KIC 009201644

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 ($S_\oplus$)
009201644-01	OBS	No	0.659793	132.157940	98.9	4.702	12.4	11.4	1.53	6983	1.55	17155.82
009201644-02	OBS	No	26.993389	143.259120	2767.8	1.011	17.7	15.2	1.53	6983	8.37	121.70
009201644-03	OBS	No	55.710522	165.830538	2230.5	1.582	12.6	13.8	1.53	6983	7.43	46.31
009201644-04	OBS	No	34.266793	161.111481	2758.3	1.009	14.1	14.5	1.53	6983	8.51	88.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009201644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009201644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

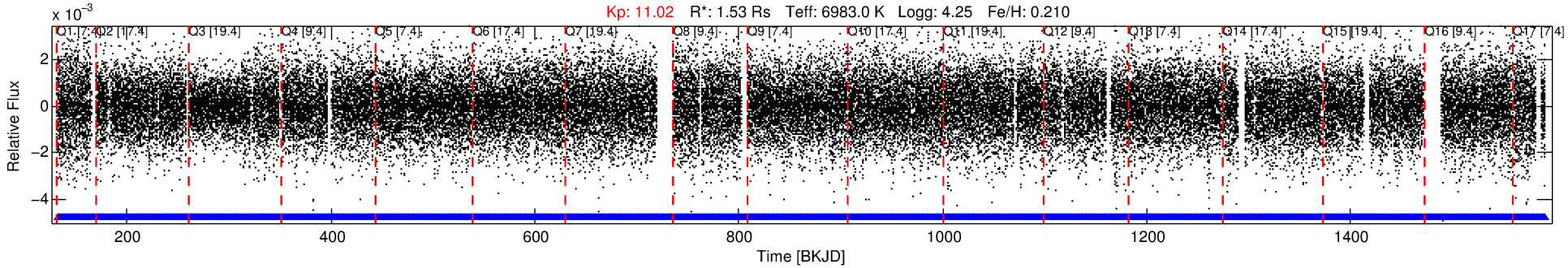
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

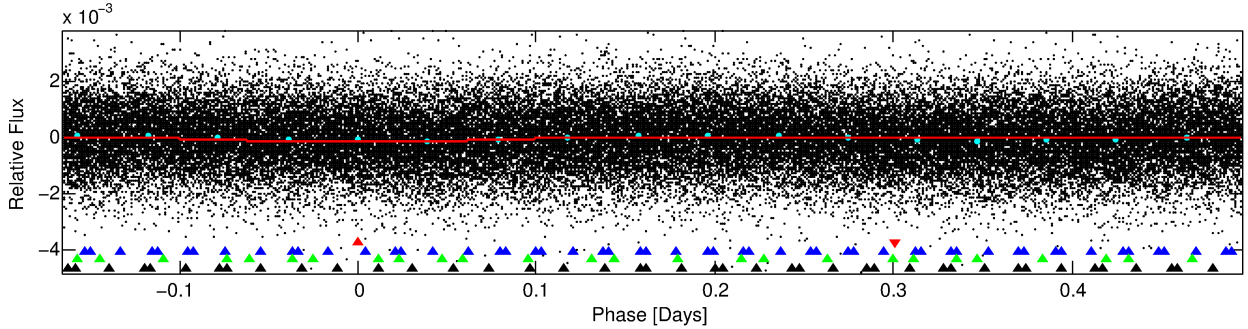
Ephemeris Match Information For 009201644-01

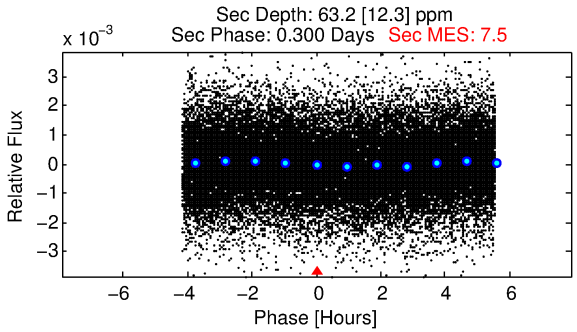
No Significant Match Found

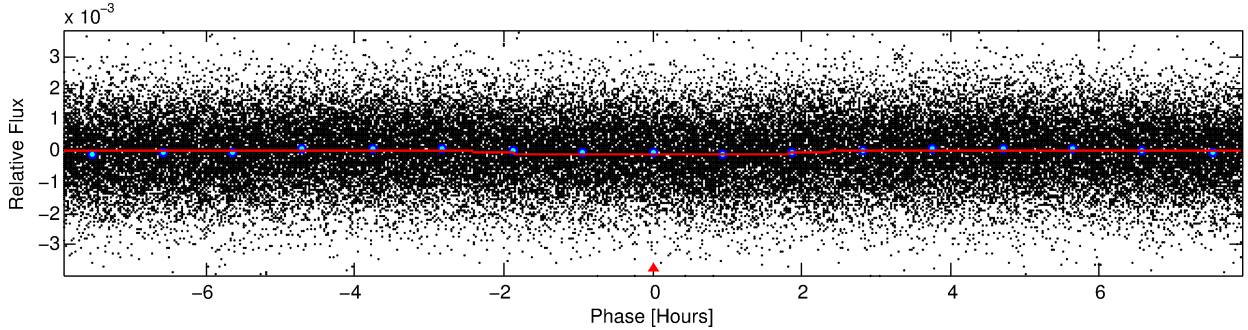
DV One-Page Summary

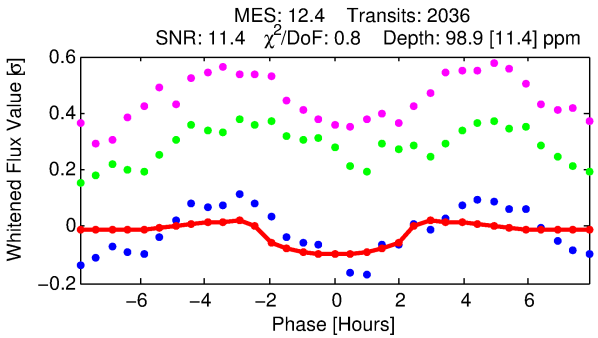
KIC: 9201644 Candidate: 1 of 4 Period: 0.660 d

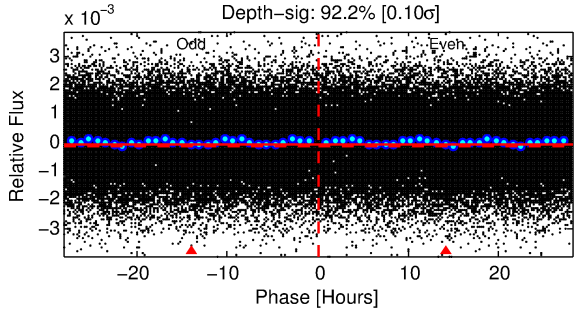


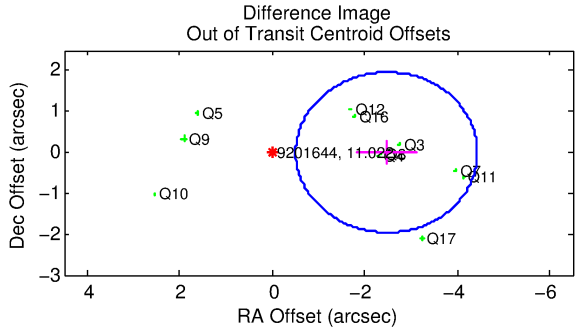












DV Fit Results:

Period = 0.65979 [0.00001] d
Epoch = 132.1579 [0.0041] BKJD
Rp/R* = 0.0093 [0.0116]
a/R* = 1.23 [2.97]
b = 0.32 [20.19]

Seff = 17155.82 [7723.40]
Teq = 2918 [328] K
Rp = 1.55 [2.00] Re
a = 0.0170 [0.0049] AU

Ag = 4.20 [10.63] [0.30σ]
Teffp = 6460 [4042] K [0.87σ]

DV Diagnostic Results:

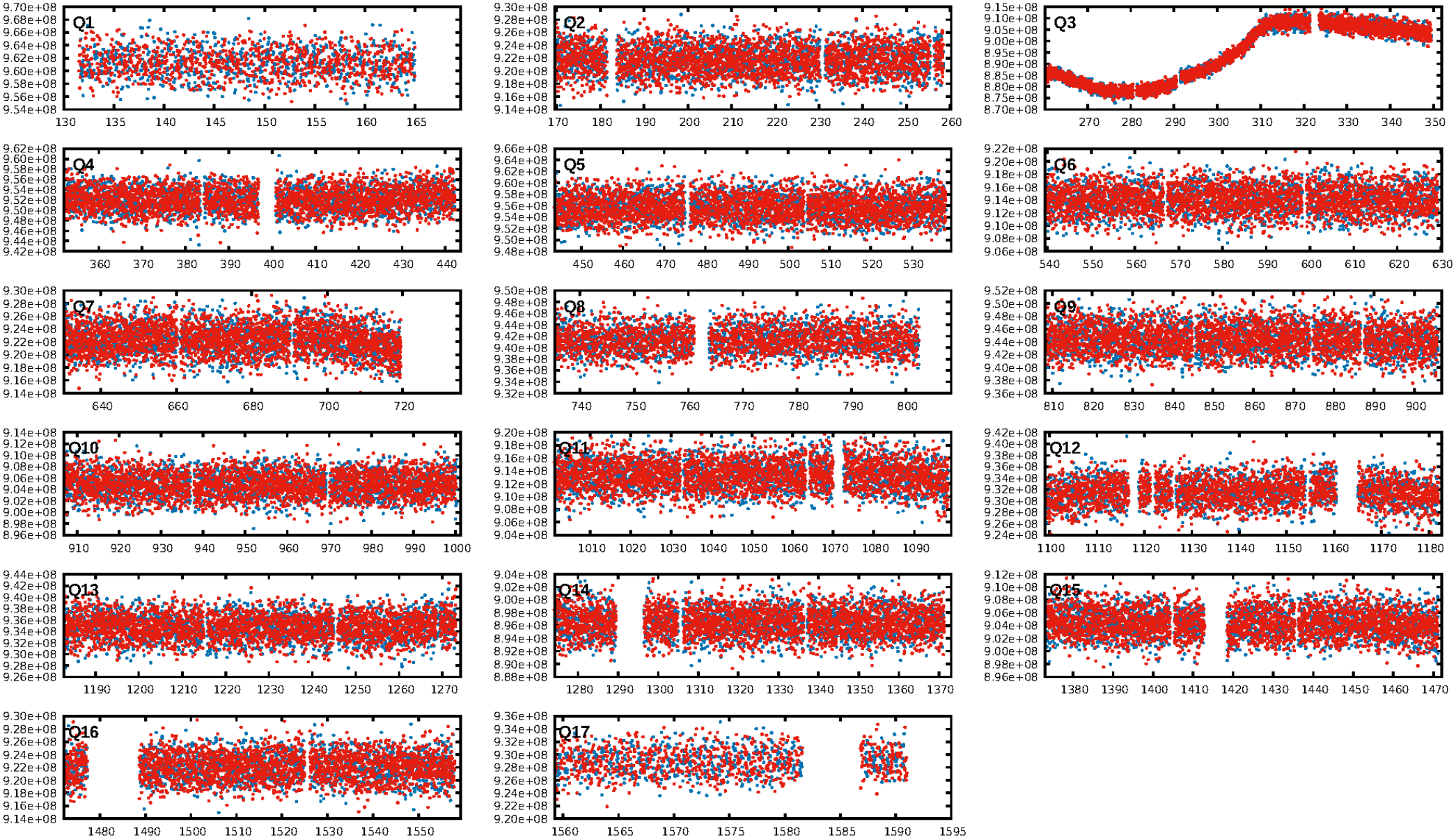
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [131.40σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 3.70e−23
RollingBand−fgt: 1.00 [1944/1944]
GhostDiagnostic−chr: 0.7347

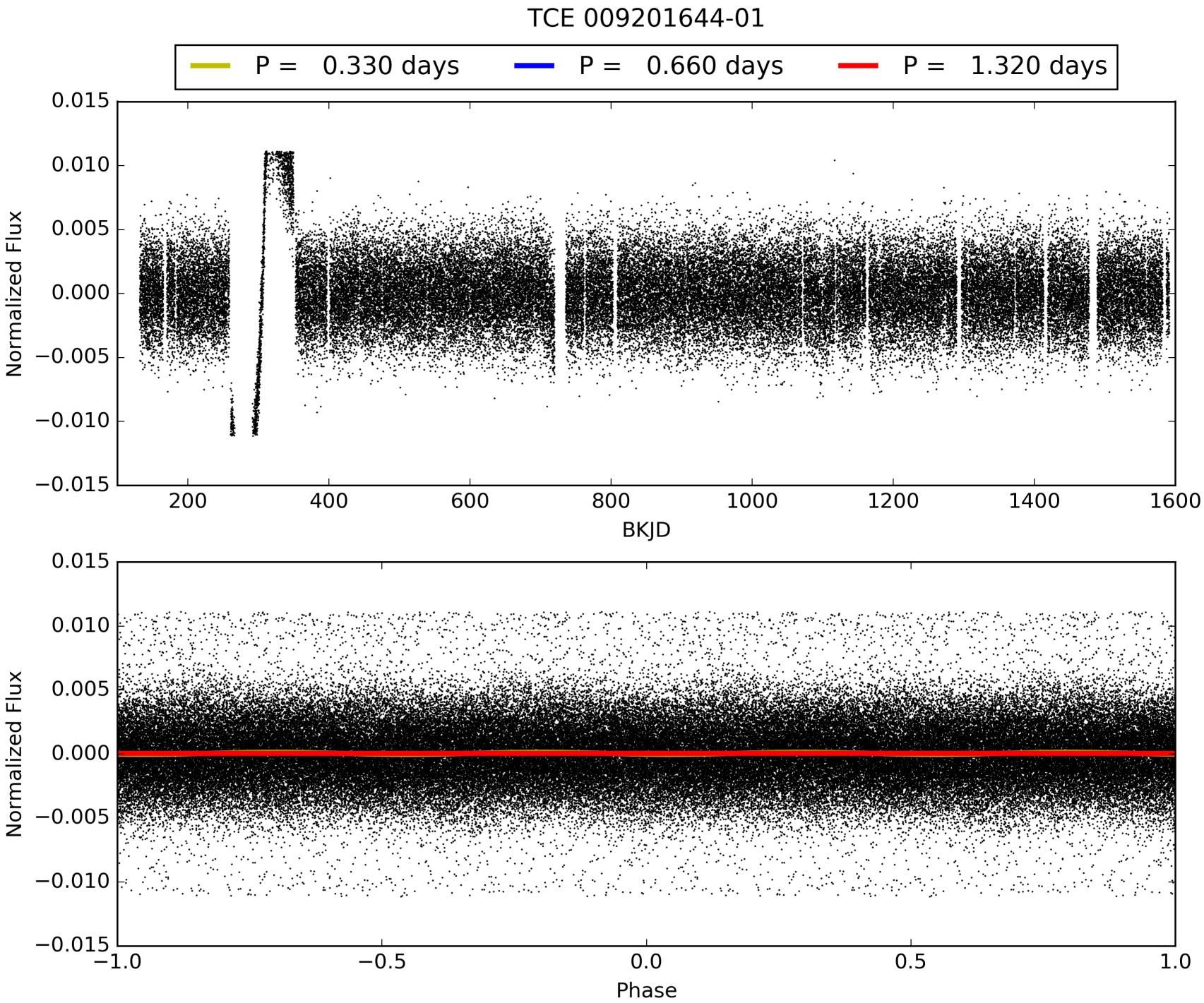
Centroid−sig: 49.5%
Centroid−so: 0.117 arcsec [1.14σ]
OotOffset−rm: 2.472 arcsec [3.78σ]
KicOffset−rm: 2.805 arcsec [3.88σ]
OotOffset−st: 1/3/4/3 [11]
KicOffset−st: 1/3/4/3 [11]
DiffImageQuality−fgm: 0.82 [9/11]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 23:04:55 Z

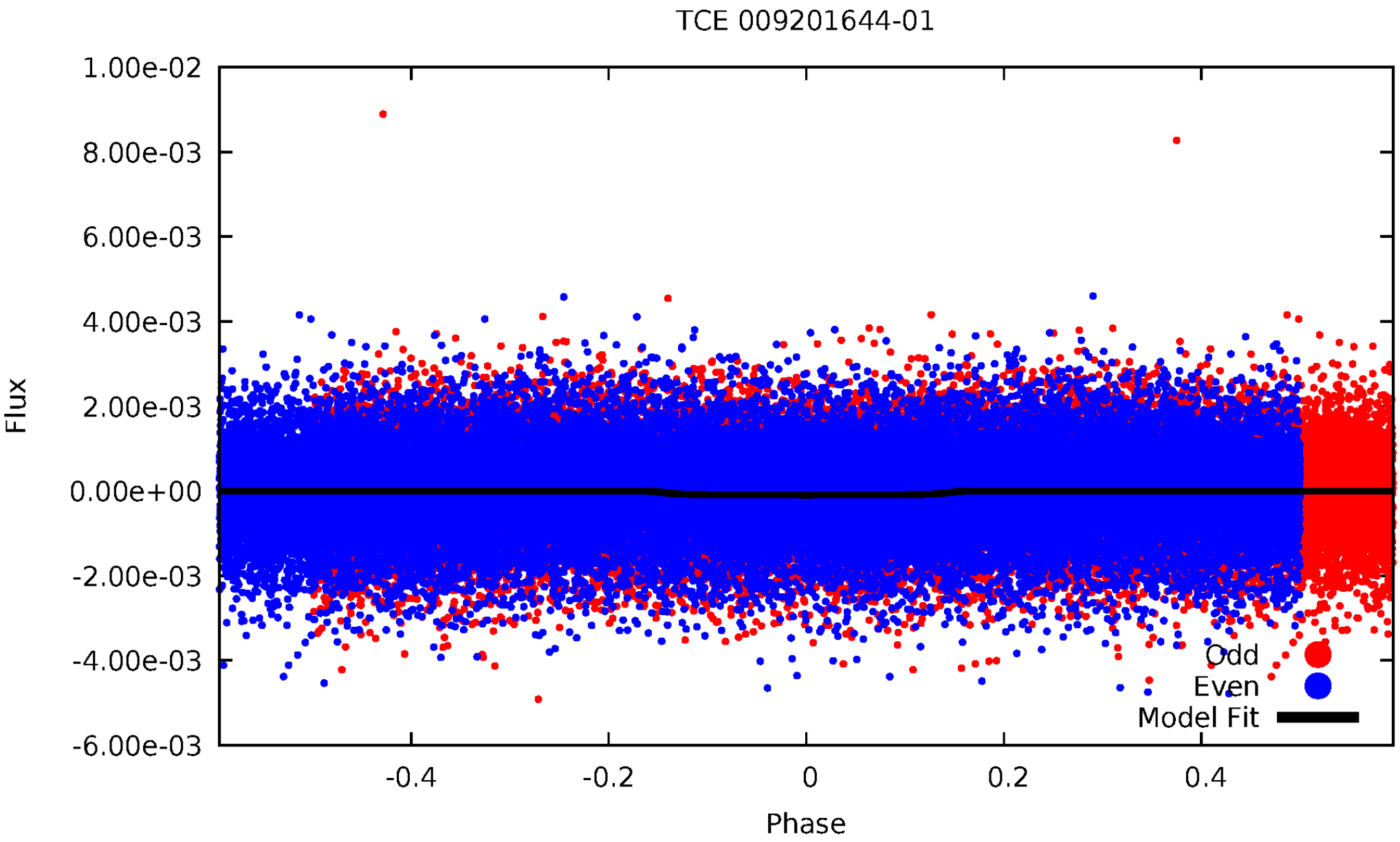
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009201644-01, PDC Light Curves

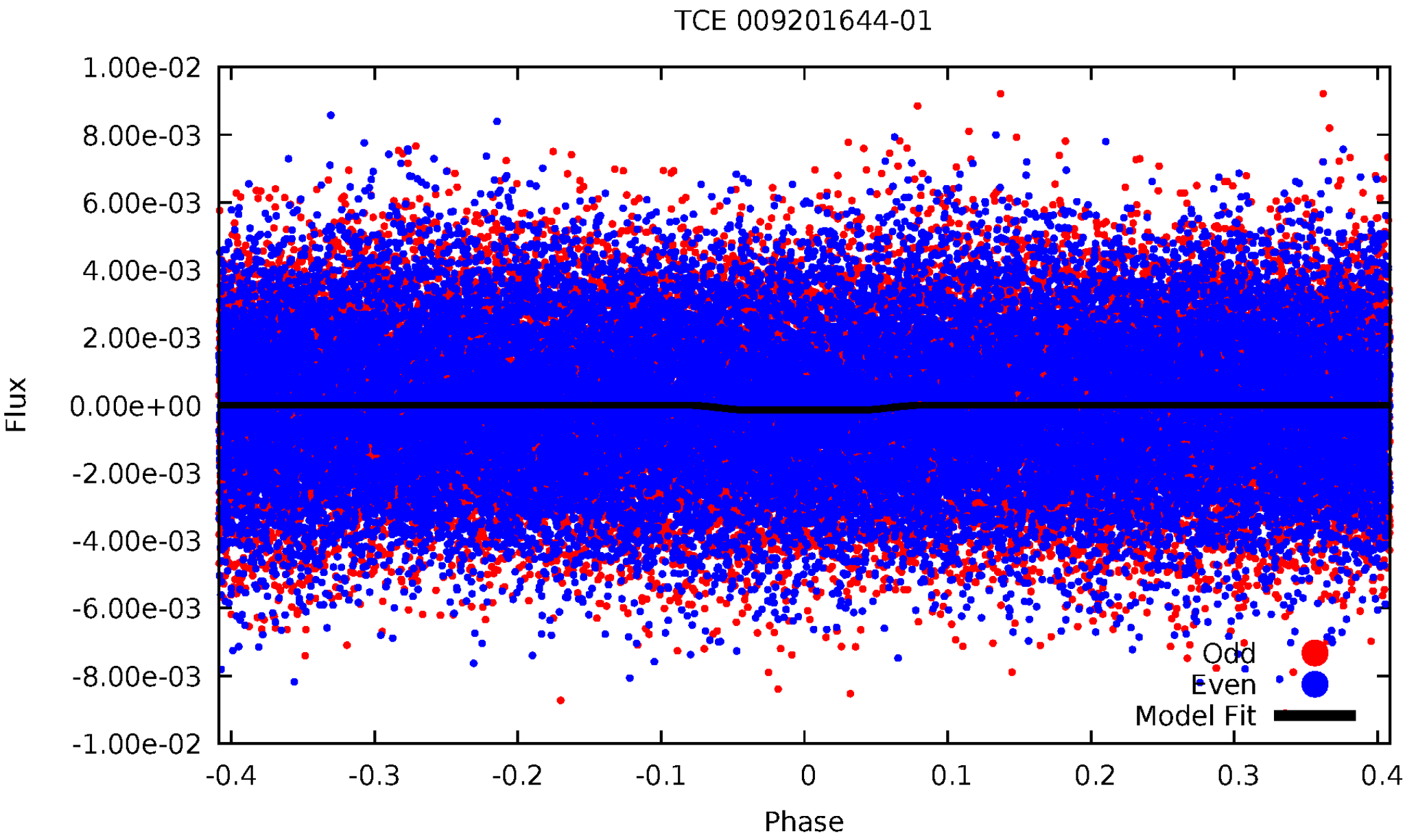



TCE 009201644-01
P = 0.330 days
P = 0.660 days
P = 1.320 days
Normalized Flux
BKJD
Normalized Flux
Phase

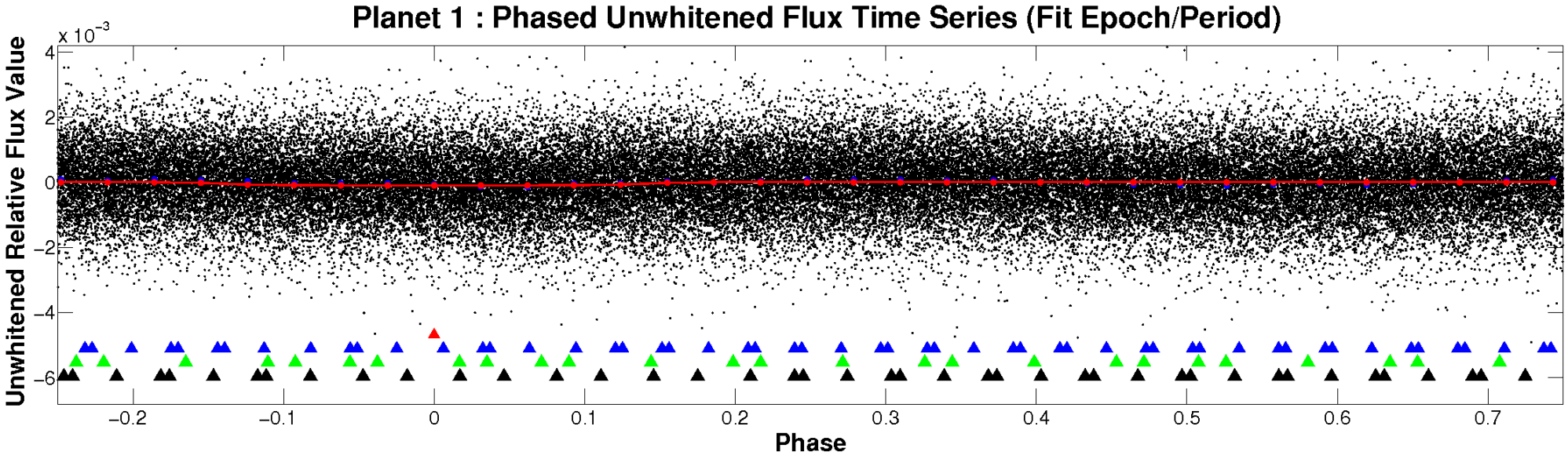
DV Odd/Even

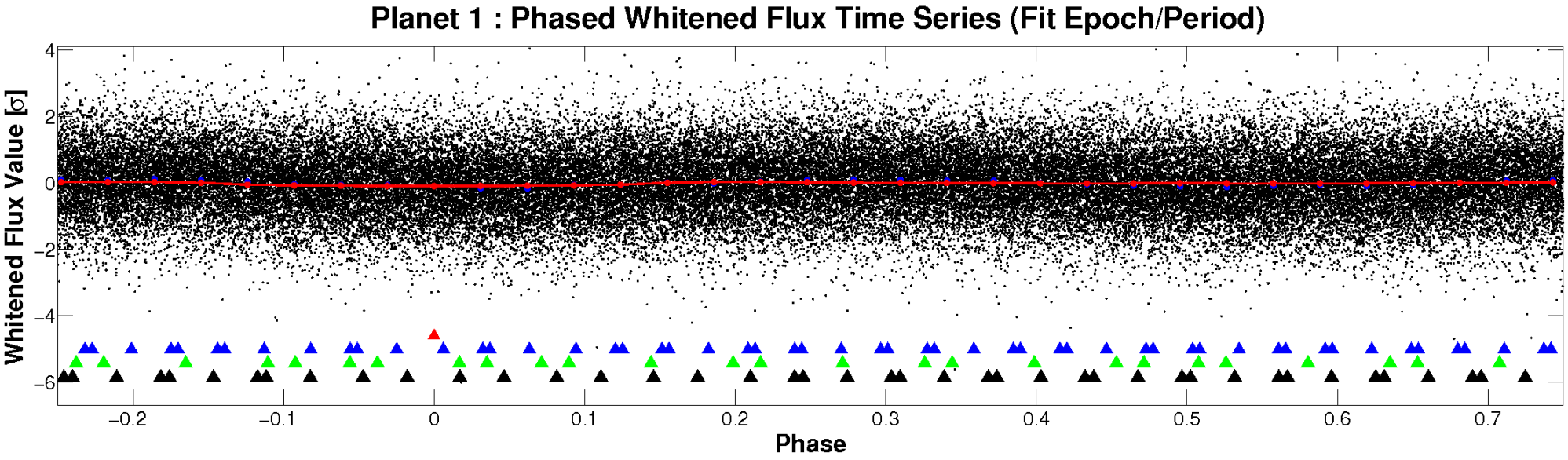

TCE 009201644-01
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
Flux
-0.4
-0.2
0
0.2
0.4
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009201644-01
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
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

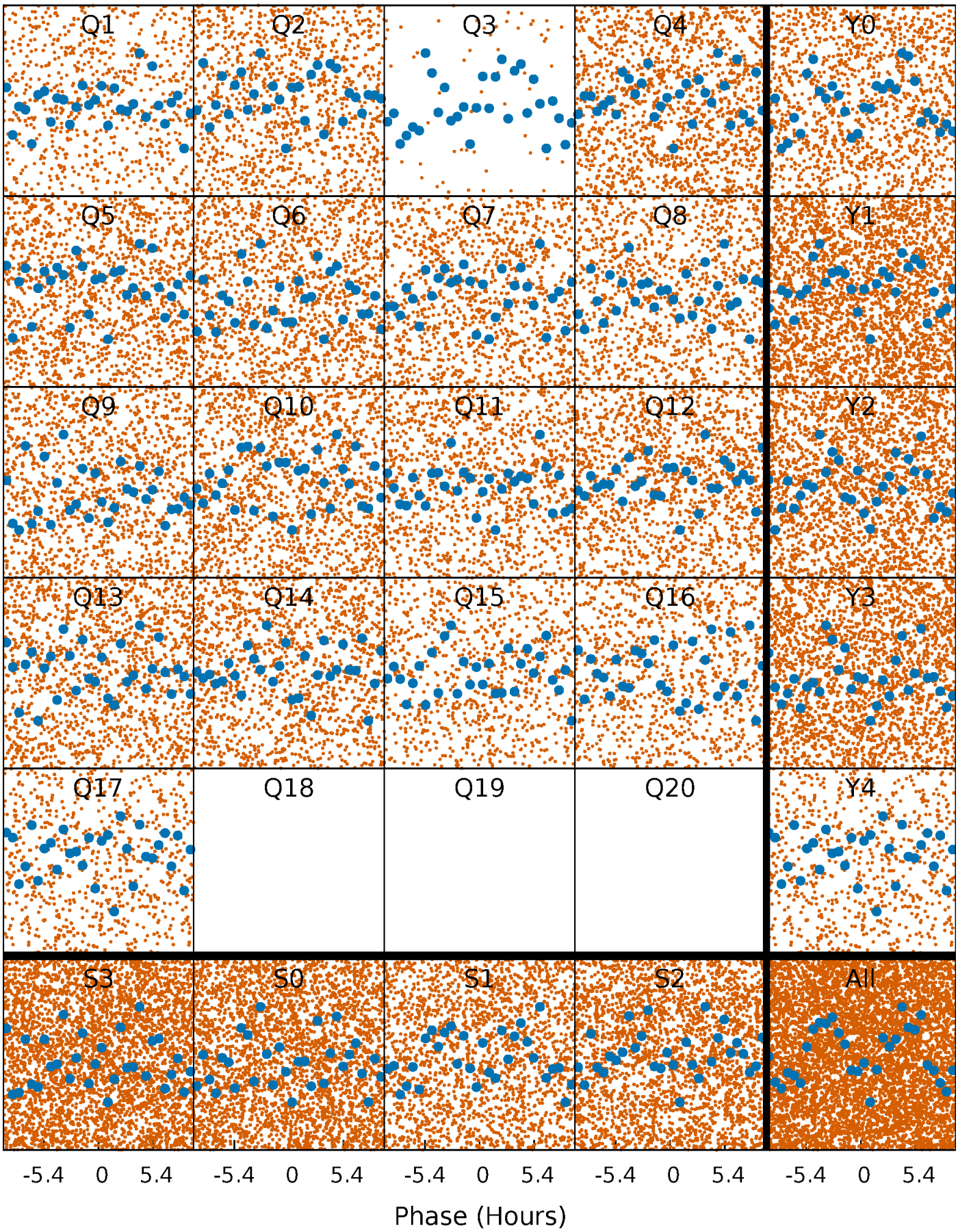
Non-Whitened Vs. Whitened Light Curve





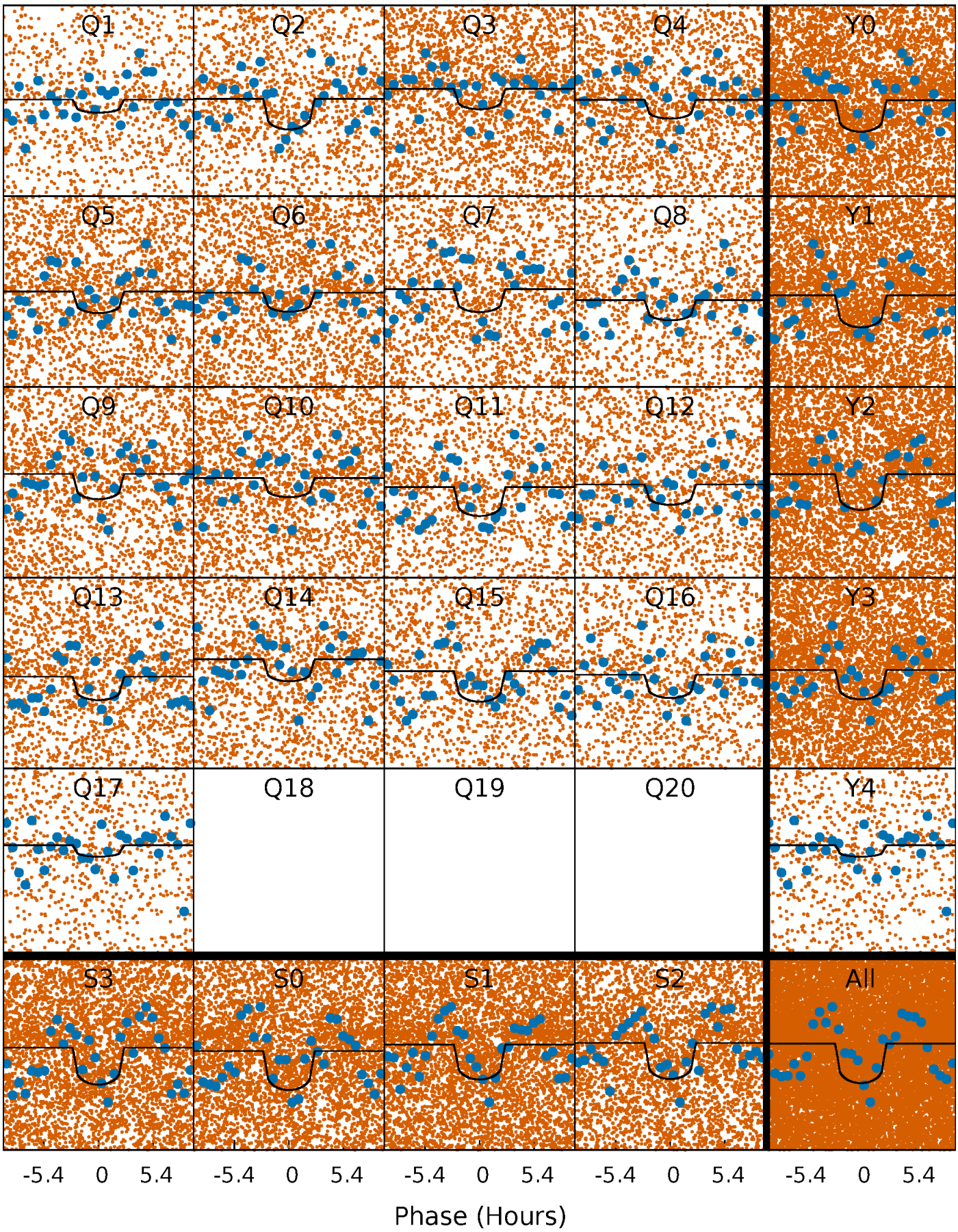
PDC Quarter-Phased Transit Curves

TCE 009201644-01 P= 0.659793 Days T_0=132.157940 (BKJD)



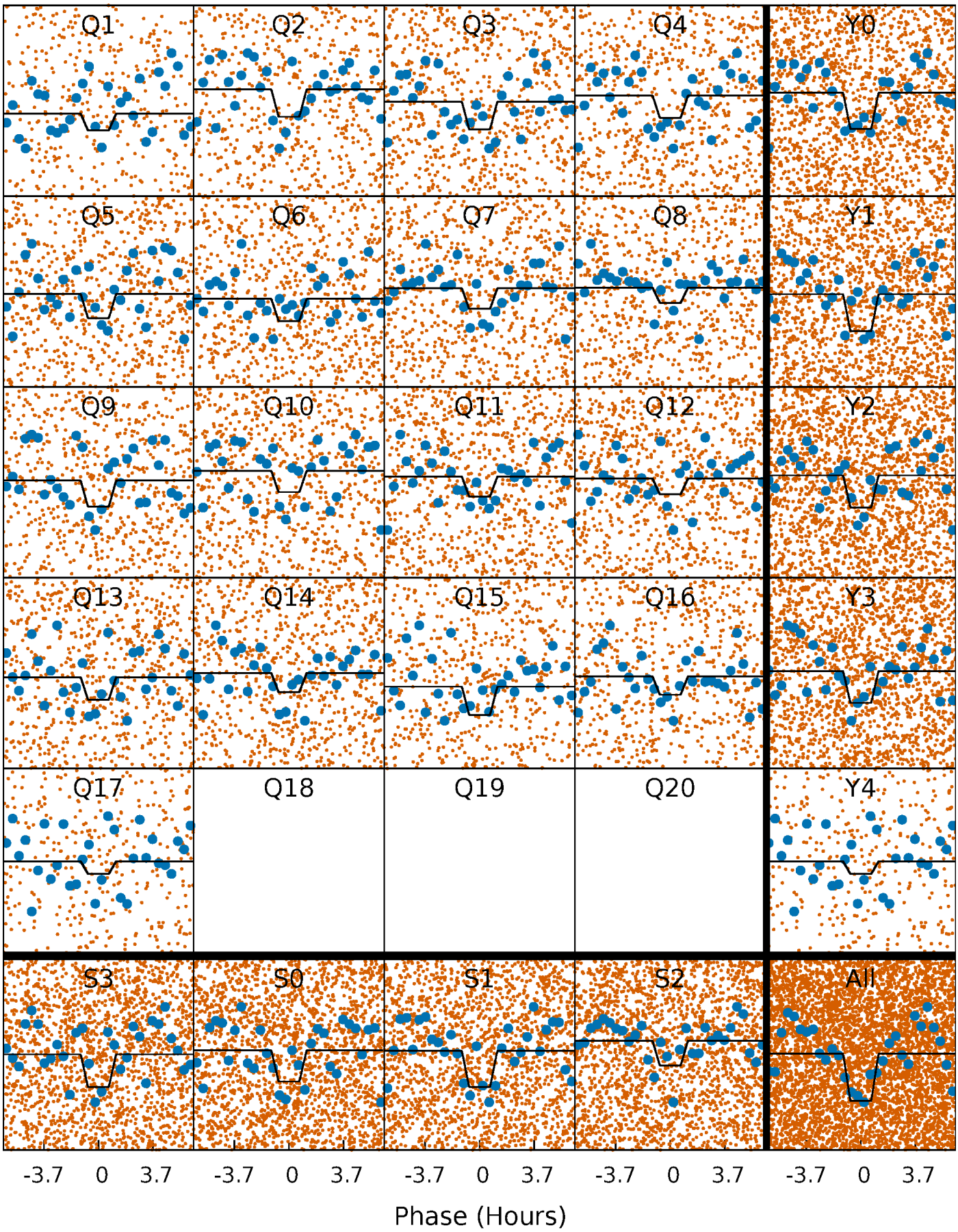
DV Quarter-Phased Transit Curves

TCE 009201644-01 P= 0.659793 Days T_0=132.157940 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

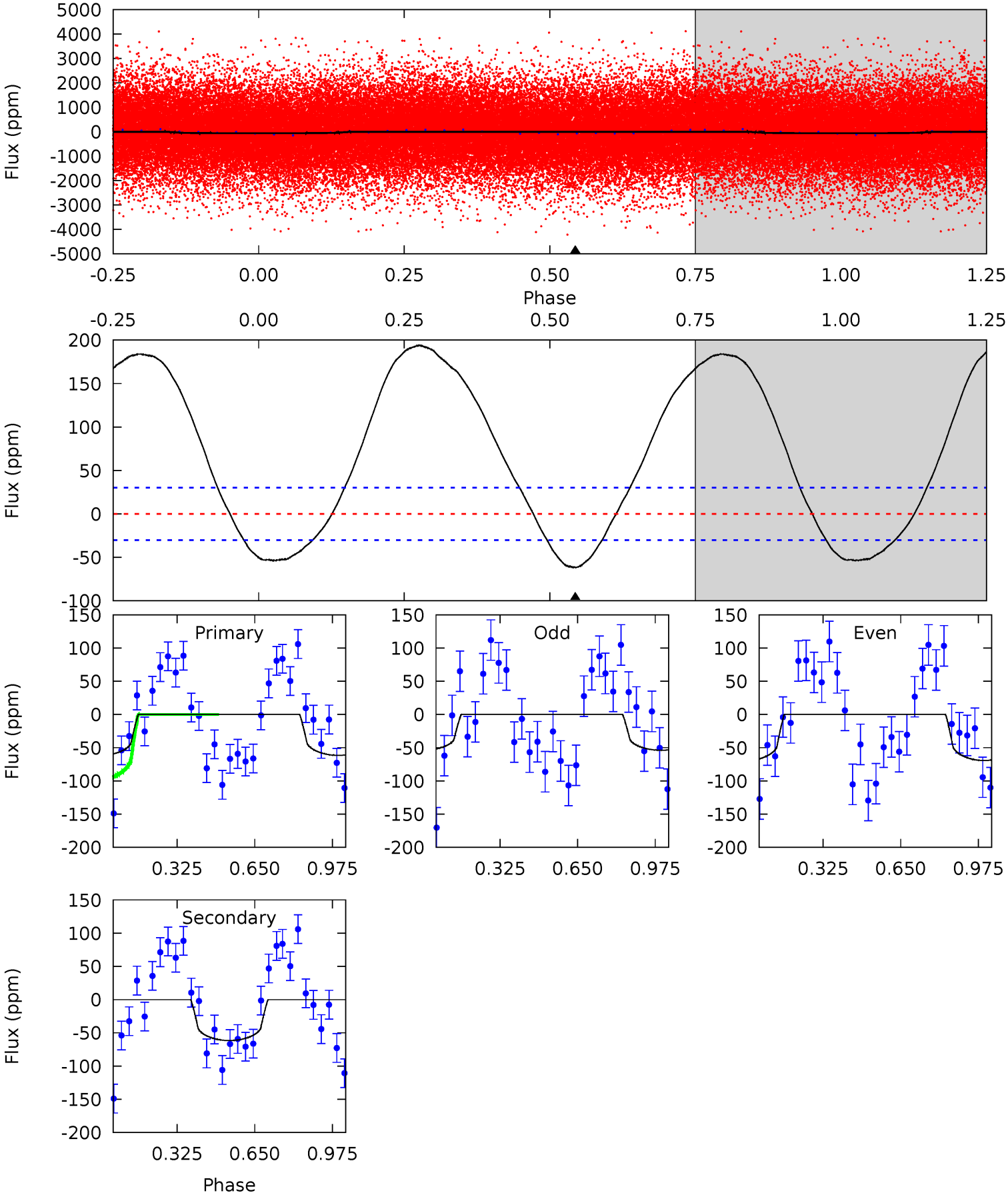
TCE 009201644-01 P= 0.659825 Days T_0=132.153726 (BKJD)



DV Model-Shift Uniqueness Test

009201644-01, P = 0.659793 Days, E = 131.498147 Days

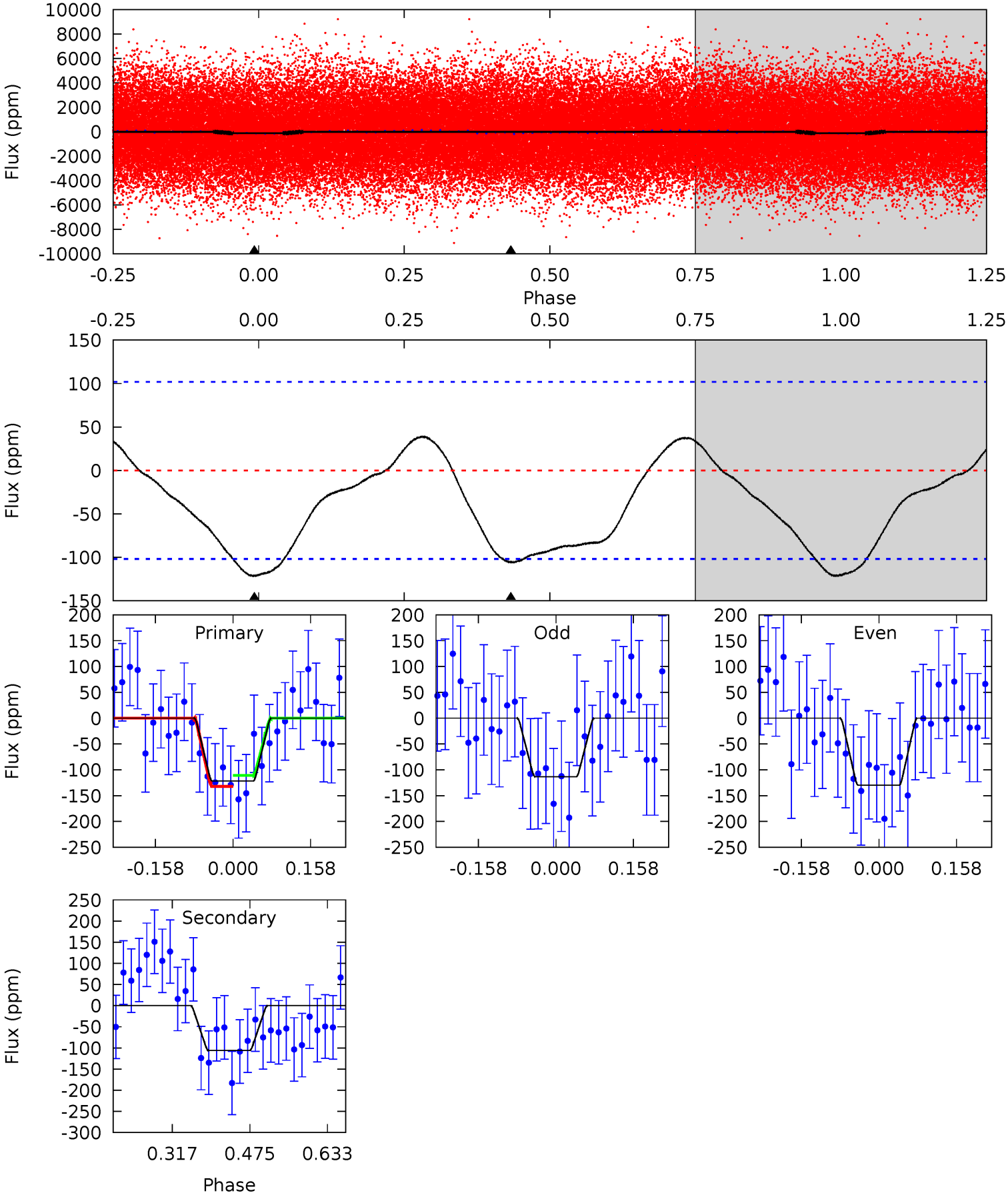
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.80	8.80	0	0	4.31	0.98	8.98	8.80	8.80	8.80	8.80	1.09	1.52	0.76	5.16



Alt Model-Shift Uniqueness Test

009201644-01, P = 0.659825 Days, E = 131.493901 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.33	4.64	0	0	4.47	1.41	1.31	5.33	5.33	4.64	4.64	0.36	2.15	0.24	0.47



Stellar Parameters For KIC 009201644

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6983^{+192}_{-329}	$4.249^{+0.073}_{-0.218}$	$0.210^{+0.150}_{-0.350}$	$1.527^{+0.538}_{-0.231}$	$1.508^{+0.216}_{-0.216}$	$0.597^{+0.236}_{-0.320}$
	+3%/-5%	+2%/-5%	+71%/-167%	+35%/-15%	+14%/-14%	+40%/-54%
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 009201644-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-62±7	$2.09^{+1.79}_{-1.38}$	4132^{+311}_{-245}	5385^{+5062}_{-1481}	$2.213^{+16.540}_{-1.560}$
Alt.	-106±23	$2.47^{+1.86}_{-1.57}$	4162^{+351}_{-254}	5655^{+5083}_{-1451}	$2.610^{+18.360}_{-1.735}$

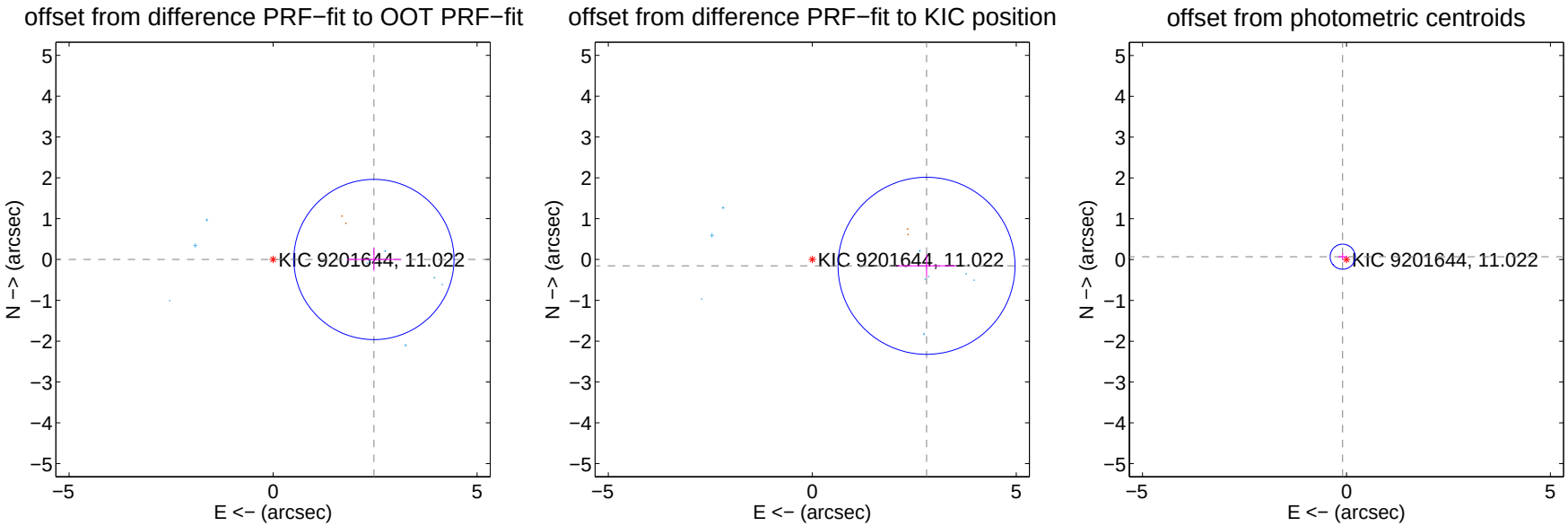
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

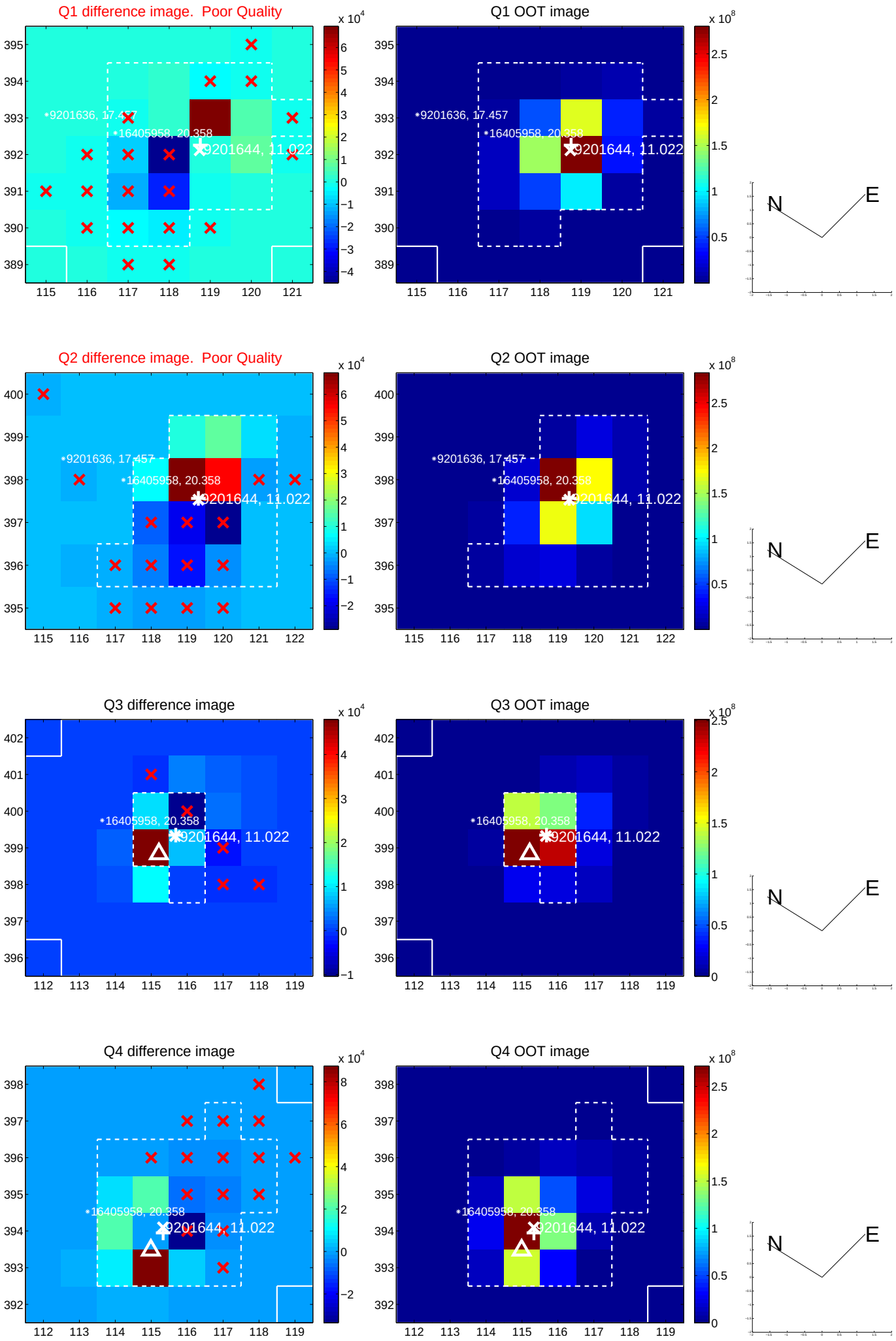
Supplemental centroid analysis for 009201644-01. Kepler magnitude: 11.02. Transit SNR 11.42
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.58 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.472 ± 0.654	3.78	-2.472 ± 0.654	0.000 ± 0.277
PRF-fit source offset from KIC position	2.805 ± 0.723	3.88	-2.801 ± 0.721	-0.154 ± 0.273
photometric centroid source offset	0.12 ± 0.10	1.14	0.09 ± 0.11	0.07 ± 0.09

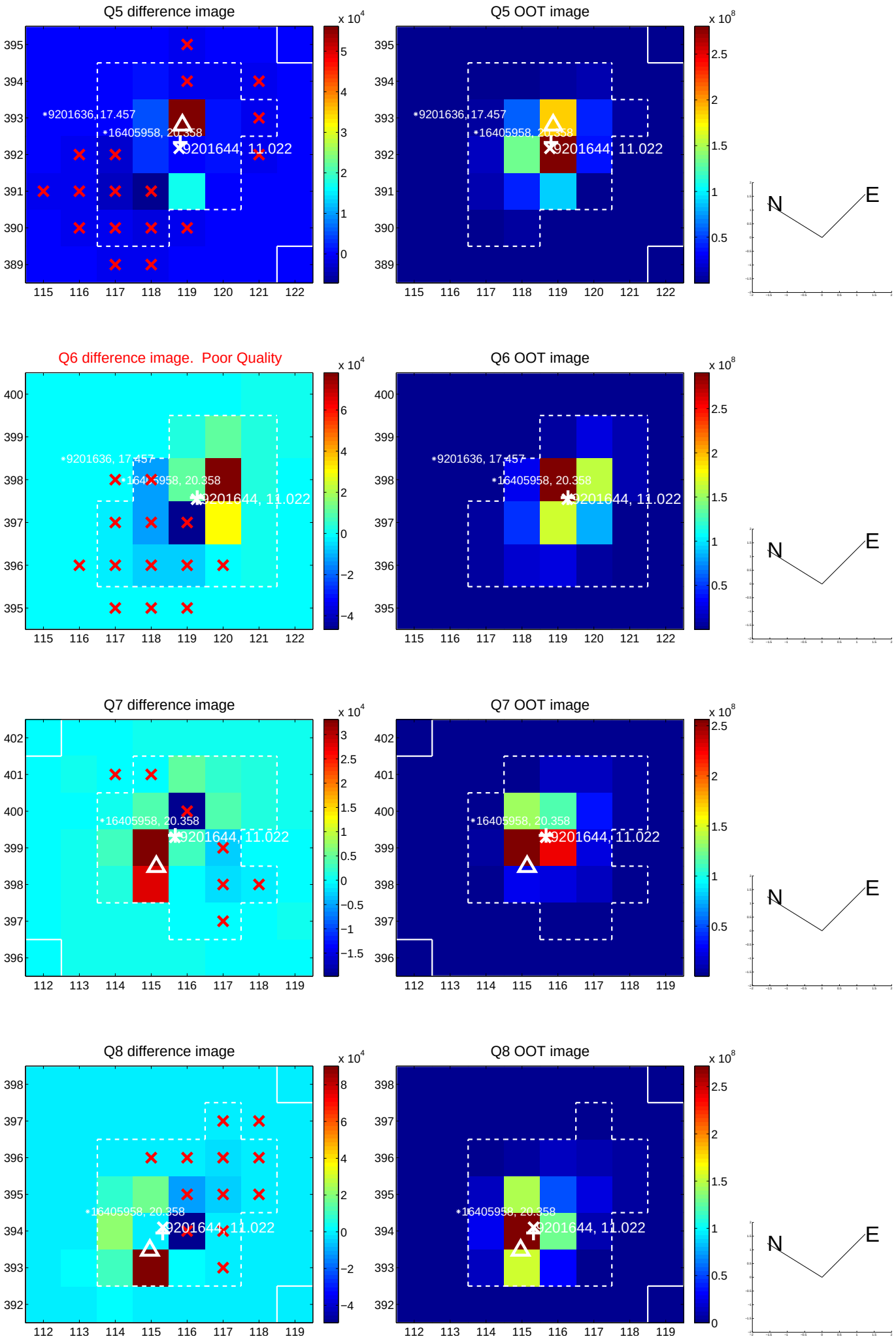


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

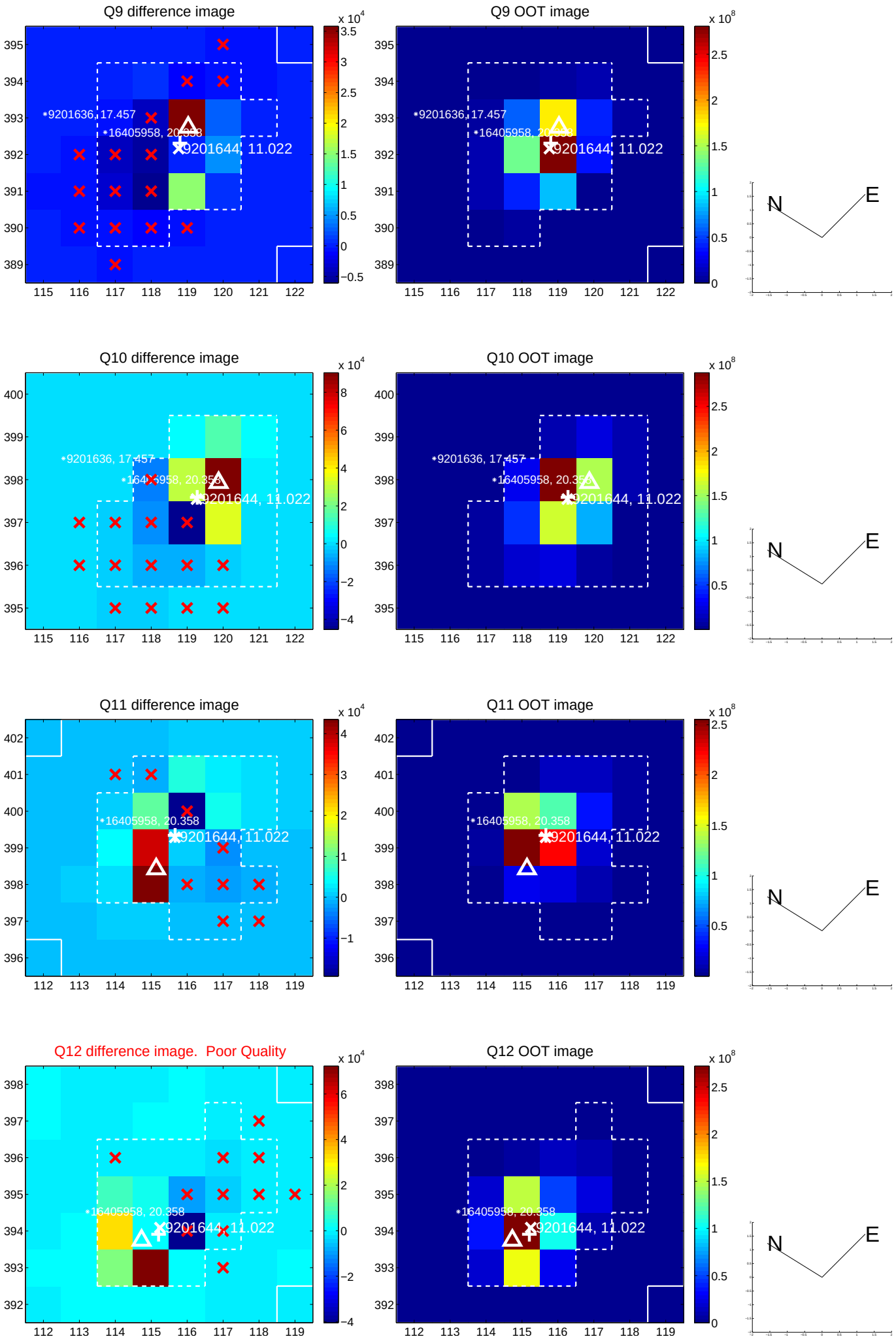
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



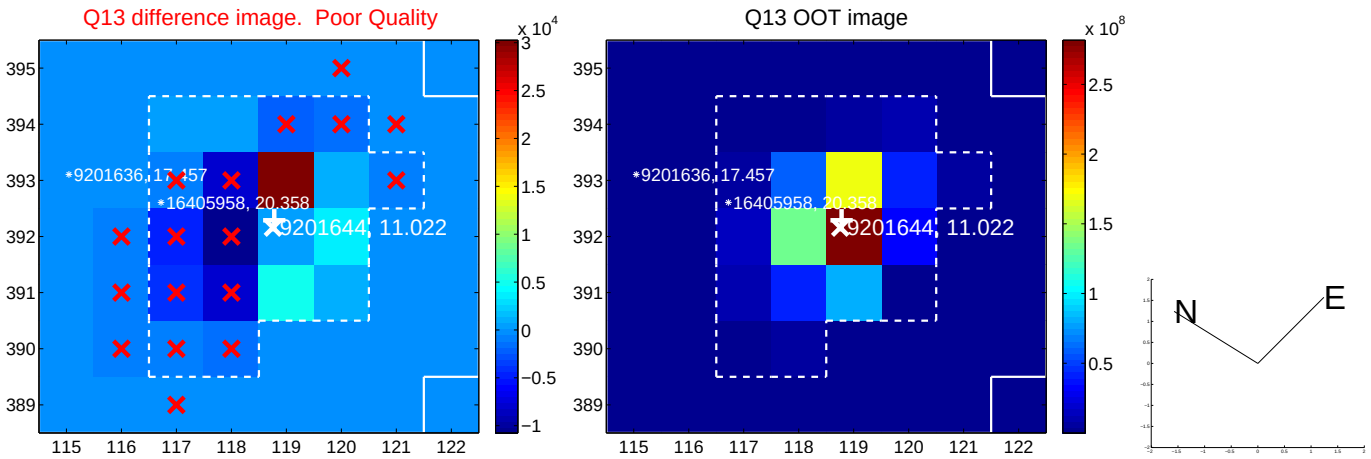
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

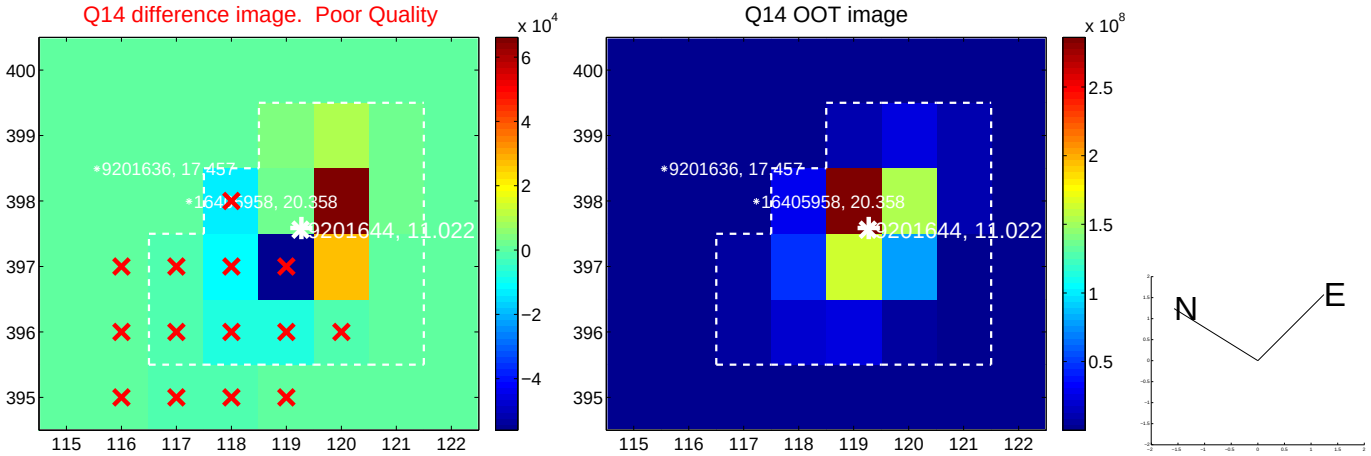


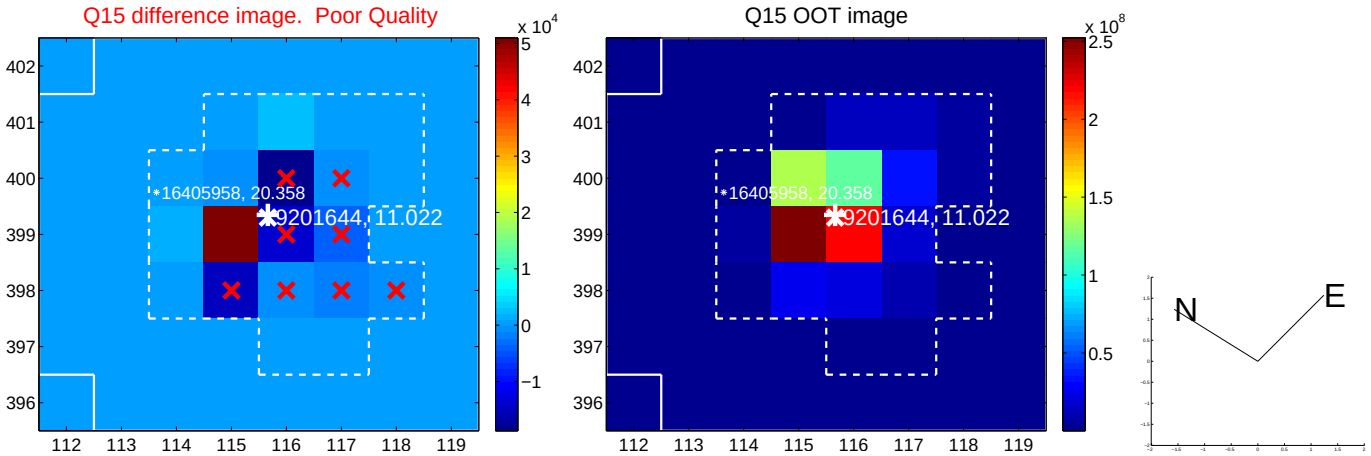
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

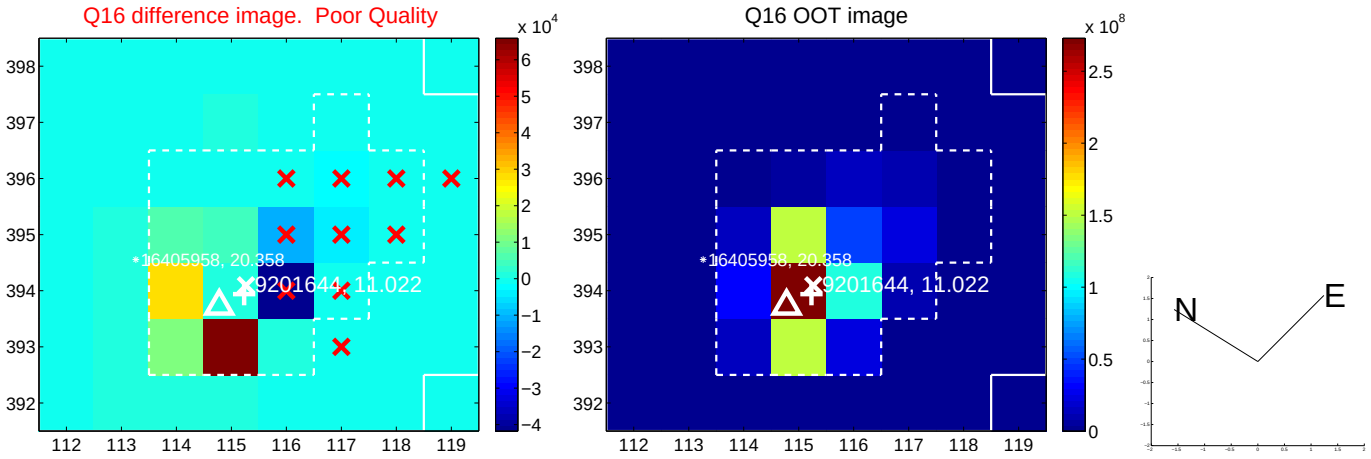


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

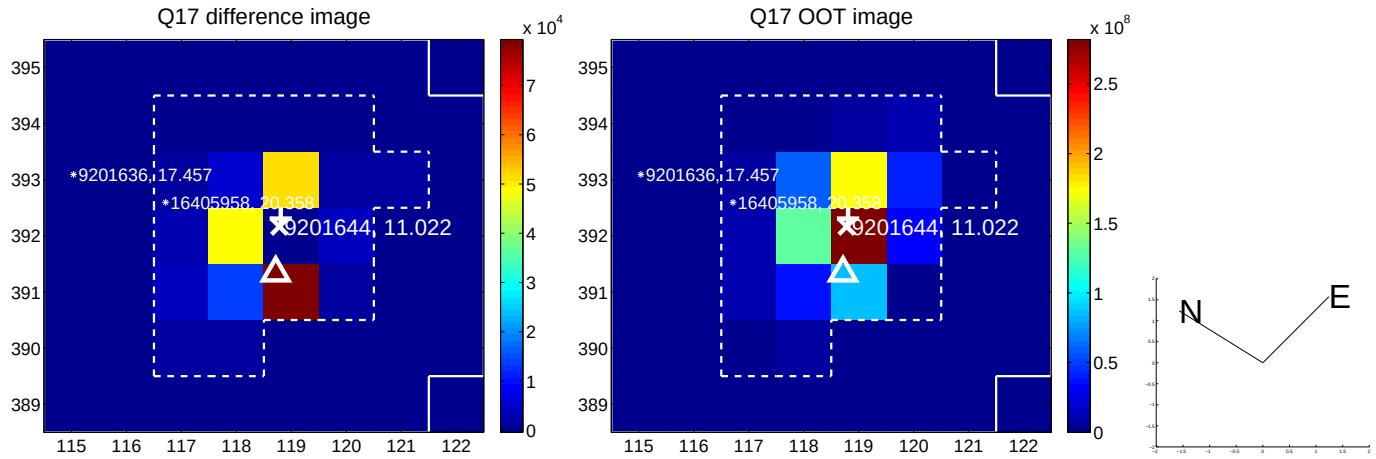


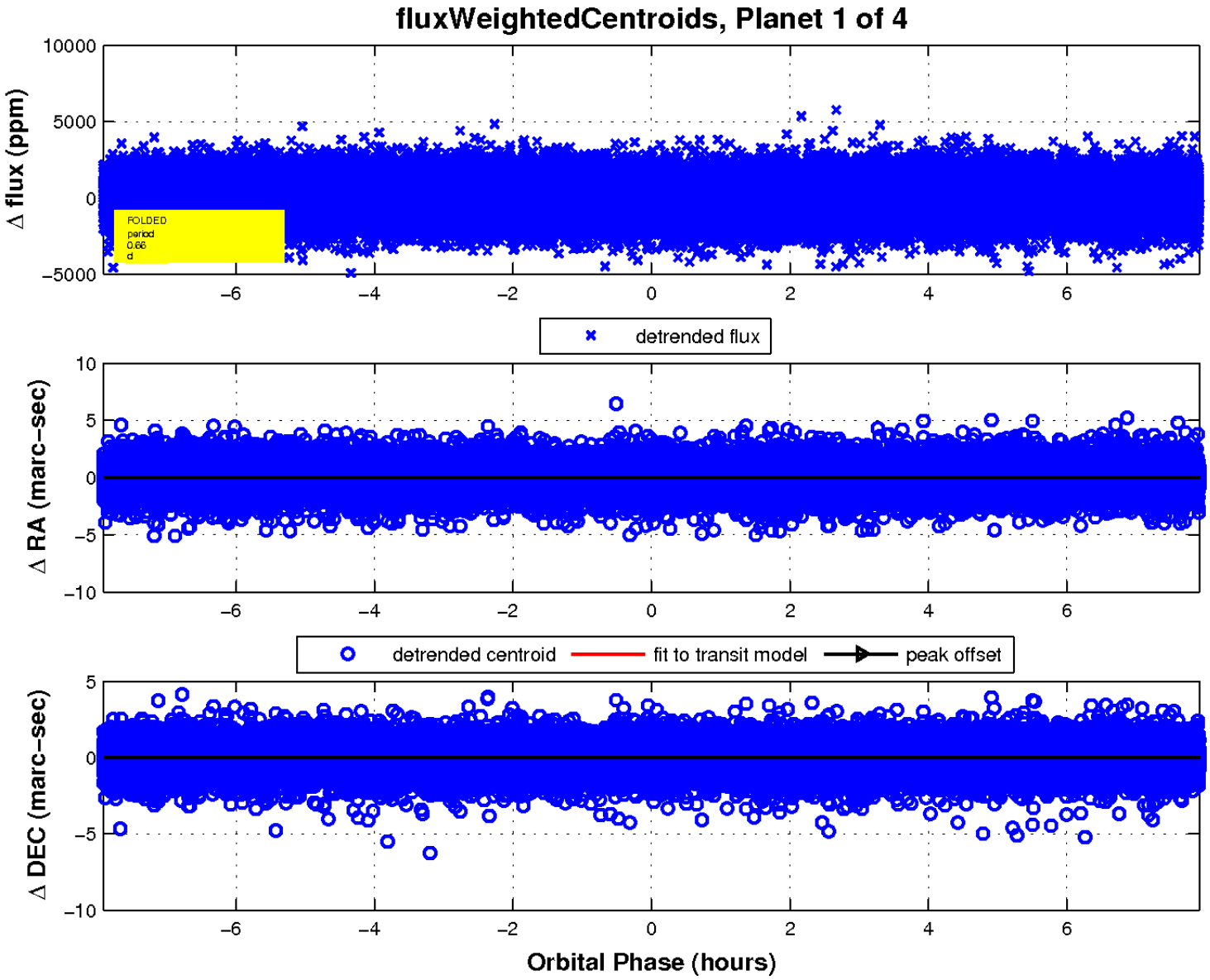




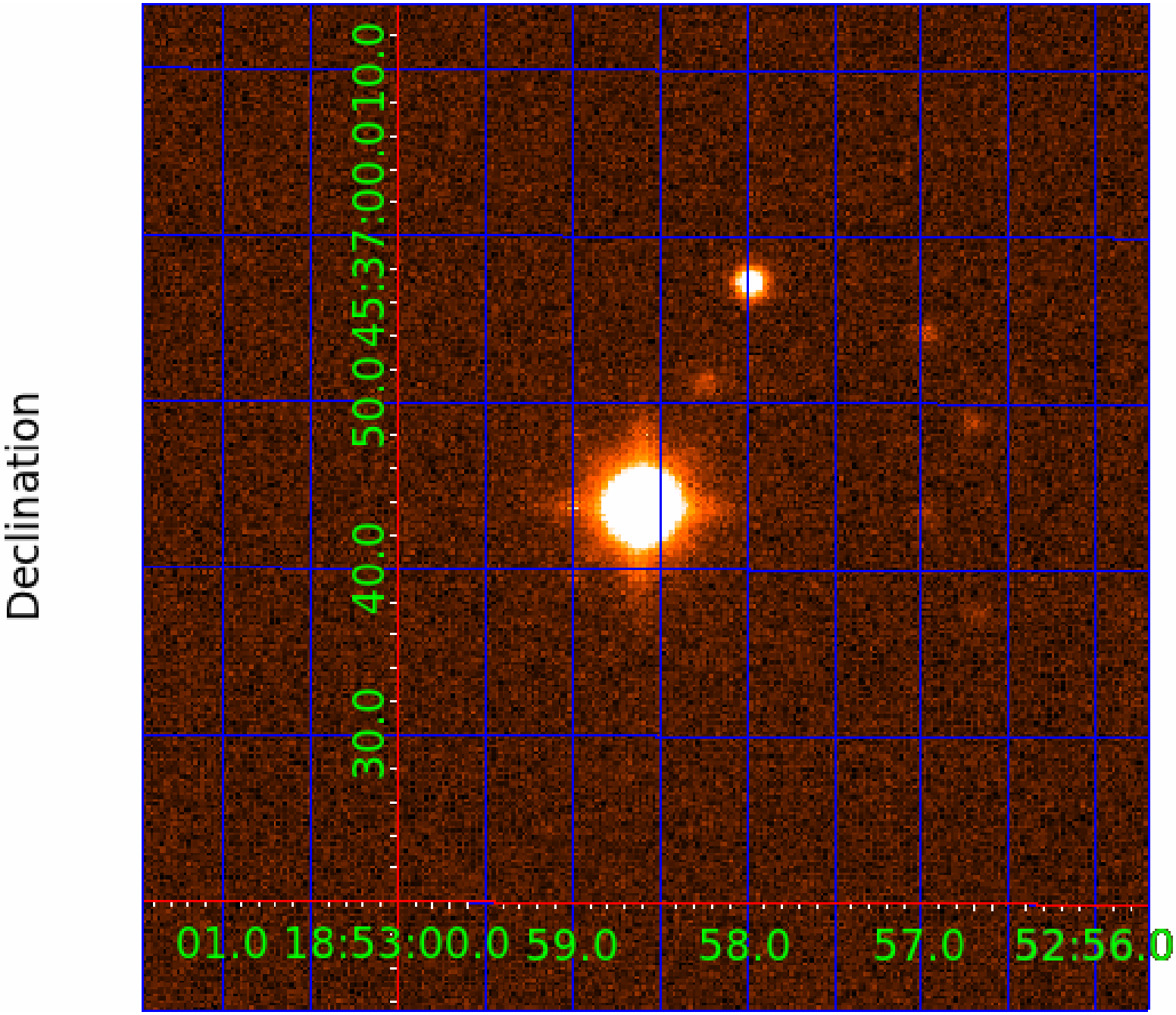


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
10.0
37:00.0
45:
50.0
40.0
30.0
01.0
18:53:00.0
59.0
58.0
57.0
52:56.0

KIC 009201644

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 ($S_\oplus$)
009201644-01	OBS	No	0.659793	132.157940	98.9	4.702	12.4	11.4	1.53	6983	1.55	17155.82
009201644-02	OBS	No	26.993389	143.259120	2767.8	1.011	17.7	15.2	1.53	6983	8.37	121.70
009201644-03	OBS	No	55.710522	165.830538	2230.5	1.582	12.6	13.8	1.53	6983	7.43	46.31
009201644-04	OBS	No	34.266793	161.111481	2758.3	1.009	14.1	14.5	1.53	6983	8.51	88.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009201644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009201644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

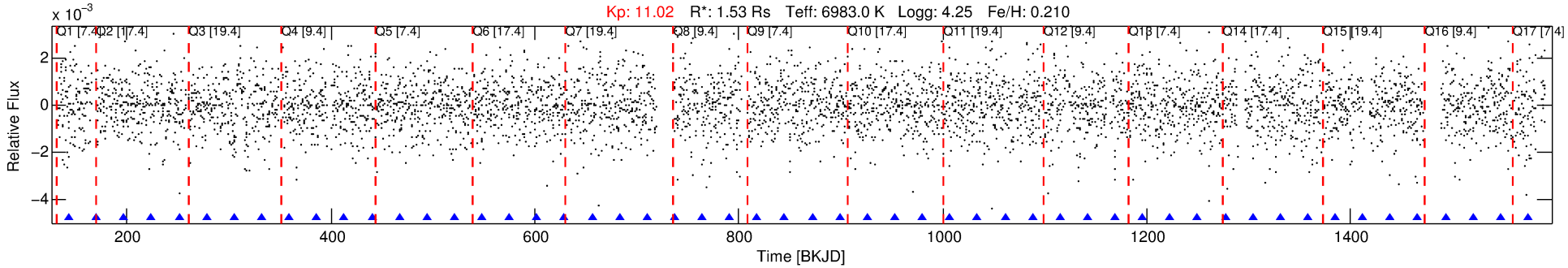
Ephemeris Match Information For 009201644-02

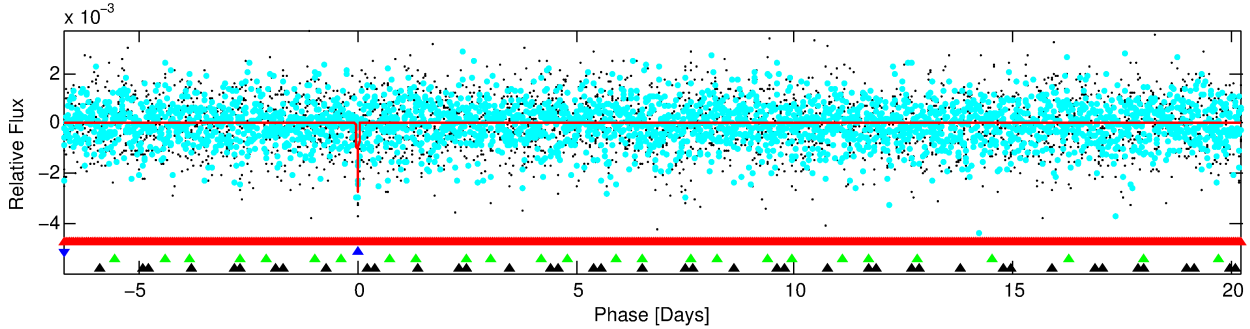
No Significant Match Found

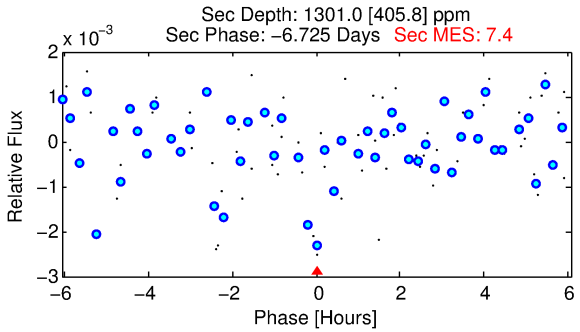
DV One-Page Summary

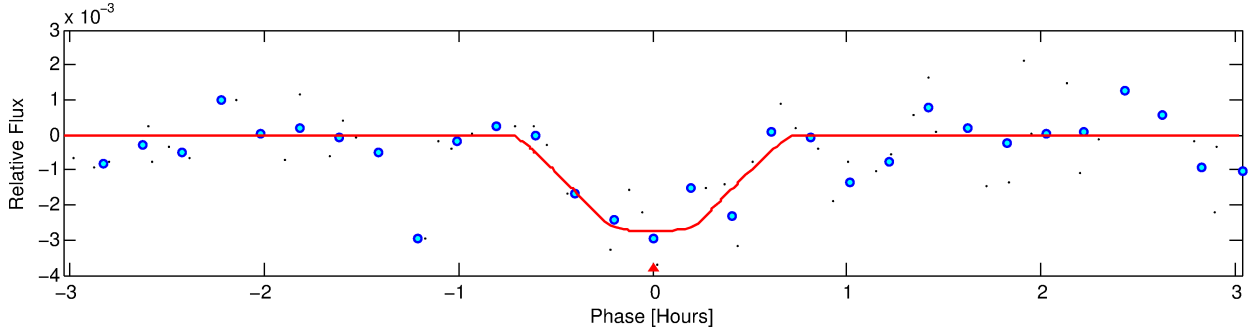
KIC: 9201644 Candidate: 2 of 4 Period: 26.993 d

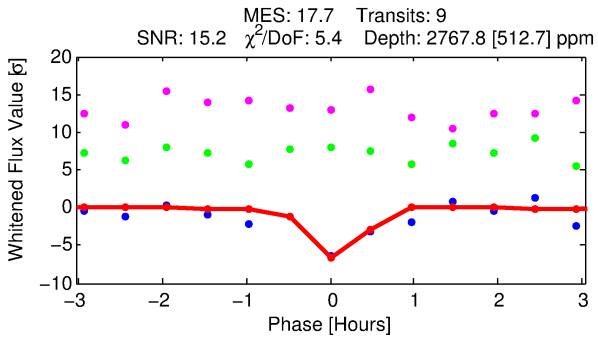
Kp: 11.02 R*: 1.53 Rs Teff: 6983.0 K Logg: 4.25 Fe/H: 0.210

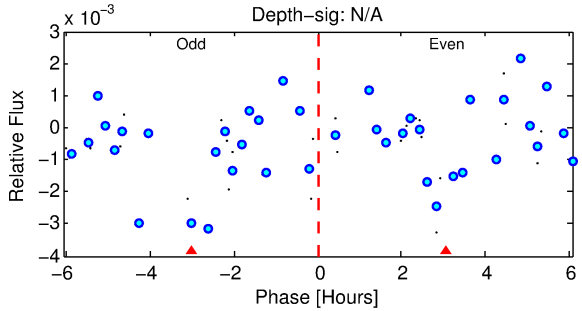


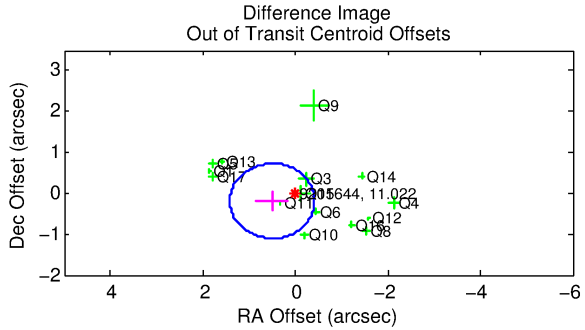












DV Fit Results:

Period = 26.99339 [0.00022] d
Epoch = 143.2591 [0.0058] BKJD
Rp/R* = 0.0502 [0.1196]
a/R* = 191.08 [2527.11]
b = 0.47 [21.95]

Seff = 121.70 [54.79]
Teq = 847 [95] K
Rp = 8.36 [20.15] Re
a = 0.2020 [0.0583] AU

Ag = 417.52 [2001.44] [0.21σ]
Teffp = 5919 [7073] K [0.72σ]

DV Diagnostic Results:

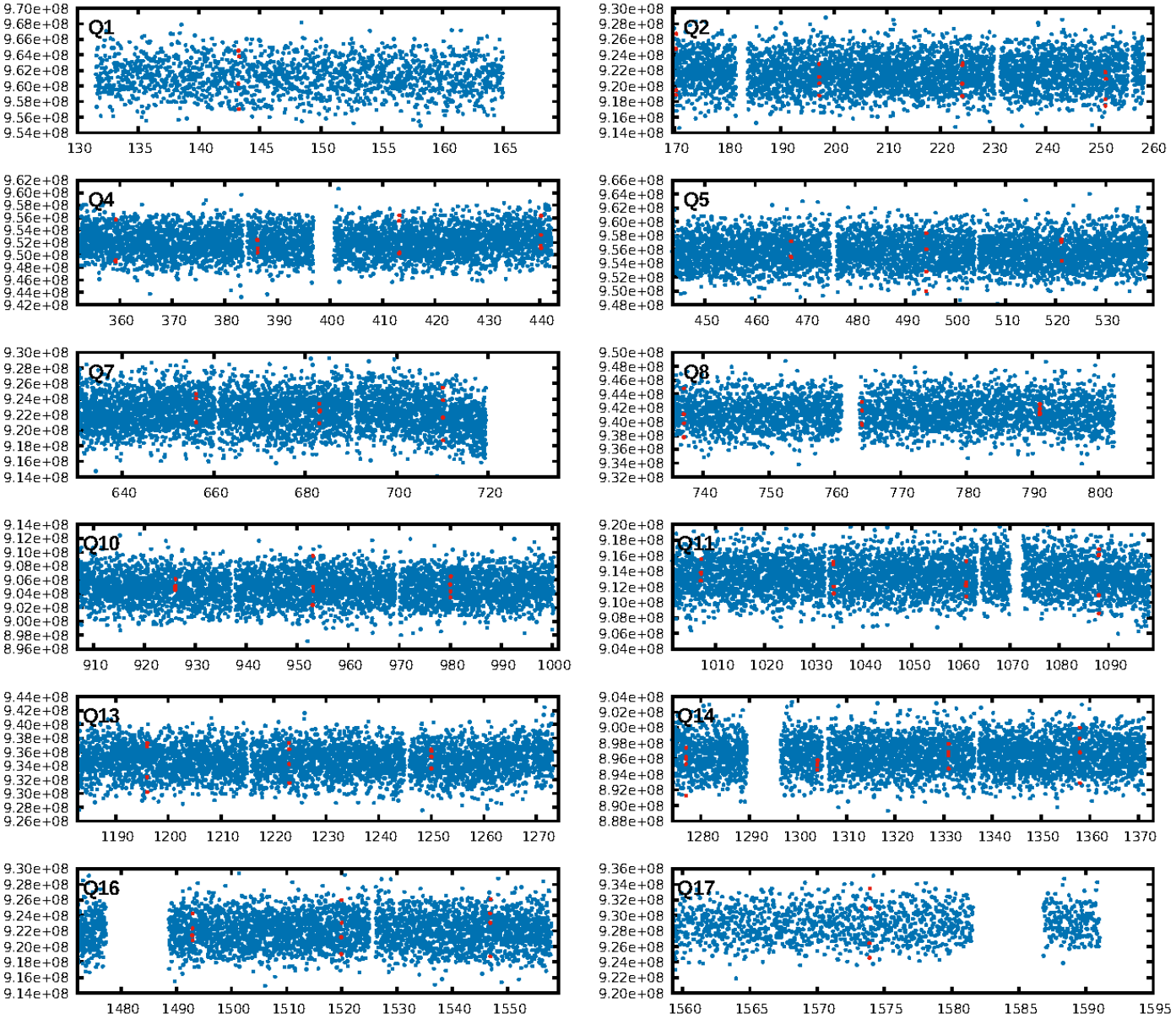
ShortPeriod−sig: 100.0% [131.40σ]
LongPeriod−sig: 100.0% [122.18σ]
ModelChiSquare2−sig: 0.1%
ModelChiSquareGof−sig: 2.3%
Bootstrap−pfa: 1.44e−15
RollingBand−fgt: 1.00 [9/9]
GhostDiagnostic−chr: 0.663

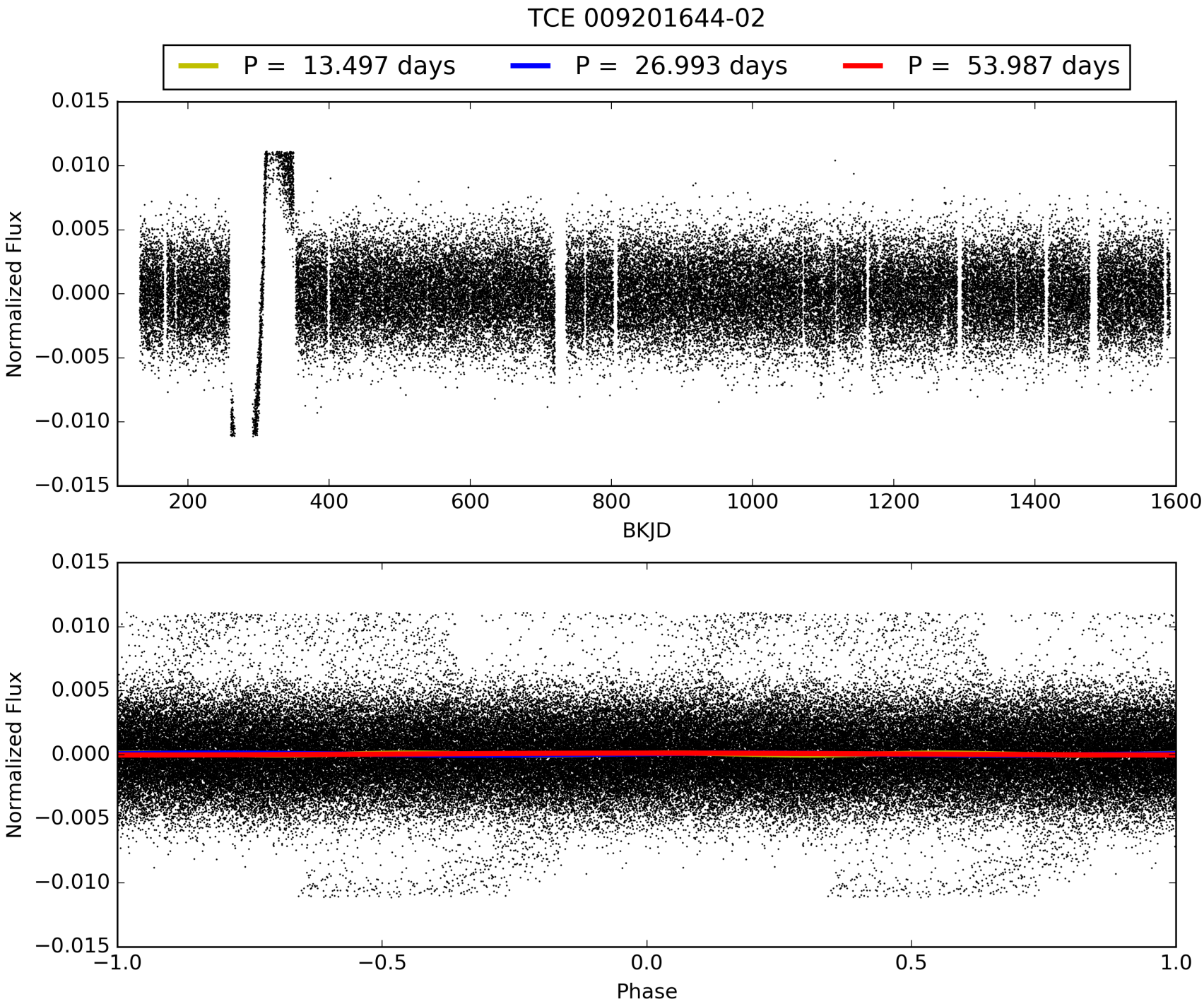
Centroid−sig: 60.3%
Centroid−so: 0.127 arcsec [3.35σ]
OotOffset−rm: 0.537 arcsec [1.76σ]
KicOffset−rm: 0.723 arcsec [1.55σ]
OotOffset−st: 3/3/4/5 [15]
KicOffset−st: 3/3/4/5 [15]
DiffImageQuality−fgm: 0.53 [8/15]
DiffImageOverlap−fno: 0.12 [2/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 23:05:10 Z

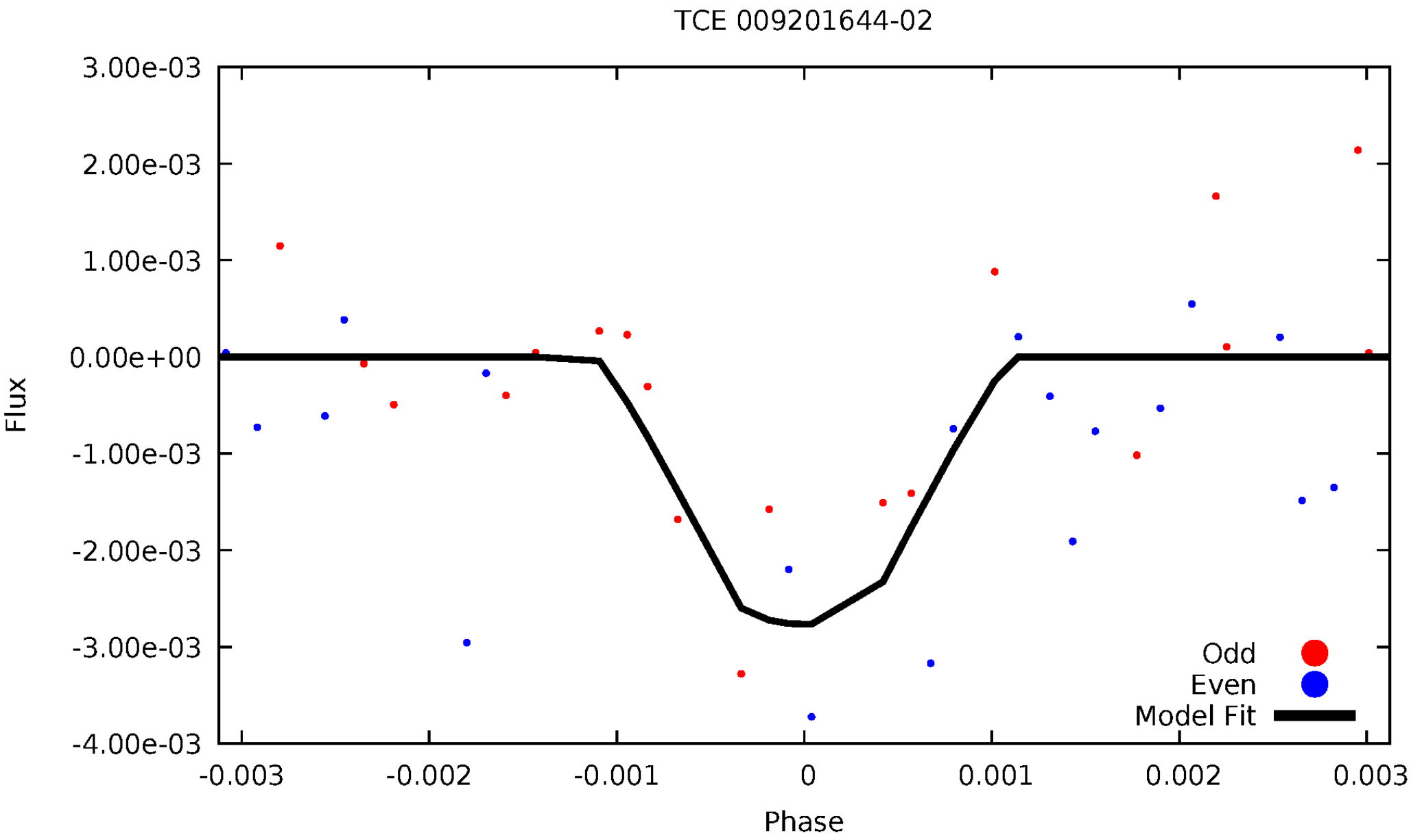
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009201644-02, PDC Light Curves




TCE 009201644-02
P = 13.497 days
P = 26.993 days
P = 53.987 days
Normalized Flux
BKJD
Normalized Flux
Phase

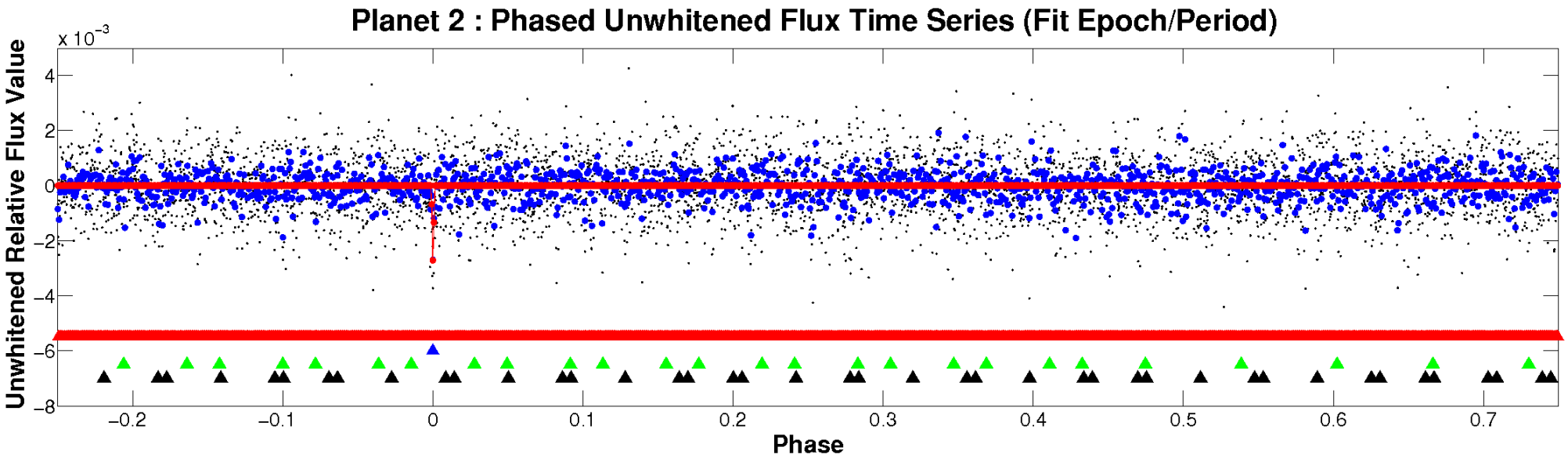
DV Odd/Even

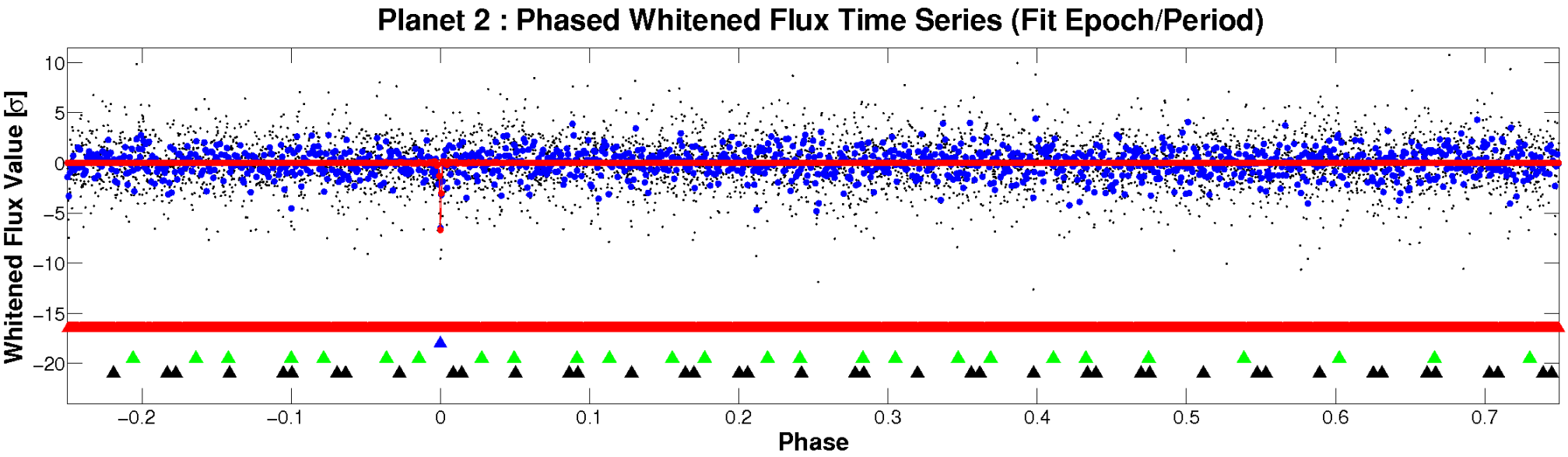

TCE 009201644-02
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
Phase
Odd
Even
Model Fit

ALT Odd/Even

This plot does not exist for this TCE.

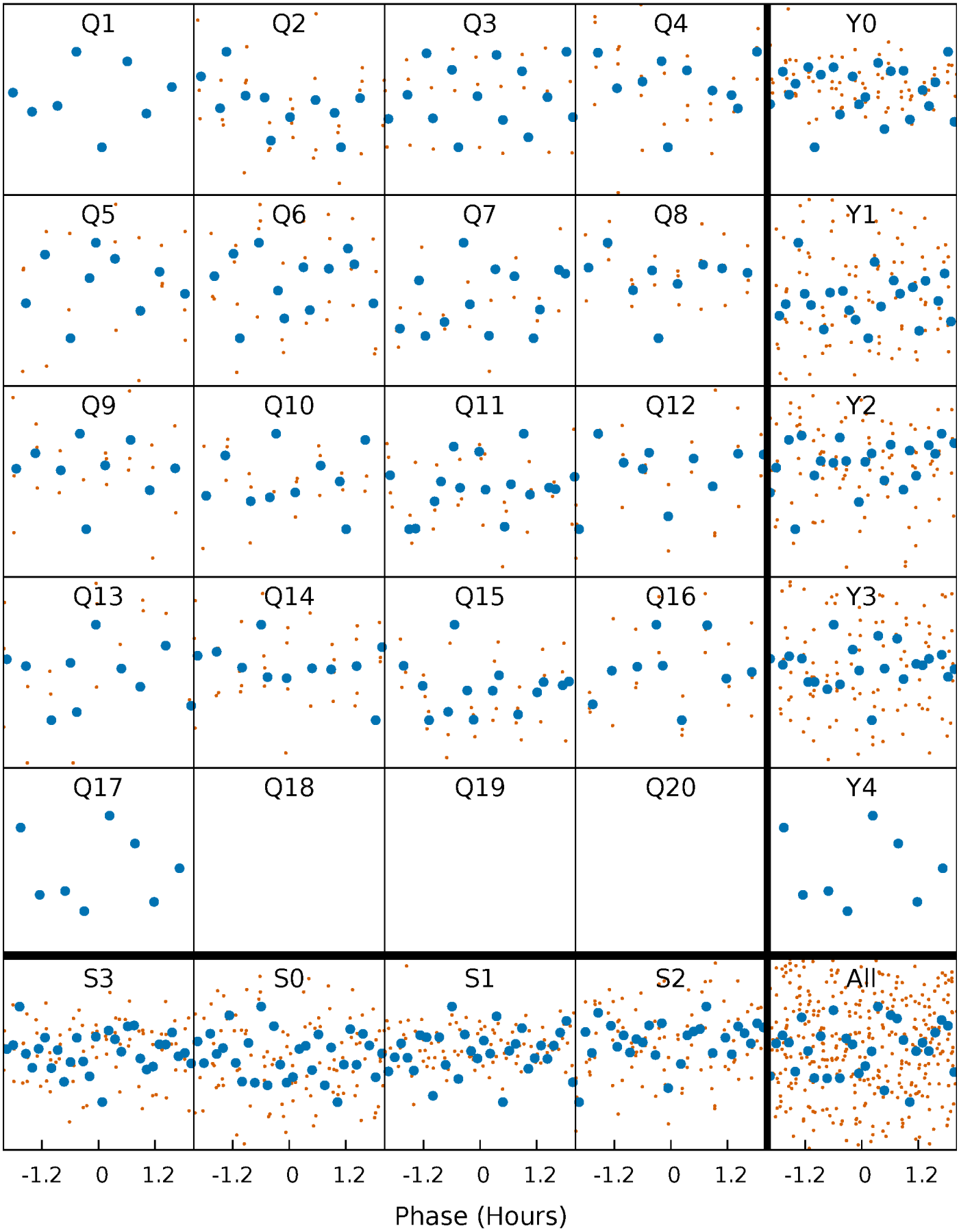
Non-Whitened Vs. Whitened Light Curve





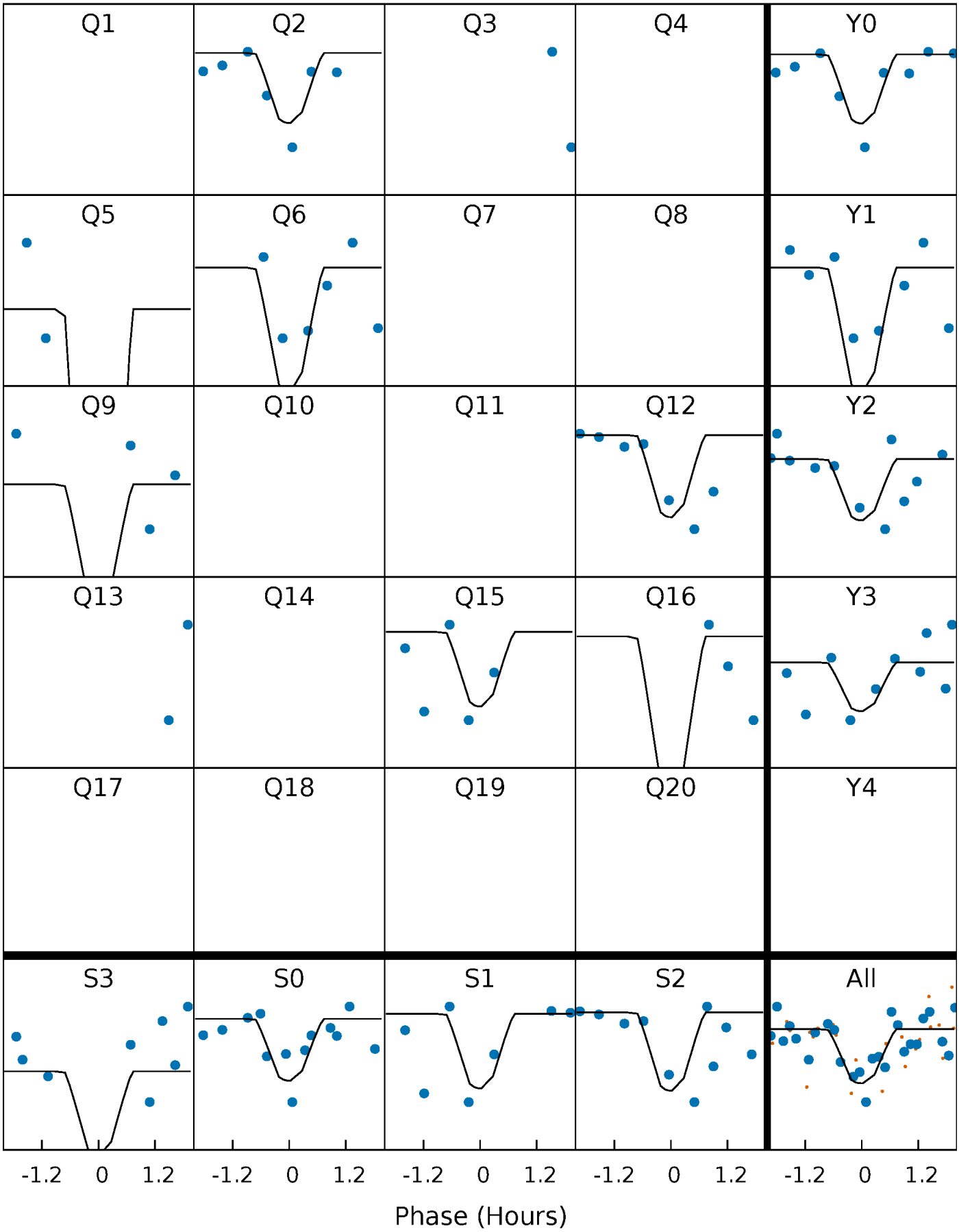
PDC Quarter-Phased Transit Curves

TCE 009201644-02 P= 26.993389 Days T_0=143.259120 (BKJD)



DV Quarter-Phased Transit Curves

TCE 009201644-02 P= 26.993389 Days T_0=143.259120 (BKJD)

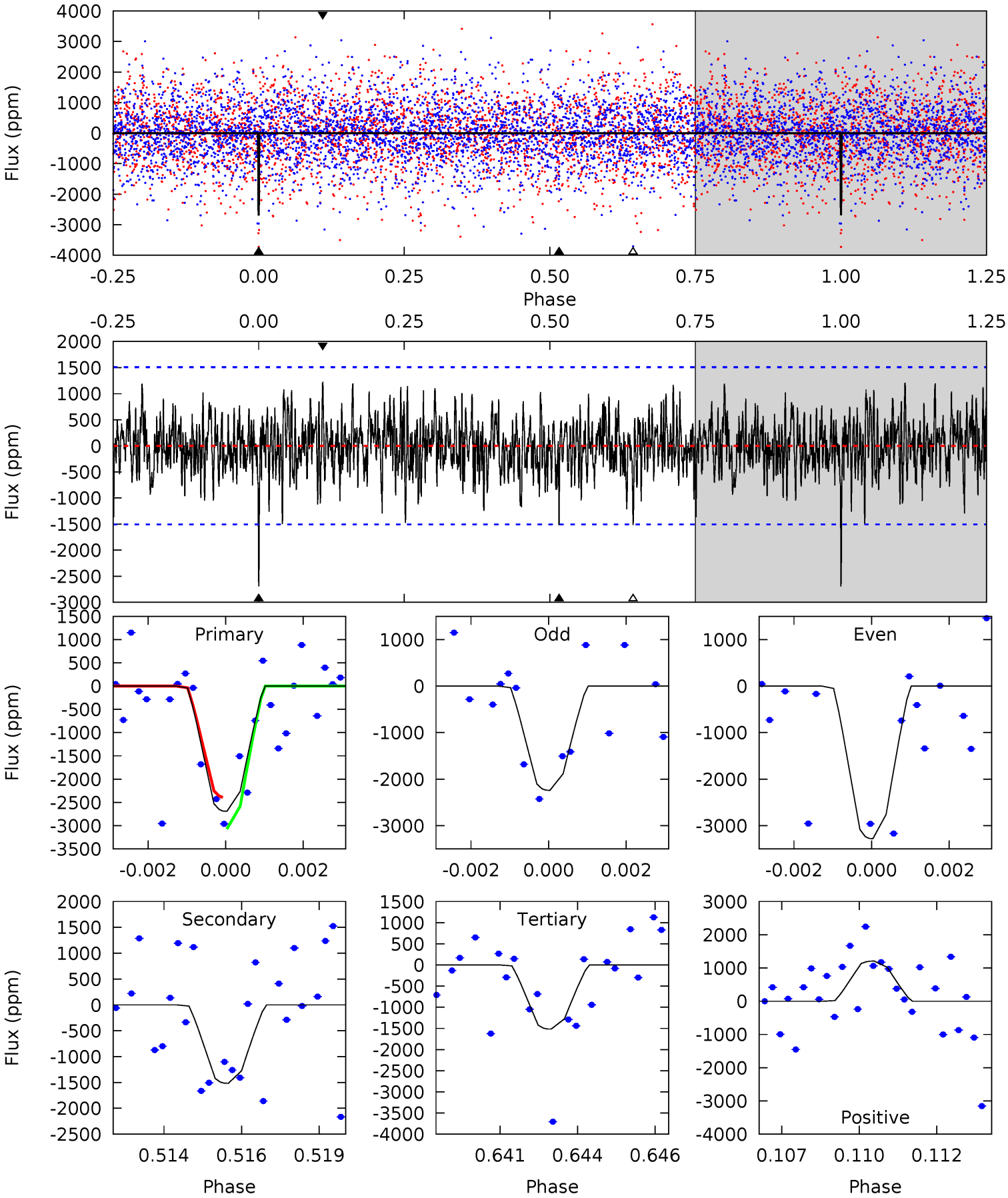


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009201644-02, P = 26.993389 Days, E = 116.265731 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.48	5.34	5.34	4.25	5.31	3.06	1.53	4.14	5.23	0.00	1.09	1.73	0.96	0.31	1.20



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009201644

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6983^{+192}_{-329}	$4.249^{+0.073}_{-0.218}$	$0.210^{+0.150}_{-0.350}$	$1.527^{+0.538}_{-0.231}$	$1.508^{+0.216}_{-0.216}$	$0.597^{+0.236}_{-0.320}$
	+3%/-5%	+2%/-5%	+71%/-167%	+35%/-15%	+14%/-14%	+40%/-54%
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 009201644-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1516±284	$18.84^{+18.54}_{-12.66}$	1203^{+102}_{-71}	4325^{+3020}_{-878}	91^{+797}_{-68}
Alt.	N/A	N/A	N/A	N/A	N/A

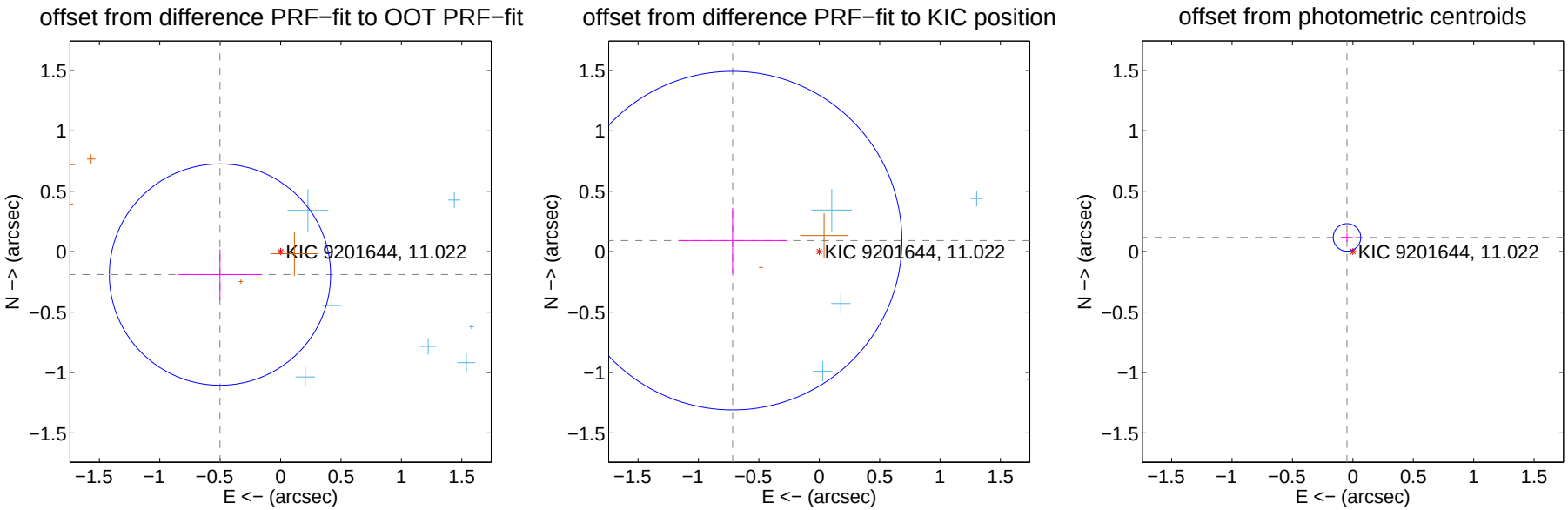
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

DV Centroid Data

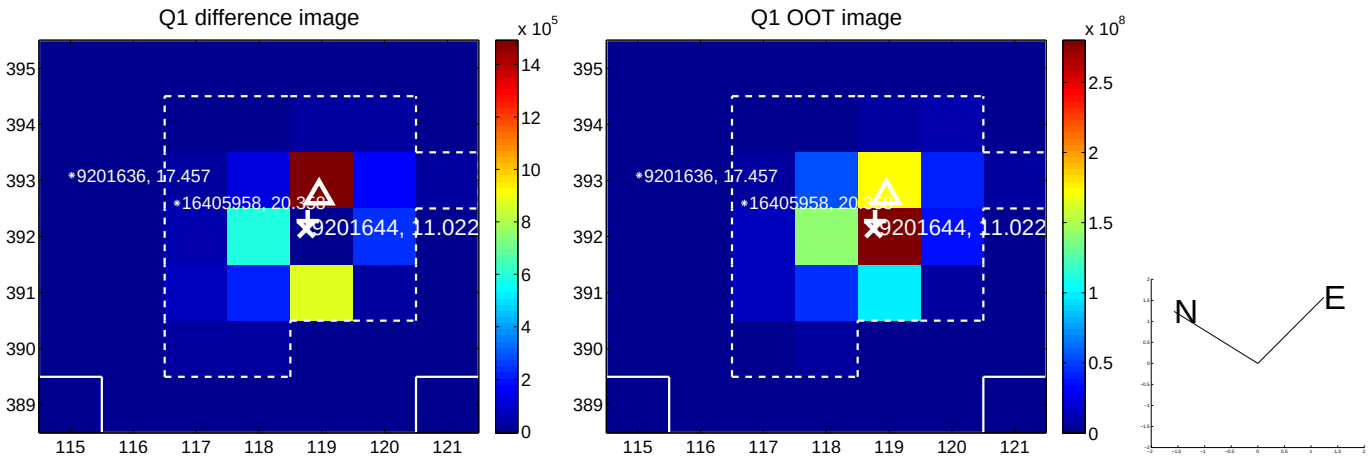
Supplemental centroid analysis for 009201644-02. Kepler magnitude: 11.02. Transit SNR 15.23
There are 8 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.58 arcsec

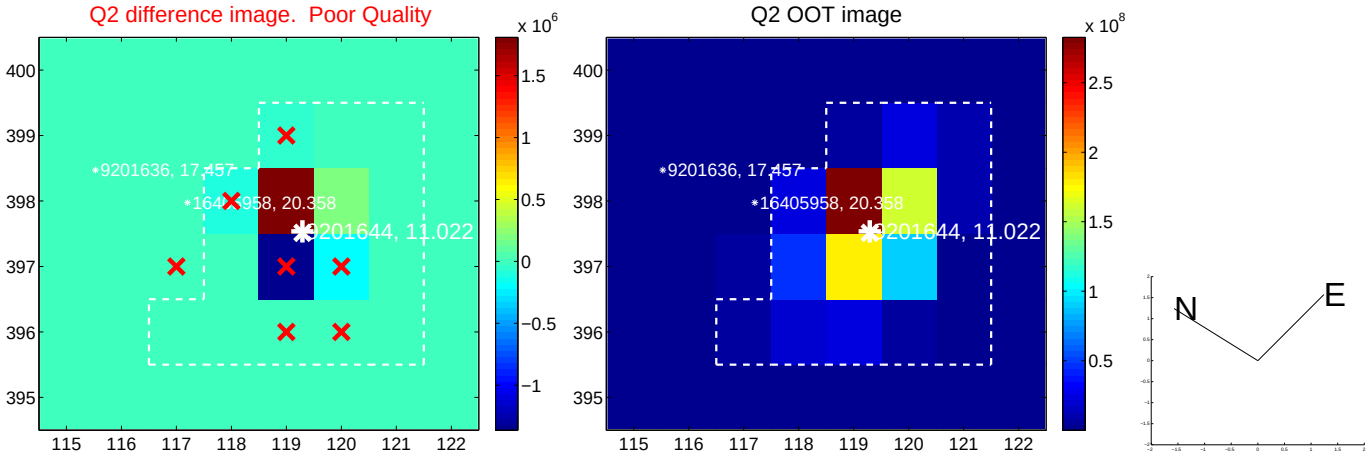
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.537 ± 0.305	1.76	0.502 ± 0.349	-0.190 ± 0.209
PRF-fit source offset from KIC position	0.723 ± 0.467	1.55	0.717 ± 0.447	0.092 ± 0.272
photometric centroid source offset	0.13 ± 0.04	3.35	0.05 ± 0.05	0.12 ± 0.04

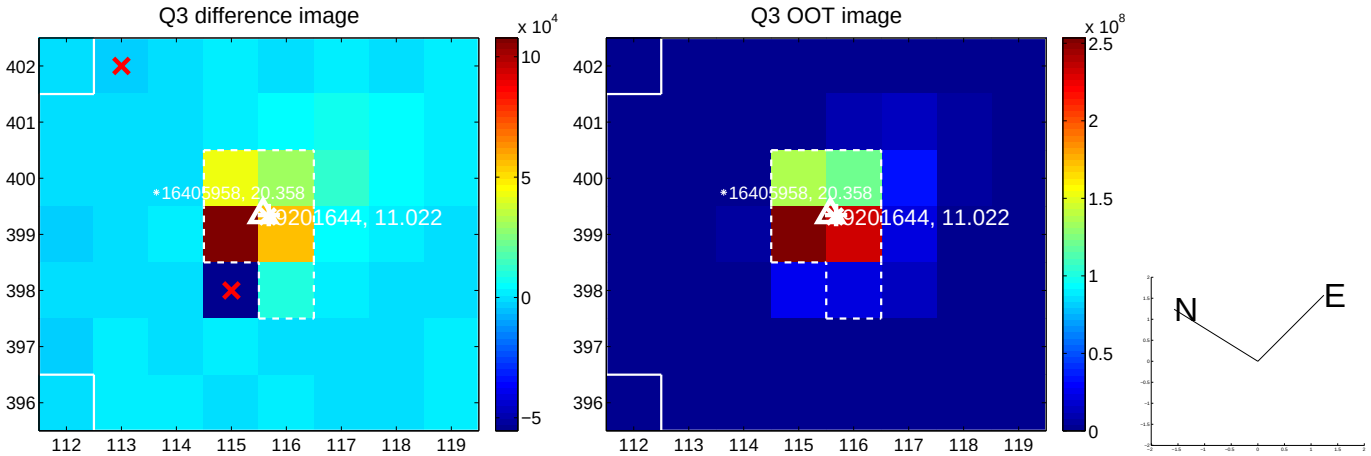


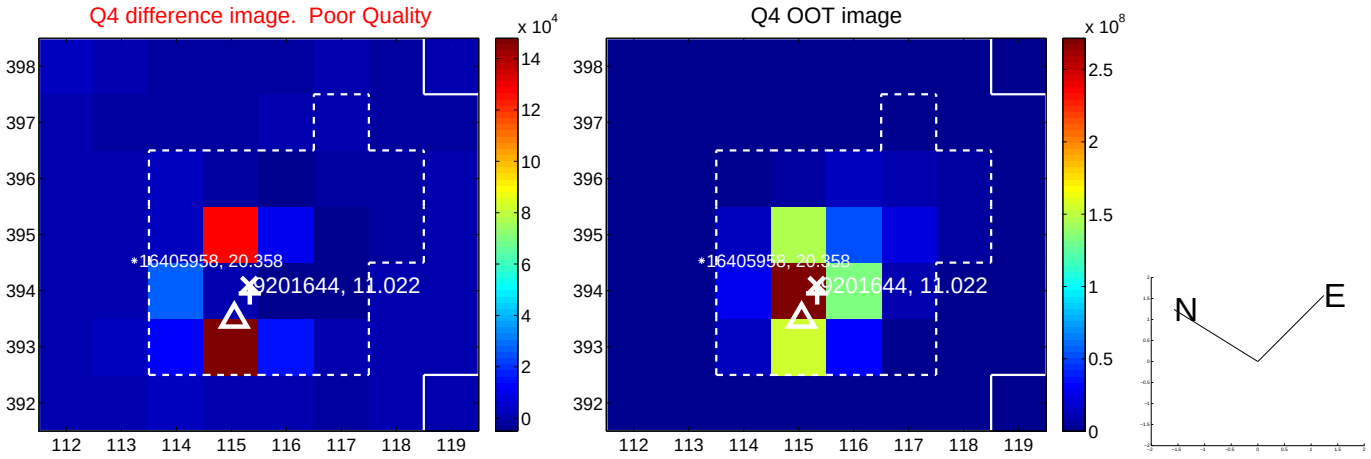
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

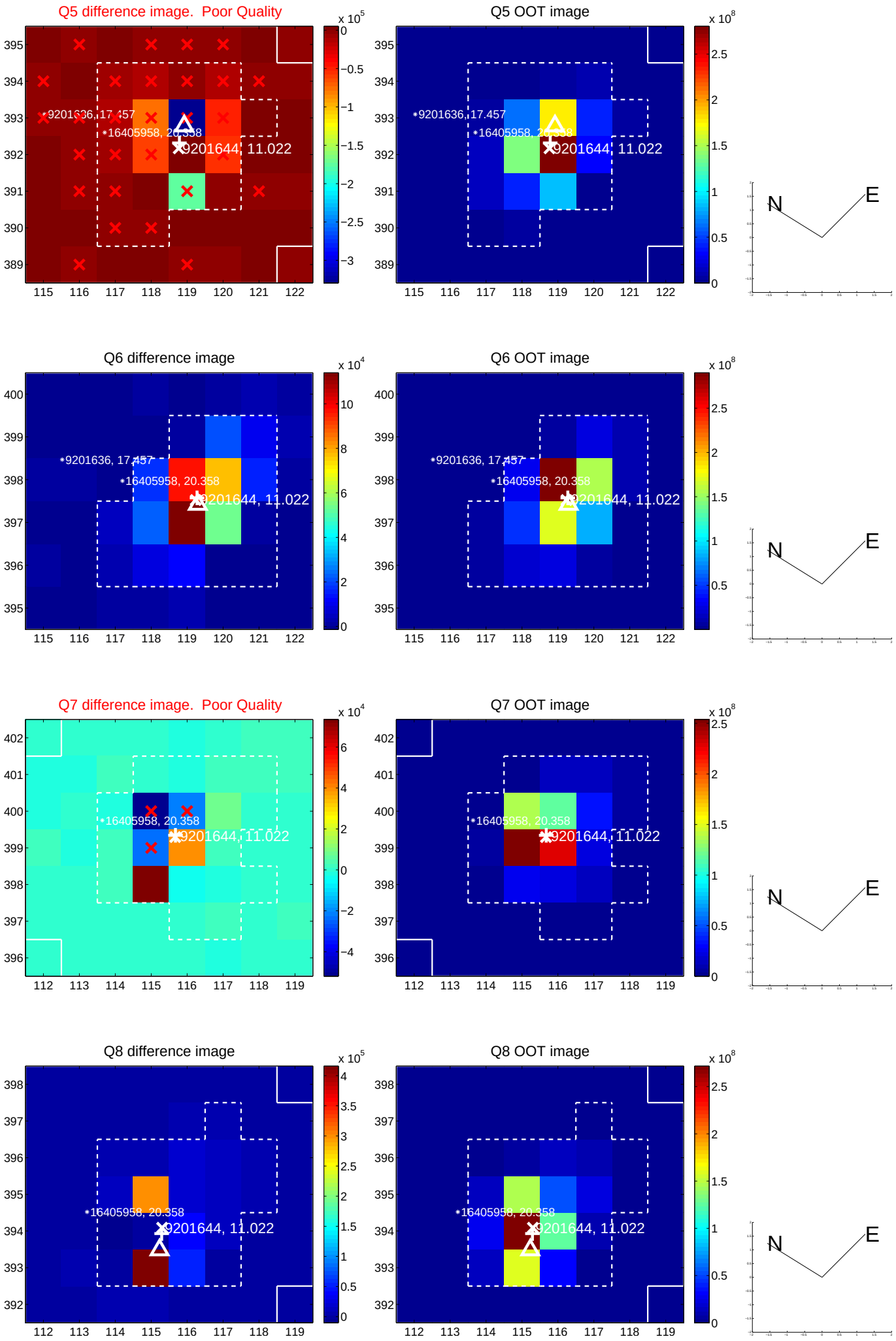




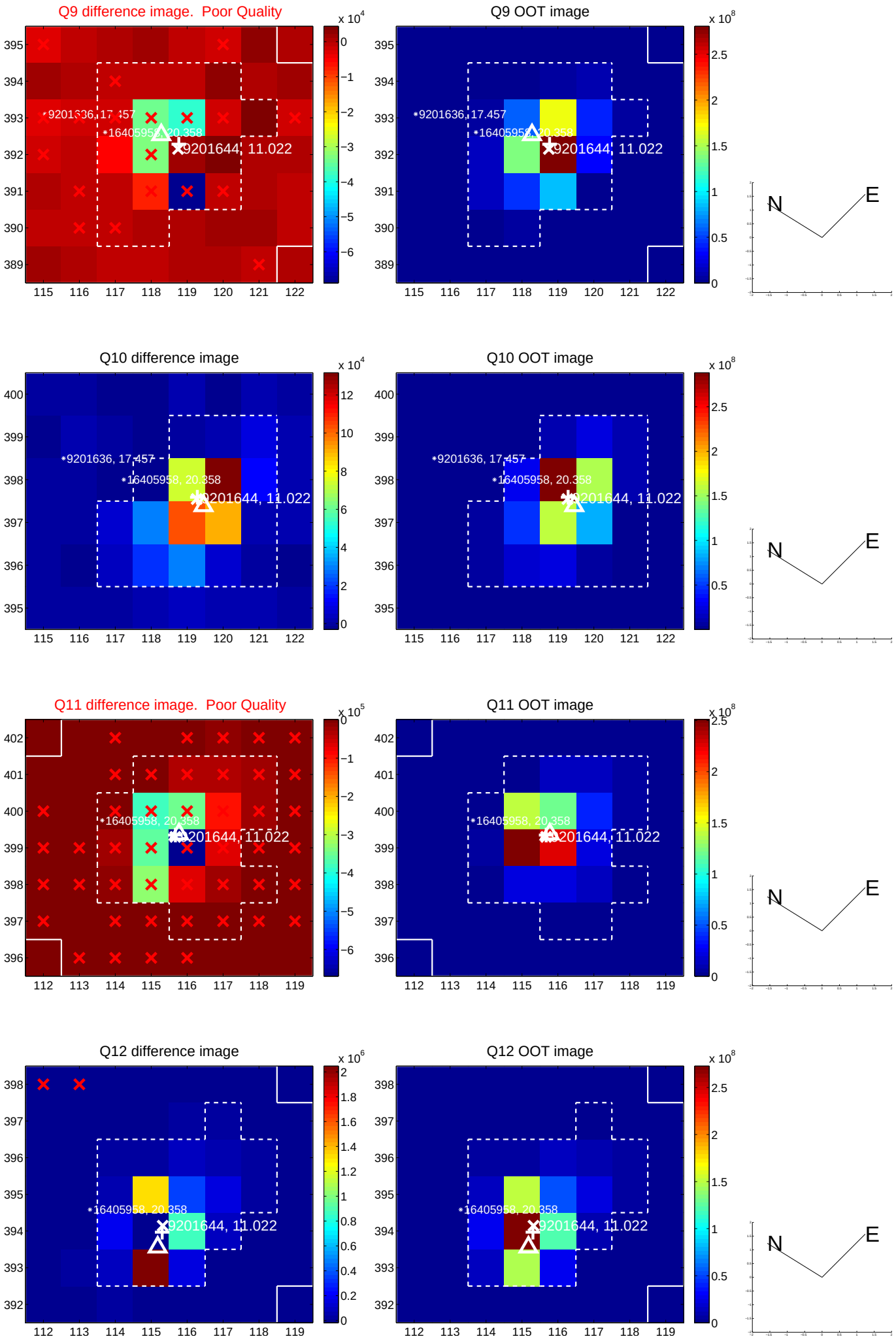




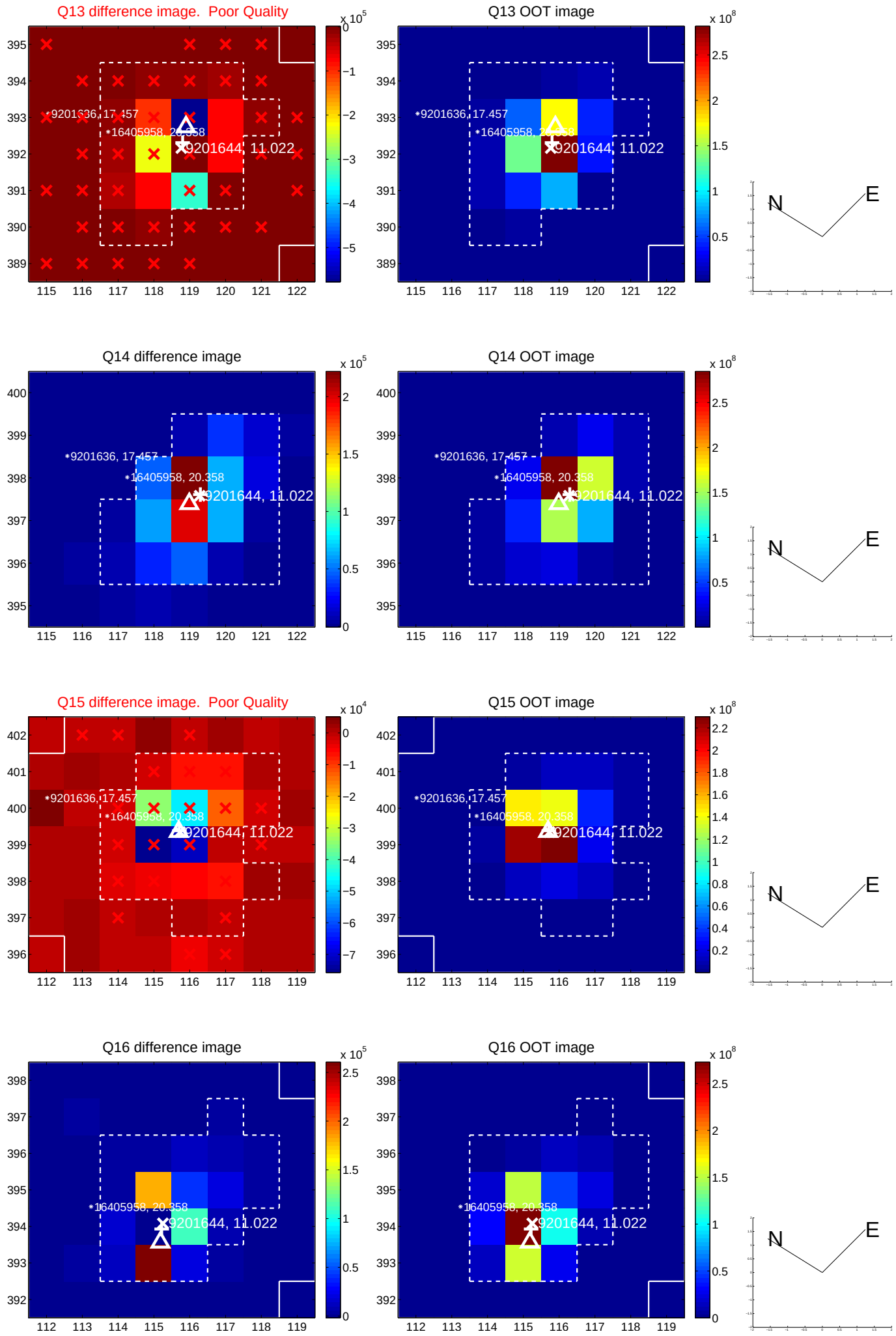
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



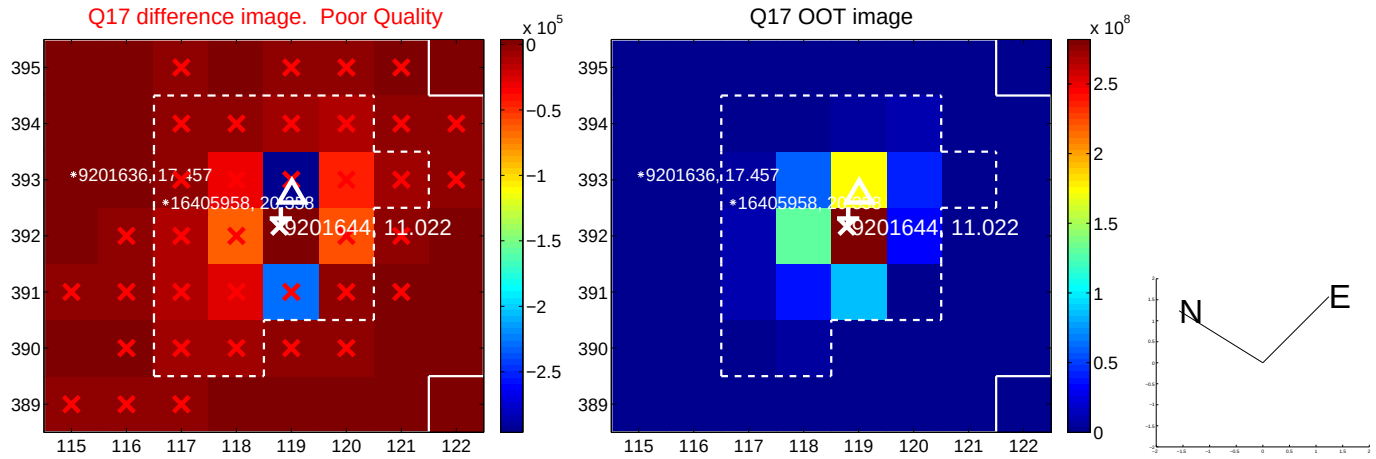
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

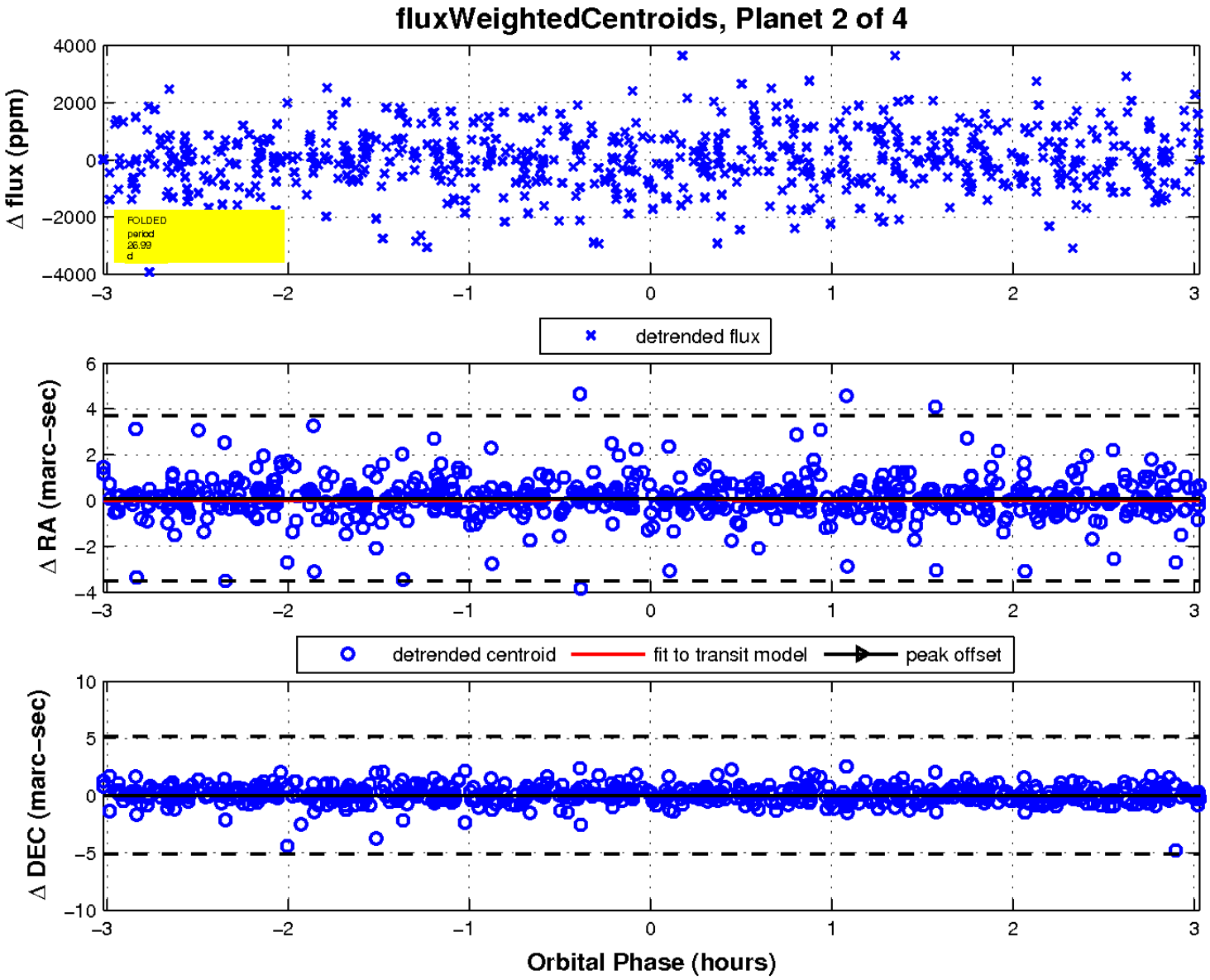


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

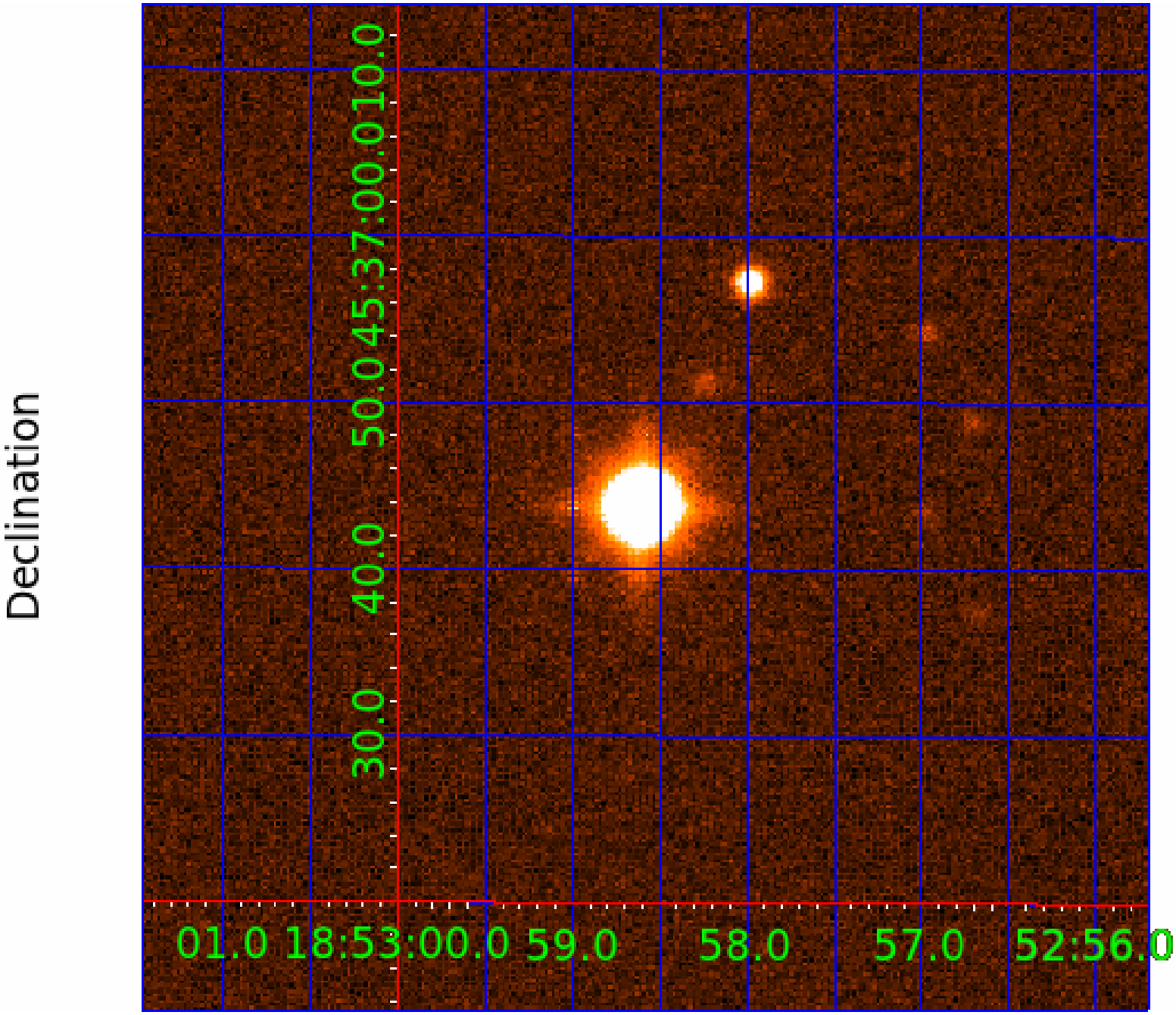


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
10.0
37:00.0
45:
50.0
40.0
30.0
01.0
18:53:00.0
59.0
58.0
57.0
52:56.0

KIC 009201644

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 ($S_\oplus$)
009201644-01	OBS	No	0.659793	132.157940	98.9	4.702	12.4	11.4	1.53	6983	1.55	17155.82
009201644-02	OBS	No	26.993389	143.259120	2767.8	1.011	17.7	15.2	1.53	6983	8.37	121.70
009201644-03	OBS	No	55.710522	165.830538	2230.5	1.582	12.6	13.8	1.53	6983	7.43	46.31
009201644-04	OBS	No	34.266793	161.111481	2758.3	1.009	14.1	14.5	1.53	6983	8.51	88.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009201644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009201644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

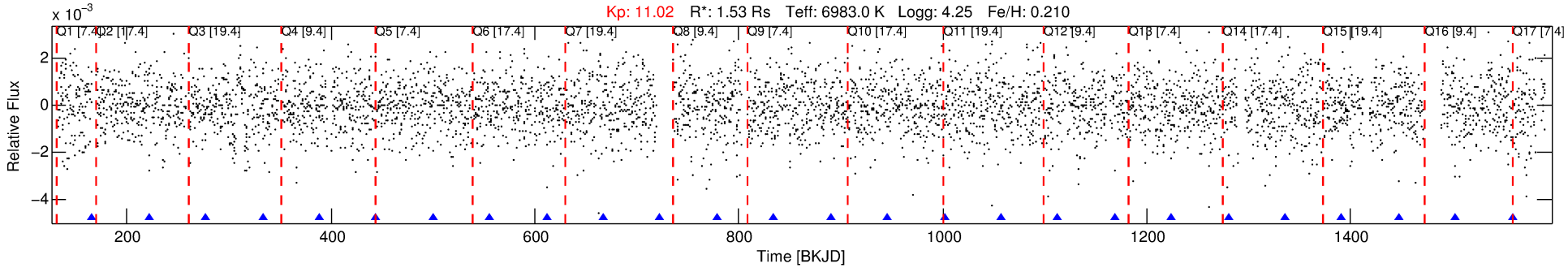
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

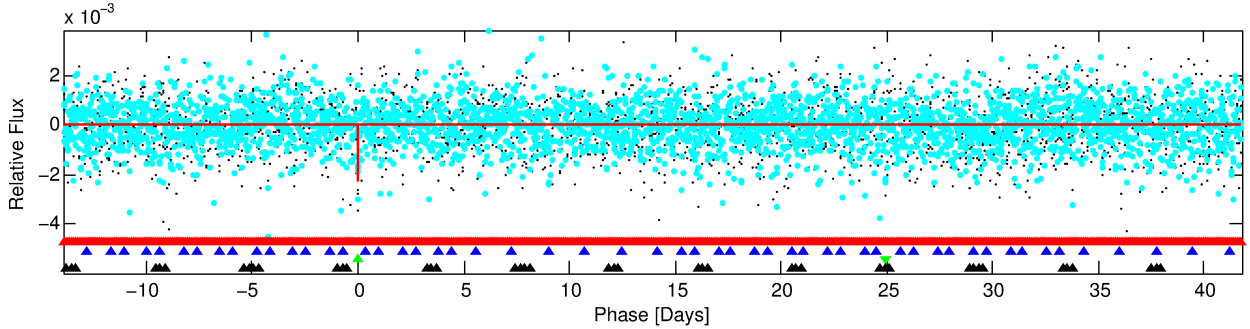
Ephemeris Match Information For 009201644-03

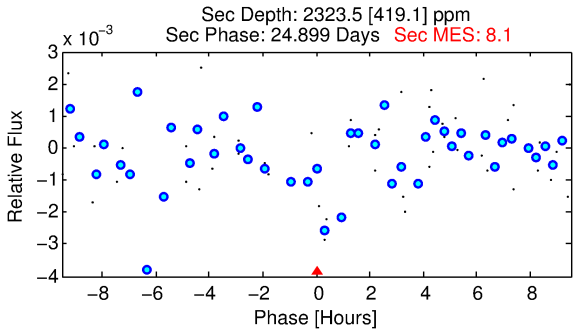
No Significant Match Found

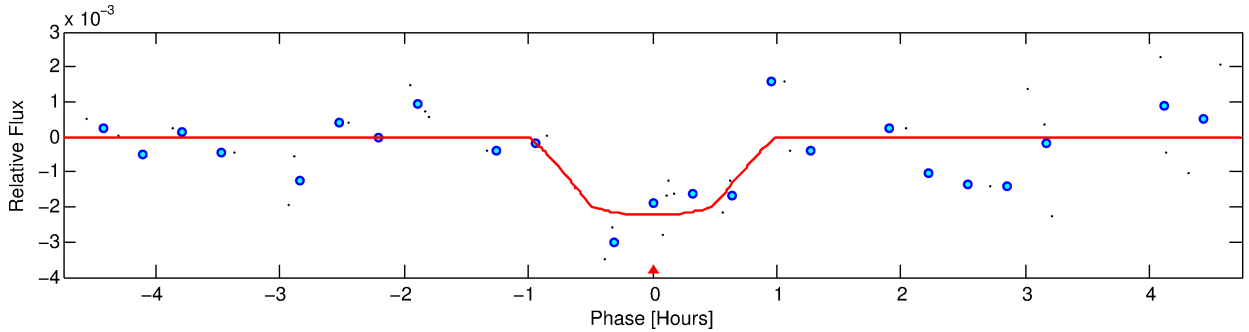
DV One-Page Summary

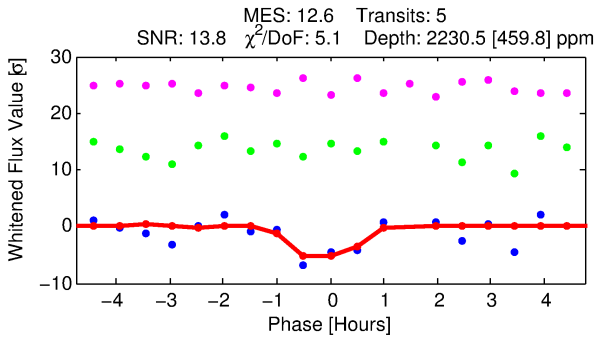
KIC: 9201644 Candidate: 3 of 4 Period: 55.711 d

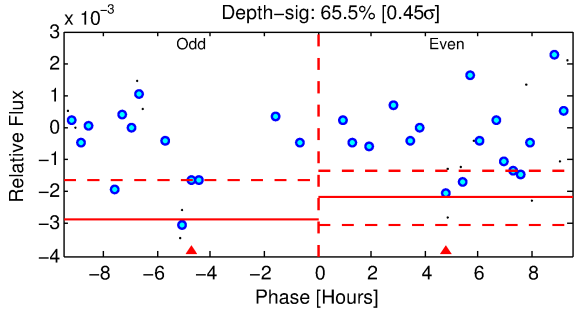


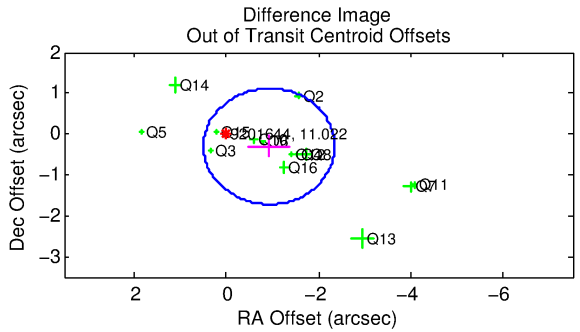












DV Fit Results:

Period = 55.71052 [0.00086] d
Epoch = 165.8305 [0.0125] BKJD
Rp/R* = 0.0446 [0.1735]
a/R* = 257.46 [5666.91]
b = 0.42 [43.56]

Seff = 46.31 [20.85]
Teq = 665 [75] K
Rp = 7.43 [29.03] Re
a = 0.3275 [0.0944] AU

Ag = 2484.54 [19371.79] [0.13σ]
Teffp = 7261 [14138] K [0.47σ]

DV Diagnostic Results:

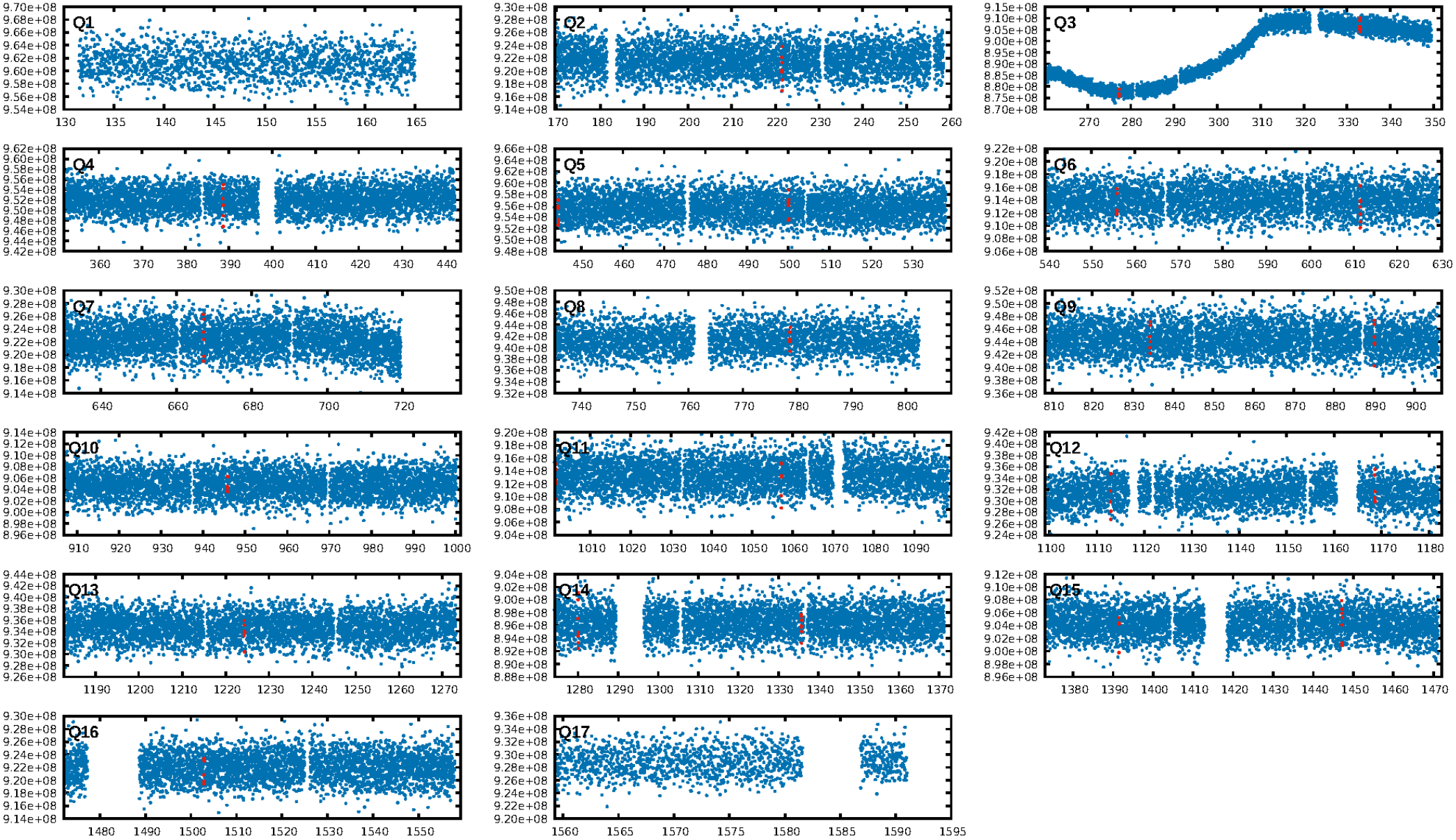
ShortPeriod−sig: 100.0% [274.22σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 6.4%
ModelChiSquareGof−sig: 61.2%
Bootstrap−pfa: 6.49e−12
RollingBand−fgt: 1.00 [5/5]
GhostDiagnostic−chr: 144.3

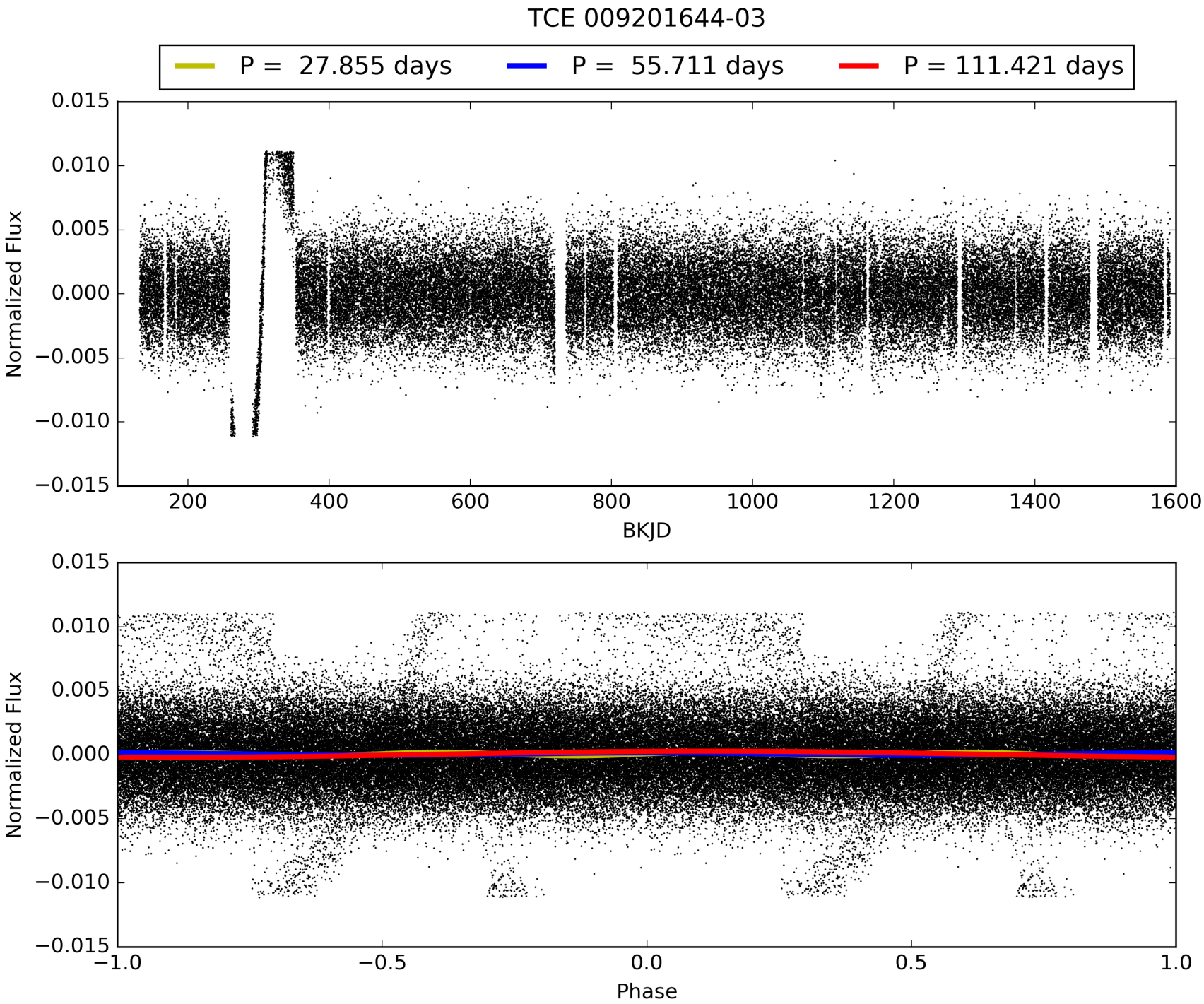
Centroid−sig: 5.6%
Centroid−so: 0.085 arcsec [1.36σ]
OotOffset−rm: 0.978 arcsec [2.07σ]
KicOffset−rm: 1.063 arcsec [2.00σ]
OotOffset−st: 4/4/4/2 [14]
KicOffset−st: 4/4/4/2 [14]
DiffImageQuality−fgm: 0.57 [8/14]
DiffImageOverlap−fno: 0.07 [1/15]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 23:05:16 Z

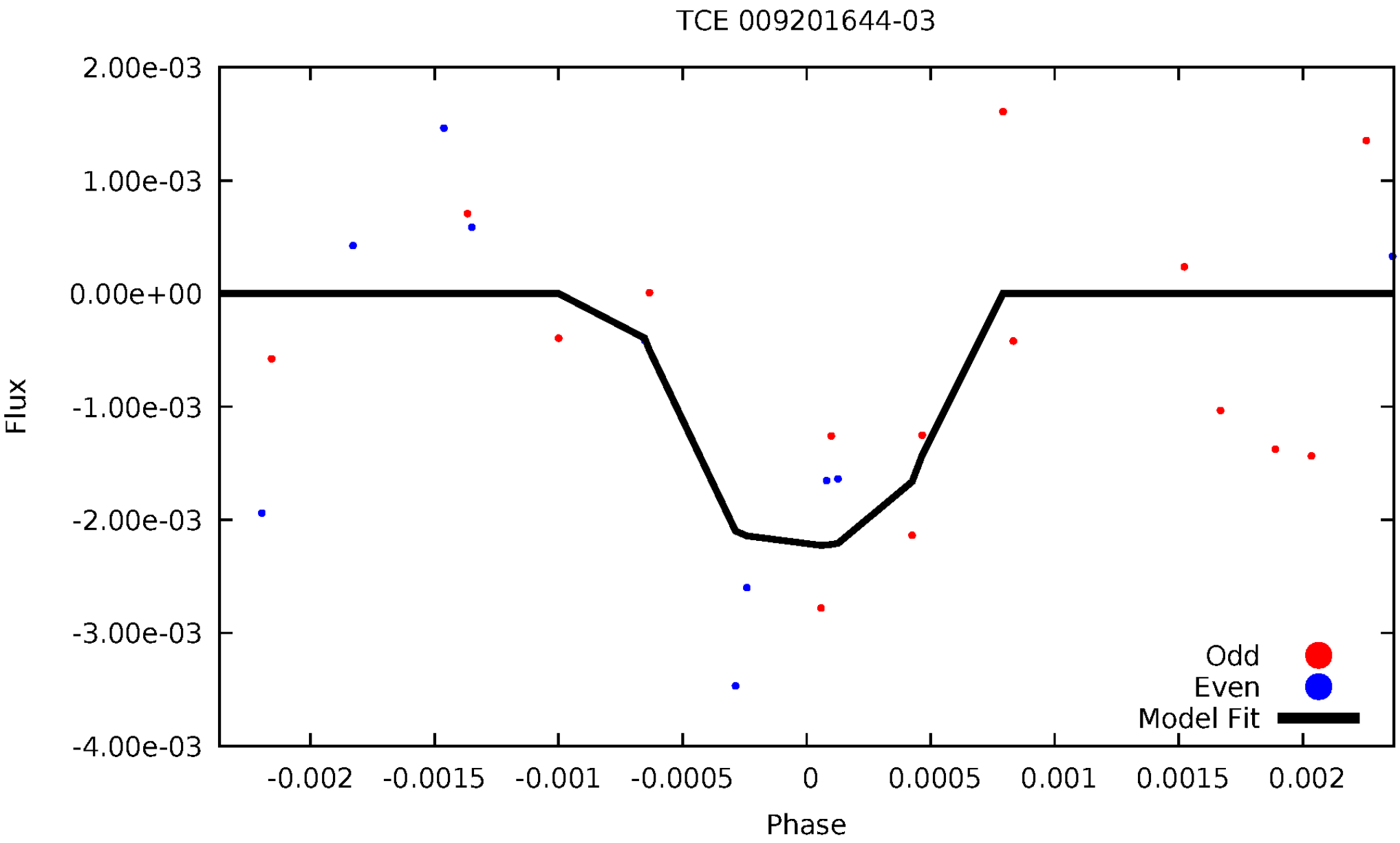
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009201644-03, PDC Light Curves




TCE 009201644-03
P = 27.855 days
P = 55.711 days
P = 111.421 days
Normalized Flux
BKJD
Normalized Flux
Phase

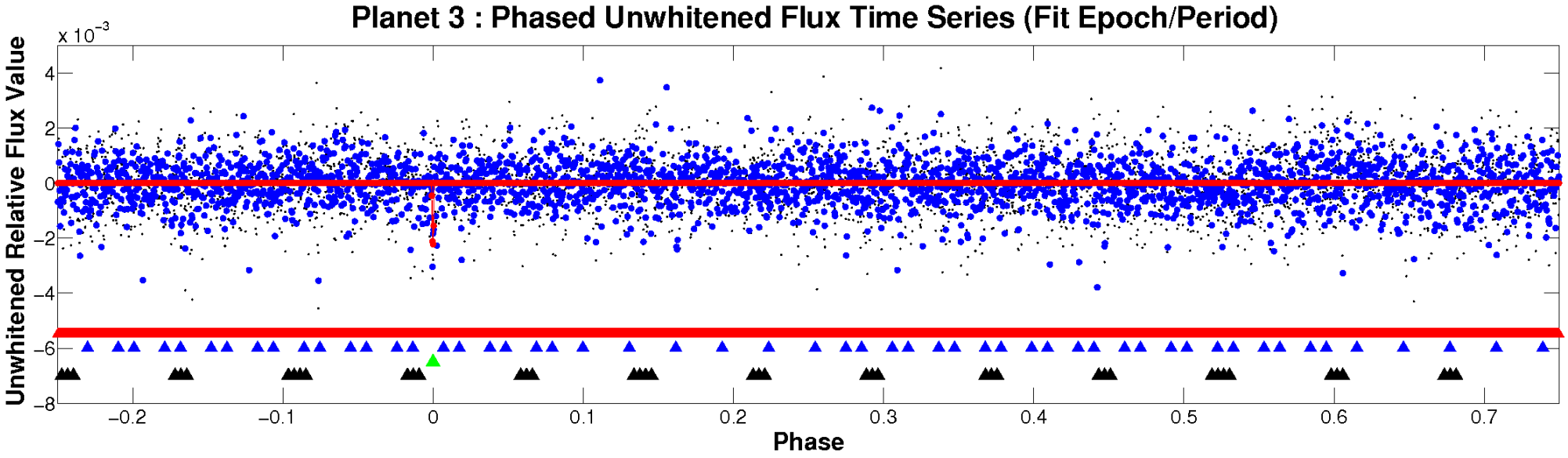
DV Odd/Even

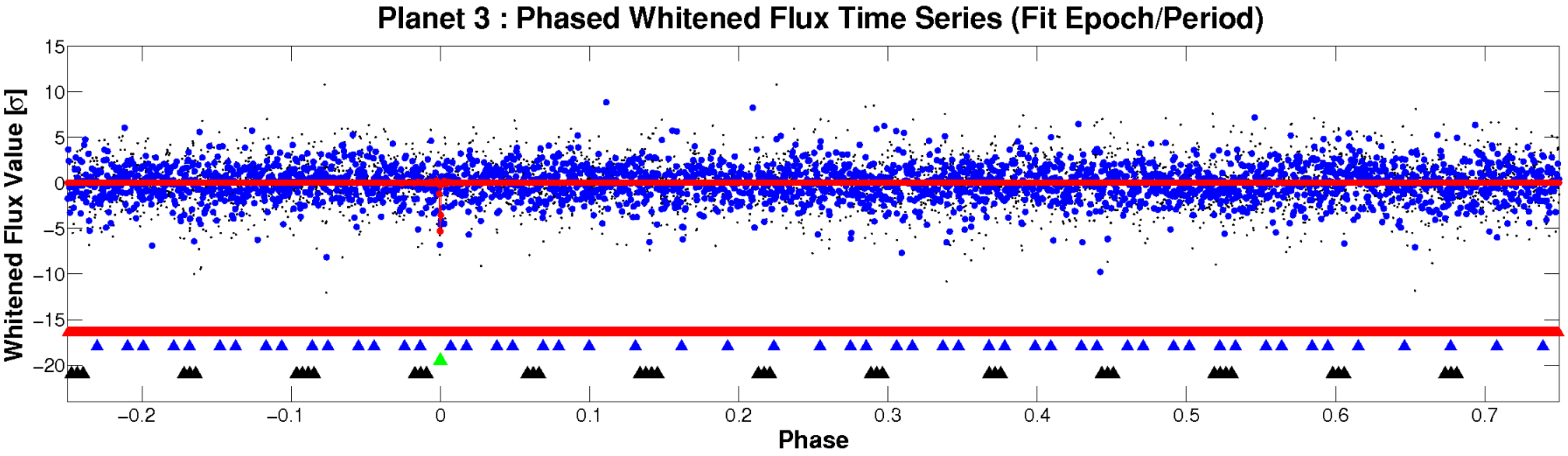

TCE 009201644-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
-0.002
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
0.002
Phase
Odd
Even
Model Fit

ALT Odd/Even

This plot does not exist for this TCE.

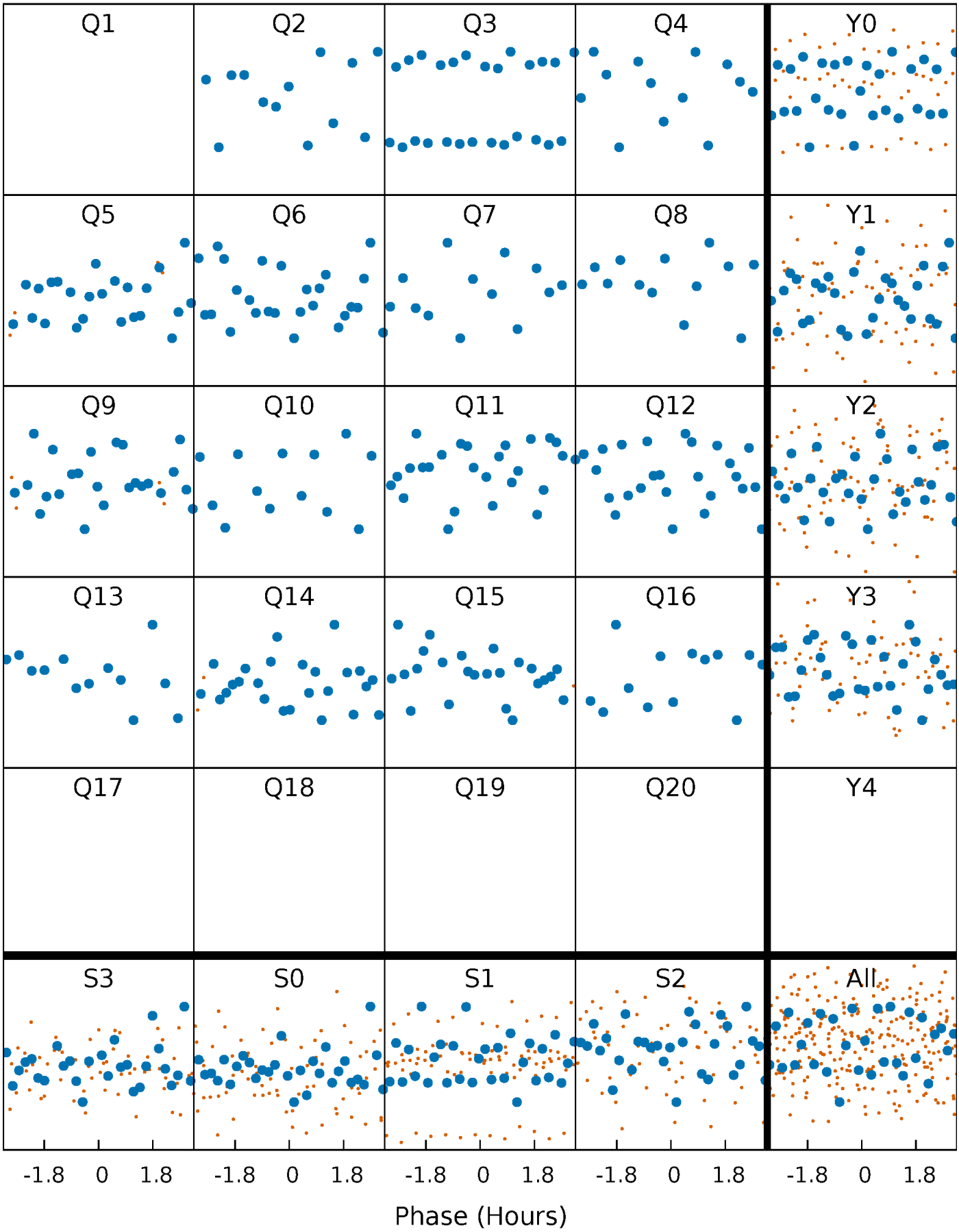
Non-Whitened Vs. Whitened Light Curve





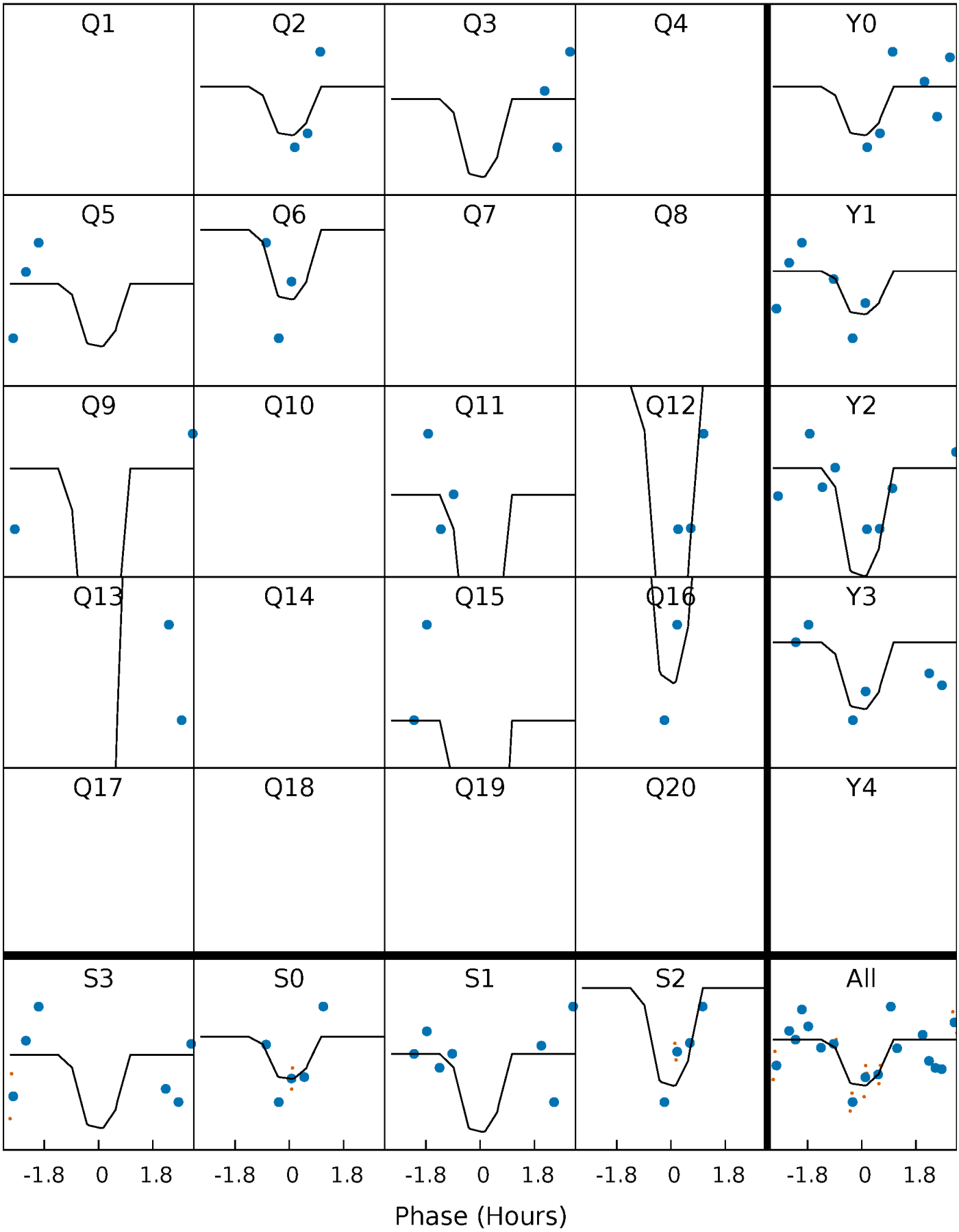
PDC Quarter-Phased Transit Curves

TCE 009201644-03 P= 55.710522 Days T_0=165.830538 (BKJD)



DV Quarter-Phased Transit Curves

TCE 009201644-03 P= 55.710522 Days T_0=165.830538 (BKJD)

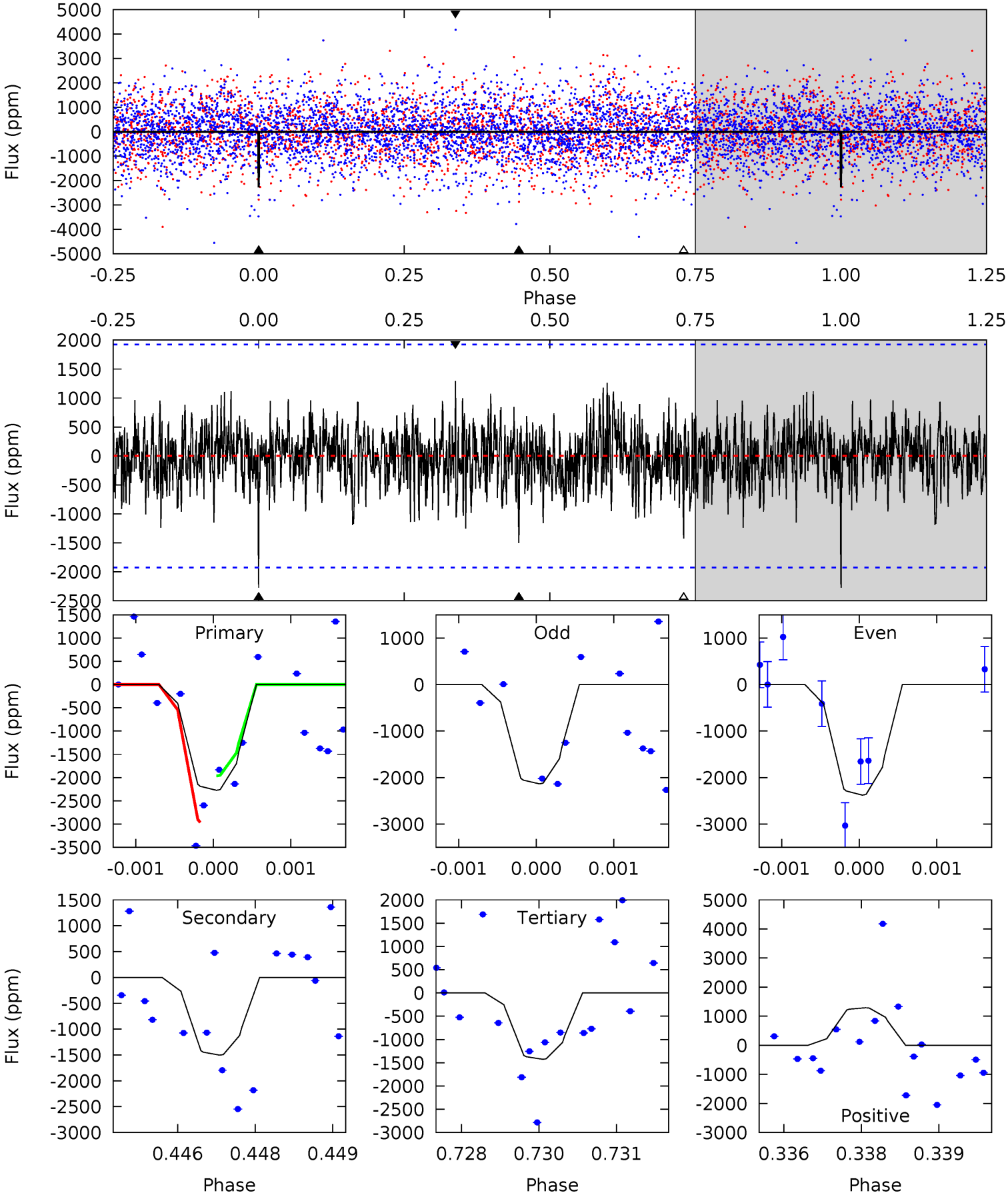


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

009201644-03, P = 55.710522 Days, E = 110.120016 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.36	4.21	3.99	3.61	5.39	3.19	1.13	2.37	2.75	0.22	0.60	0.34	0.95	0.36	1.20



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 009201644

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6983^{+192}_{-329}	$4.249^{+0.073}_{-0.218}$	$0.210^{+0.150}_{-0.350}$	$1.527^{+0.538}_{-0.231}$	$1.508^{+0.216}_{-0.216}$	$0.597^{+0.236}_{-0.320}$
	+3%/-5%	+2%/-5%	+71%/-167%	+35%/-15%	+14%/-14%	+40%/-54%
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 009201644-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1503±357	$23.99^{+25.39}_{-16.95}$	947^{+76}_{-59}	3988^{+2858}_{-838}	159^{+1654}_{-125}
Alt.	N/A	N/A	N/A	N/A	N/A

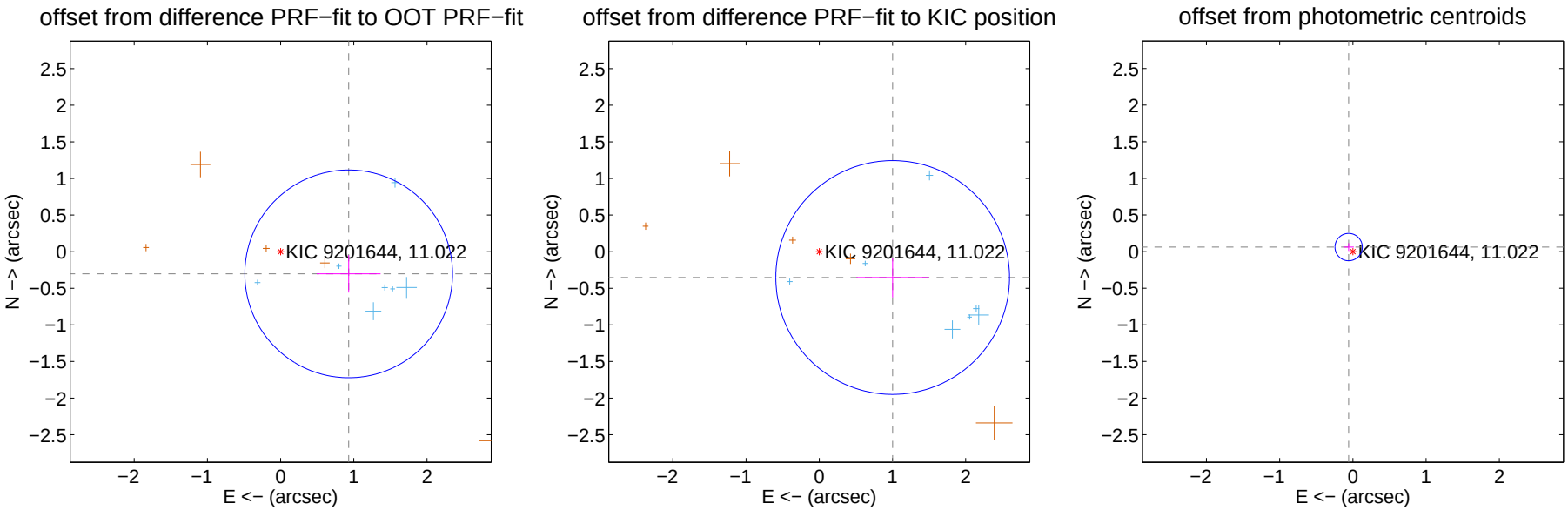
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

DV Centroid Data

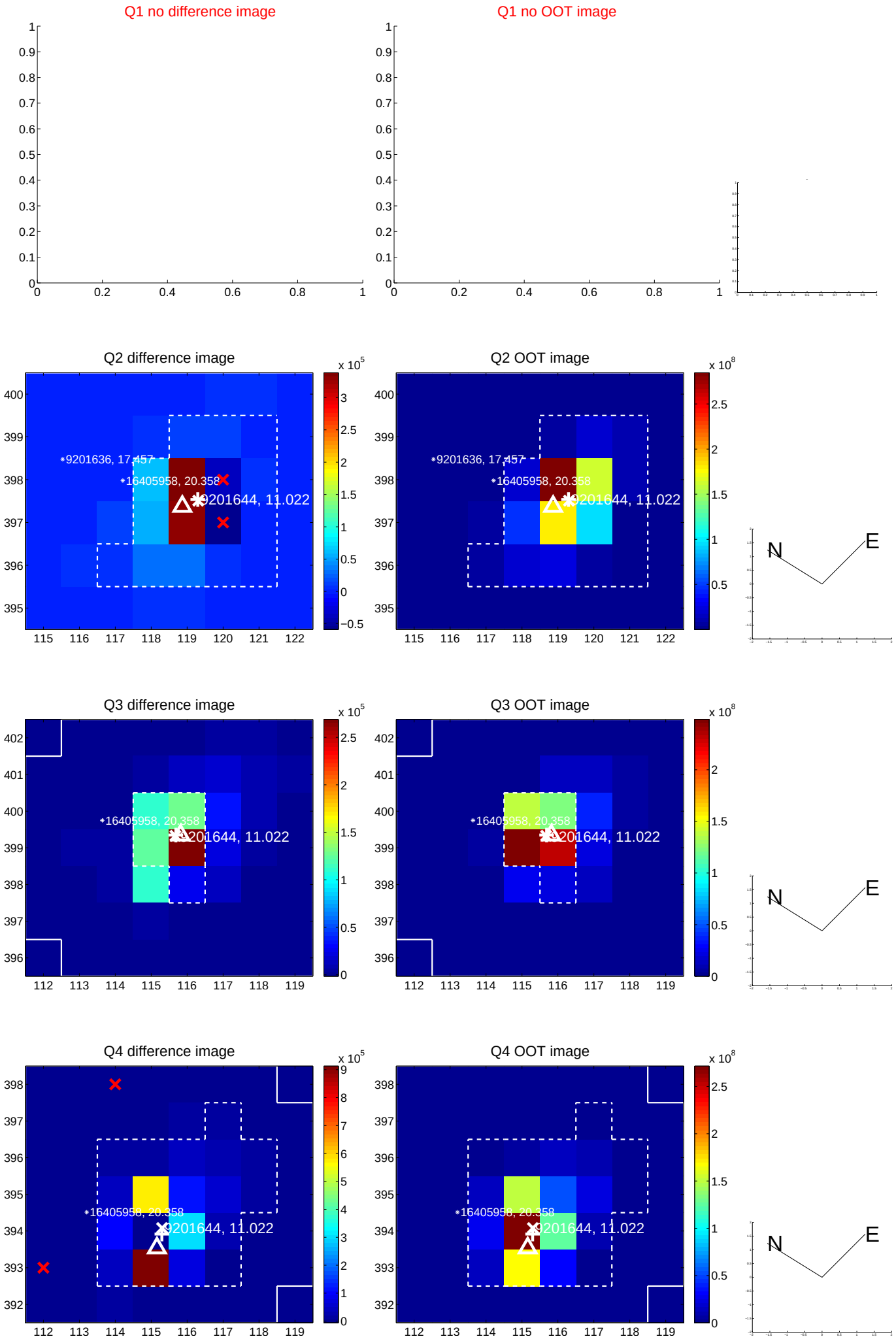
Supplemental centroid analysis for 009201644-03. Kepler magnitude: 11.02. Transit SNR 13.78
There are 8 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.978 ± 0.473	2.07	-0.930 ± 0.437	-0.303 ± 0.256
PRF-fit source offset from KIC position	1.063 ± 0.532	2.00	-1.003 ± 0.495	-0.353 ± 0.271
photometric centroid source offset	0.08 ± 0.06	1.36	0.06 ± 0.07	0.06 ± 0.05

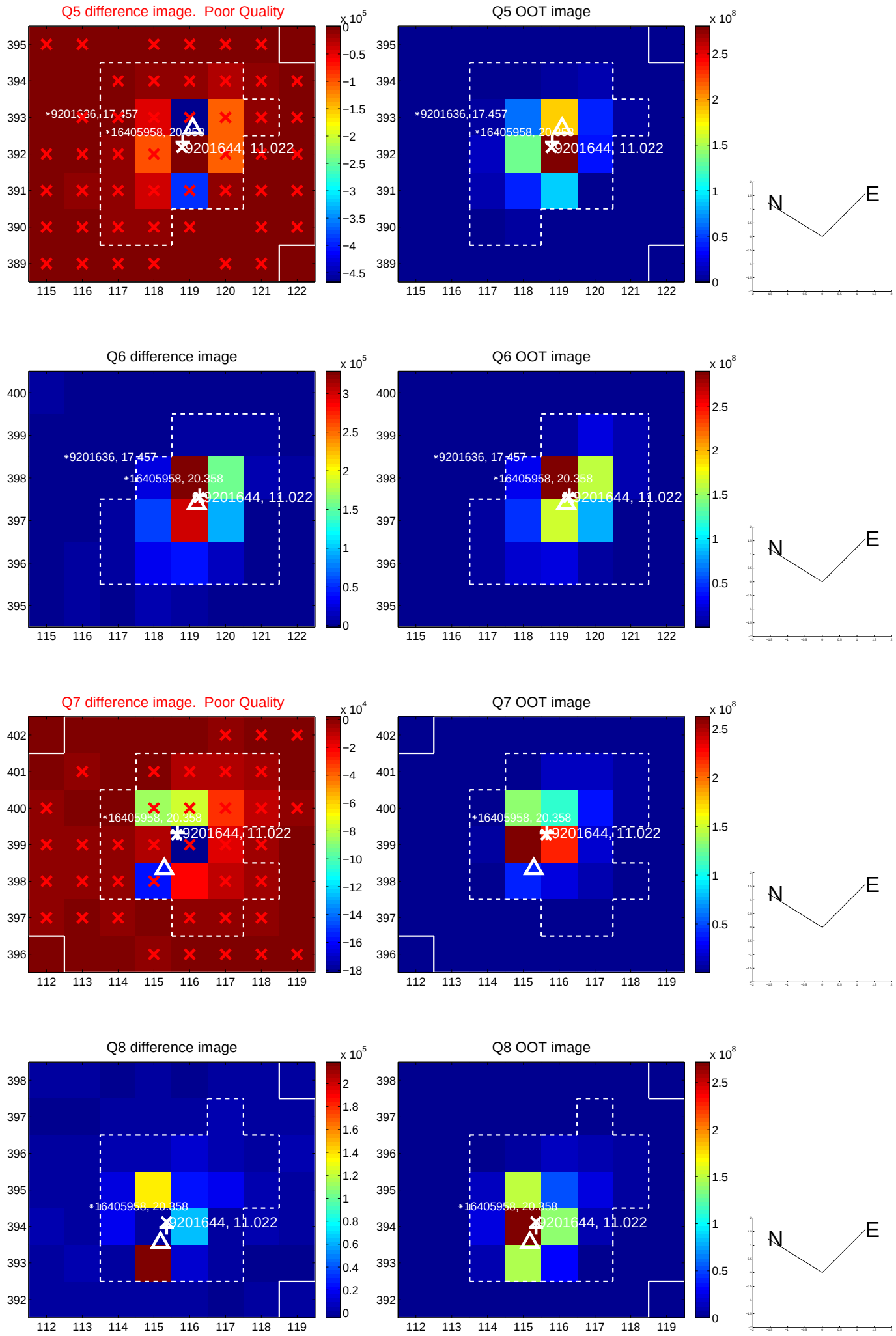


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

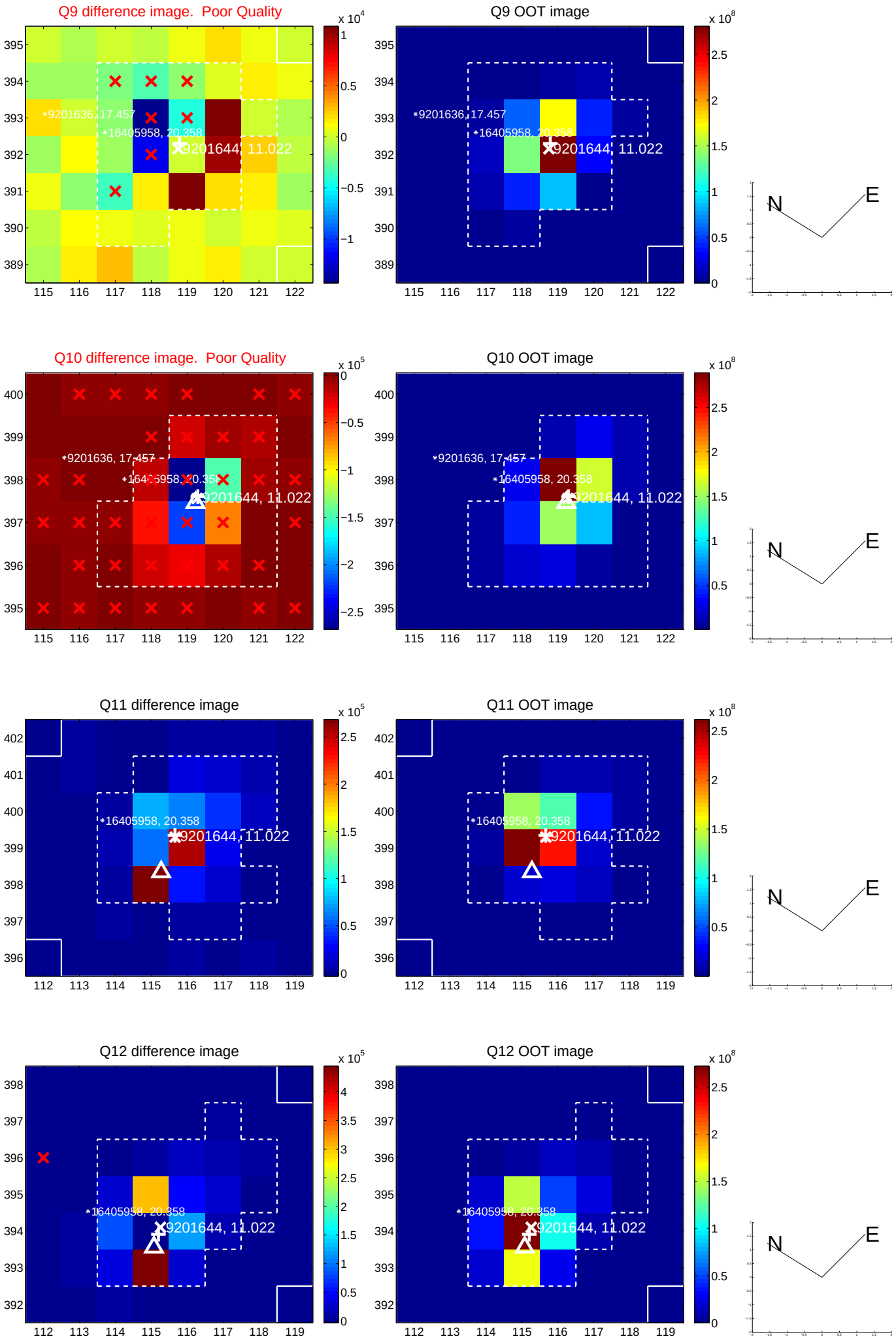
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



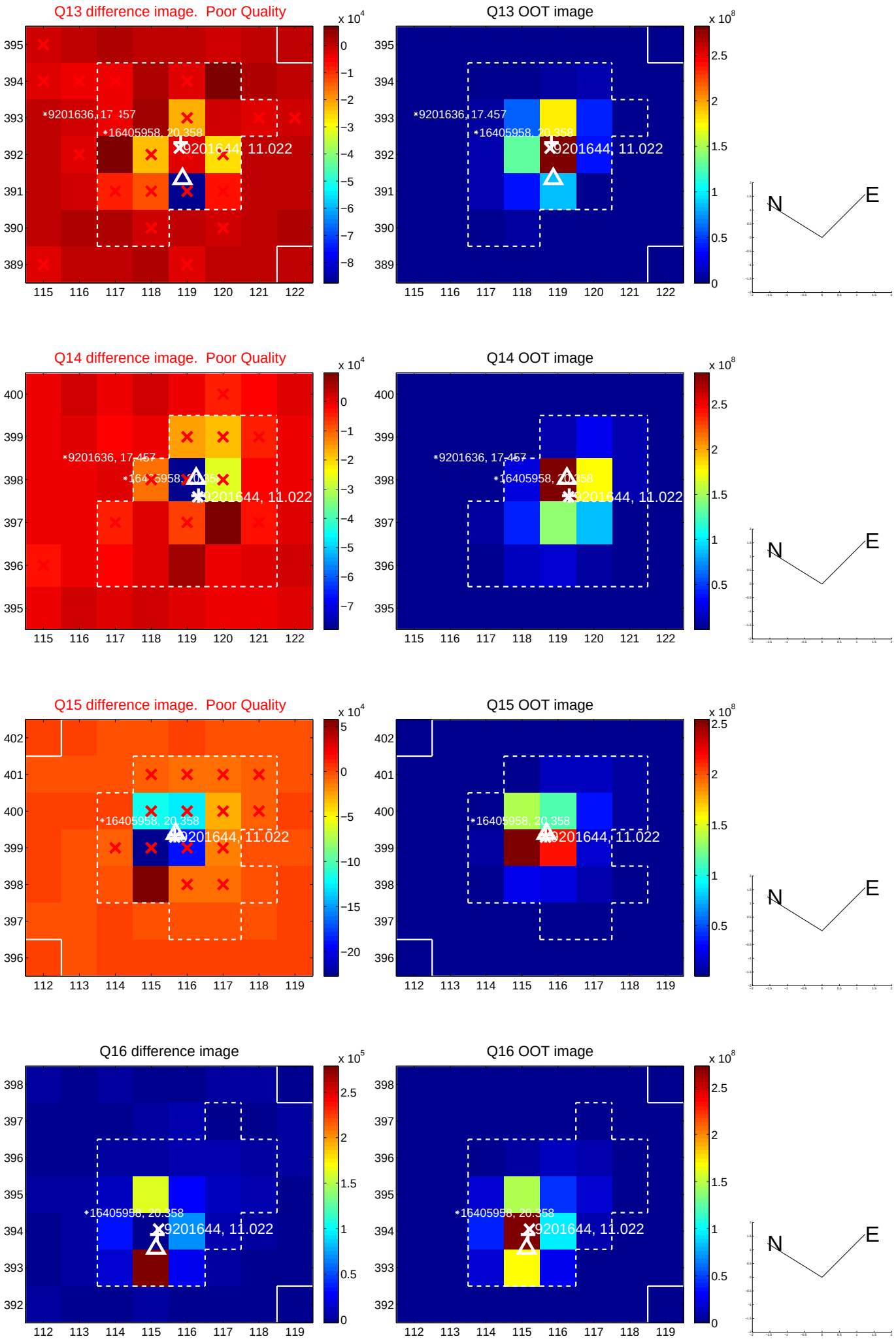
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



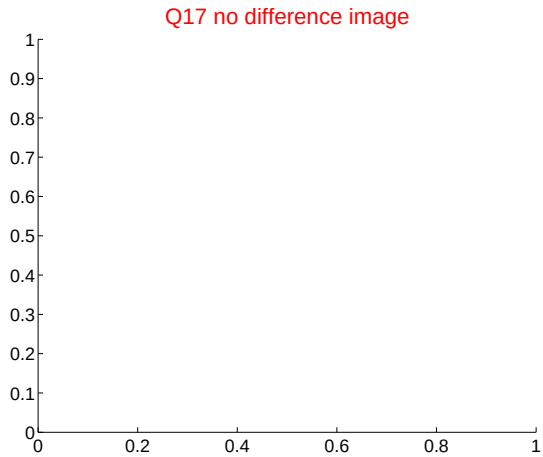
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

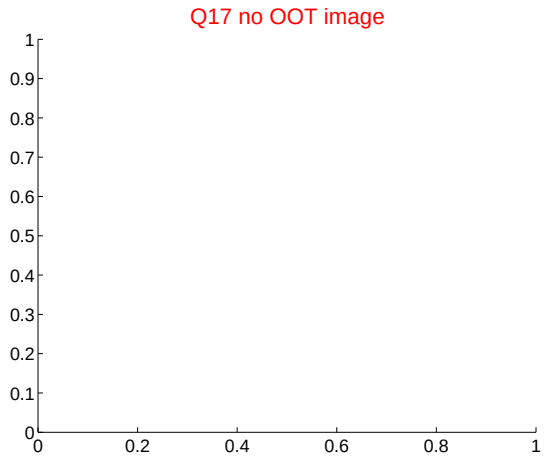


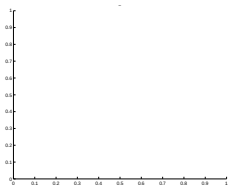
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

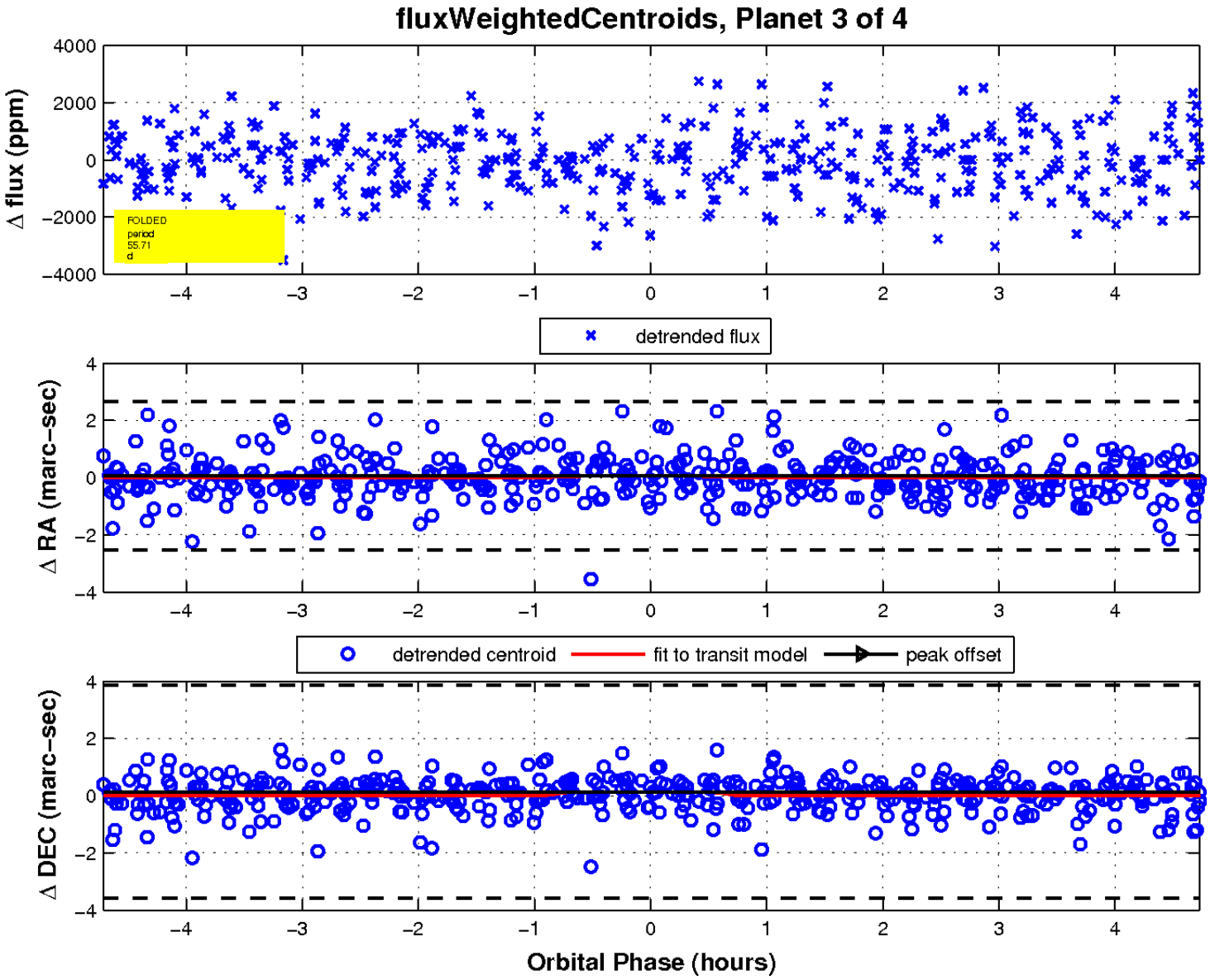


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

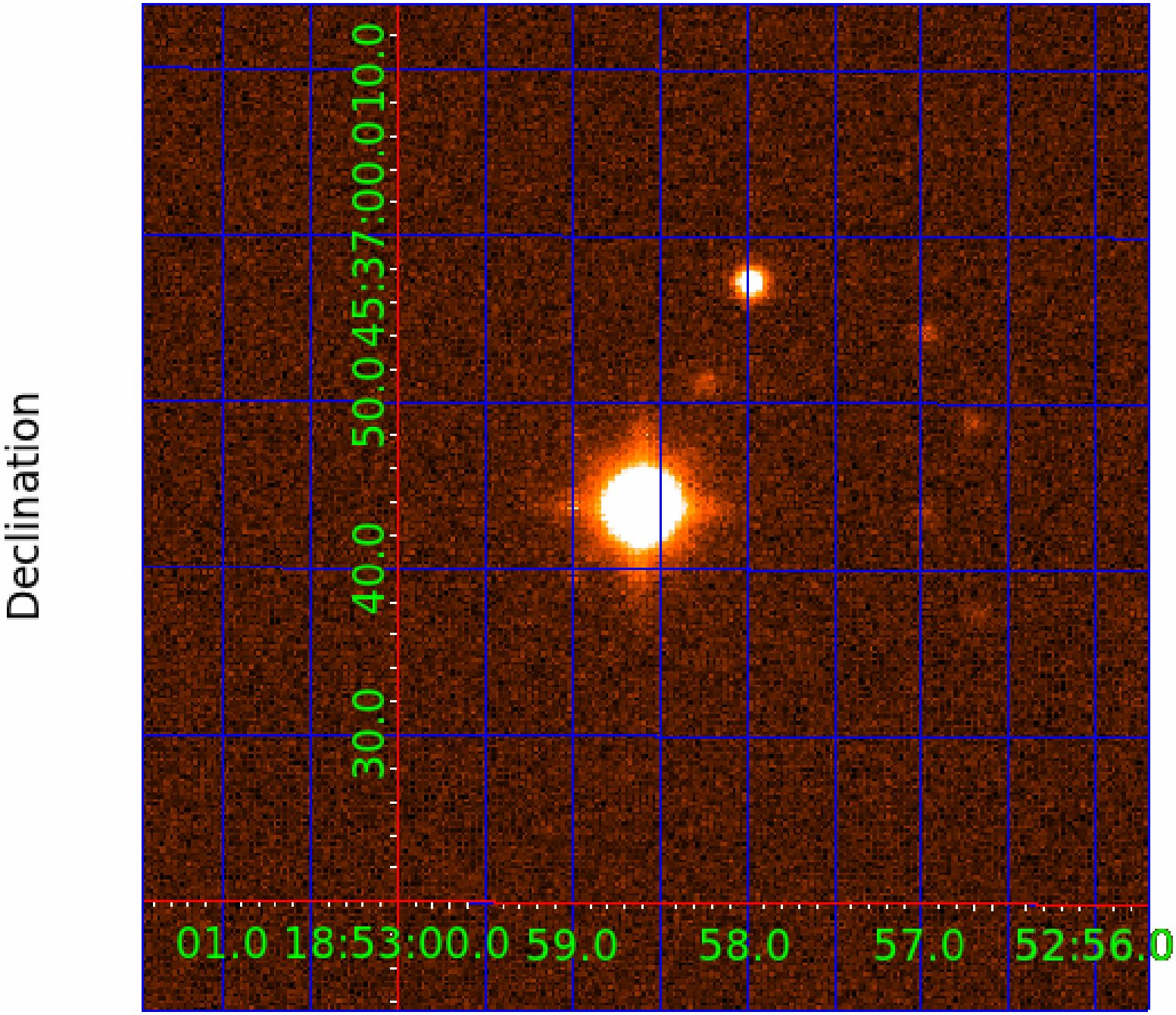








UKIRT Image


Declination
10.0
37:00.0
45:
50.0
40.0
30.0
01.0
18:53:00.0
59.0
58.0
57.0
52:56.0

KIC 009201644

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 ($S_\oplus$)
009201644-01	OBS	No	0.659793	132.157940	98.9	4.702	12.4	11.4	1.53	6983	1.55	17155.82
009201644-02	OBS	No	26.993389	143.259120	2767.8	1.011	17.7	15.2	1.53	6983	8.37	121.70
009201644-03	OBS	No	55.710522	165.830538	2230.5	1.582	12.6	13.8	1.53	6983	7.43	46.31
009201644-04	OBS	No	34.266793	161.111481	2758.3	1.009	14.1	14.5	1.53	6983	8.51	88.54

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009201644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009201644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009201644-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

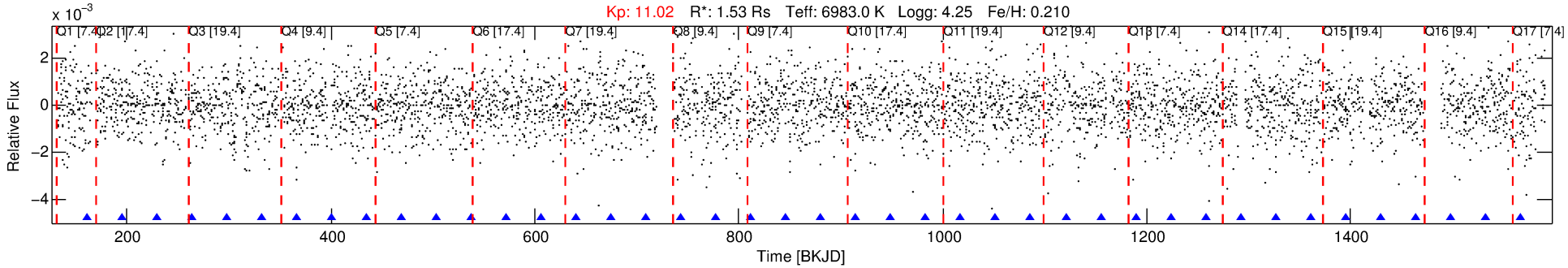
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

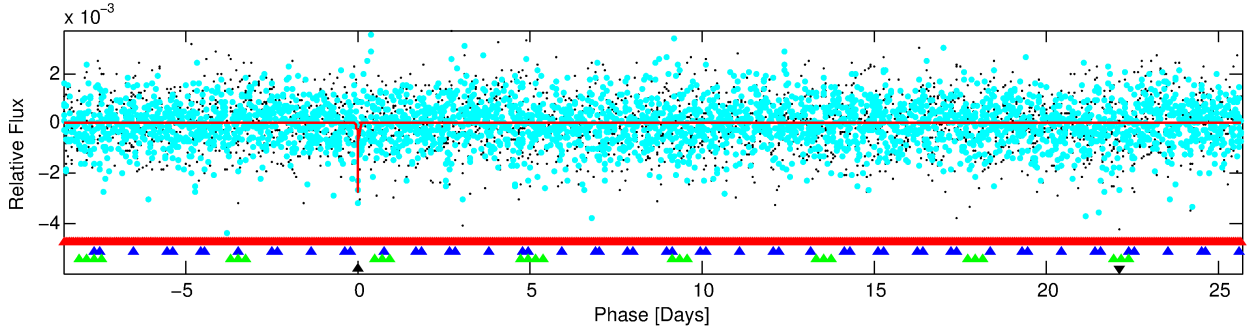
Ephemeris Match Information For 009201644-04

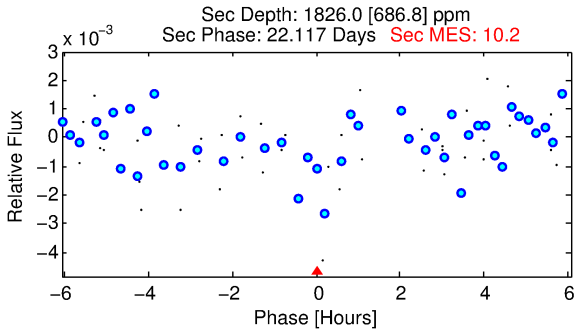
No Significant Match Found

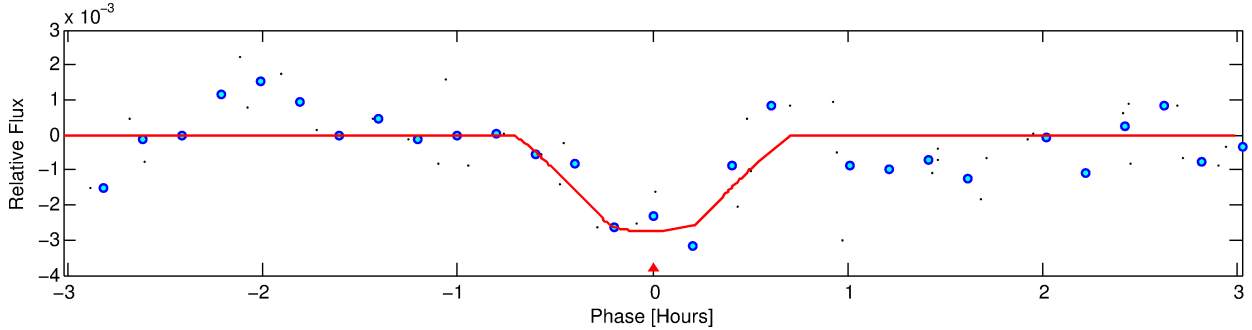
DV One-Page Summary

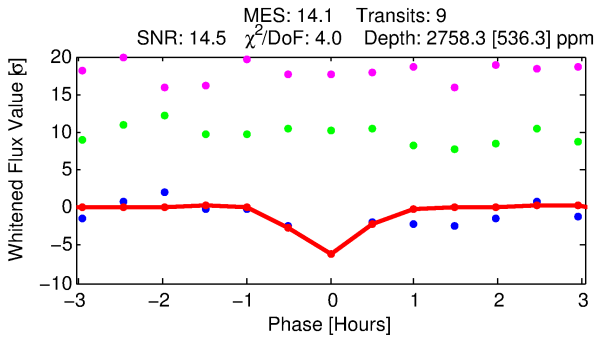
KIC: 9201644 Candidate: 4 of 4 Period: 34.267 d

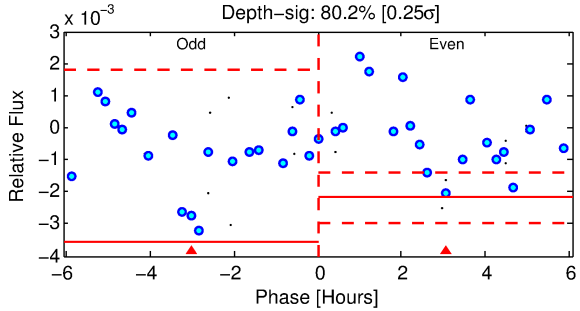


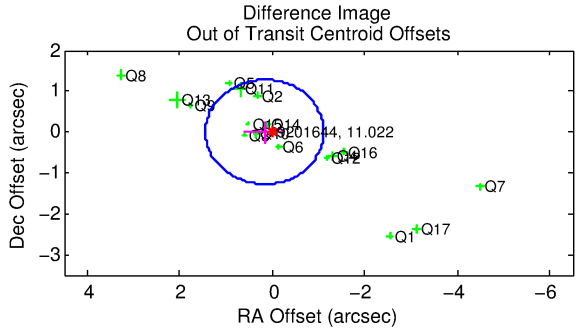












DV Fit Results:

Period = 34.26679 [0.00027] d
Epoch = 161.1115 [0.0081] BKJD
Rp/R* = 0.0511 [0.0889]
a/R* = 222.12 [2185.36]
b = 0.61 [10.23]

Seff = 88.54 [39.86]
Teq = 782 [88] K
Rp = 8.51 [15.12] Re
a = 0.2369 [0.0683] AU

Ag = 778.84 [2747.92] [0.28σ]
Teffp = 6389 [5605] K [1.00σ]

DV Diagnostic Results:

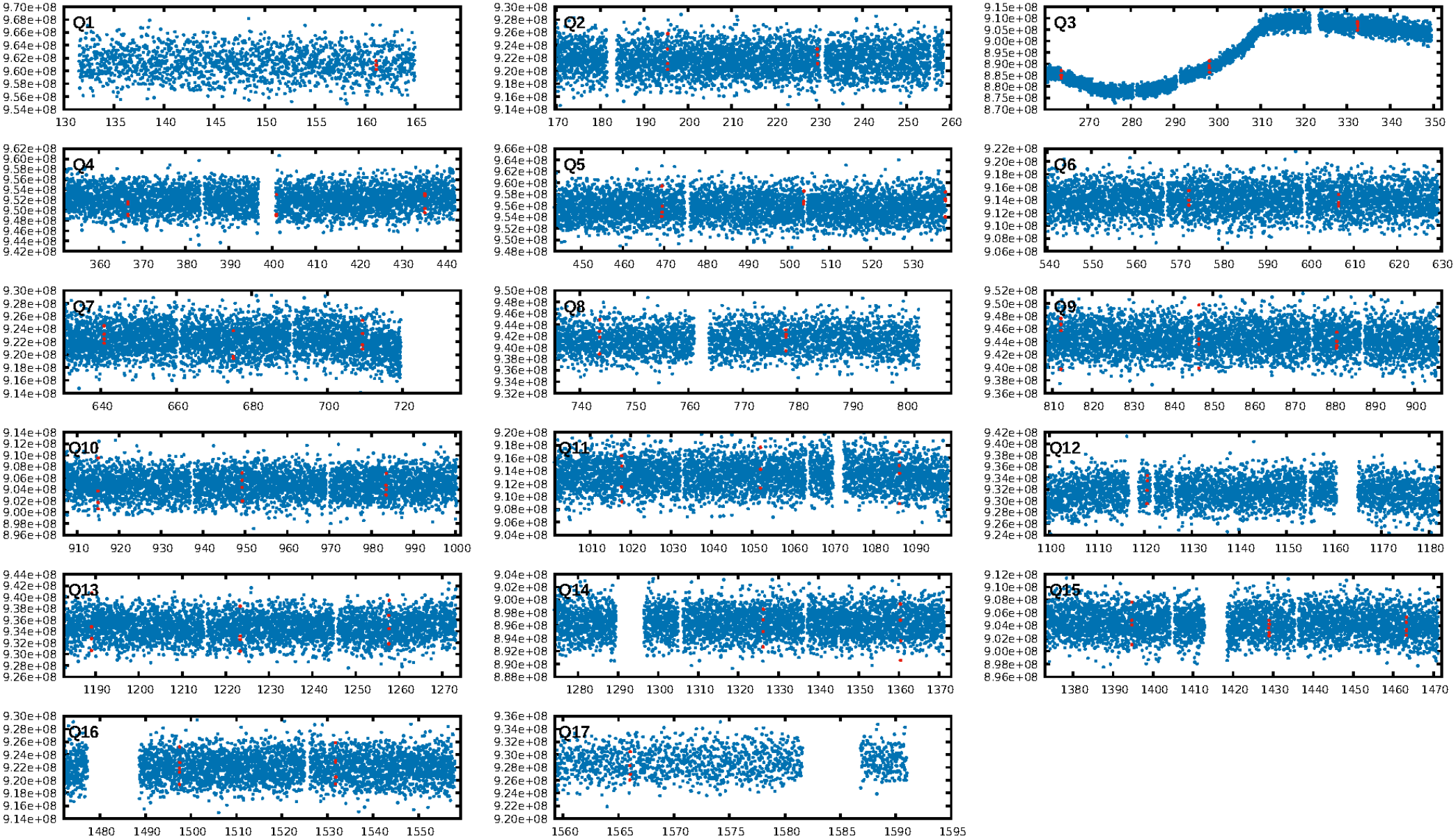
ShortPeriod−sig: 100.0% [122.18σ]
LongPeriod−sig: 100.0% [274.22σ]
ModelChiSquare2−sig: 0.3%
ModelChiSquareGof−sig: 41.4%
Bootstrap−pfa: 1.30e−10
RollingBand−fgt: 1.00 [9/9]
GhostDiagnostic−chr: 1.055

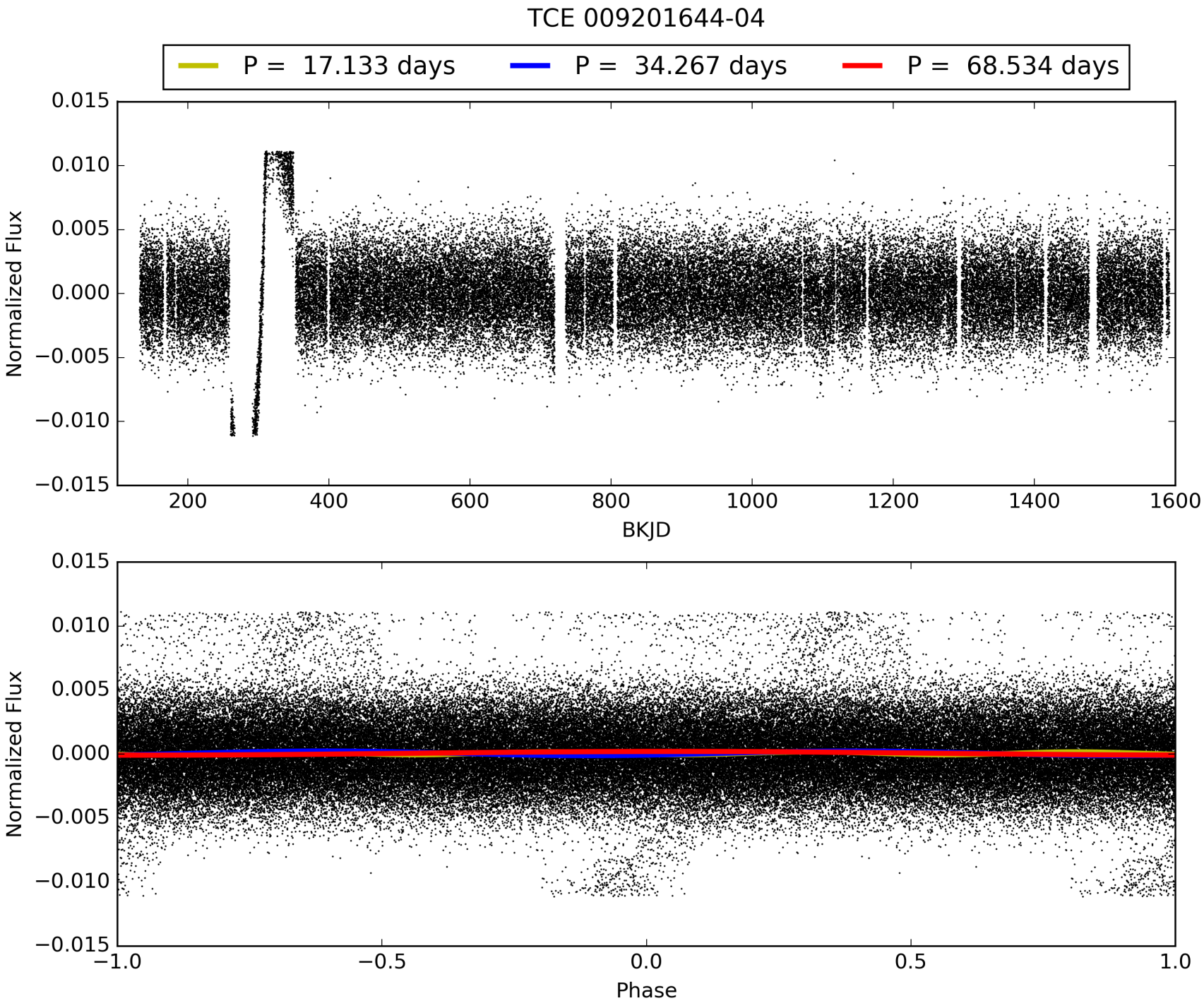
Centroid−sig: 65.8%
Centroid−so: 0.149 arcsec [3.17σ]
OotOffset−rm: 0.167 arcsec [0.39σ]
KicOffset−rm: 0.264 arcsec [0.49σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 0.53 [9/17]
DiffImageOverlap−fno: 0.06 [1/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 23:05:23 Z

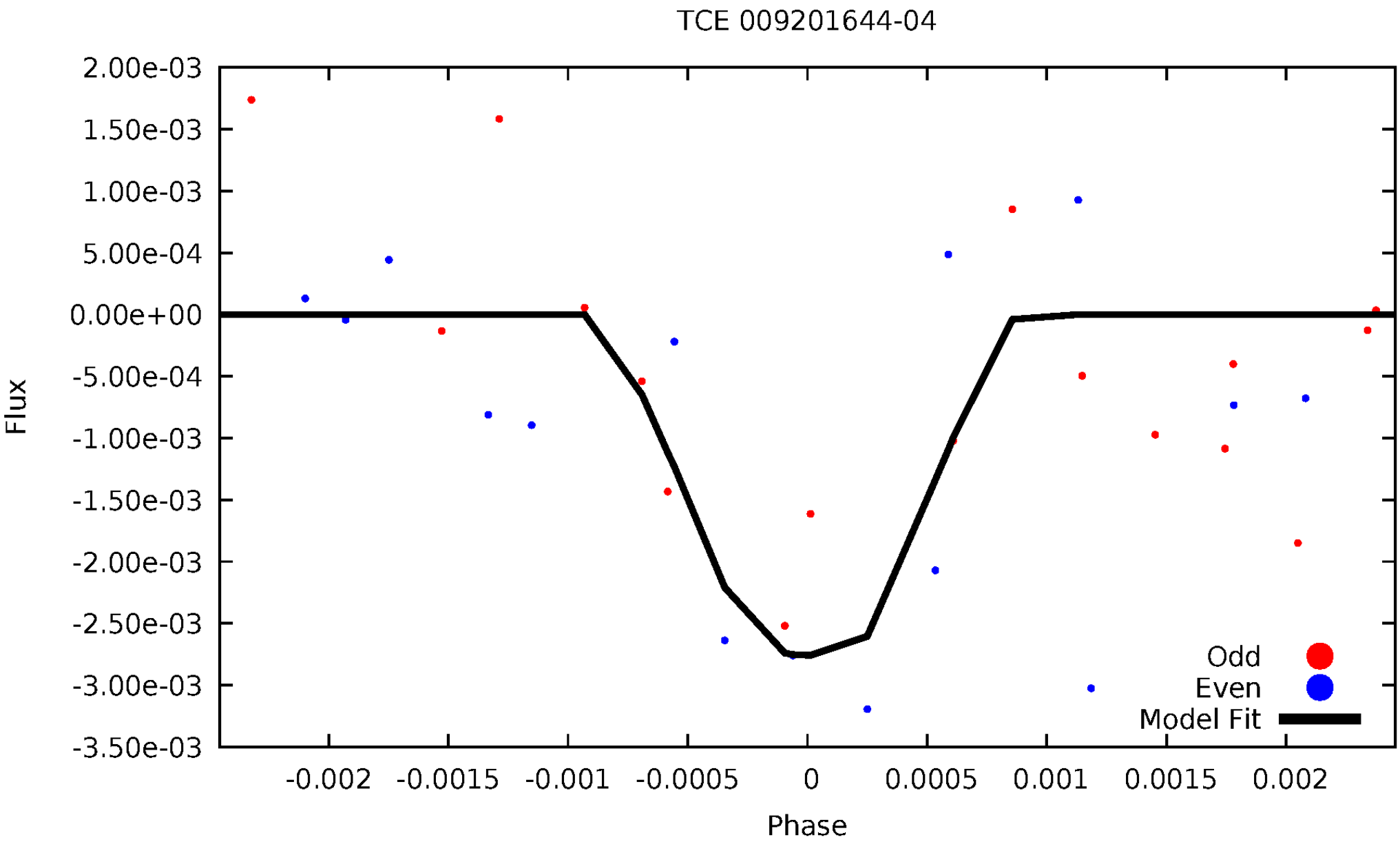
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009201644-04, PDC Light Curves

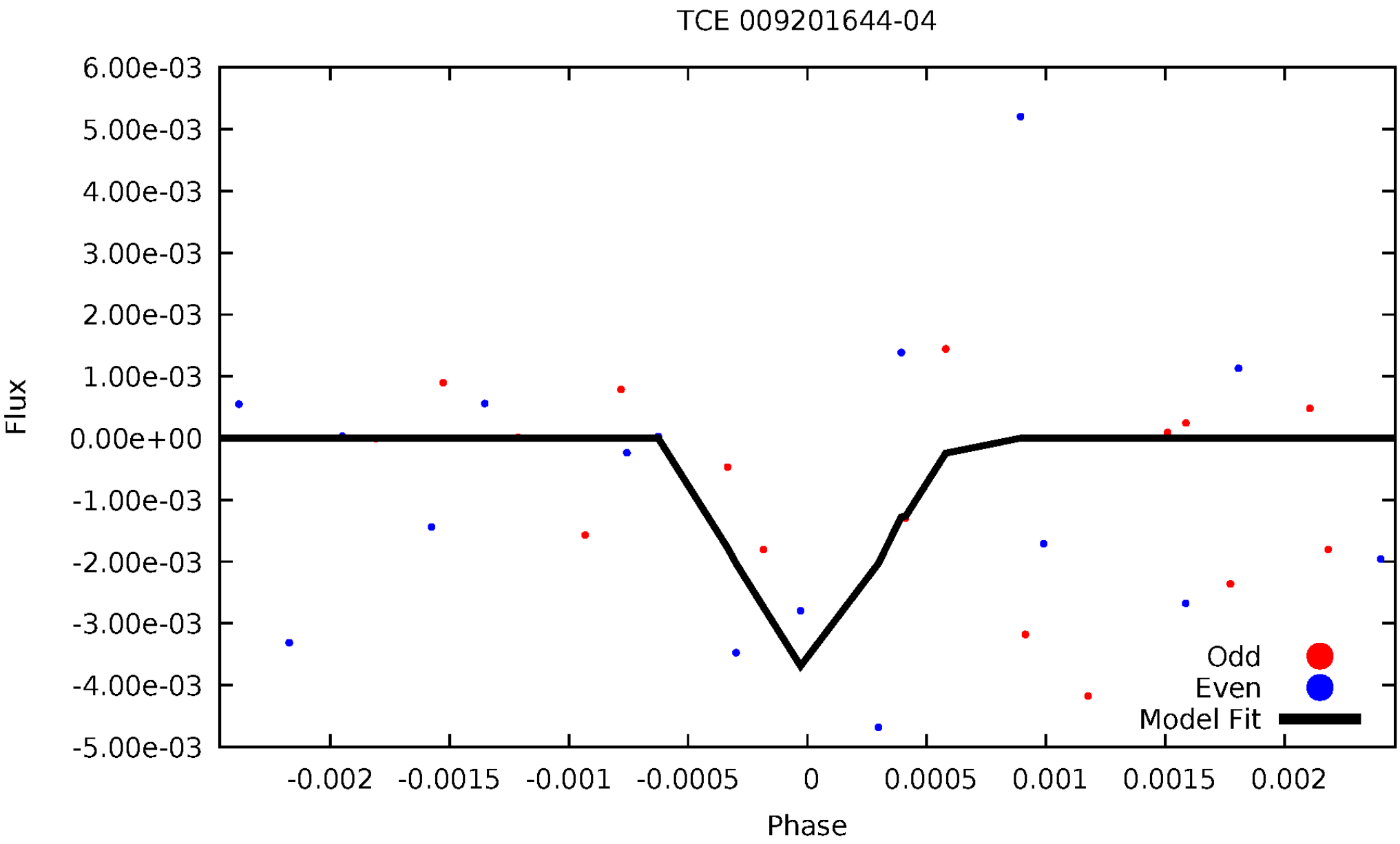



TCE 009201644-04
P = 17.133 days
P = 34.267 days
P = 68.534 days
Normalized Flux
BKJD
Normalized Flux
Phase

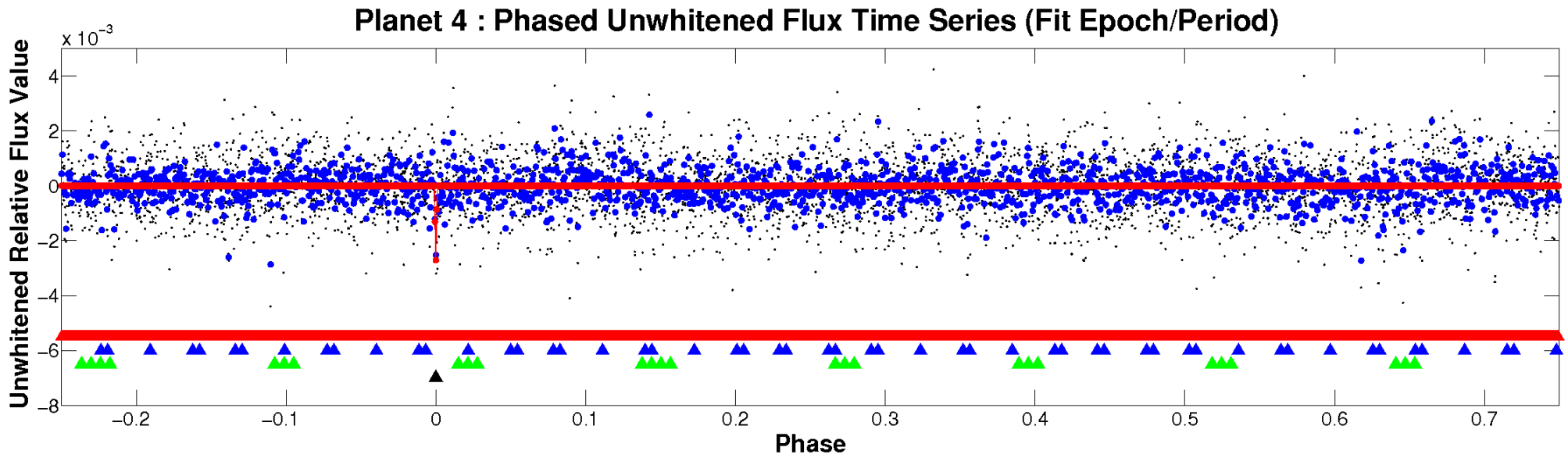
DV Odd/Even

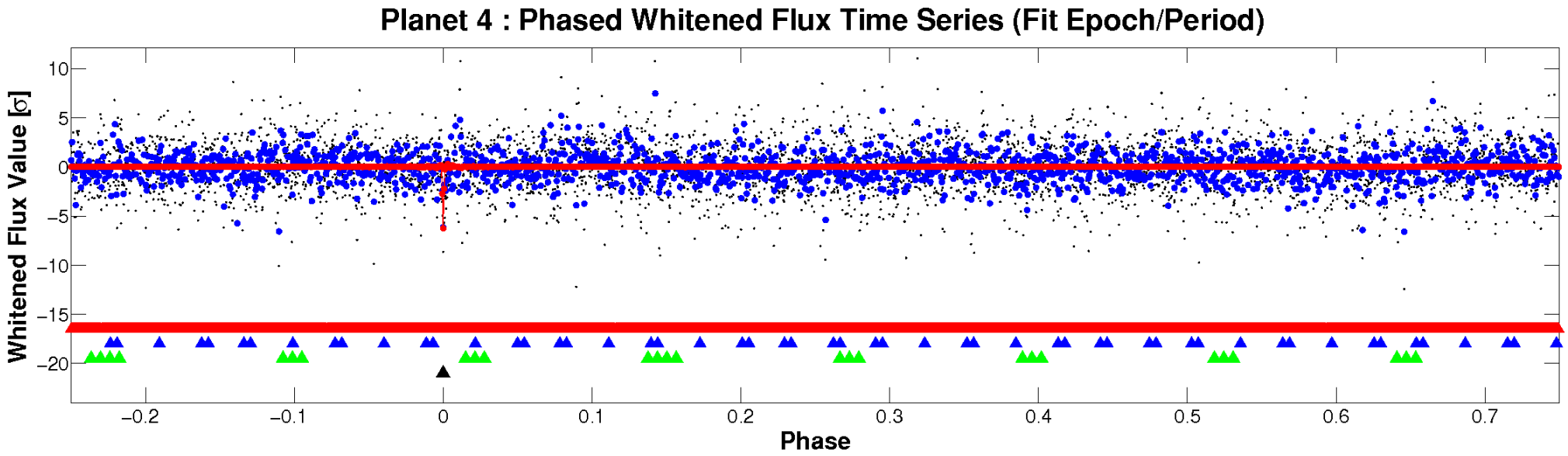

TCE 009201644-04
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
-3.50e-03
Flux
-0.002
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
0.002
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009201644-04
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
-5.00e-03
Flux
-0.002
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
0.002
Phase
Odd
Even
Model Fit

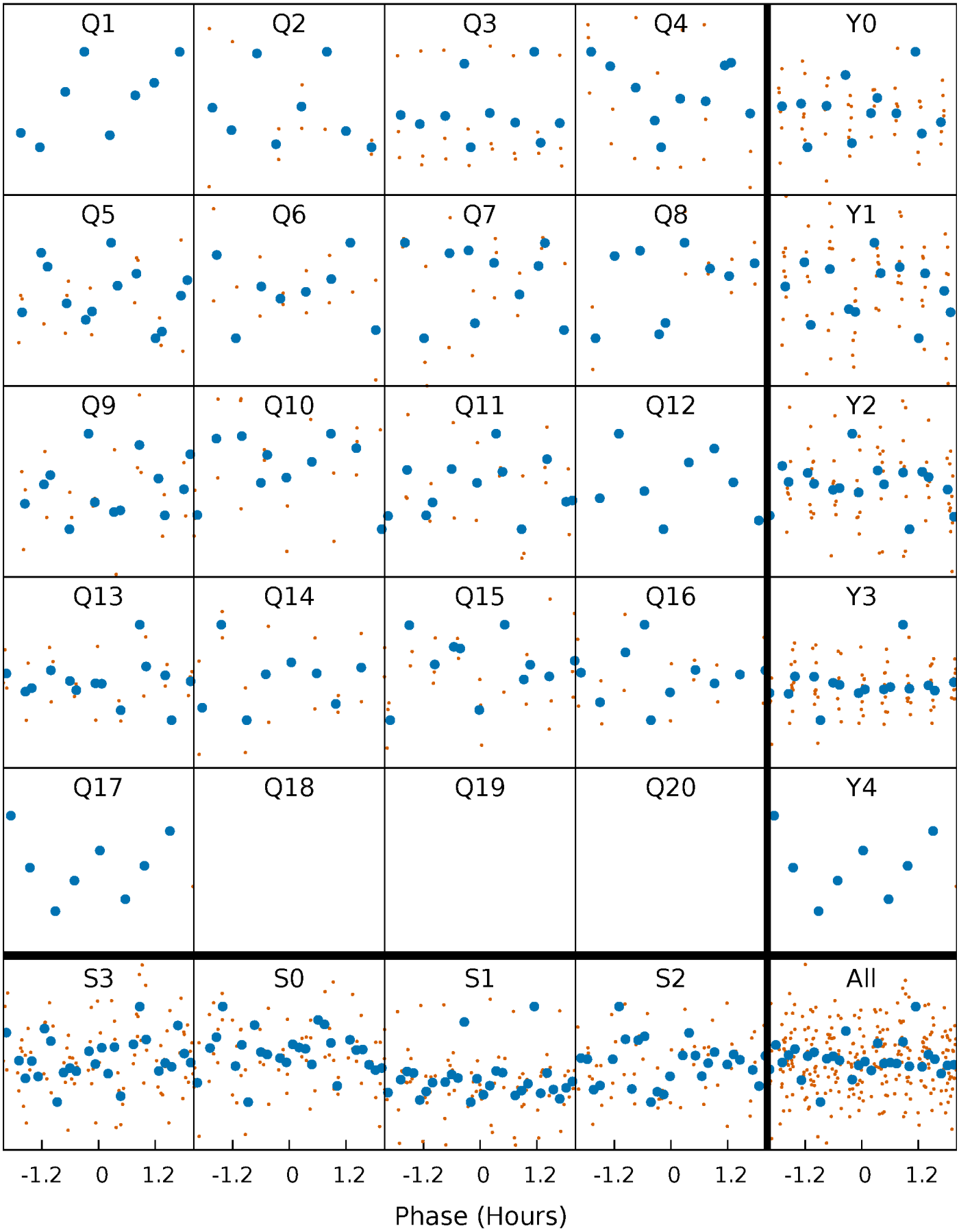
Non-Whitened Vs. Whitened Light Curve





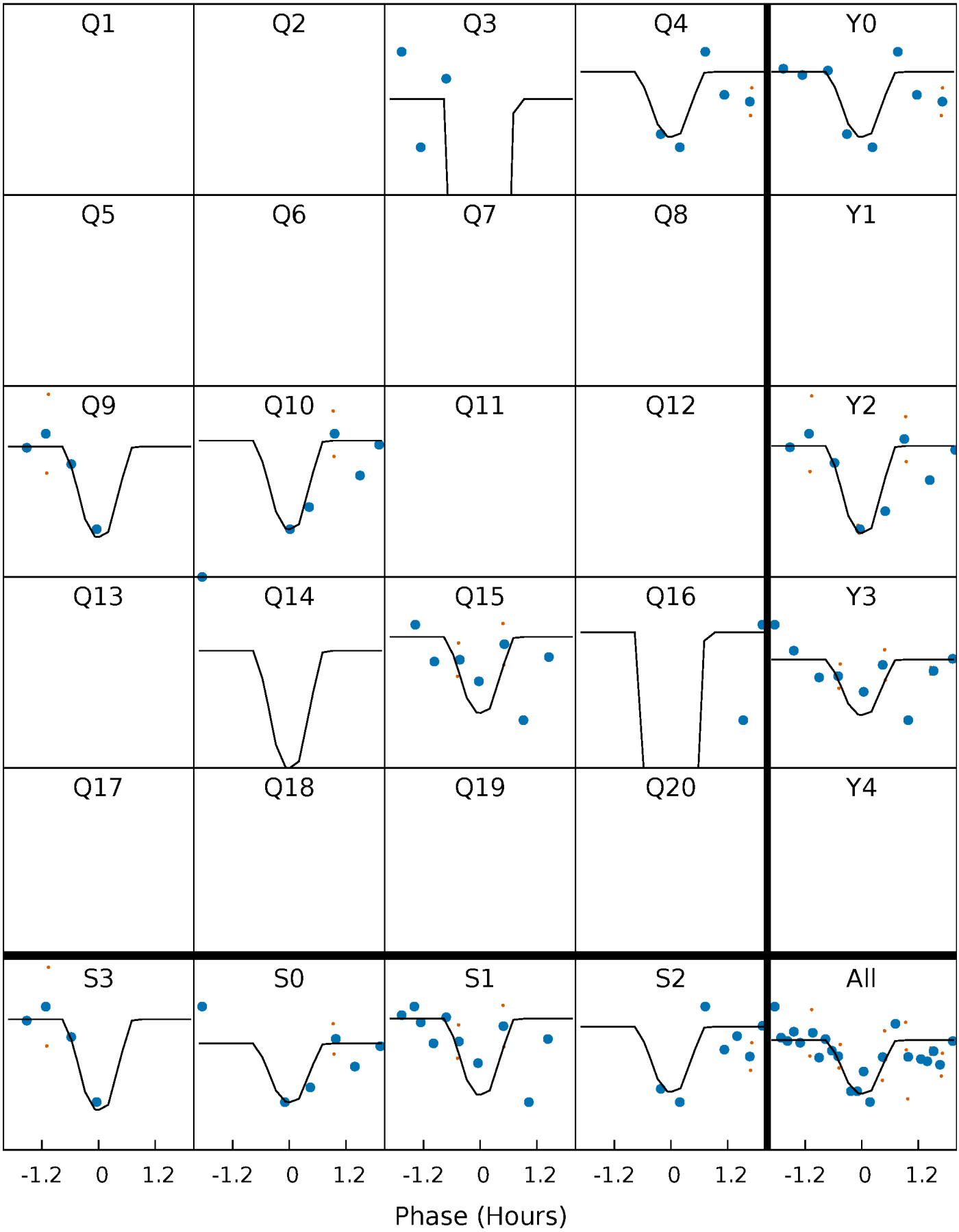
PDC Quarter-Phased Transit Curves

TCE 009201644-04 P= 34.266793 Days T_0=161.111481 (BKJD)



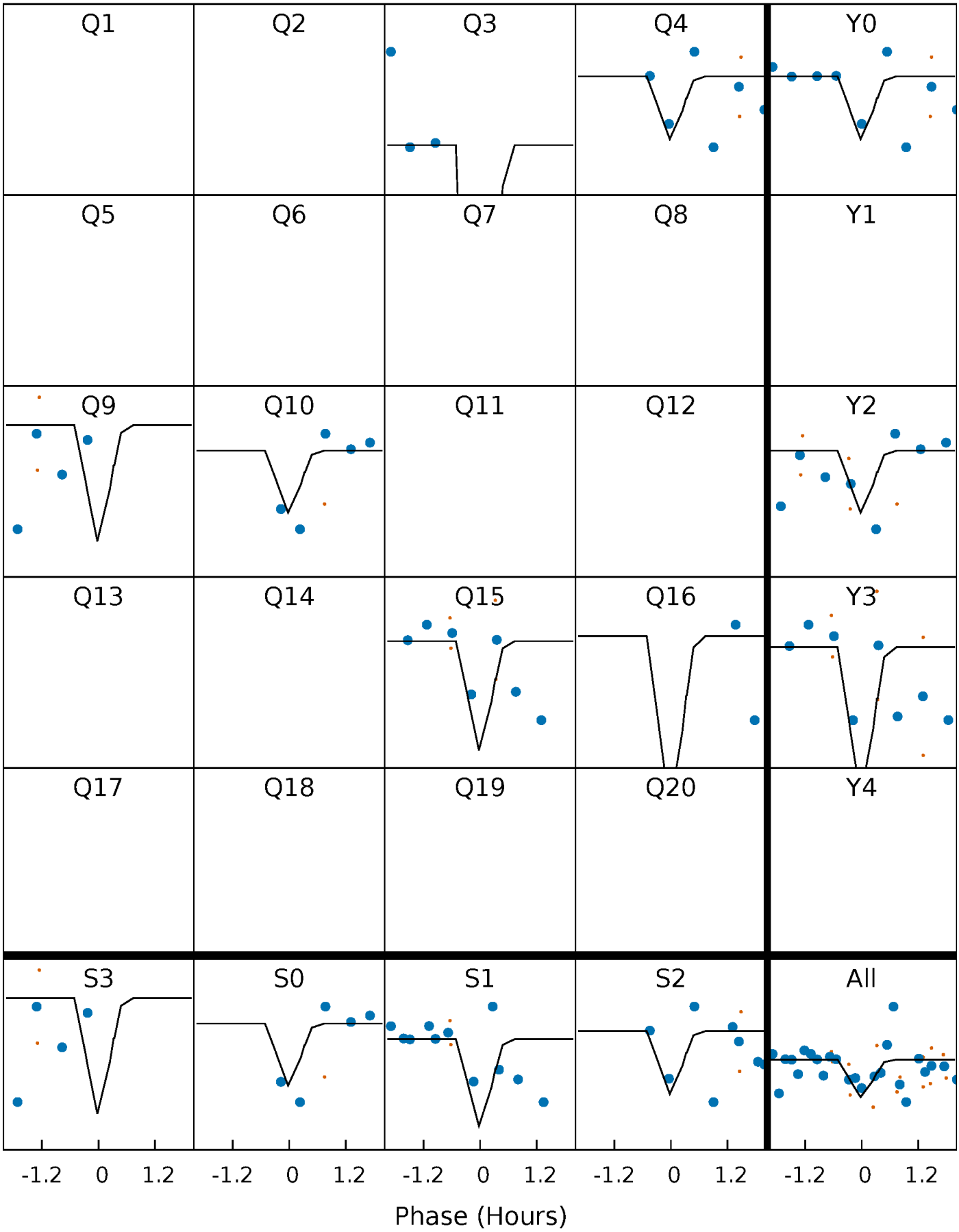
DV Quarter-Phased Transit Curves

TCE 009201644-04 P= 34.266793 Days T_0=161.111481 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

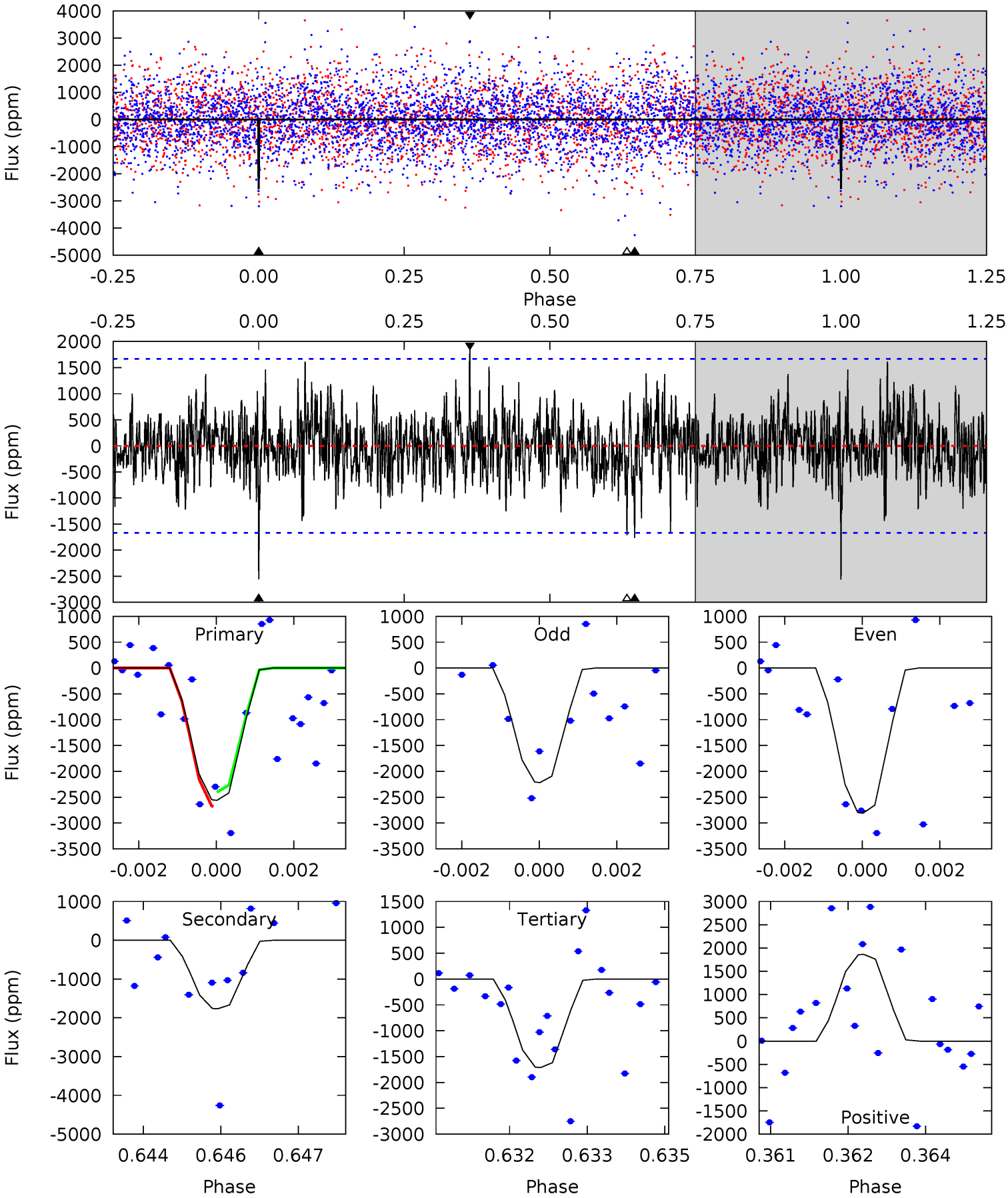
TCE 009201644-04 P= 34.266703 Days T_0=161.121599 (BKJD)



DV Model-Shift Uniqueness Test

009201644-04, P = 34.266793 Days, E = 126.844688 Days

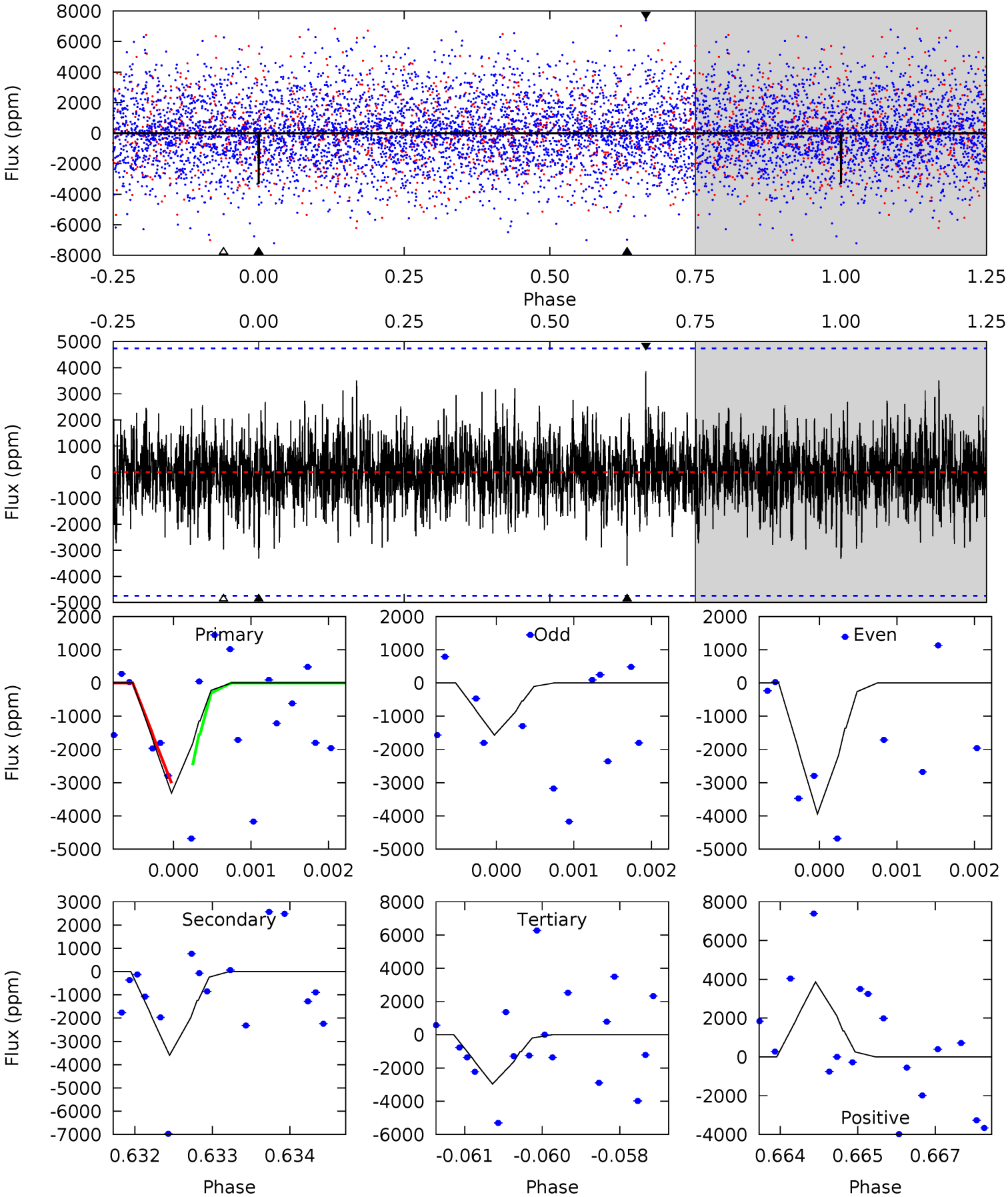
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.24	5.69	5.51	6.00	5.37	3.17	1.50	2.73	2.24	0.17	-0.32	0.94	0.98	0.42	0.45



Alt Model-Shift Uniqueness Test

009201644-04, P = 34.266703 Days, E = 126.854896 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.79	4.11	3.39	4.42	5.42	3.24	1.06	0.40	-0.63	0.72	-0.31	1.46	1.00	0.52	0.29



Stellar Parameters For KIC 009201644

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6983^{+192}_{-329}	$4.249^{+0.073}_{-0.218}$	$0.210^{+0.150}_{-0.350}$	$1.527^{+0.538}_{-0.231}$	$1.508^{+0.216}_{-0.216}$	$0.597^{+0.236}_{-0.320}$
	+3%/-5%	+2%/-5%	+71%/-167%	+35%/-15%	+14%/-14%	+40%/-54%
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 009201644-04 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1766±311	$13.87^{+14.90}_{-9.22}$	1115^{+94}_{-71}	5024^{+4191}_{-1176}	269^{+2173}_{-207}
Alt.	-3597±875	$15.69^{+13.95}_{-10.39}$	1116^{+85}_{-70}	5684^{+5271}_{-1297}	449^{+3540}_{-325}

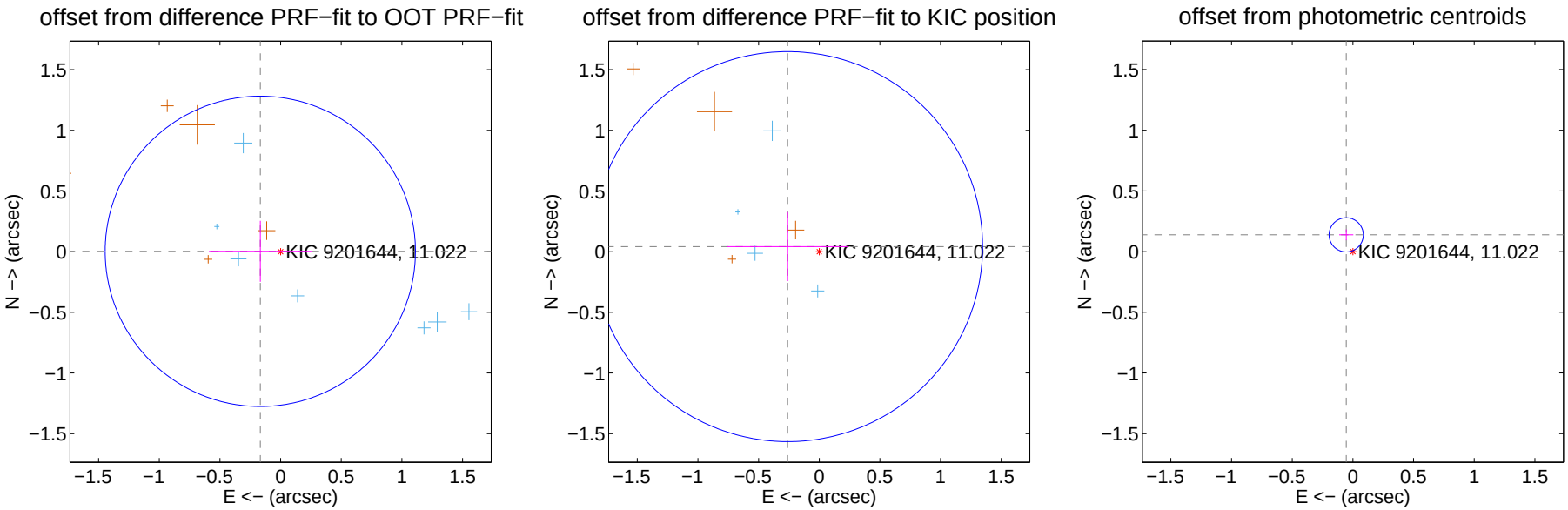
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

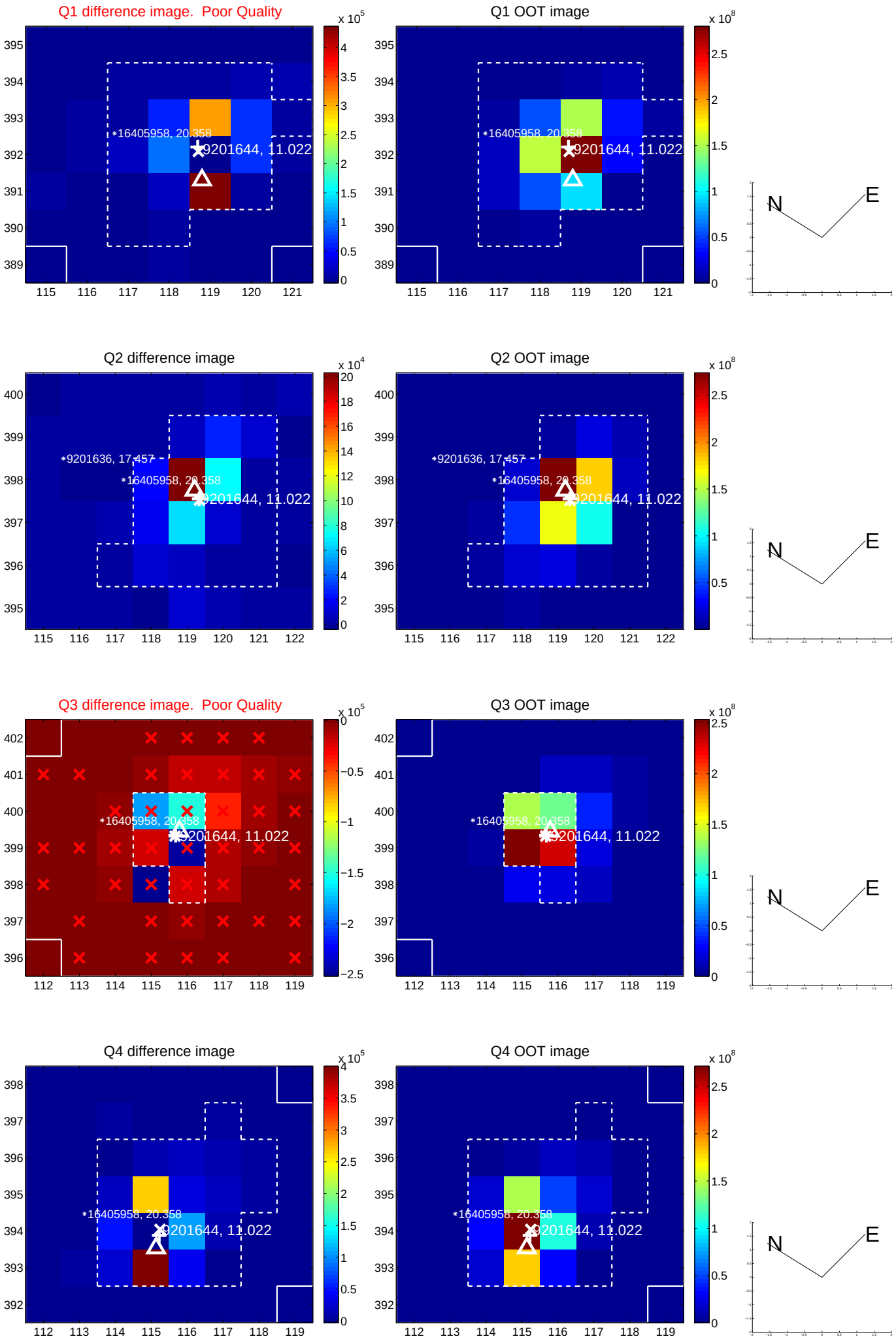
Supplemental centroid analysis for 009201644-04. Kepler magnitude: 11.02. Transit SNR 14.52
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.167 ± 0.426	0.39	0.167 ± 0.423	0.003 ± 0.251
PRF-fit source offset from KIC position	0.264 ± 0.536	0.49	0.261 ± 0.503	0.042 ± 0.284
photometric centroid source offset	0.15 ± 0.05	3.17	0.06 ± 0.06	0.14 ± 0.04

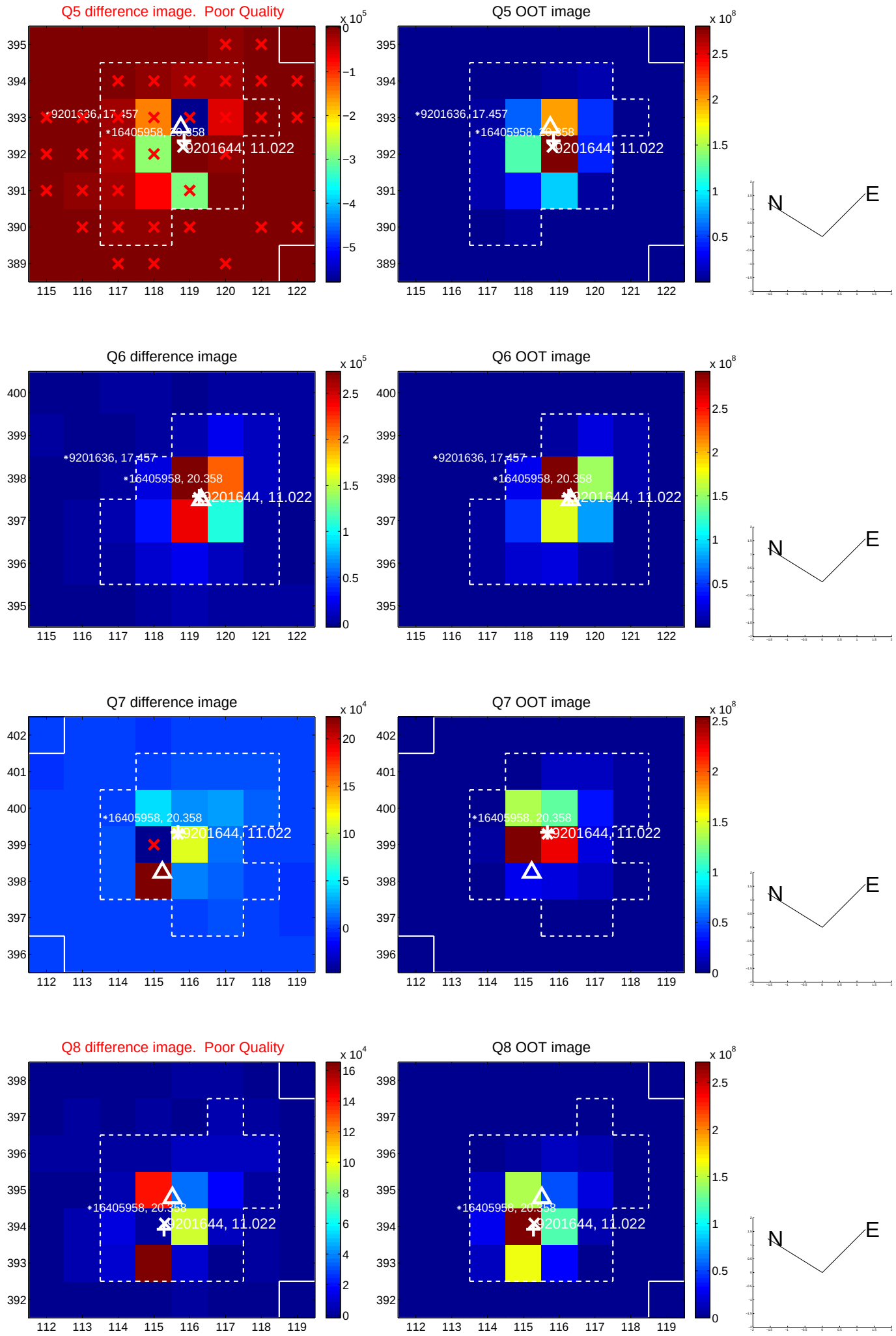


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

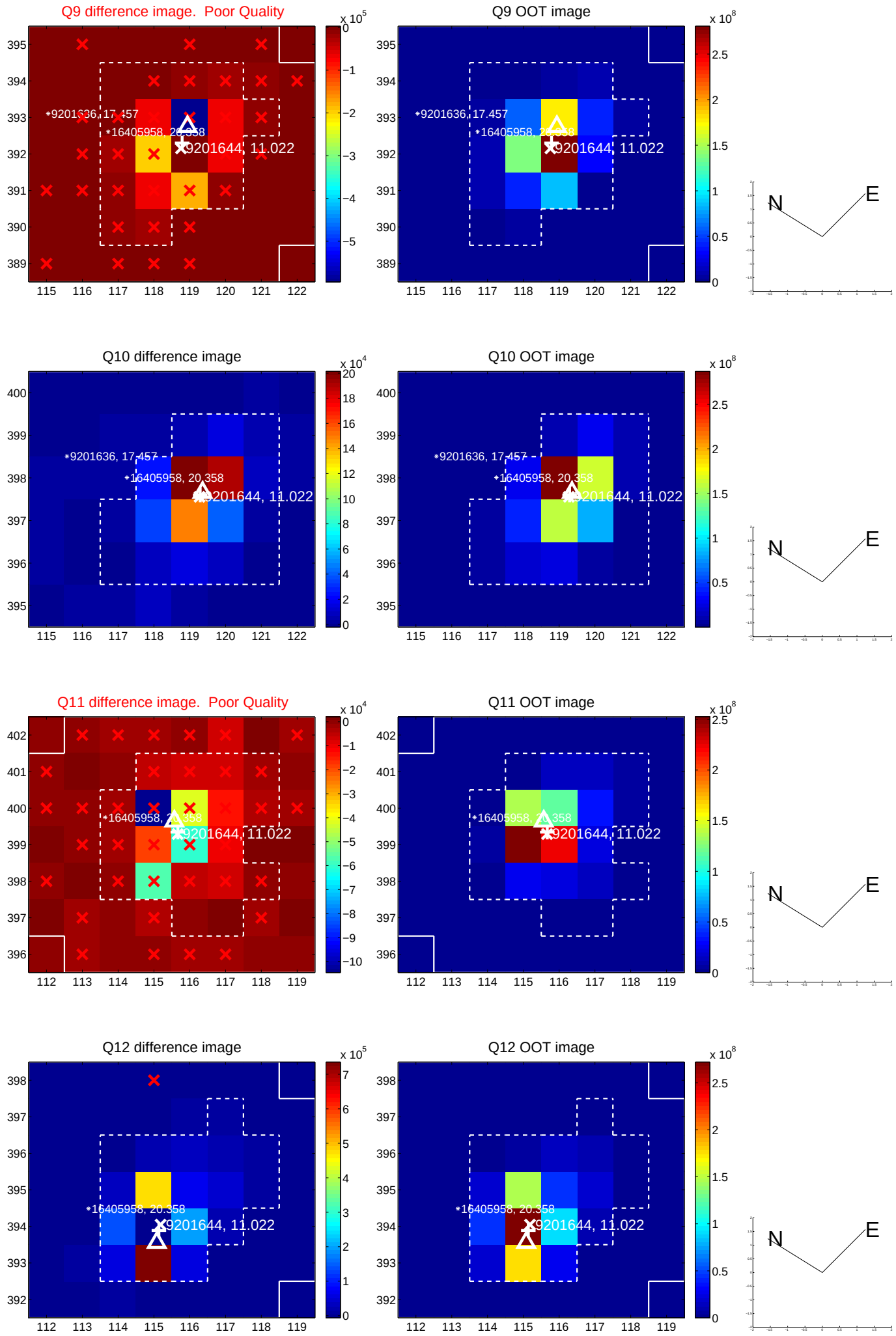
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



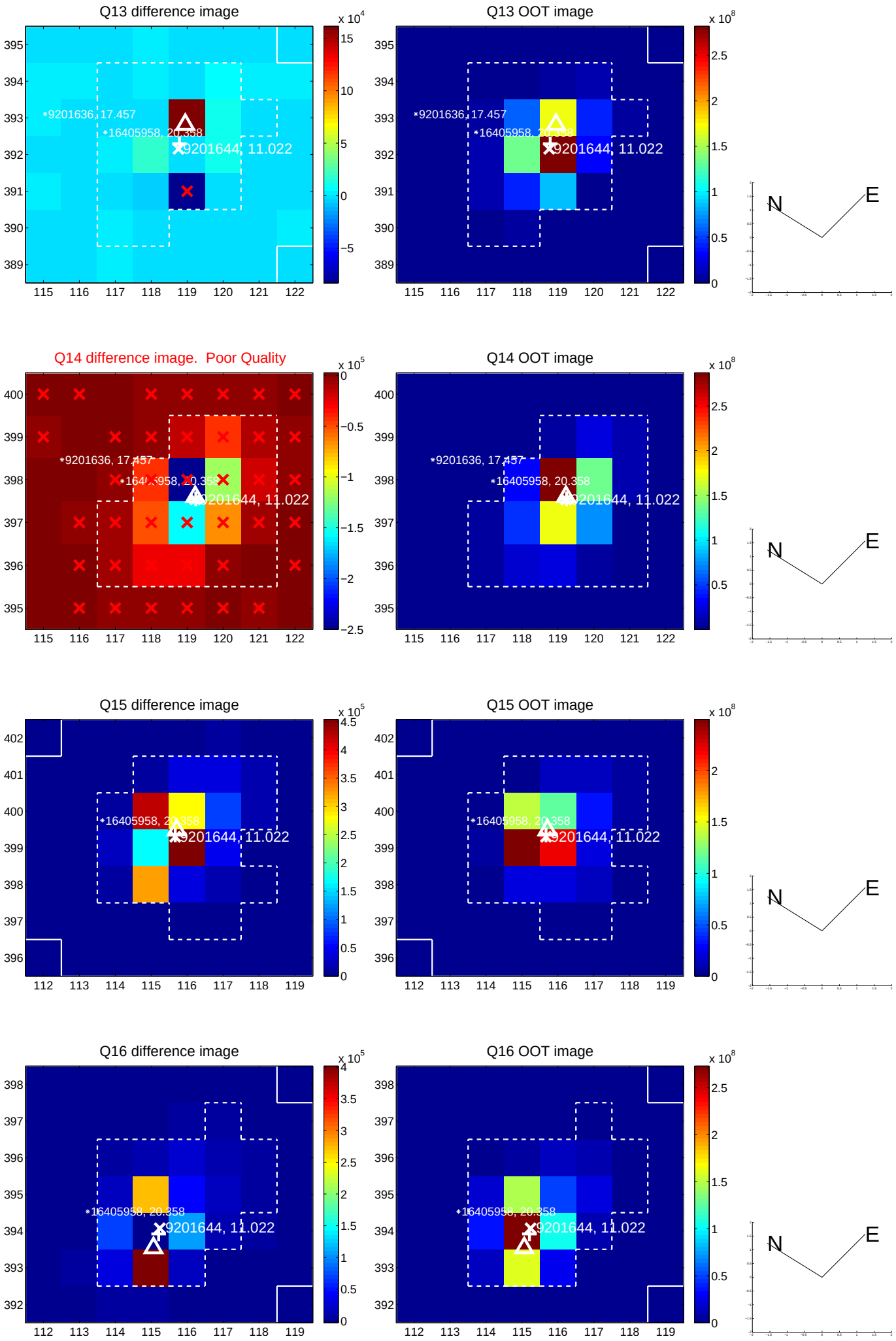
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



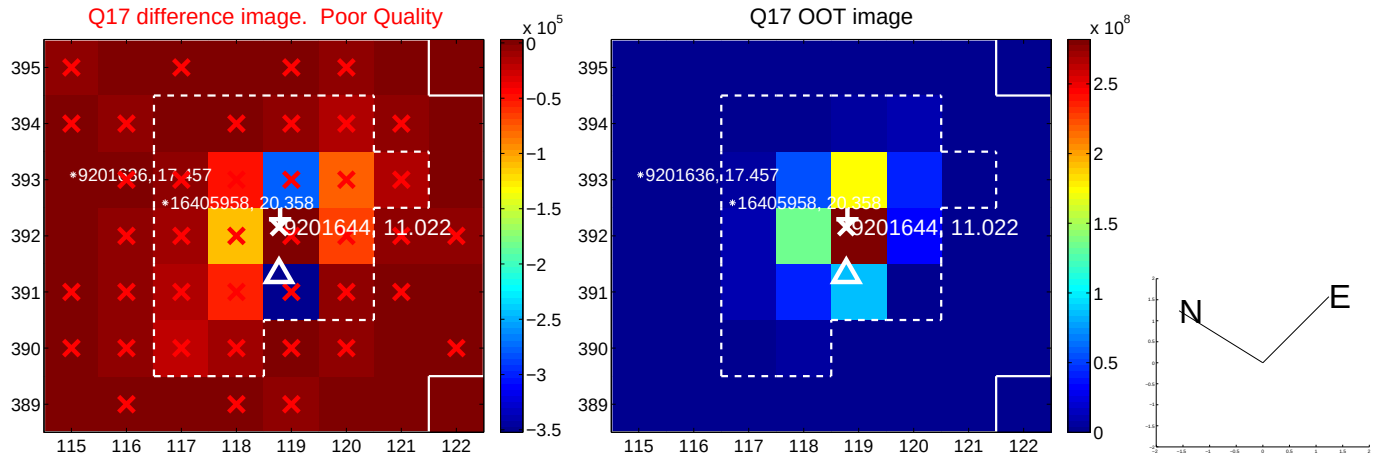
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

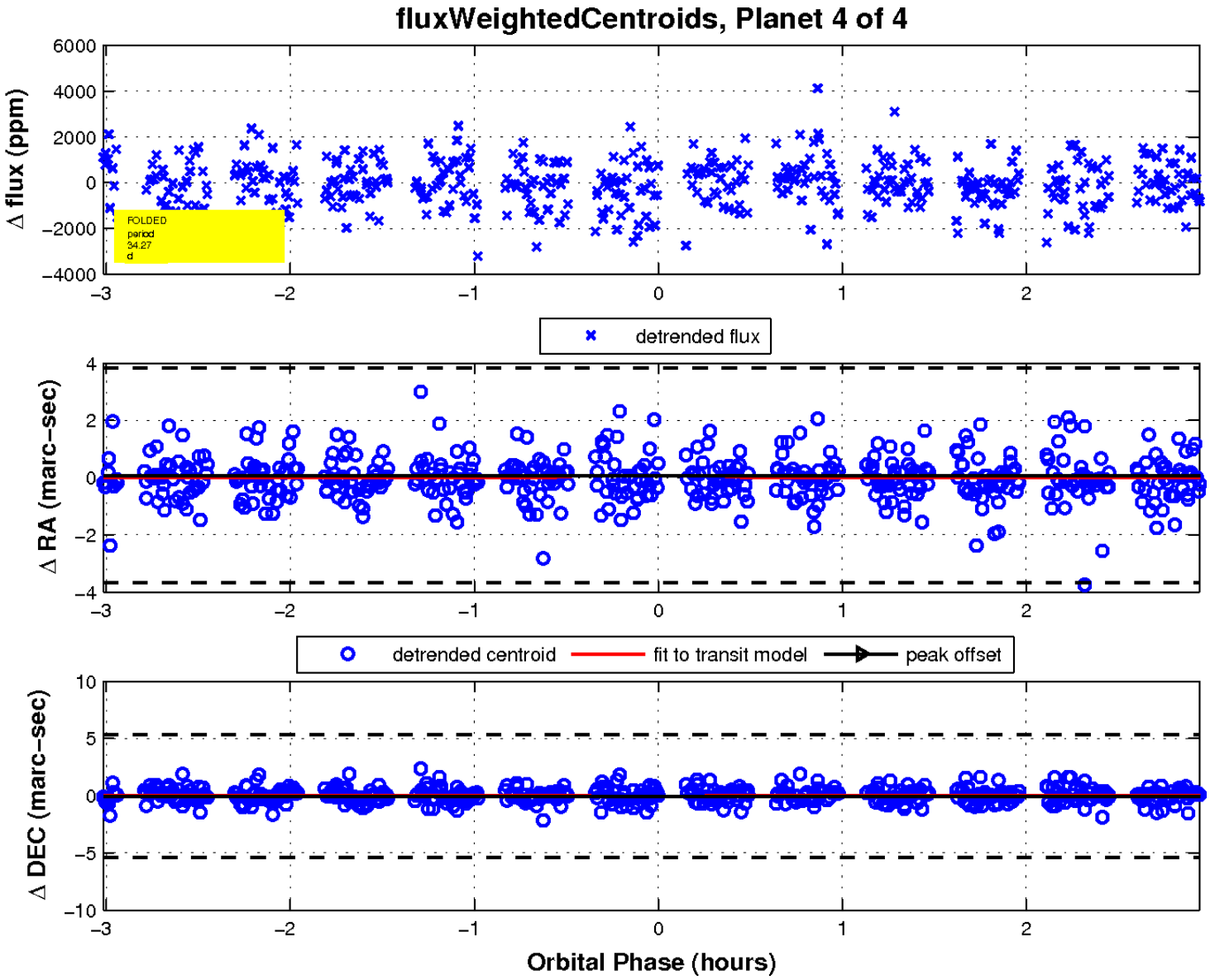


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

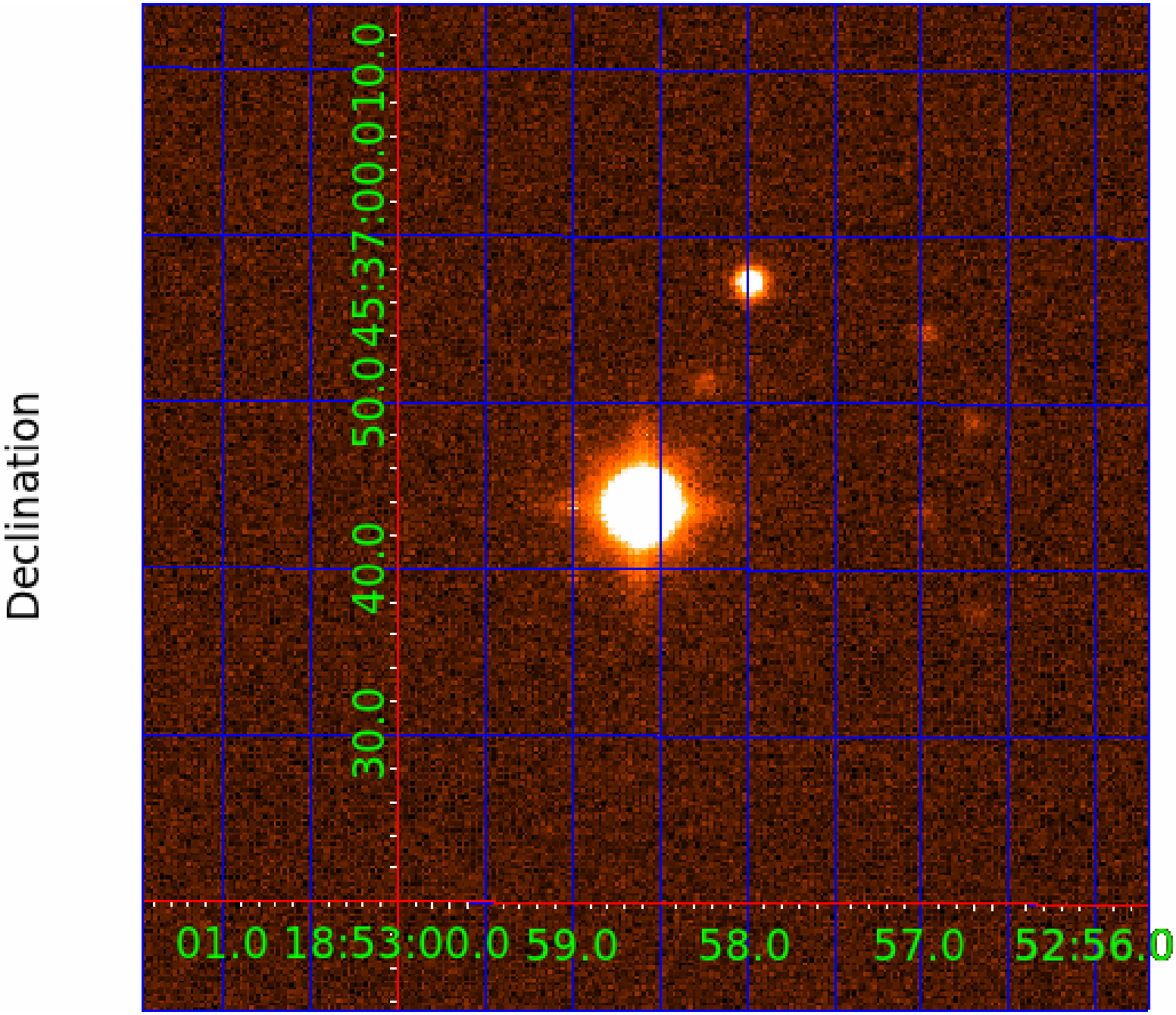


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
10.0
37:00.0
45:
50.0
40.0
30.0
01.0
18:53:00.0
59.0
58.0
57.0
52:56.0