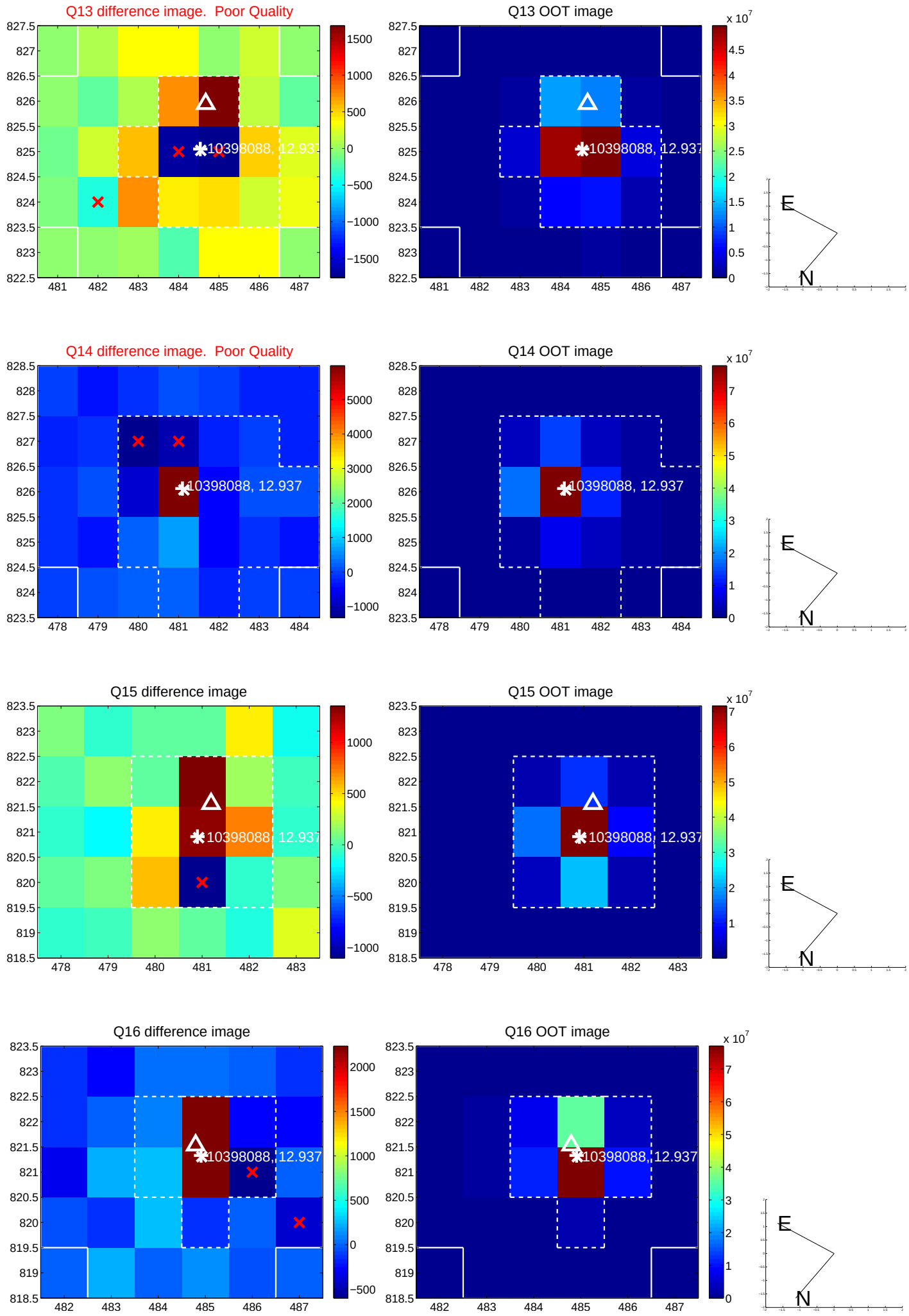




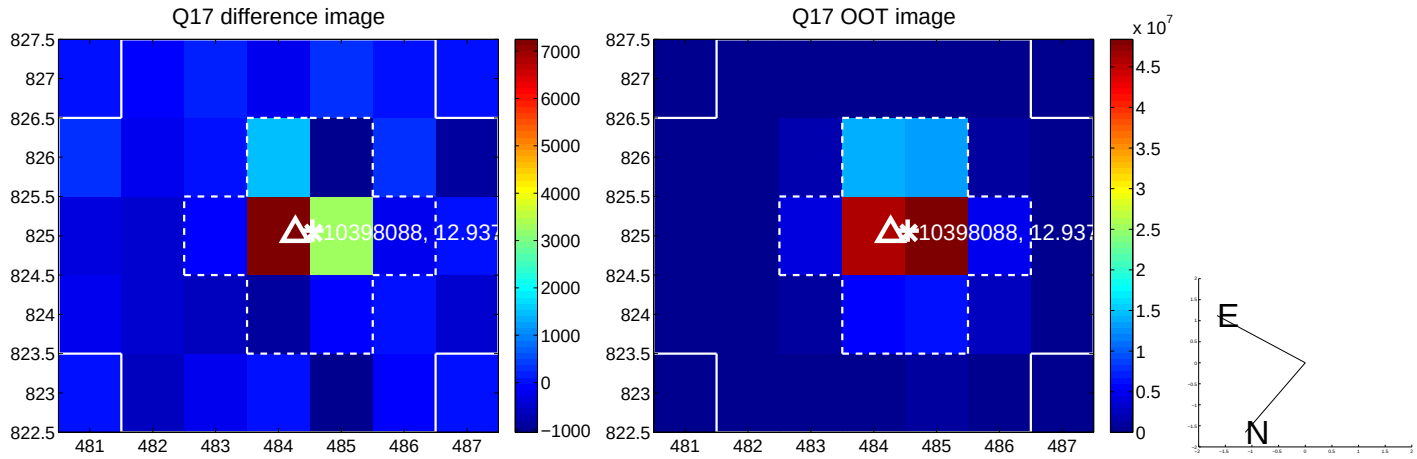
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

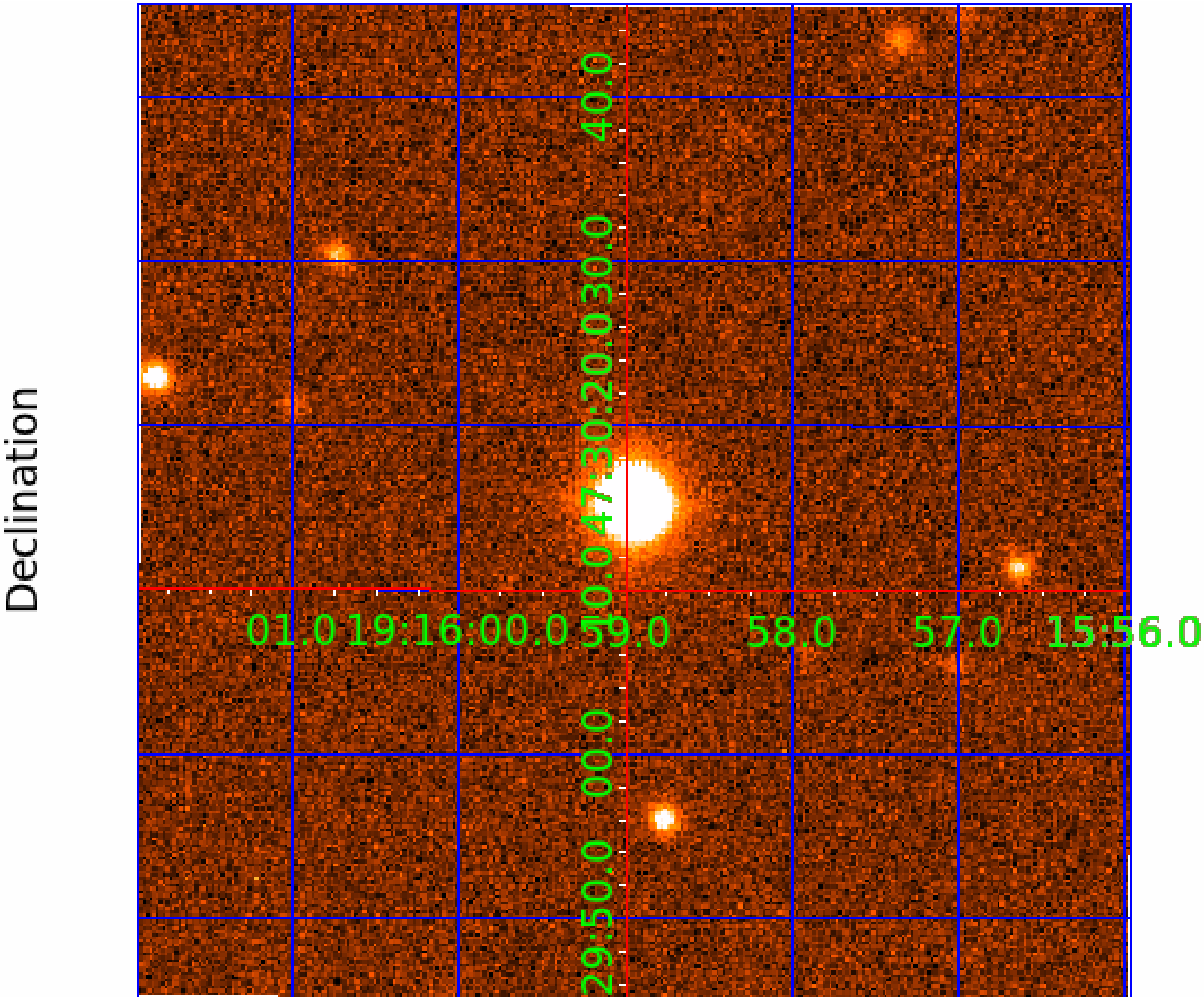


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



olded centroid time series figure for this object.

UKIRT Image


Declination
01.0
19:16:00.0
59.0
58.0
57.0
15:56.0
29:50.0
00.0
50.0
47:30:20.0
30.0
40.0