KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

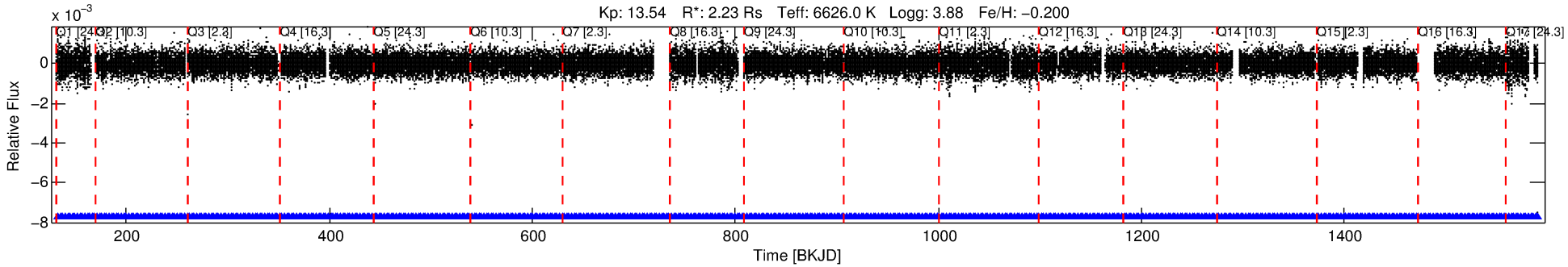
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

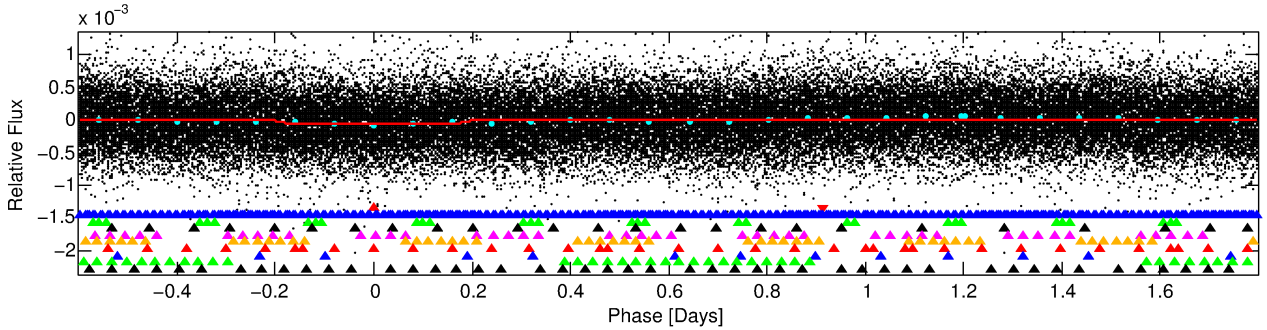
Ephemeris Match Information For 009242059-01

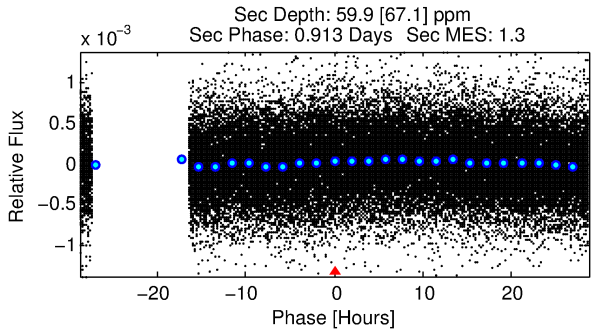
No Significant Match Found

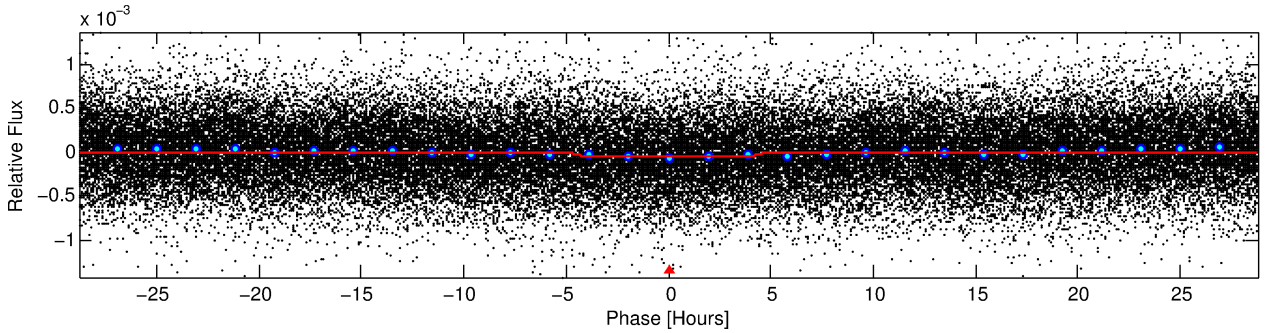
DV One-Page Summary

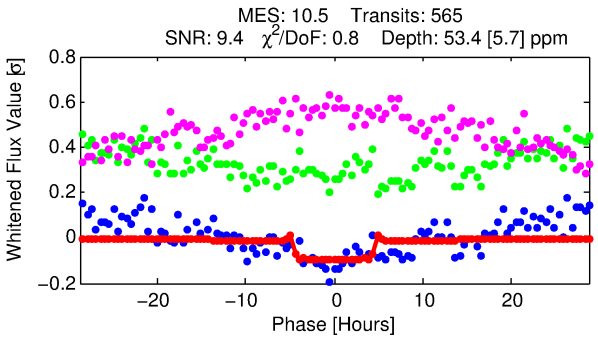
KIC: 9242059 Candidate: 1 of 10 Period: 2.398 d

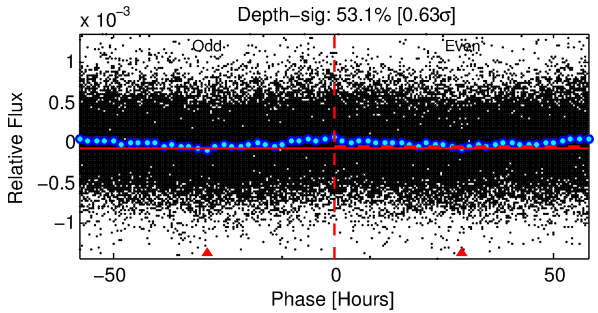


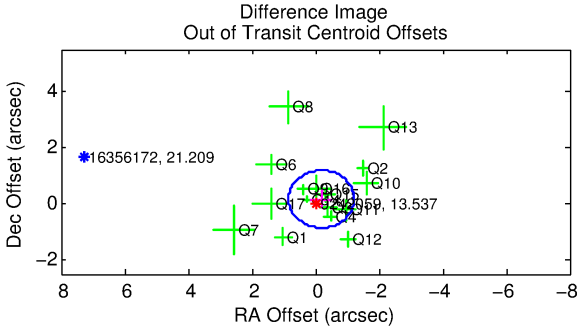












DV Fit Results:

Period = 2.39772 [0.00003] d
Epoch = 132.9958 [0.0056] BKJD
Rp/R* = 0.0078 [0.0011]
a/R* = 1.27 [0.37]
b = 0.90 [0.16]

Seff = 5697.54 [3921.32]
Teq = 2215 [381] K
Rp = 1.91 [0.86] Re
a = 0.0389 [0.0163] AU

Ag = 13.73 [18.34] [0.69σ]
Teffp = 6594 [1915] K [2.24σ]

DV Diagnostic Results:

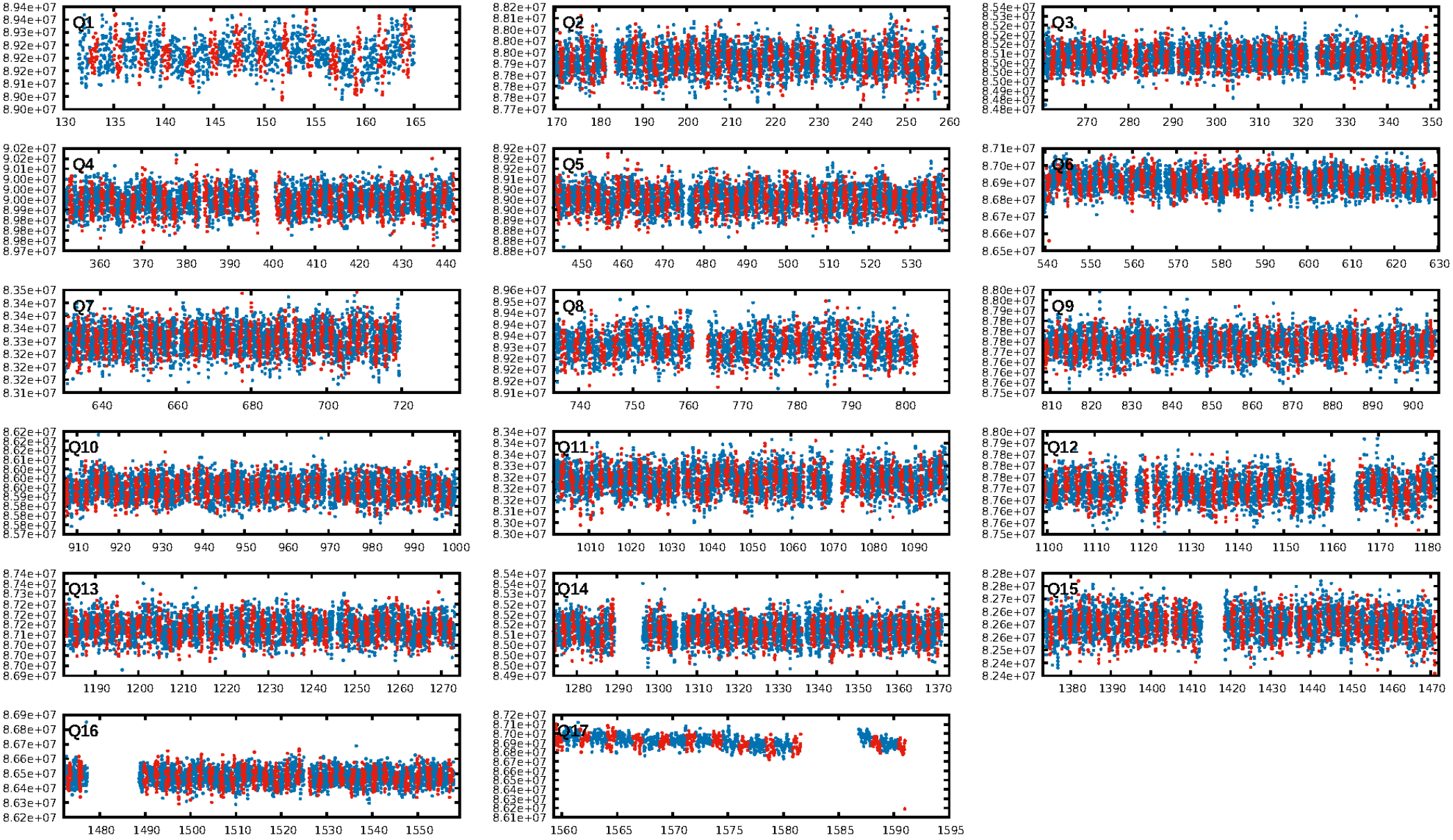
ShortPeriod−sig: 99.0% [2.56σ]
LongPeriod−sig: 100.0% [66.39σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [539/539]
GhostDiagnostic−chr: 3.884

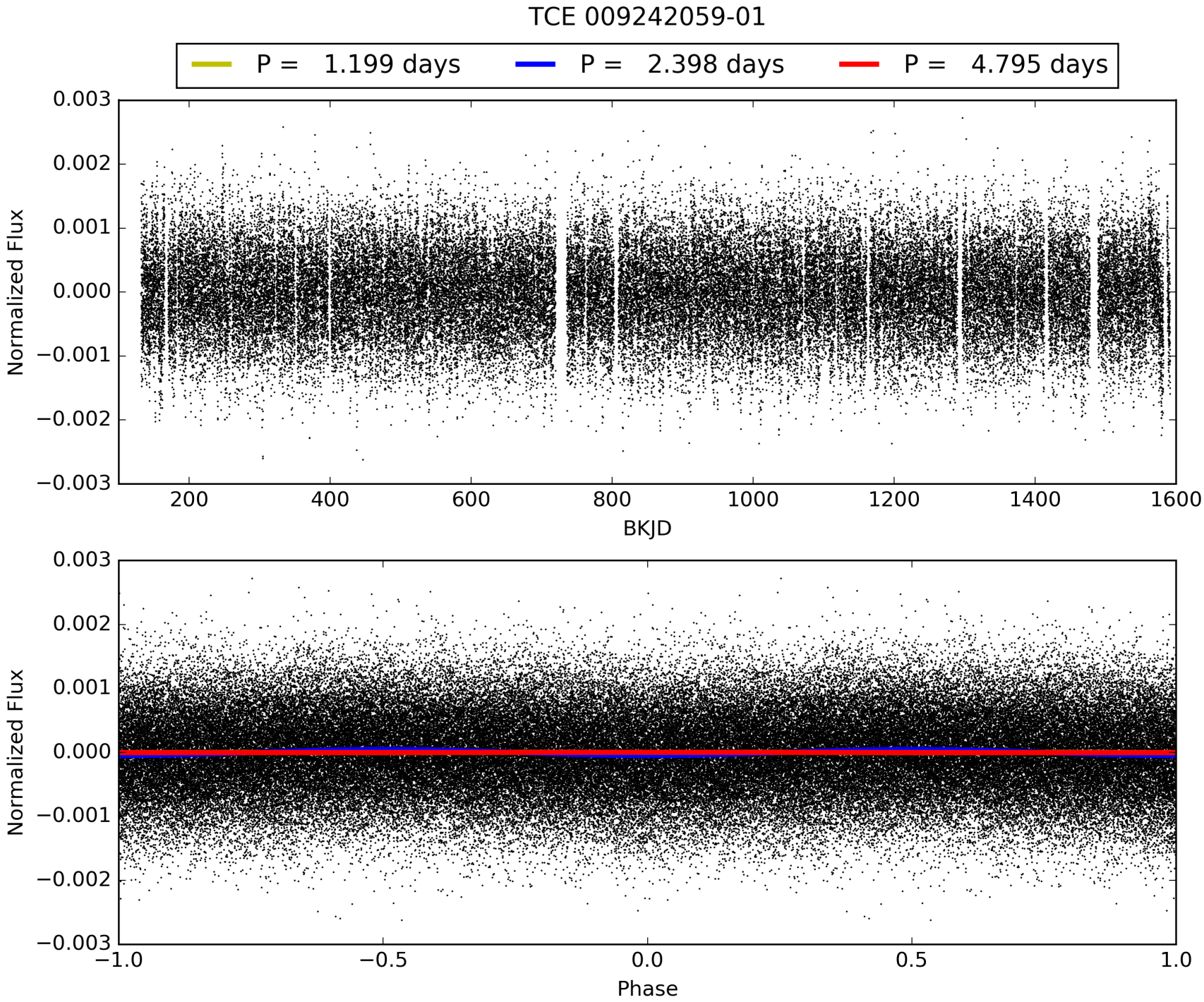
Centroid−sig: 26.7%
Centroid−so: 0.604 arcsec [0.92σ]
OotOffset−rm: 0.243 arcsec [0.71σ]
KicOffset−rm: 0.252 arcsec [0.71σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 0.69 [11/16]
DiffImageOverlap−fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:52:34 Z

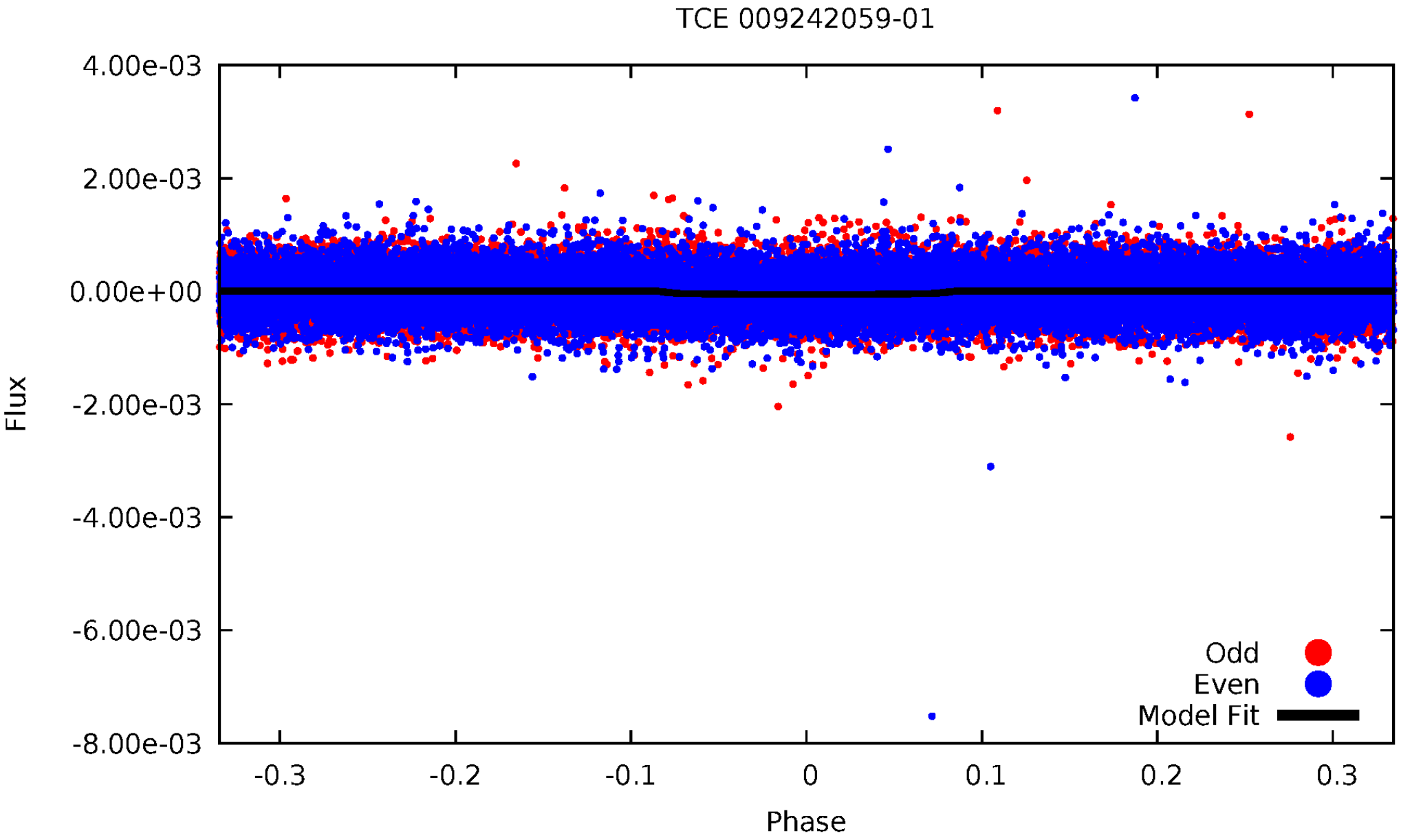
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

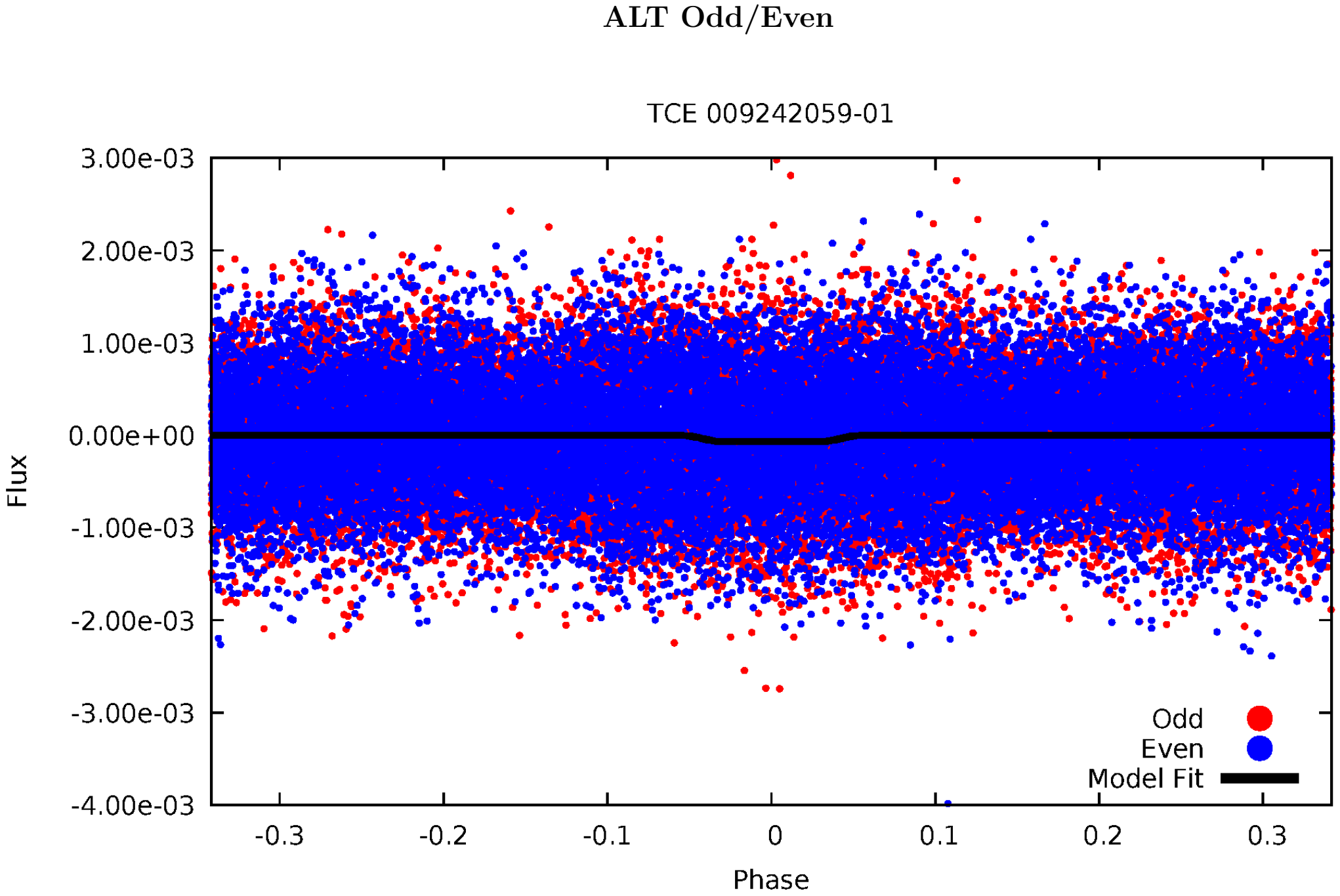
TCE 009242059-01, PDC Light Curves



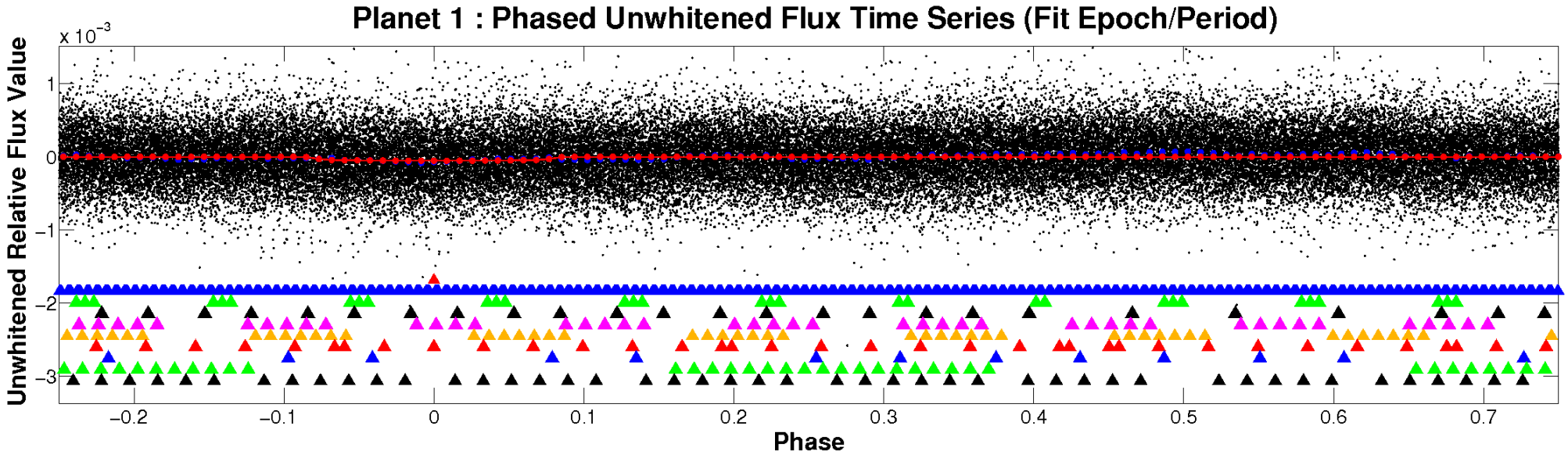

TCE 009242059-01
P = 1.199 days
P = 2.398 days
P = 4.795 days
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
−1.0
−0.5
0.0
0.5
1.0
Phase

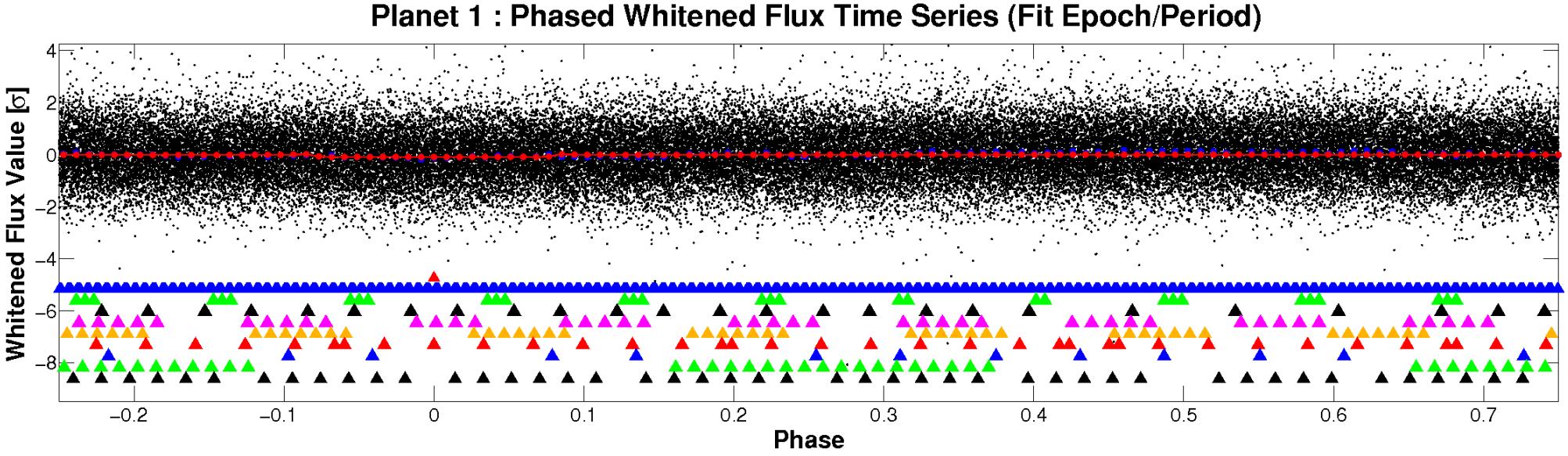
DV Odd/Even


TCE 009242059-01
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
-8.00e-03
Flux
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-01
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
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
Phase
Odd
Even
Model Fit

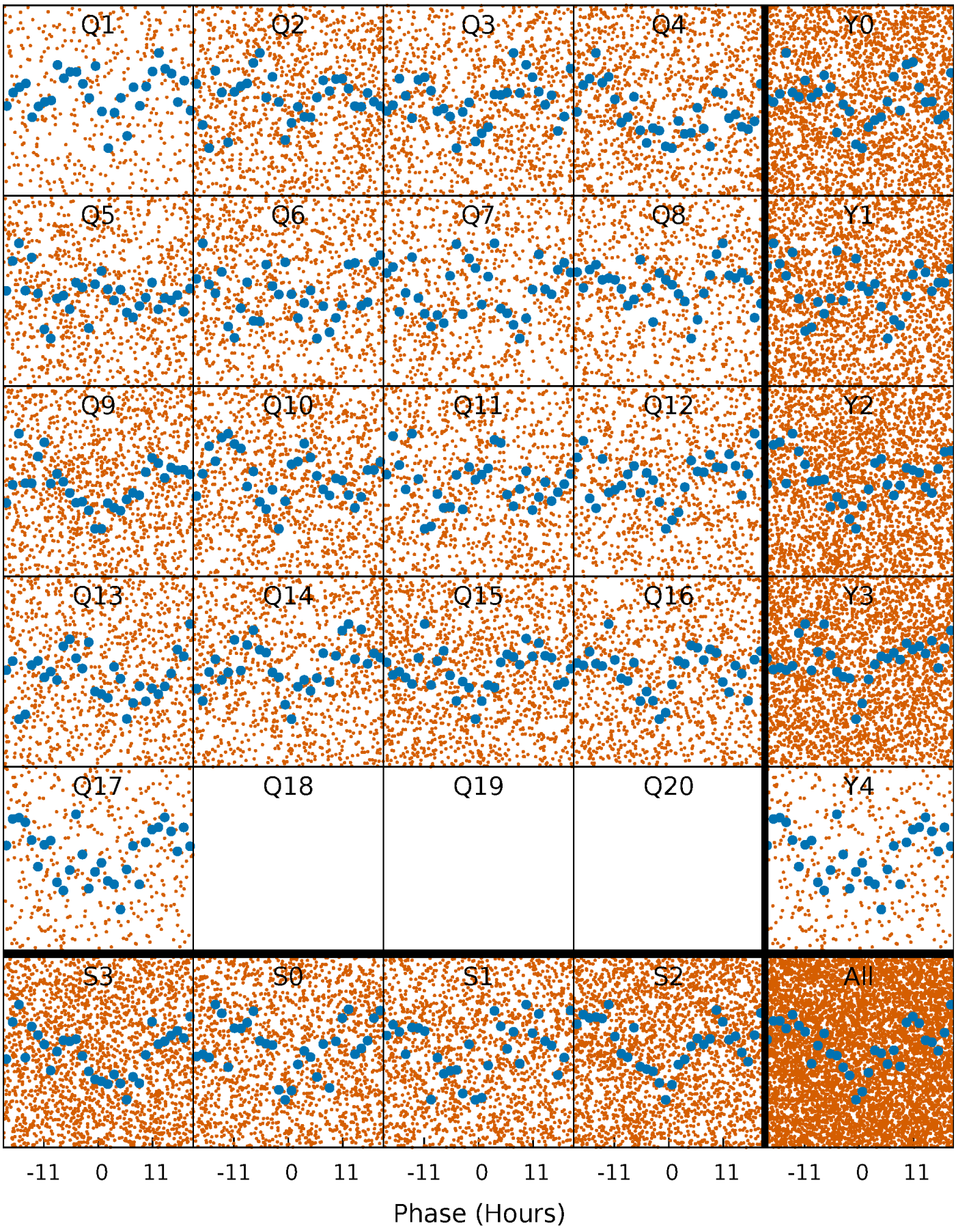
Non-Whitened Vs. Whitened Light Curve





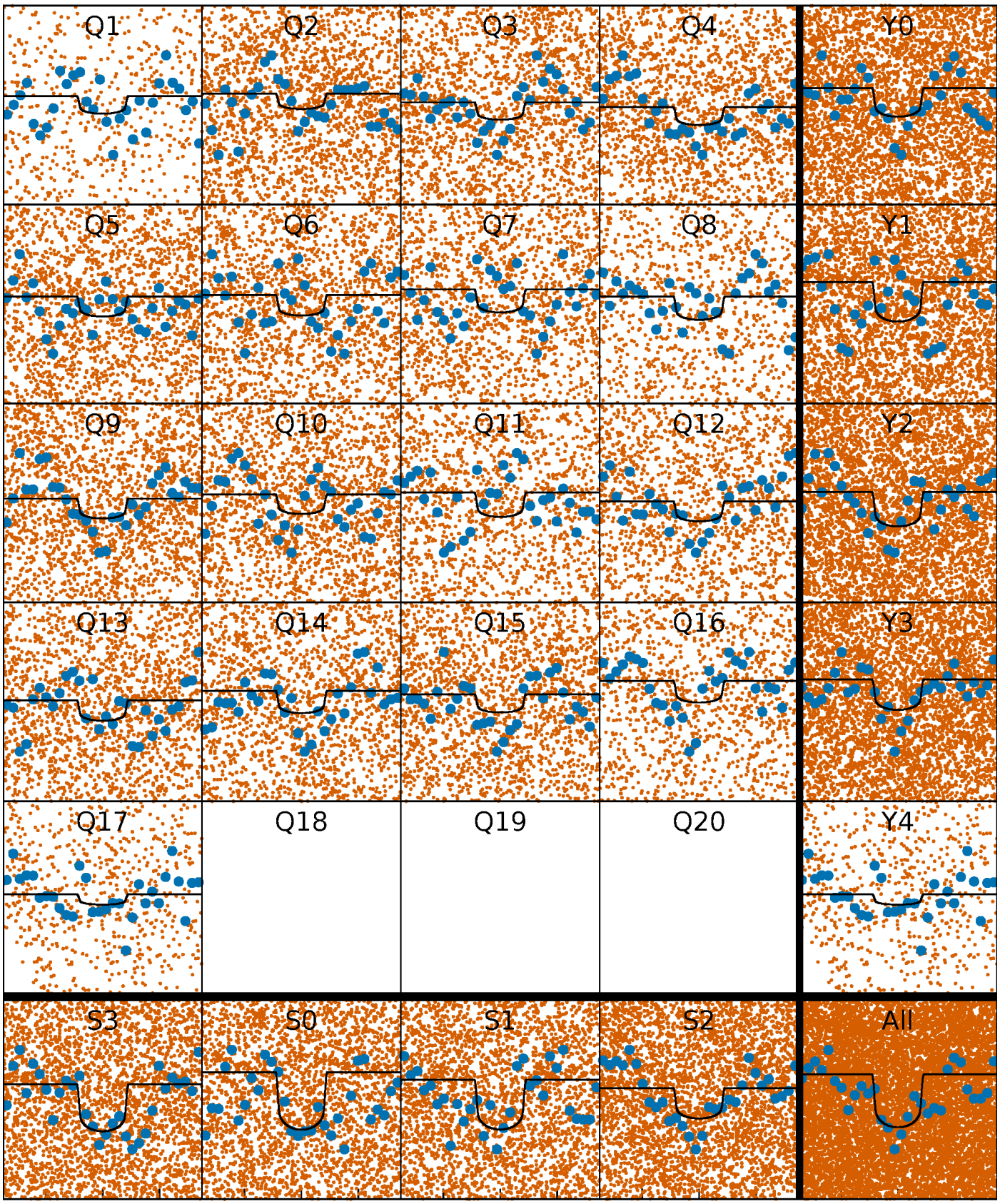
PDC Quarter-Phased Transit Curves

TCE 009242059-01 P= 2.397719 Days T_0=132.995822 (BKJD)



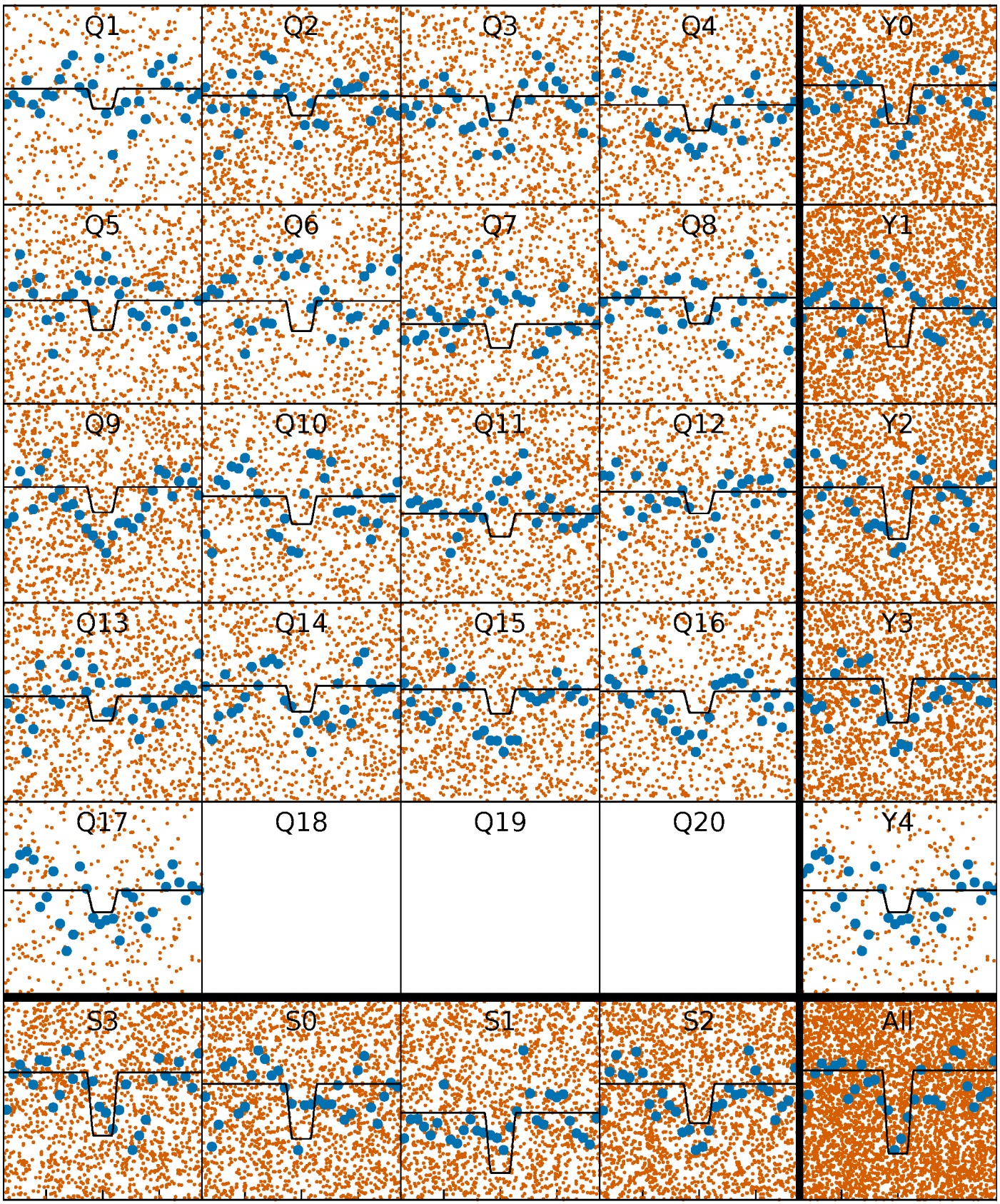
DV Quarter-Phased Transit Curves

TCE 009242059-01 P= 2.397719 Days T_0=132.995822 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

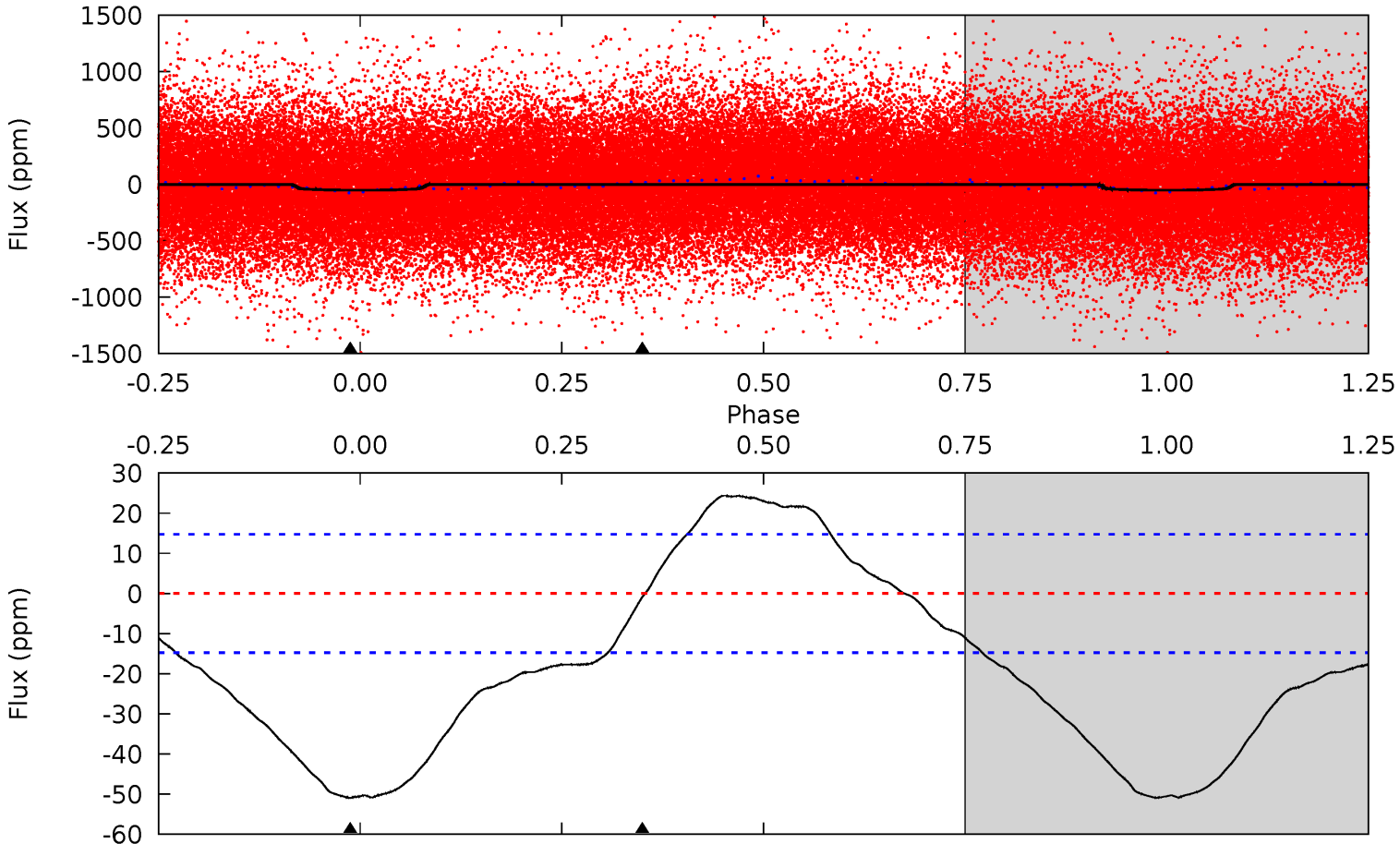
TCE 009242059-01 P= 2.397671 Days T_0=132.996991 (BKJD)

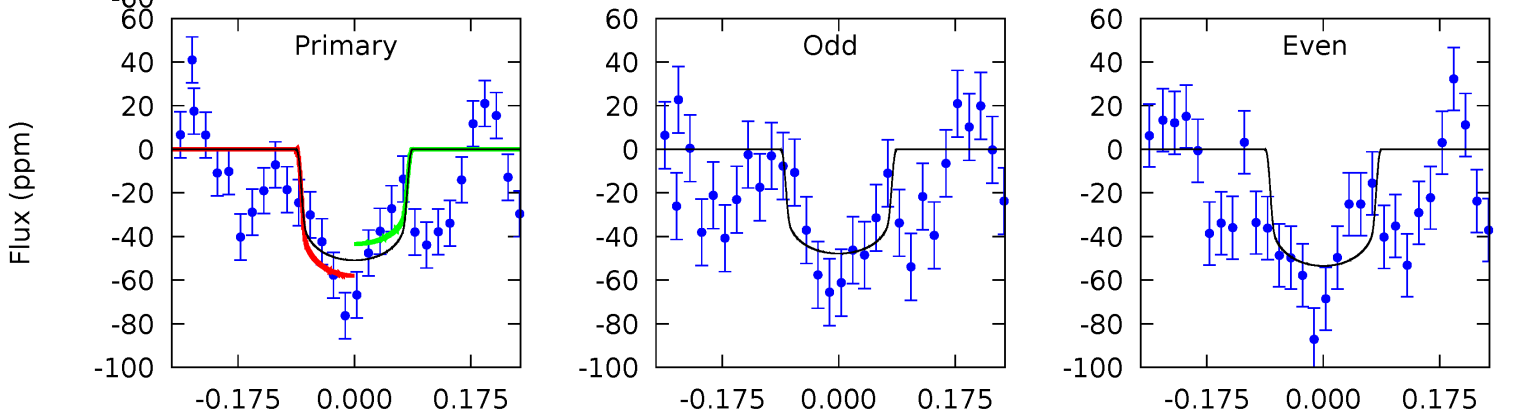


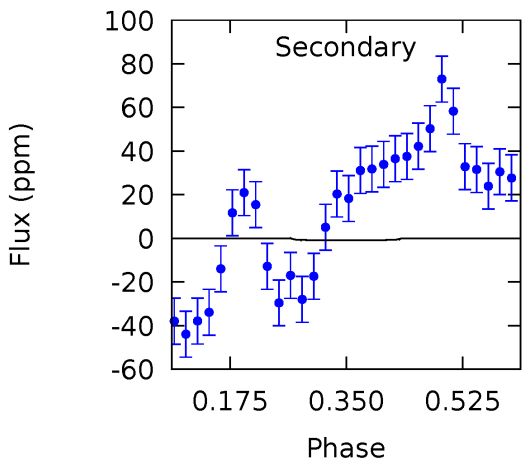
DV Model-Shift Uniqueness Test

009242059-01, P = 2.397719 Days, E = 130.598103 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	0.27	0	0	4.45	1.36	4.10	15.4	15.4	0.27	0.27	0.85	1.01	0.32	2.20



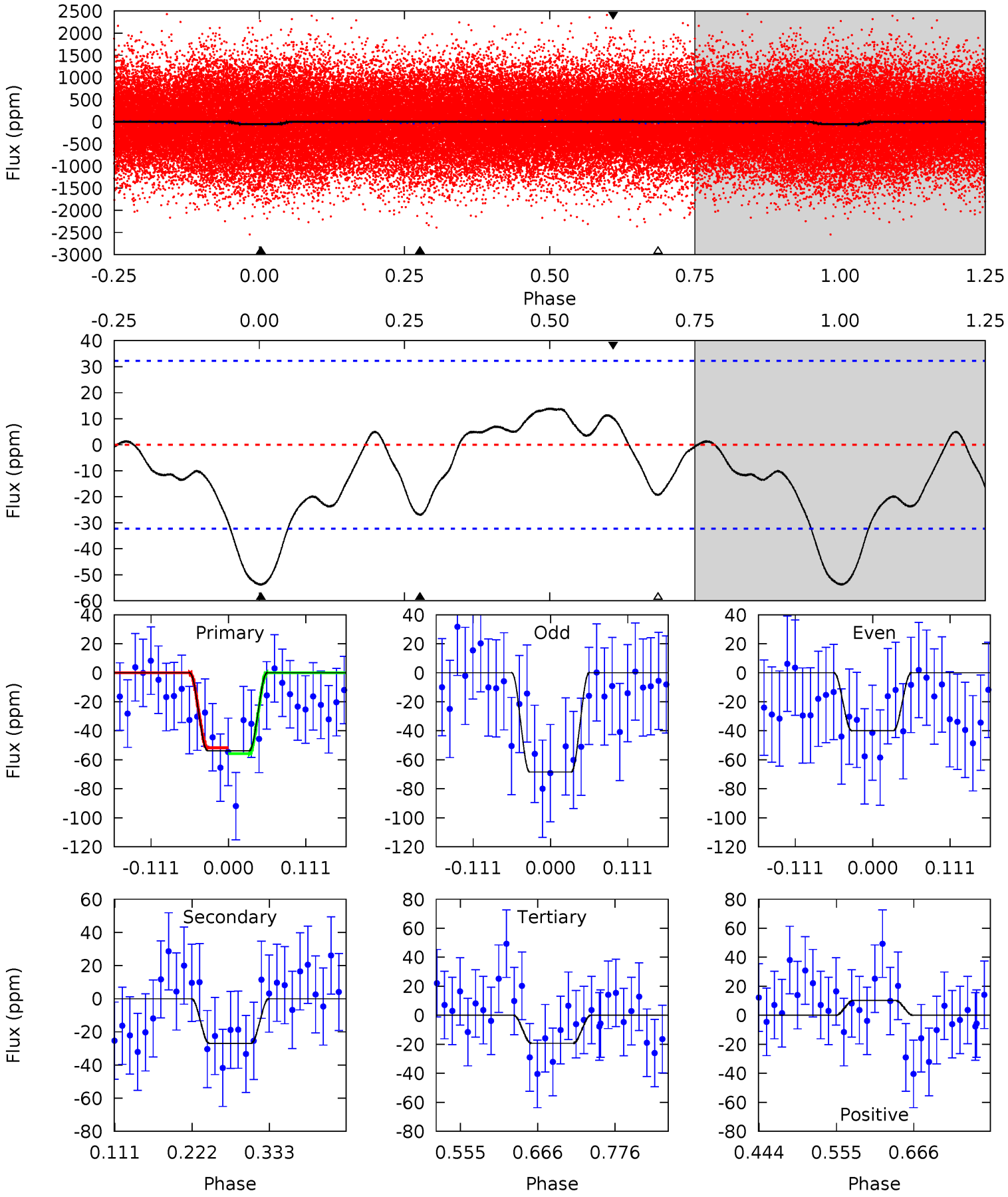




Alt Model-Shift Uniqueness Test

009242059-01, P = 2.397671 Days, E = 130.599320 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.57	3.79	2.71	1.44	4.54	1.59	1.52	4.85	6.13	1.08	2.35	2.01	0.87	0.20	0.28



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1±3	$1.80^{+0.43}_{-0.43}$	3020^{+245}_{-342}	-2497^{+6095}_{-1184}	$0.245^{+0.875}_{-0.808}$
Alt.	-27±7	$1.91^{+0.44}_{-0.45}$	3019^{+249}_{-317}	5204^{+498}_{-469}	$6.018^{+4.659}_{-2.196}$

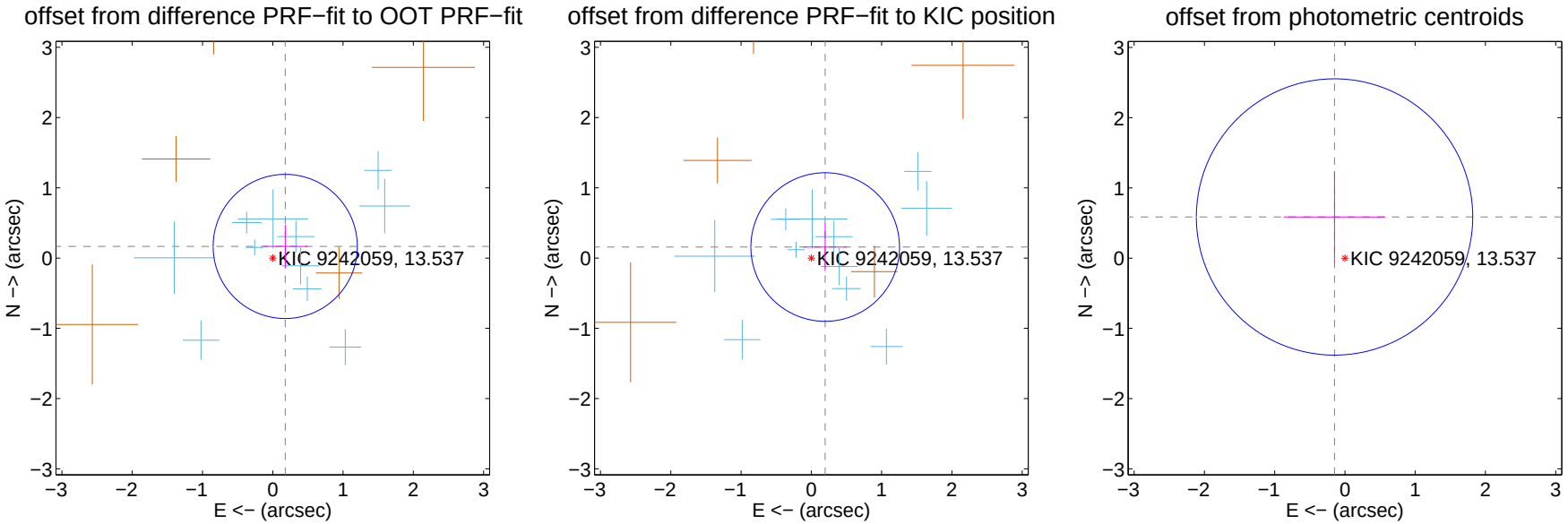
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

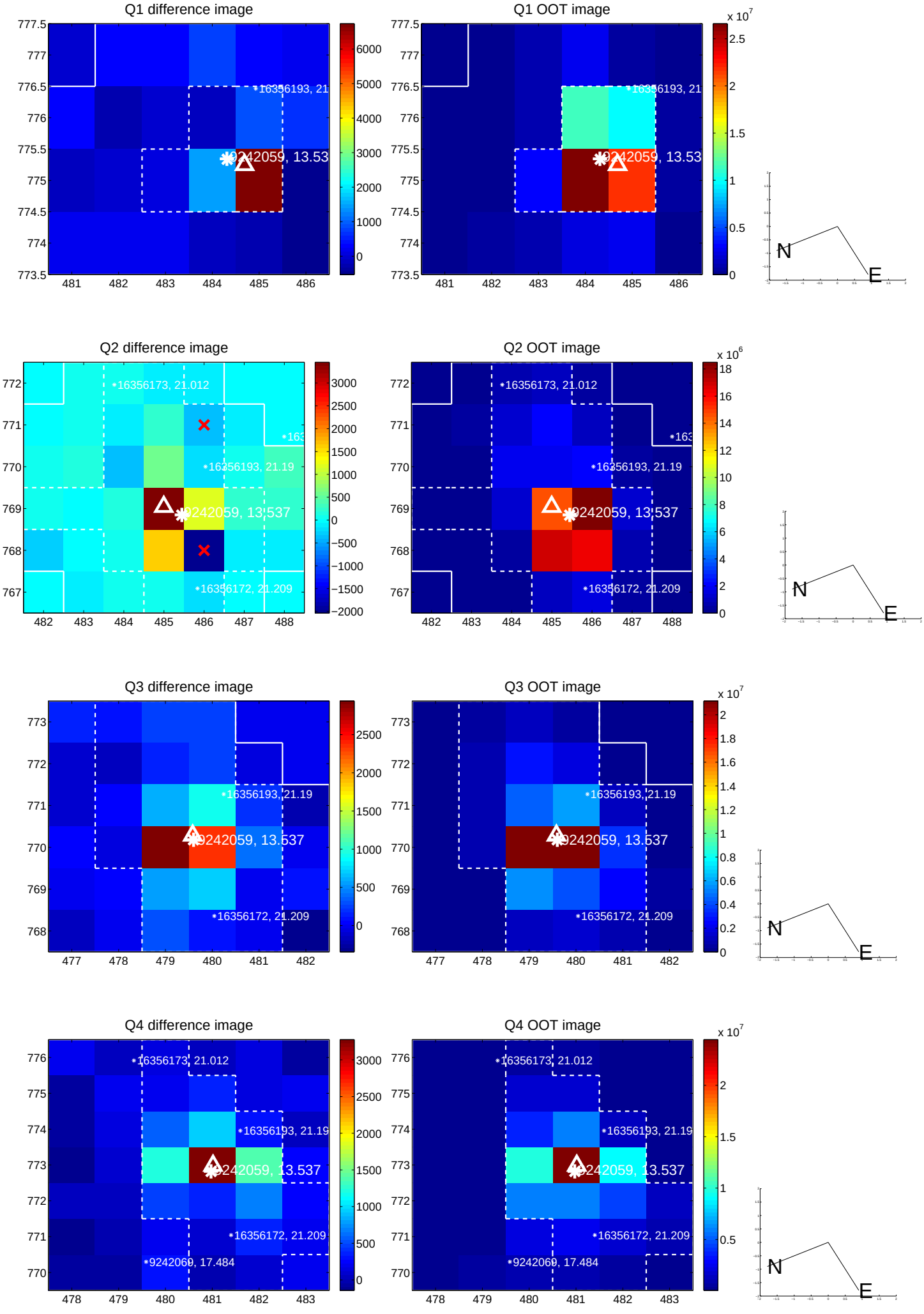
Supplemental centroid analysis for 009242059-01. Kepler magnitude: 13.54. Transit SNR 9.37
There are 11 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.243 ± 0.342	0.71	-0.177 ± 0.315	0.165 ± 0.311
PRF-fit source offset from KIC position	0.252 ± 0.352	0.71	-0.197 ± 0.310	0.157 ± 0.338
photometric centroid source offset	0.60 ± 0.66	0.92	0.15 ± 0.72	0.59 ± 0.65



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.



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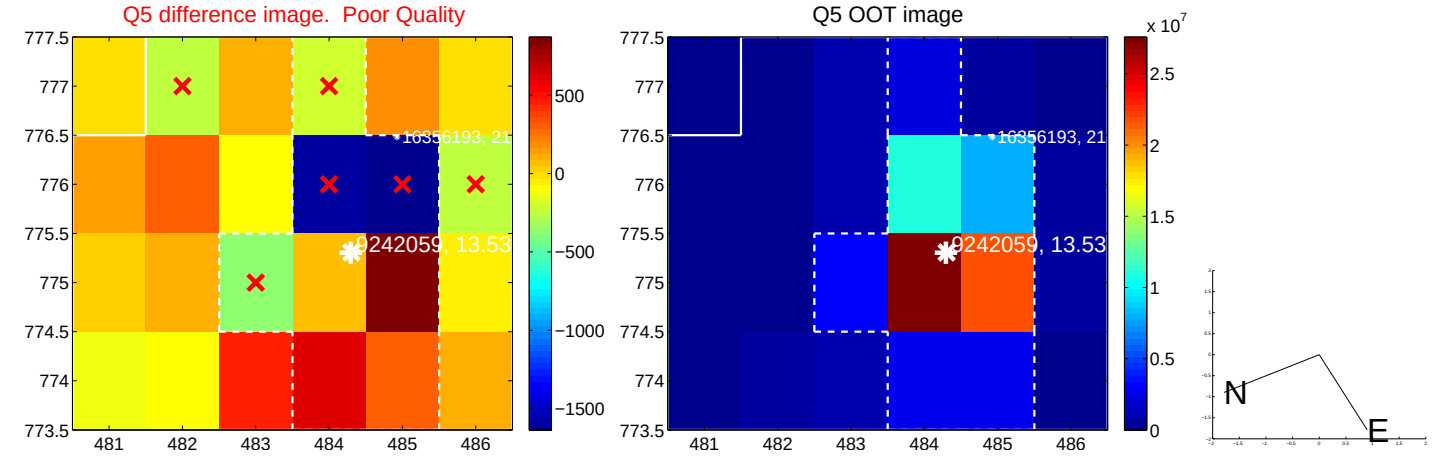
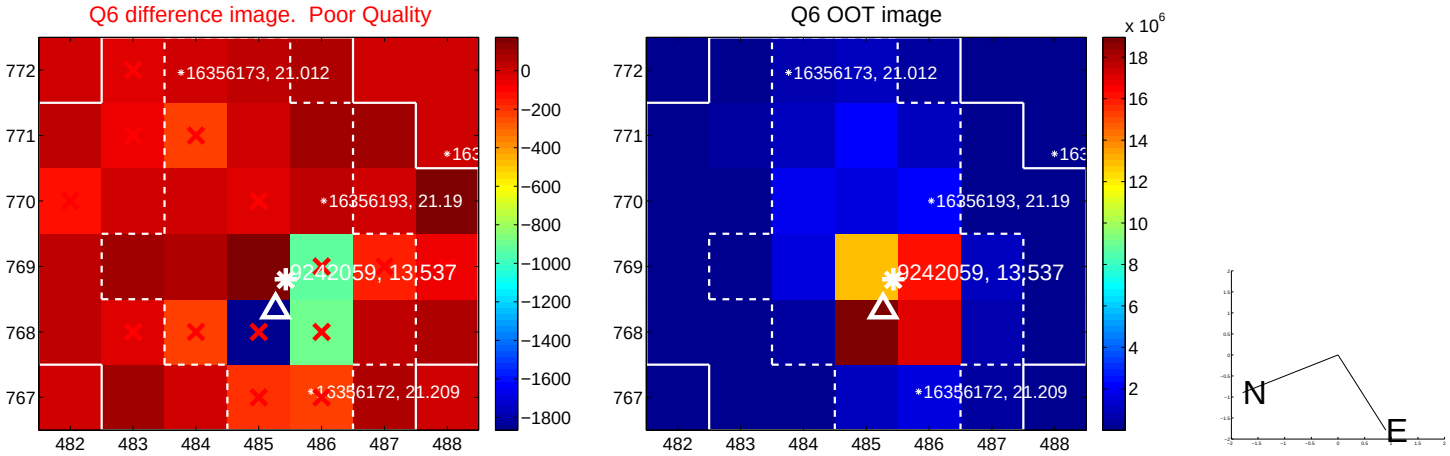
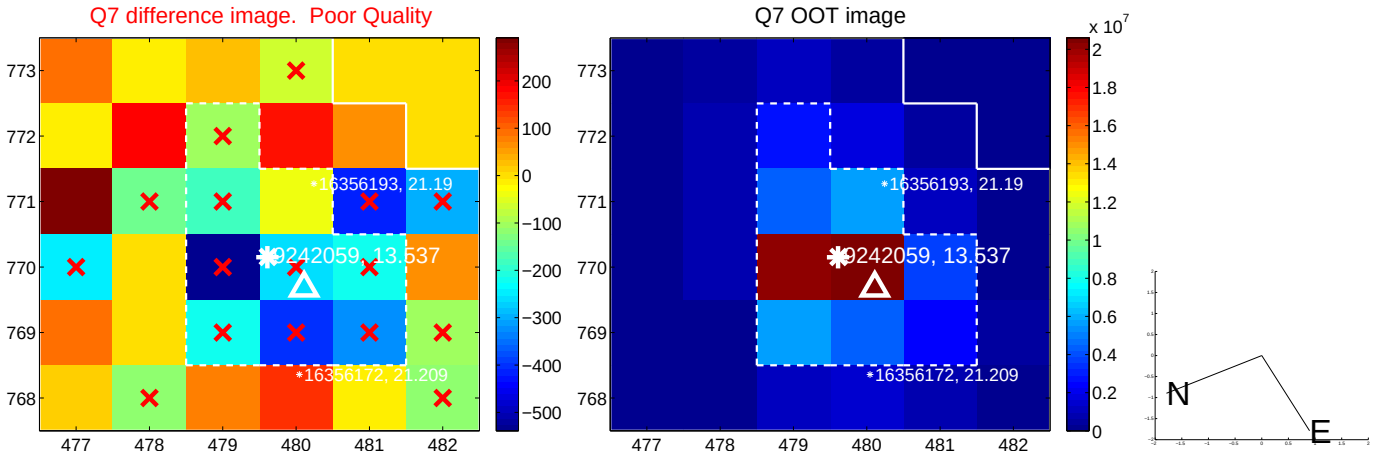
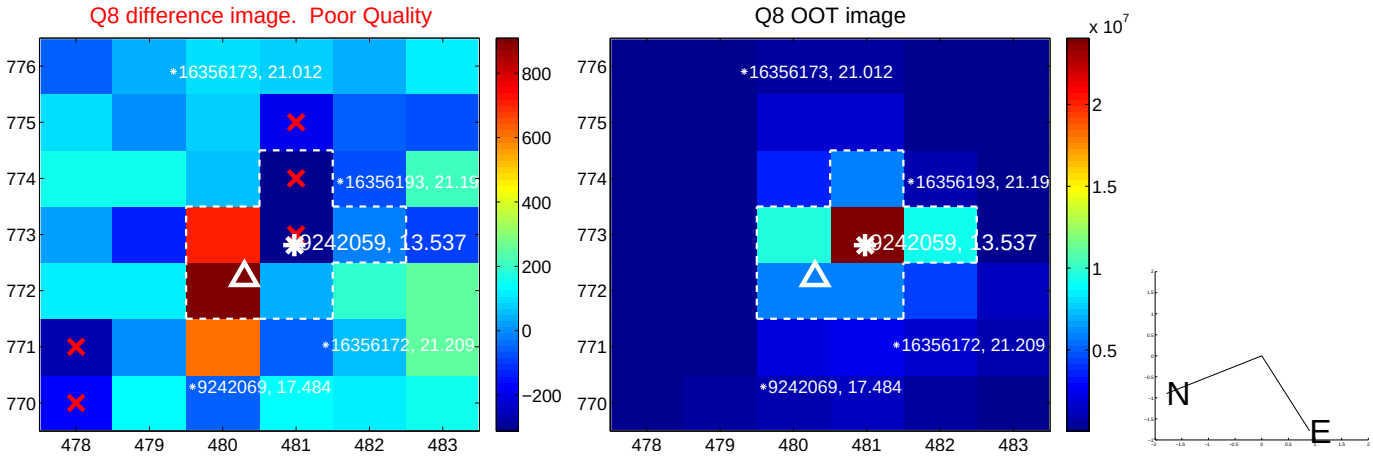
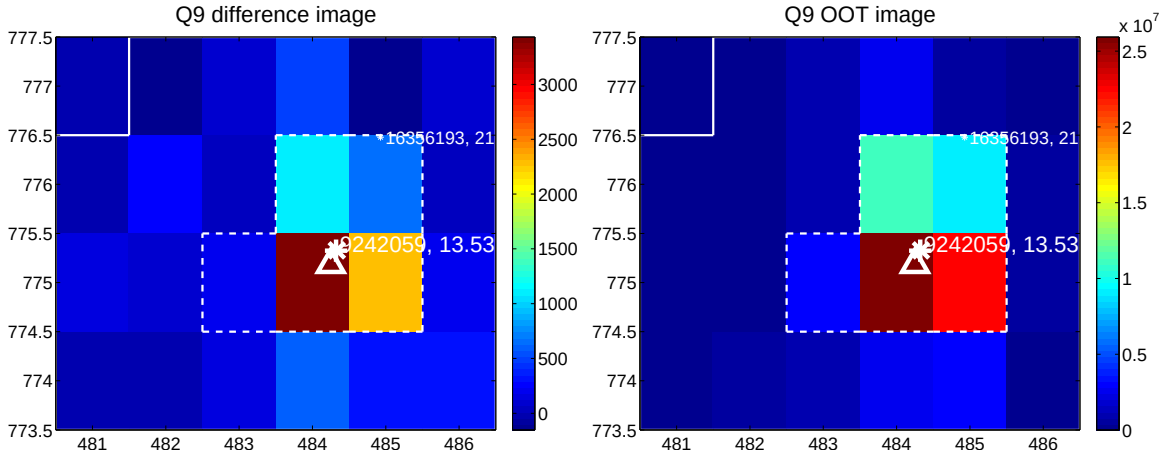


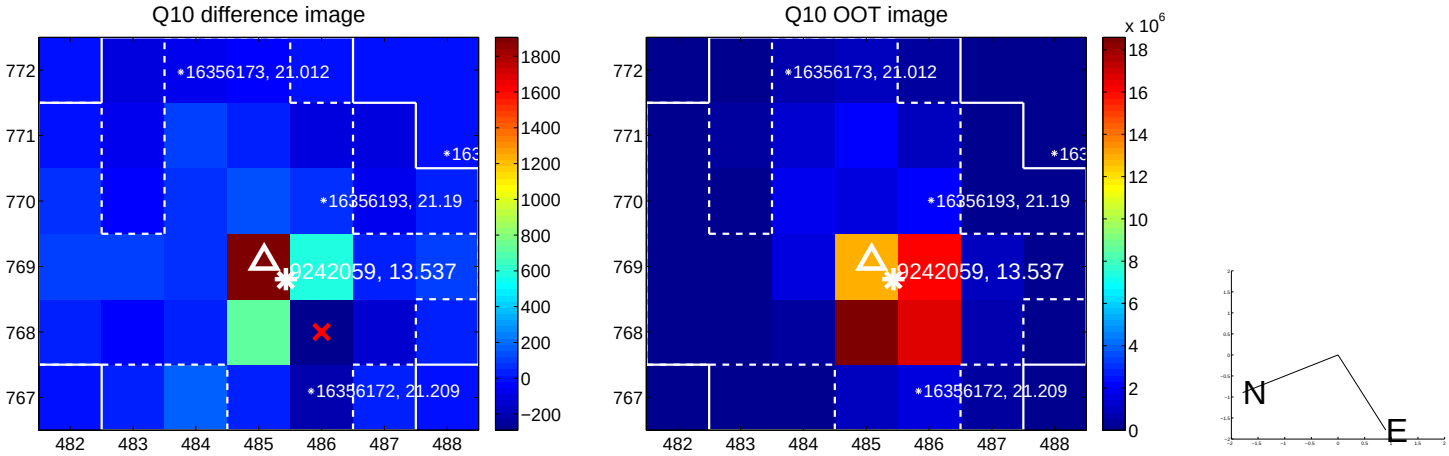


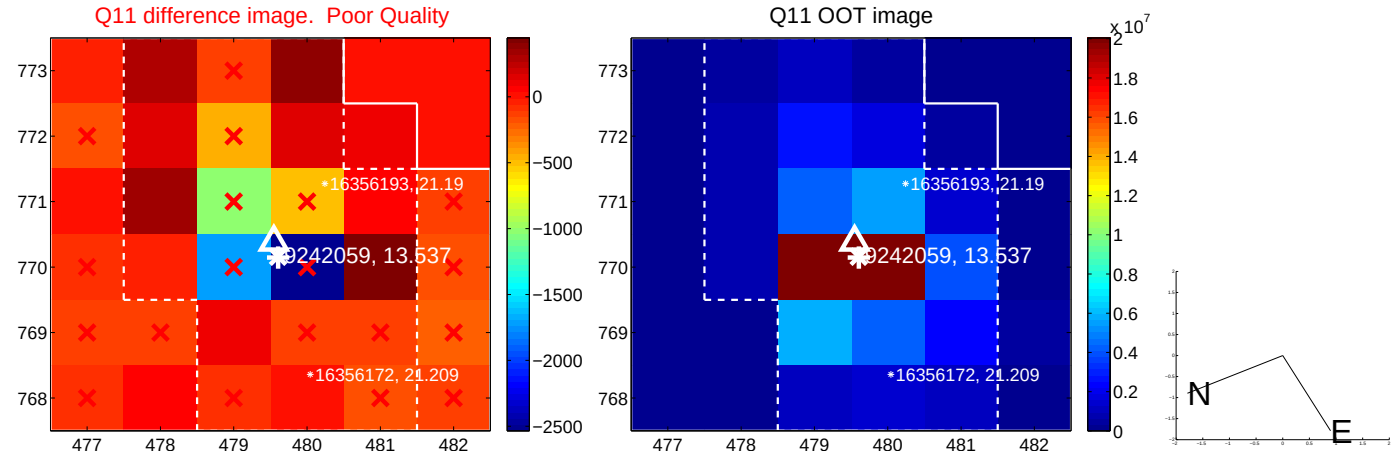


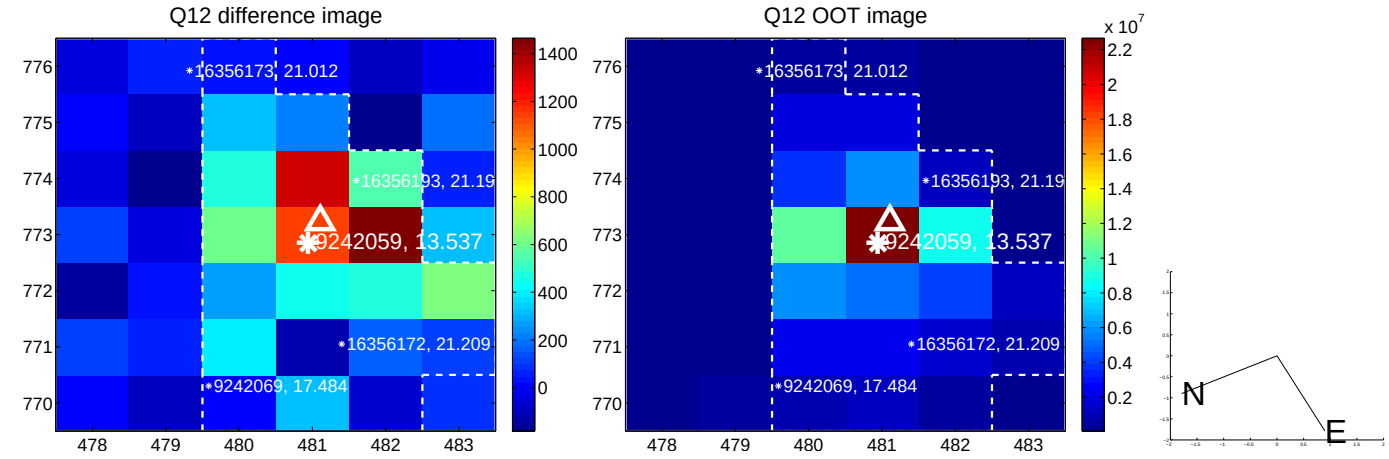


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

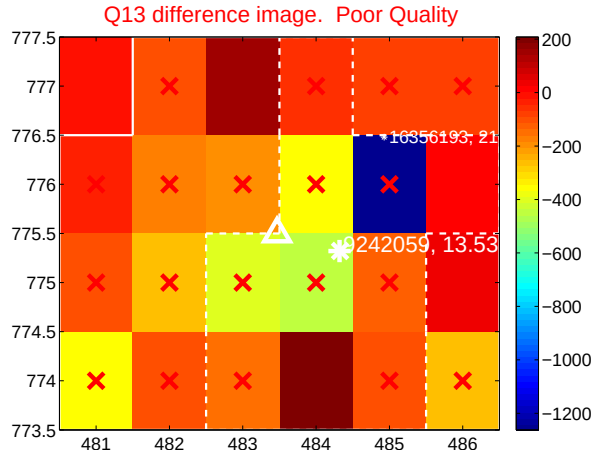


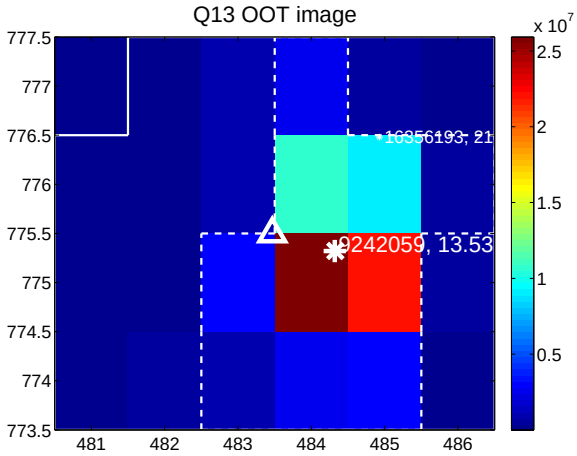


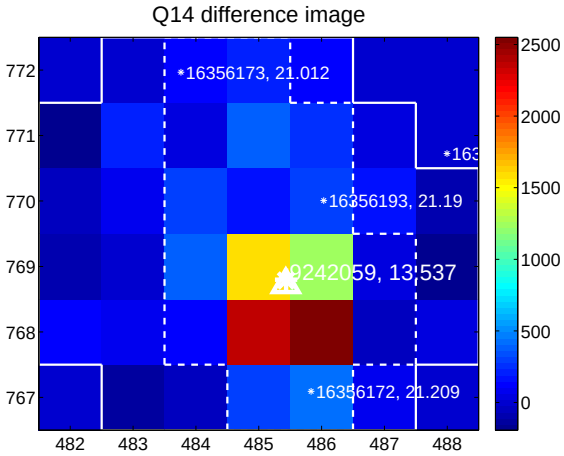


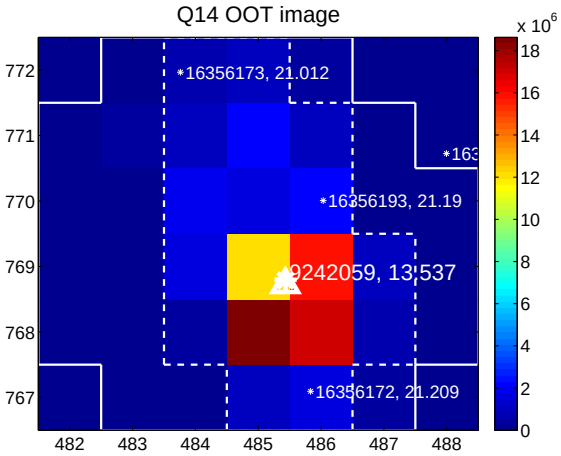


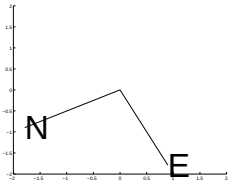
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

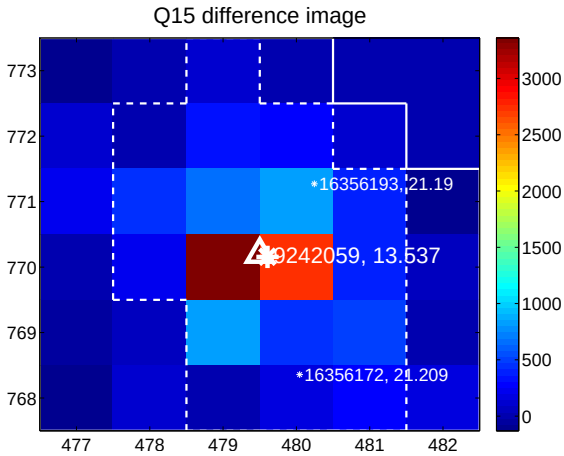


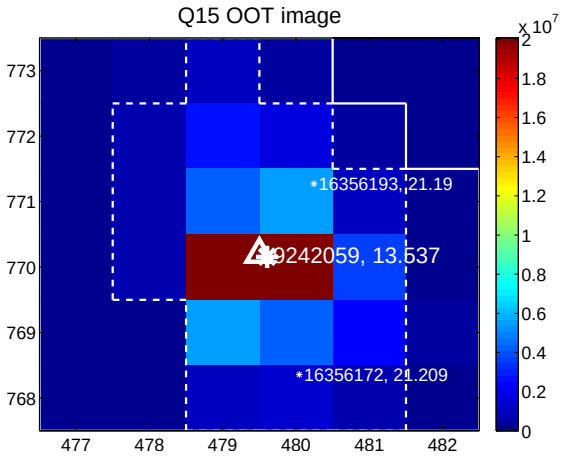


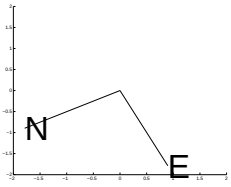


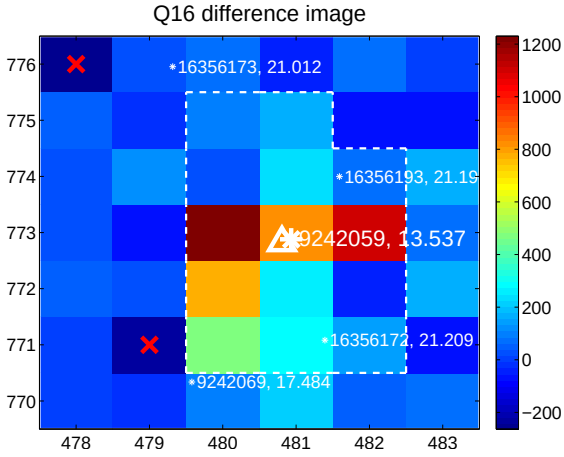


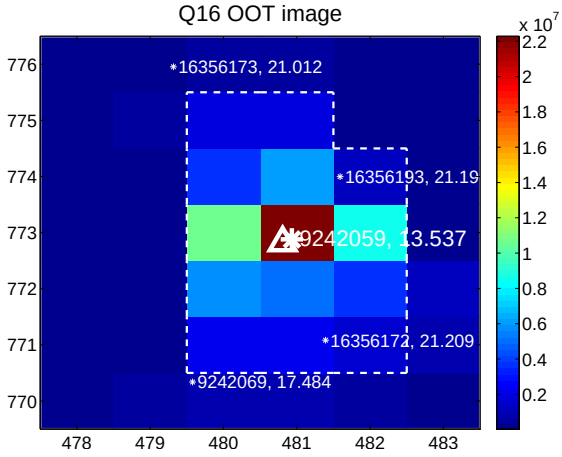


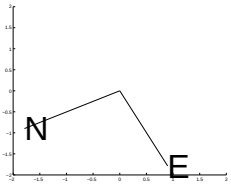




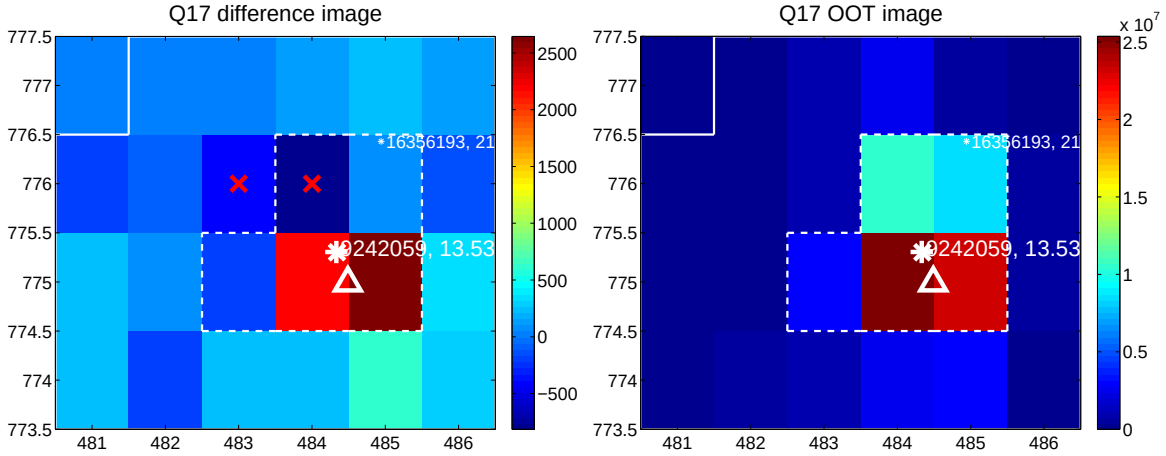


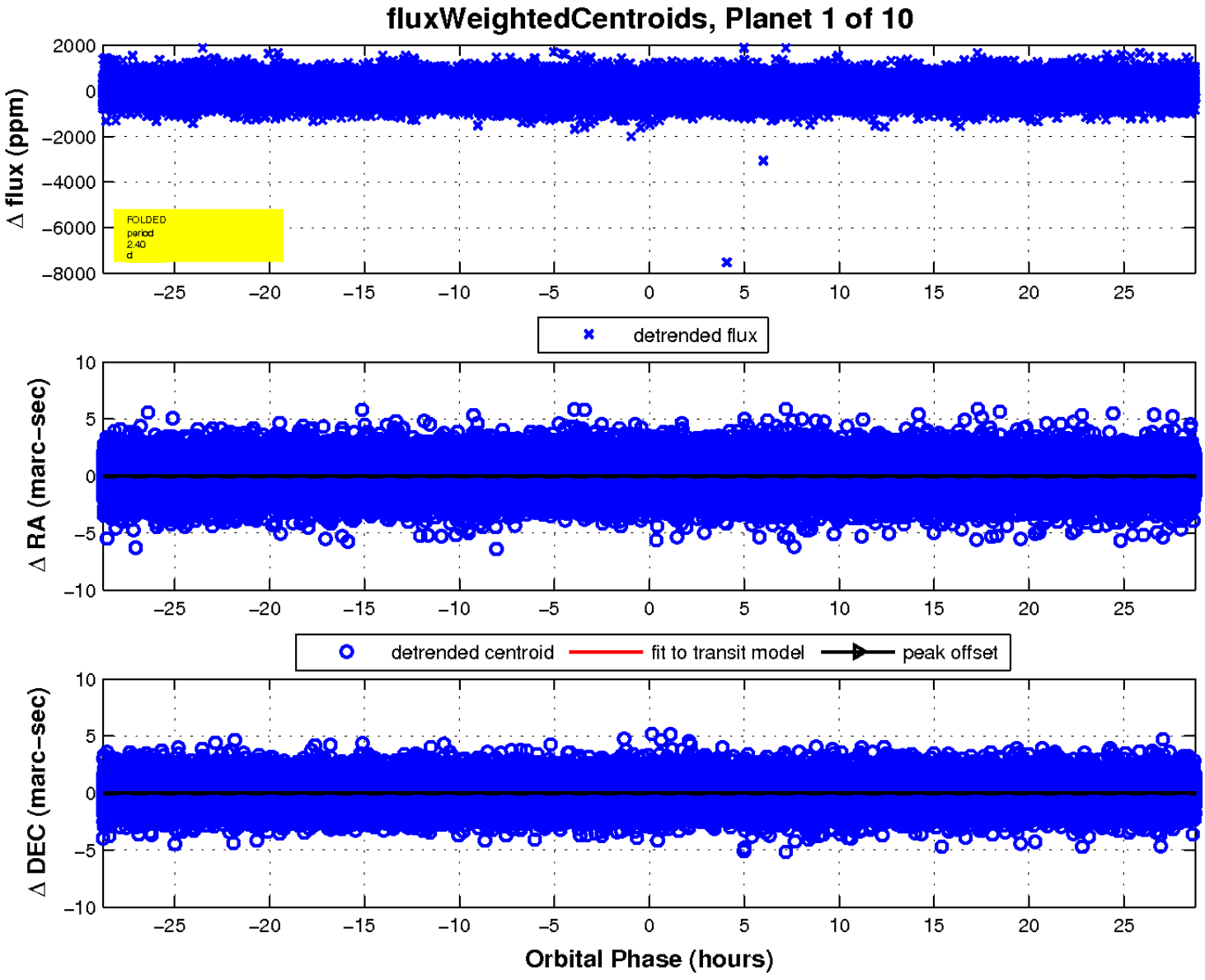




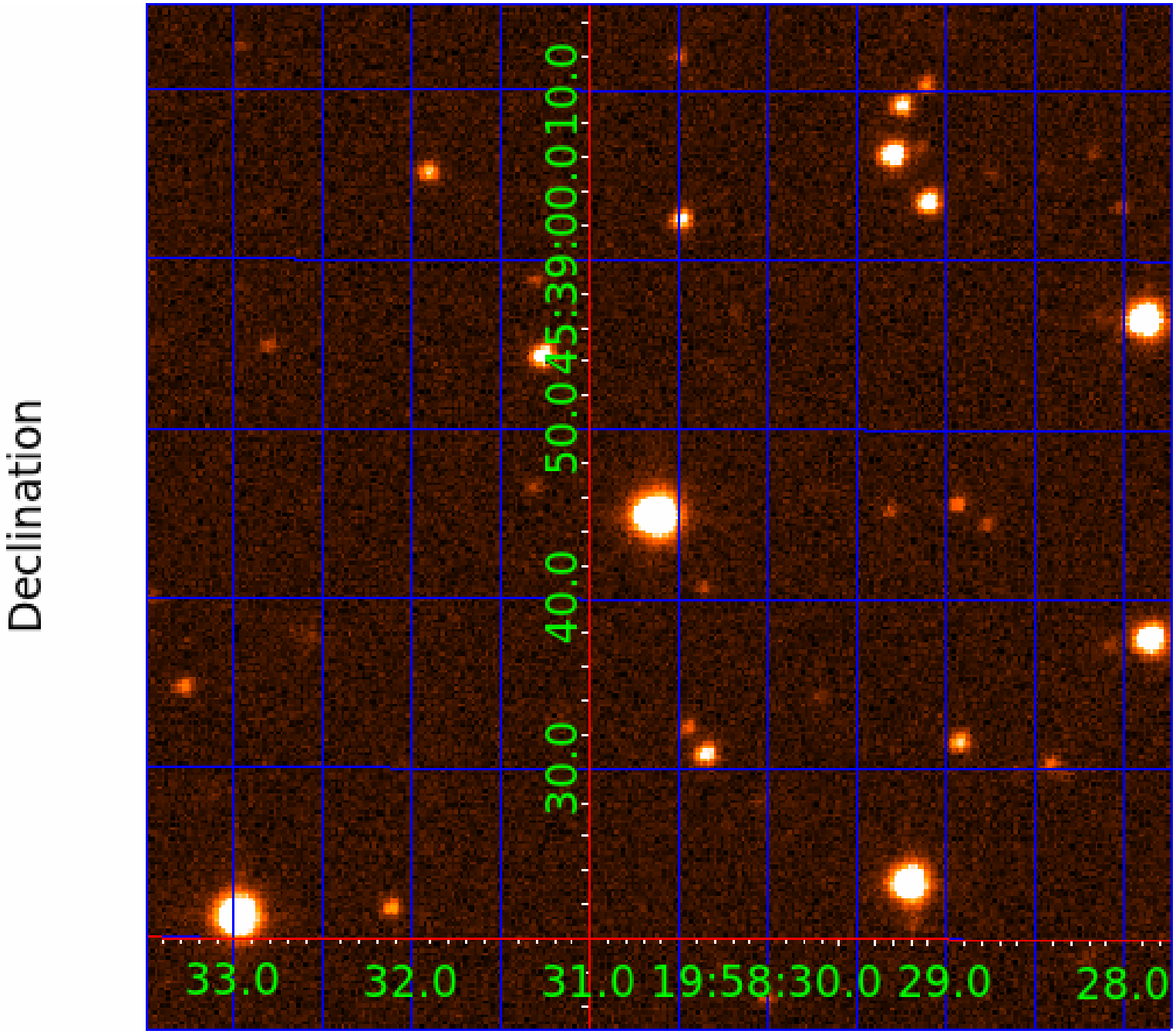


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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40.0
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33.0
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31.0
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28.0

KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

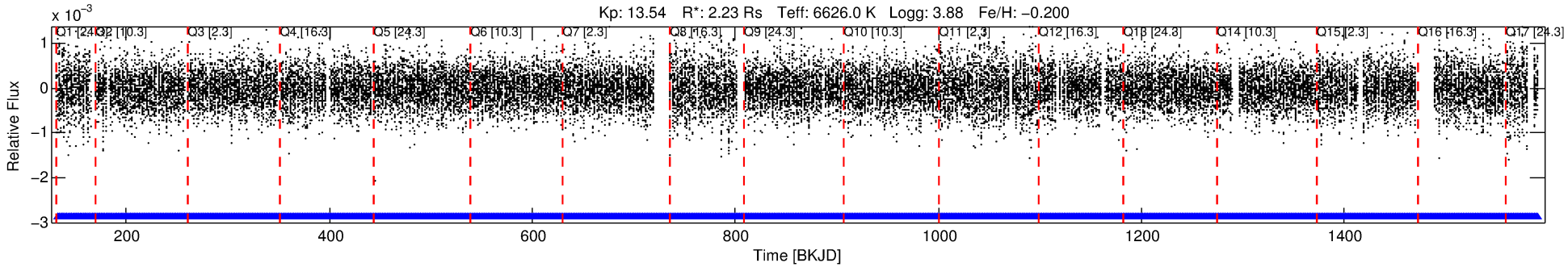
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

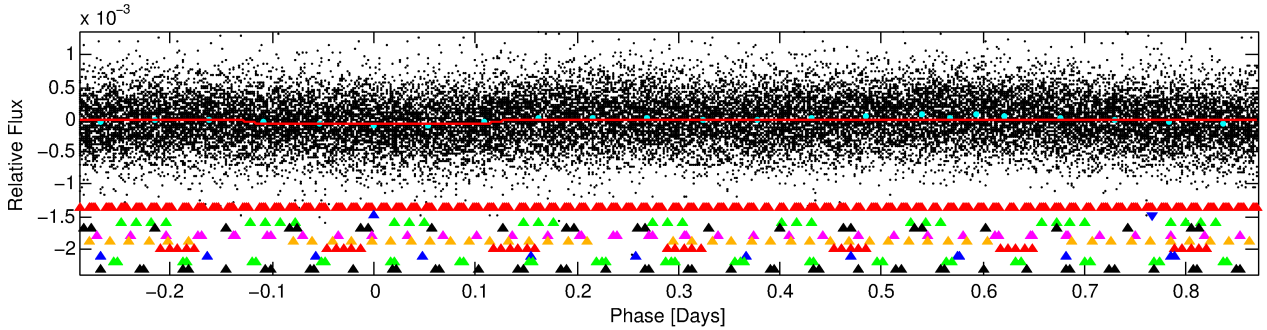
Ephemeris Match Information For 009242059-02

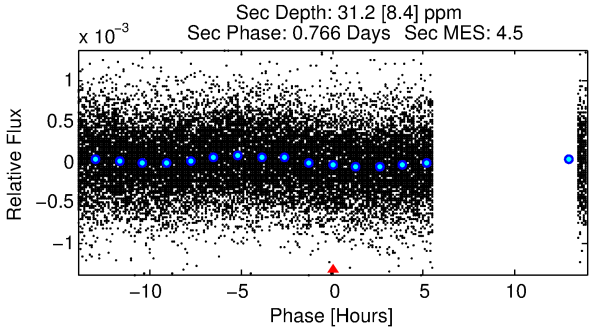
No Significant Match Found

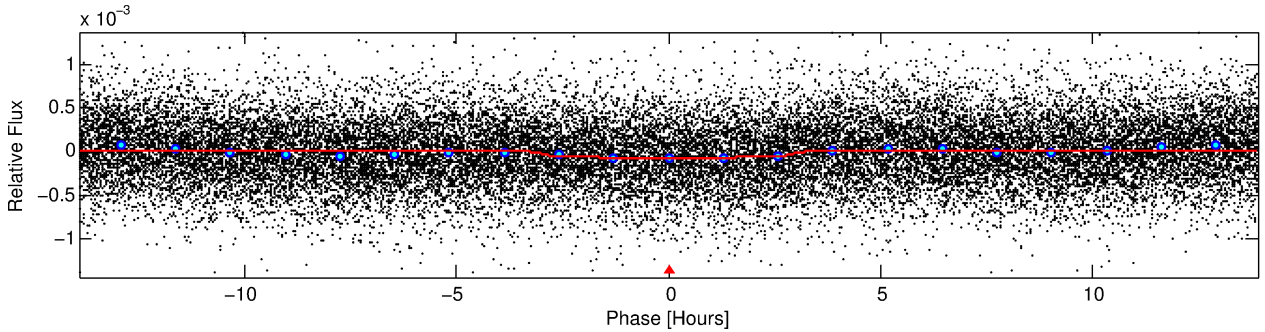
DV One-Page Summary

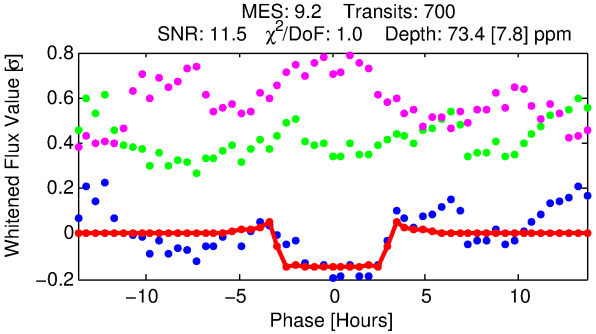
KIC: 9242059 Candidate: 2 of 10 Period: 1.161 d

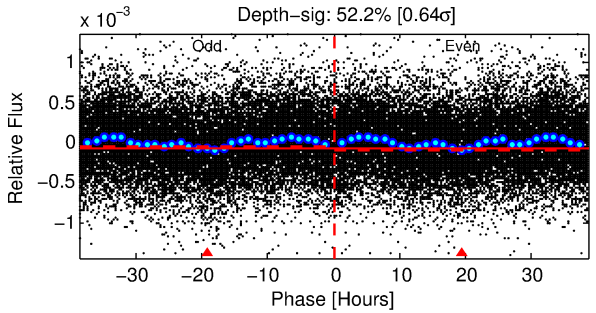


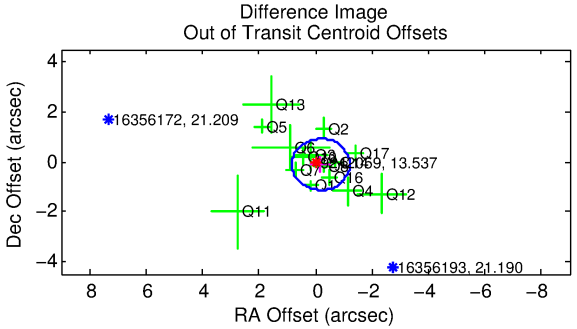












DV Fit Results:

Period = 1.16116 [0.00001] d
Epoch = 132.2135 [0.0040] BKJD
Rp/R* = 0.0094 [0.0012]
a/R* = 1.11 [0.13]
b = 0.92 [0.11]

Seff = 14981.67 [10311.11]
Teq = 2821 [485] K
Rp = 2.28 [1.02] Re
a = 0.0240 [0.0100] AU

Ag = 1.89 [1.46] [0.61σ]
Teffp = 5117 [505] K [3.28σ]

DV Diagnostic Results:

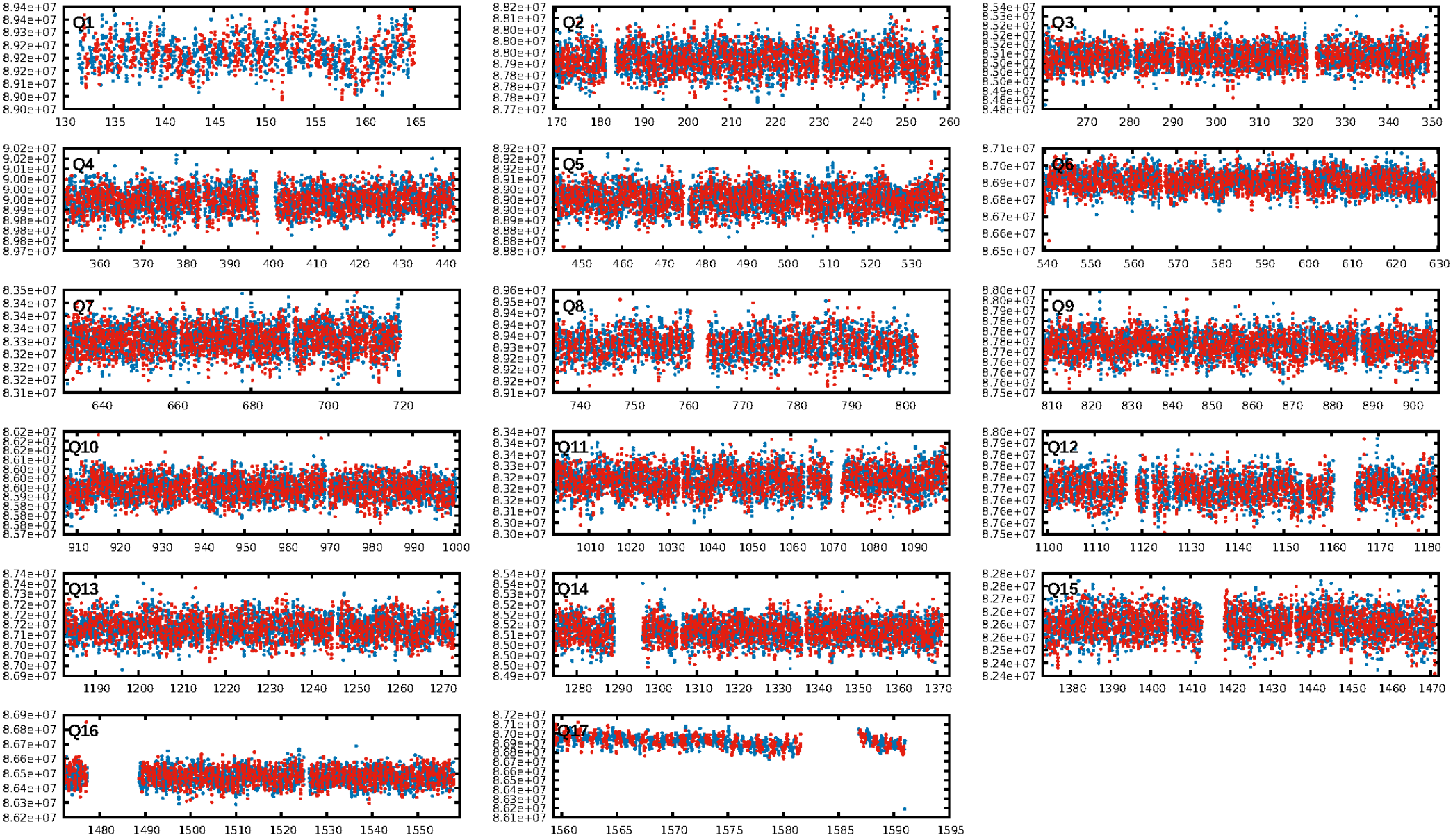
ShortPeriod−sig: N/A
LongPeriod−sig: 99.0% [2.56σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [668/668]
GhostDiagnostic−chr: −30.09

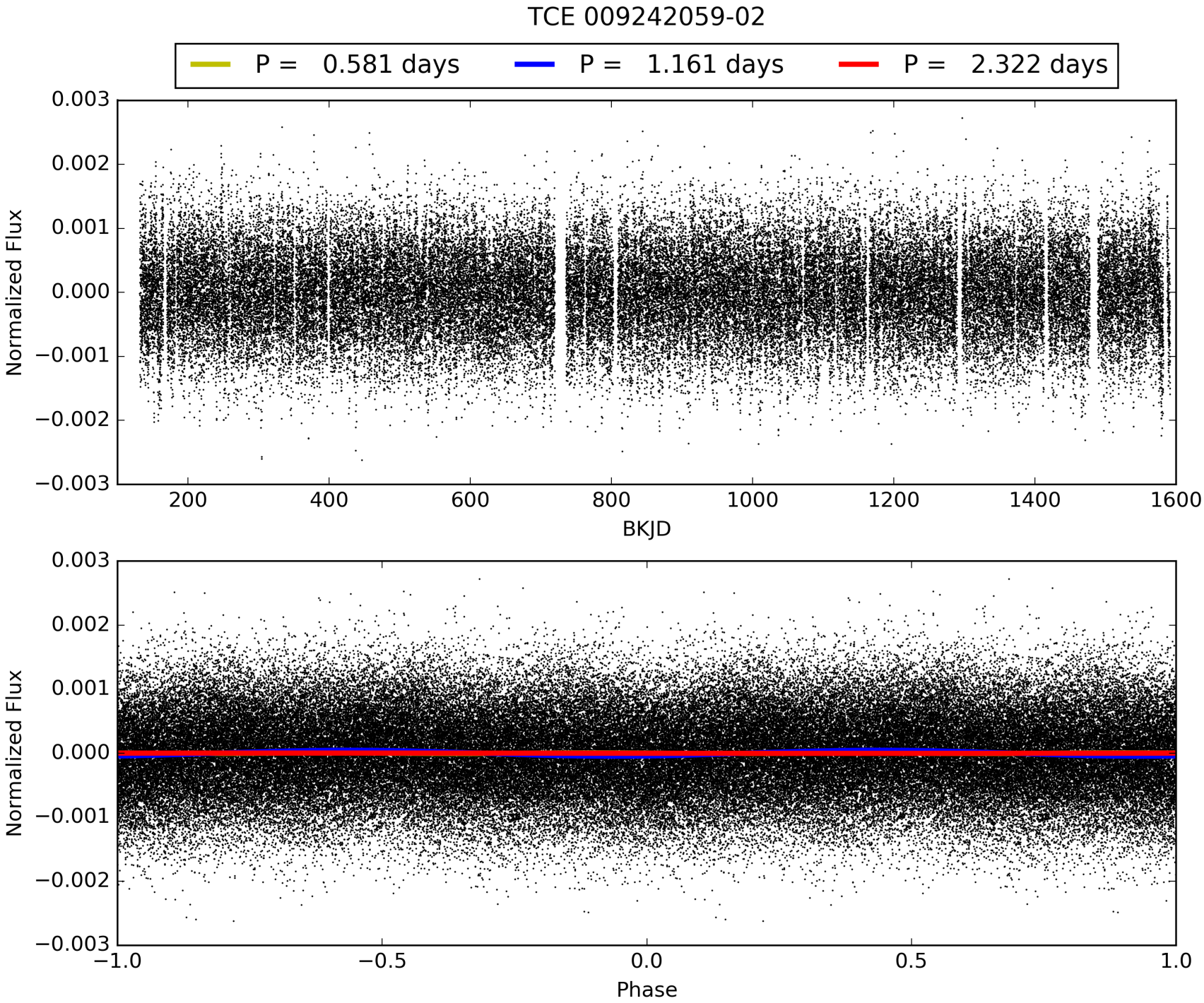
Centroid−sig: 7.3%
Centroid−so: 0.559 arcsec [1.29σ]
OotOffset−rm: 0.219 arcsec [0.64σ]
KicOffset−rm: 0.242 arcsec [0.72σ]
OotOffset−st: 4/3/4/4 [15]
KicOffset−st: 4/3/4/4 [15]
DiffImageQuality−fgm: 0.60 [9/15]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:52:47 Z

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

TCE 009242059-02, PDC Light Curves

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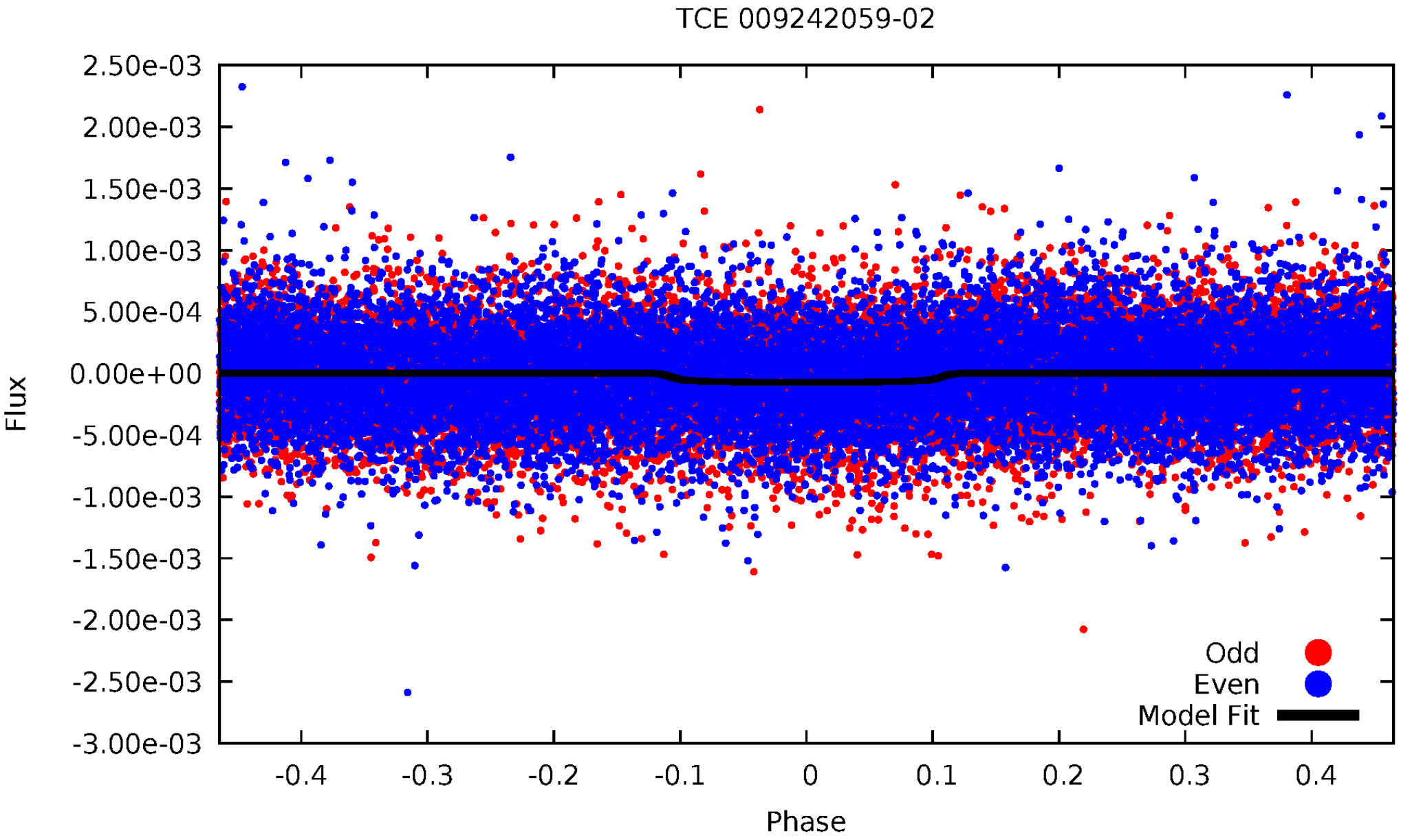
P = 0.581 days
P = 1.161 days
P = 2.322 days
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even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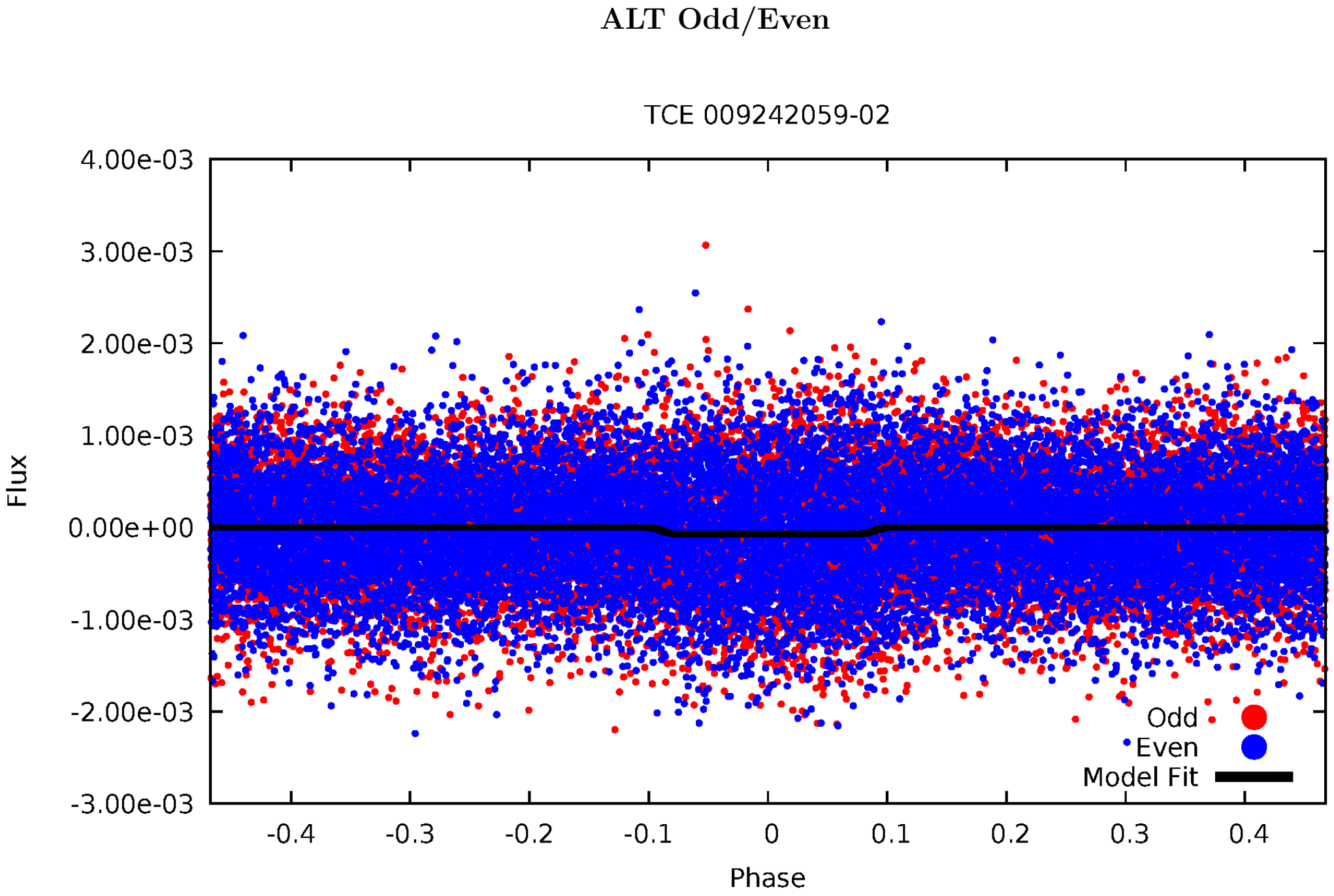
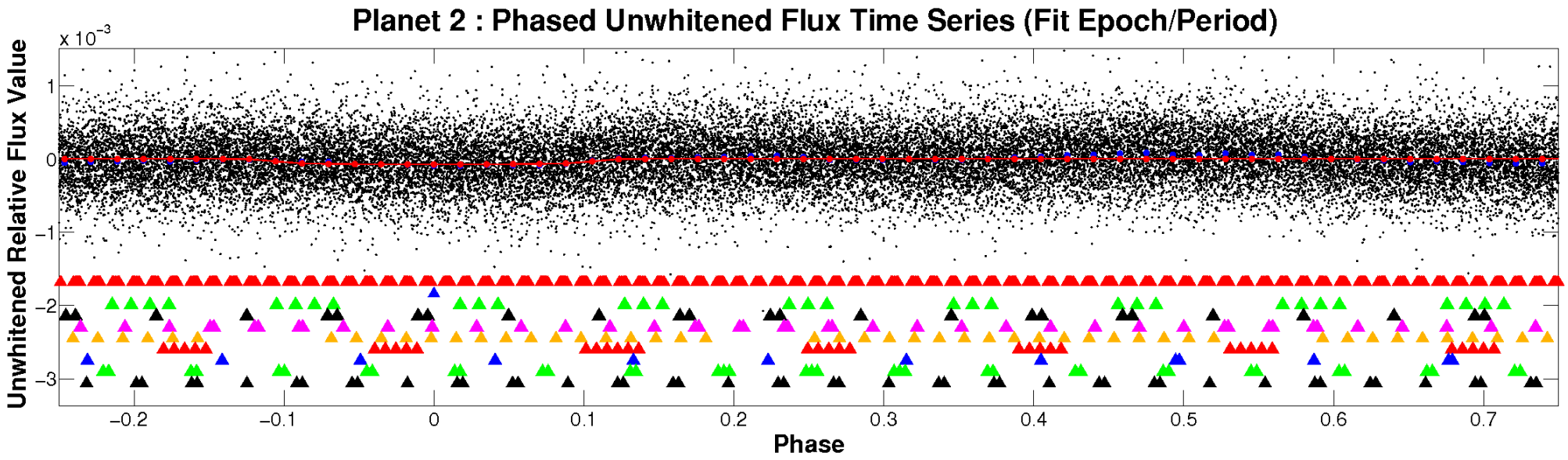
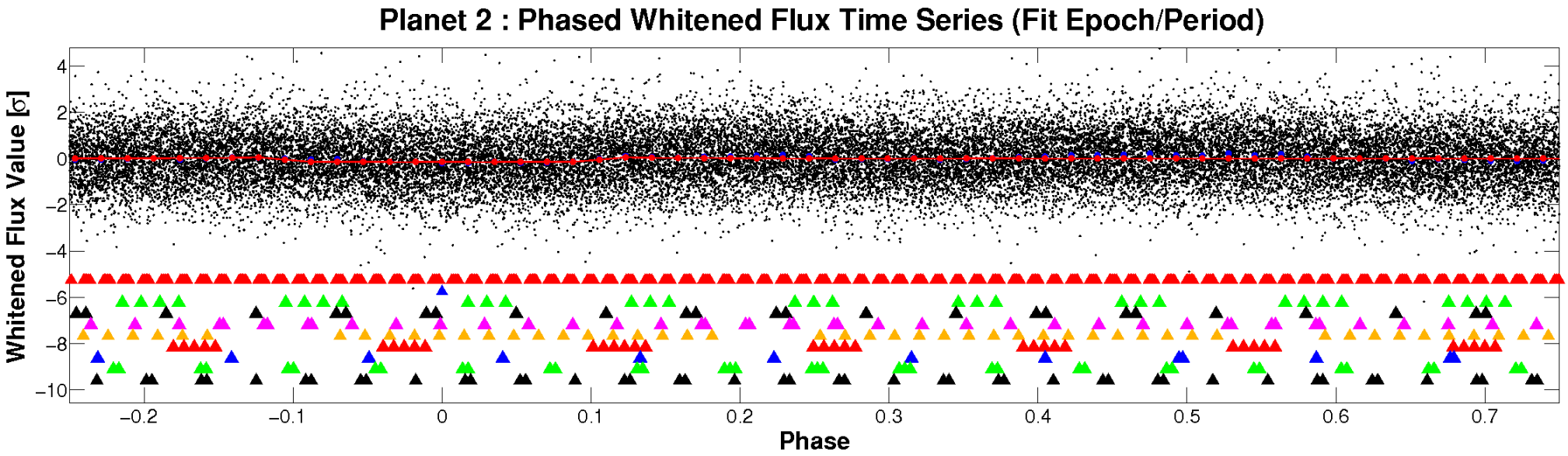
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-02
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

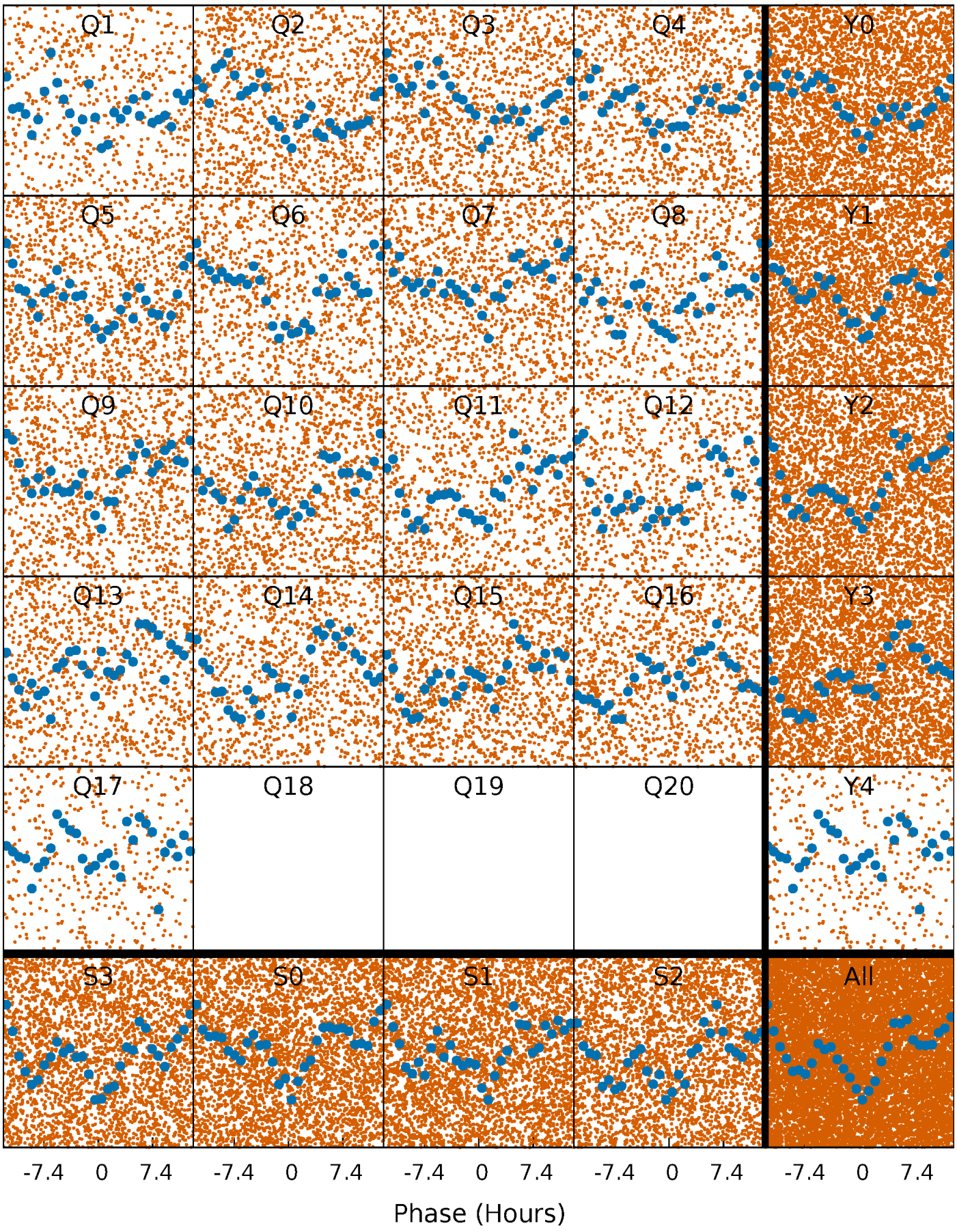
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009242059-02 P= 1.161164 Days T_0=132.213539 (BKJD)



DV Quarter-Phased Transit Curves

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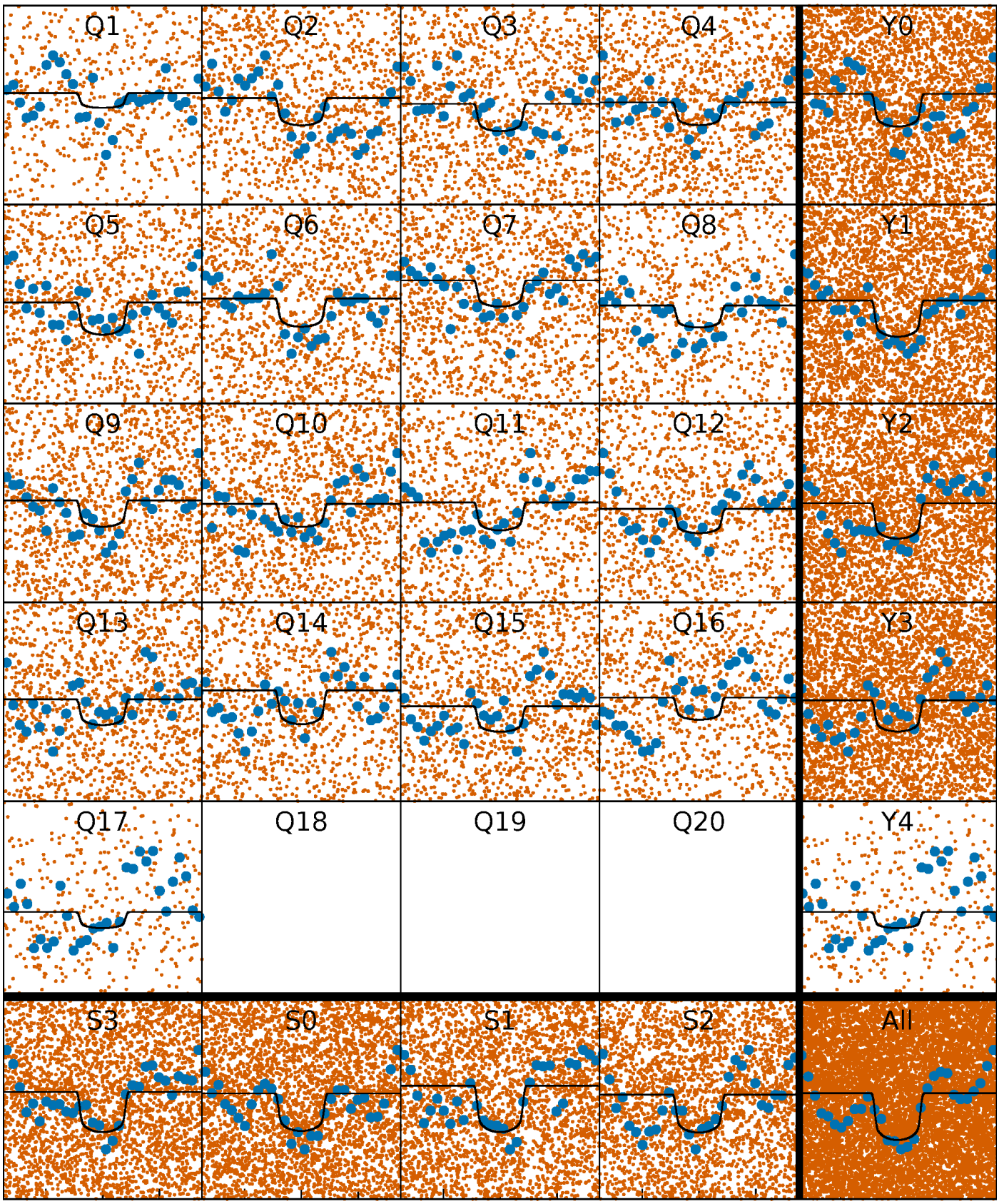
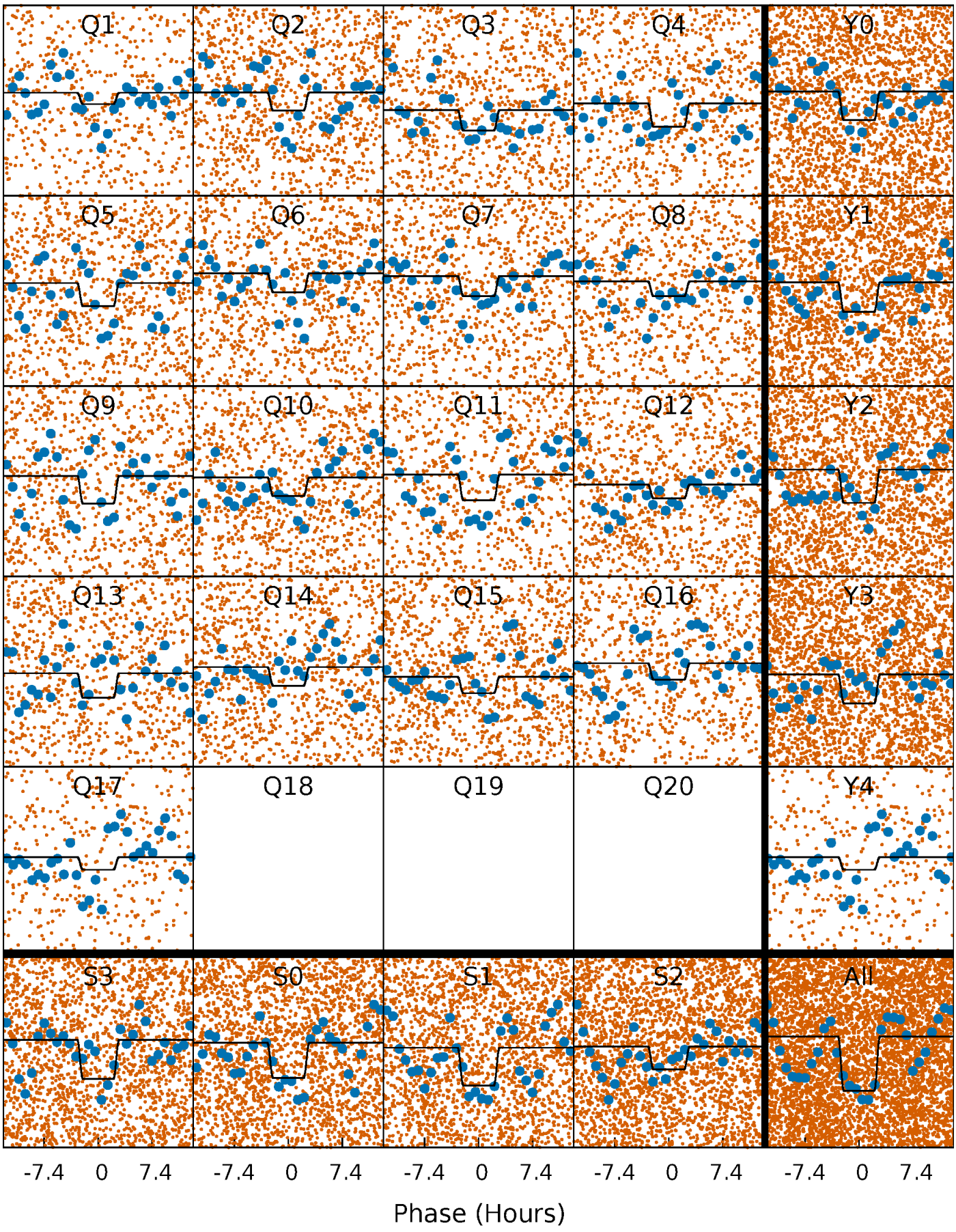


Alt. Detrend Quarter-Phased Transit Curves

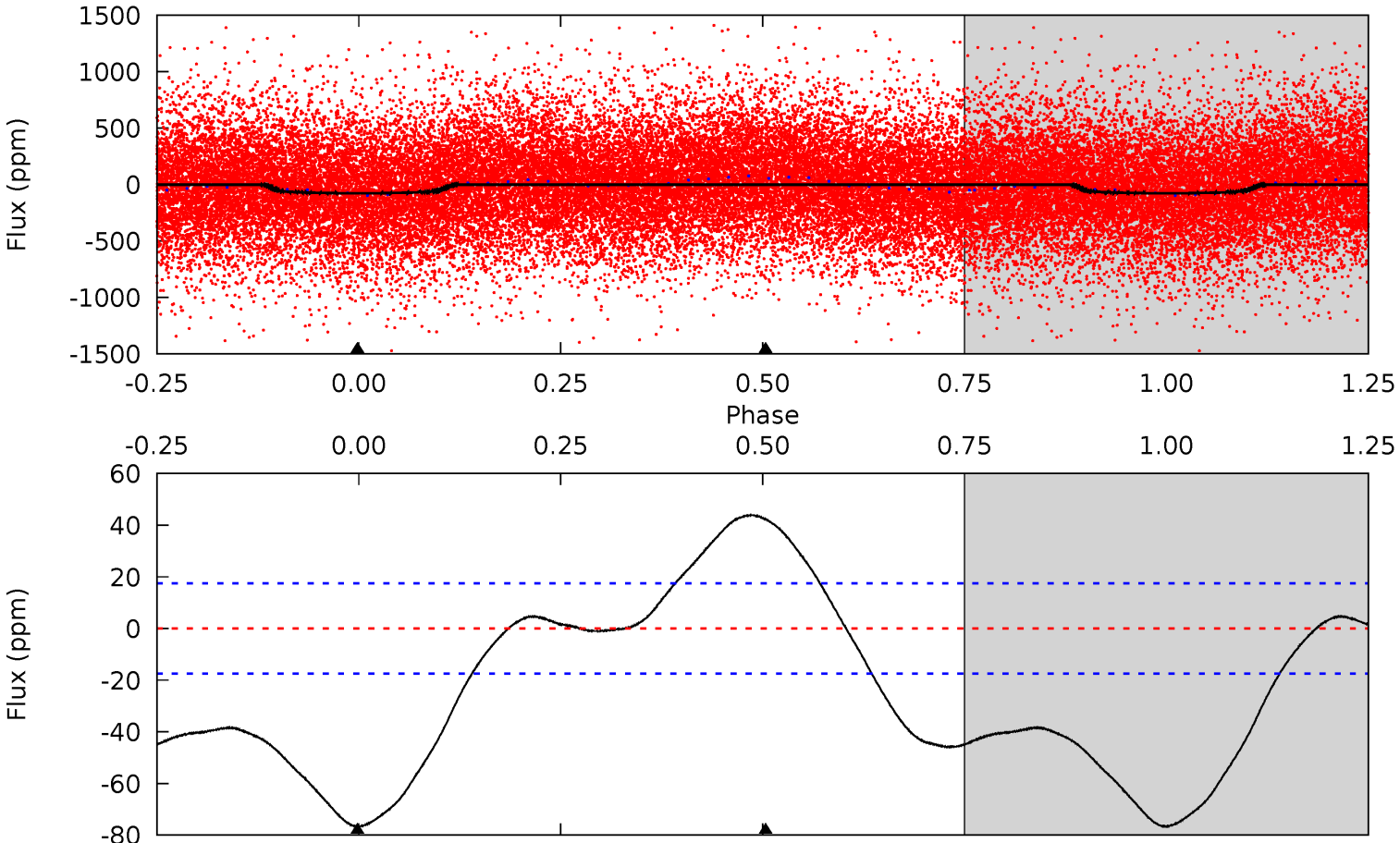
TCE 009242059-02 P= 1.161193 Days T_0=132.210823 (BKJD)

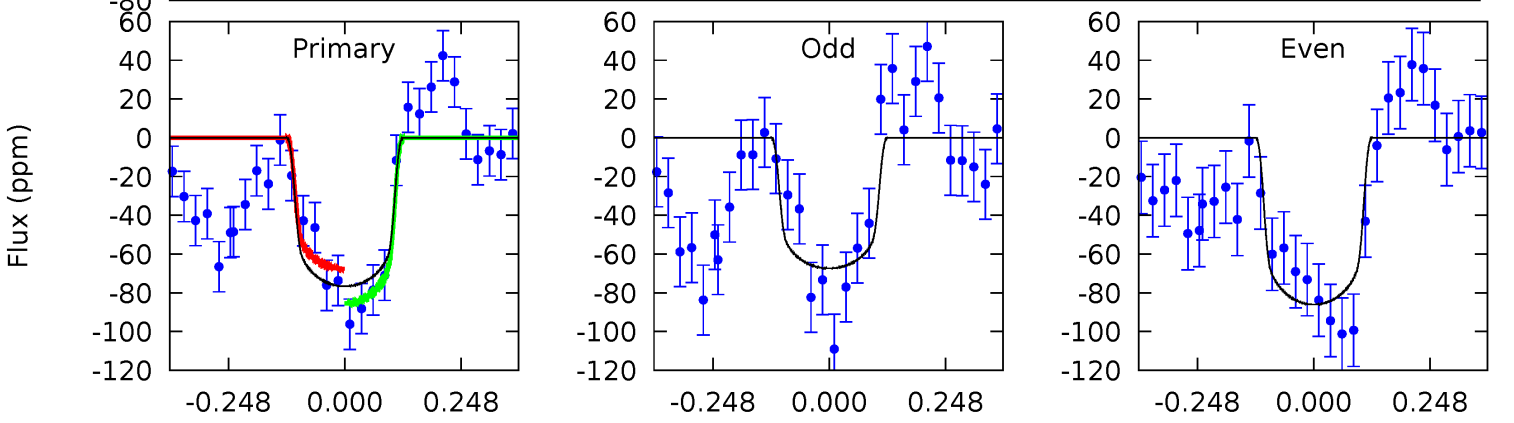


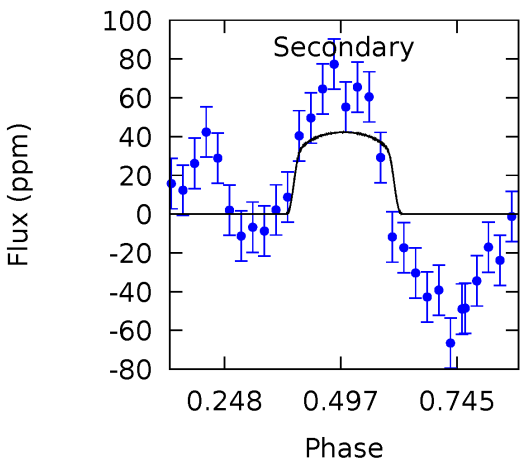
DV Model-Shift Uniqueness Test

009242059-02, P = 1.161164 Days, E = 131.052375 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	-10.5	0	0	4.37	1.15	5.74	19.1	19.1	-10.5	-10.5	2.32	1.20	0.36	2.22



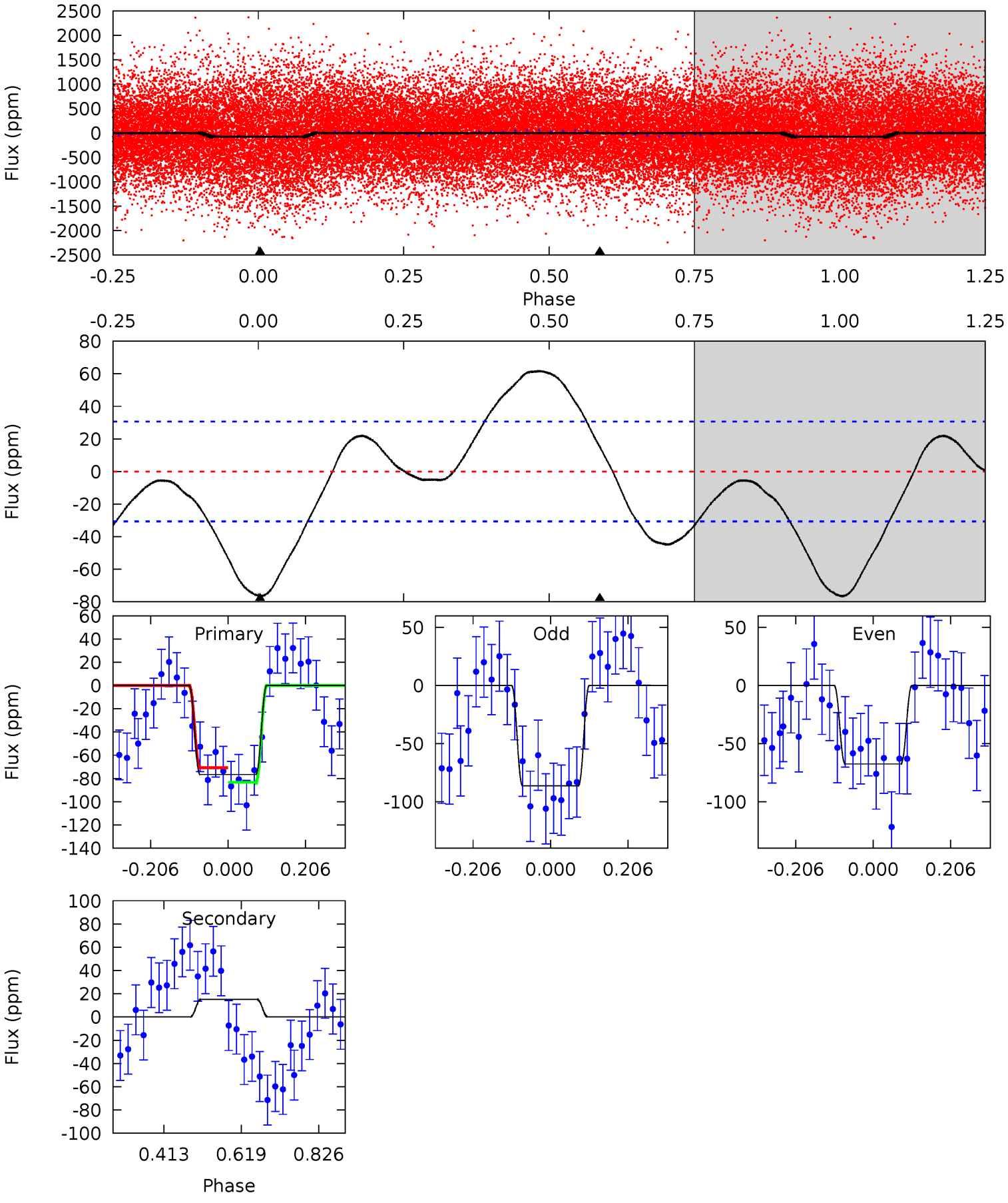




Alt Model-Shift Uniqueness Test

009242059-02, P = 1.161193 Days, E = 131.049630 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	-2.19	0	0	4.41	1.26	1.22	11.0	11.0	-2.19	-2.19	1.35	0.92	0.45	0.92



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	42±4	$2.18^{+0.46}_{-0.51}$	3839^{+304}_{-393}	-5654^{+335}_{-359}	$-2.833^{+0.899}_{-1.867}$
Alt.	15±7	$2.01^{+0.45}_{-0.50}$	3877^{+290}_{-431}	-4823^{+456}_{-436}	$-1.194^{+0.606}_{-1.081}$

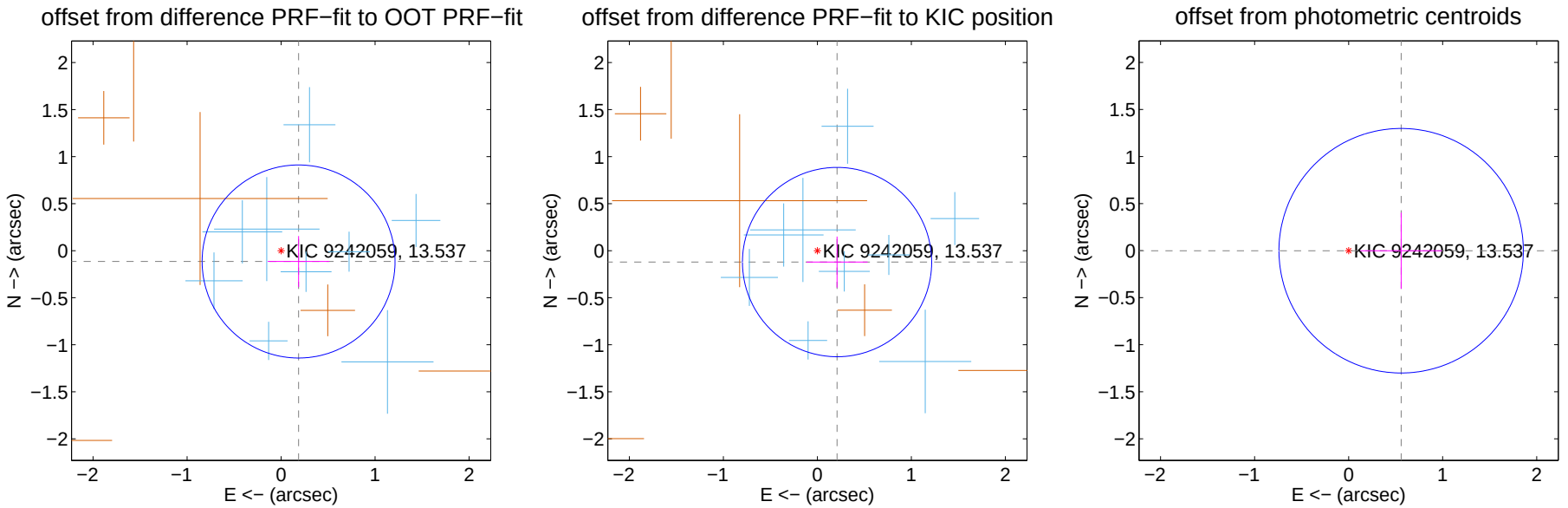
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

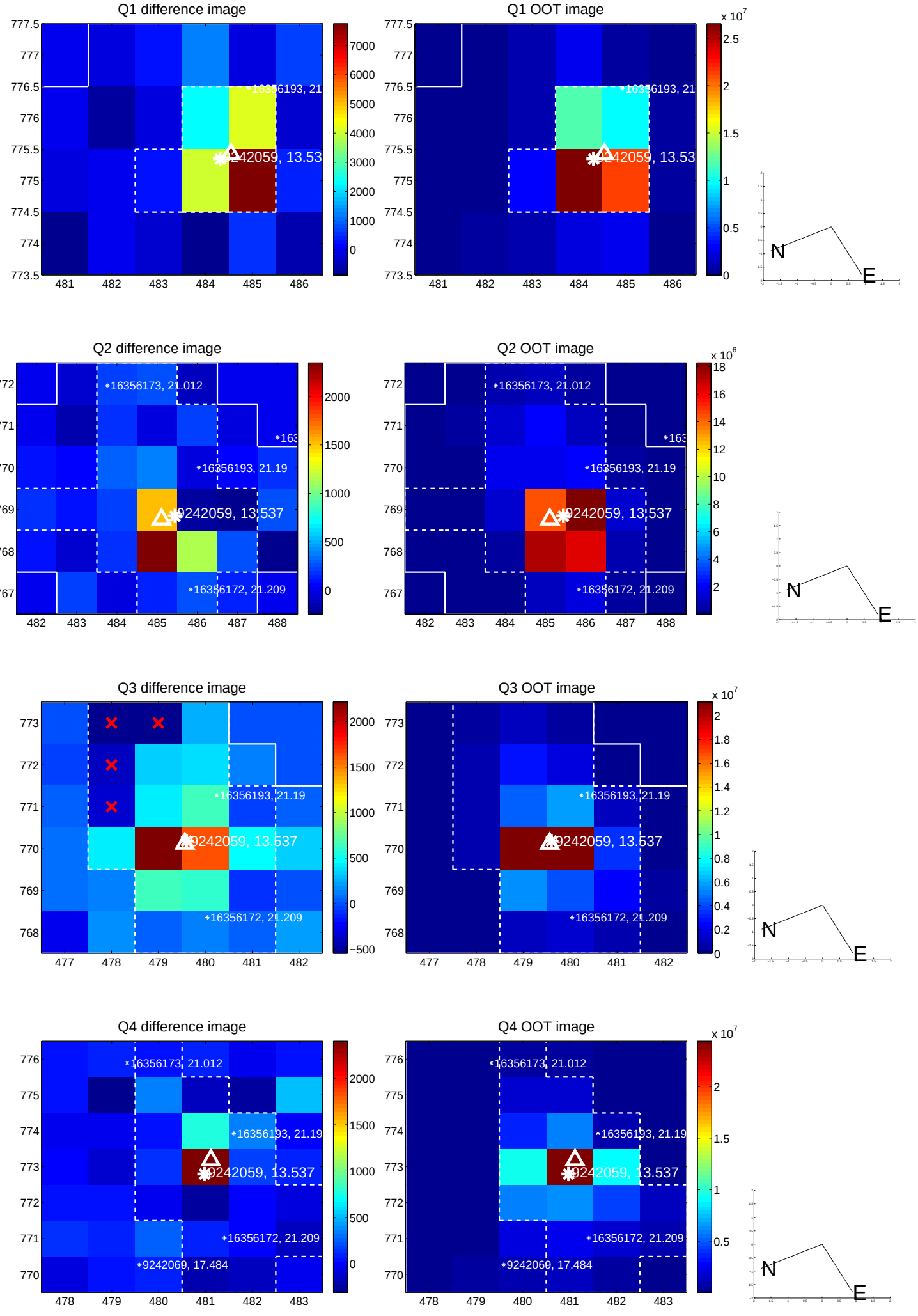
Supplemental centroid analysis for 009242059-02. Kepler magnitude: 13.54. Transit SNR 11.52
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.219 ± 0.342	0.64	-0.186 ± 0.328	-0.115 ± 0.271
PRF-fit source offset from KIC position	0.242 ± 0.335	0.72	-0.209 ± 0.325	-0.121 ± 0.271
photometric centroid source offset	0.56 ± 0.43	1.29	-0.56 ± 0.43	-0.00 ± 0.40

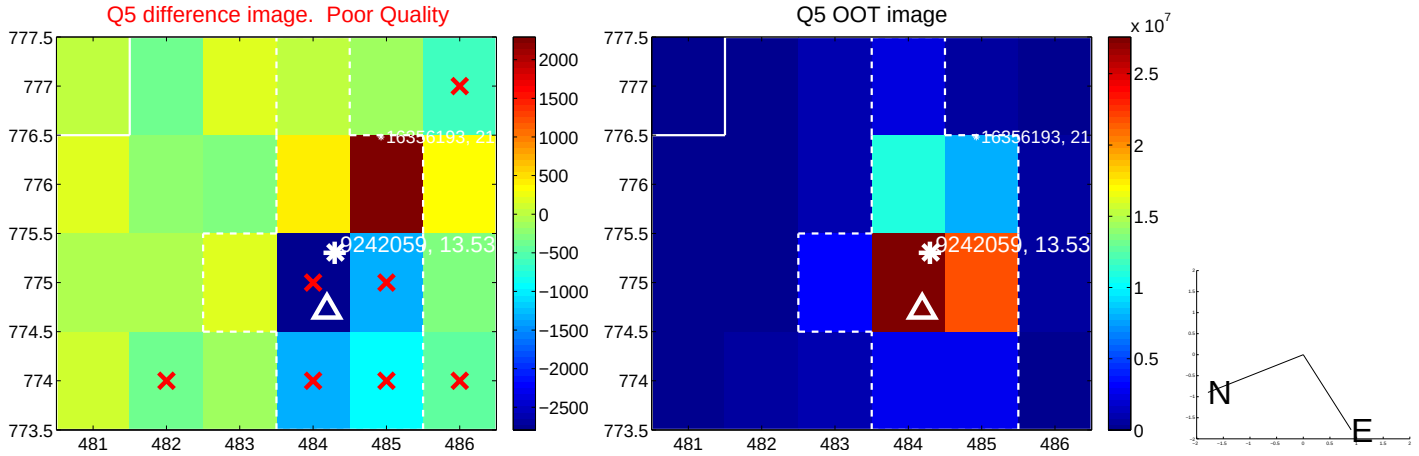


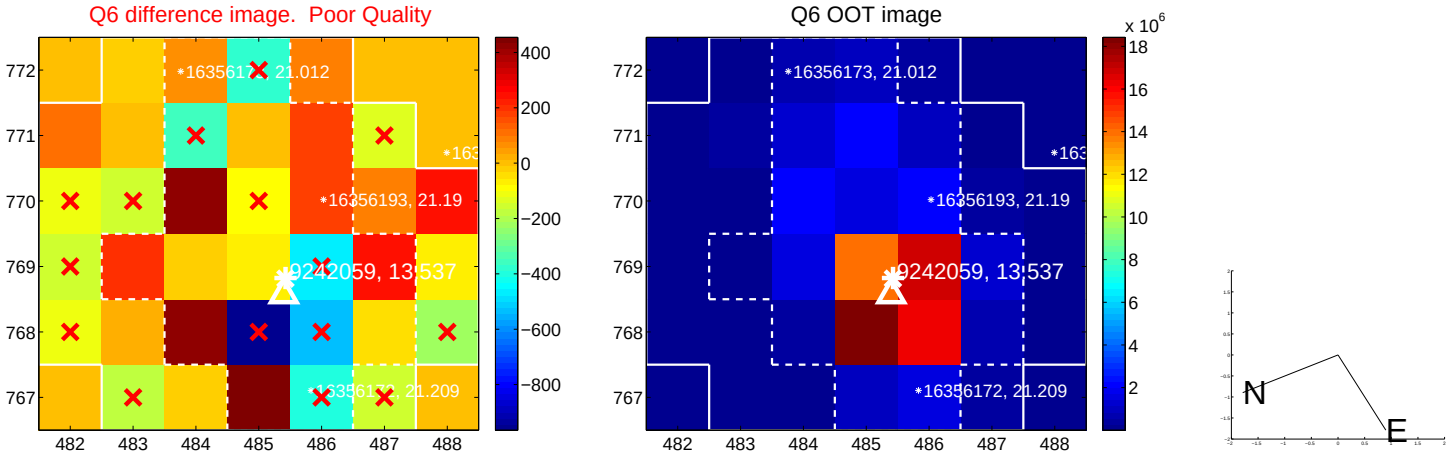
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

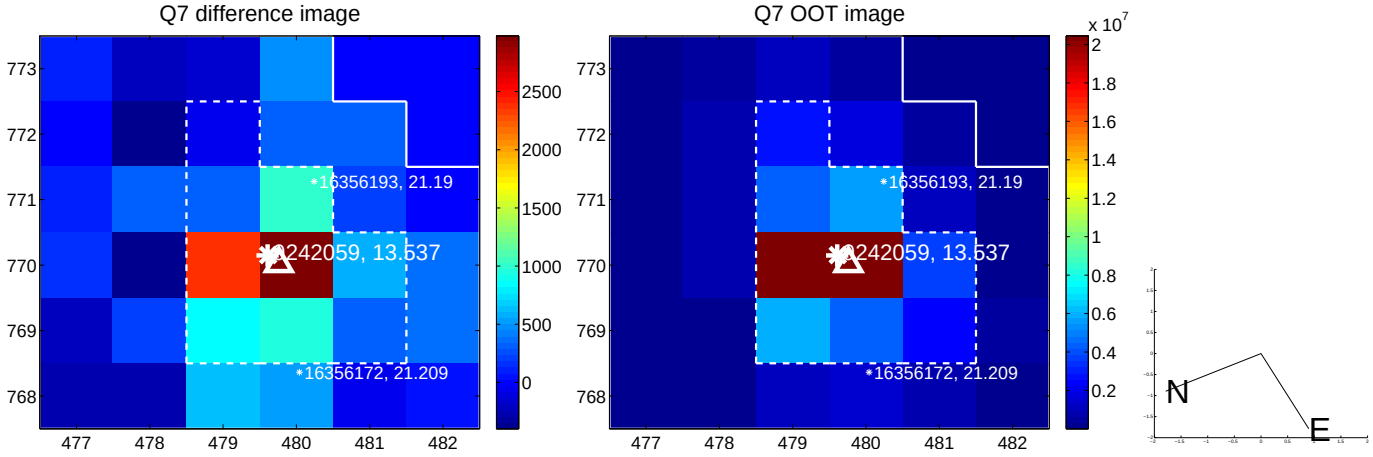
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

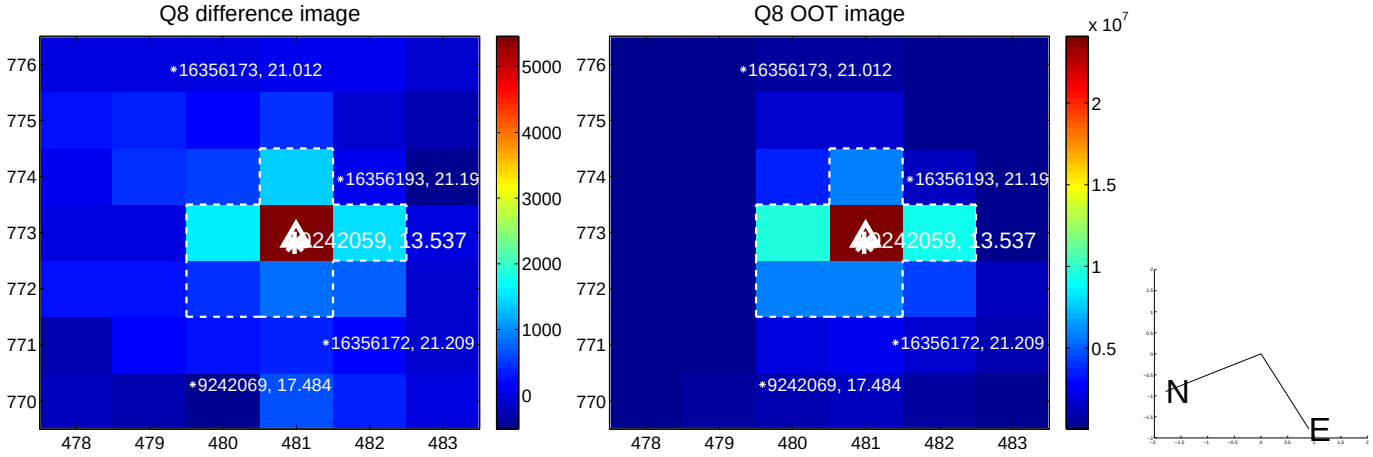


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

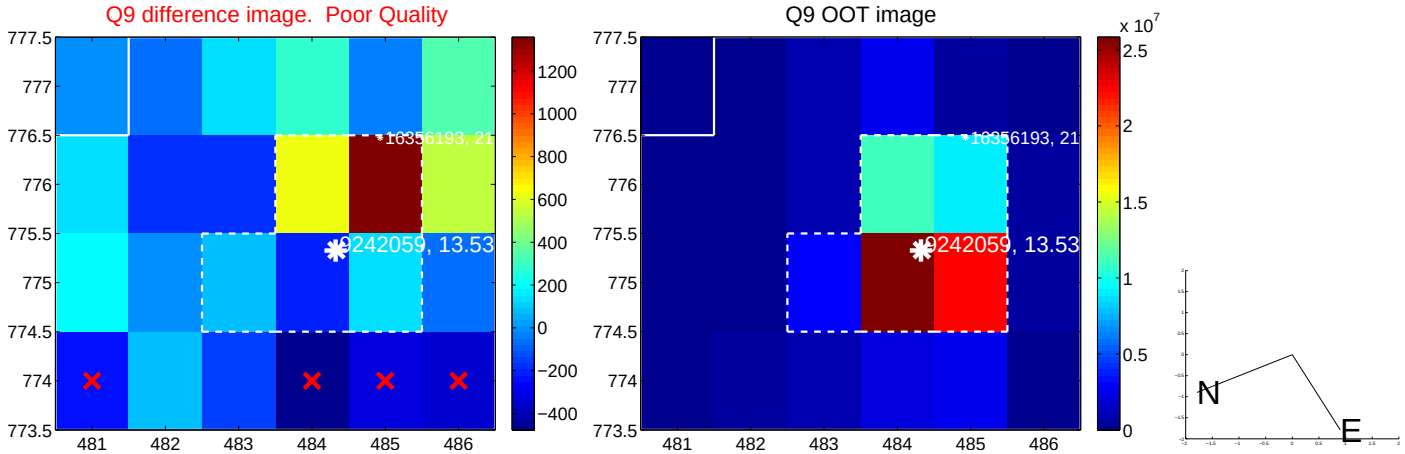


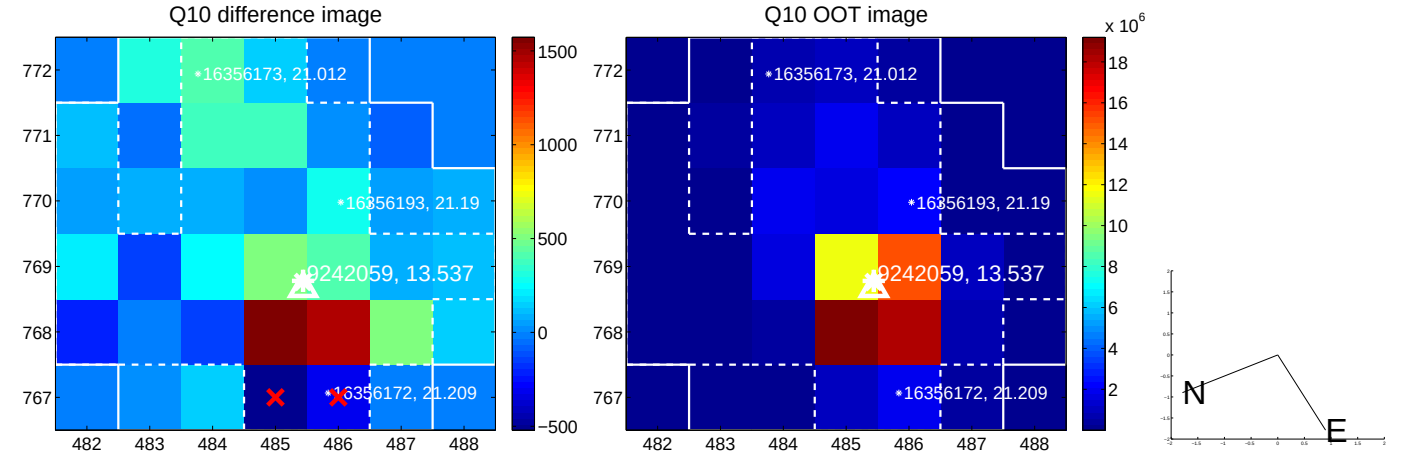


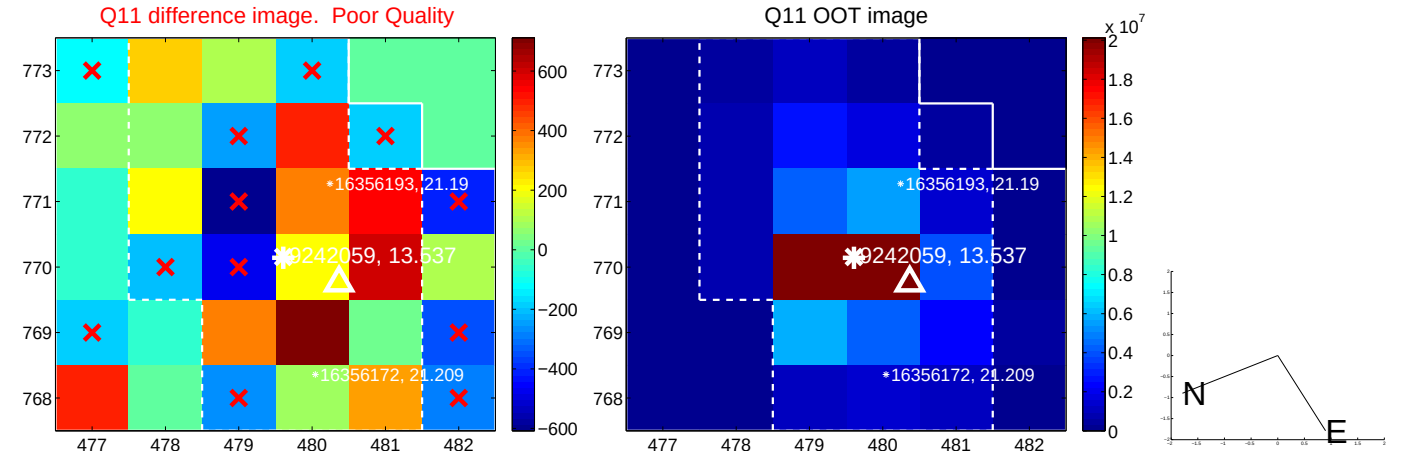


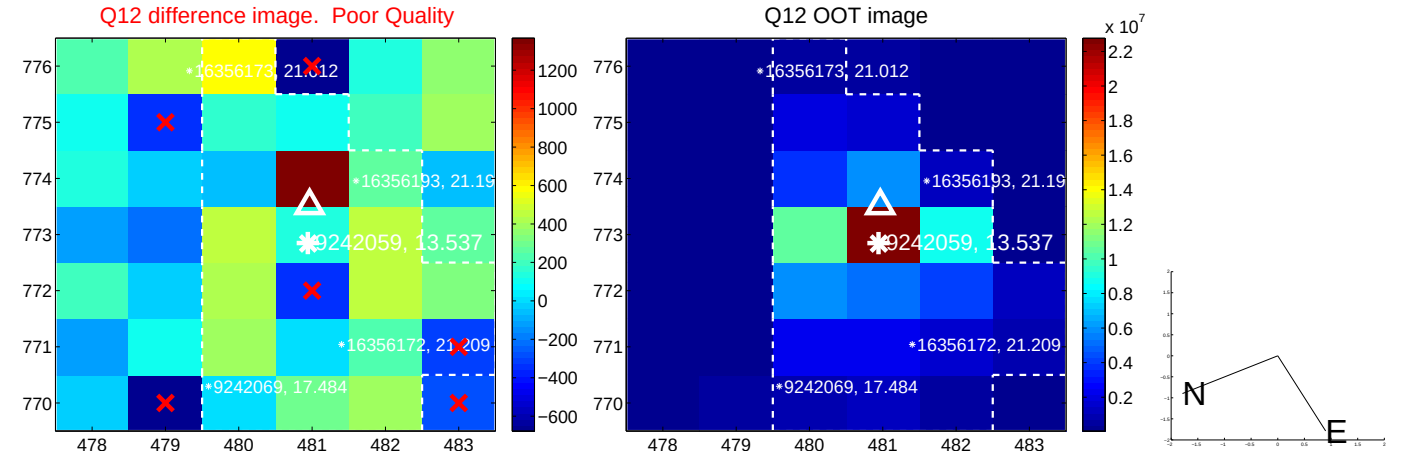


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

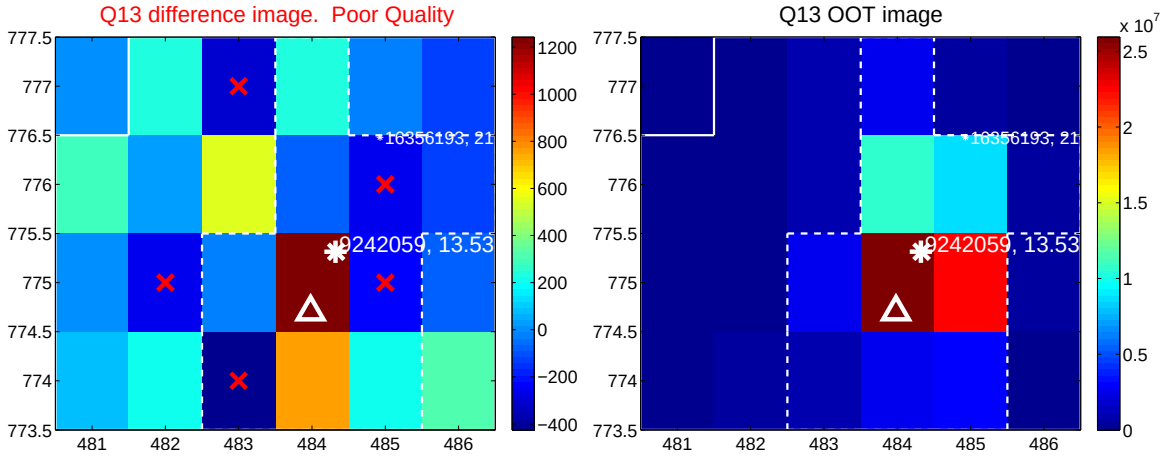


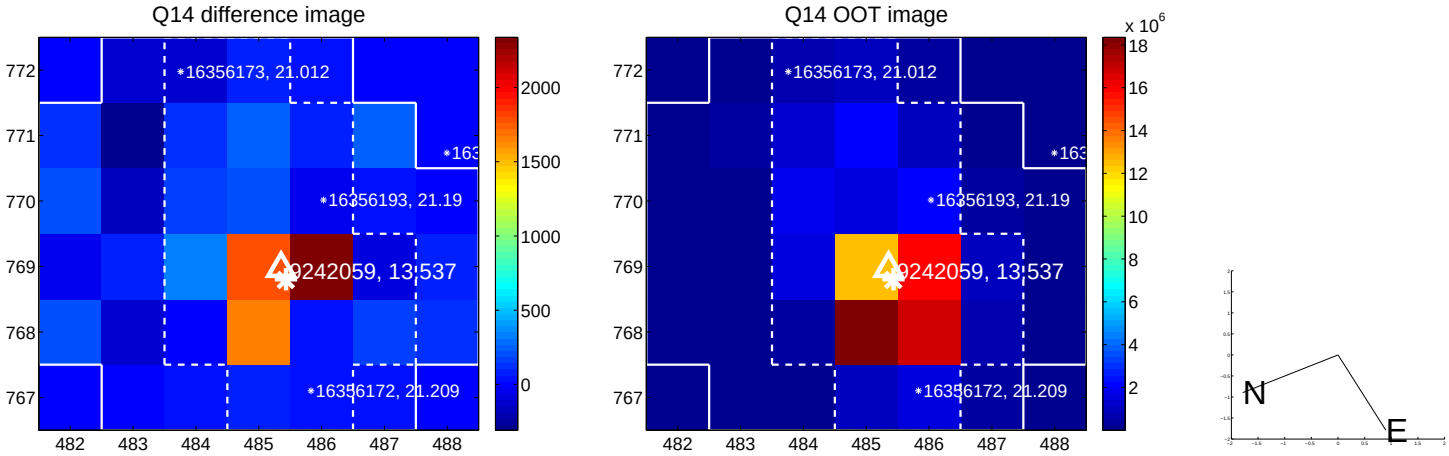


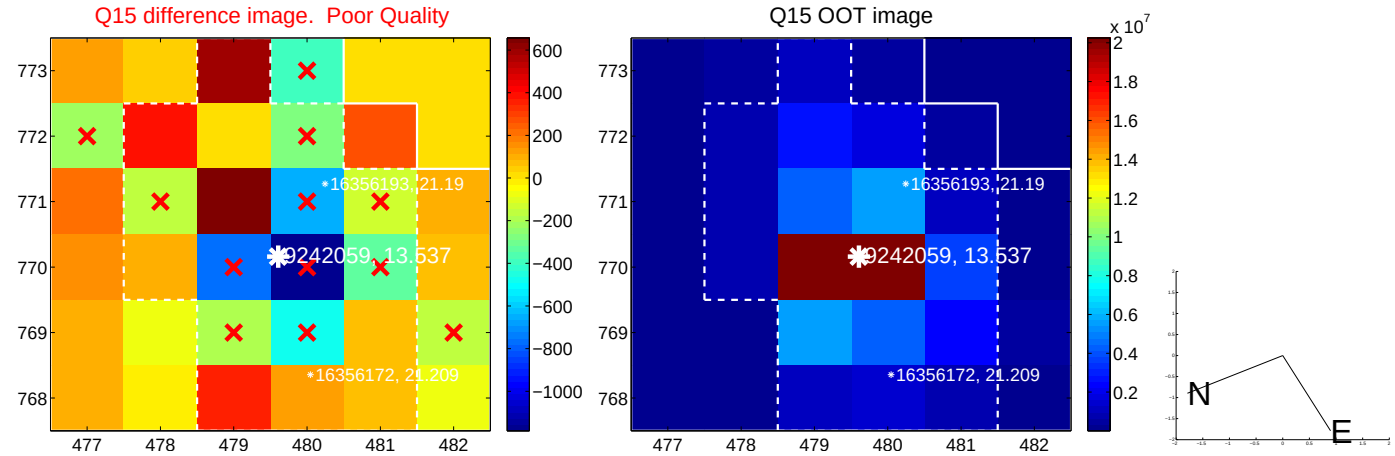


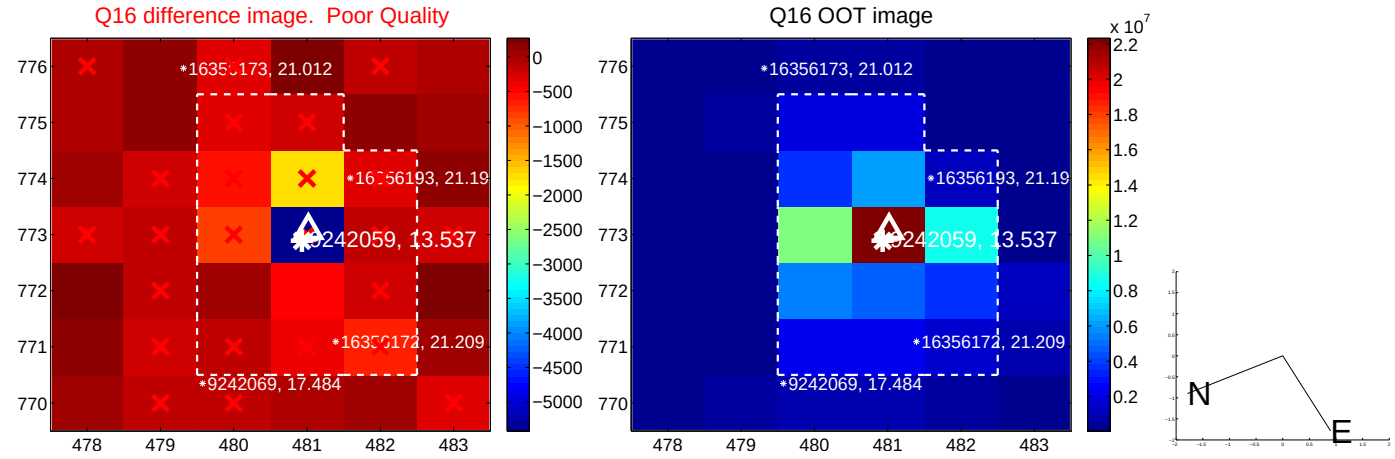


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

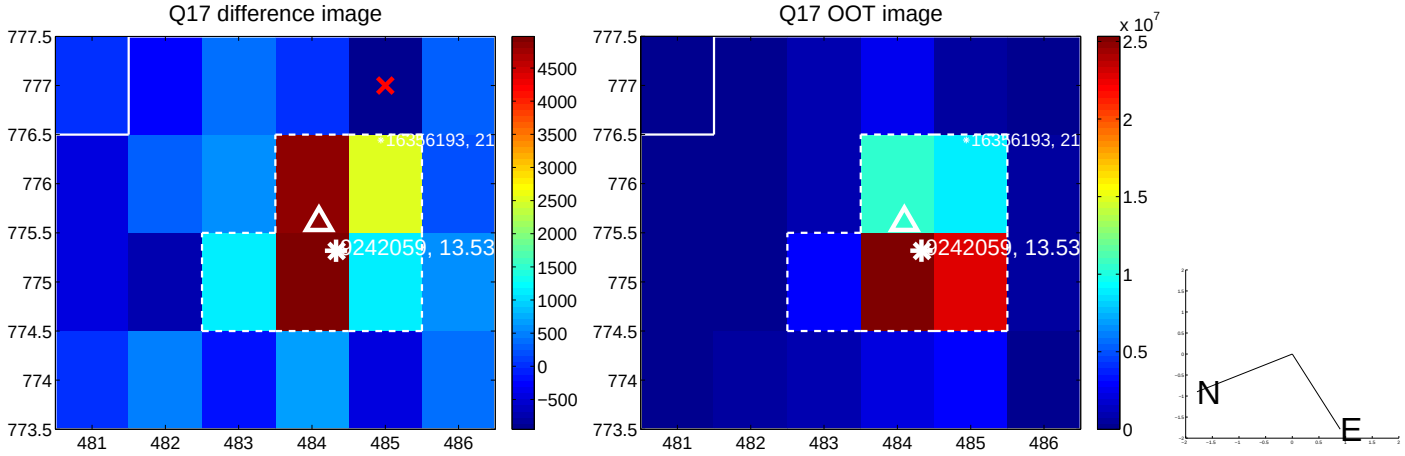


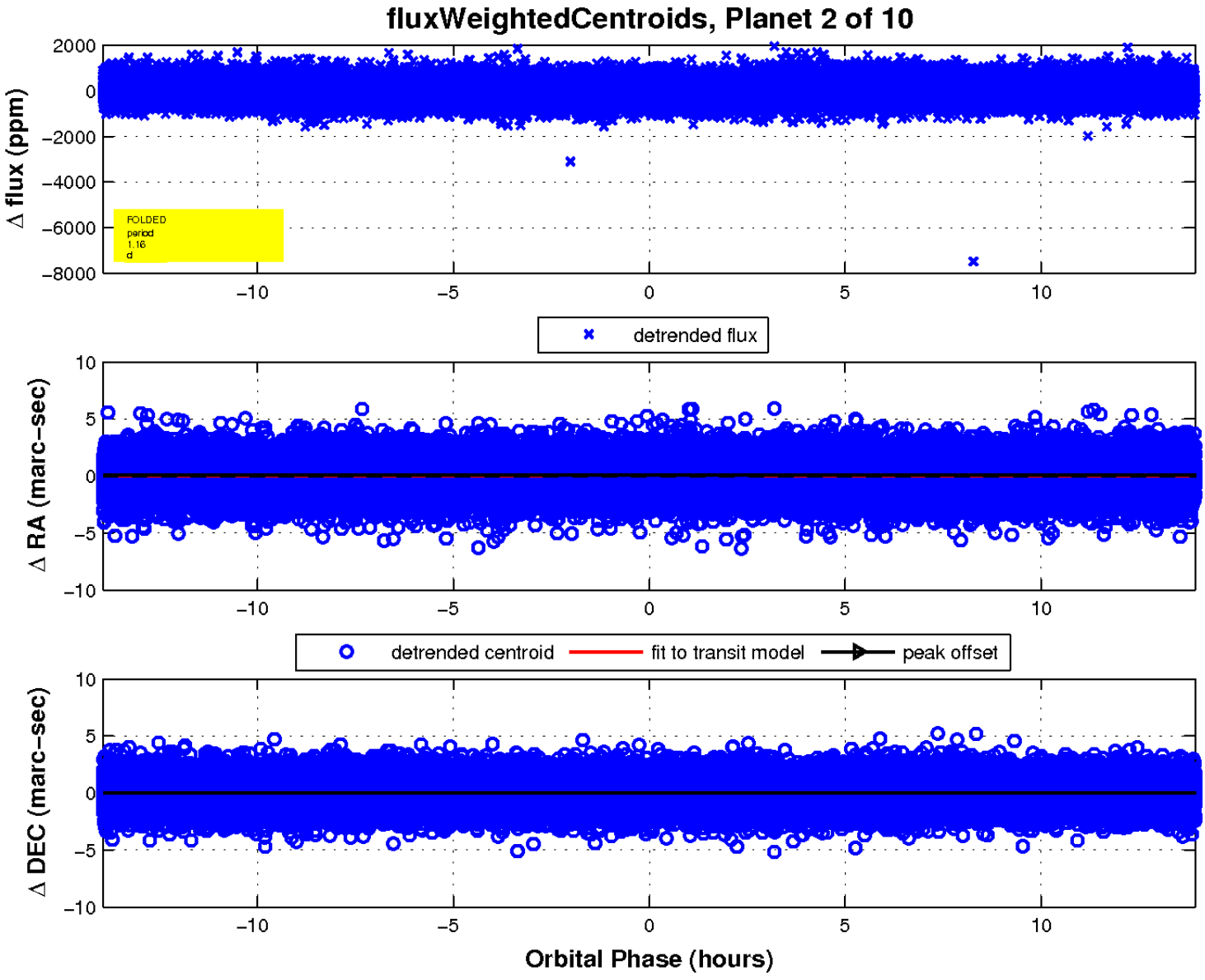




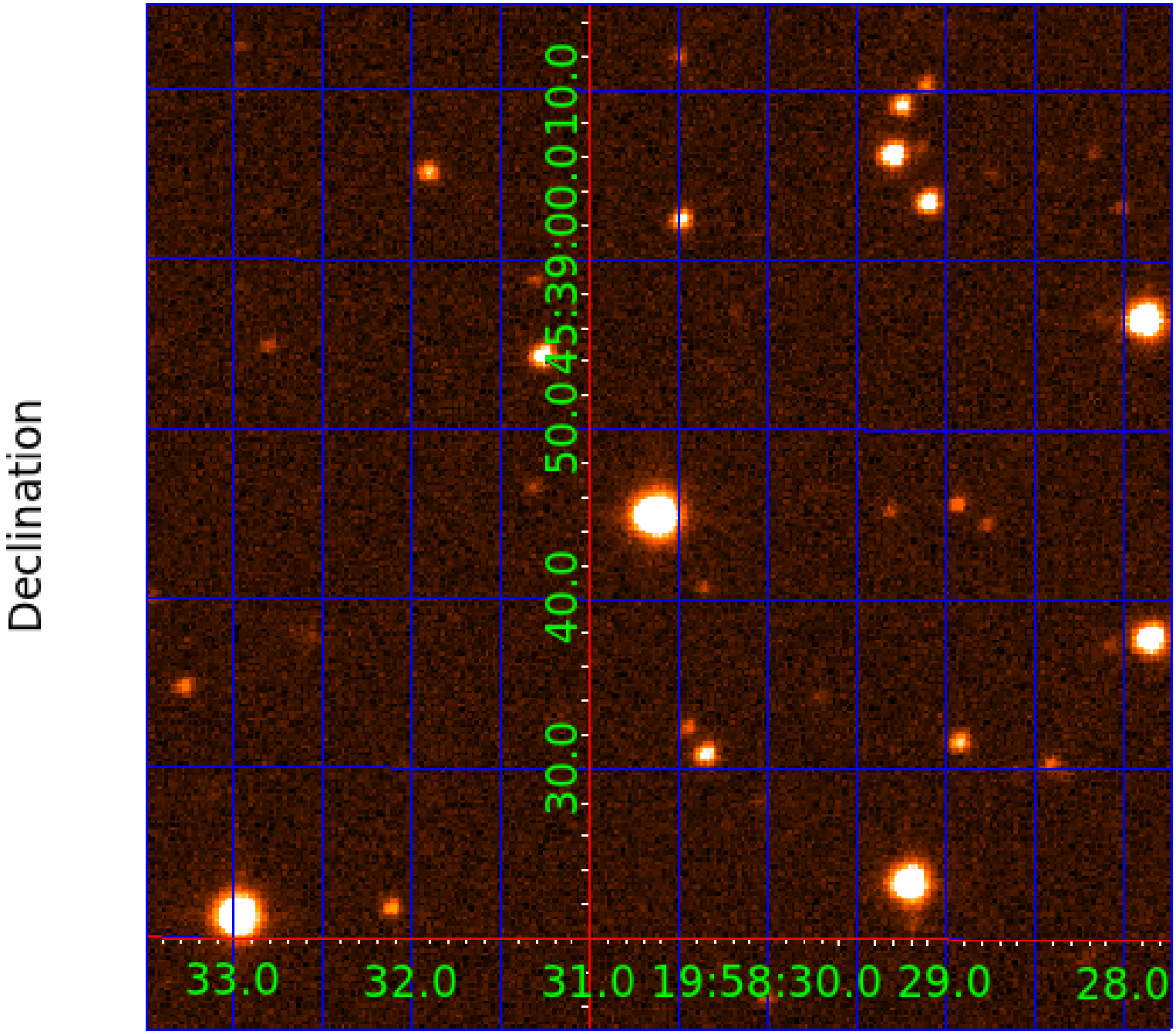


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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19:58:30.0
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28.0

KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

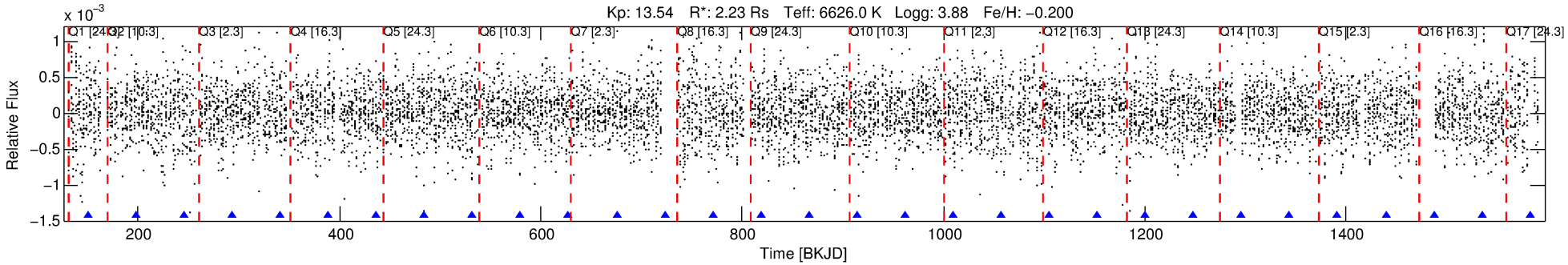
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

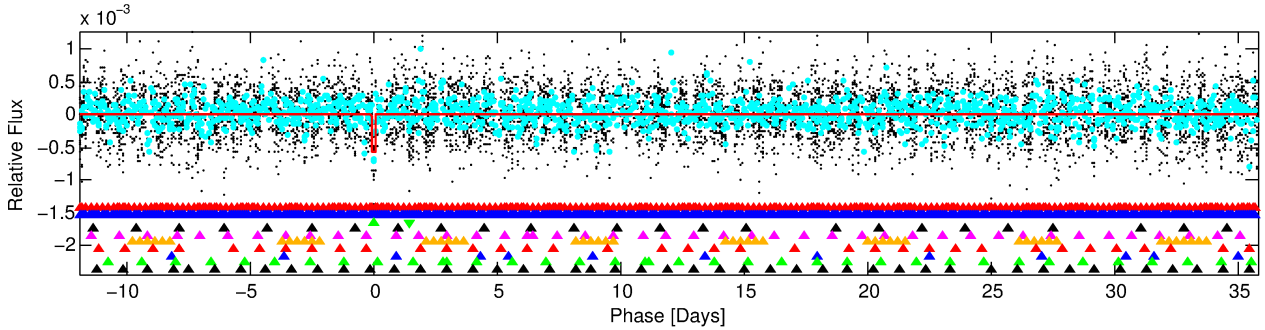
Ephemeris Match Information For 009242059-03

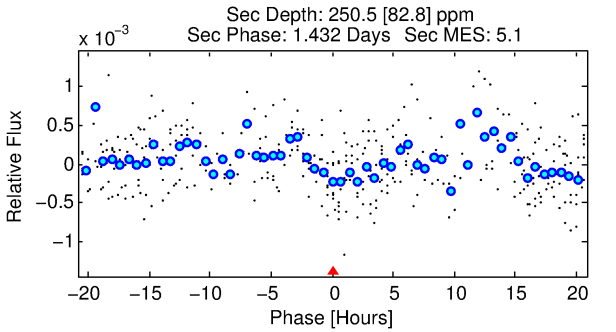
No Significant Match Found

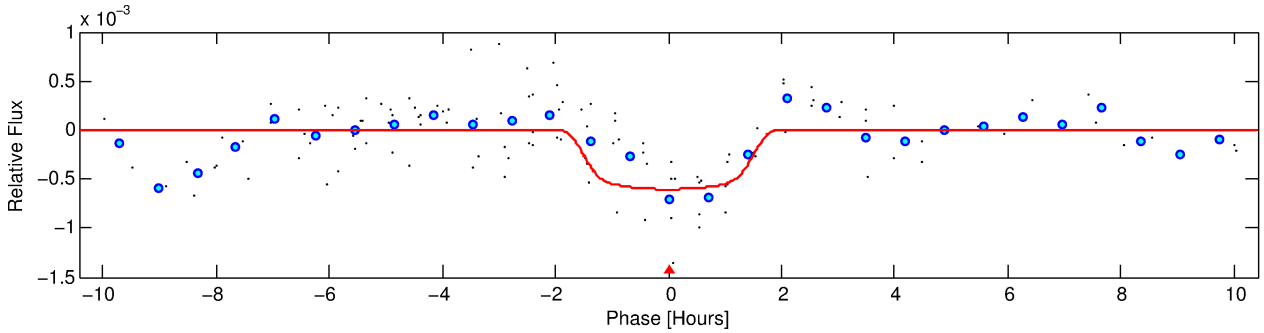
DV One-Page Summary

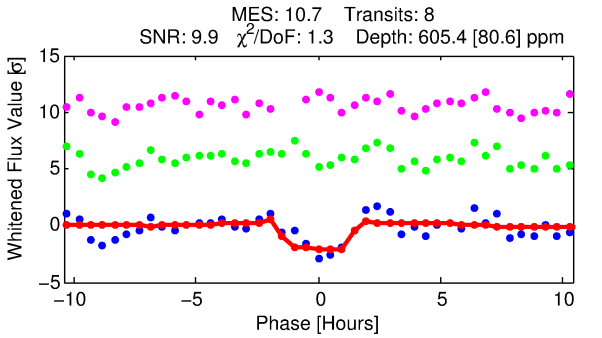
KIC: 9242059 Candidate: 3 of 10 Period: 47.735 d

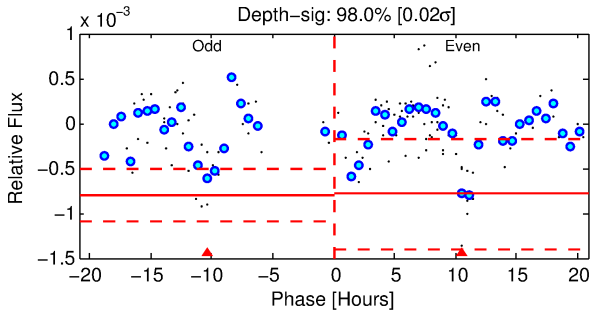


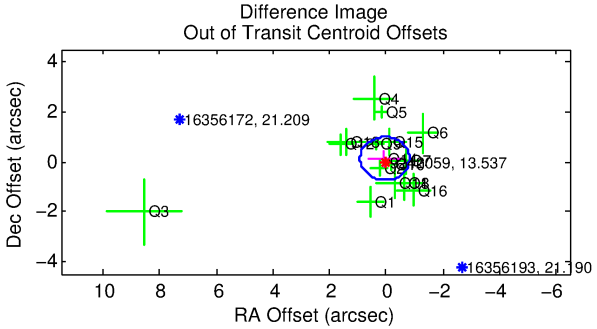












DV Fit Results:

Period = 47.73513 [0.00058] d
Epoch = 150.3322 [0.0099] BKJD
Rp/R* = 0.0264 [0.0107]
a/R* = 51.18 [117.35]
b = 0.90 [0.47]

Seff = 105.59 [72.67]
Teq = 817 [141] K
Rp = 6.44 [3.81] Re
a = 0.2858 [0.1197] AU

Ag = 271.89 [300.64] [0.90σ]
Teffp = 5132 [1139] K [3.76σ]

DV Diagnostic Results:

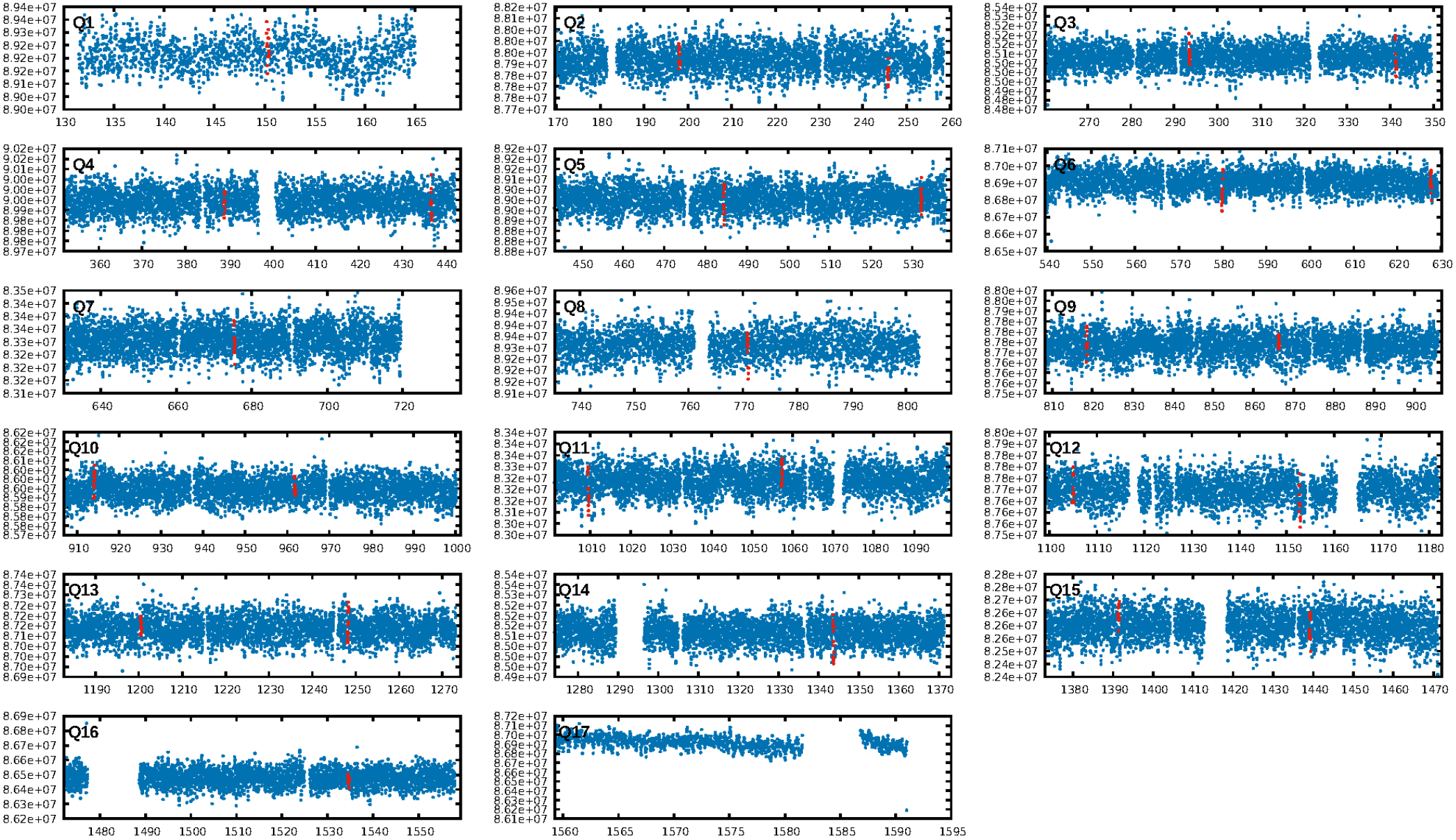
ShortPeriod−sig: 100.0% [40.48σ]
LongPeriod−sig: 100.0% [74.45σ]
ModelChiSquare2−sig: 6.9%
ModelChiSquareGof−sig: 99.4%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [8/8]
GhostDiagnostic−chr: −0.2931

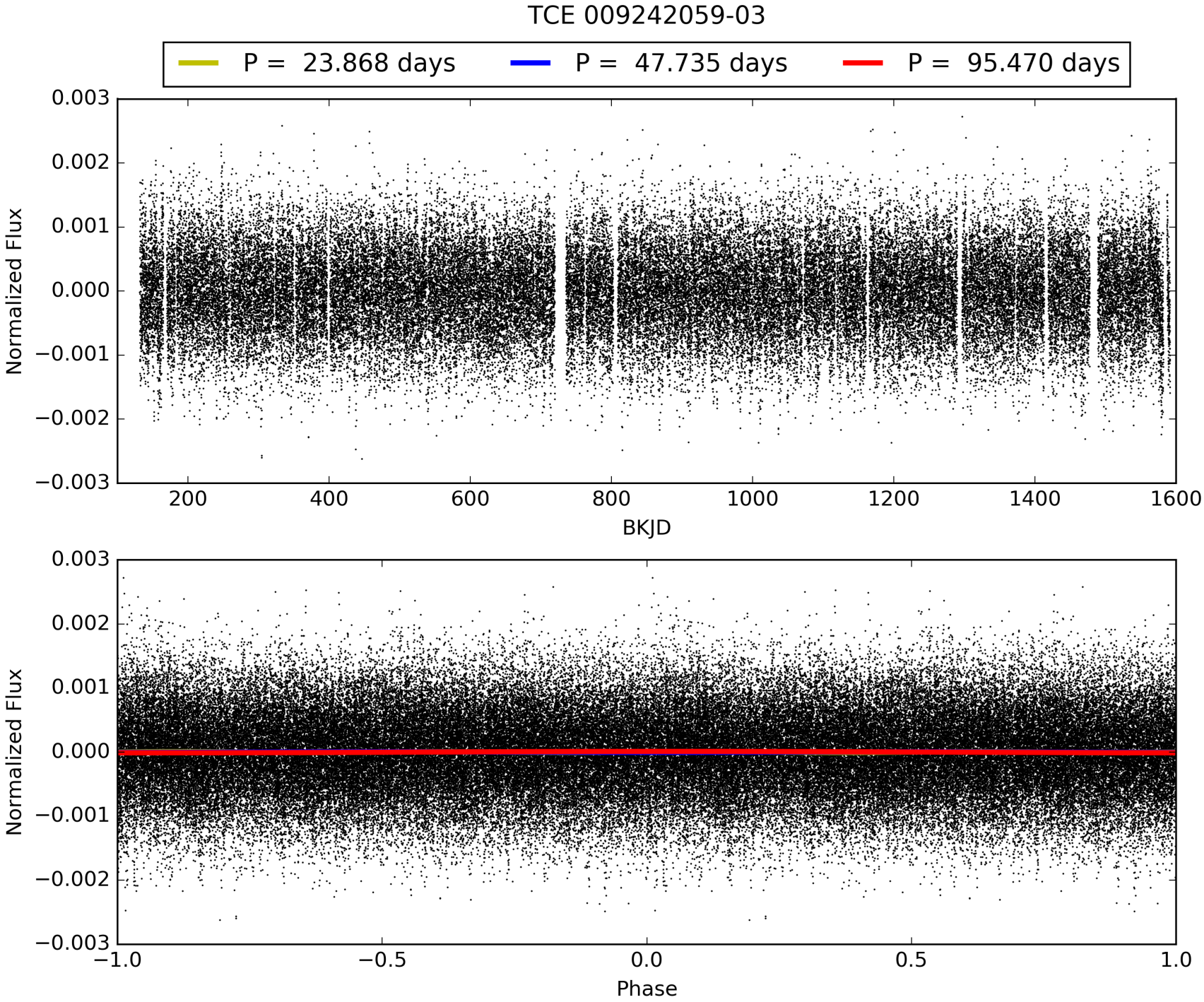
Centroid−sig: 75.3%
Centroid−so: 0.293 arcsec [0.63σ]
OotOffset−rm: 0.133 arcsec [0.46σ]
KicOffset−rm: 0.121 arcsec [0.45σ]
OotOffset−st: 4/4/4/4 [16]
KicOffset−st: 4/4/4/4 [16]
DiffImageQuality−fgm: 0.44 [7/16]
DiffImageOverlap−fno: 0.19 [3/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:52:55 Z

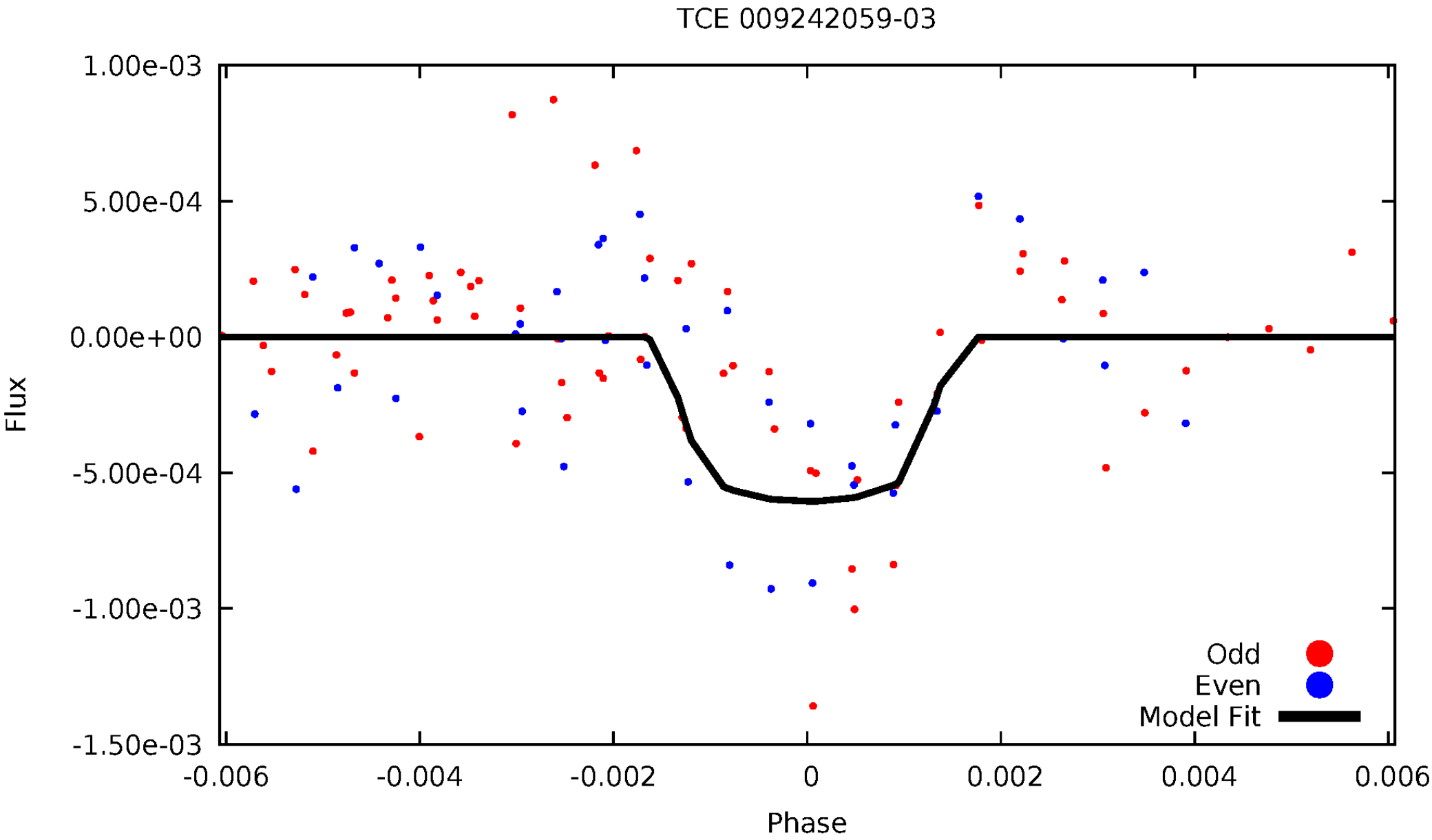
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

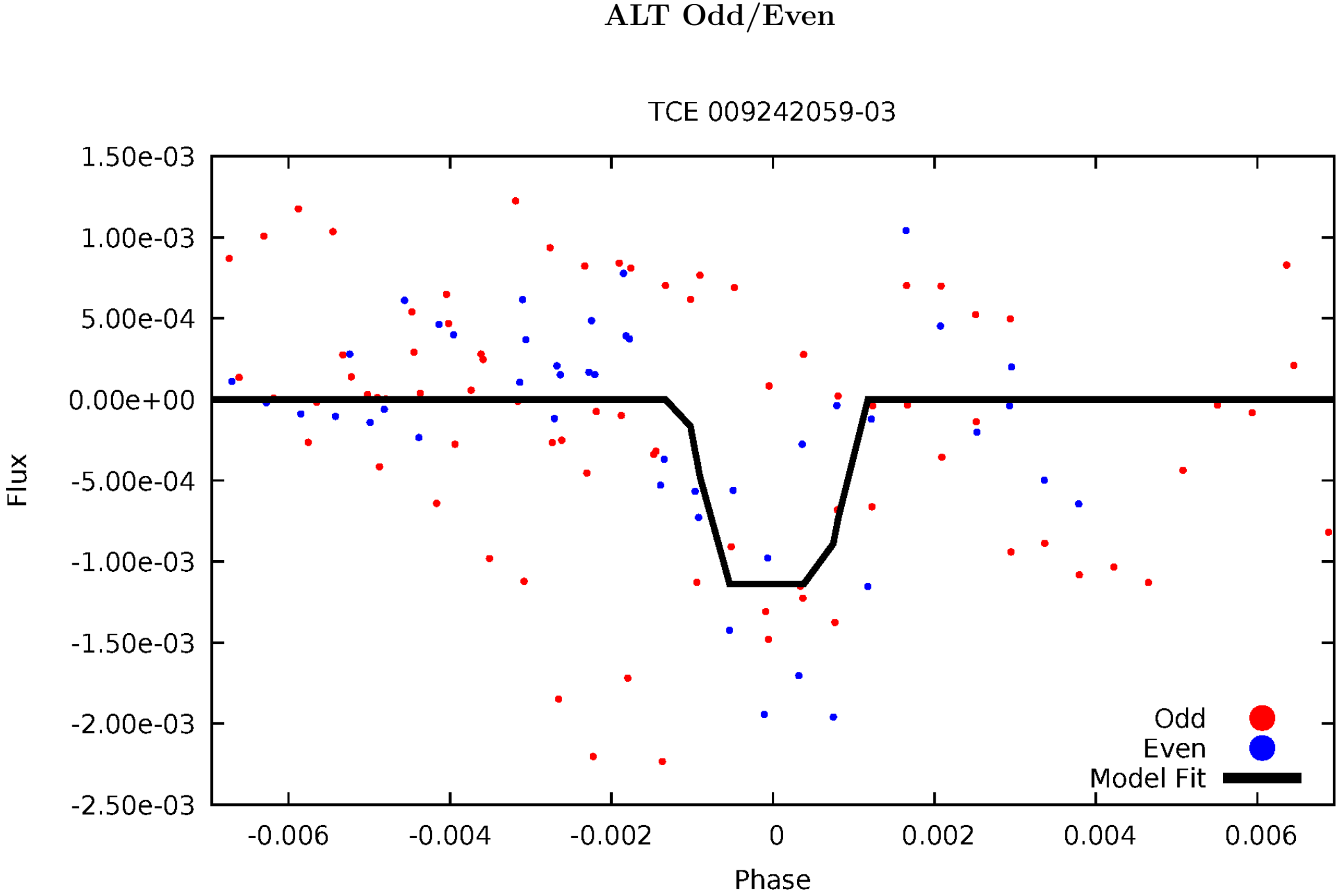
TCE 009242059-03, PDC Light Curves



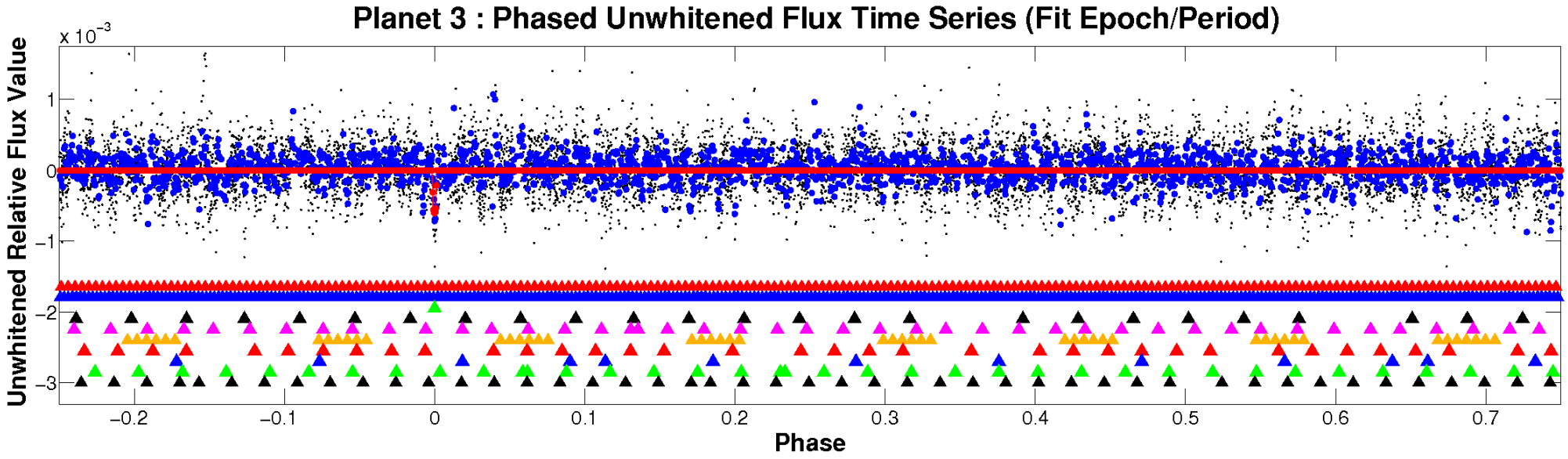

TCE 009242059-03
P = 23.868 days
P = 47.735 days
P = 95.470 days
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase

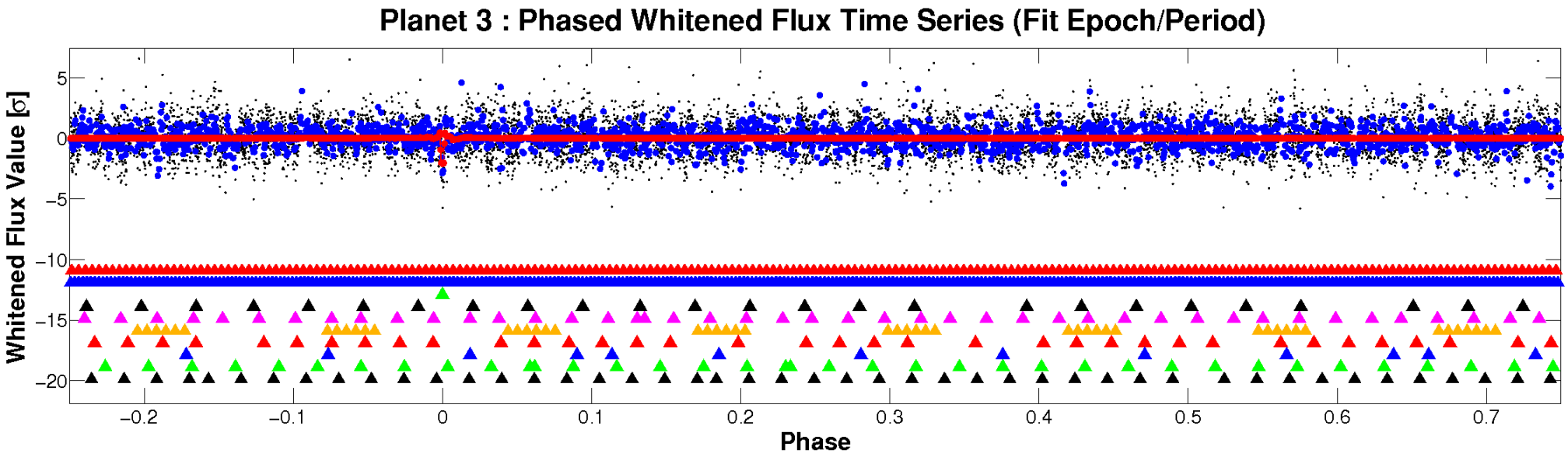
DV Odd/Even


TCE 009242059-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-03
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
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

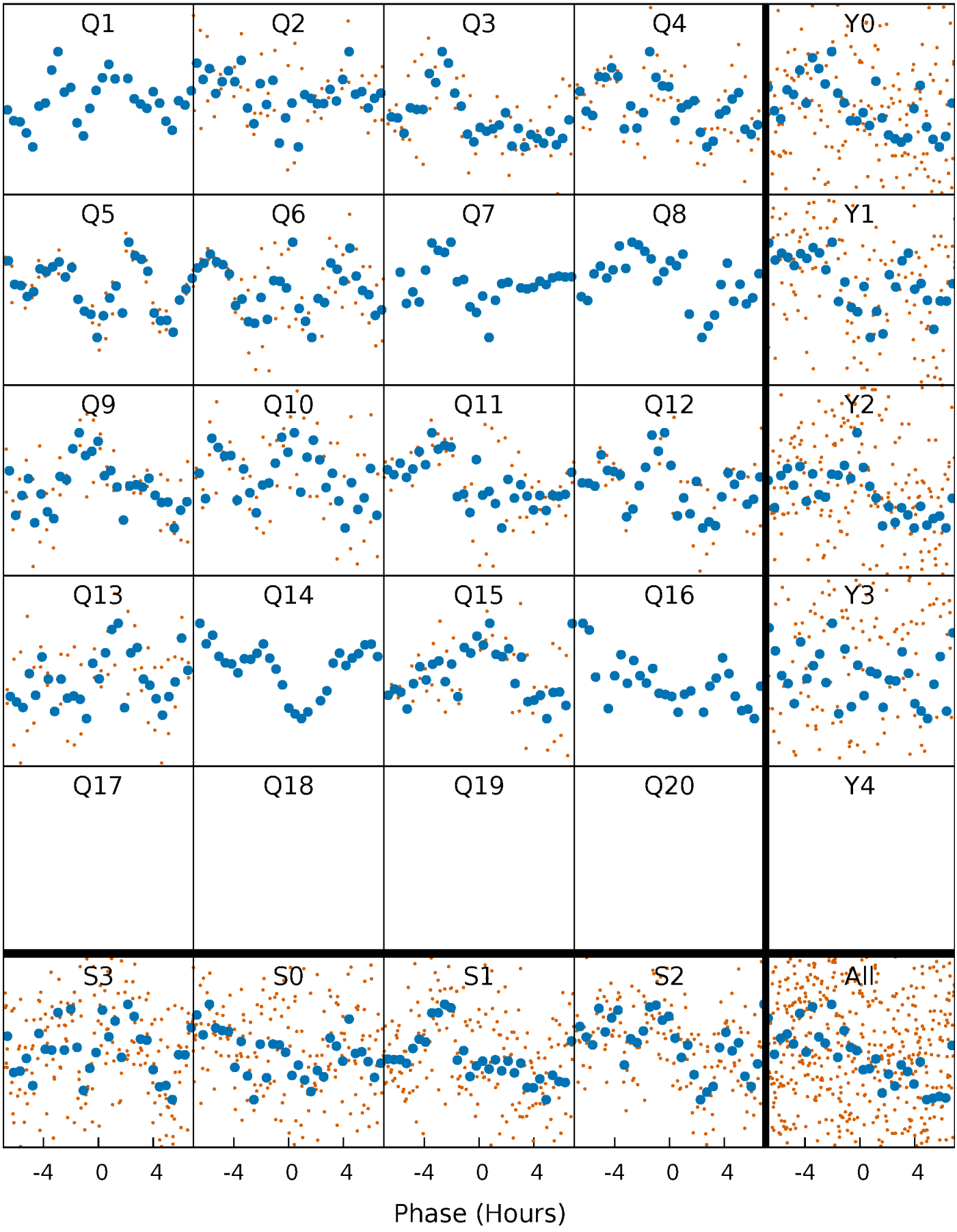
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009242059-03 P= 47.735127 Days T_0=150.332168 (BKJD)



DV Quarter-Phased Transit Curves

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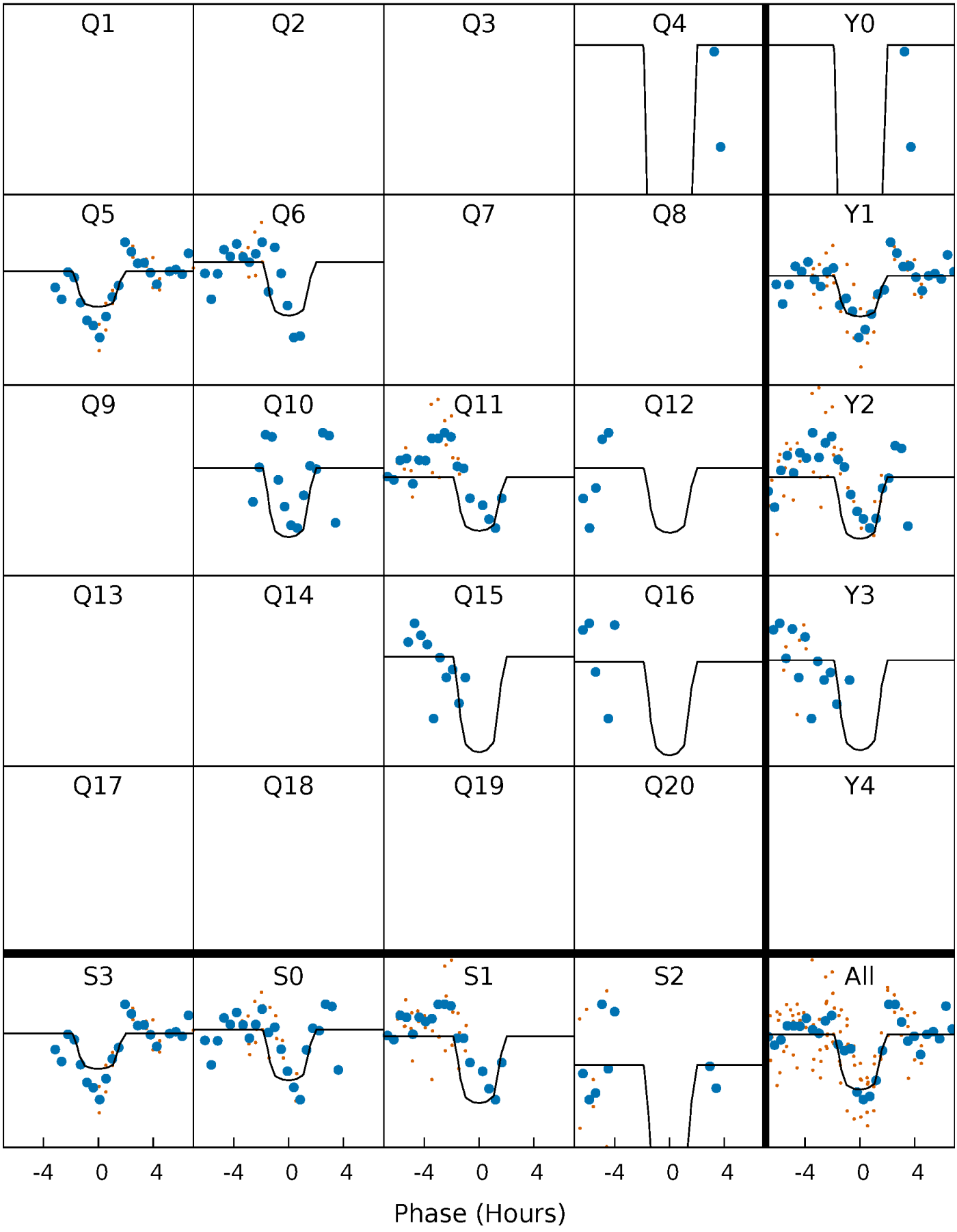
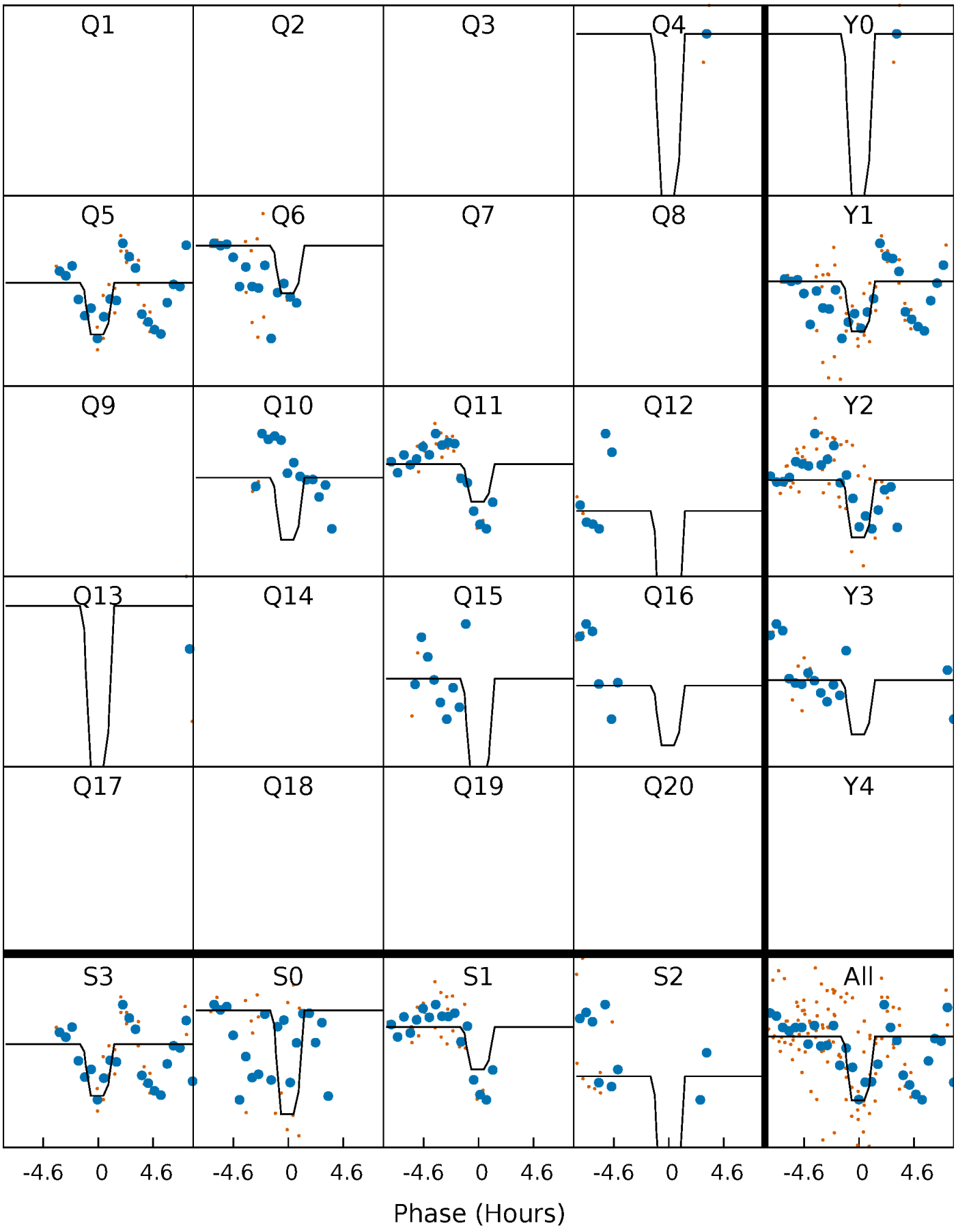


Alt. Detrend Quarter-Phased Transit Curves

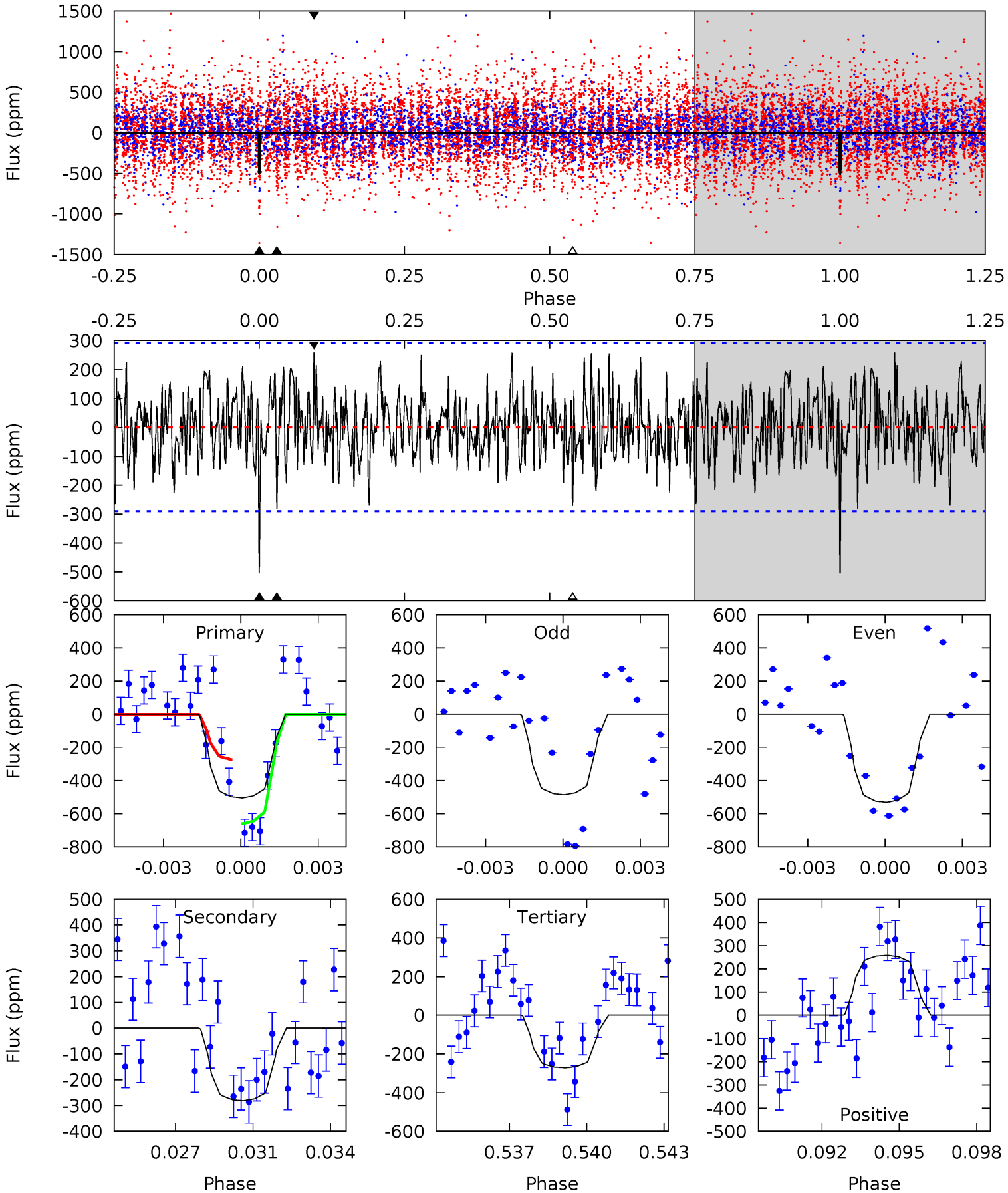
TCE 009242059-03 P= 47.735222 Days T_0=150.337137 (BKJD)



DV Model-Shift Uniqueness Test

009242059-03, P = 47.735127 Days, E = 102.597041 Days

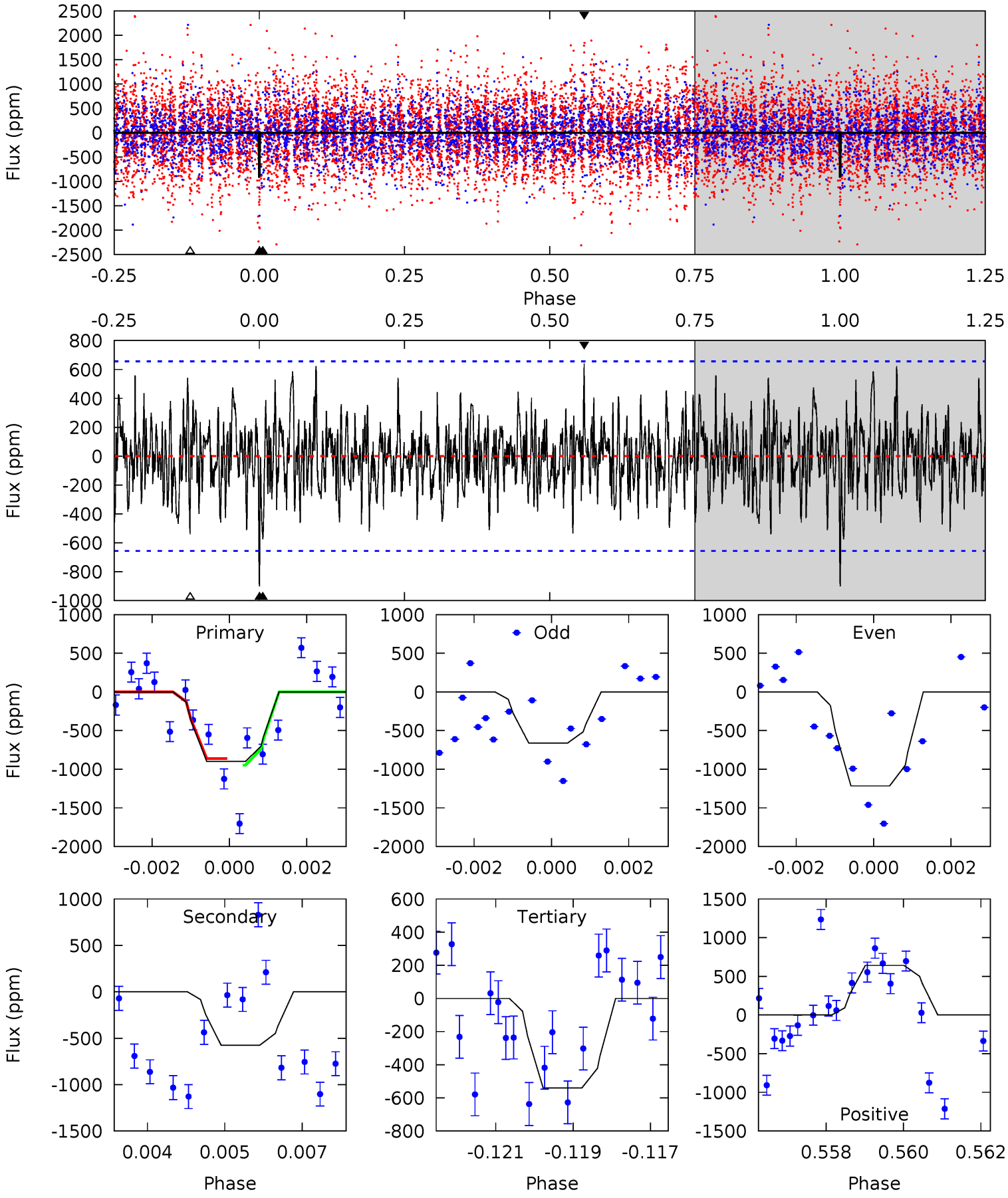
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.14	5.08	4.91	4.68	5.25	2.96	1.67	4.22	4.45	0.17	0.40	0.40	1.34	0.34	3.49



Alt Model-Shift Uniqueness Test

009242059-03, P = 47.735222 Days, E = 102.601915 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.34	4.68	4.41	5.23	5.34	3.12	1.48	2.94	2.12	0.28	-0.54	2.25	0.72	0.42	0.34



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-281±55	$5.91^{+2.89}_{-2.60}$	1115^{+89}_{-125}	5254^{+1750}_{-688}	350^{+772}_{-191}
Alt.	-575±123	$7.49^{+3.25}_{-2.89}$	1114^{+85}_{-127}	5612^{+1221}_{-738}	460^{+702}_{-238}

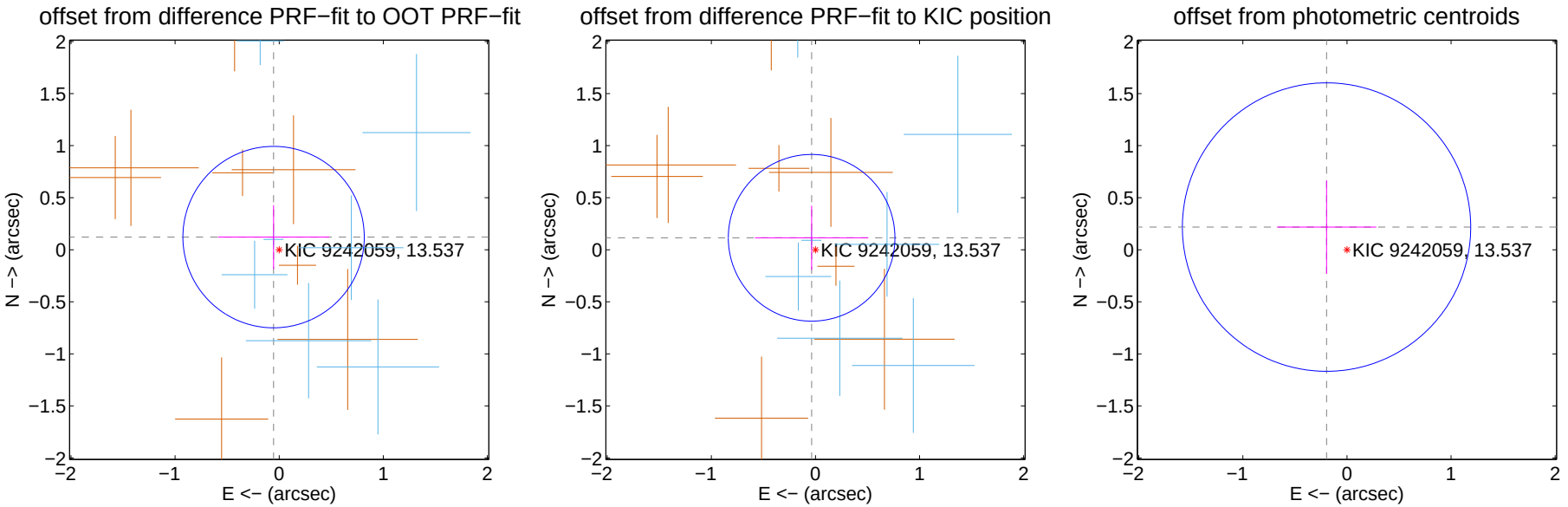
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

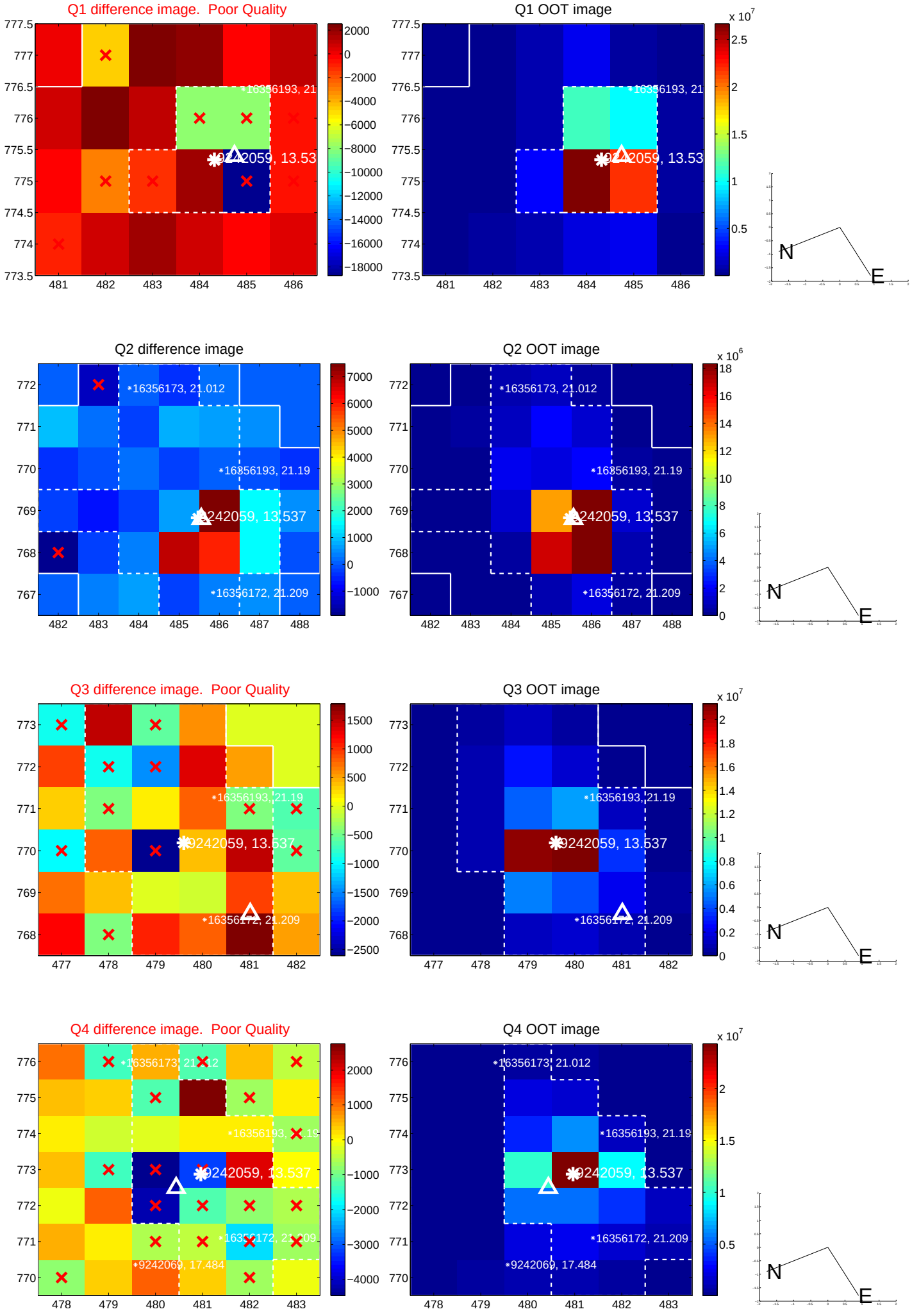
Supplemental centroid analysis for 009242059-03. Kepler magnitude: 13.54. Transit SNR 9.87
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.133 ± 0.290	0.46	0.054 ± 0.535	0.122 ± 0.306
PRF-fit source offset from KIC position	0.121 ± 0.267	0.45	0.037 ± 0.545	0.115 ± 0.309
photometric centroid source offset	0.29 ± 0.46	0.63	0.20 ± 0.48	0.22 ± 0.45

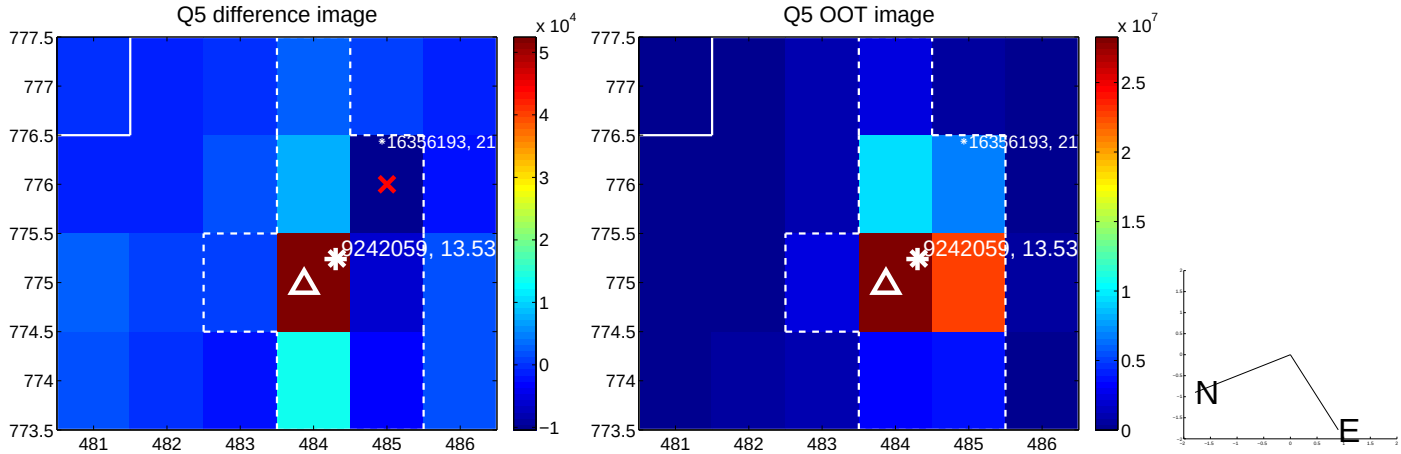


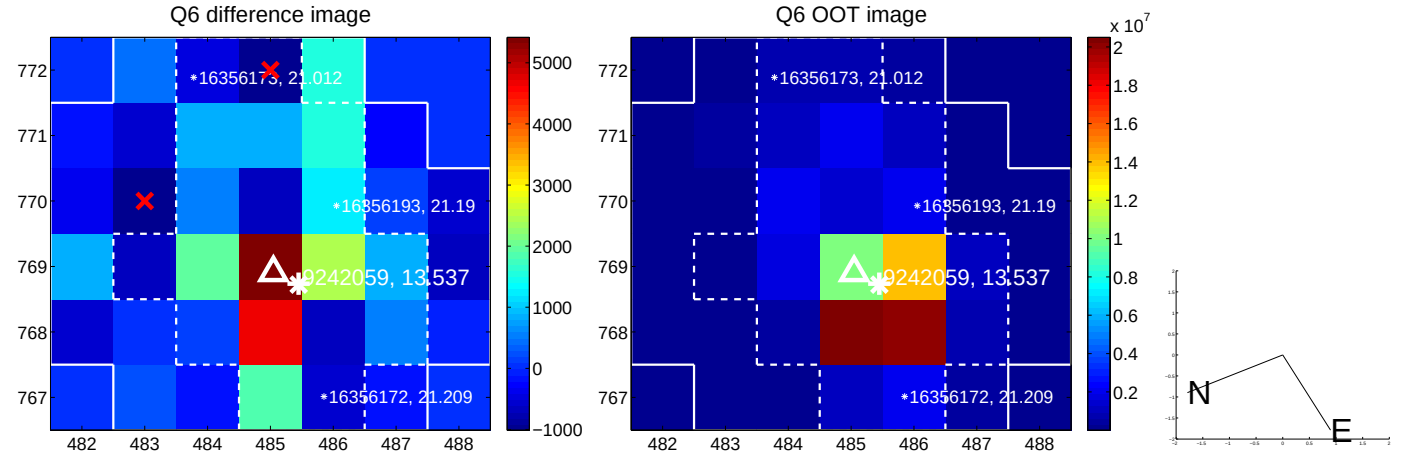
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

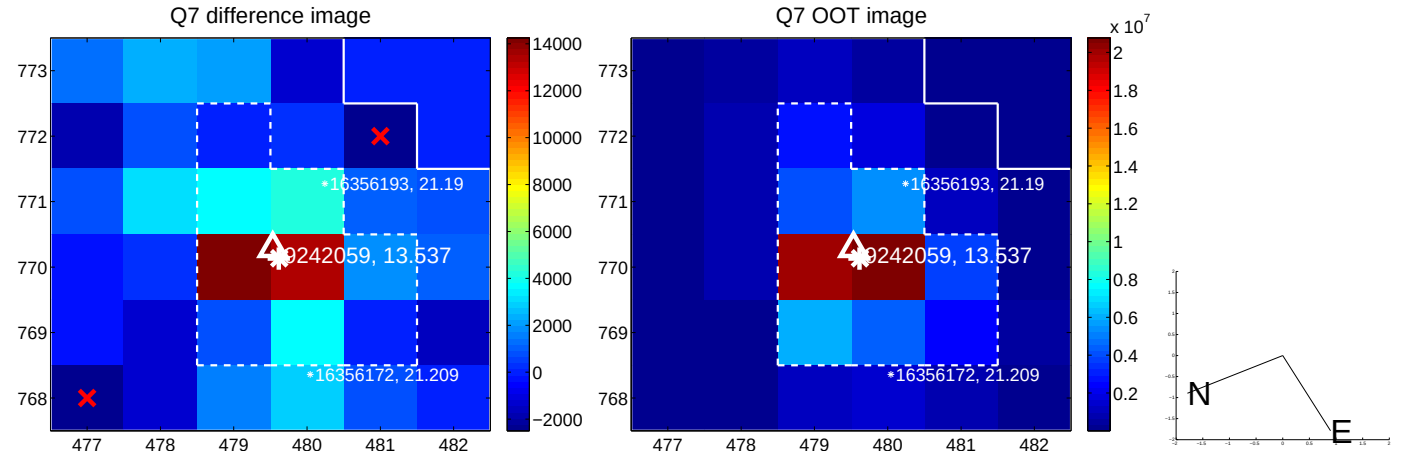
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

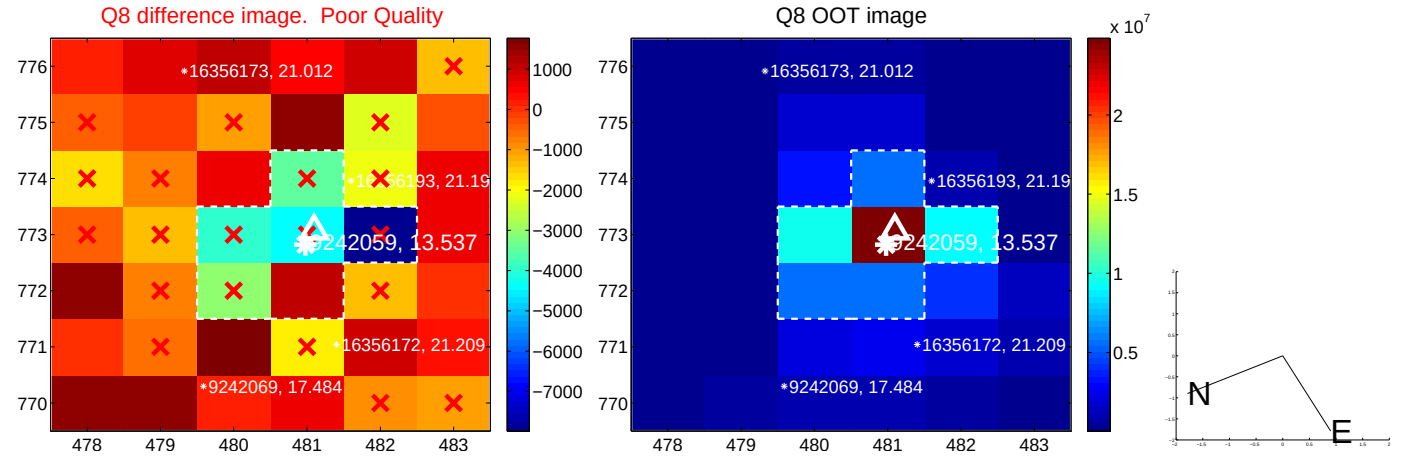


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

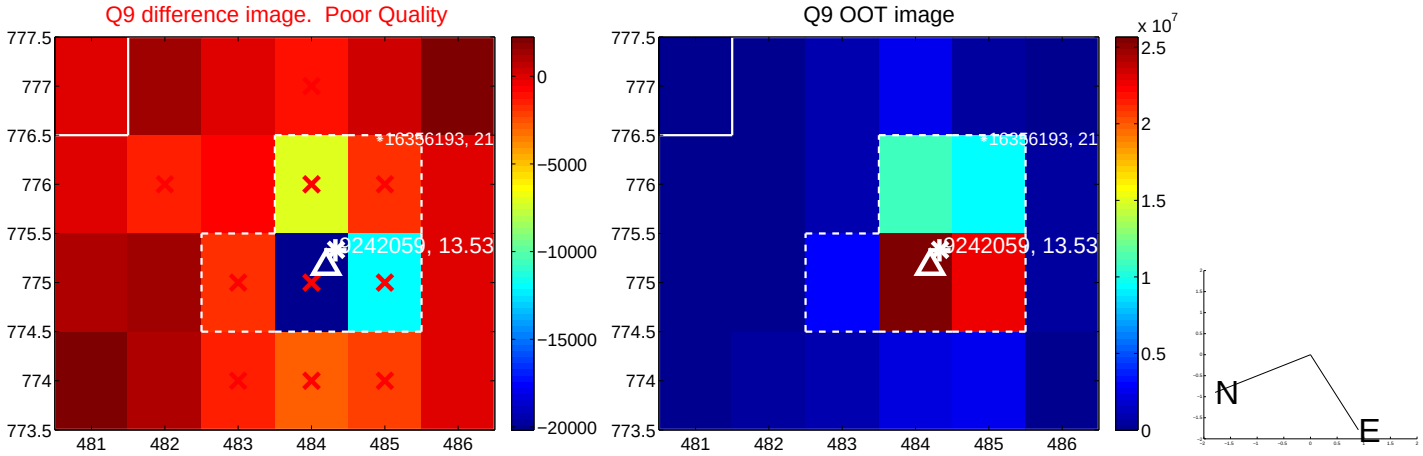


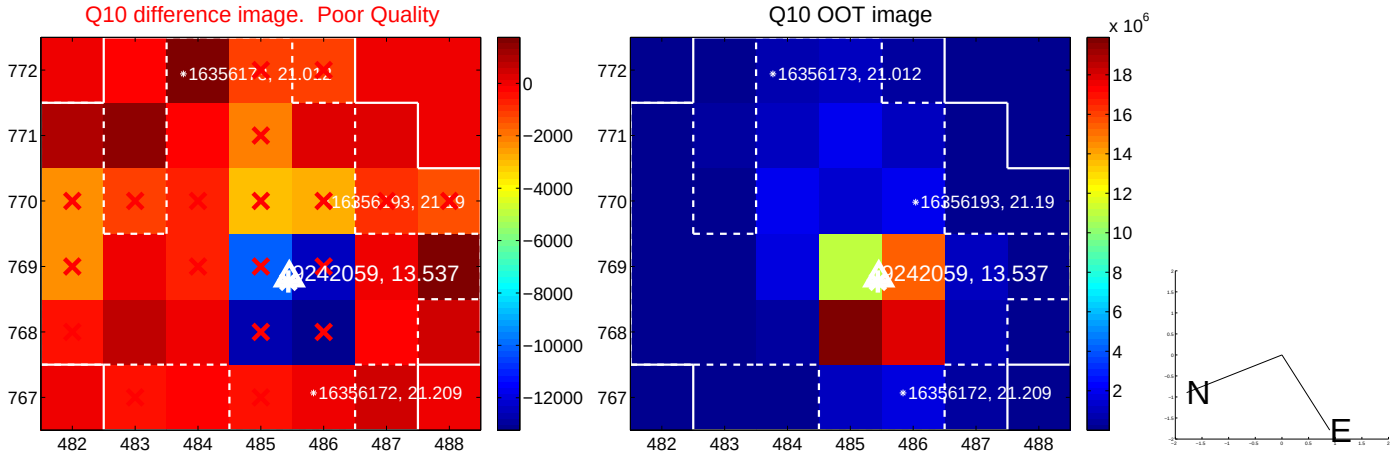


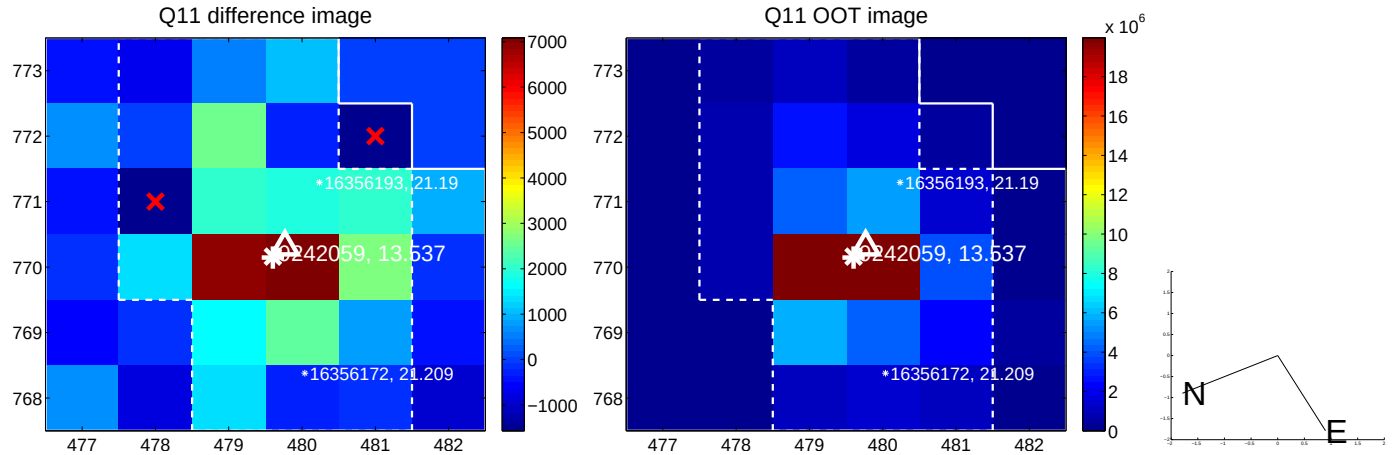


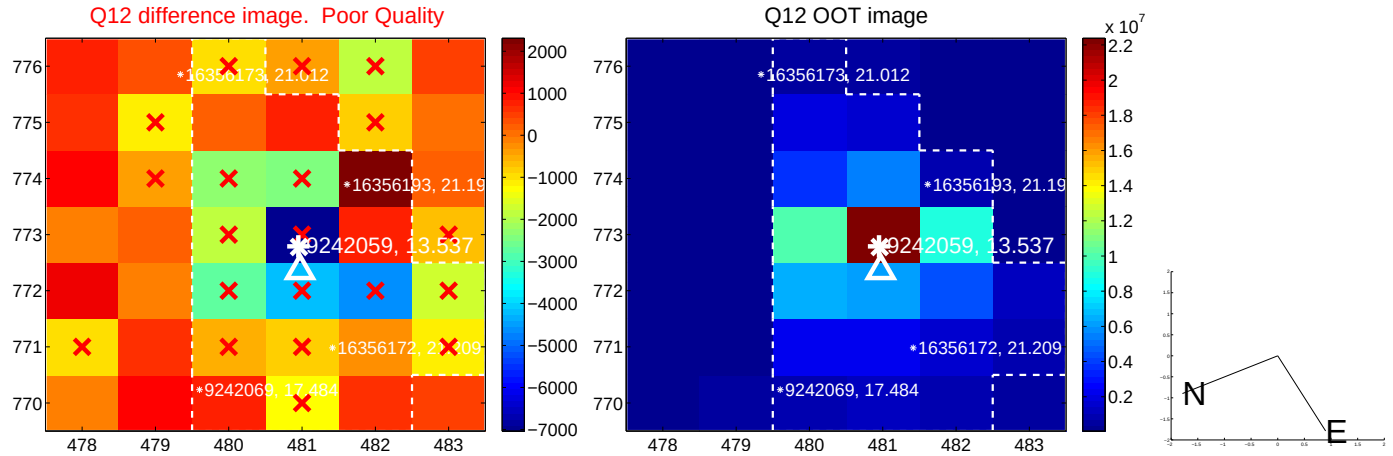


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

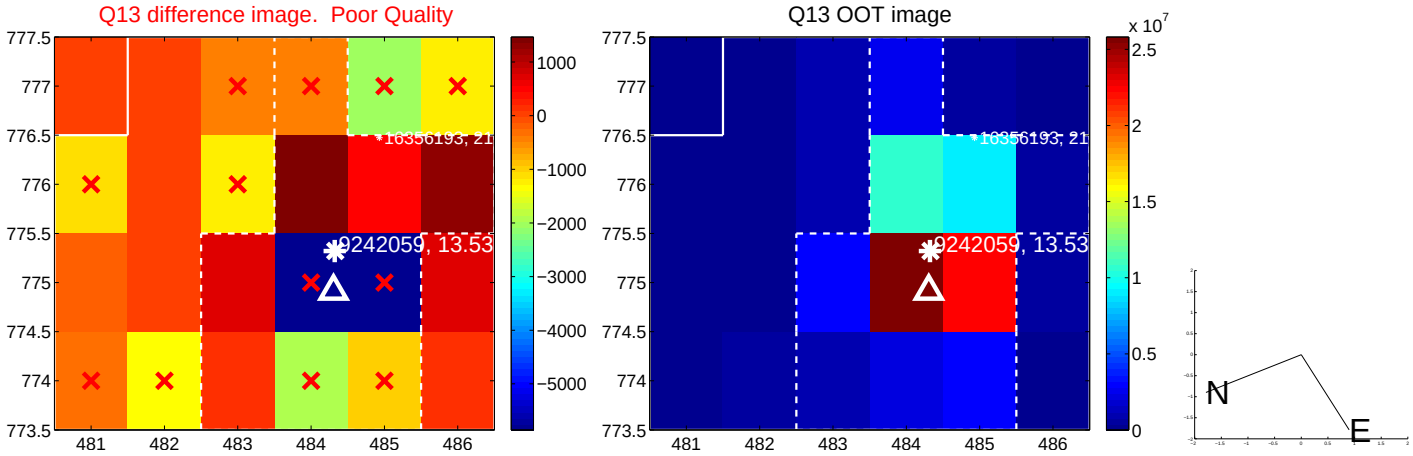


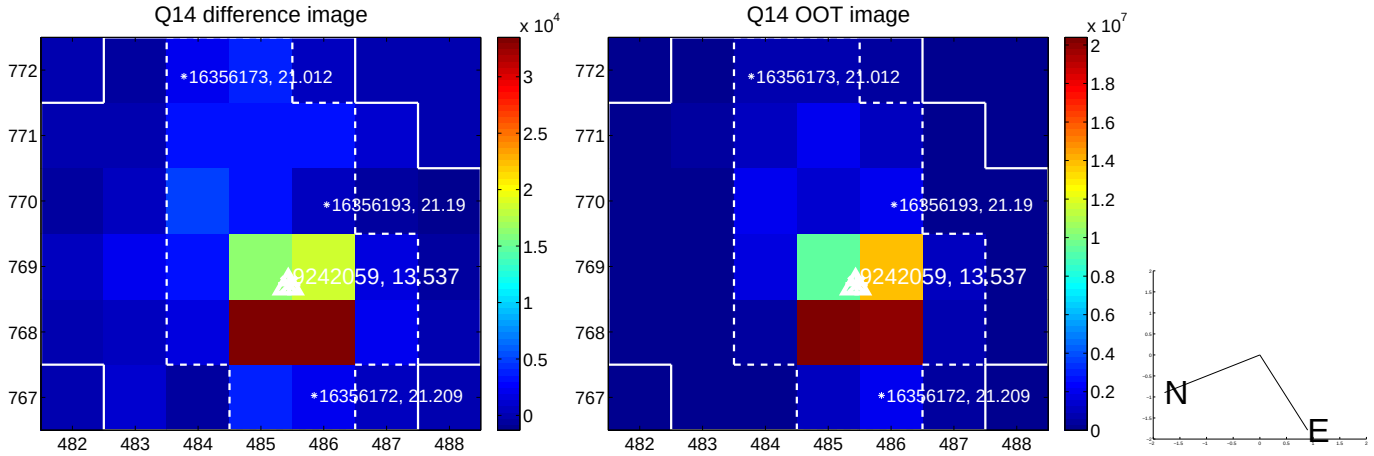


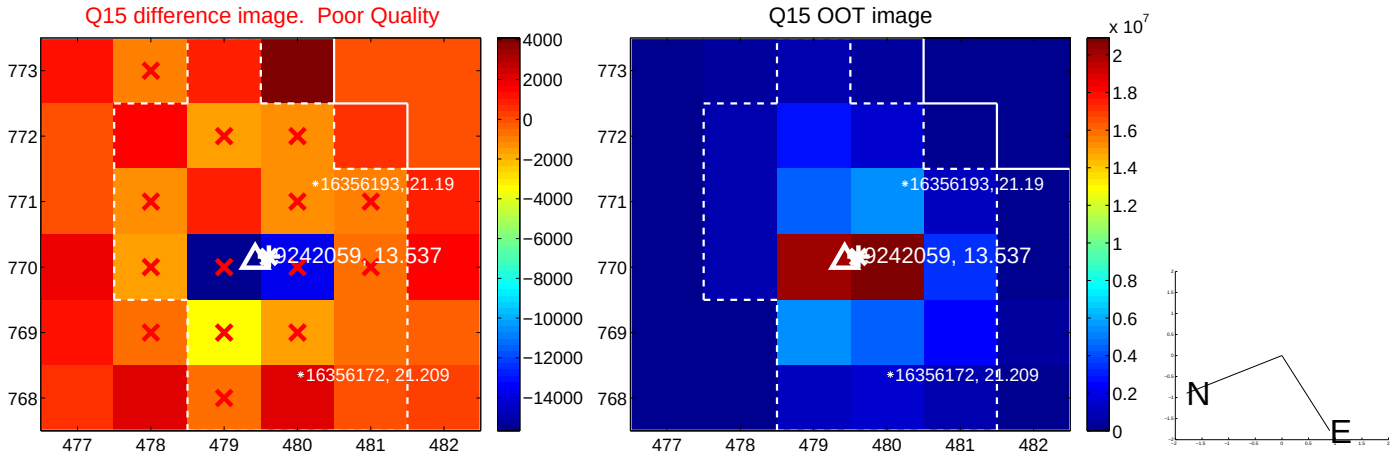


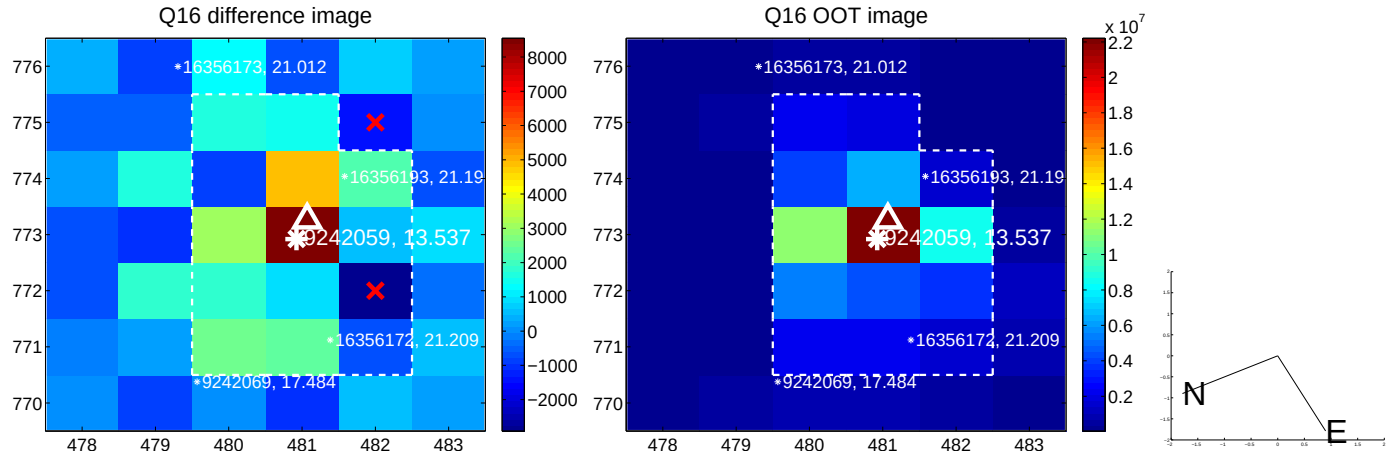


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

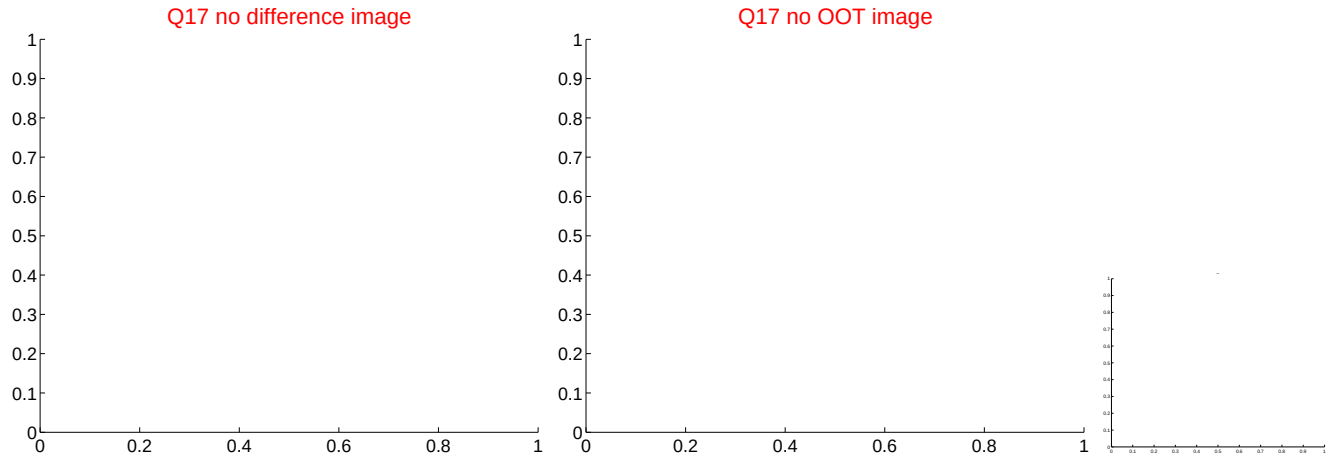


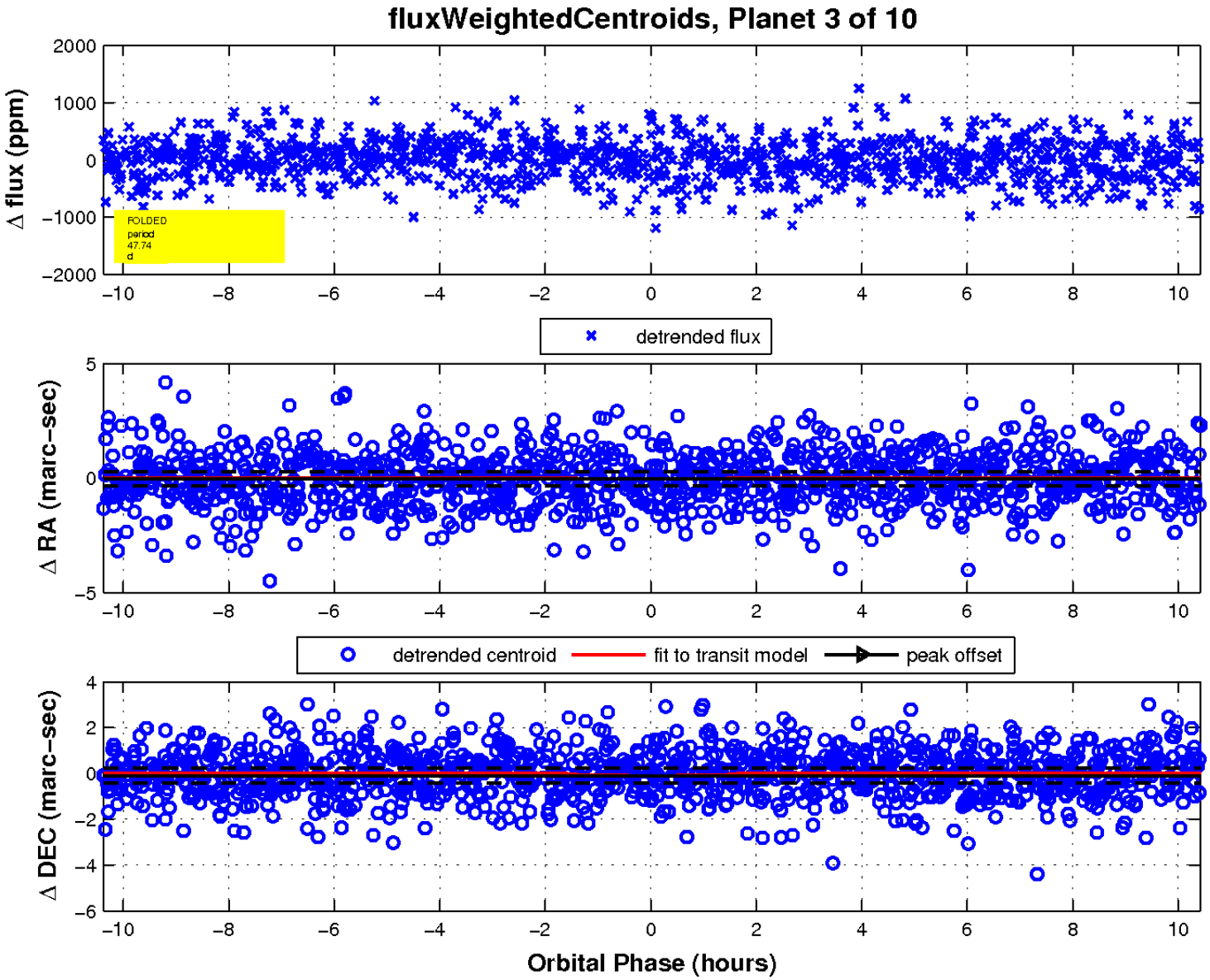




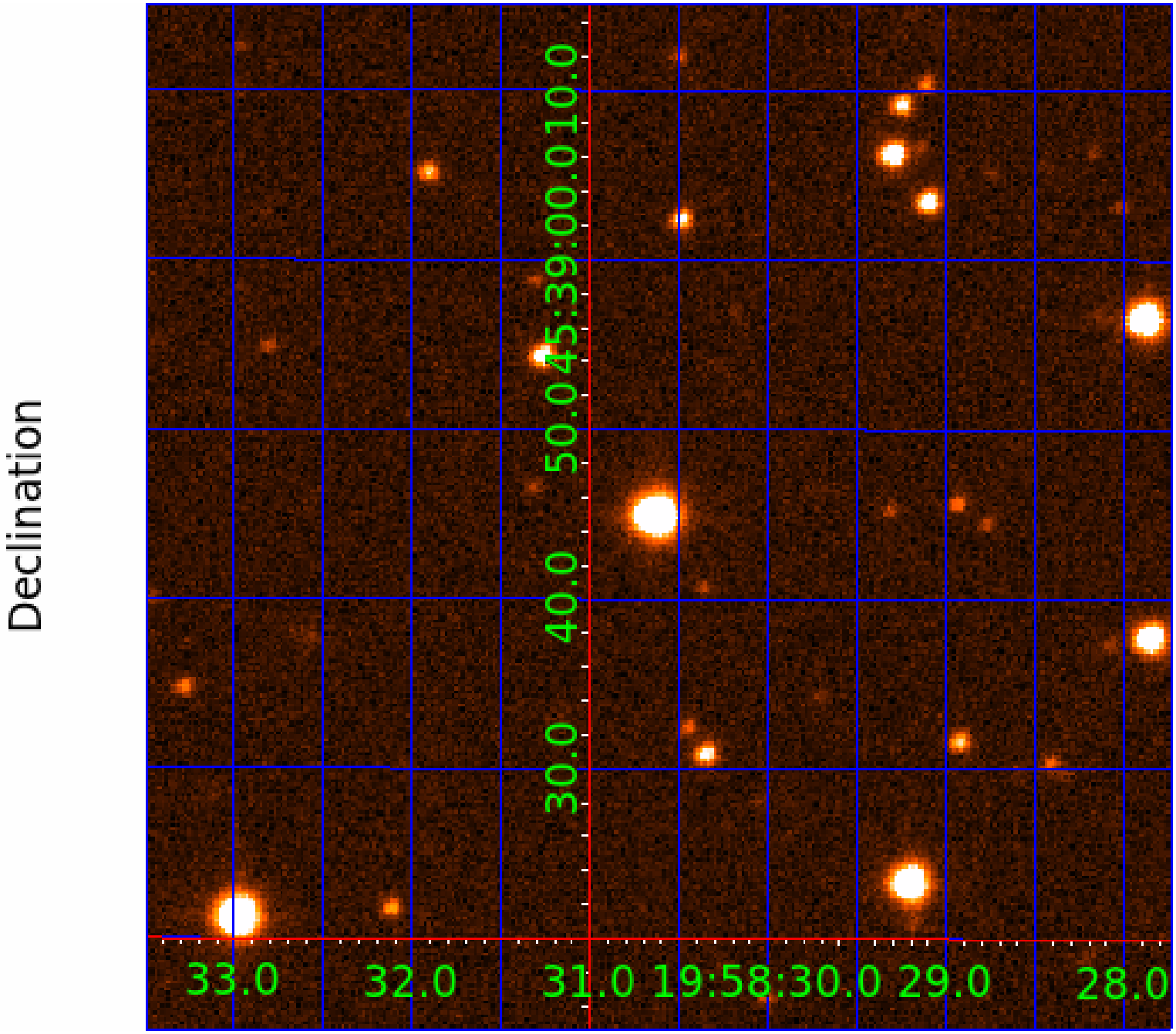


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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28.0

KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

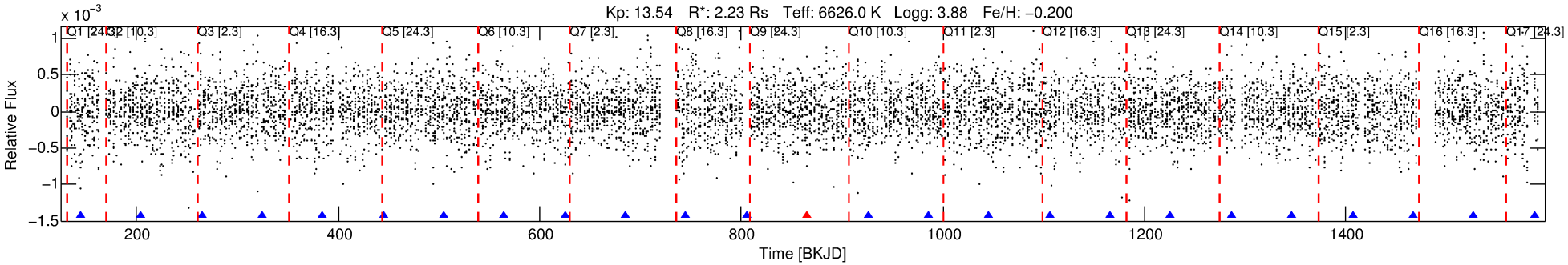
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

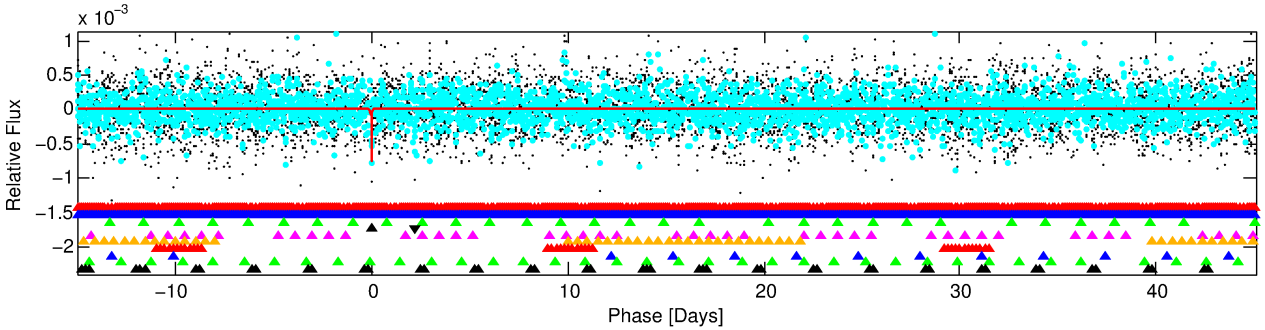
Ephemeris Match Information For 009242059-04

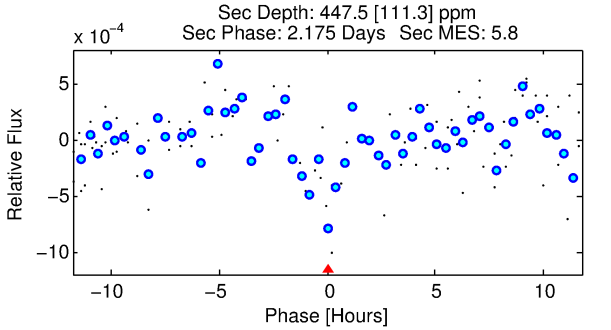
No Significant Match Found

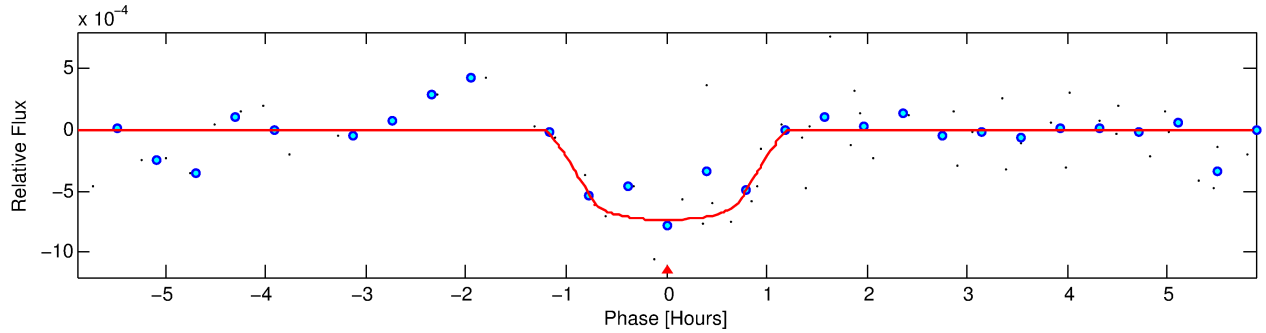
DV One-Page Summary

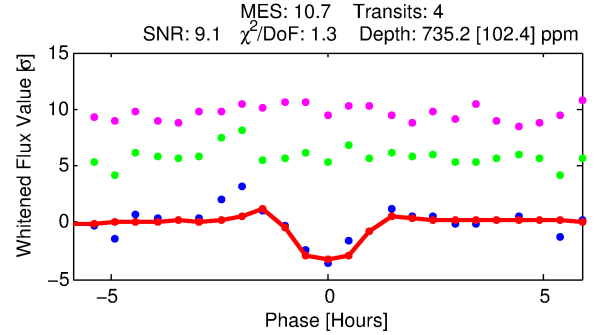
KIC: 9242059 Candidate: 4 of 10 Period: 60.108 d

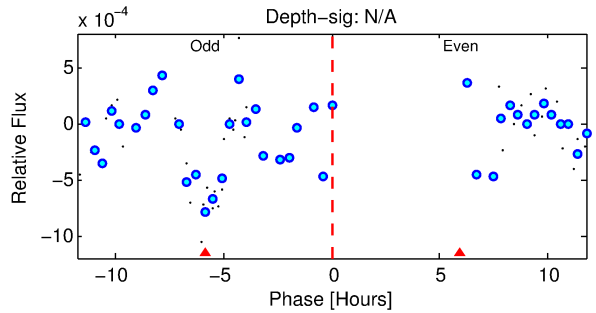


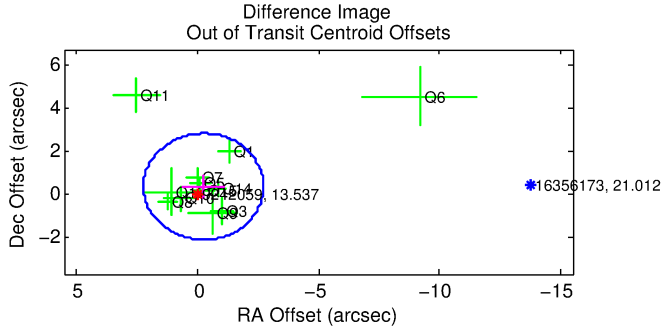












DV Fit Results:

Period = 60.10777 [0.00066] d
Epoch = 144.2884 [0.0071] BKJD
Rp/R* = 0.0251 [0.0401]
a/R* = 236.92 [1979.95]
b = 0.17 [48.60]

Seff = 77.66 [53.45]
Teq = 757 [130] K
Rp = 6.13 [10.12] Re
a = 0.3333 [0.1396] AU

Ag = 728.72 [2383.53] [0.31σ]
Teffp = 6081 [4870] K [1.09σ]

DV Diagnostic Results:

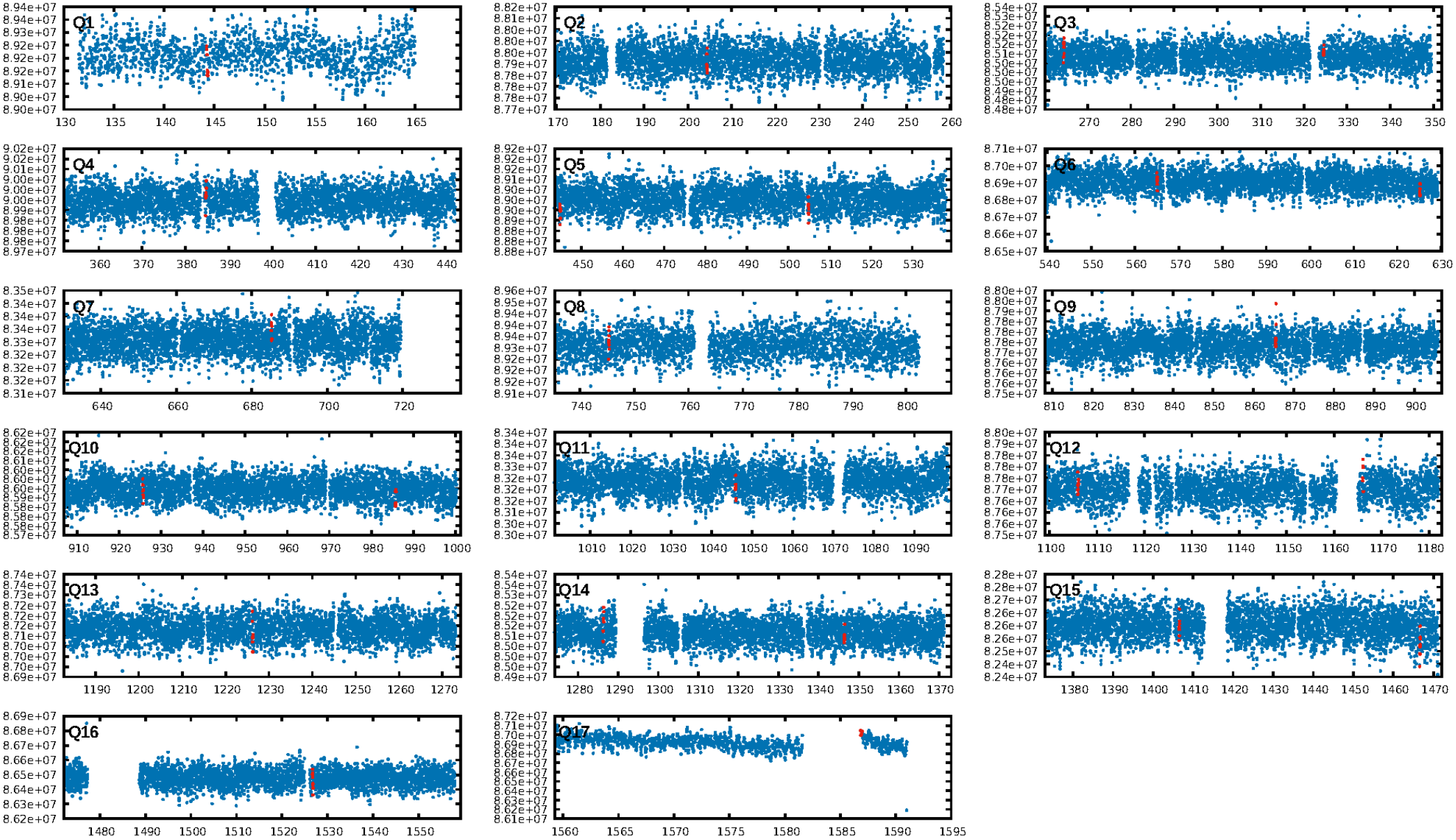
ShortPeriod−sig: 100.0% [74.45σ]
LongPeriod−sig: 100.0% [491.00σ]
ModelChiSquare2−sig: 27.4%
ModelChiSquareGof−sig: 97.2%
Bootstrap−pfa: N/A
RollingBand−fgt: 0.67 [2/3]
GhostDiagnostic−chr: −0.6534

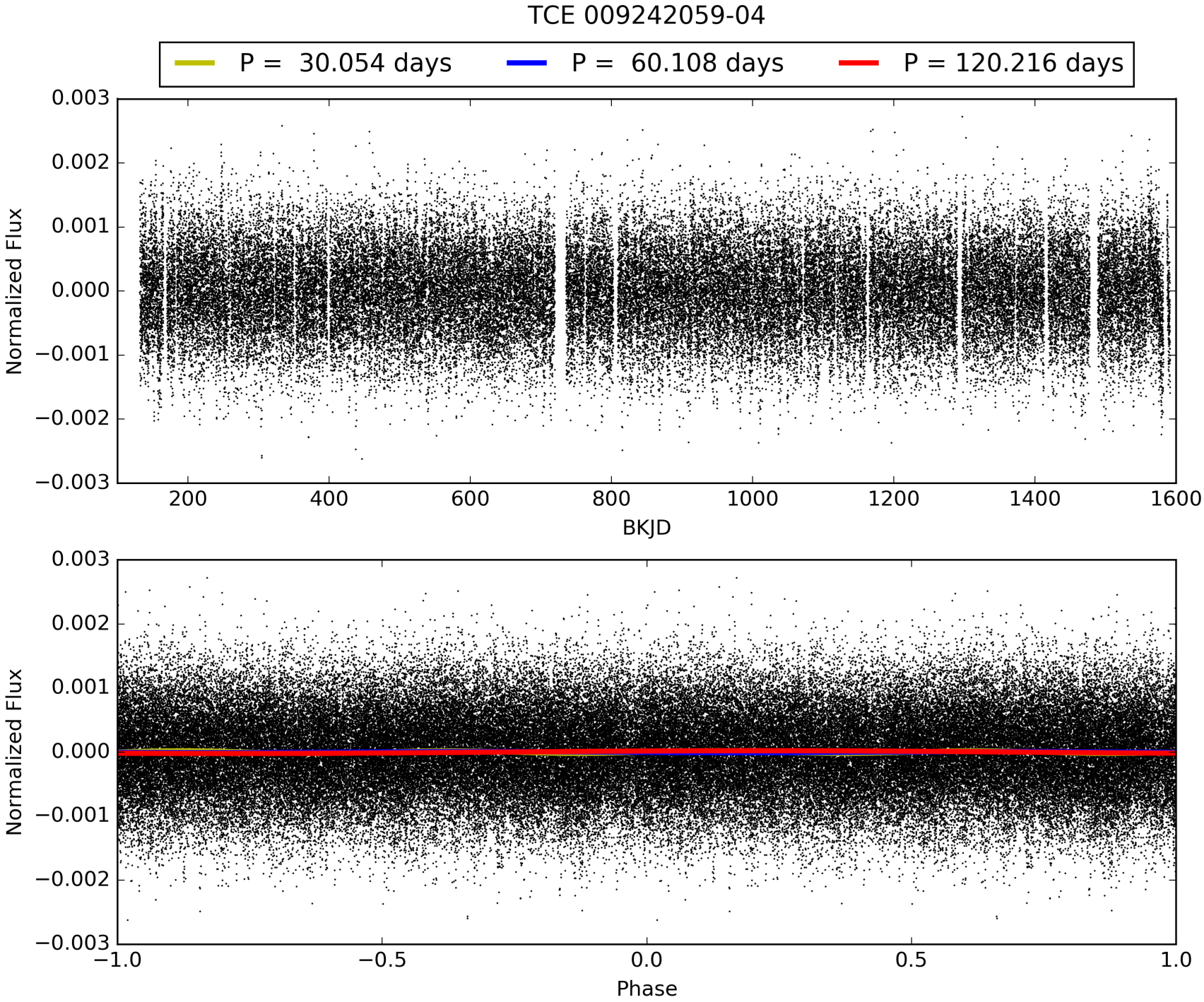
Centroid−sig: 3.1%
Centroid−so: 0.719 arcsec [1.42σ]
OotOffset−rm: 0.422 arcsec [0.51σ]
KicOffset−rm: 0.430 arcsec [0.56σ]
OotOffset−st: 3/4/2/3 [12]
KicOffset−st: 3/4/2/3 [12]
DiffImageQuality−fgm: 0.25 [3/12]
DiffImageOverlap−fno: 0.36 [5/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:52:58 Z

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

TCE 009242059-04, PDC Light Curves

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P = 30.054 days
P = 60.108 days
P = 120.216 days
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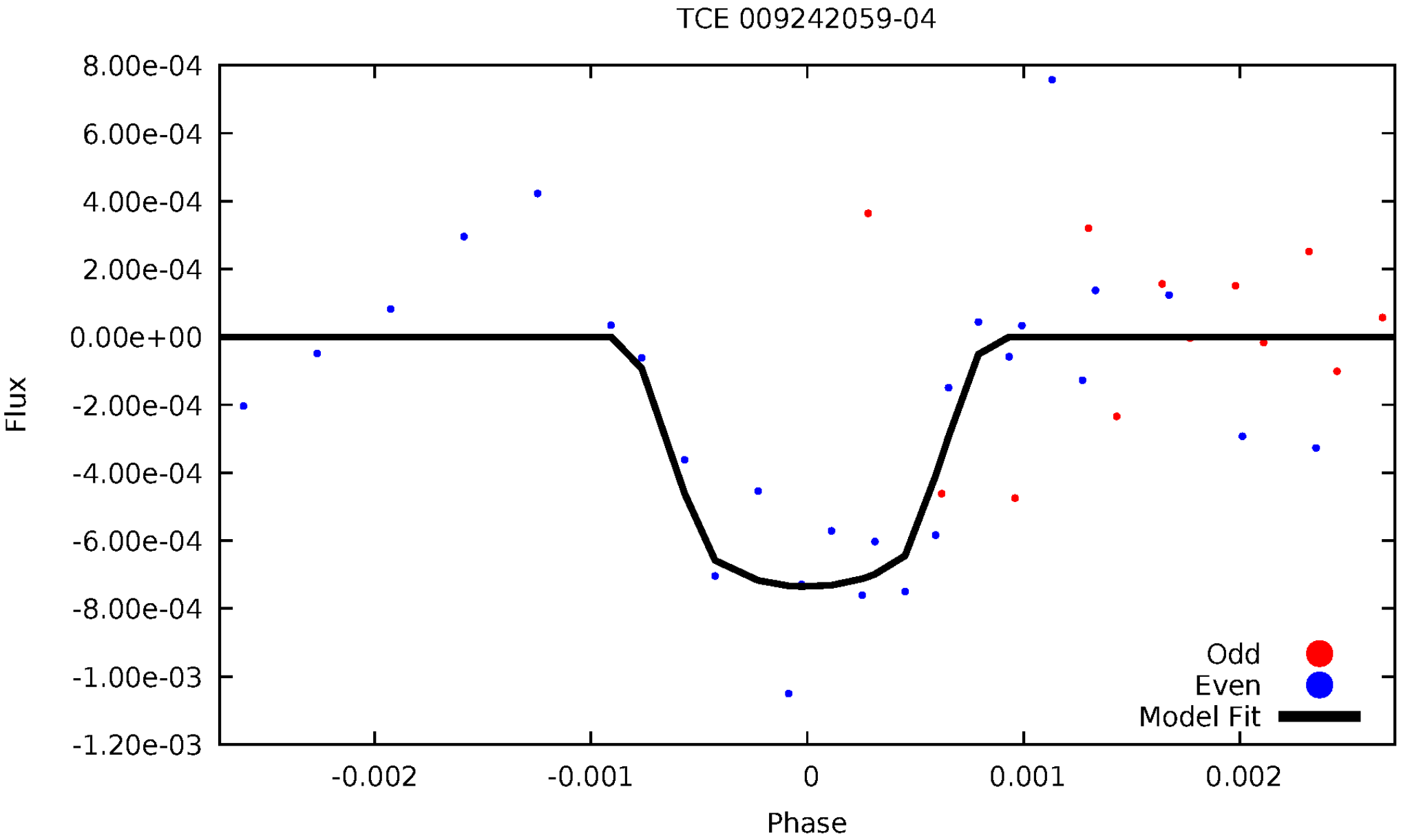
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even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6.00e-04
4.00e-04
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0.00e+00
-2.00e-04
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-6.00e-04
-8.00e-04
-1.00e-03
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Flux
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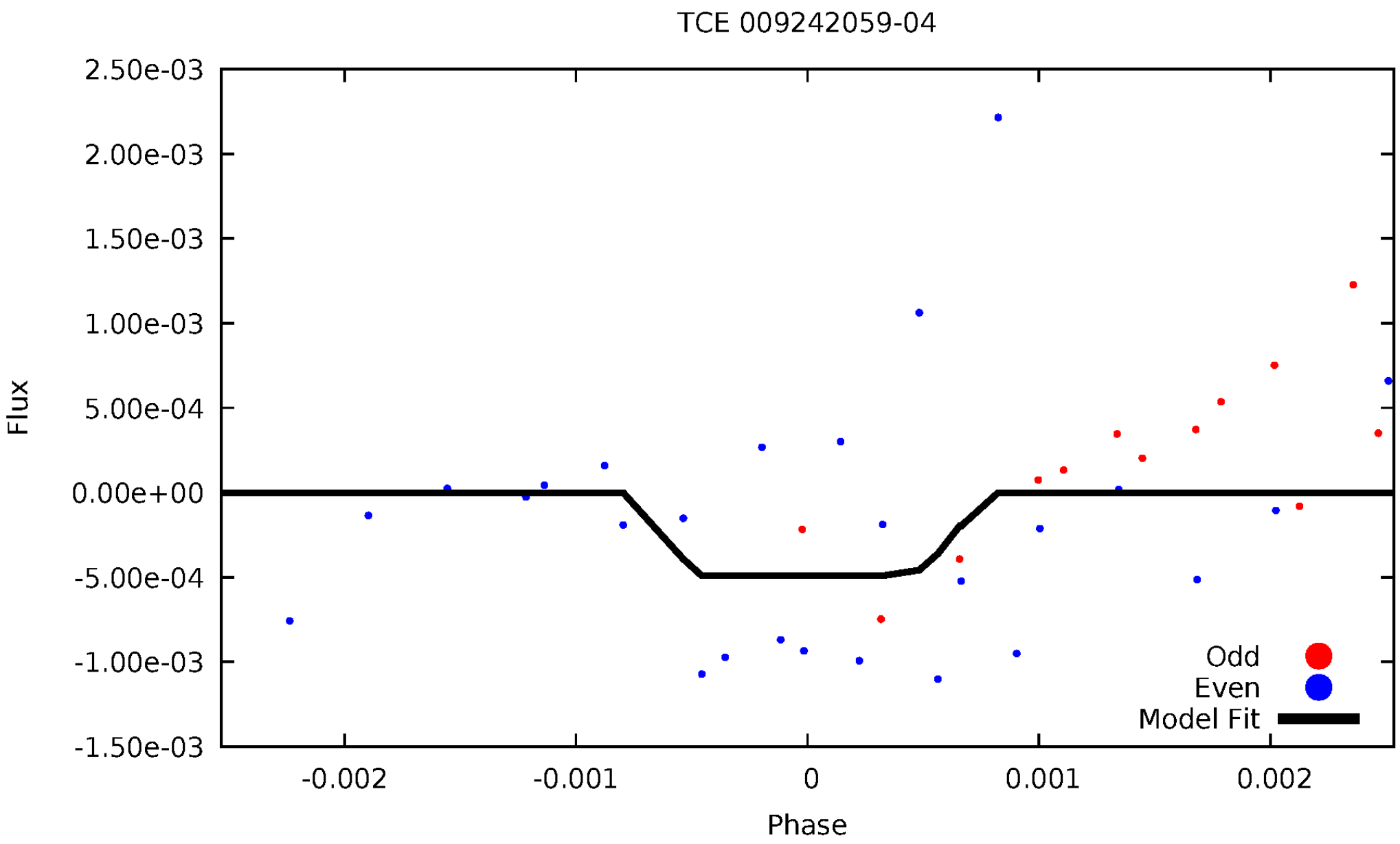
-0.001
0
0.001
0.002
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-04
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
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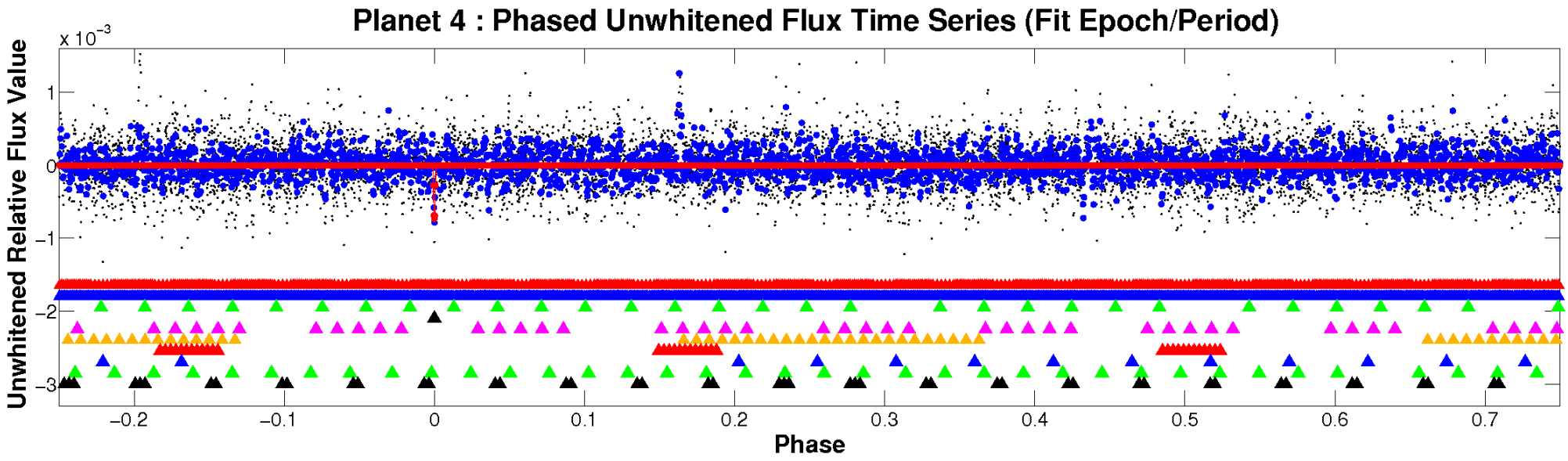
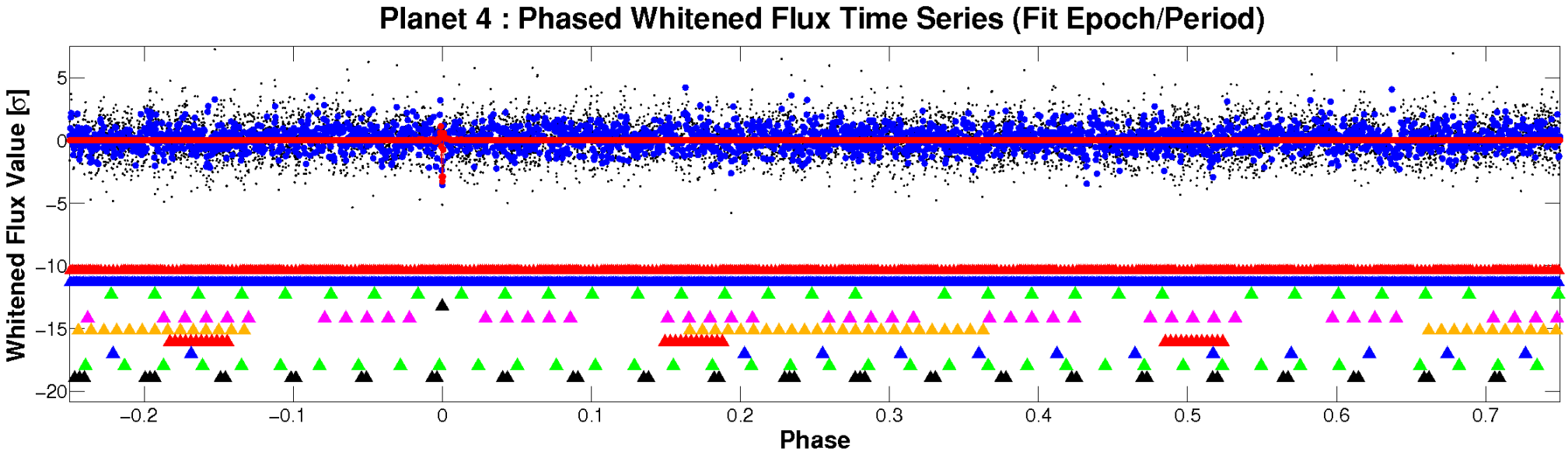
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.002
-0.001
0
0.001
0.002
Phase
Odd
Even
Model Fit

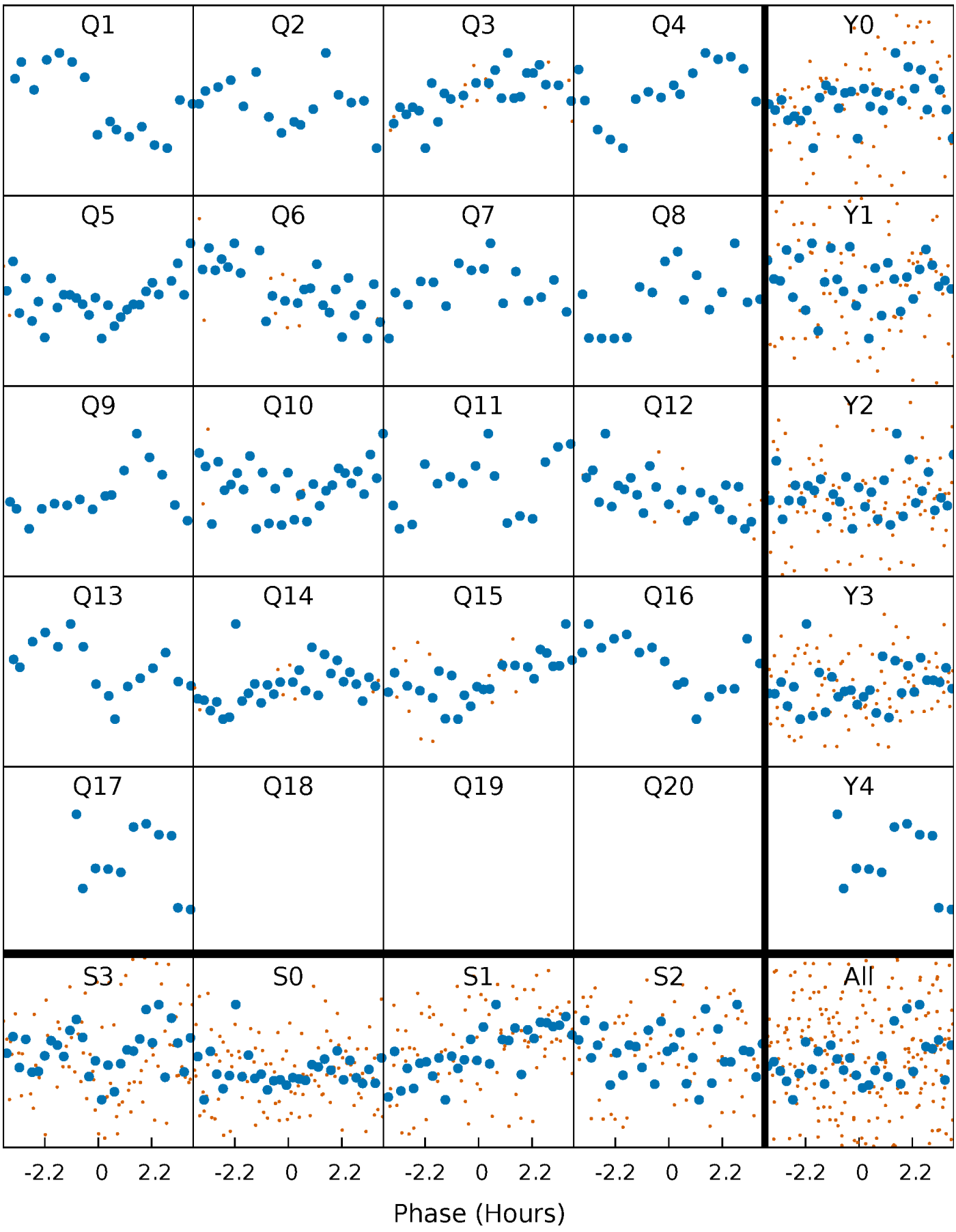
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009242059-04 P= 60.107767 Days T_0=144.288423 (BKJD)



DV Quarter-Phased Transit Curves

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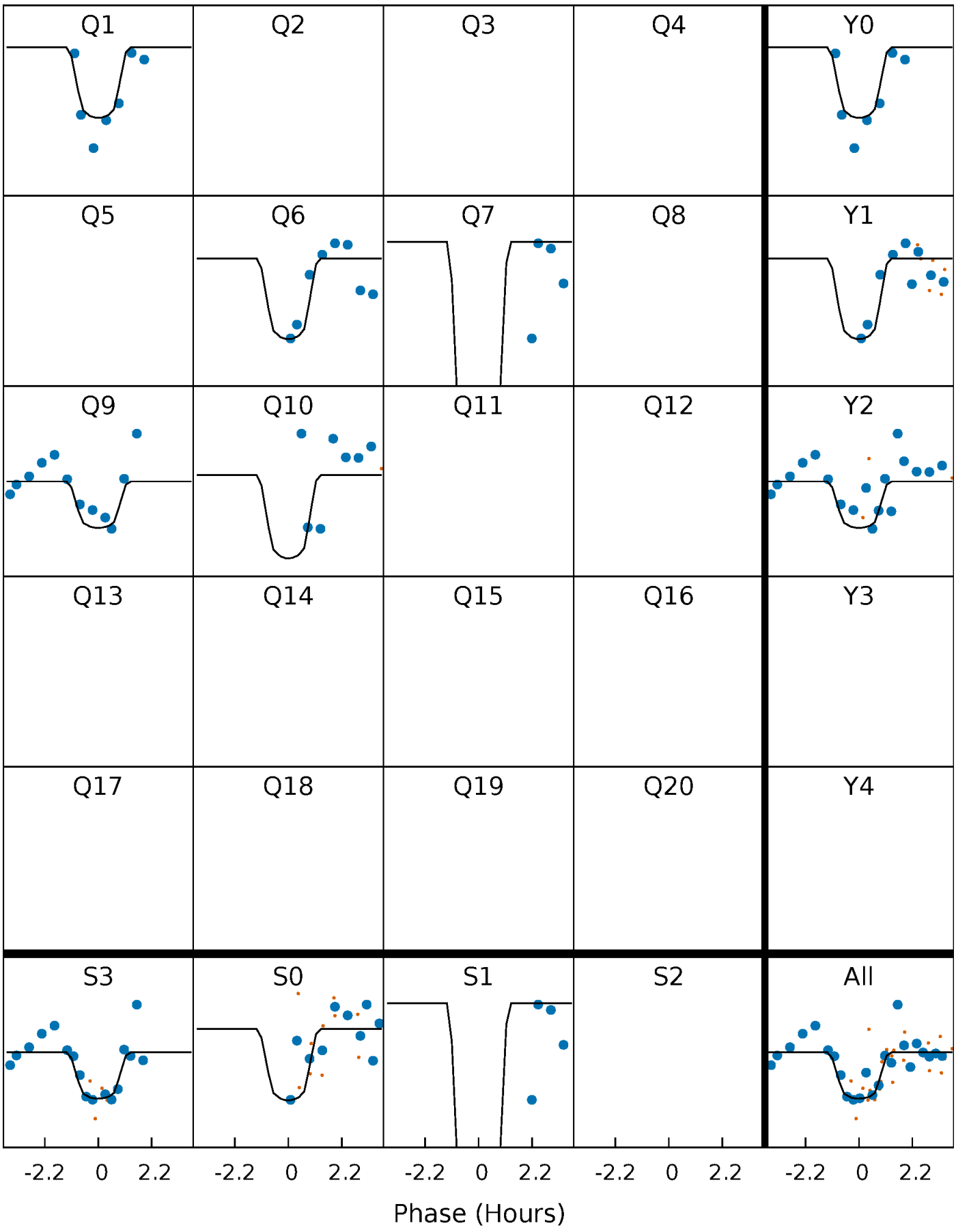
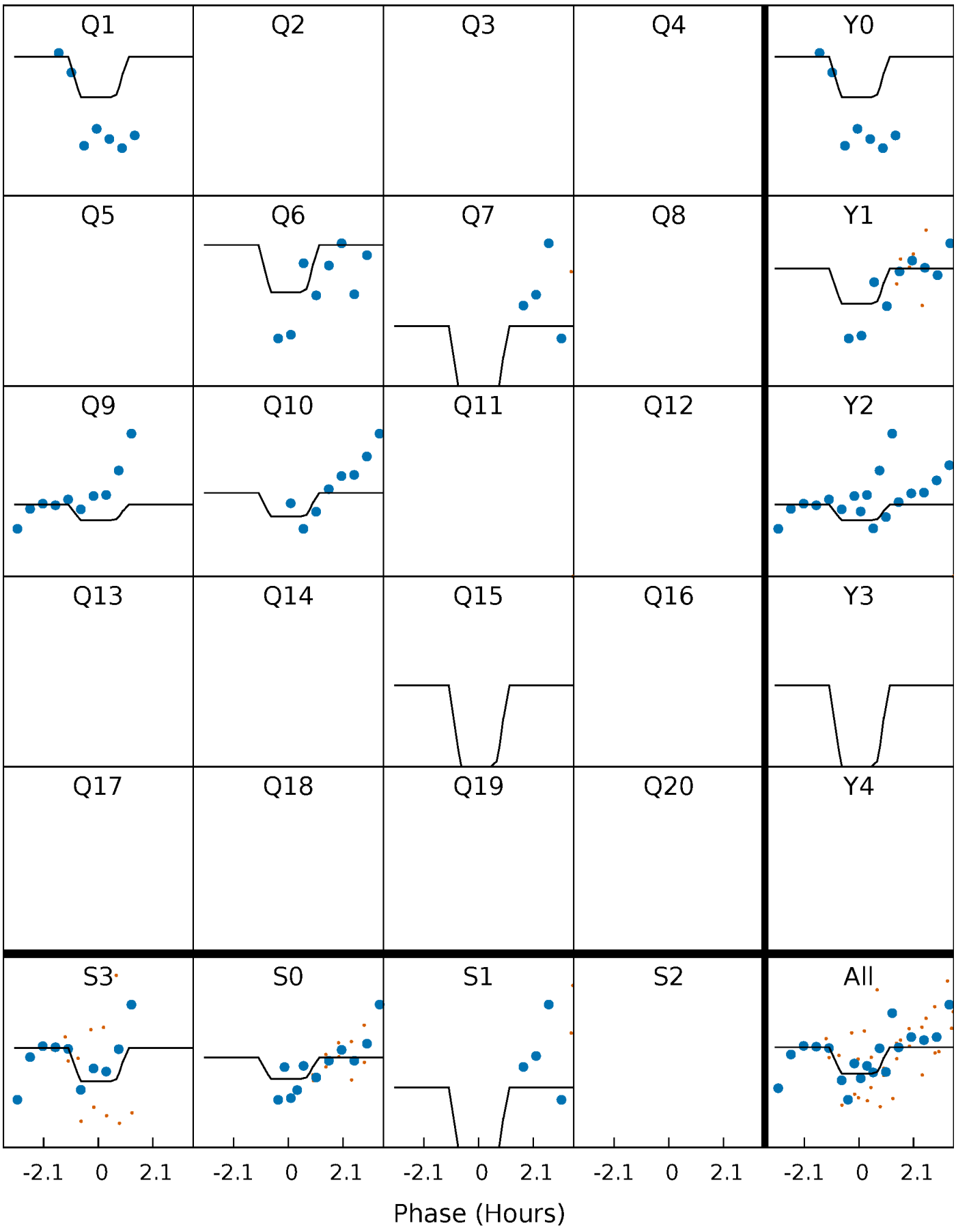


Alt. Detrend Quarter-Phased Transit Curves

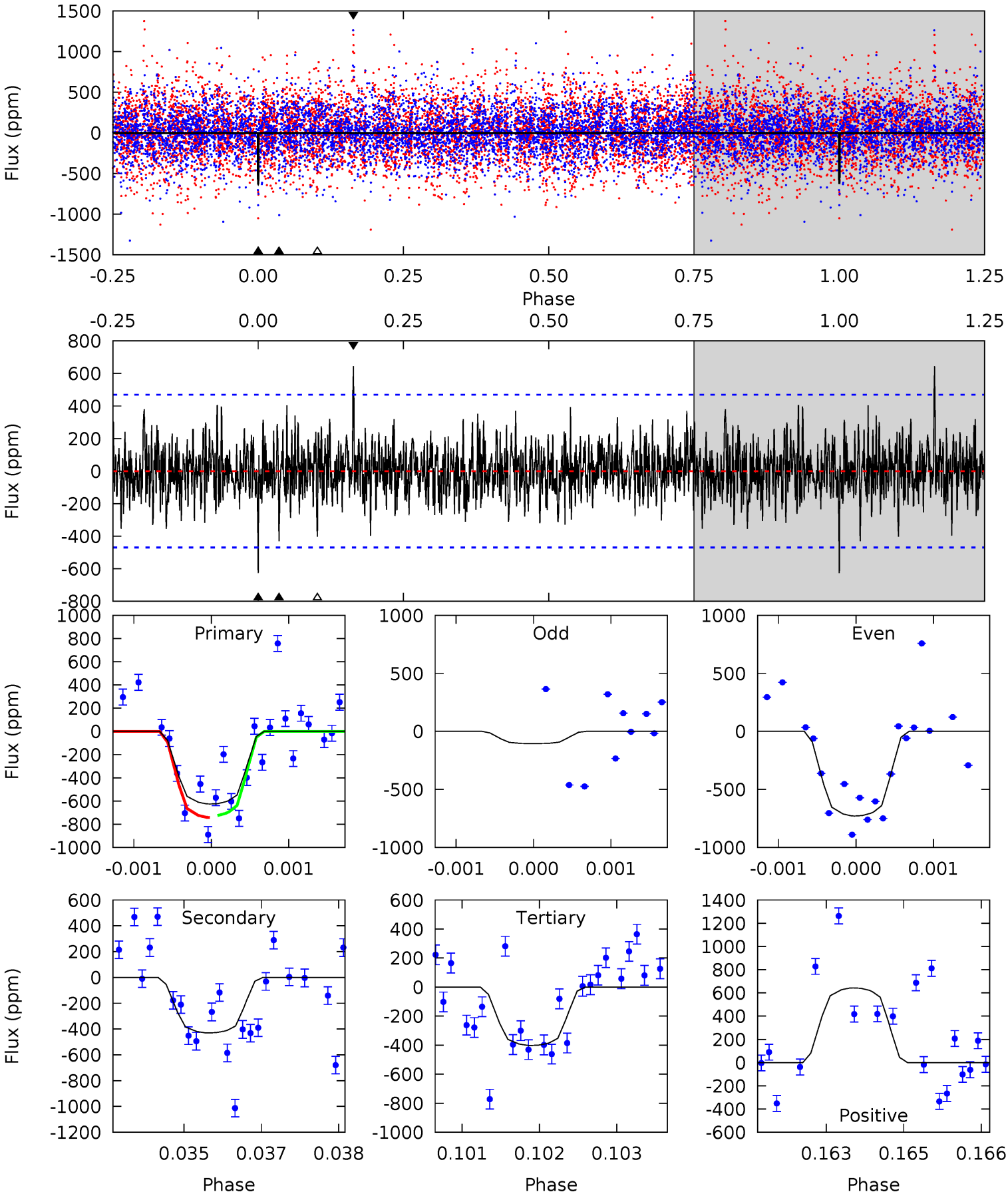
TCE 009242059-04 P= 60.107463 Days T_0=144.310659 (BKJD)



DV Model-Shift Uniqueness Test

009242059-04, P = 60.107767 Days, E = 84.180656 Days

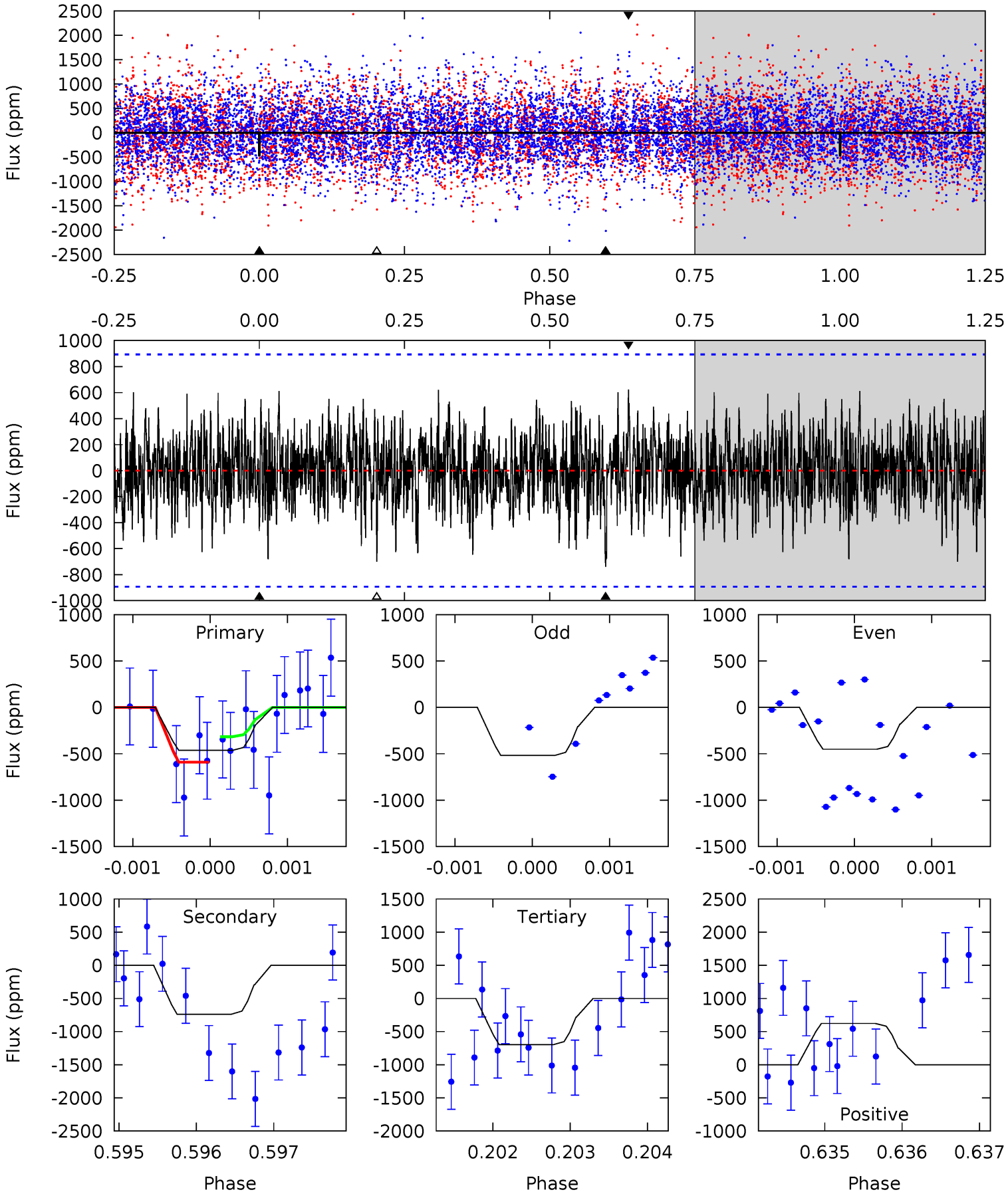
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.19	4.94	4.62	7.39	5.40	3.20	1.43	2.57	-0.20	0.32	-2.45	2.72	0.81	0.51	0.09



Alt Model-Shift Uniqueness Test

009242059-04, P = 60.107463 Days, E = 84.203196 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.82	4.50	4.25	3.79	5.43	3.26	1.26	-1.44	-0.97	0.25	0.71	0.18	0.76	0.46	0.82



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-04 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-430±87	$8.37^{+8.34}_{-5.55}$	1035^{+83}_{-103}	5032^{+3999}_{-1185}	356^{+2895}_{-263}
Alt.	-740±164	$8.33^{+8.46}_{-5.53}$	1034^{+79}_{-109}	5622^{+4651}_{-1352}	614^{+4785}_{-459}

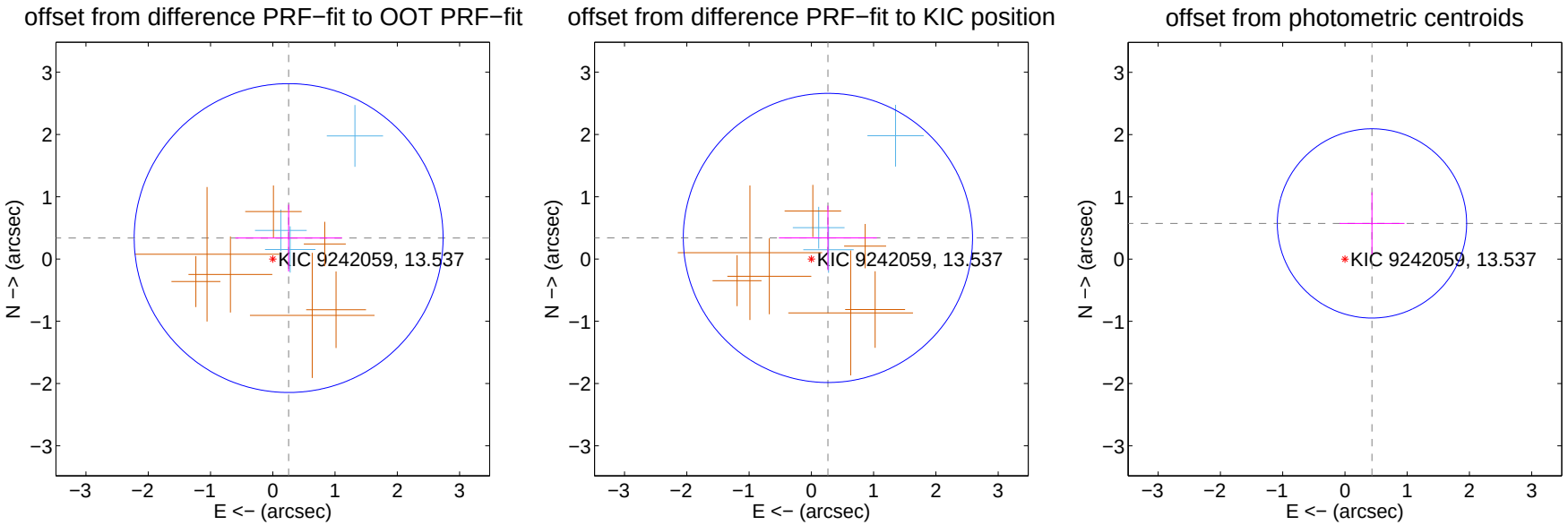
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

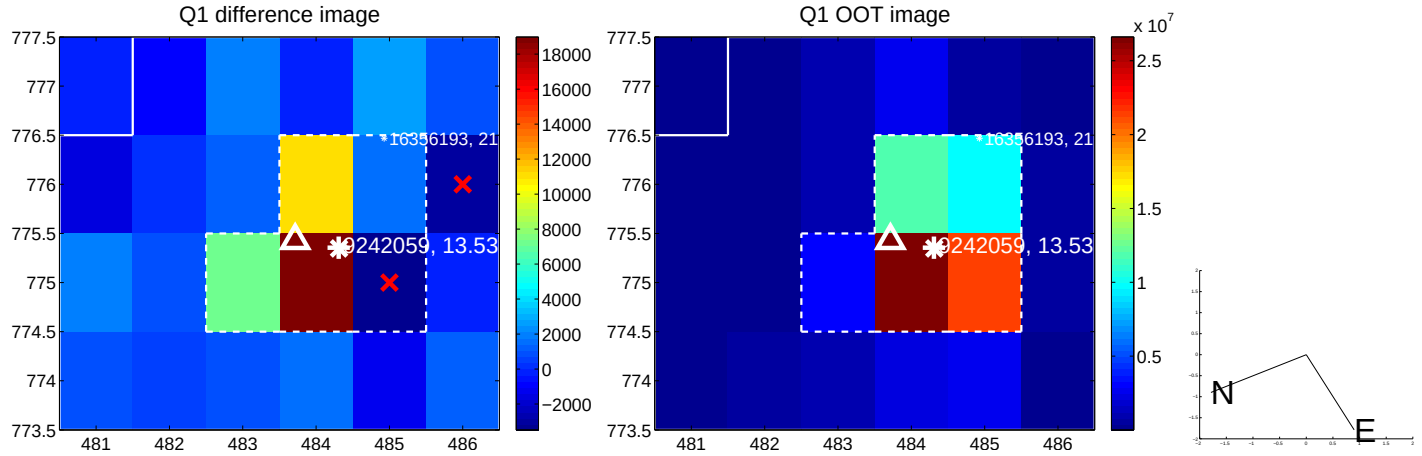
Supplemental centroid analysis for 009242059-04. Kepler magnitude: 13.54. Transit SNR 9.14
There are 3 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

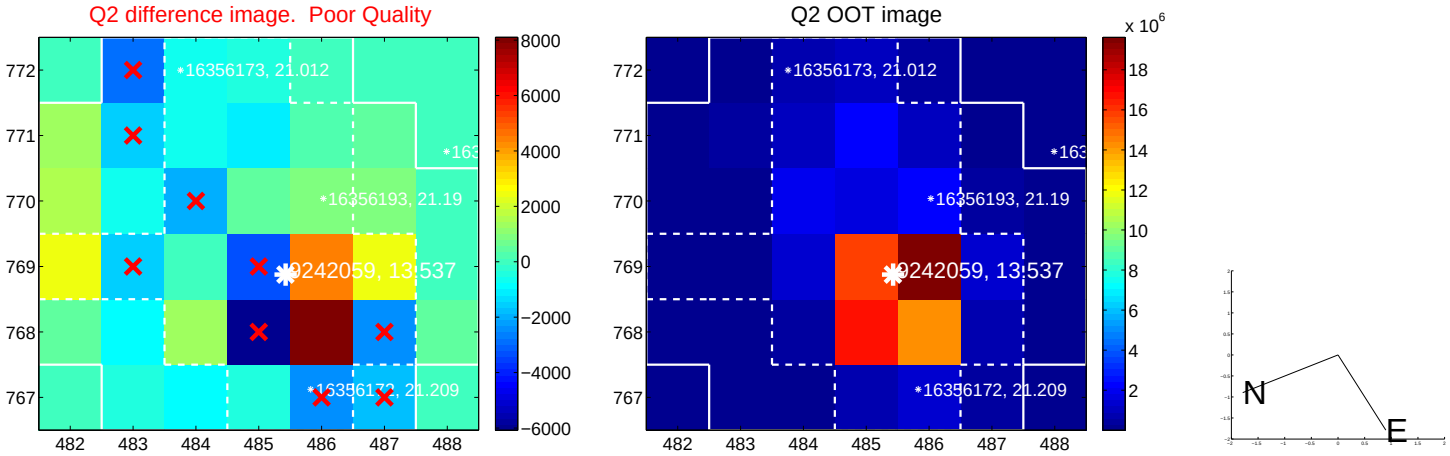
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.422 ± 0.827	0.51	-0.255 ± 0.856	0.336 ± 0.536
PRF-fit source offset from KIC position	0.430 ± 0.774	0.56	-0.266 ± 0.787	0.338 ± 0.517
photometric centroid source offset	0.72 ± 0.51	1.42	-0.43 ± 0.52	0.57 ± 0.50

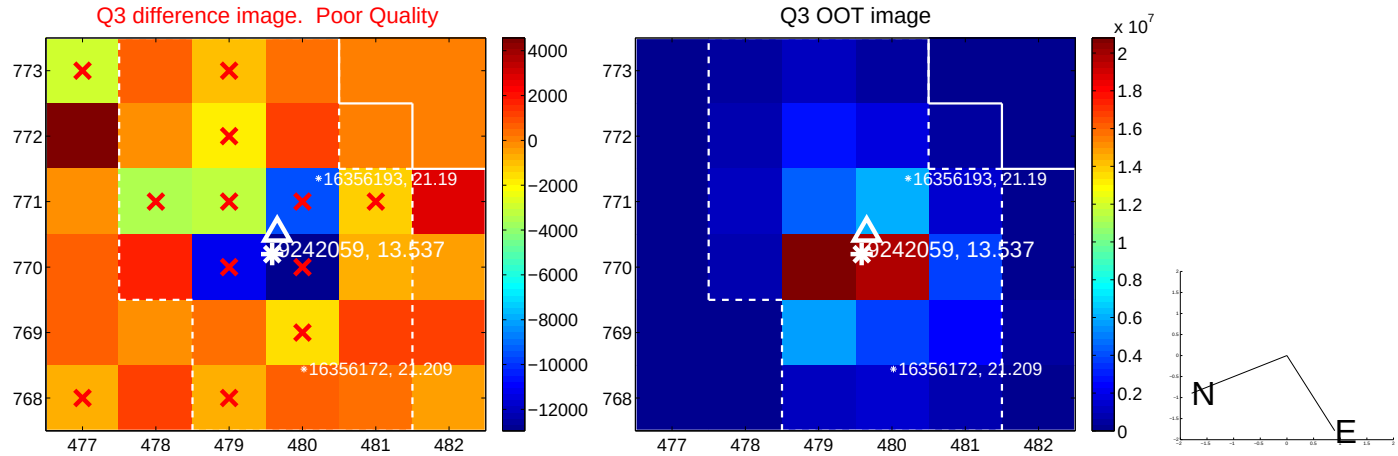


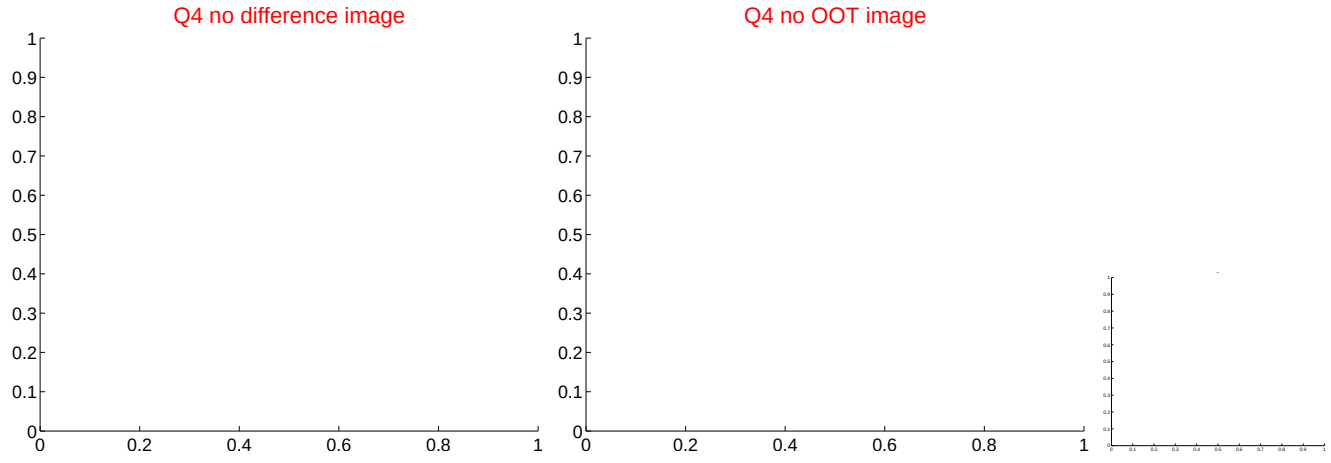
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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









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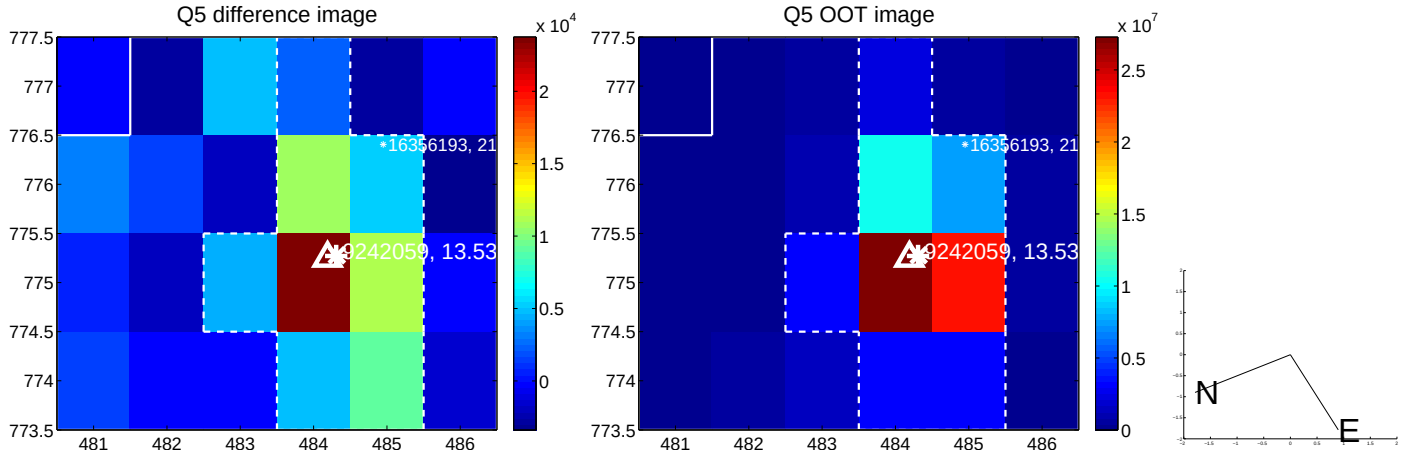

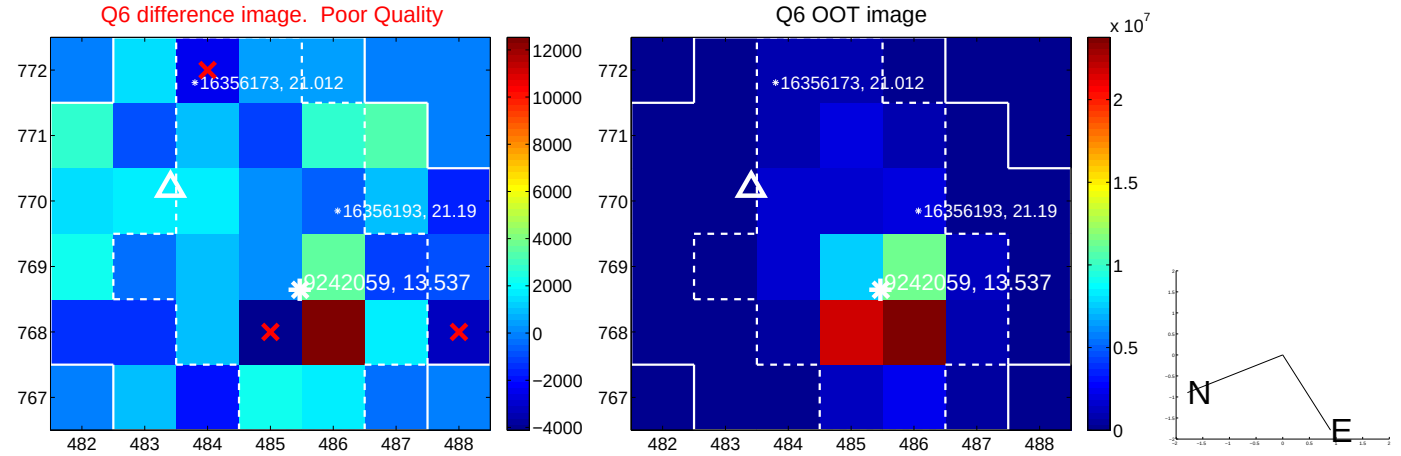

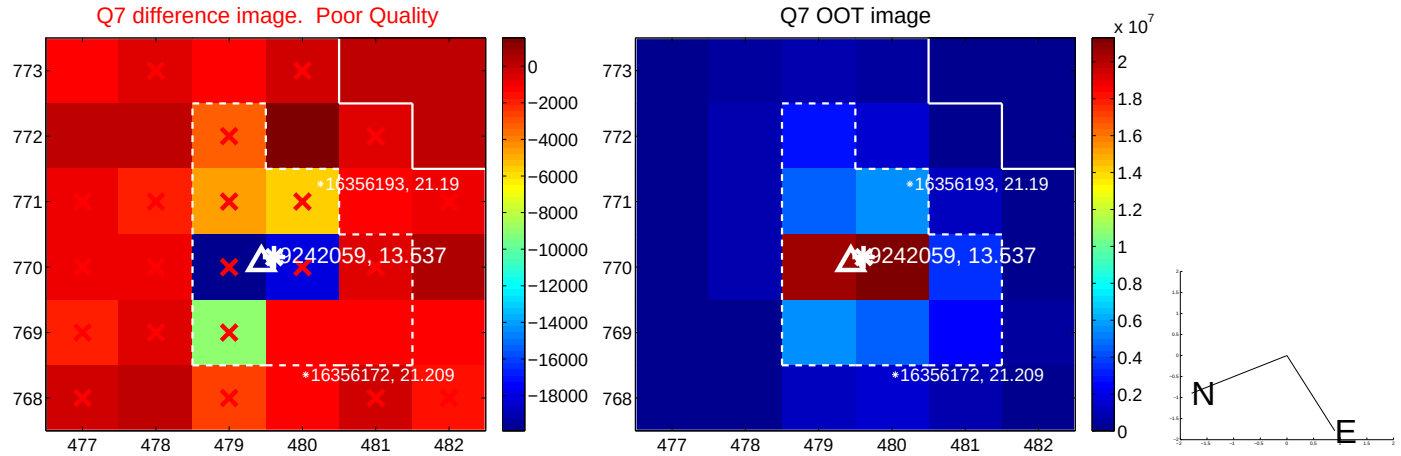

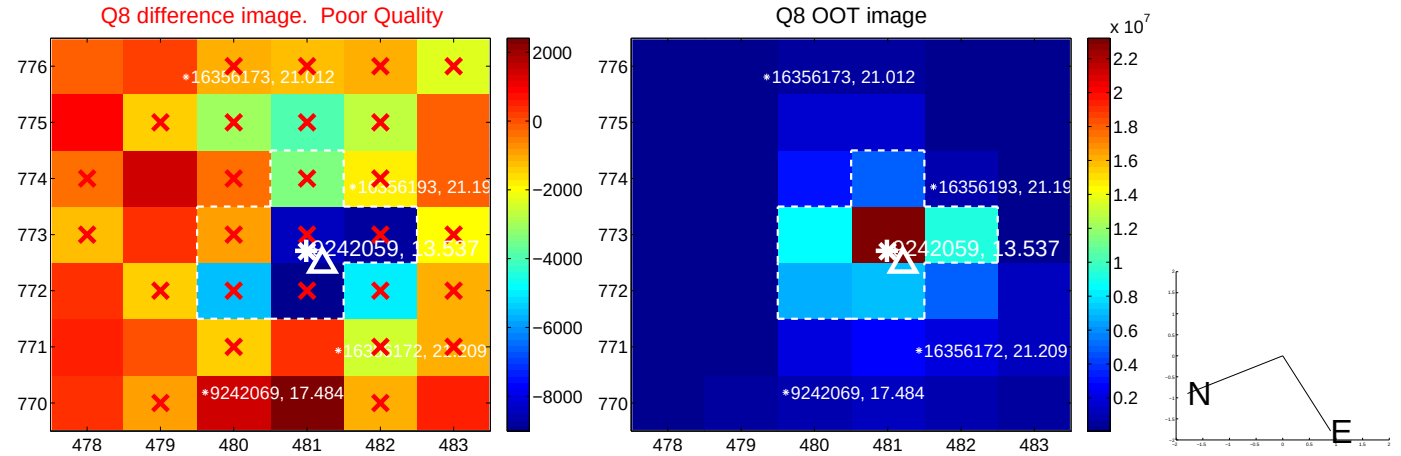

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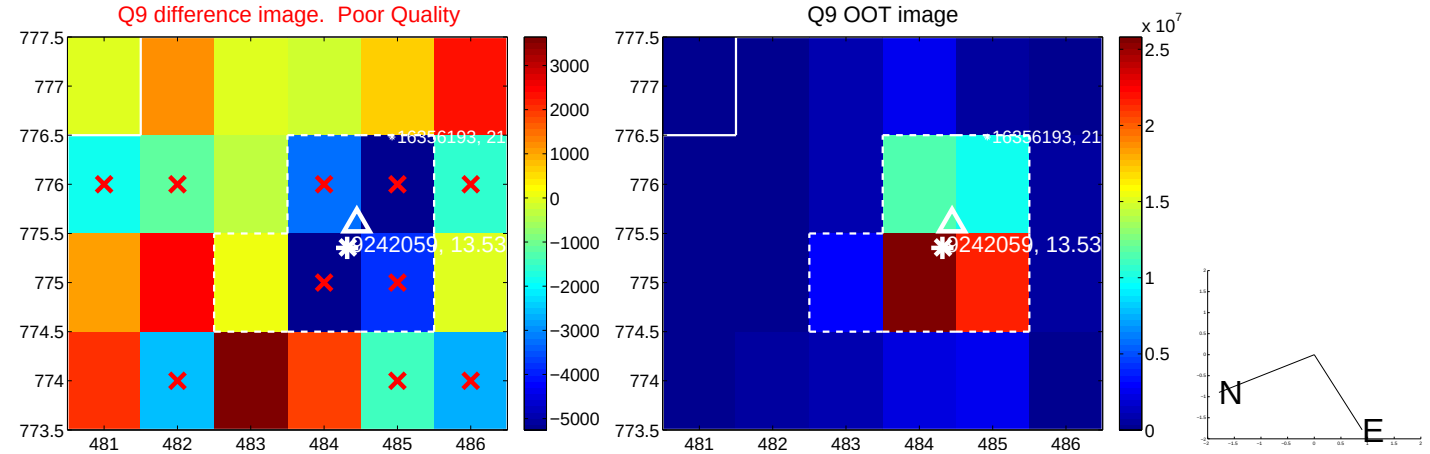

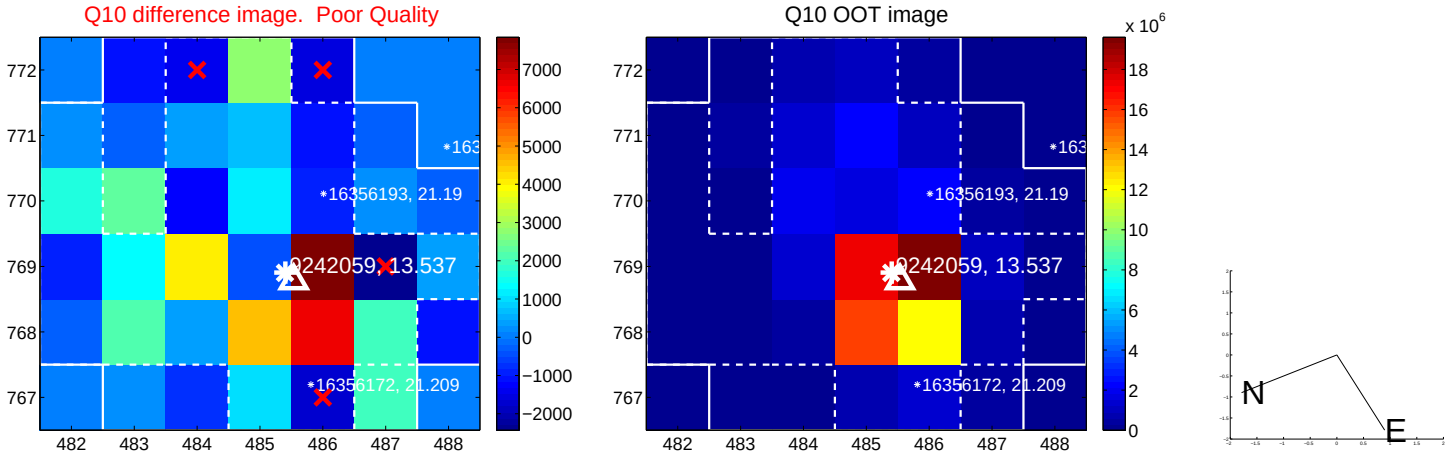

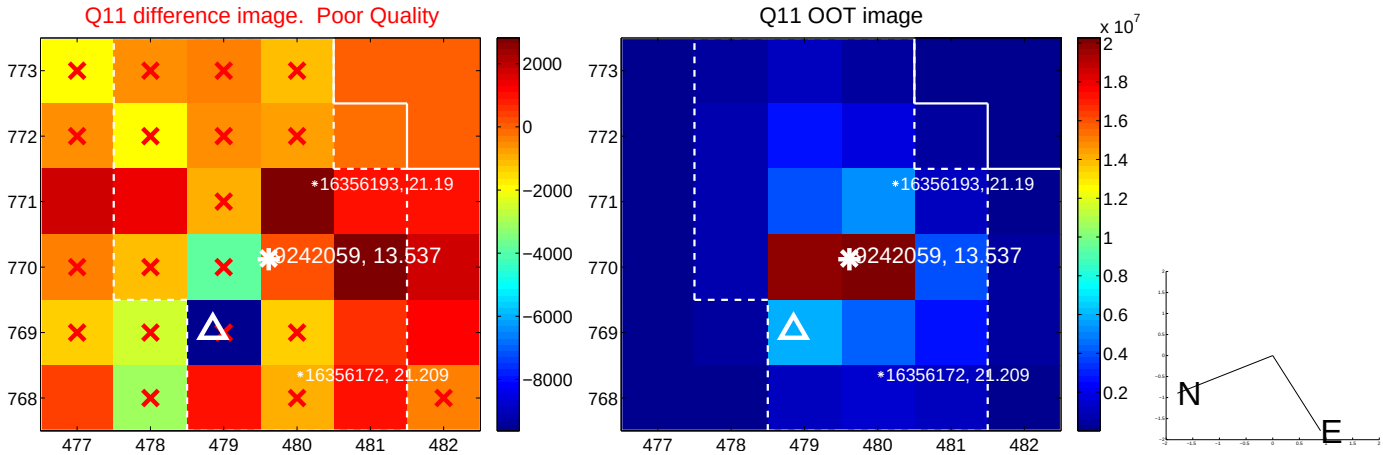

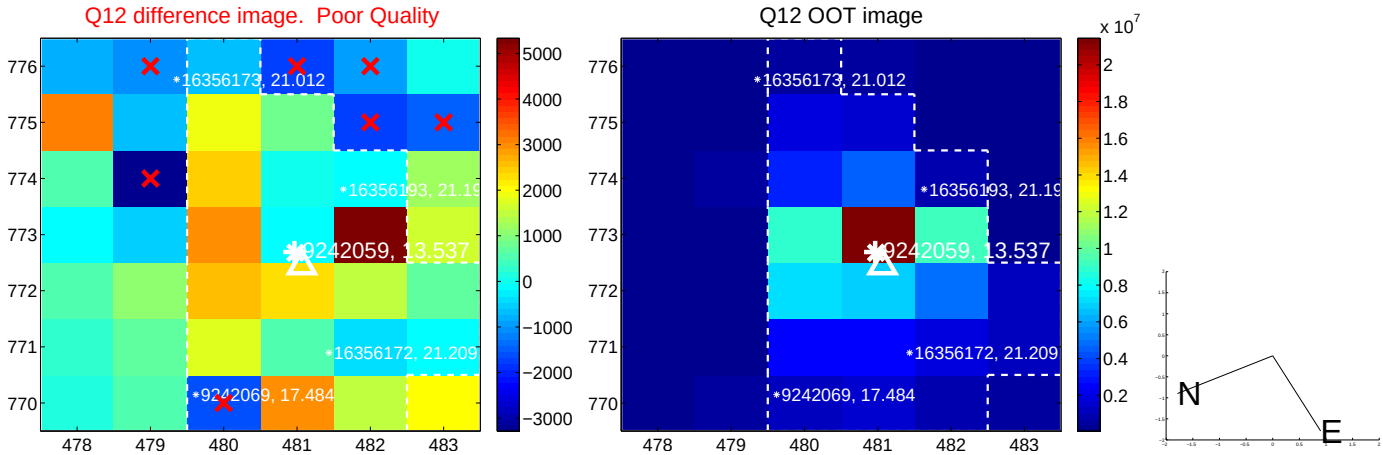

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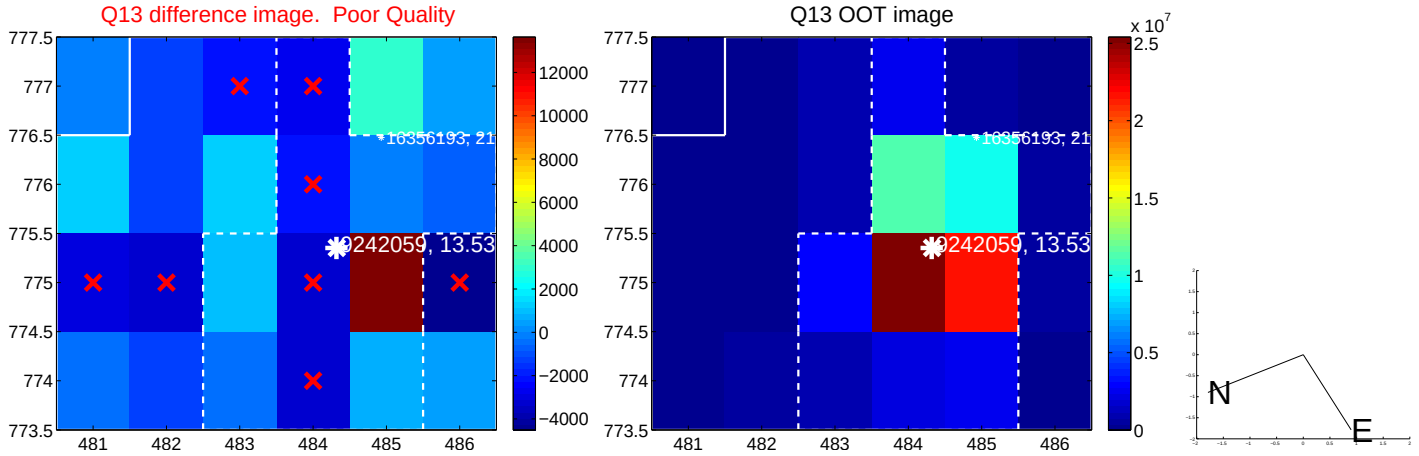

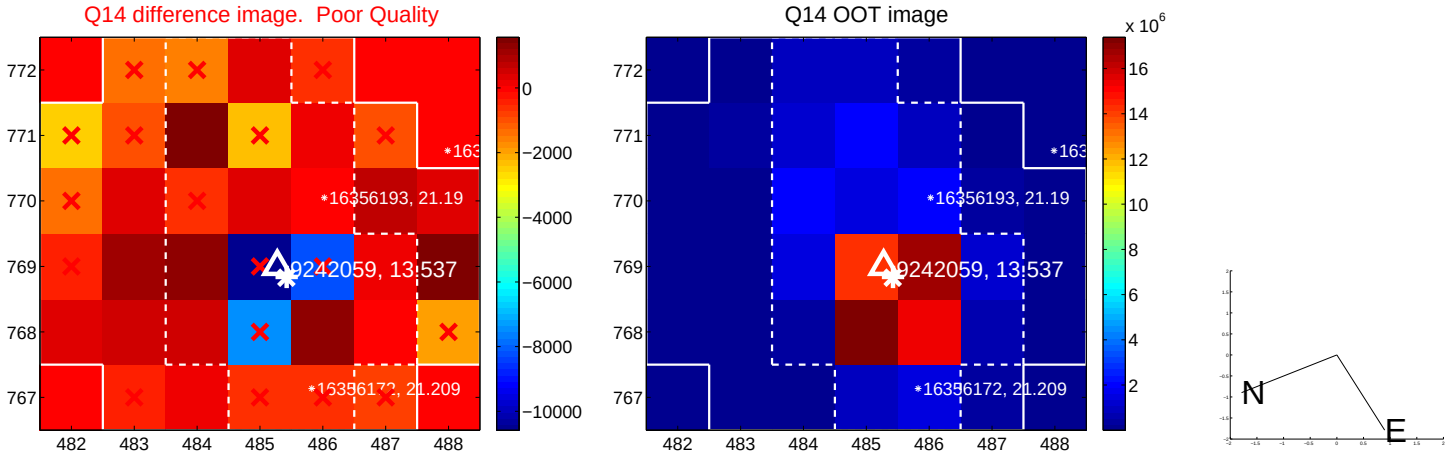

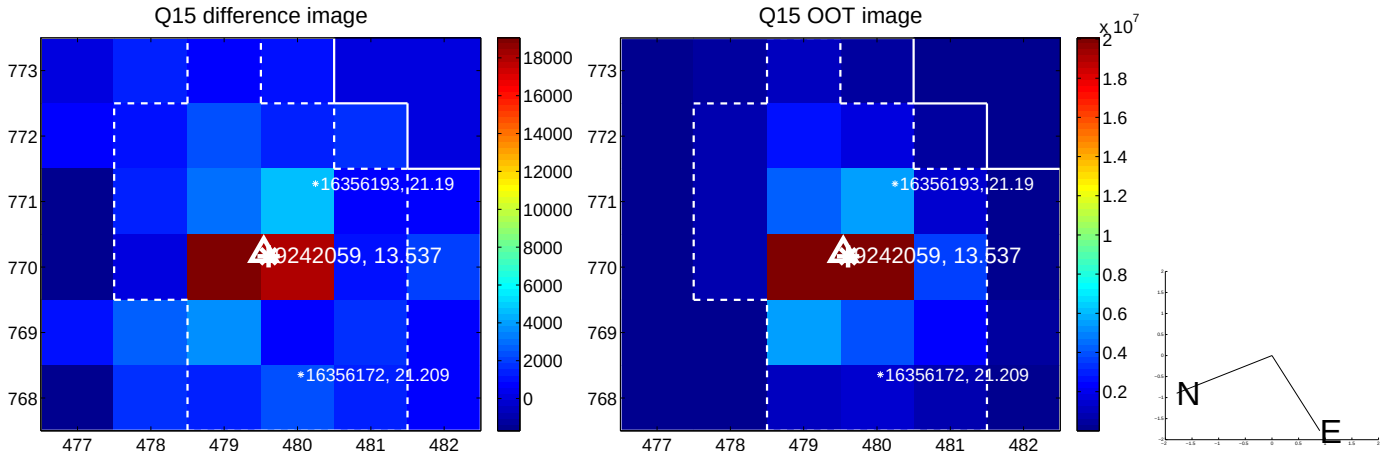

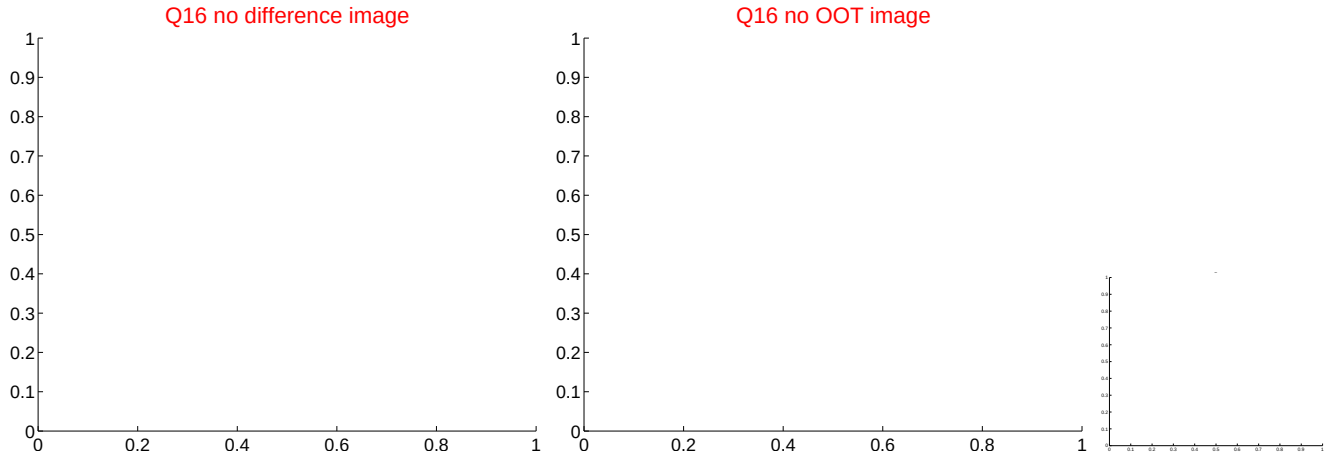

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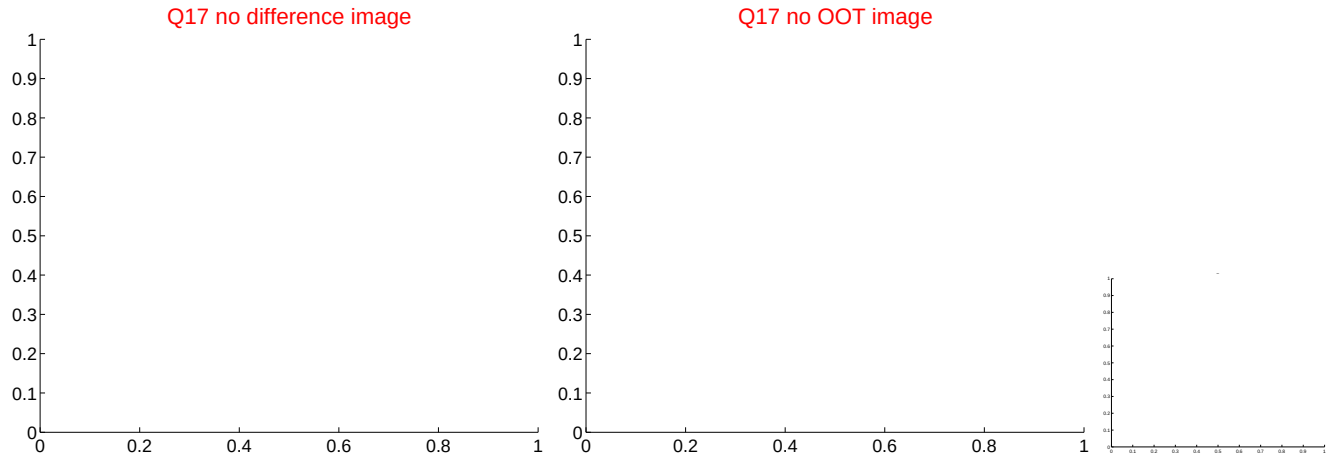
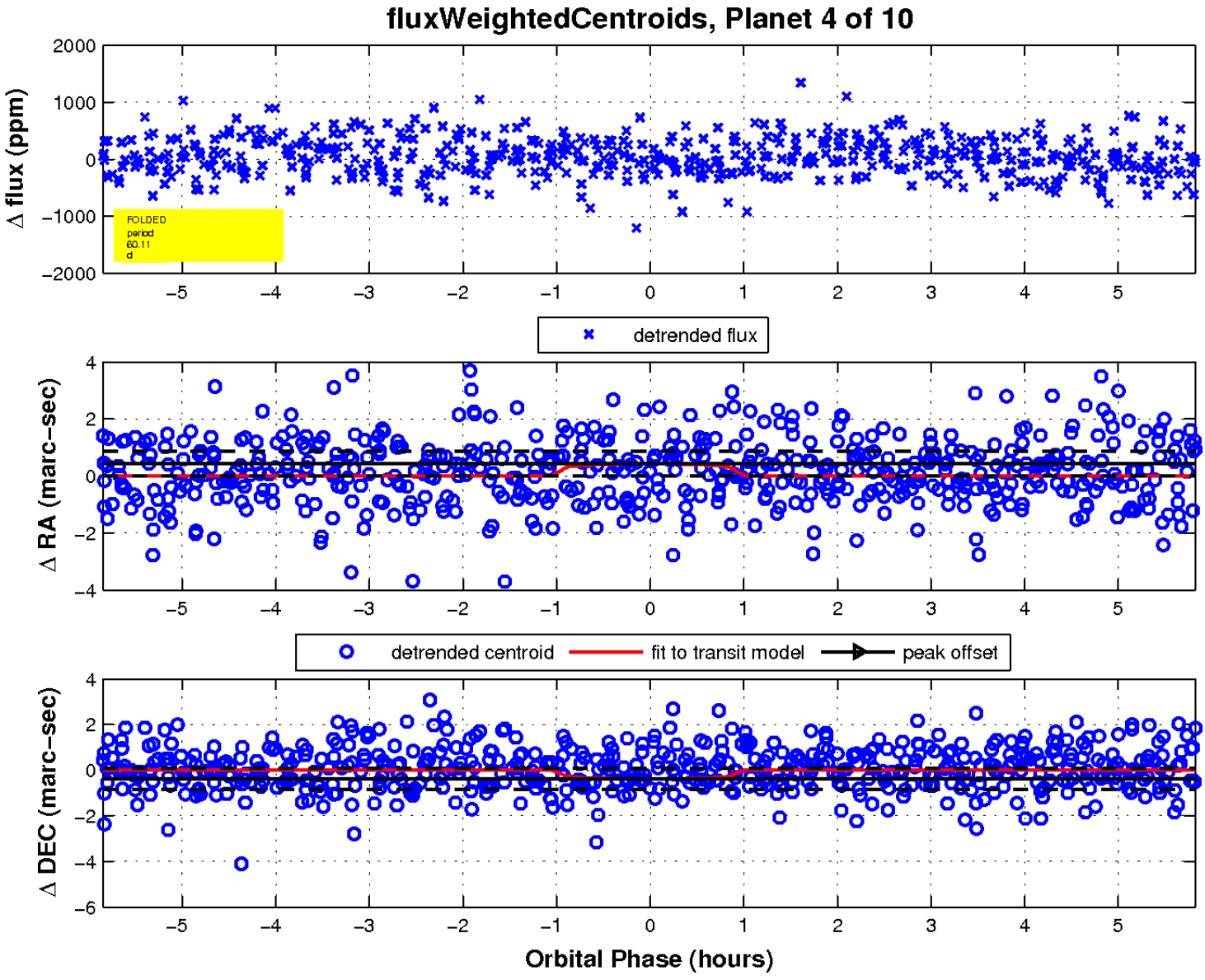
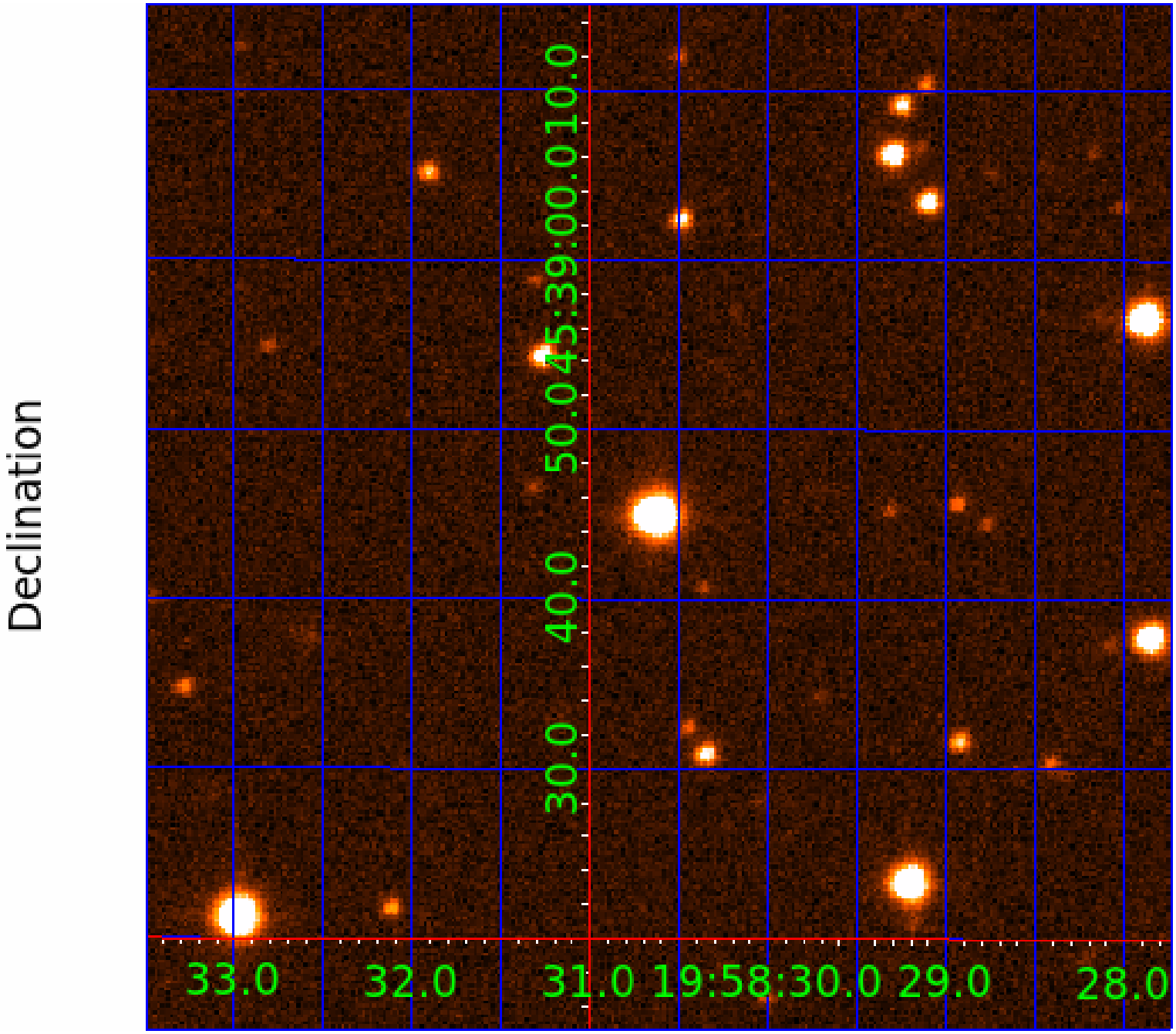




UKIRT Image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KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

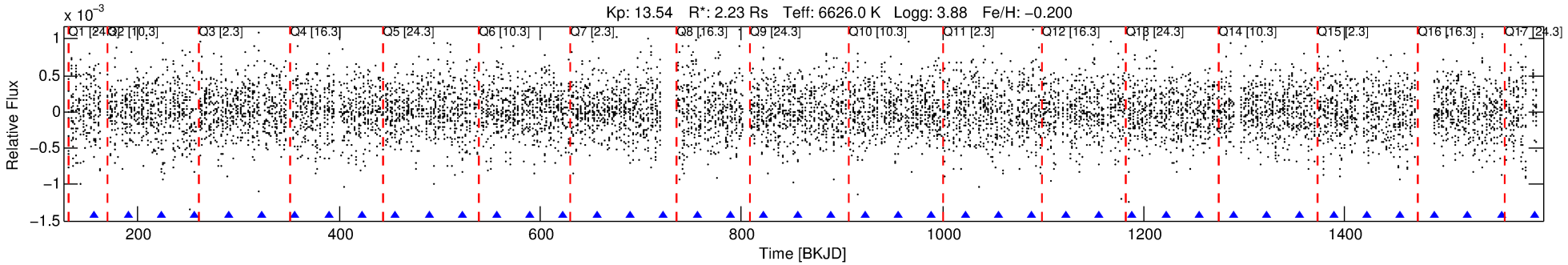
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

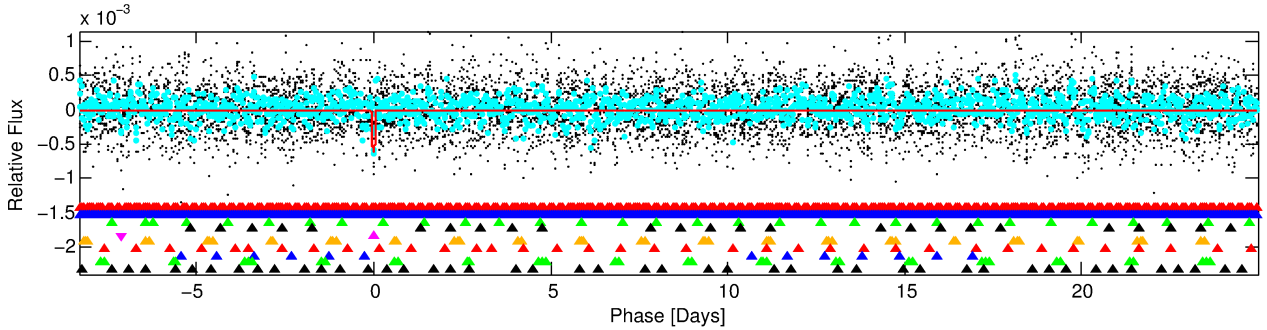
Ephemeris Match Information For 009242059-05

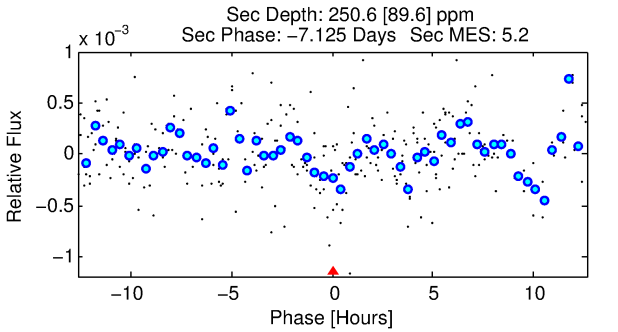
No Significant Match Found

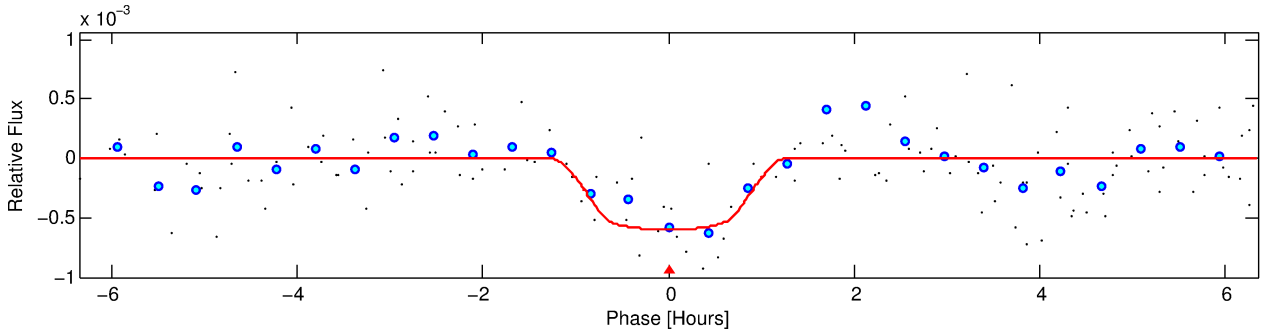
DV One-Page Summary

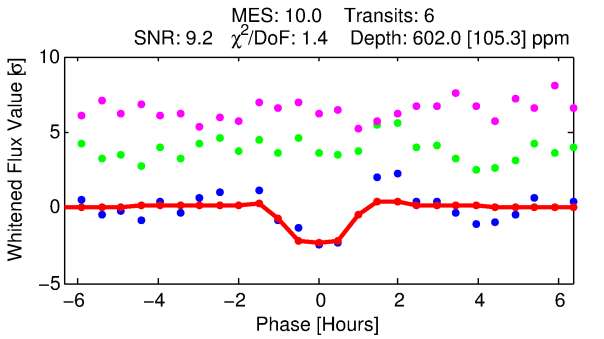
KIC: 9242059 Candidate: 5 of 10 Period: 33.298 d

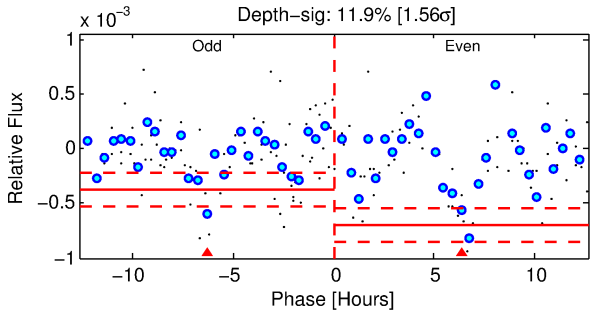


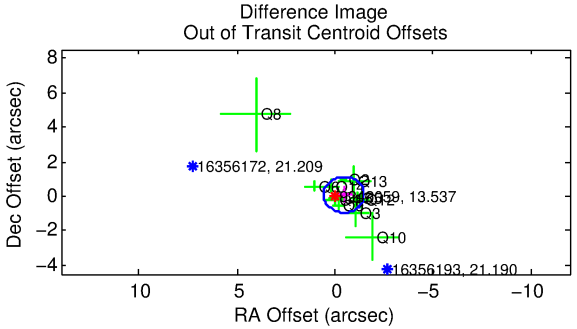












DV Fit Results:

Period = 33.29818 [0.00033] d
Epoch = 156.8002 [0.0086] BKJD
Rp/R* = 0.0263 [0.0153]
a/R* = 59.06 [188.97]
b = 0.90 [0.68]

Seff = 170.68 [117.47]
Teq = 922 [159] K
Rp = 6.41 [4.64] Re
a = 0.2248 [0.0941] AU

Ag = 169.42 [235.38] [0.72σ]
Teffp = 5141 [1572] K [2.67σ]

DV Diagnostic Results:

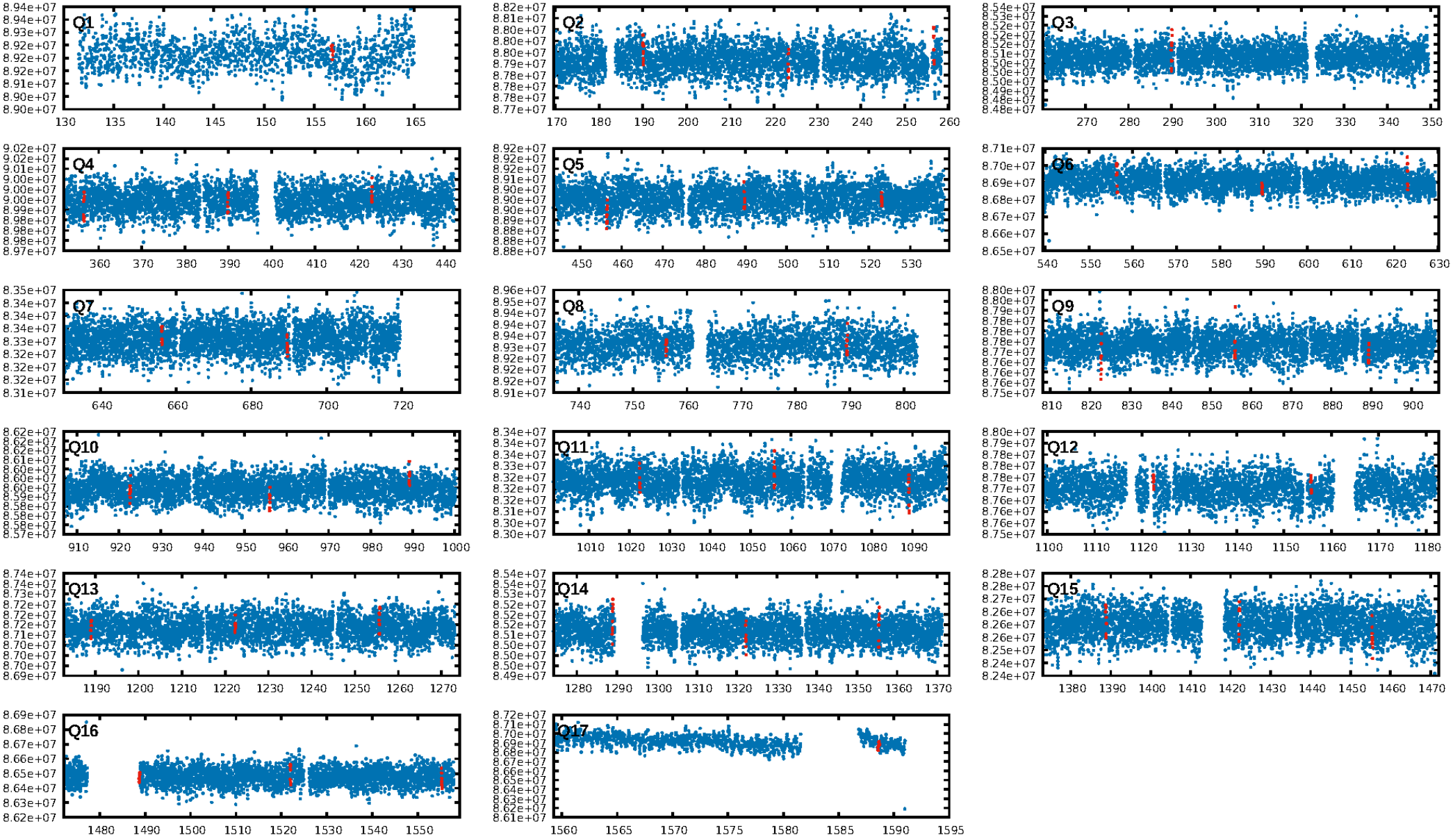
ShortPeriod−sig: 100.0% [9.92σ]
LongPeriod−sig: 100.0% [42.46σ]
ModelChiSquare2−sig: 10.2%
ModelChiSquareGof−sig: 98.3%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [6/6]
GhostDiagnostic−chr: −10.25

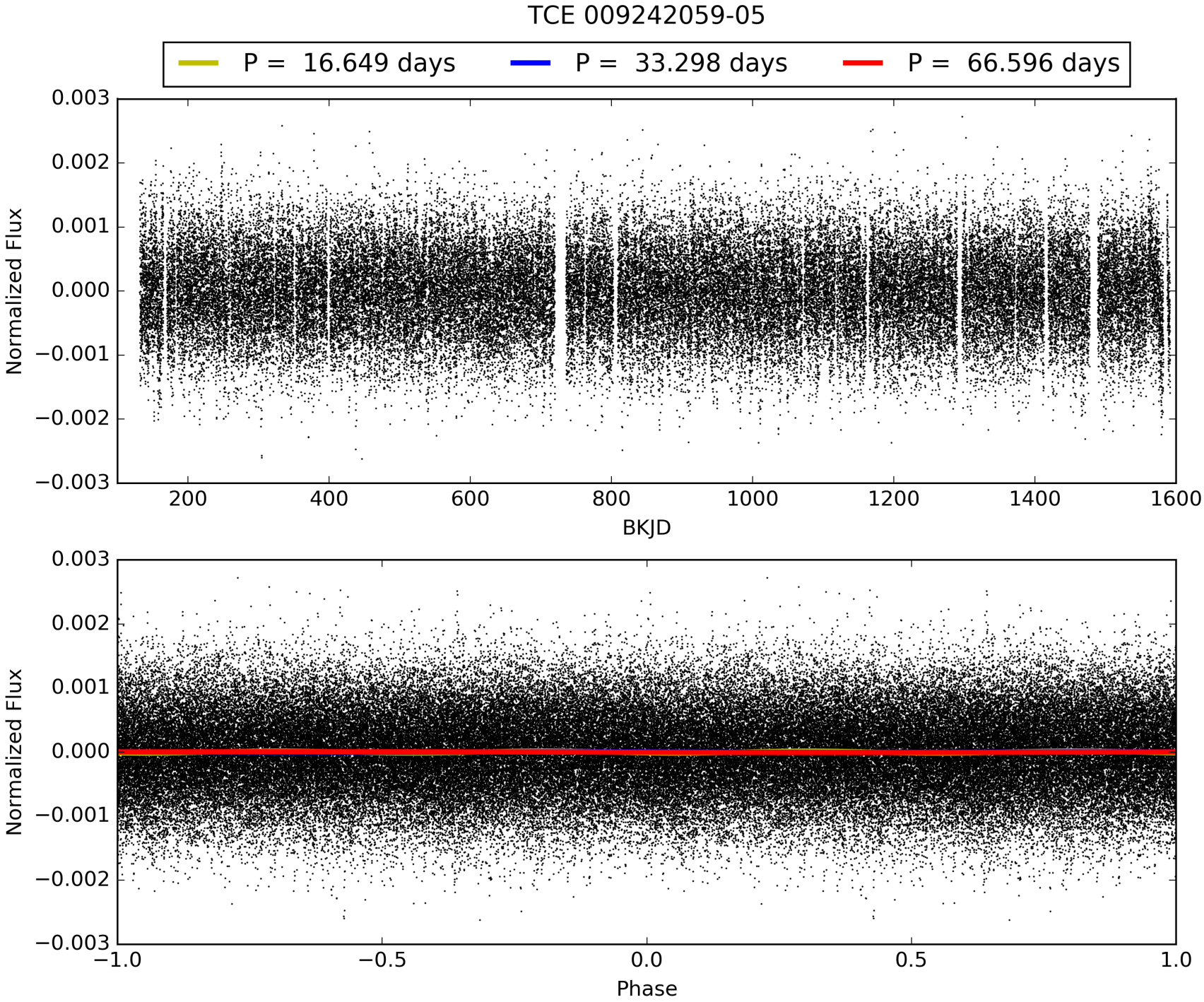
Centroid−sig: 7.2%
Centroid−so: 0.526 arcsec [1.11σ]
OotOffset−rm: 0.444 arcsec [1.28σ]
KicOffset−rm: 0.482 arcsec [1.38σ]
OotOffset−st: 4/2/3/3 [12]
KicOffset−st: 4/2/3/3 [12]
DiffImageQuality−fgm: 0.42 [5/12]
DiffImageOverlap−fno: 0.35 [6/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:53:02 Z

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

TCE 009242059-05, PDC Light Curves

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P = 16.649 days
P = 33.298 days
P = 66.596 days
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0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
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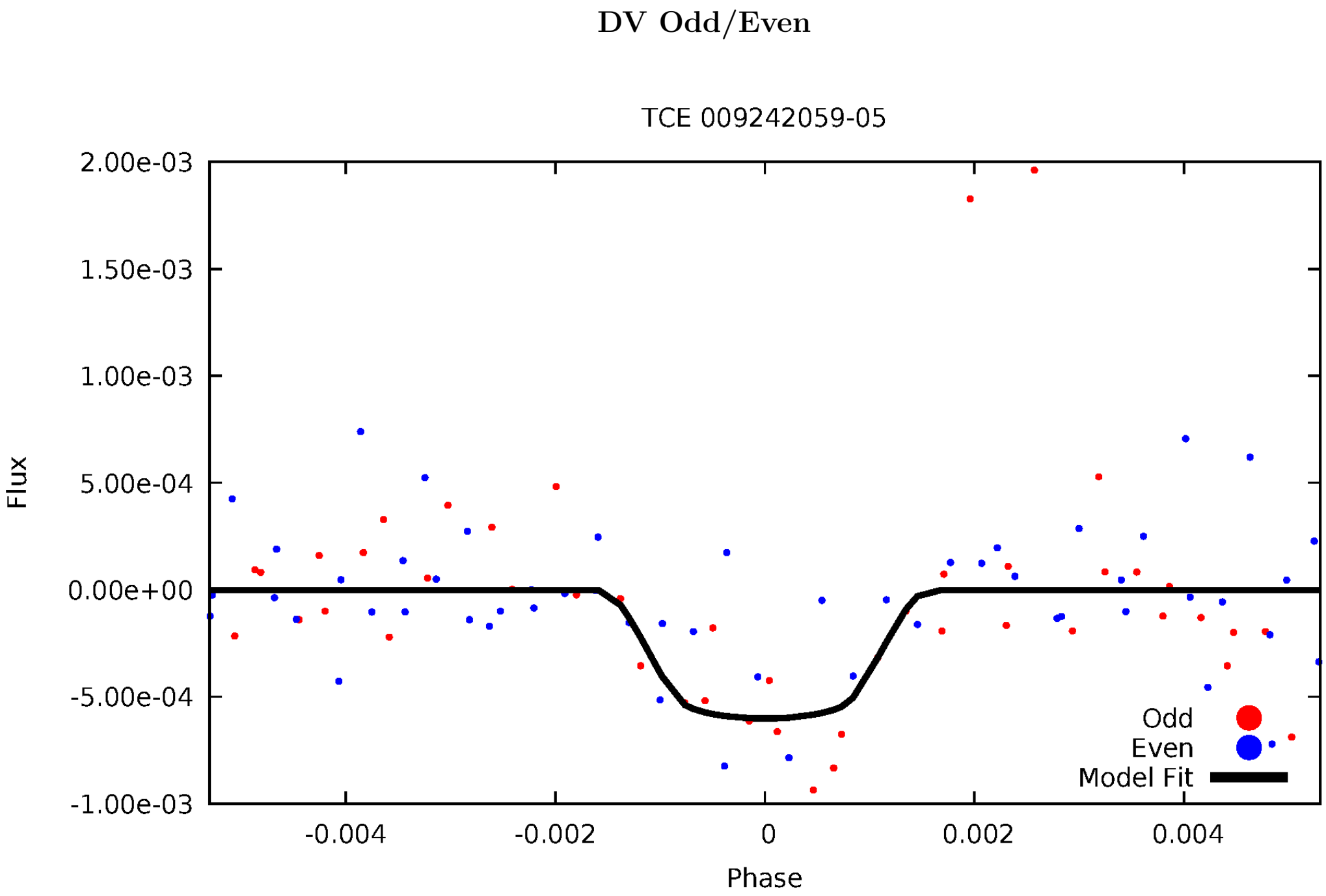
−0.5
0.0
0.5
1.0
Phase


DV Odd/Even
TCE 009242059-05
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
Flux
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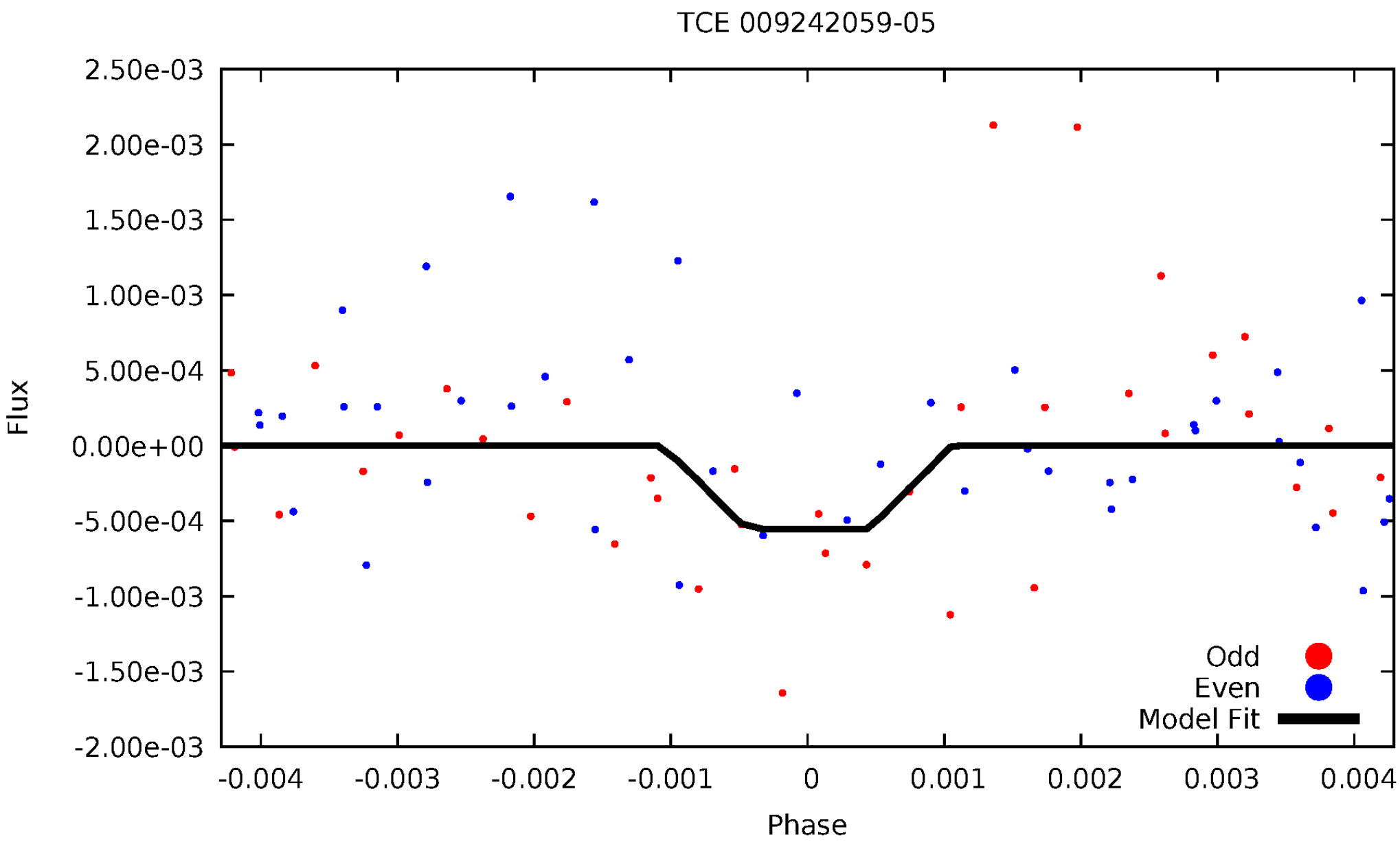
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit


ALT Odd/Even
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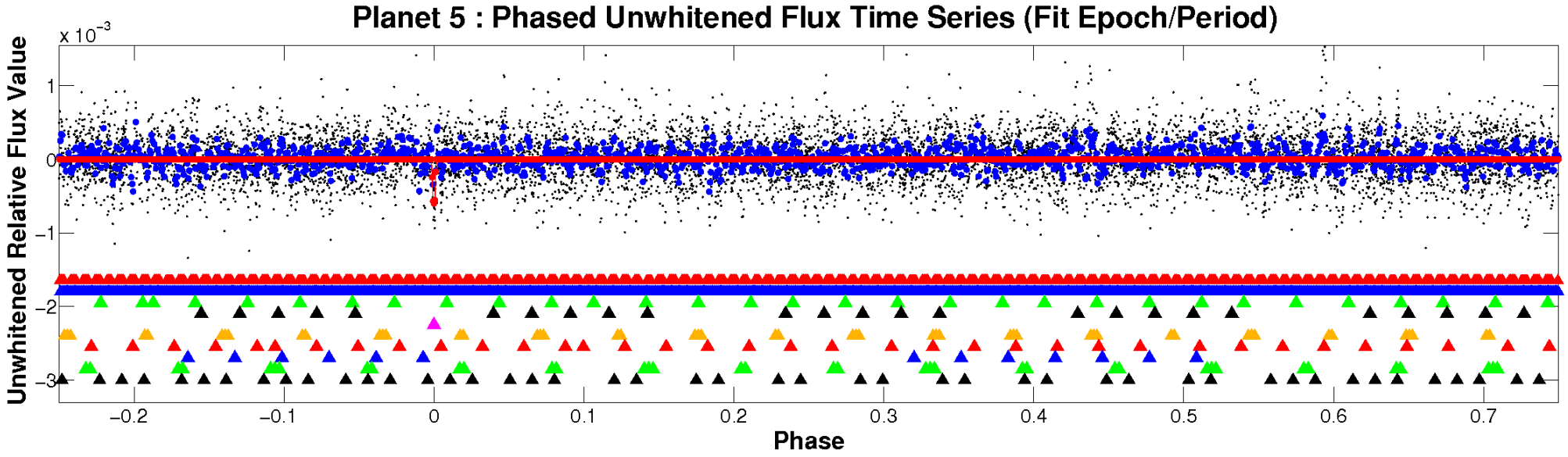
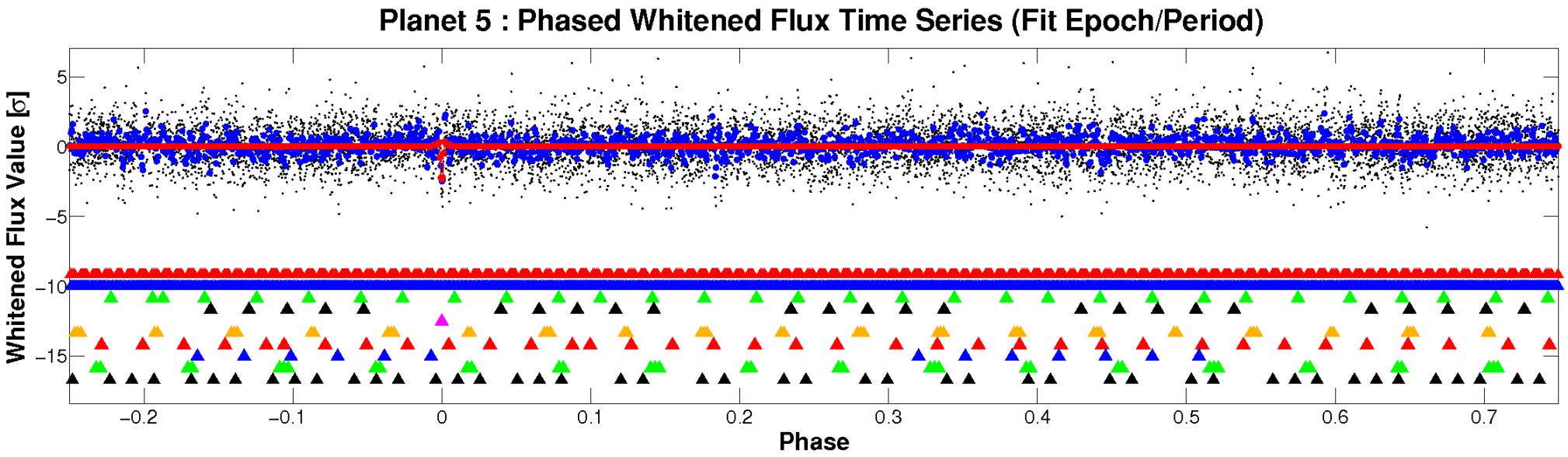
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.004
-0.003
-0.002
-0.001
0
0.001
0.002
0.003
0.004
Phase
Odd
Even
Model Fit

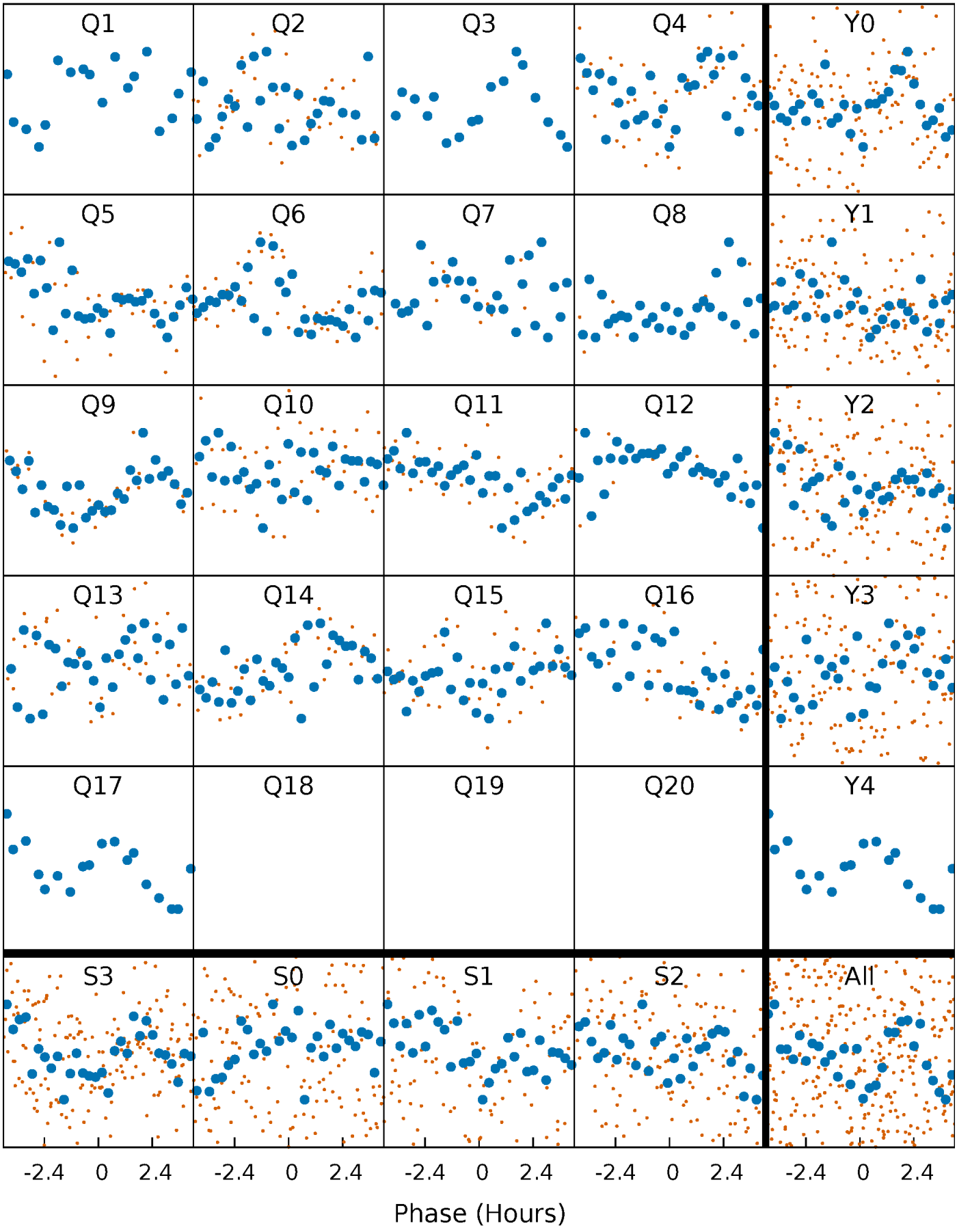
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009242059-05 P= 33.298180 Days T_0=156.800223 (BKJD)



DV Quarter-Phased Transit Curves

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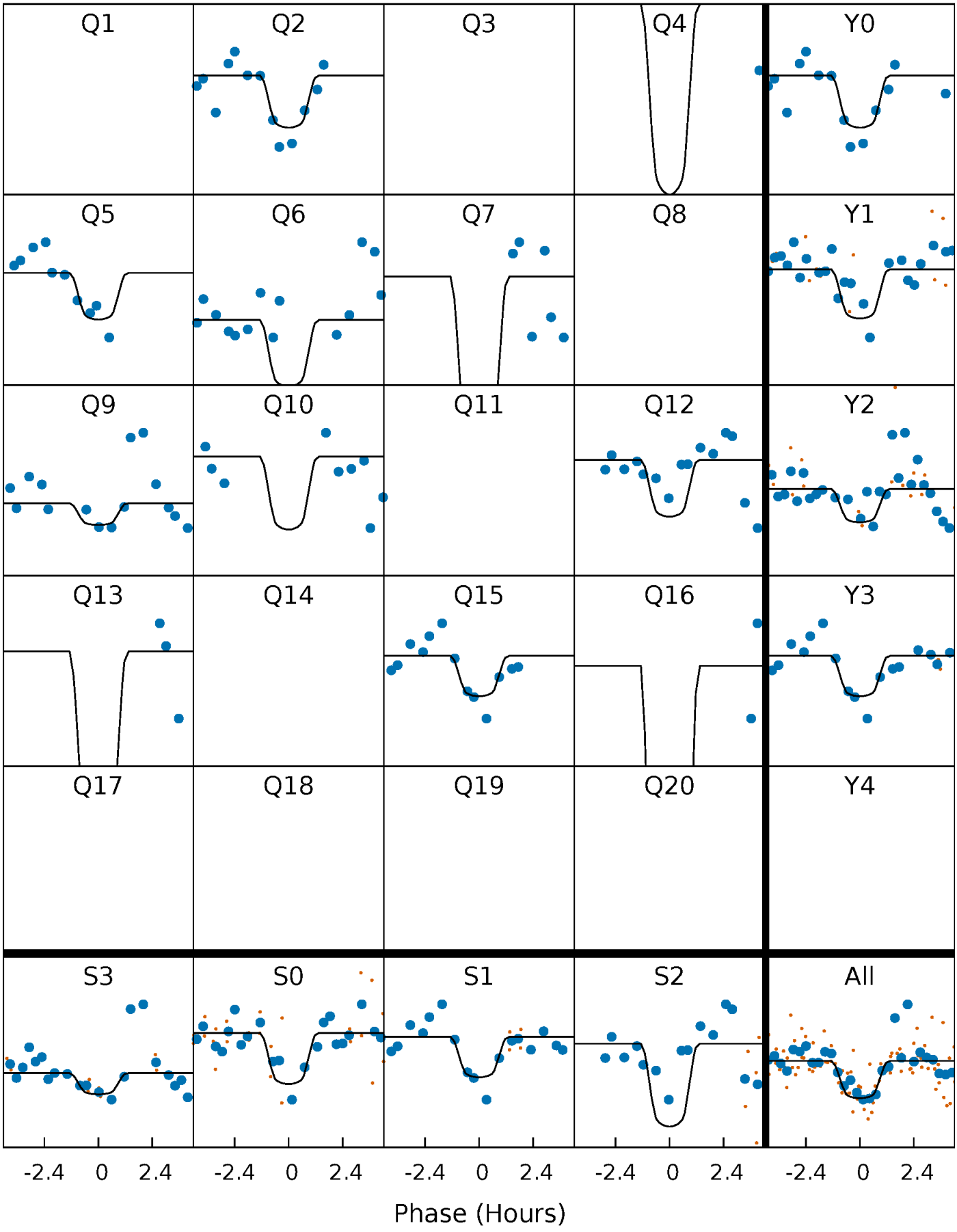
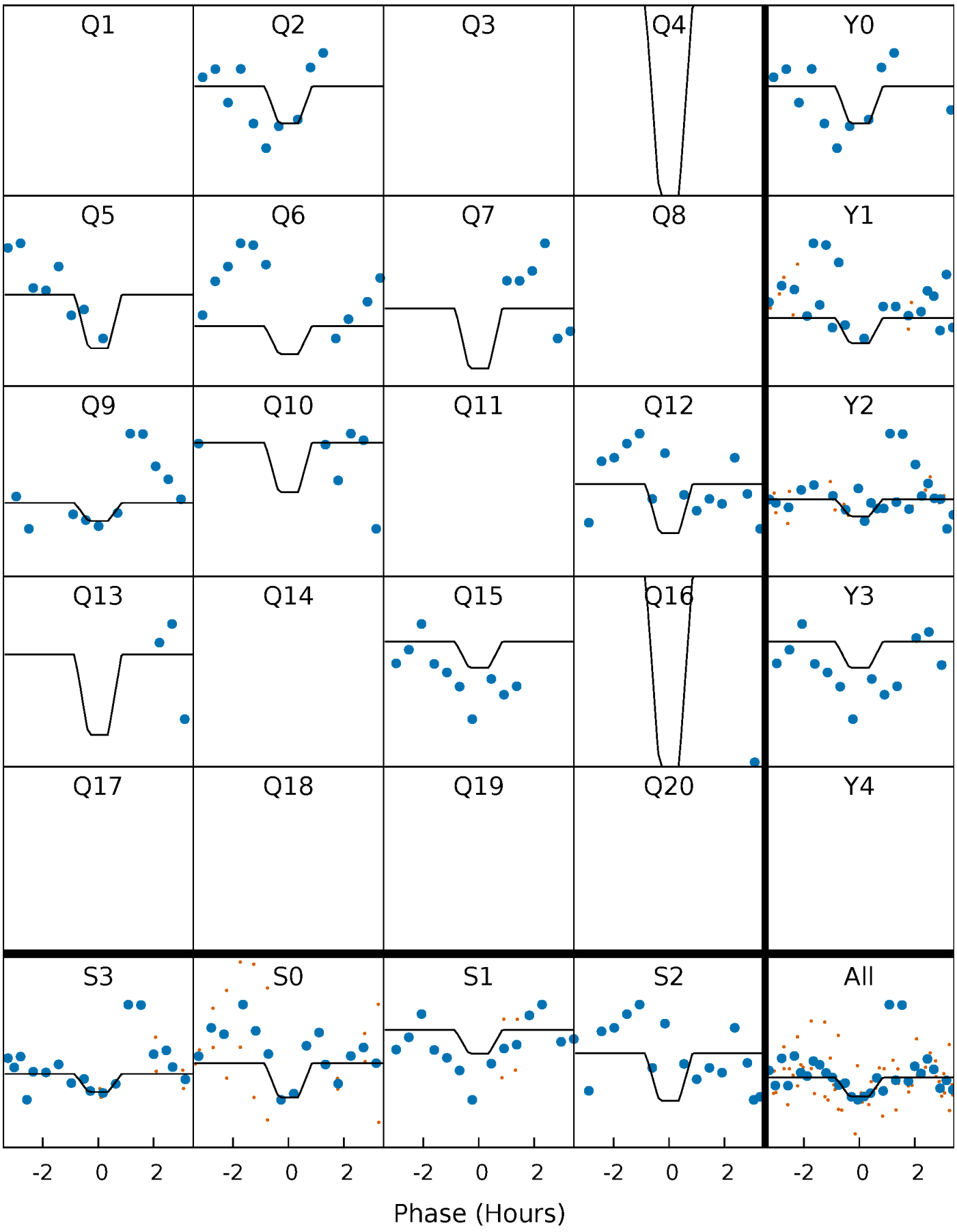


Alt. Detrend Quarter-Phased Transit Curves

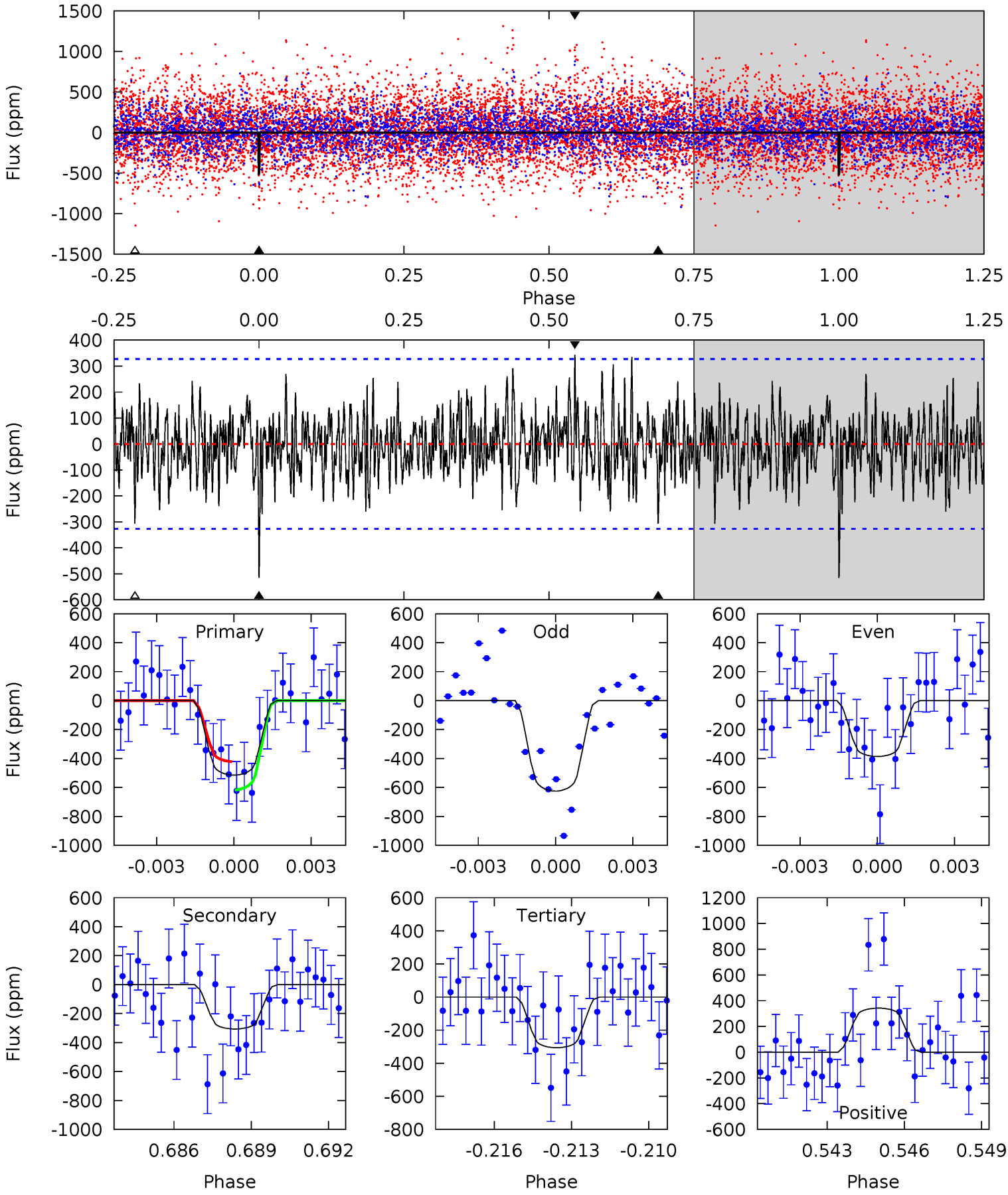
TCE 009242059-05 P= 33.298263 Days T_0=156.818478 (BKJD)



DV Model-Shift Uniqueness Test

009242059-05, P = 33.298180 Days, E = 123.502043 Days

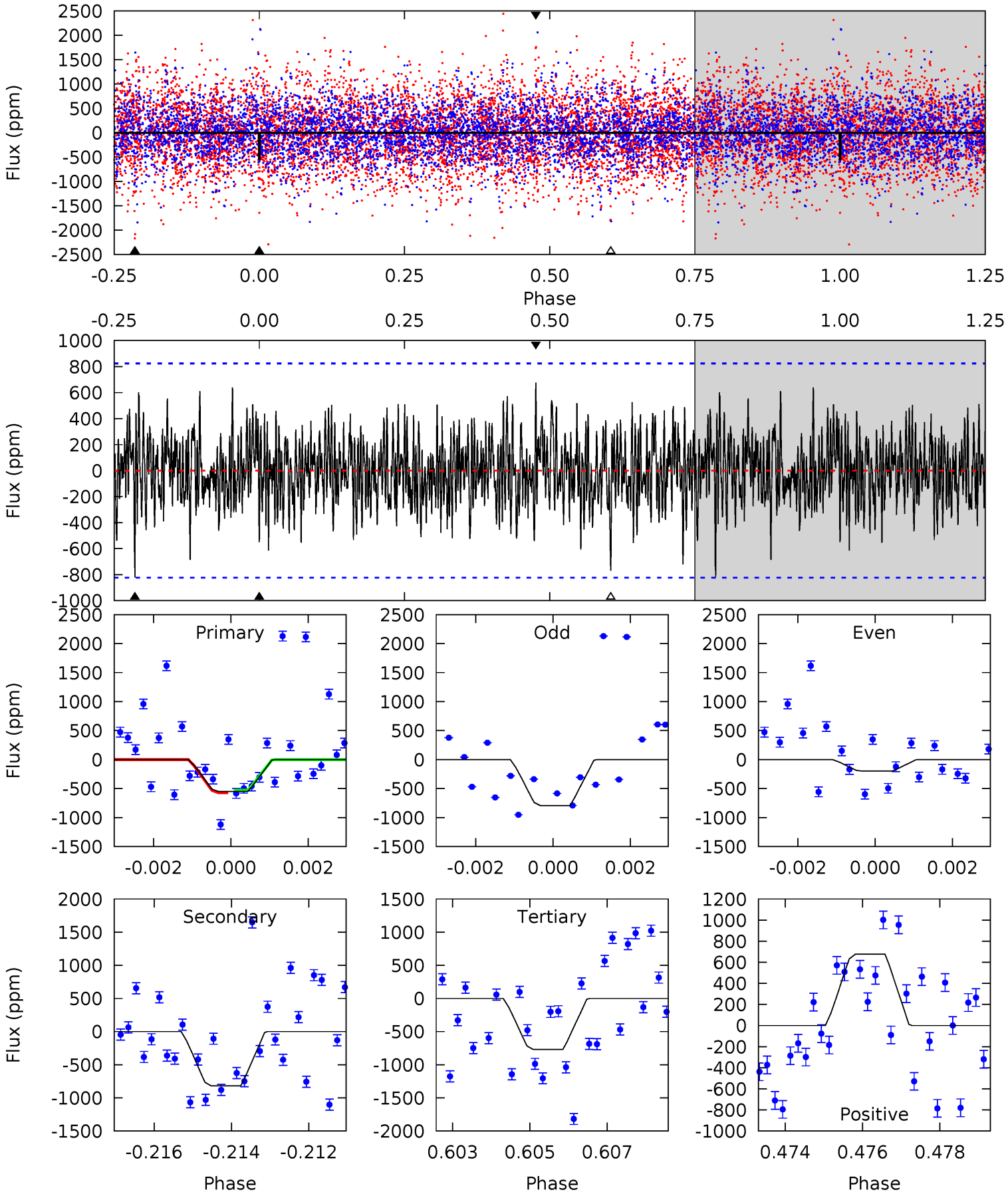
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.28	4.92	4.92	5.51	5.25	2.96	1.59	3.35	2.77	0.00	-0.58	1.91	0.81	0.40	1.57



Alt Model-Shift Uniqueness Test

009242059-05, P = 33.298263 Days, E = 123.520215 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.55	5.30	4.98	4.38	5.33	3.09	1.41	-1.43	-0.83	0.32	0.93	1.91	0.97	0.45	0.14



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-05 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-306±62	$5.81^{+3.90}_{-3.04}$	1258^{+101}_{-134}	5455^{+2667}_{-996}	254^{+824}_{-168}
Alt.	-820±155	$5.51^{+3.87}_{-3.01}$	1259^{+100}_{-135}	7097^{+4883}_{-1450}	749^{+2767}_{-498}

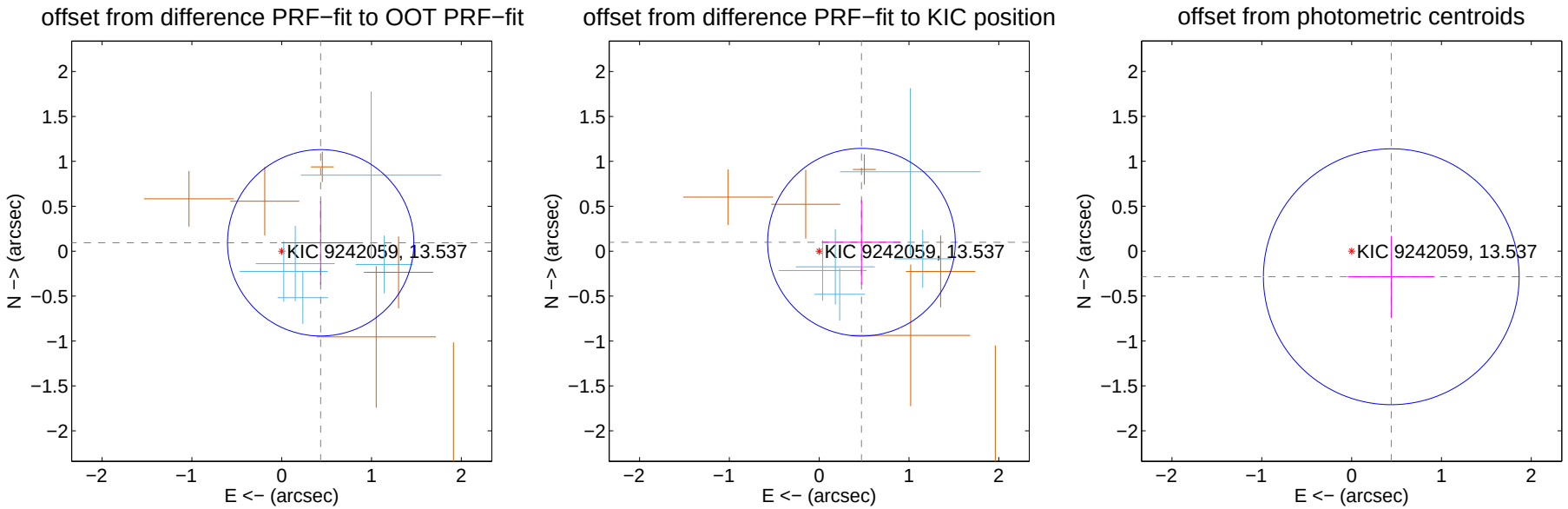
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

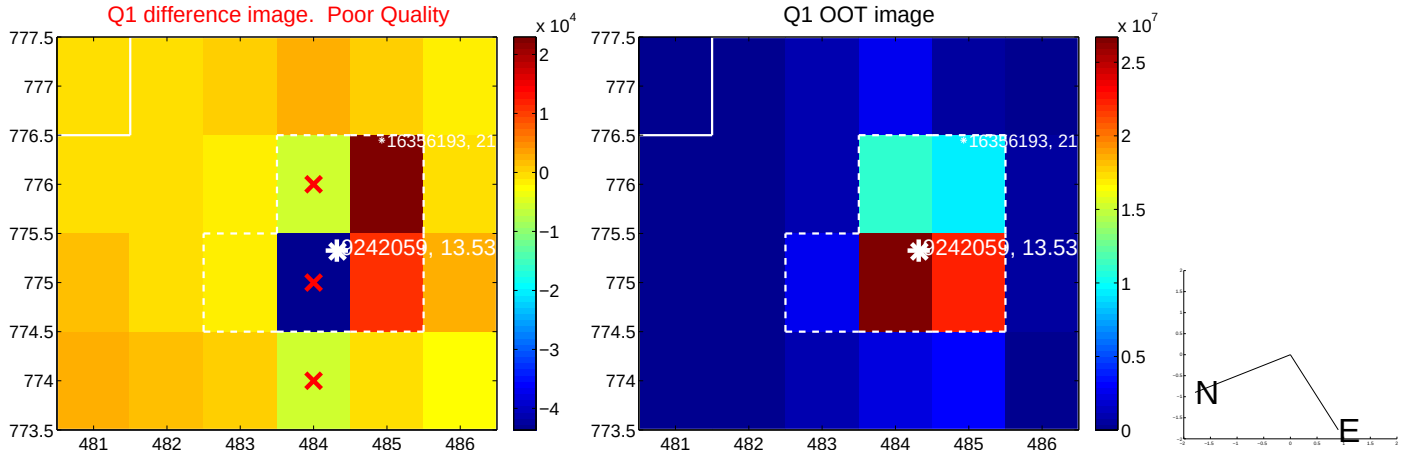
Supplemental centroid analysis for 009242059-05. Kepler magnitude: 13.54. Transit SNR 9.22
There are 5 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

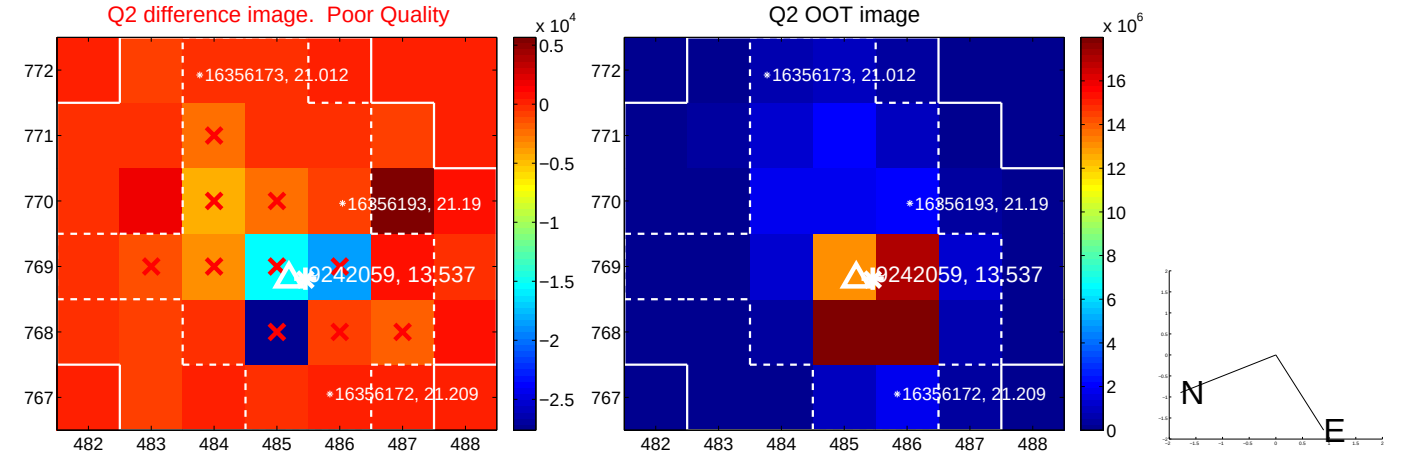
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.444 ± 0.346	1.28	-0.434 ± 0.438	0.093 ± 0.465
PRF-fit source offset from KIC position	0.482 ± 0.348	1.38	-0.471 ± 0.439	0.100 ± 0.468
photometric centroid source offset	0.53 ± 0.47	1.11	-0.44 ± 0.48	-0.29 ± 0.45

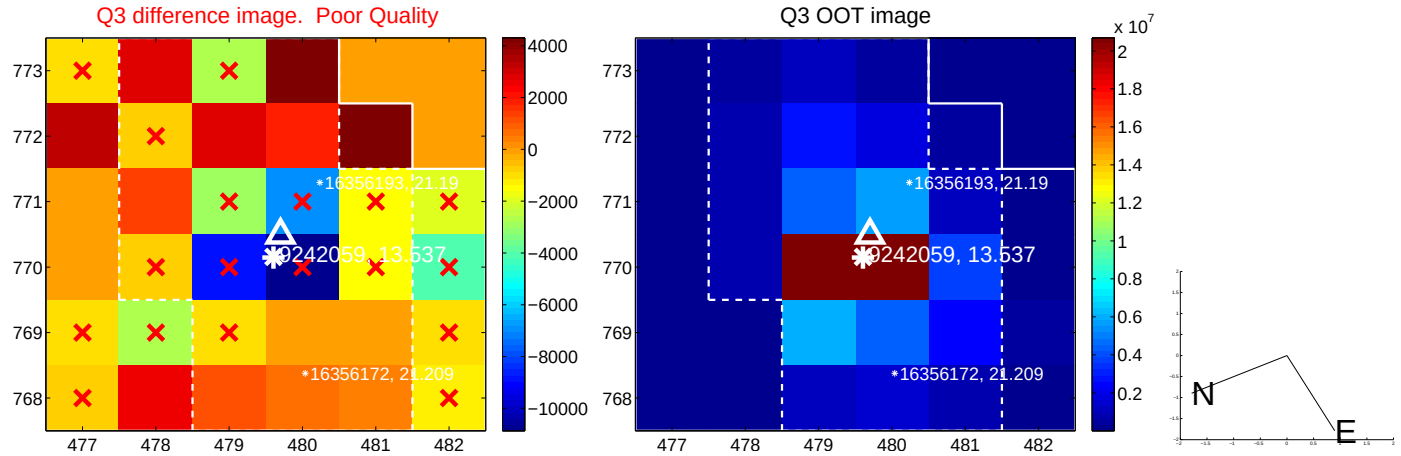


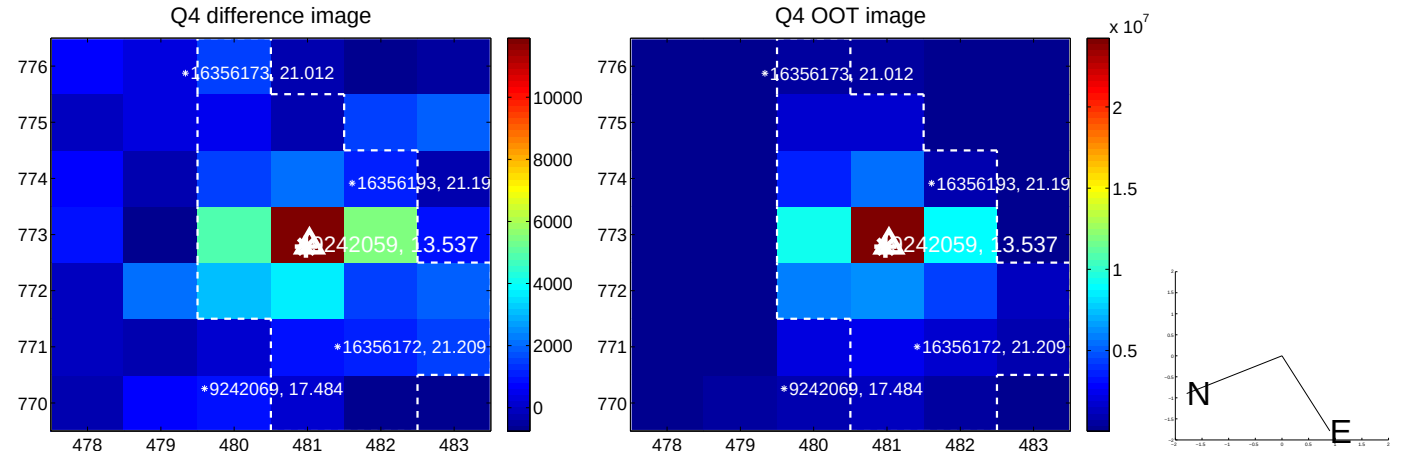
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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









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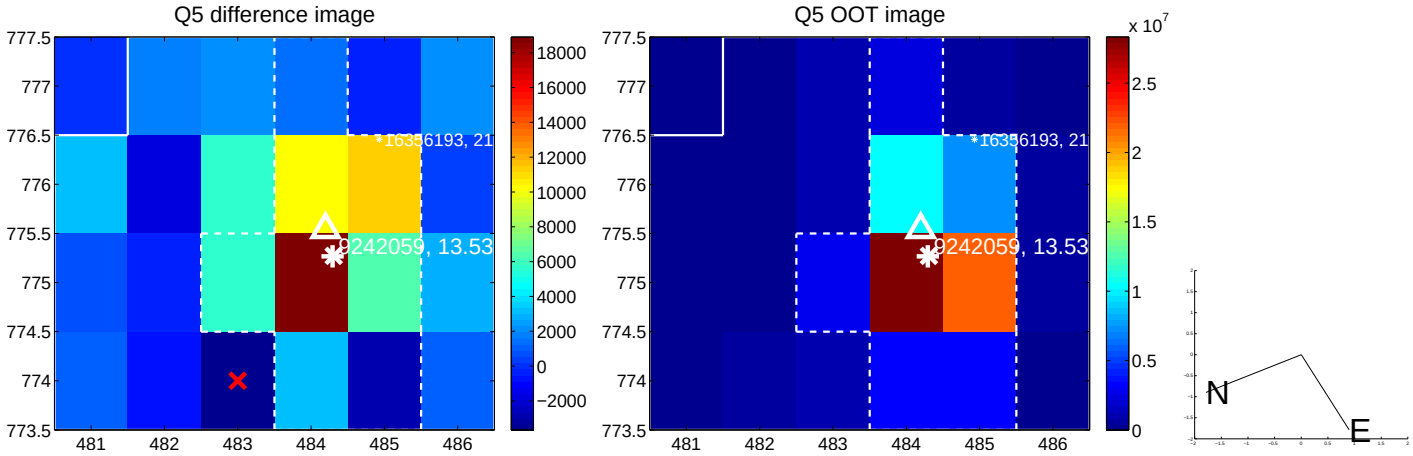

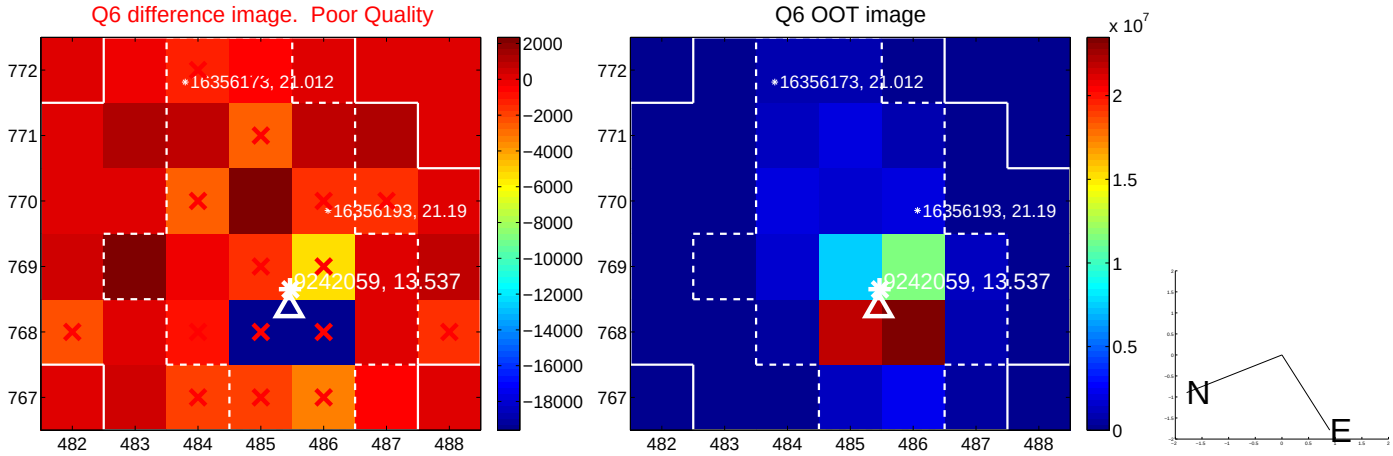

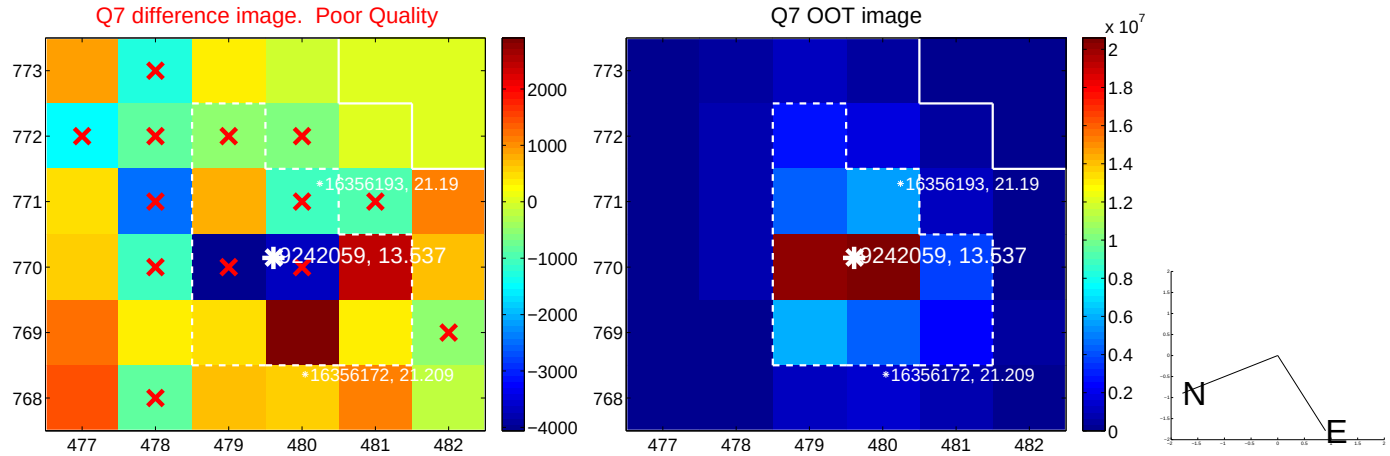

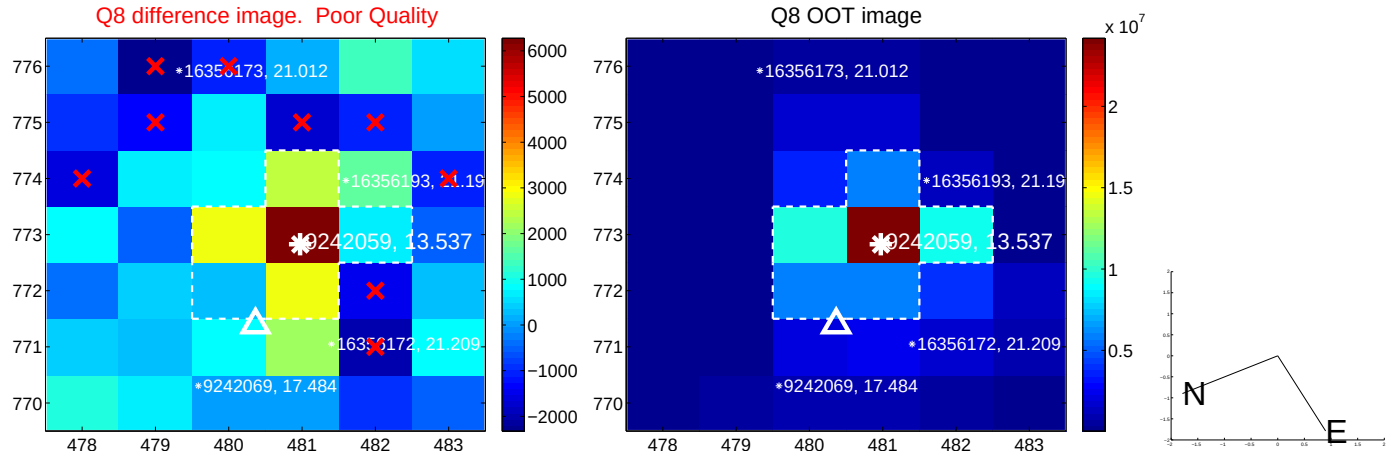

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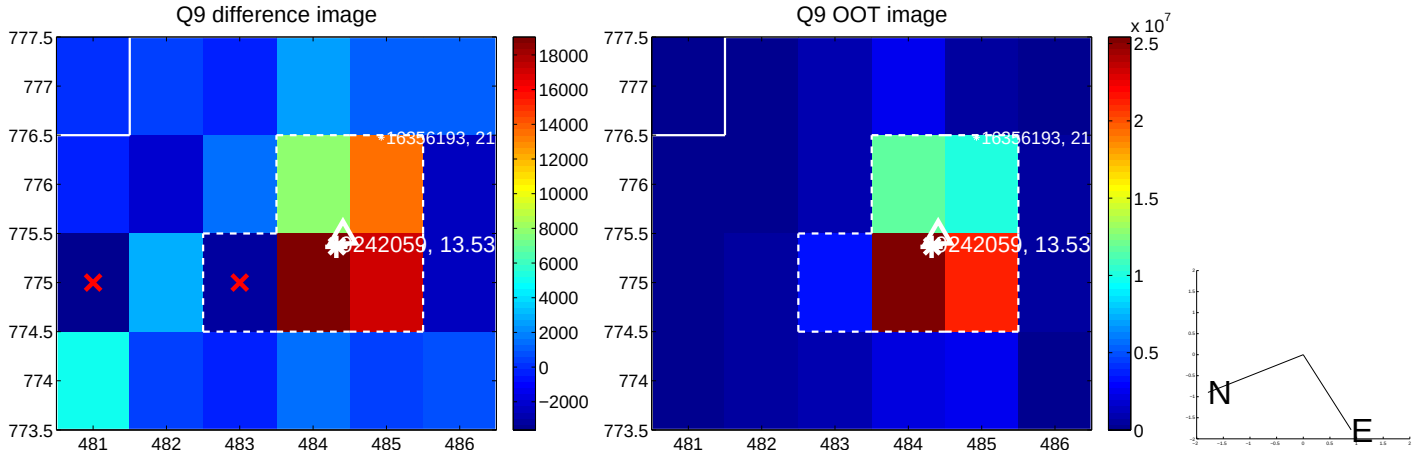
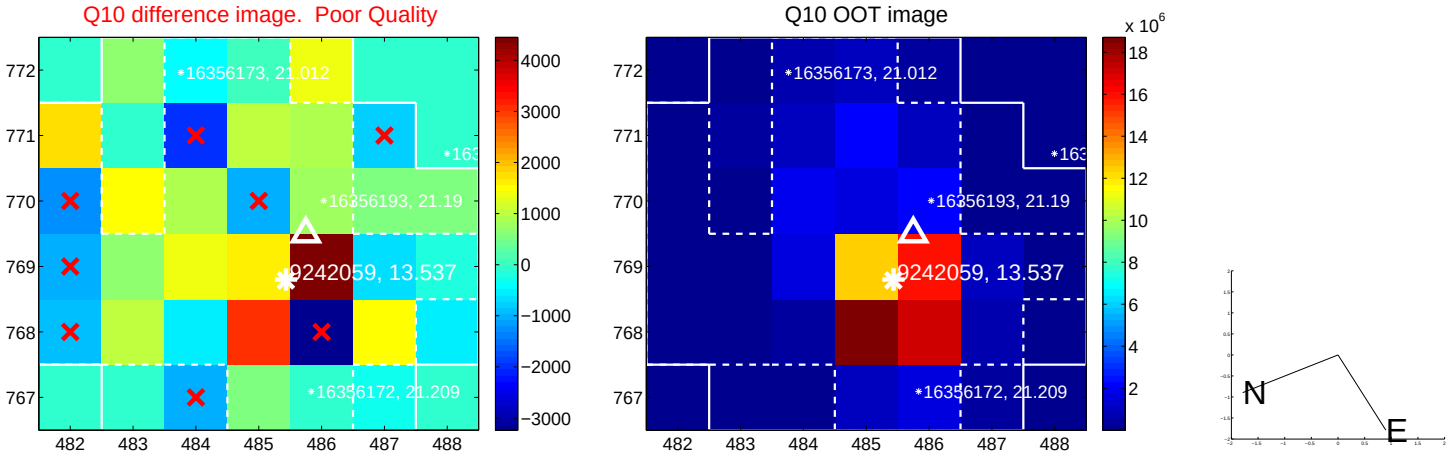
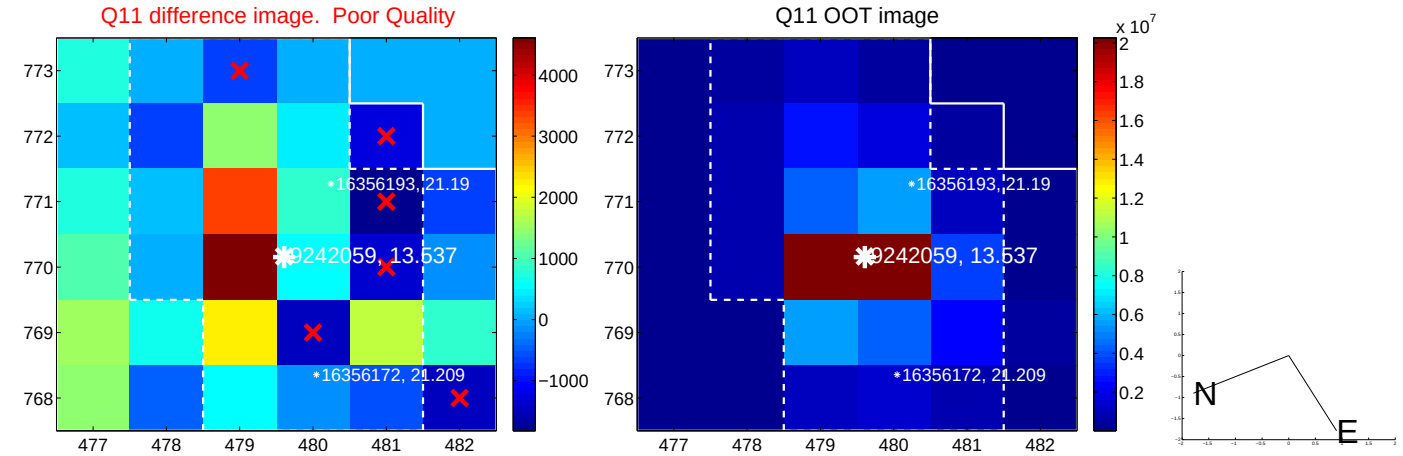
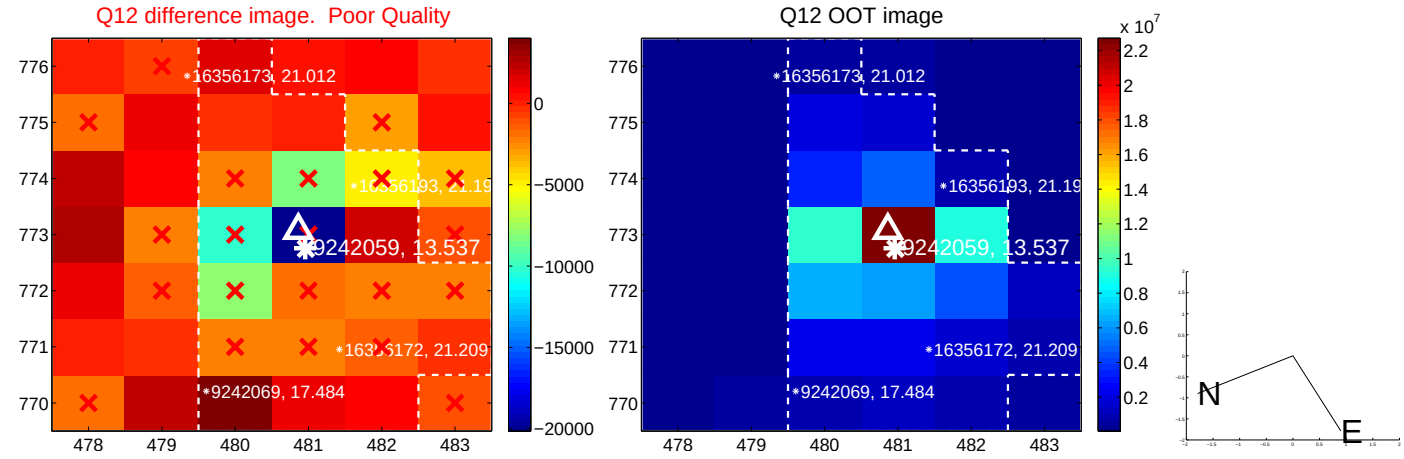
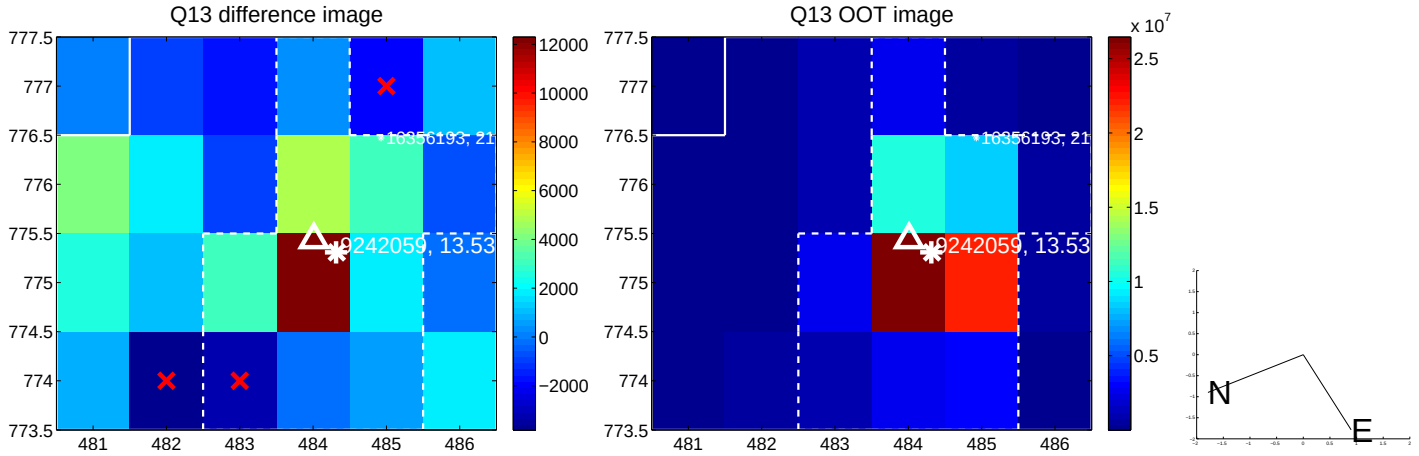


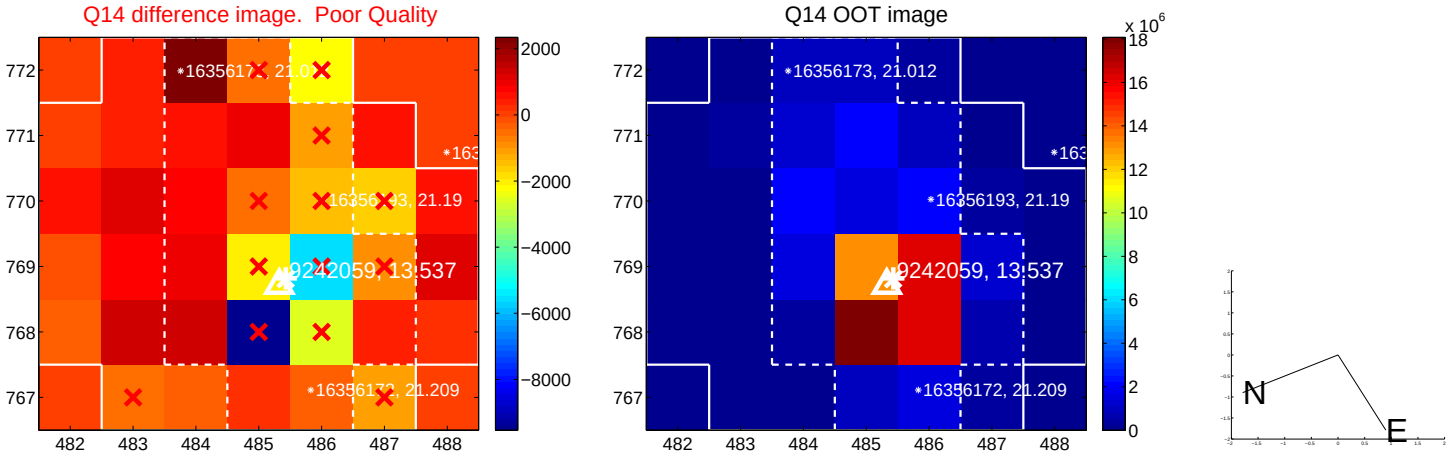


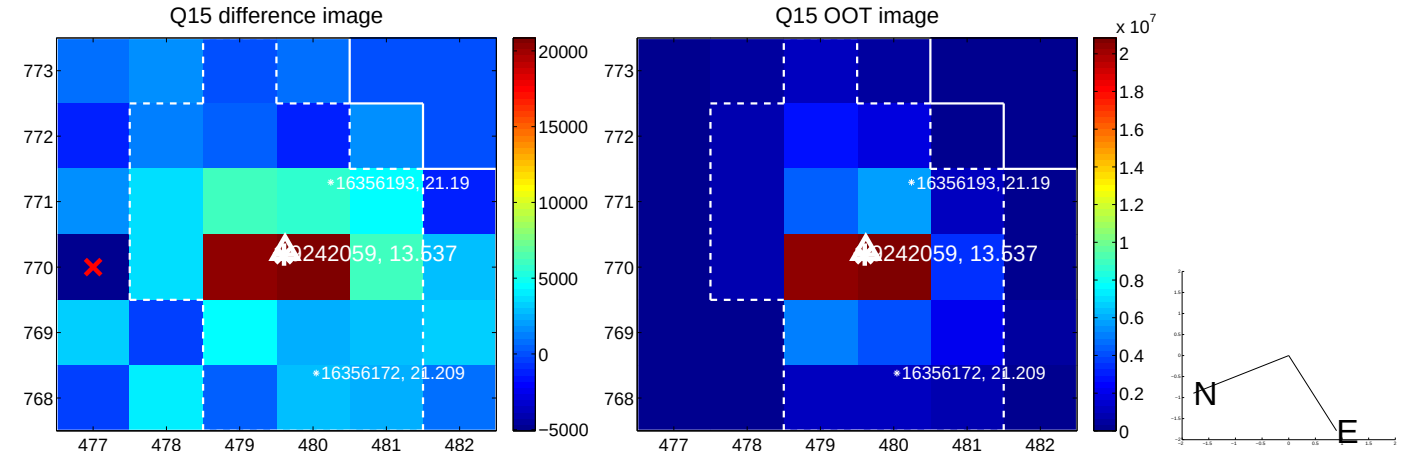


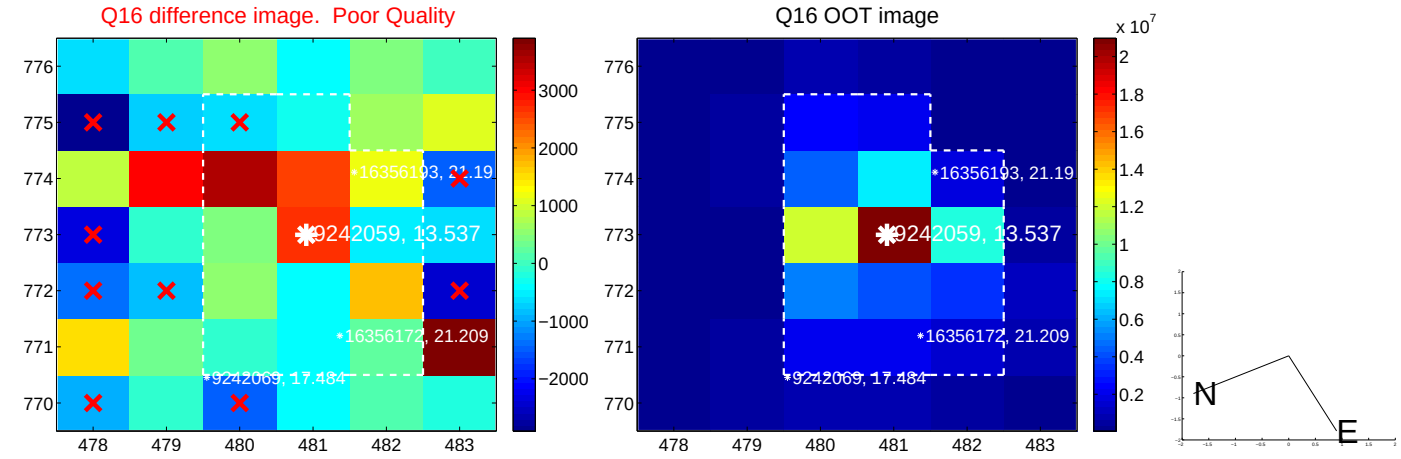


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

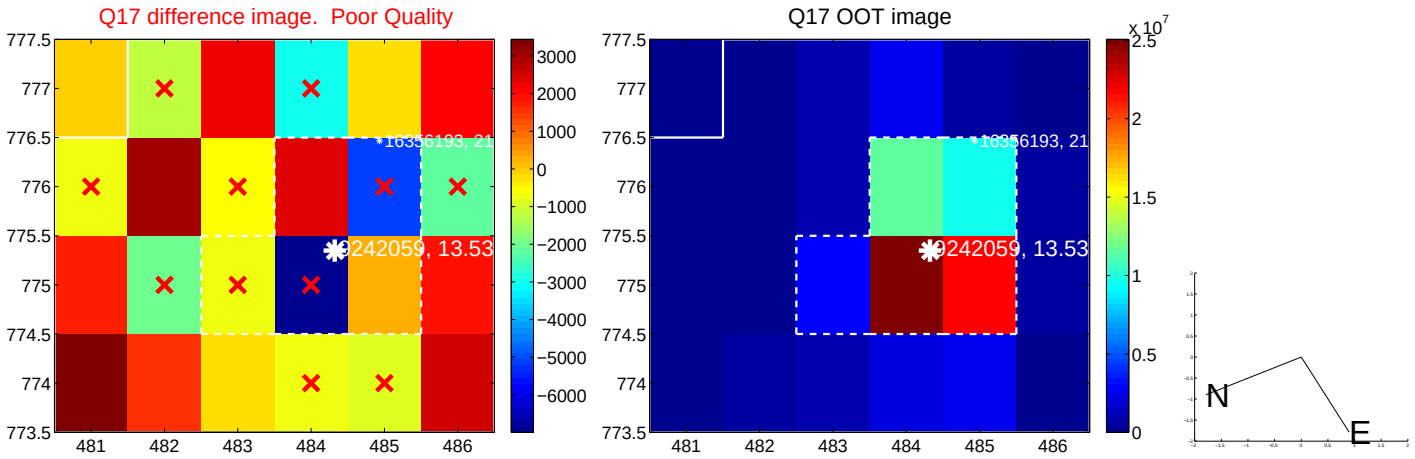


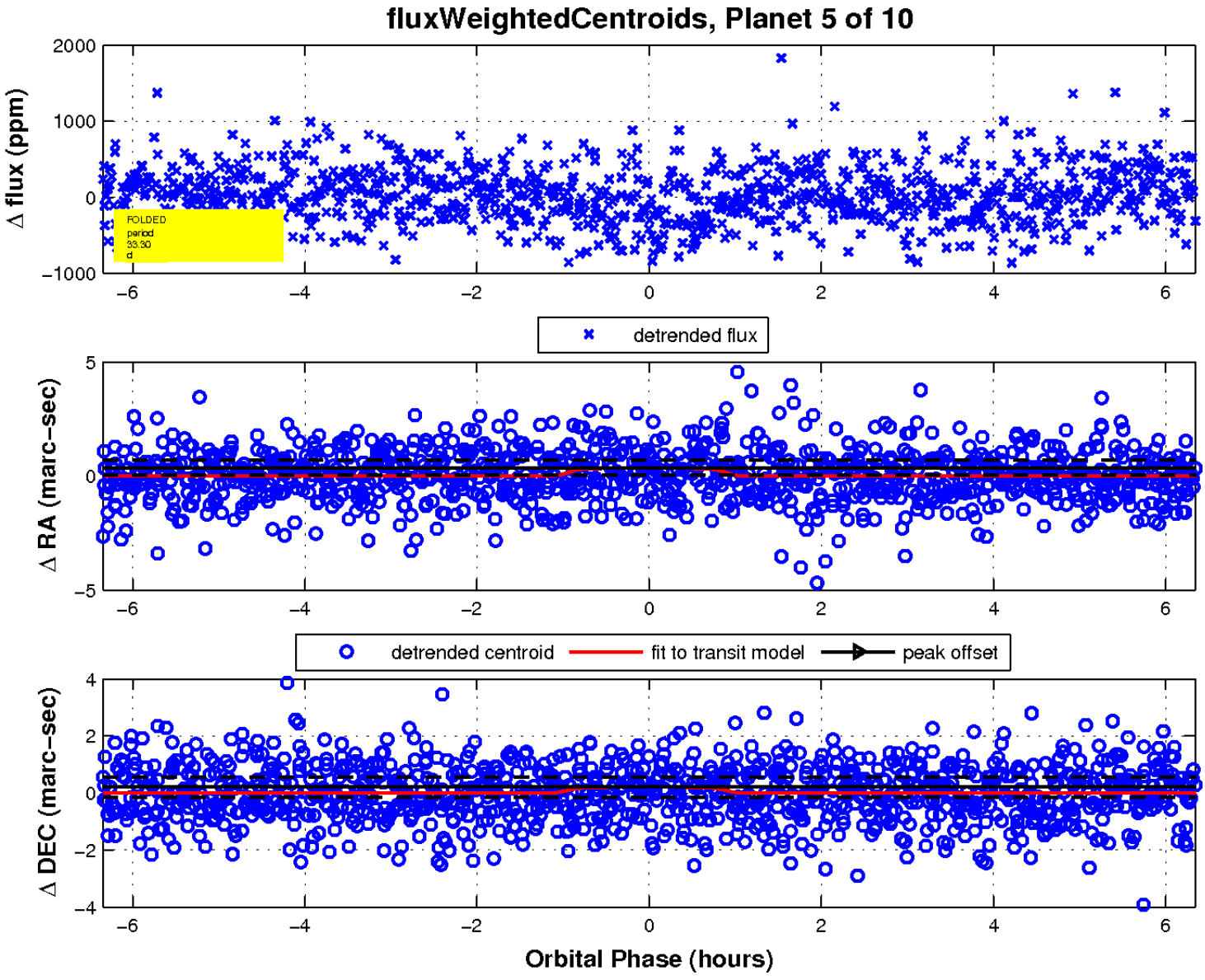




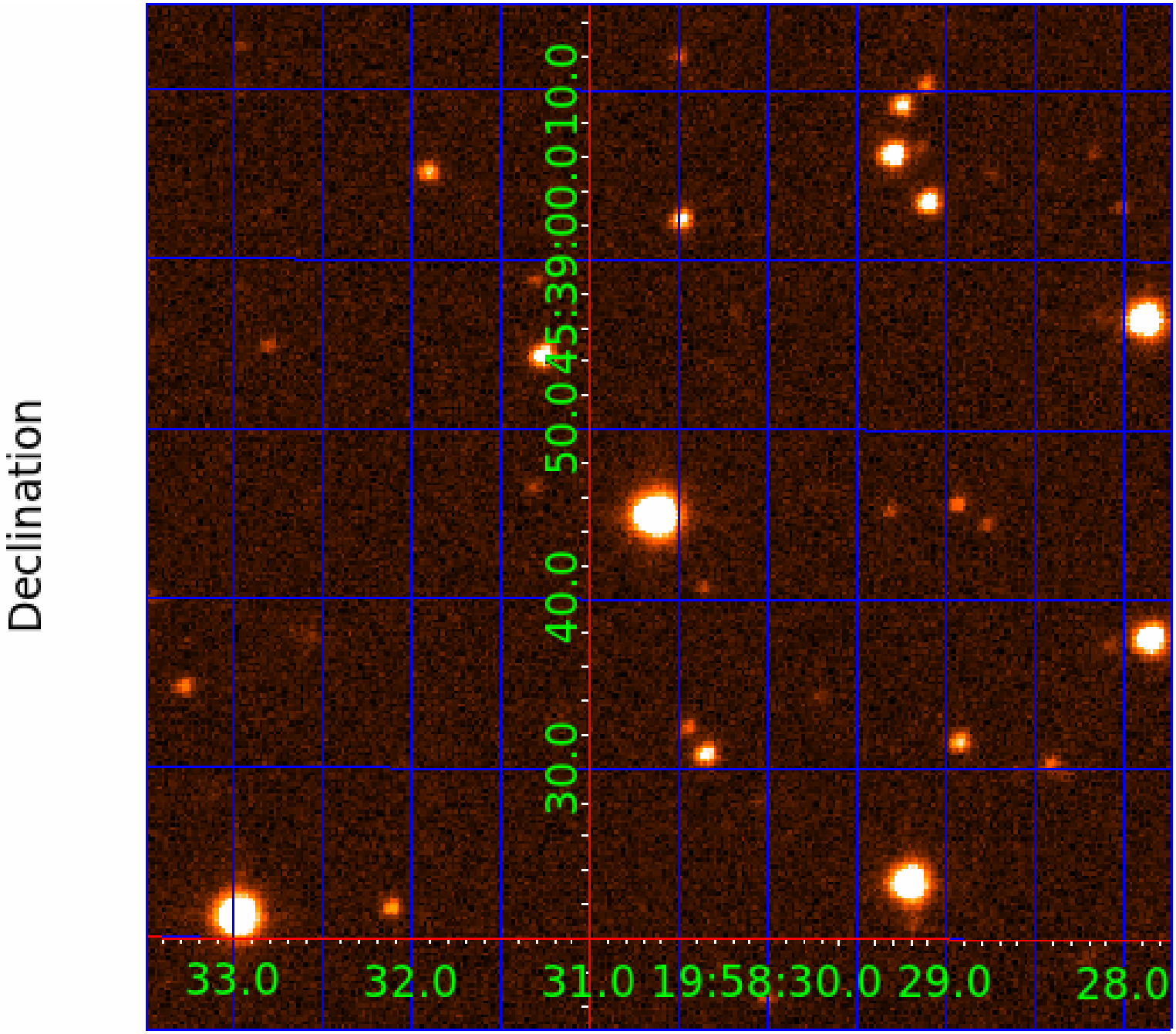


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

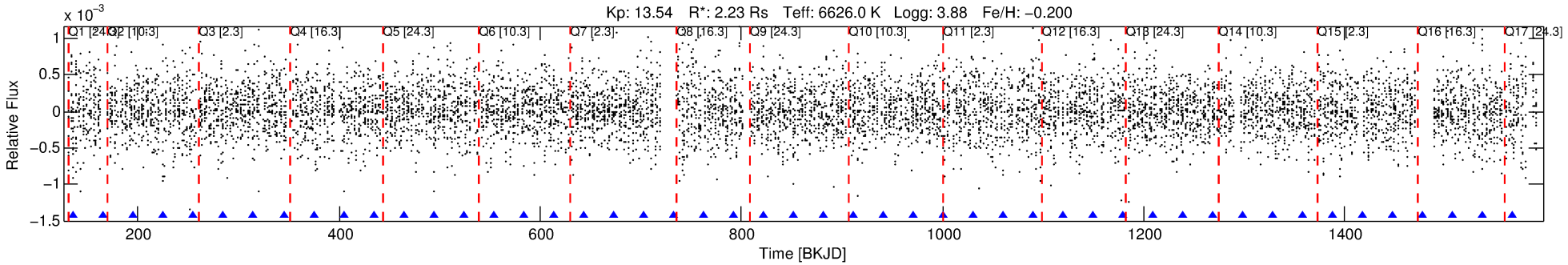
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

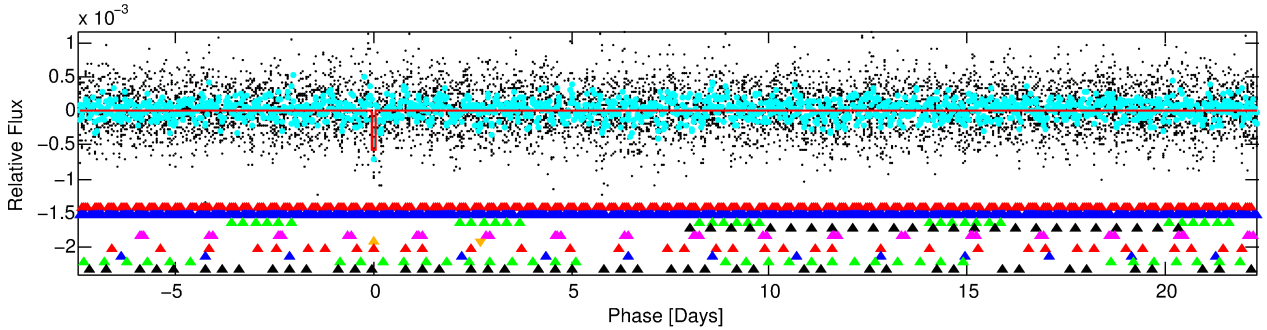
Ephemeris Match Information For 009242059-06

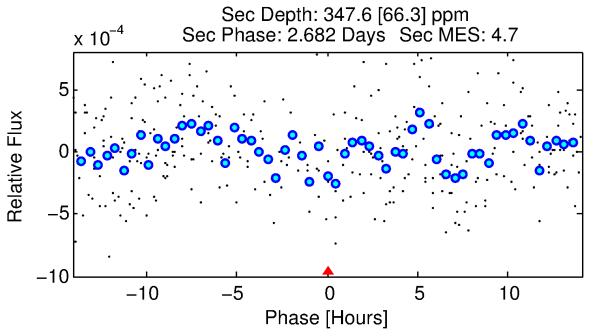
No Significant Match Found

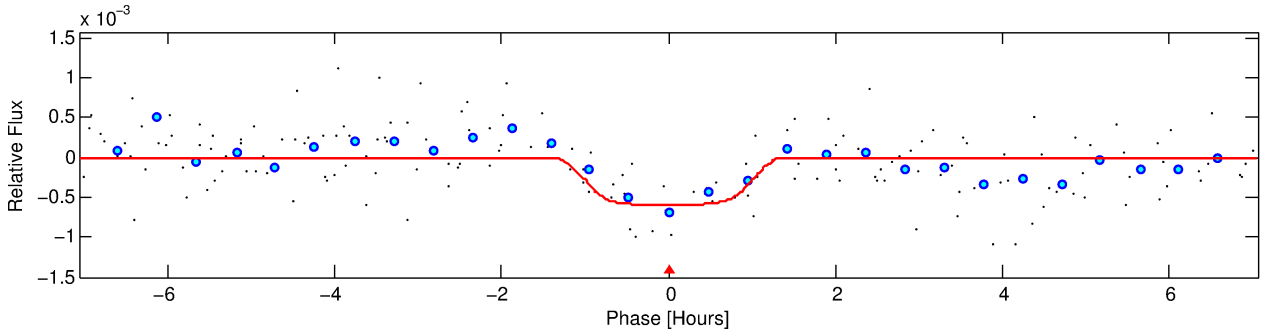
DV One-Page Summary

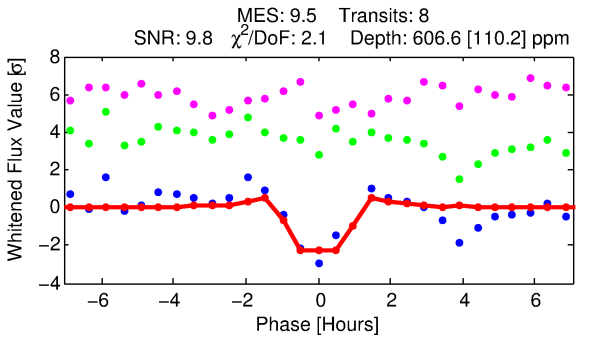
KIC: 9242059 Candidate: 6 of 10 Period: 29.797 d

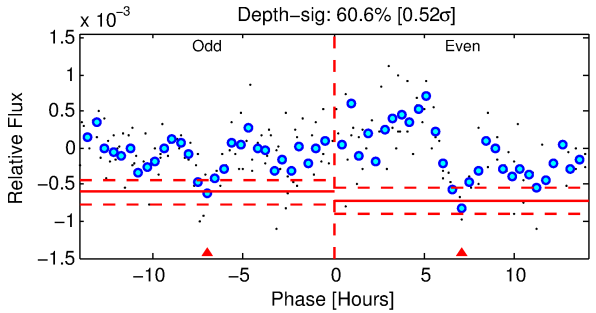


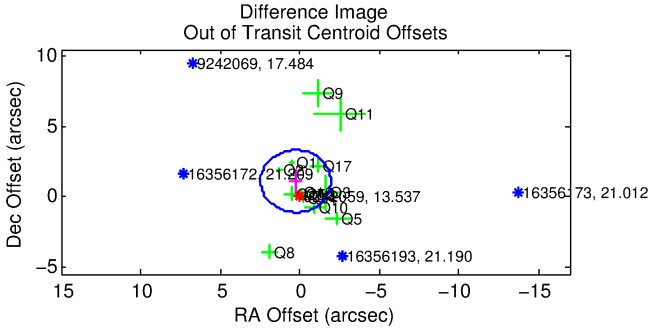












DV Fit Results:

Period = 29.79678 [0.00022] d
Epoch = 136.3011 [0.0062] BKJD
Rp/R* = 0.0262 [0.0172]
a/R* = 48.81 [179.53]
b = 0.89 [0.84]

Seff = 197.94 [136.23]
Teq = 956 [165] K
Rp = 6.40 [5.02] Re
a = 0.2088 [0.0874] AU

Ag = 203.53 [302.50] [0.67σ]
Teffp = 5585 [1860] K [2.48σ]

DV Diagnostic Results:

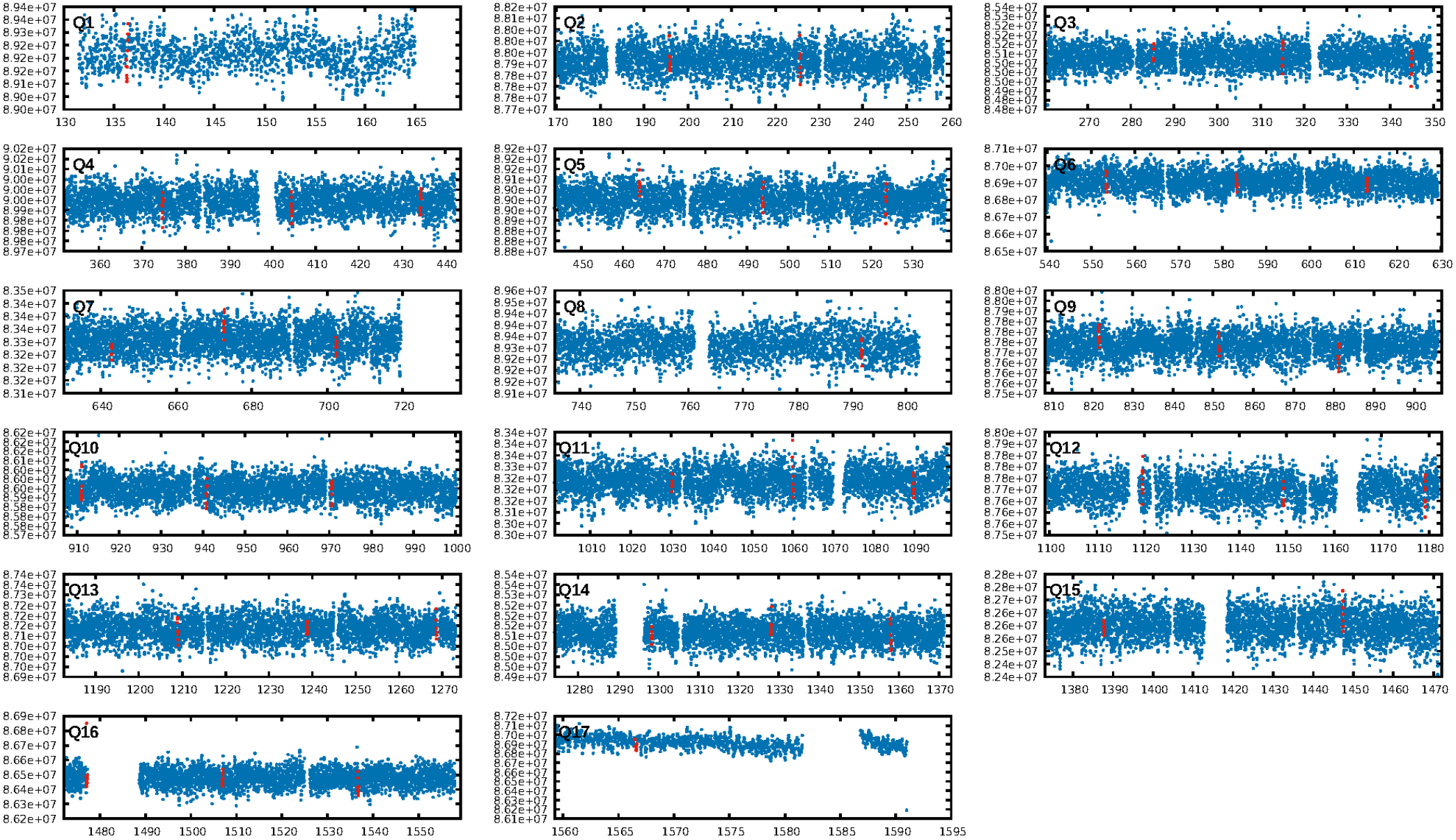
ShortPeriod−sig: 100.0% [66.39σ]
LongPeriod−sig: 100.0% [8.91σ]
ModelChiSquare2−sig: 1.3%
ModelChiSquareGof−sig: 85.8%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [7/7]
GhostDiagnostic−chr: 0.5858

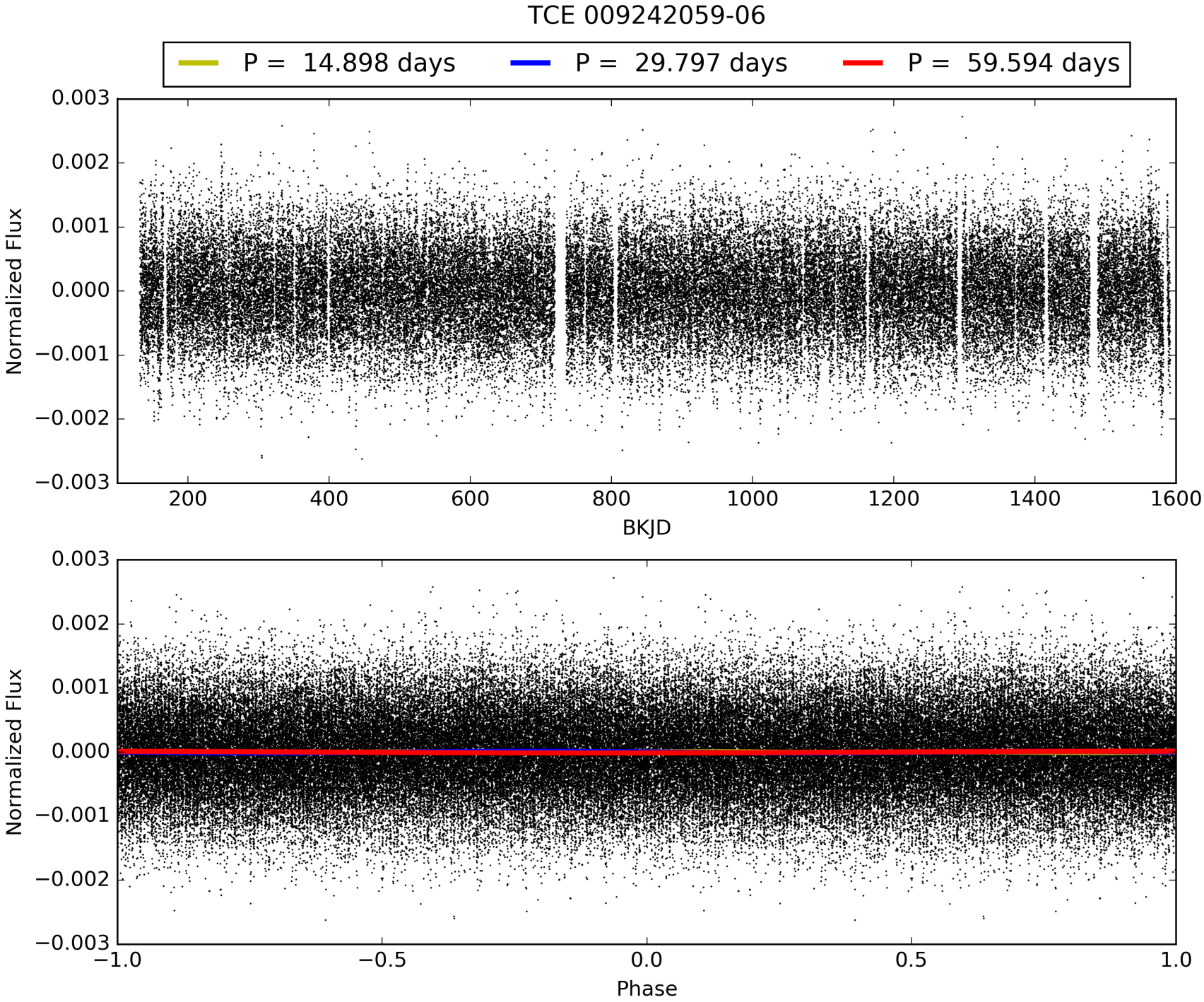
Centroid−sig: 76.6%
Centroid−so: 0.145 arcsec [0.33σ]
OotOffset−rm: 1.131 arcsec [1.53σ]
KicOffset−rm: 1.130 arcsec [1.38σ]
OotOffset−st: 3/3/3/4 [13]
KicOffset−st: 3/3/3/4 [13]
DiffImageQuality−fgm: 0.69 [9/13]
DiffImageOverlap−fno: 0.41 [7/17]

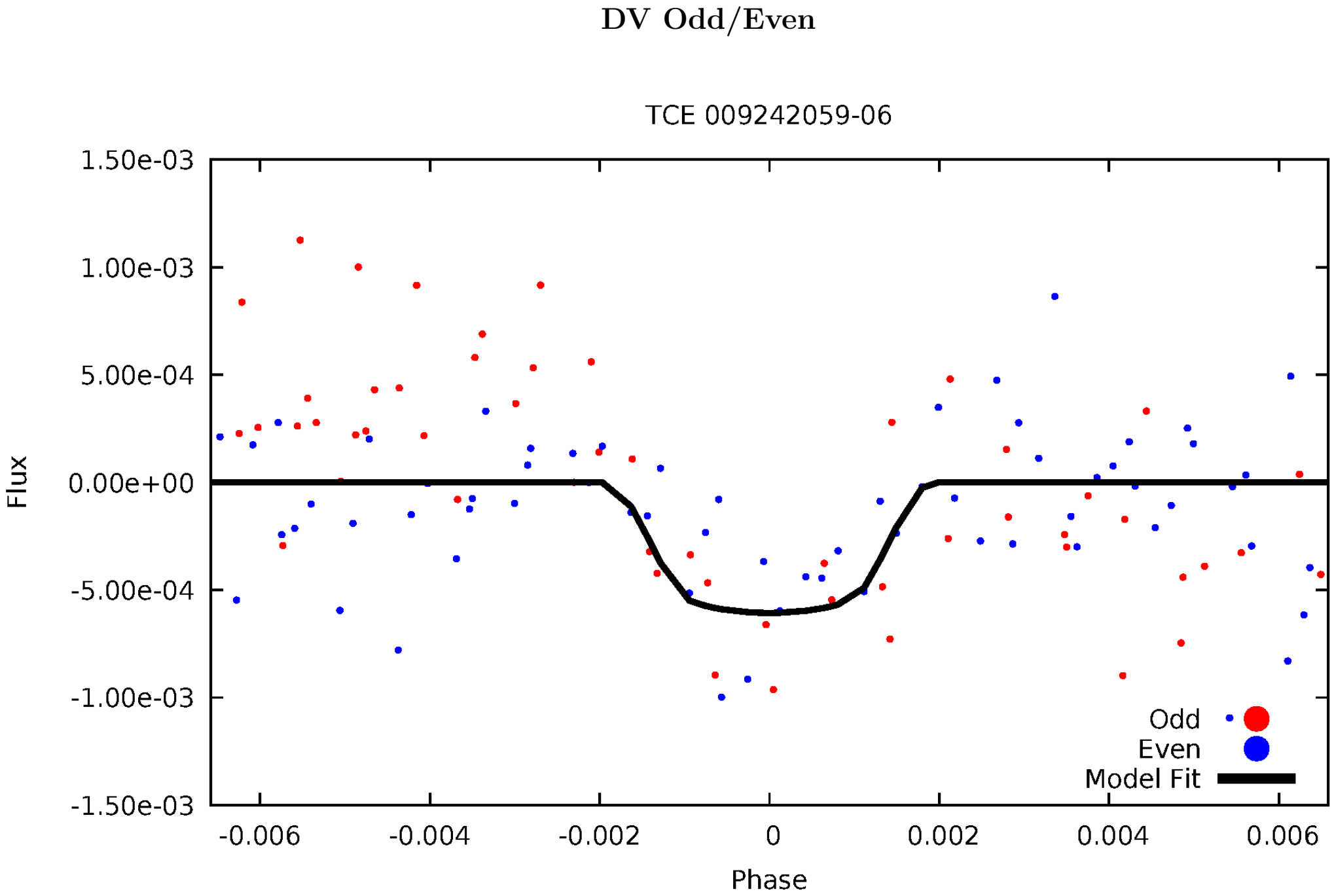
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:53:05 Z

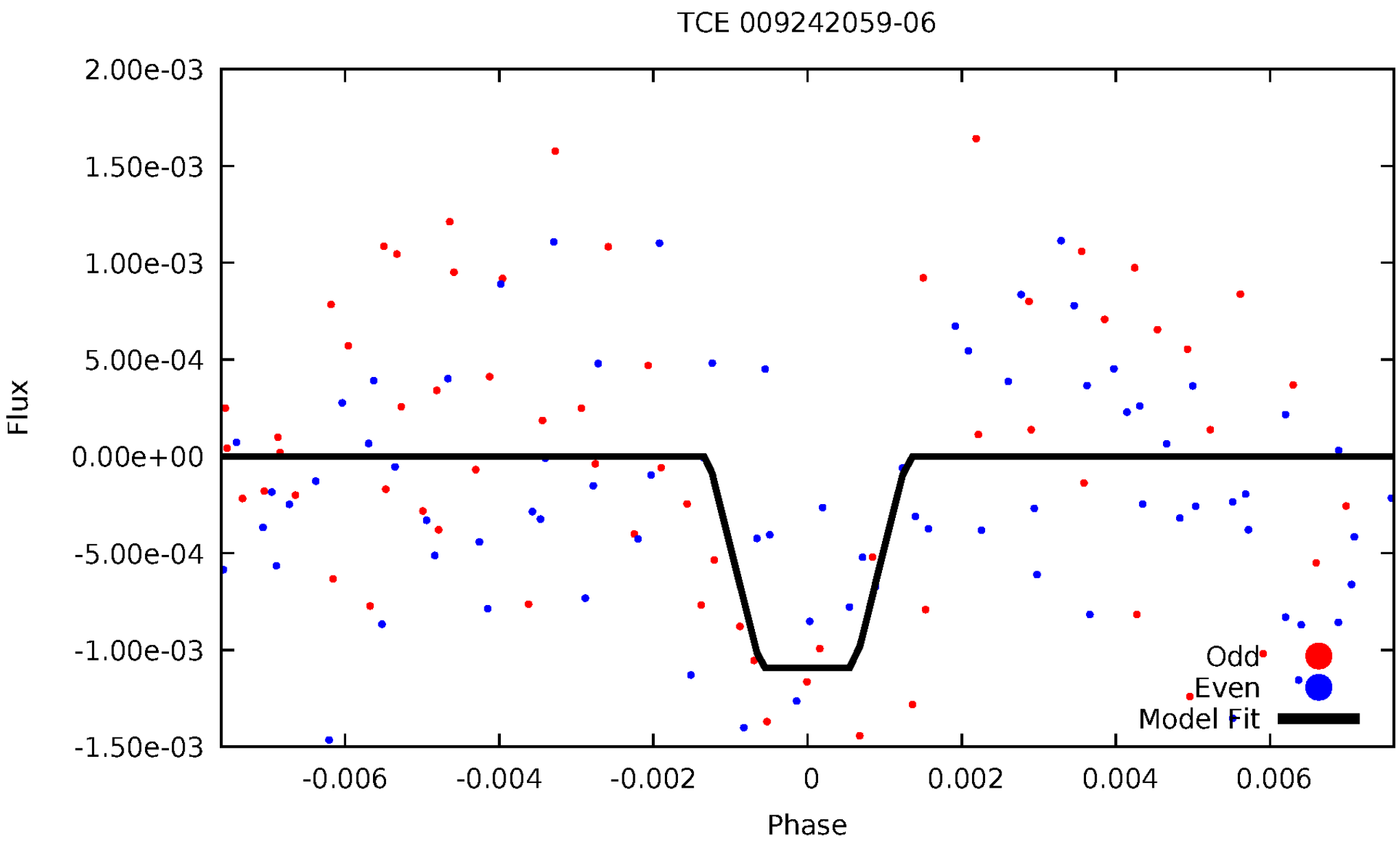
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009242059-06, PDC Light Curves

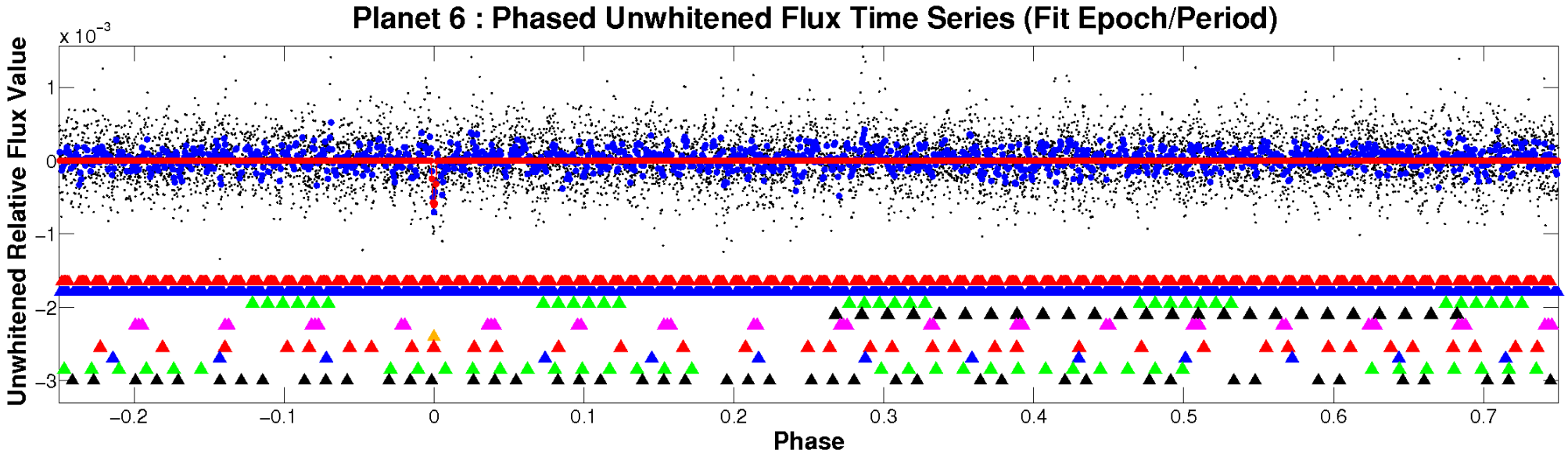


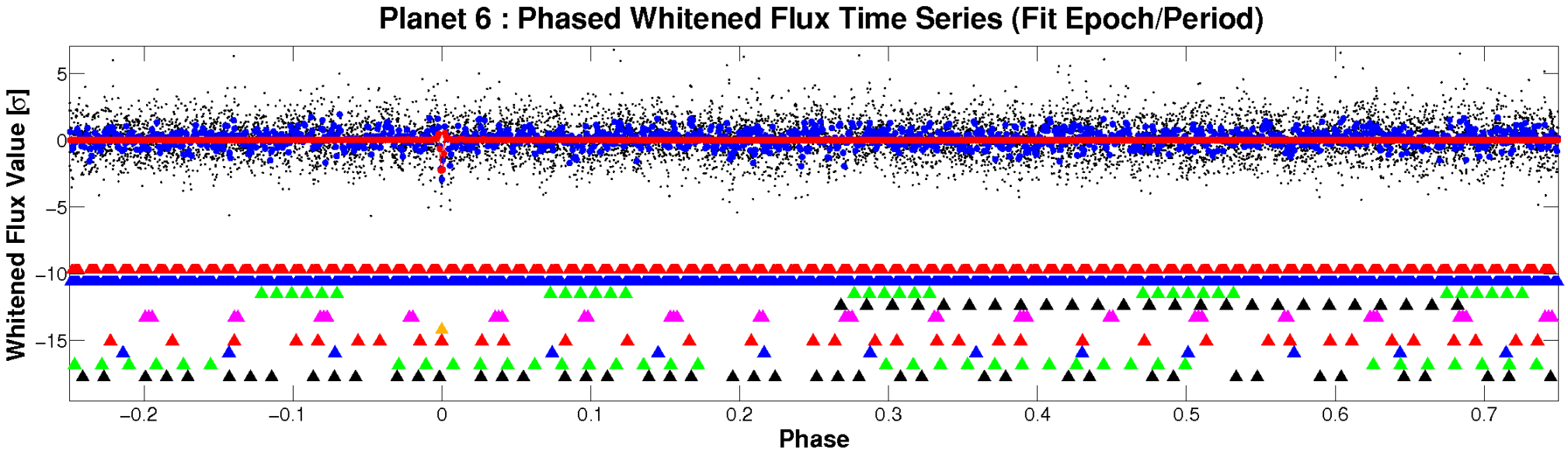

TCE 009242059-06
P = 14.898 days
P = 29.797 days
P = 59.594 days
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
−1.0
−0.5
0.0
0.5
1.0
Phase


DV Odd/Even
TCE 009242059-06
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-06
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

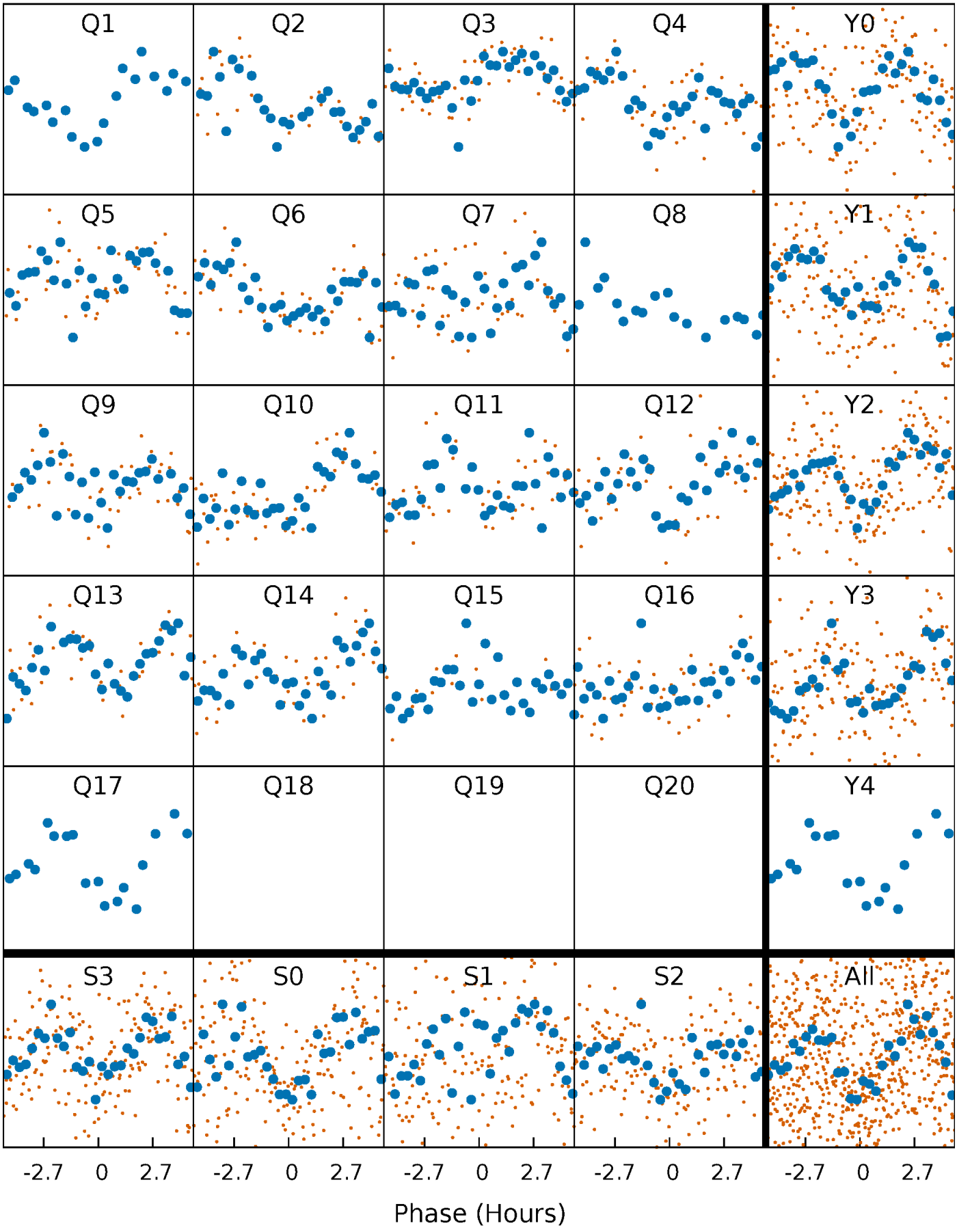
Non-Whitened Vs. Whitened Light Curve





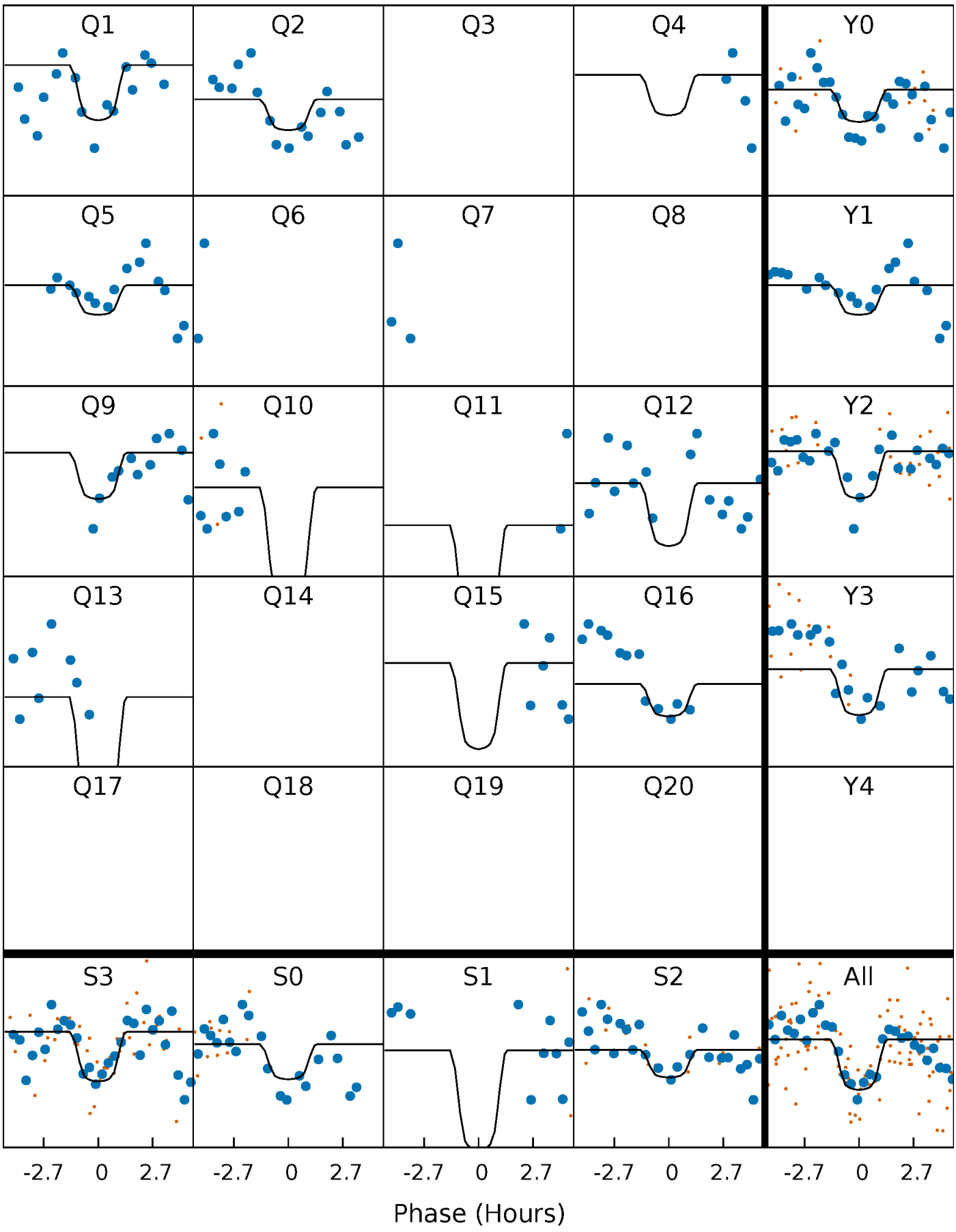
PDC Quarter-Phased Transit Curves

TCE 009242059-06 P= 29.796775 Days T_0=136.301051 (BKJD)



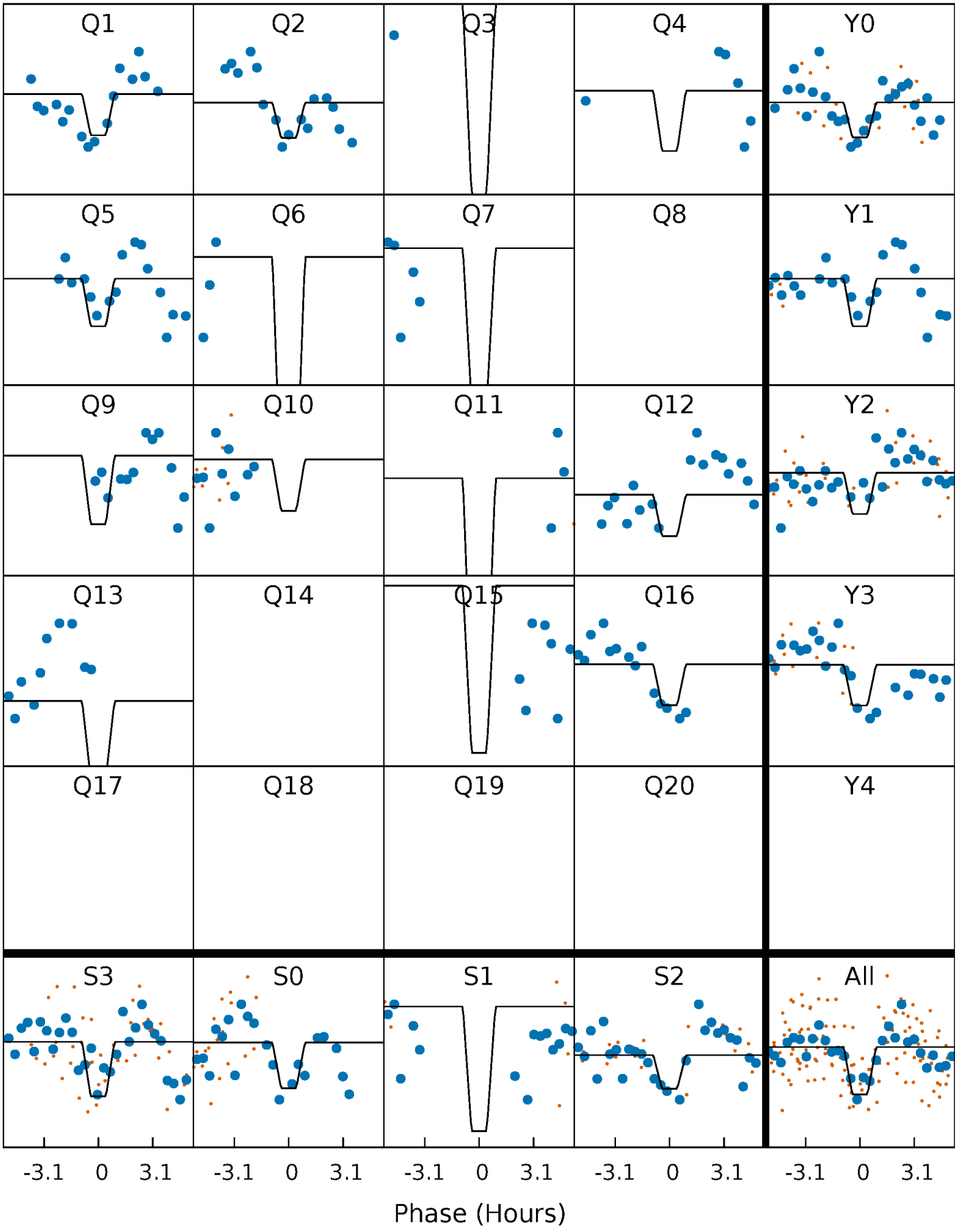
DV Quarter-Phased Transit Curves

TCE 009242059-06 P= 29.796775 Days T_0=136.301051 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

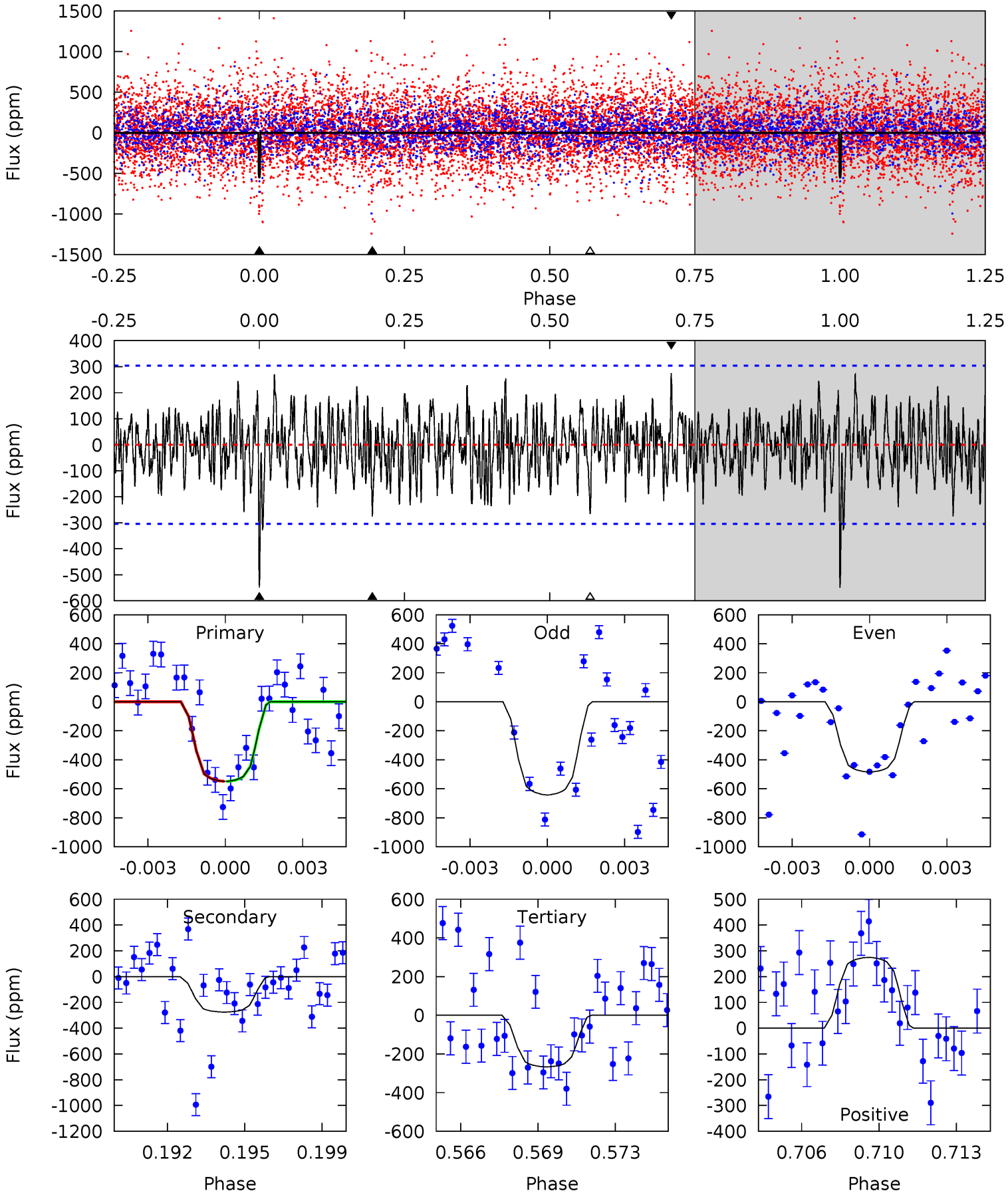
TCE 009242059-06 P= 29.796829 Days T_0=136.297554 (BKJD)



DV Model-Shift Uniqueness Test

009242059-06, P = 29.796775 Days, E = 106.504276 Days

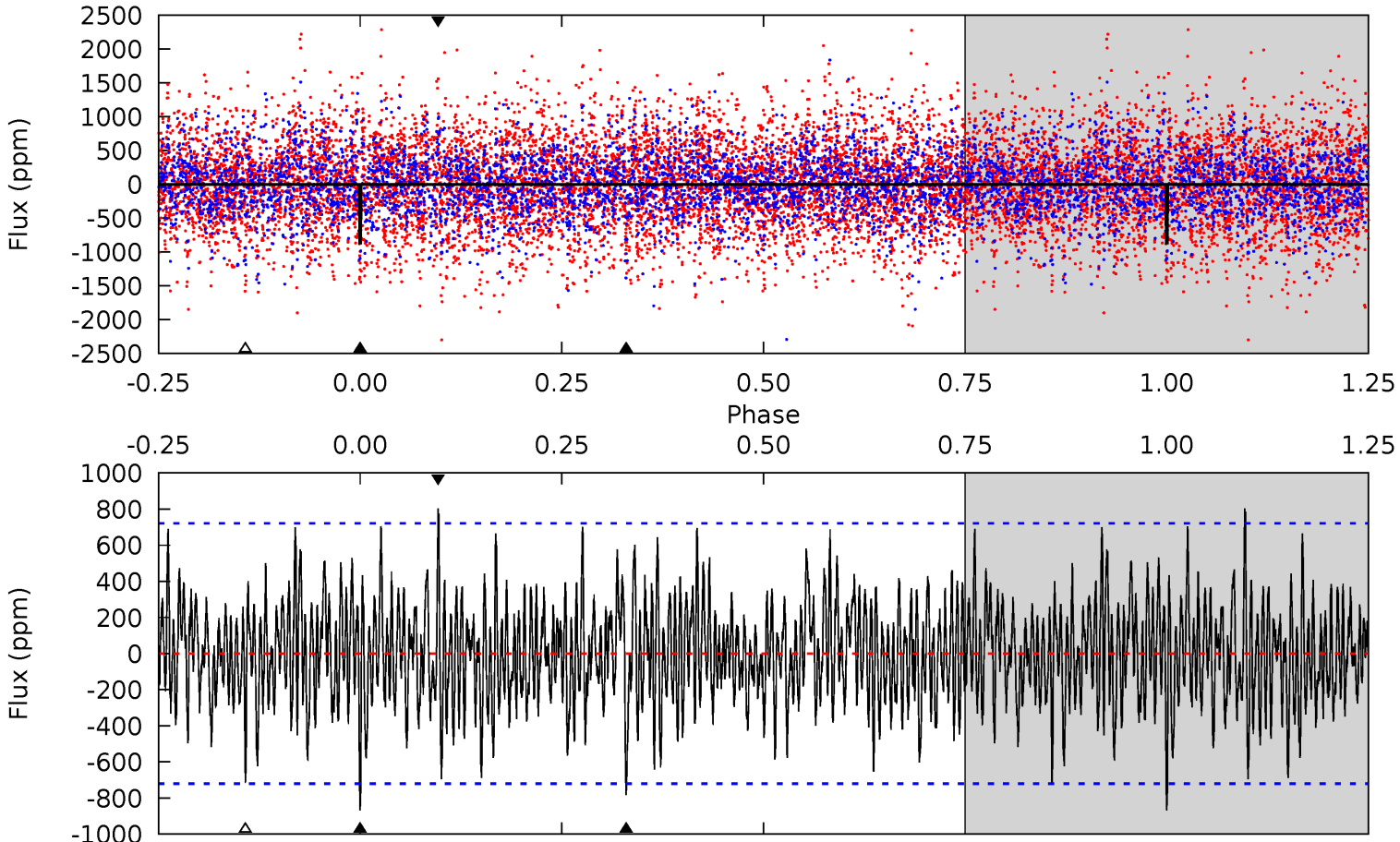
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.44	4.73	4.58	4.72	5.23	2.93	1.65	4.85	4.72	0.15	0.01	1.36	0.87	0.33	0.02

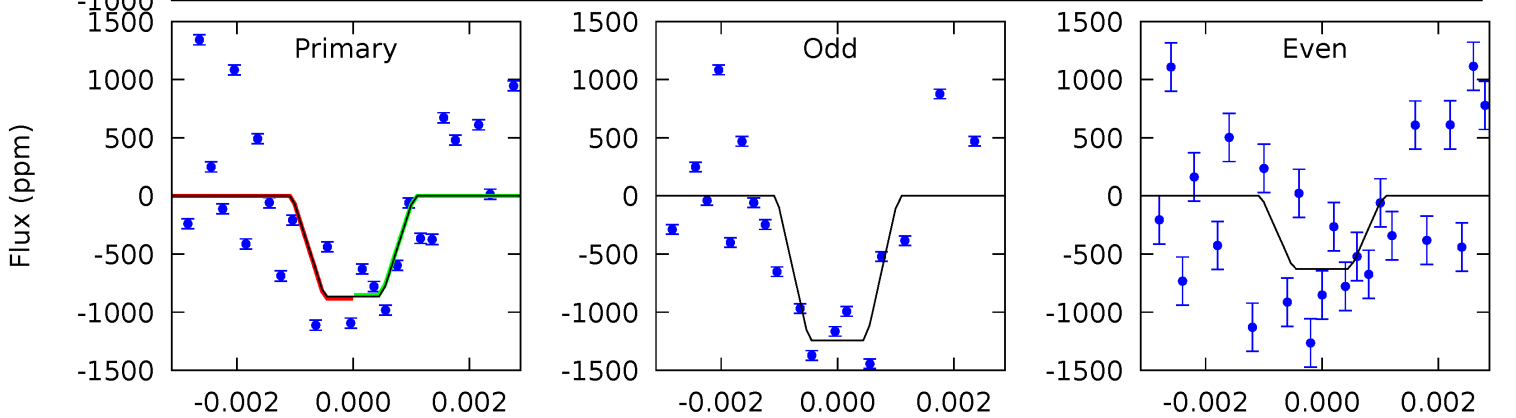


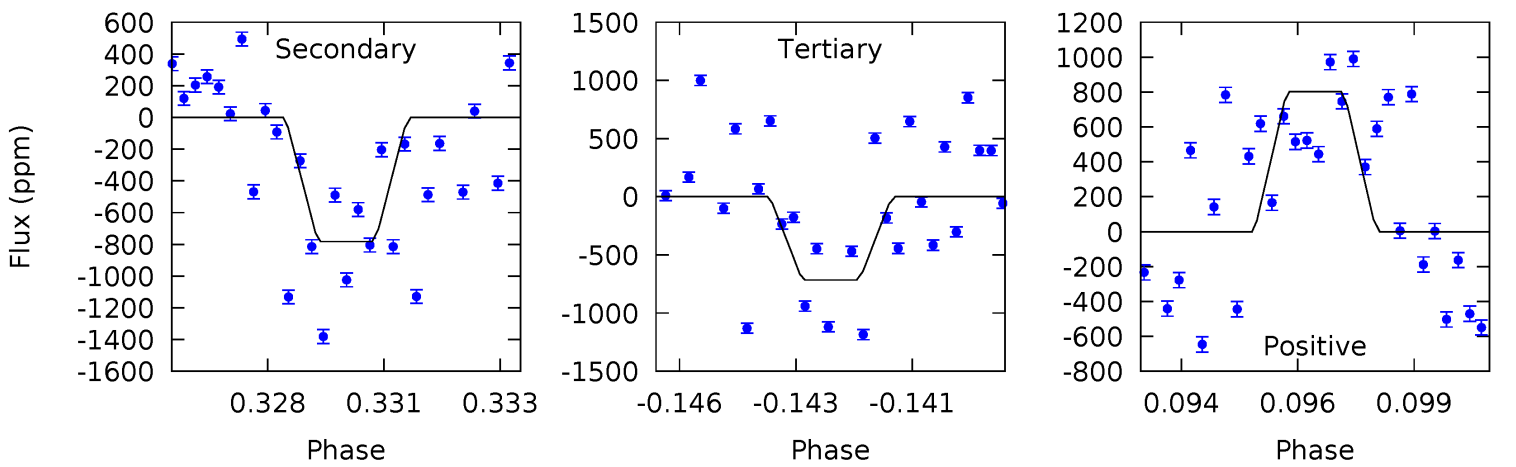
Alt Model-Shift Uniqueness Test

009242059-06, P = 29.796829 Days, E = 106.500725 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	5.74	5.25	5.89	5.29	3.03	1.82	1.10	0.47	0.49	-0.15	2.29	0.80	0.48	0.11







Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-06 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-275±58	$5.96^{+4.12}_{-3.38}$	1309^{+101}_{-143}	5198^{+2699}_{-902}	186^{+765}_{-121}
Alt.	-783±136	$7.19^{+4.56}_{-3.41}$	1306^{+114}_{-153}	6064^{+2805}_{-1107}	355^{+956}_{-227}

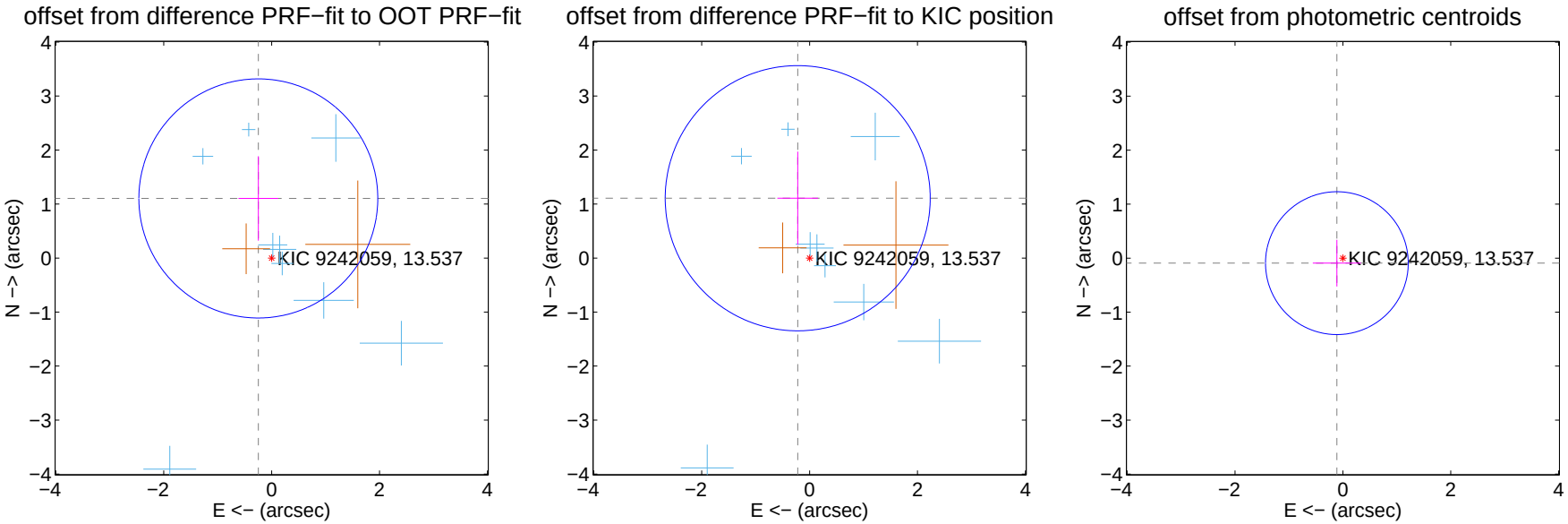
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

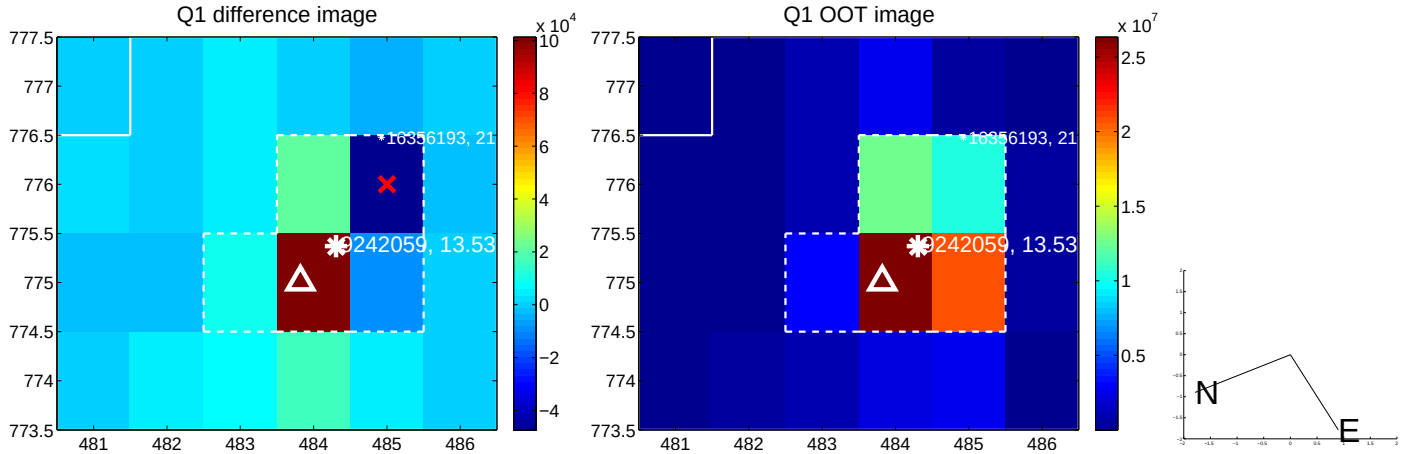
Supplemental centroid analysis for 009242059-06. Kepler magnitude: 13.54. Transit SNR 9.80
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

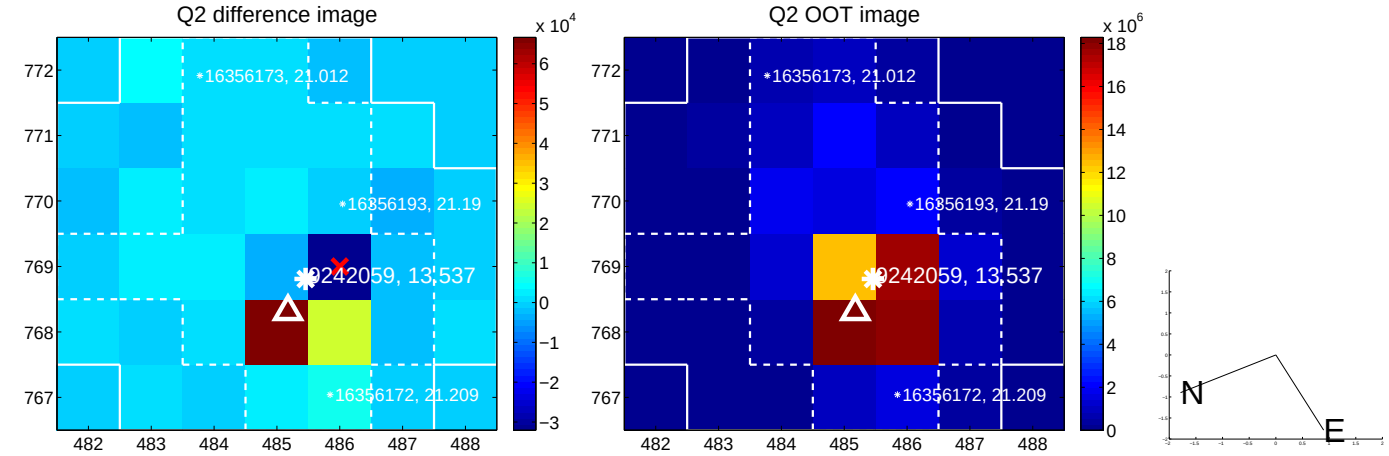
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.131 ± 0.738	1.53	0.247 ± 0.367	1.104 ± 0.782
PRF-fit source offset from KIC position	1.130 ± 0.819	1.38	0.220 ± 0.376	1.108 ± 0.862
photometric centroid source offset	0.14 ± 0.44	0.33	0.11 ± 0.45	-0.09 ± 0.43

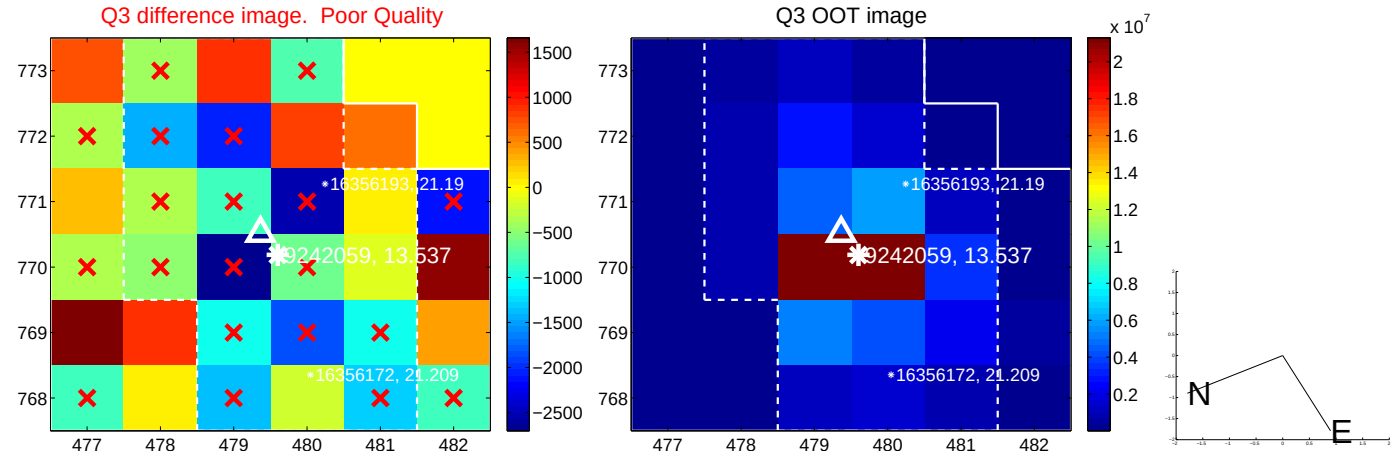


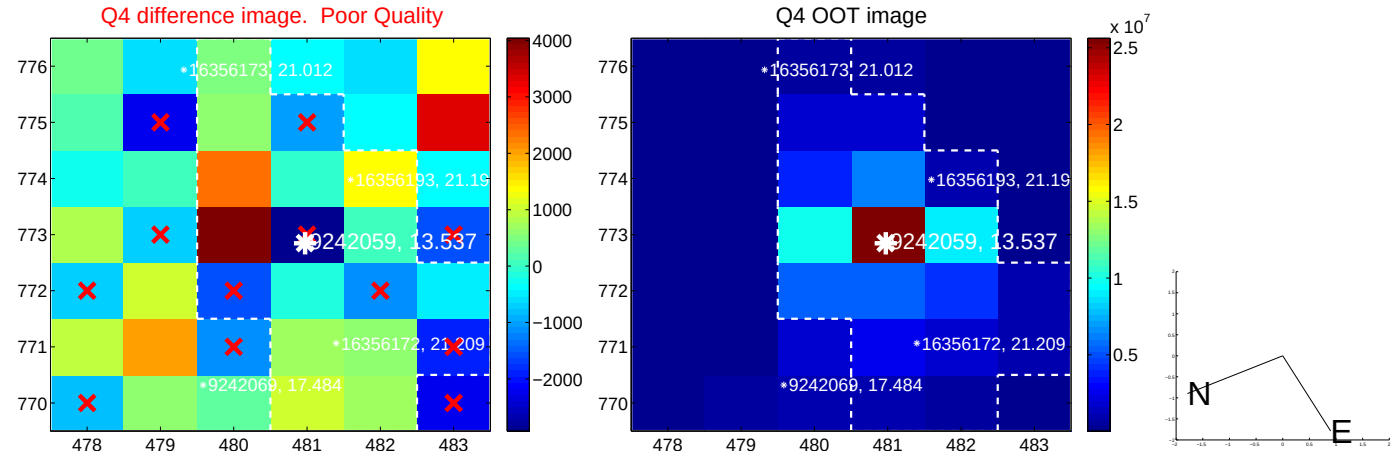
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

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

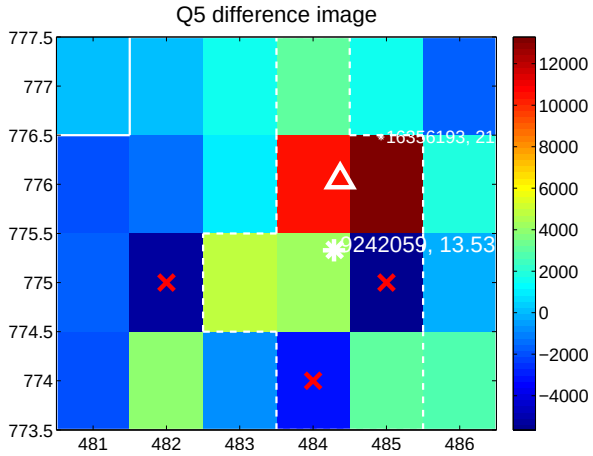


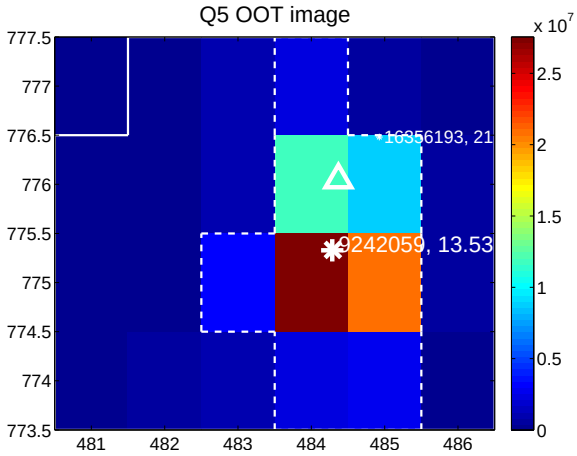


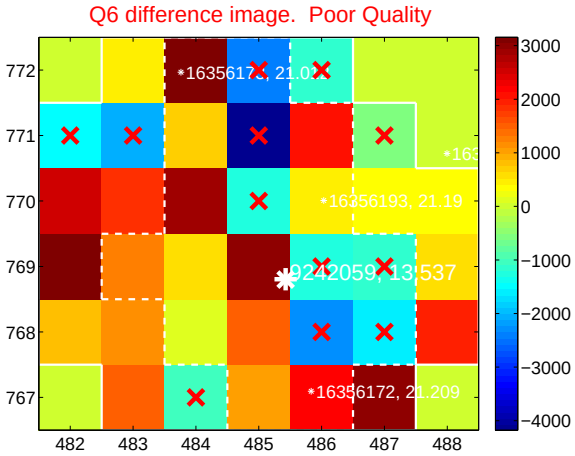


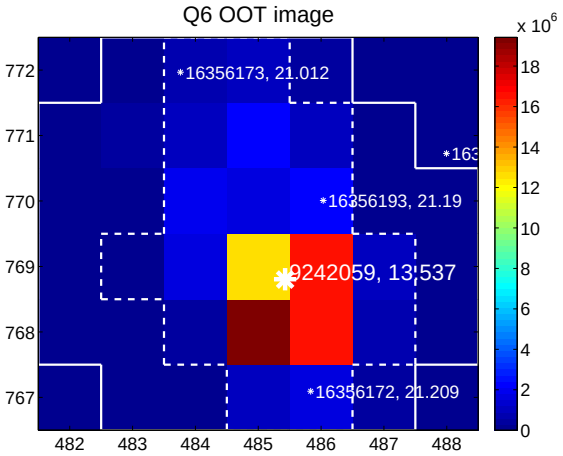


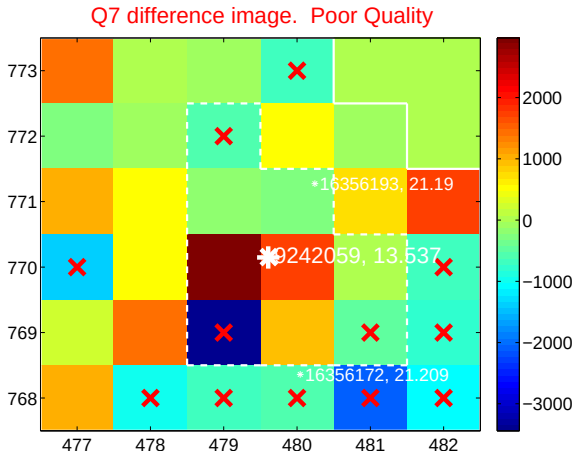
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

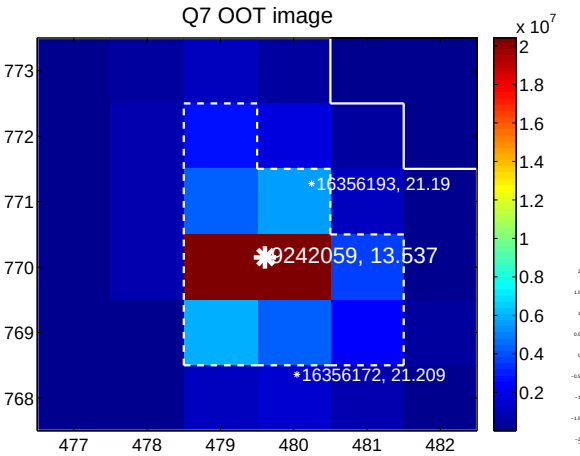


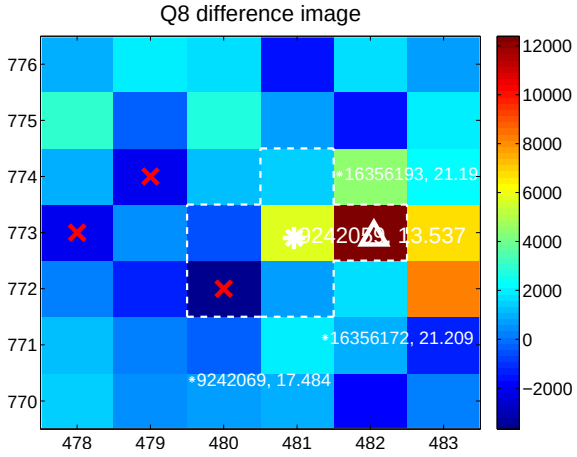


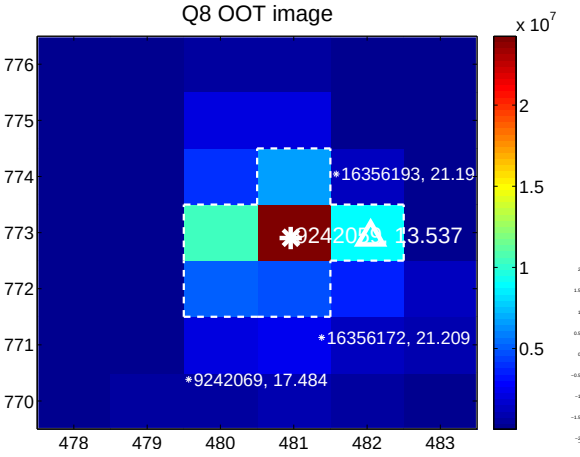




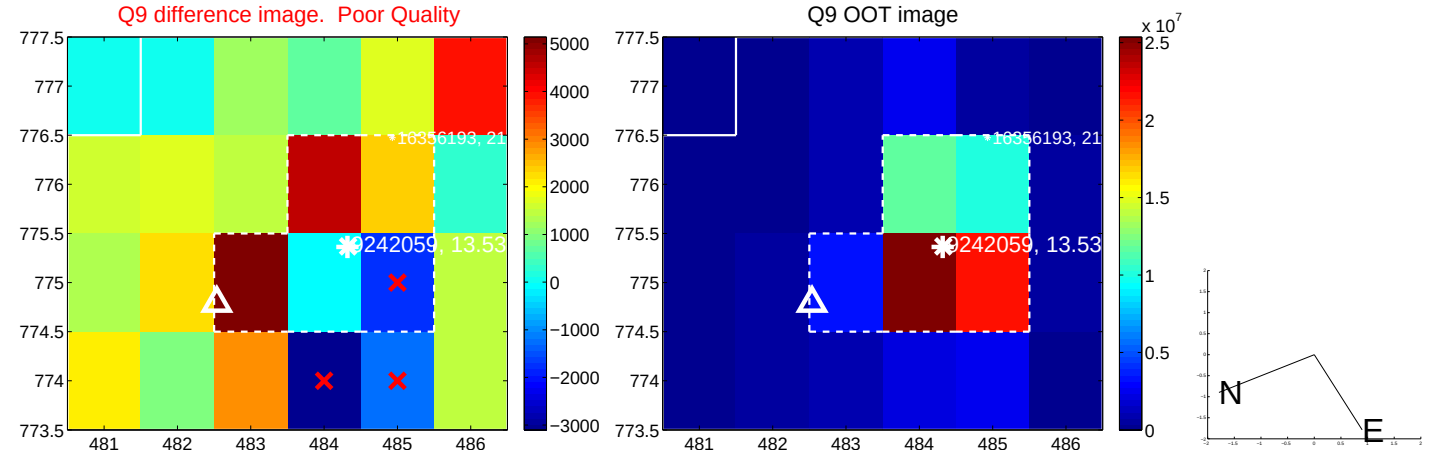


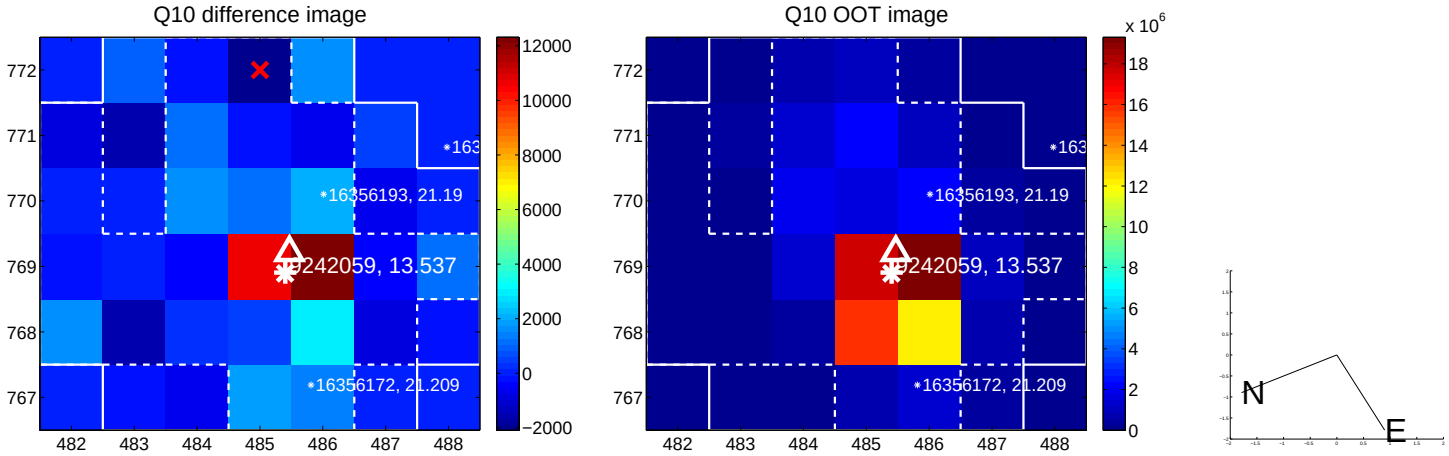


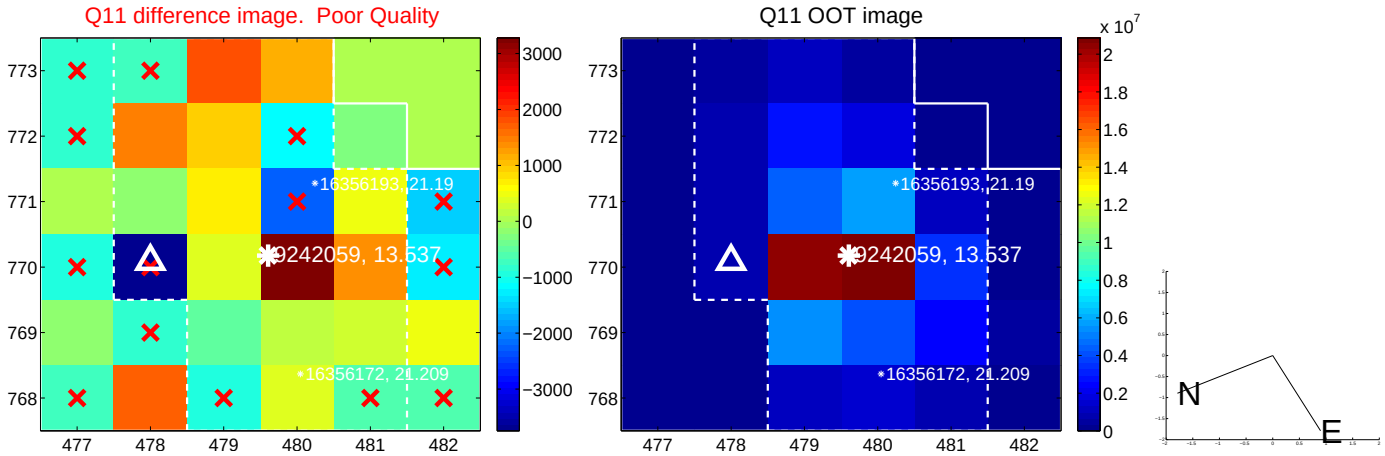


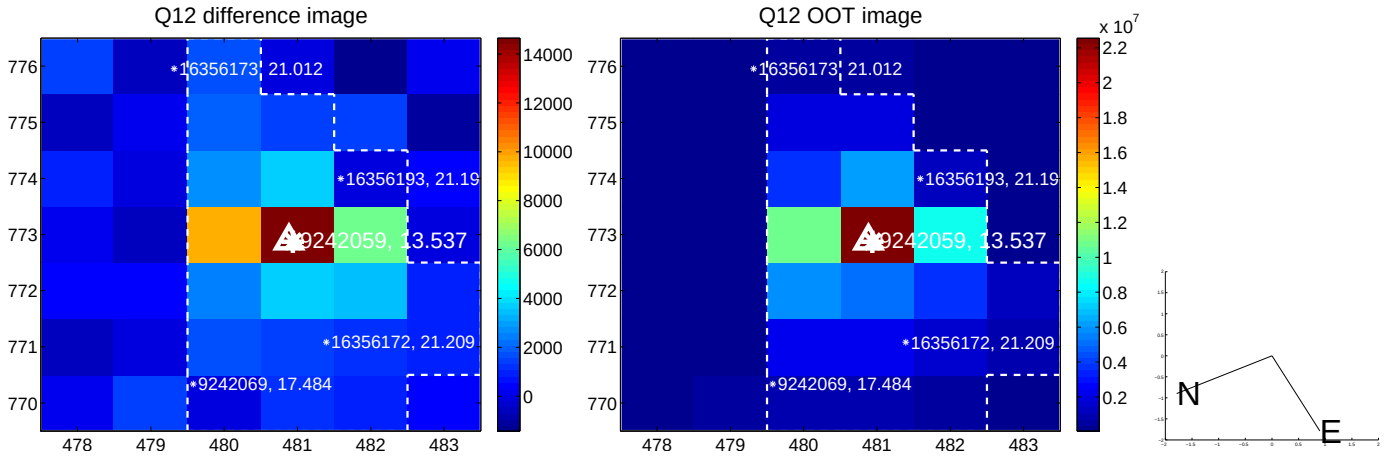


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

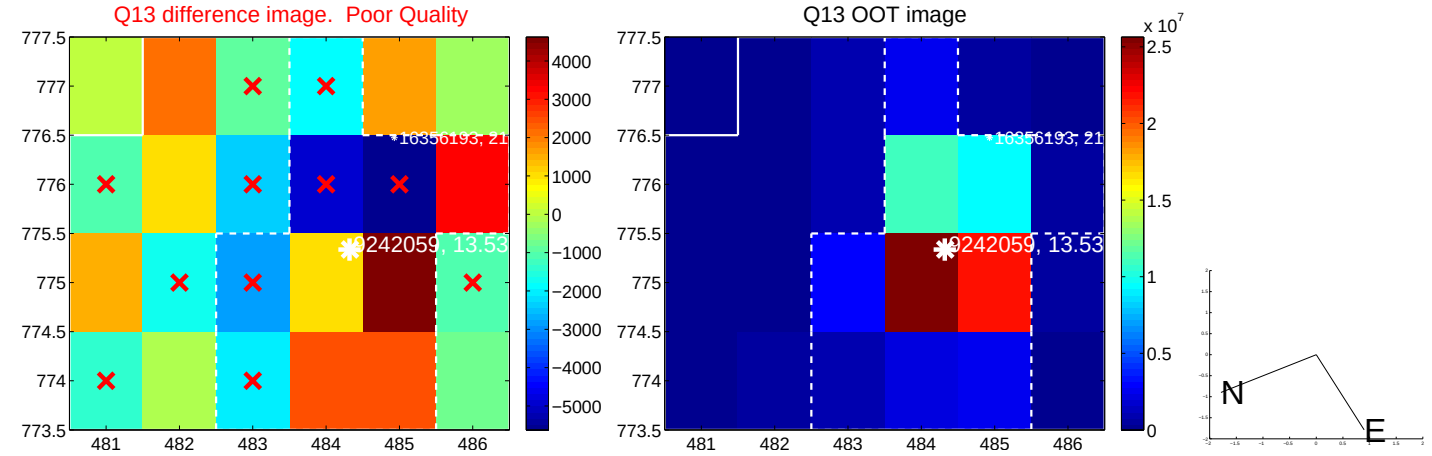


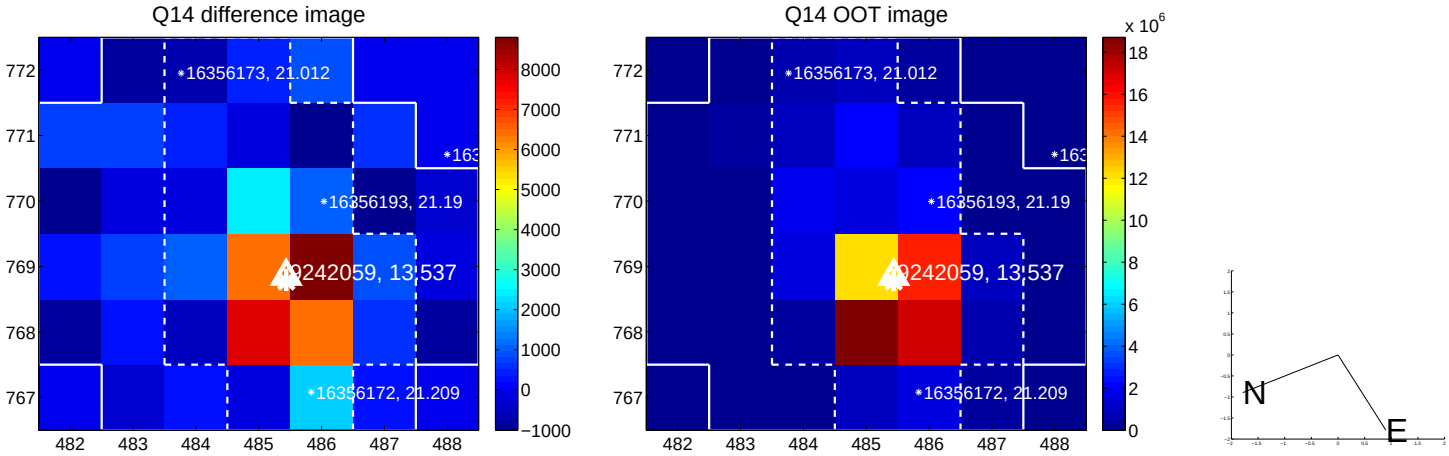


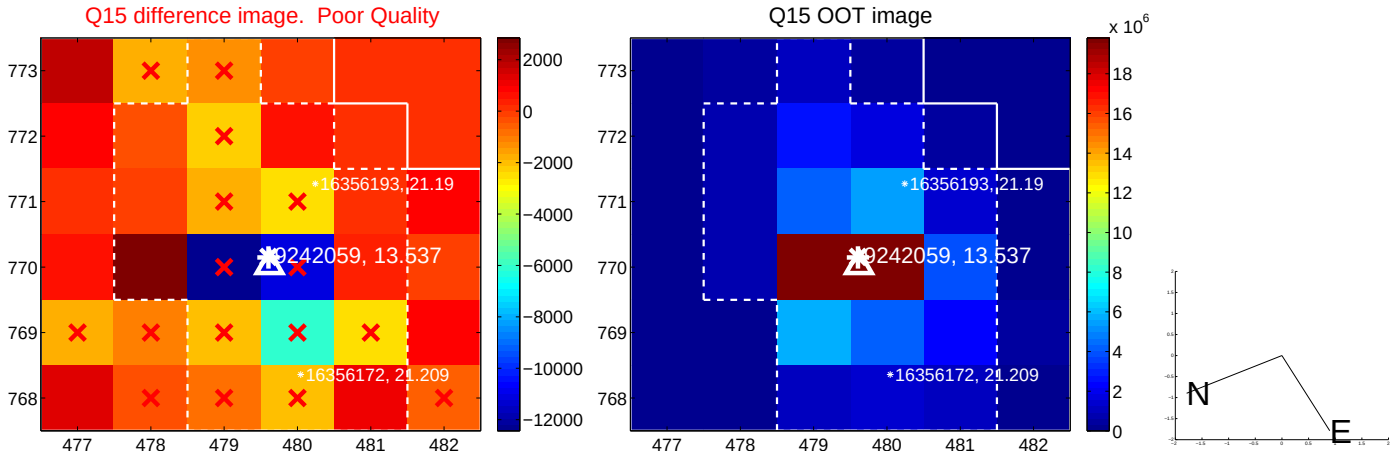


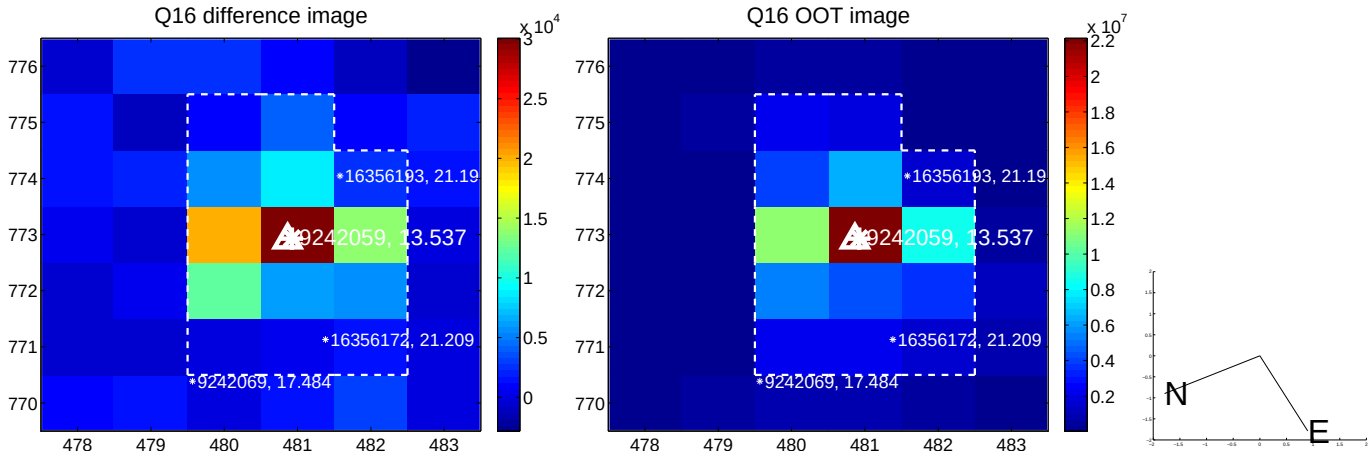


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

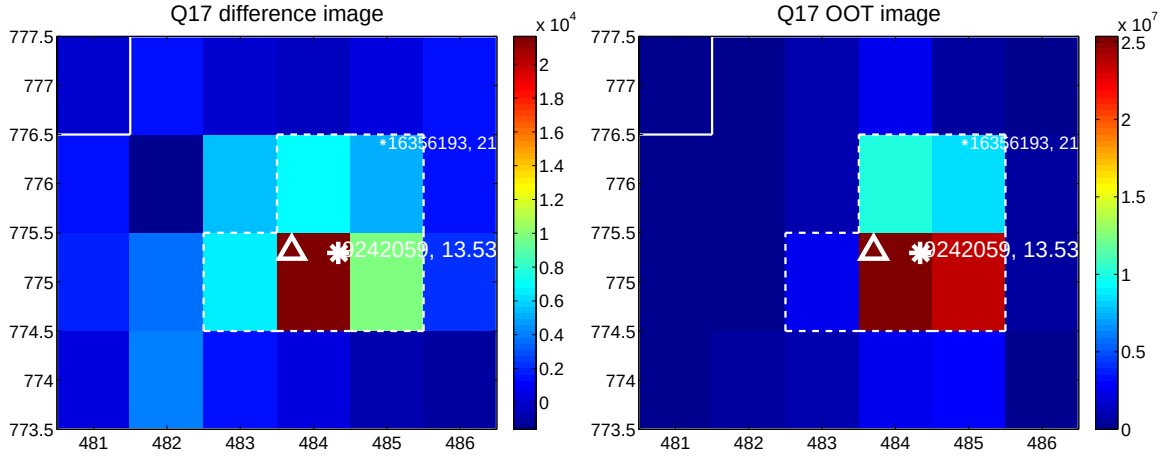


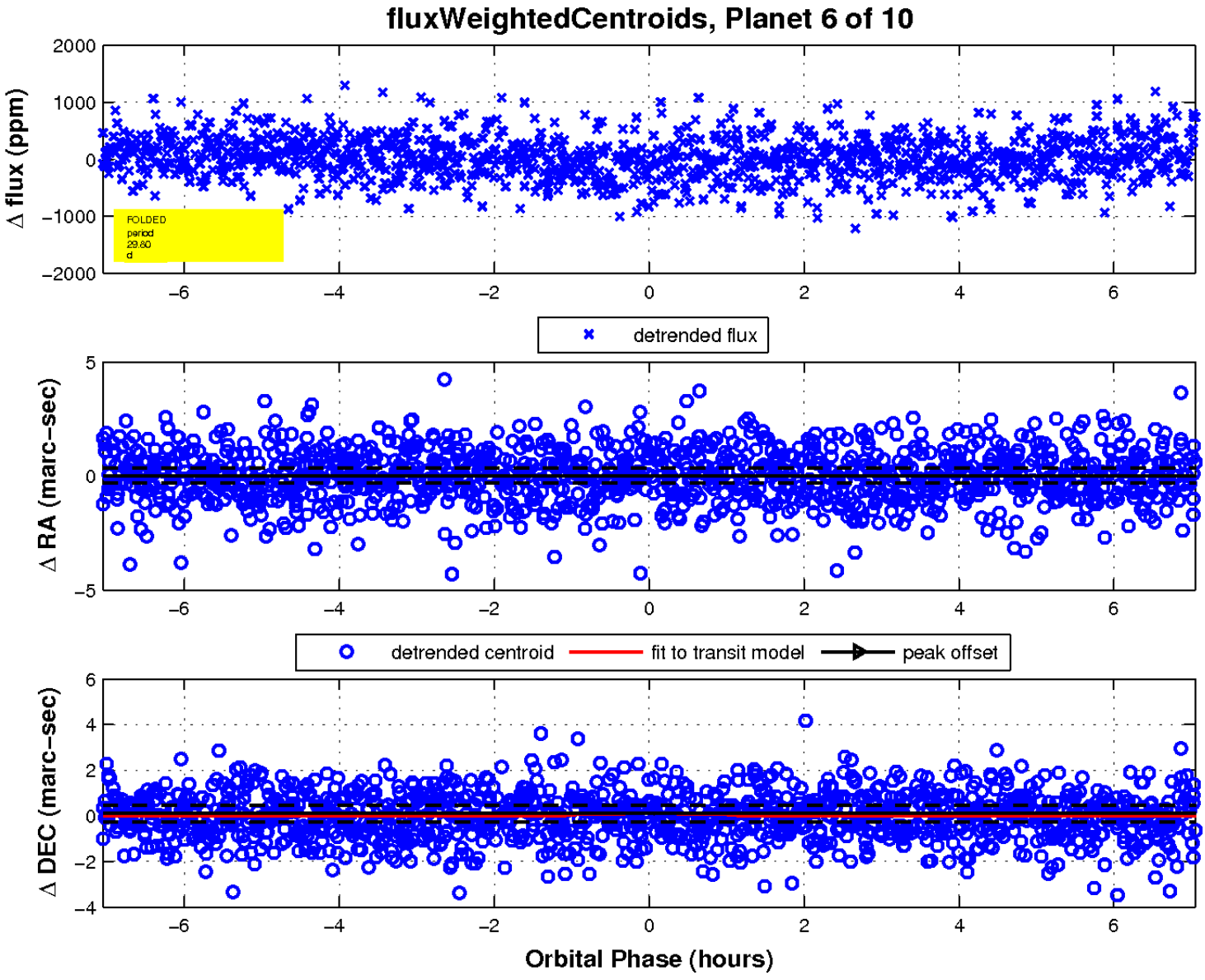




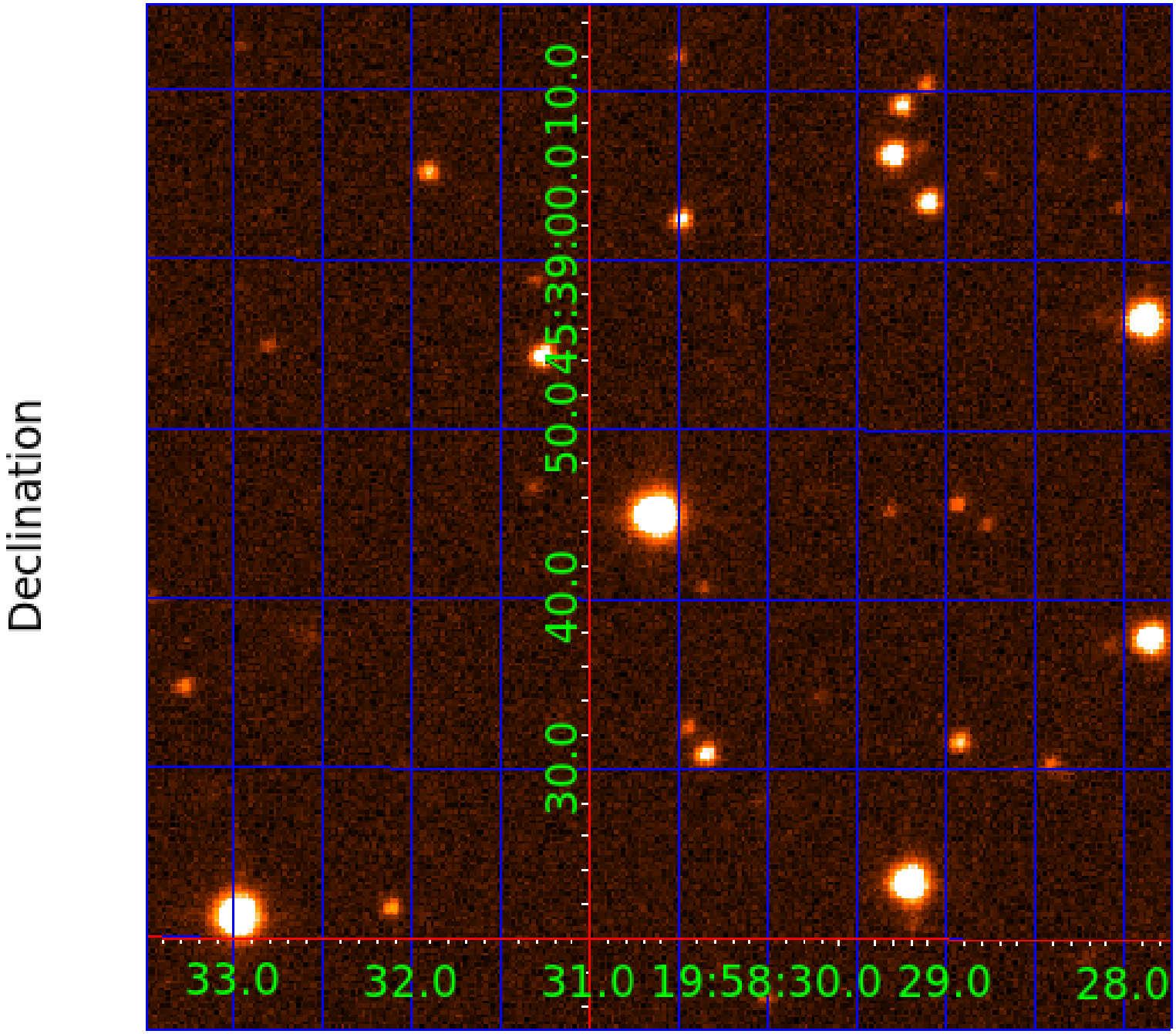


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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28.0

KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

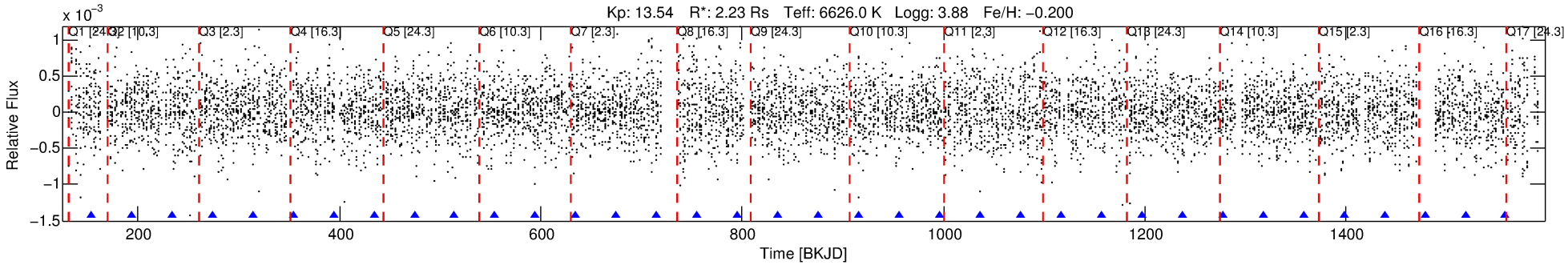
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

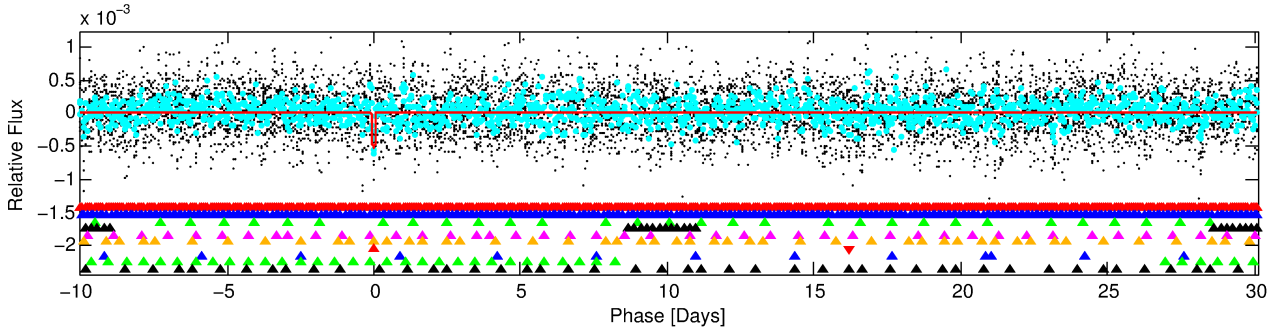
Ephemeris Match Information For 009242059-07

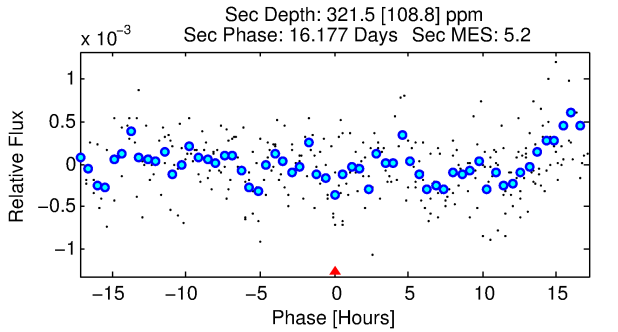
No Significant Match Found

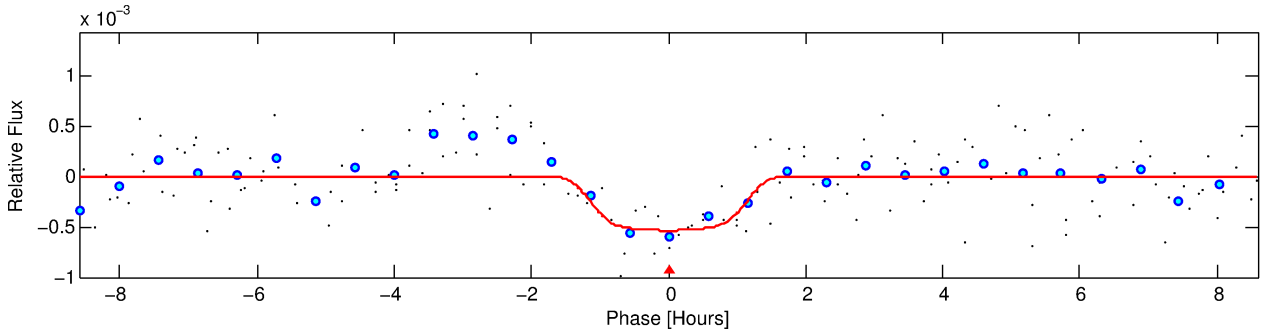
DV One-Page Summary

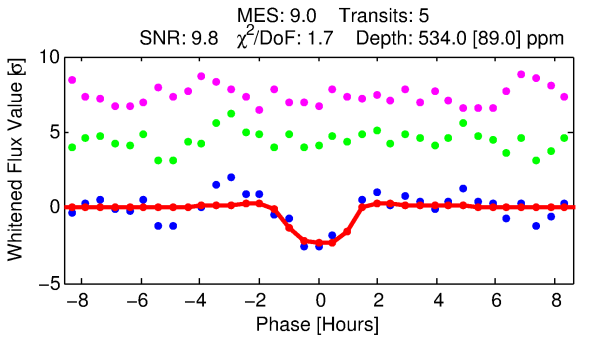
KIC: 9242059 Candidate: 7 of 10 Period: 40.142 d

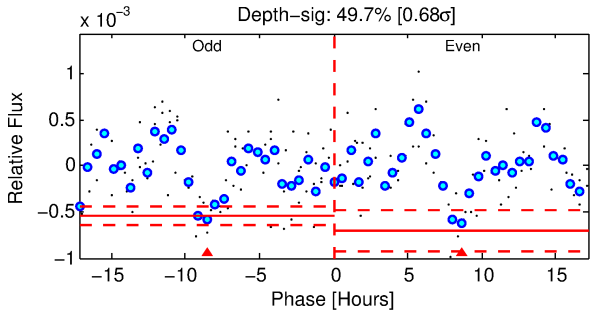


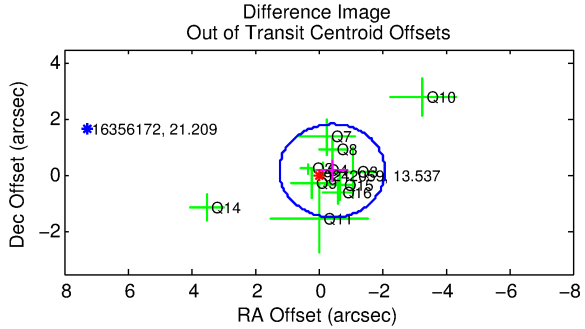












DV Fit Results:

Period = 40.14195 [0.00041] d
Epoch = 153.2730 [0.0099] BKJD
Rp/R* = 0.0258 [0.0051]
a/R* = 43.59 [39.17]
b = 0.94 [0.11]

Seff = 133.03 [91.56]
Teq = 866 [149] K
Rp = 6.30 [2.98] Re
a = 0.2547 [0.1066] AU

Ag = 289.27 [245.94] [1.17σ]
Teffp = 5522 [742] K [6.15σ]

DV Diagnostic Results:

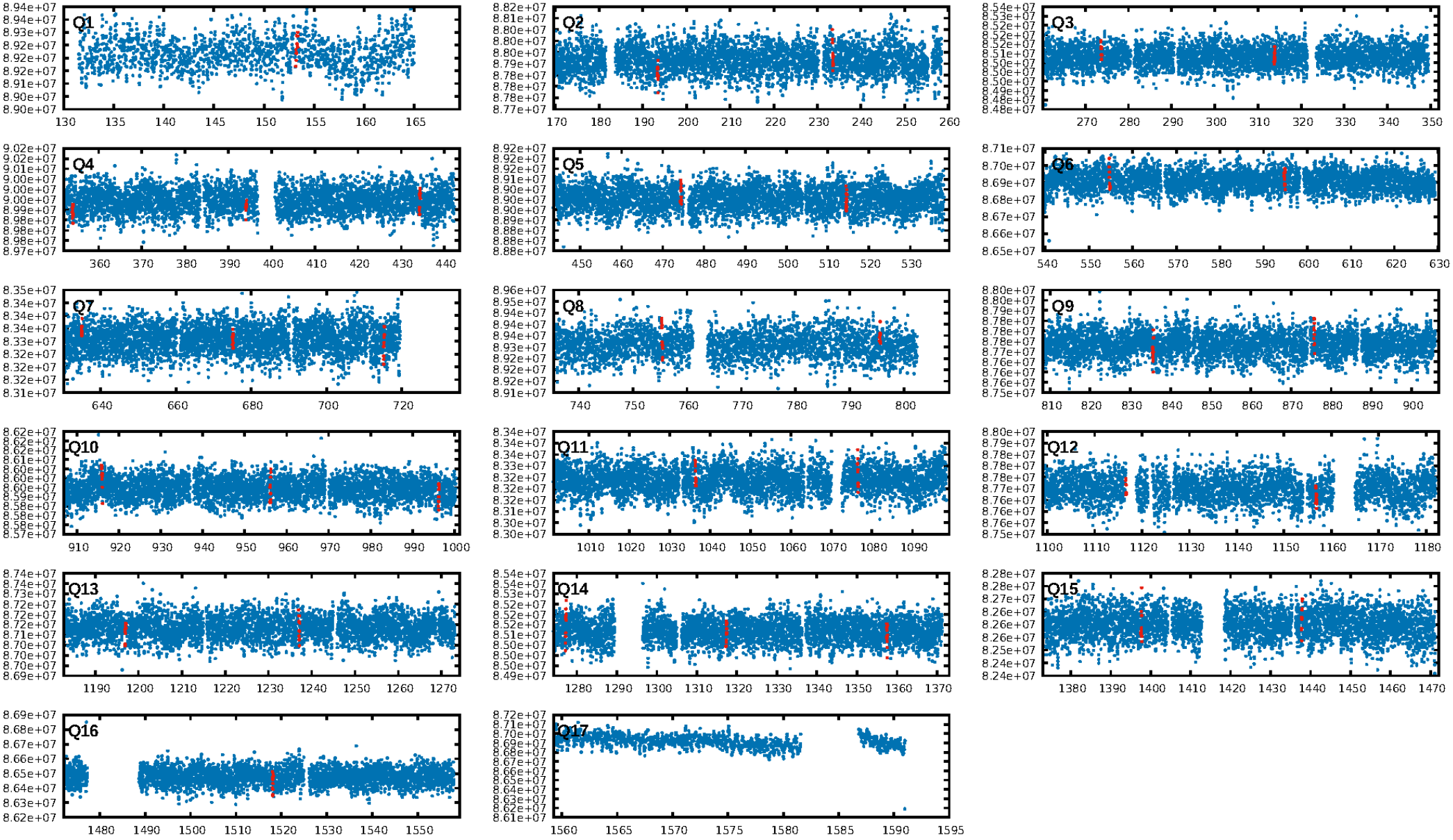
ShortPeriod−sig: 100.0% [3.54σ]
LongPeriod−sig: 100.0% [40.48σ]
ModelChiSquare2−sig: 58.6%
ModelChiSquareGof−sig: 75.9%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [5/5]
GhostDiagnostic−chr: 3.206

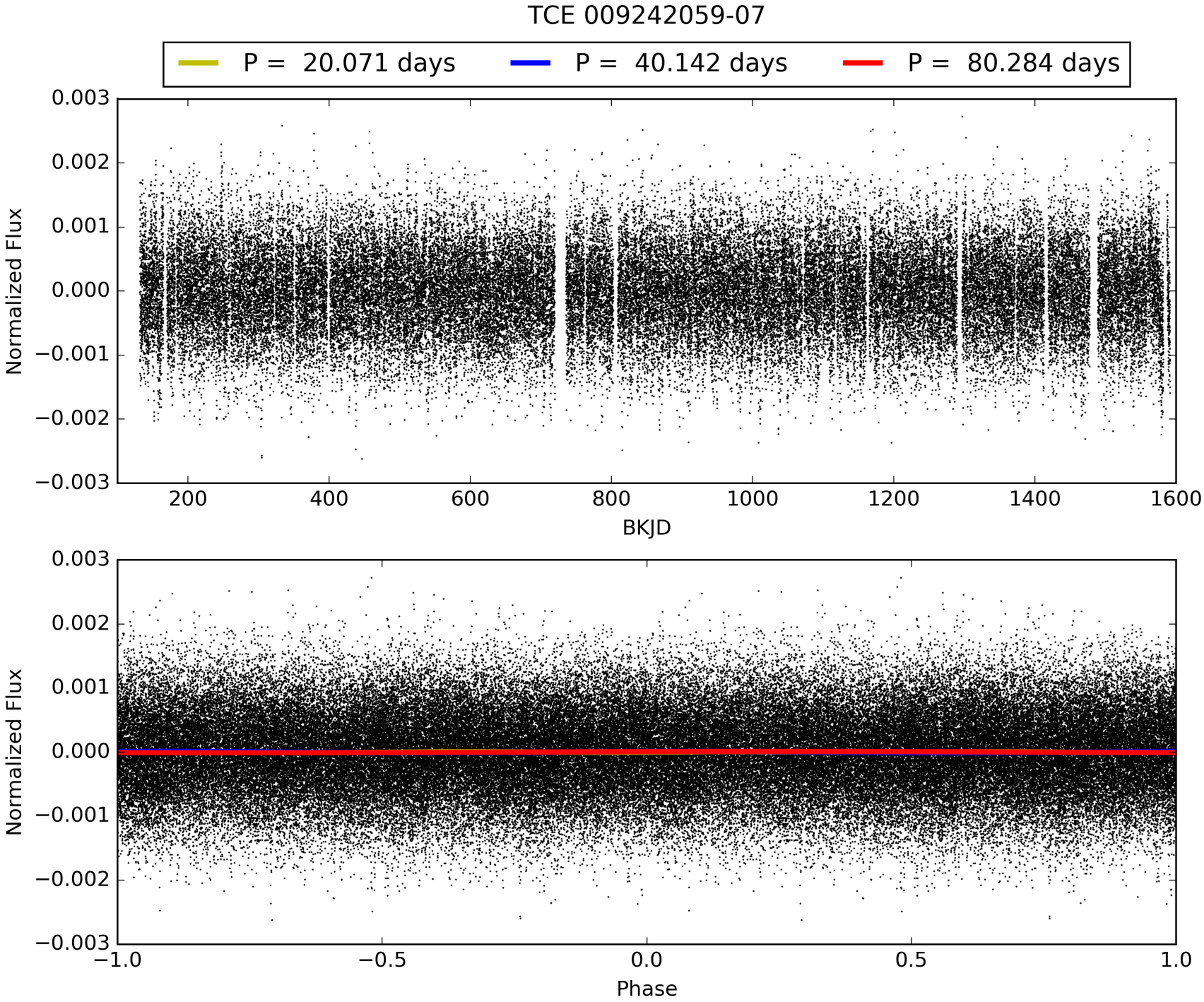
Centroid−sig: 0.0%
Centroid−so: 1.038 arcsec [2.03σ]
OotOffset−rm: 0.464 arcsec [0.84σ]
KicOffset−rm: 0.474 arcsec [0.95σ]
OotOffset−st: 3/4/3/1 [11]
KicOffset−st: 3/4/3/1 [11]
DiffImageQuality−fgm: 0.36 [4/11]
DiffImageOverlap−fno: 0.25 [4/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:53:09 Z

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

TCE 009242059-07, PDC Light Curves

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P = 20.071 days
P = 40.142 days
P = 80.284 days
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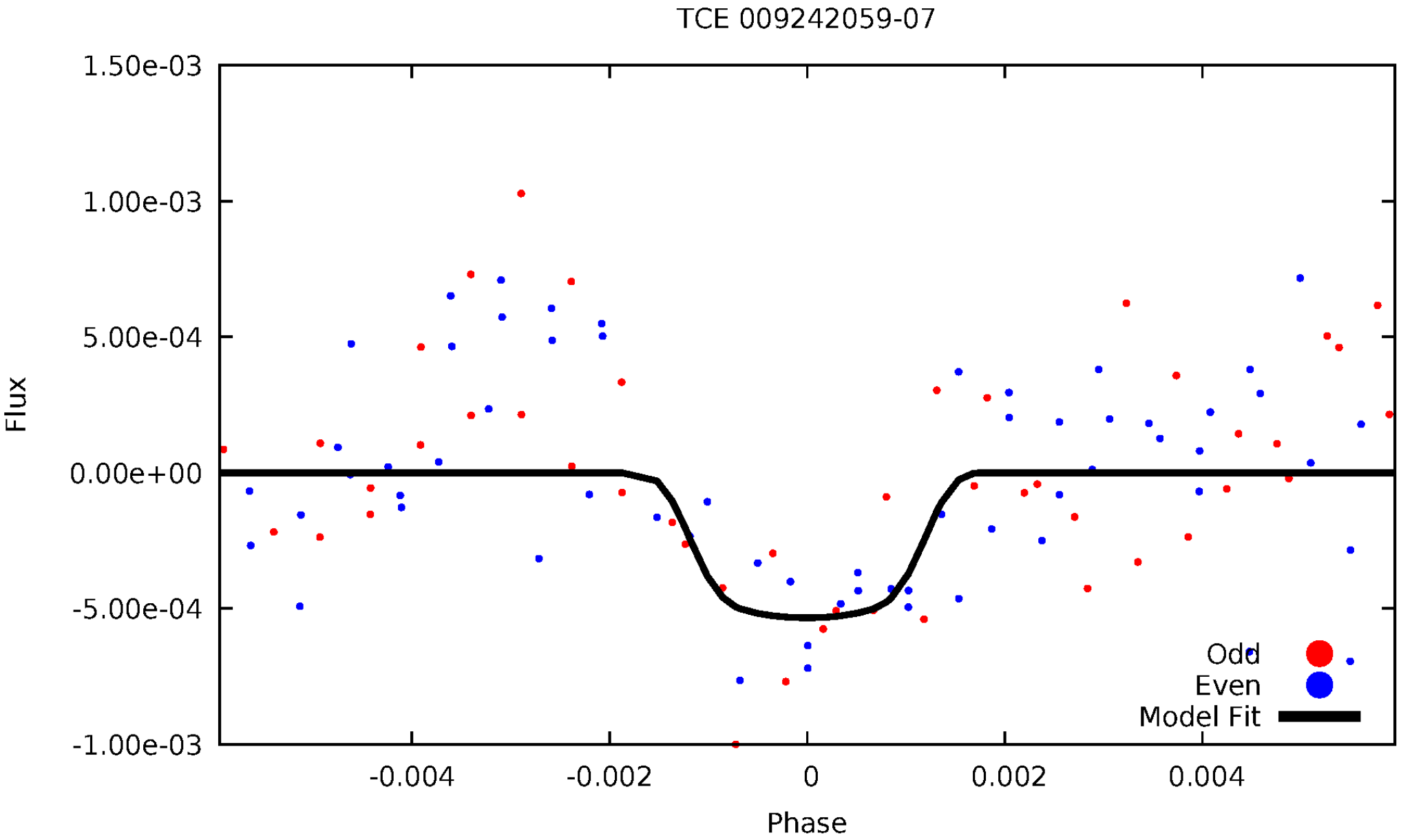
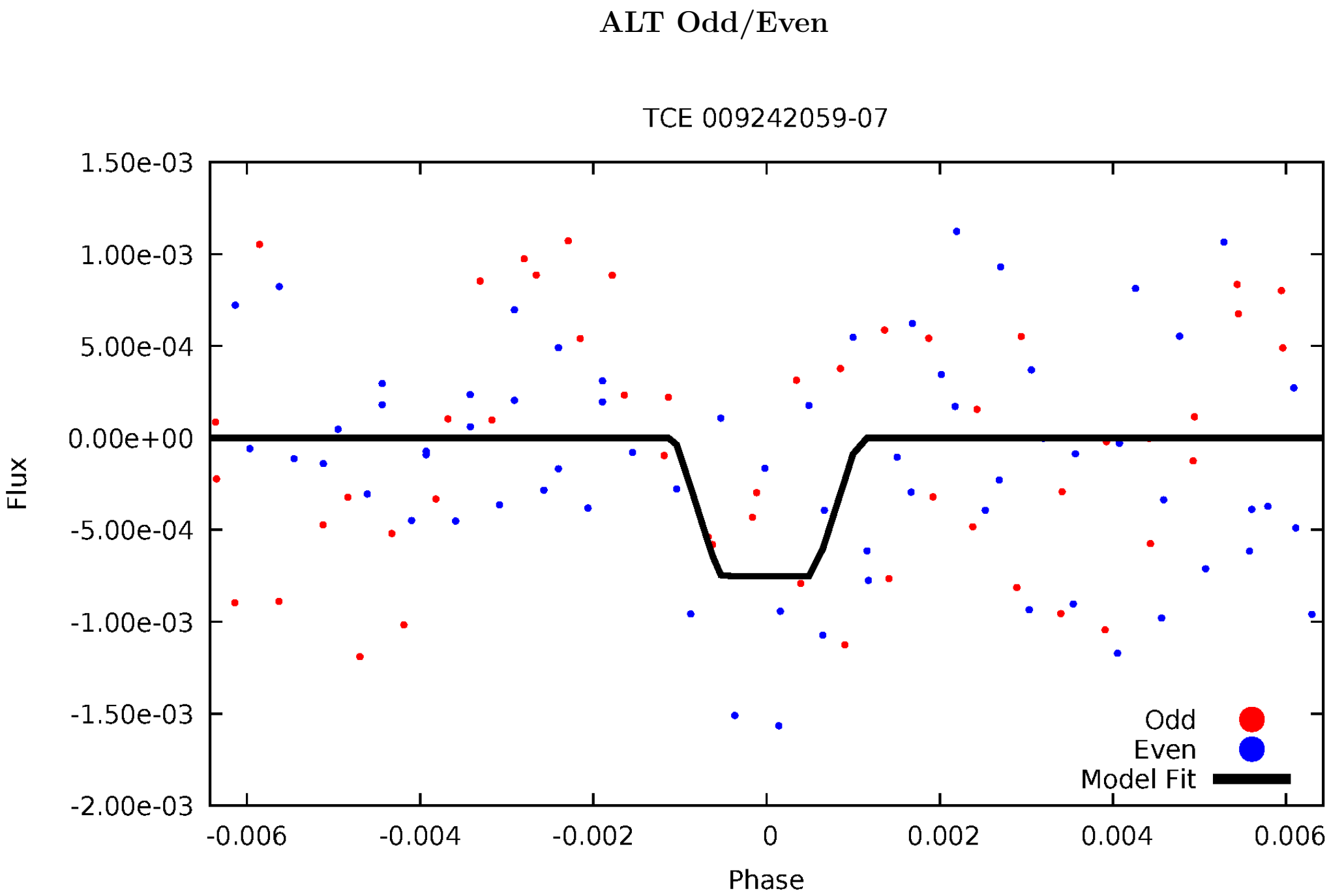
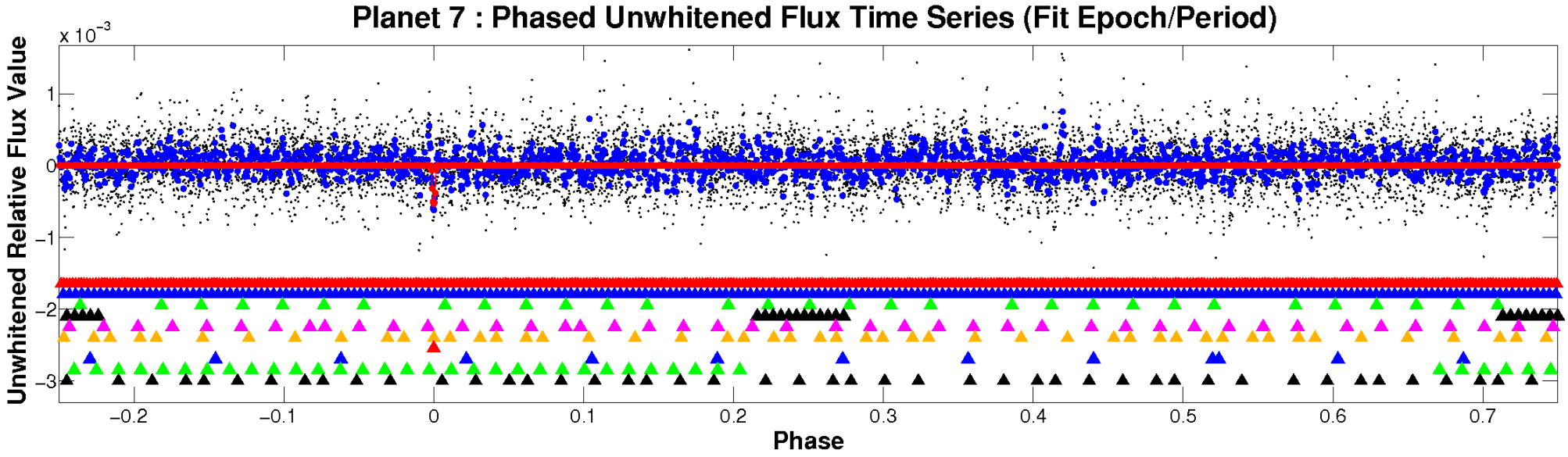
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase

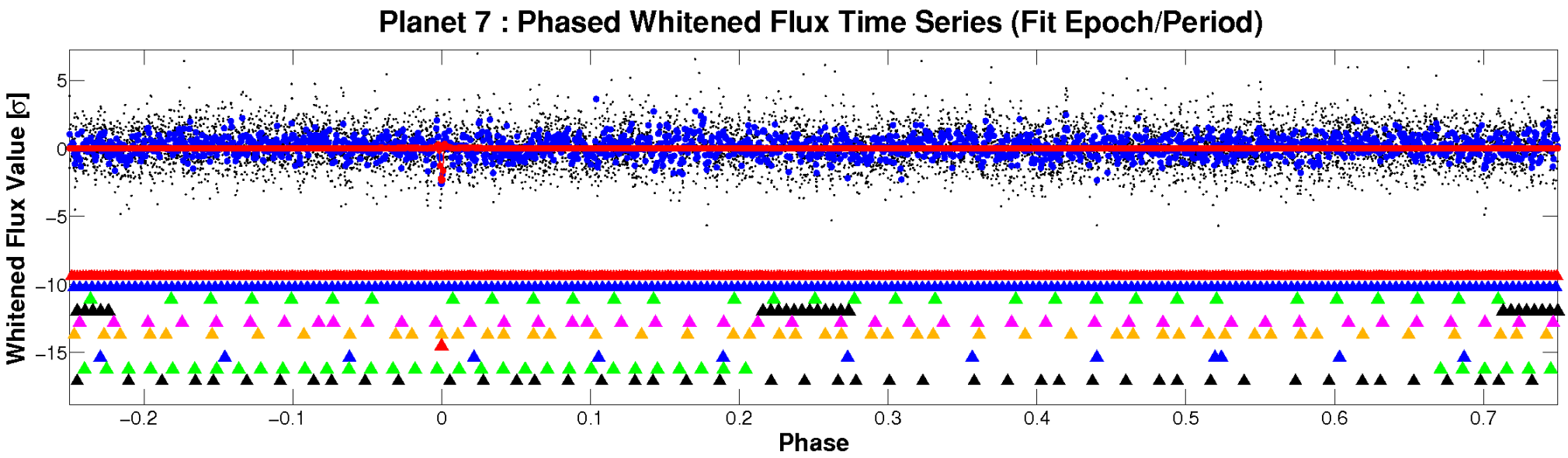
DV Odd/Even


TCE 009242059-07
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-07
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

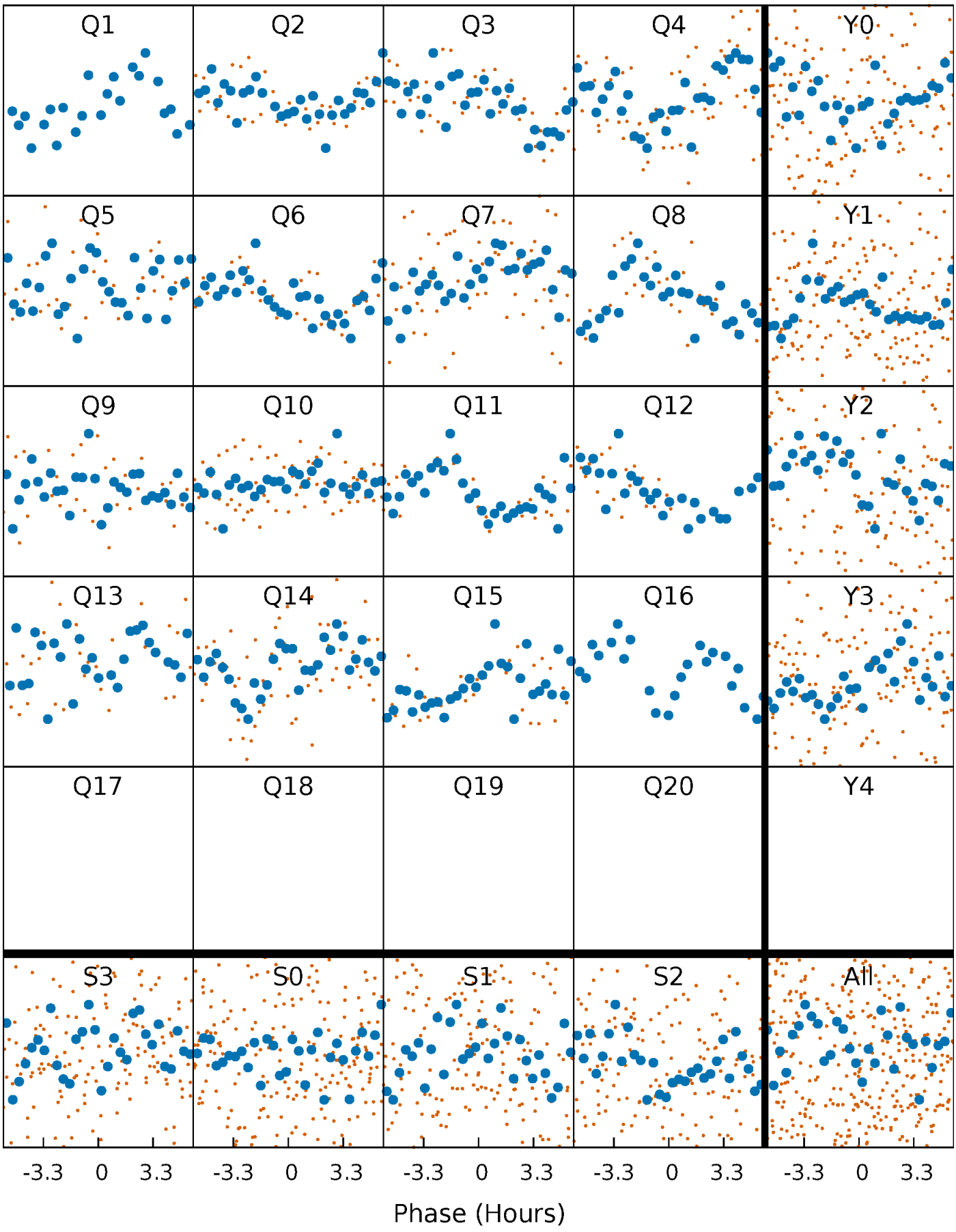
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009242059-07 P= 40.141945 Days T_0=153.273020 (BKJD)



DV Quarter-Phased Transit Curves

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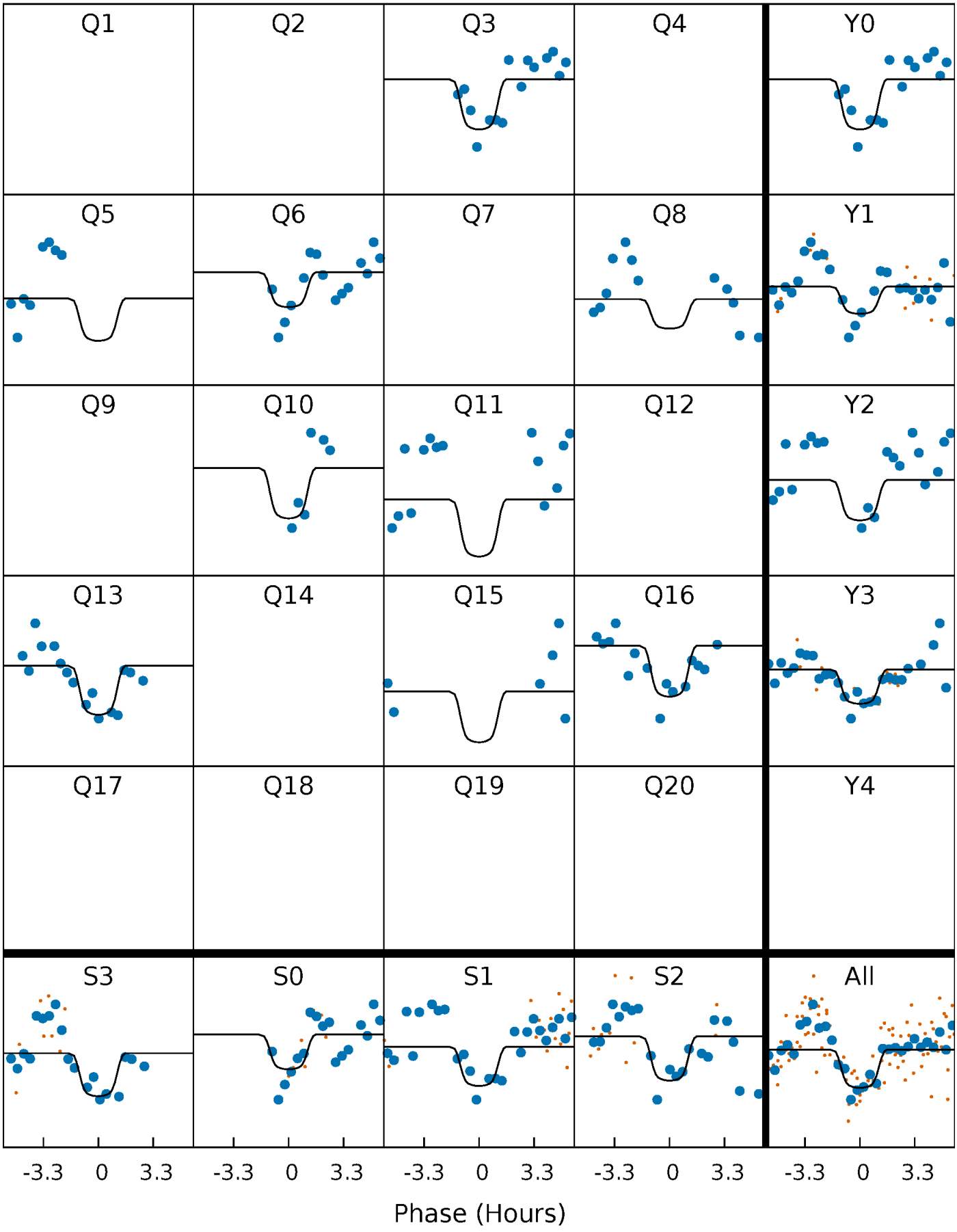
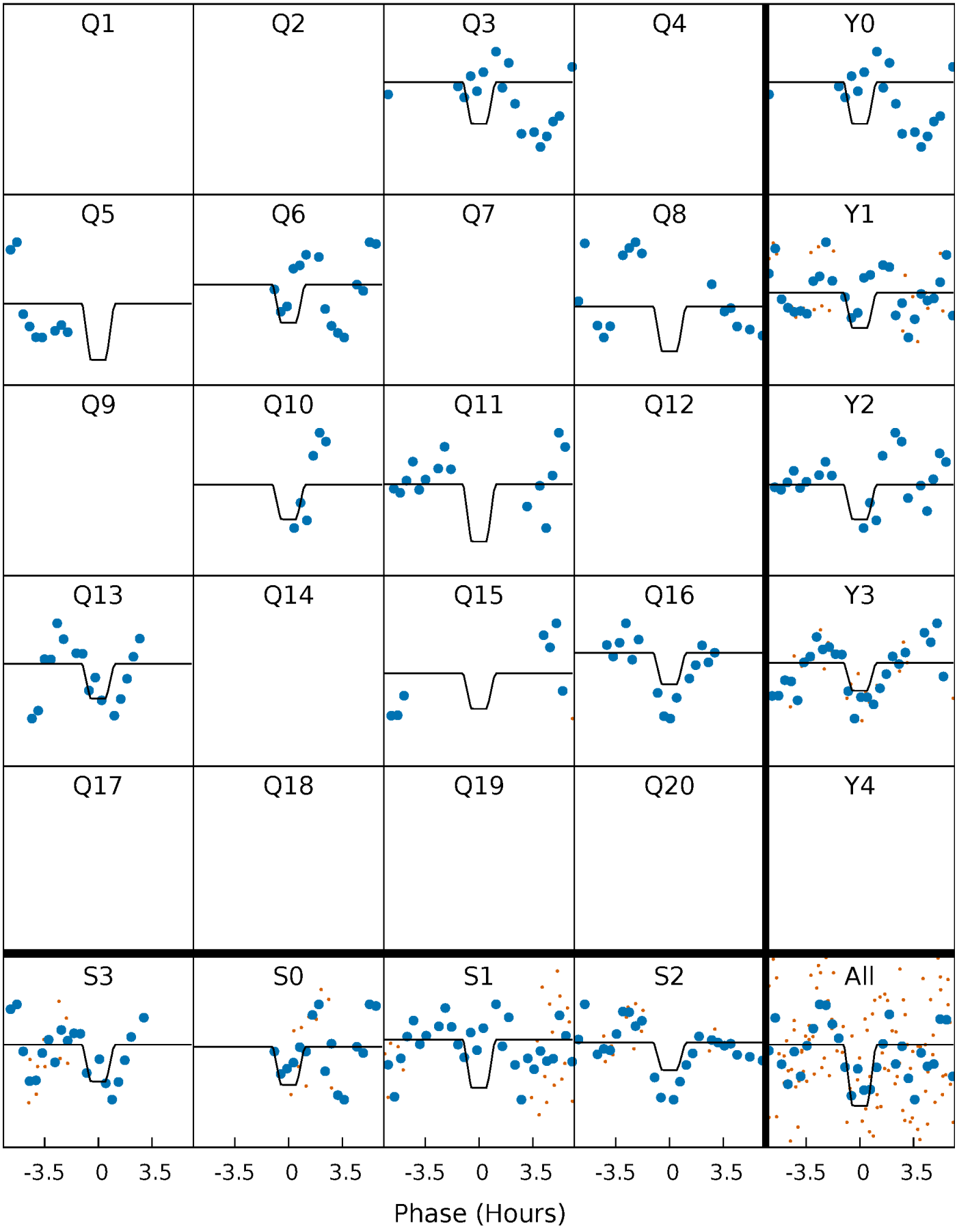


Alt. Detrend Quarter-Phased Transit Curves

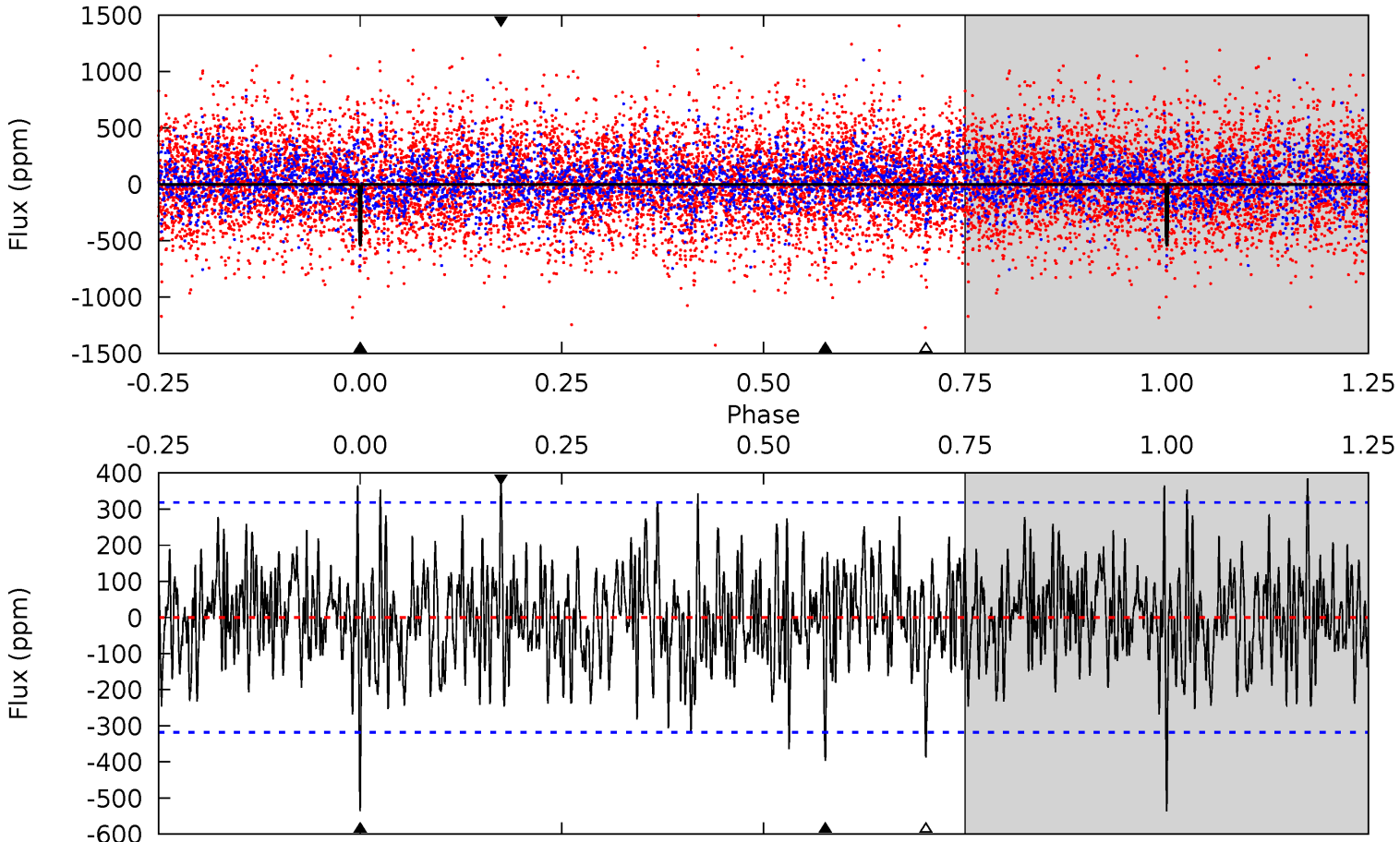
TCE 009242059-07 P= 40.141493 Days T_0=153.275917 (BKJD)

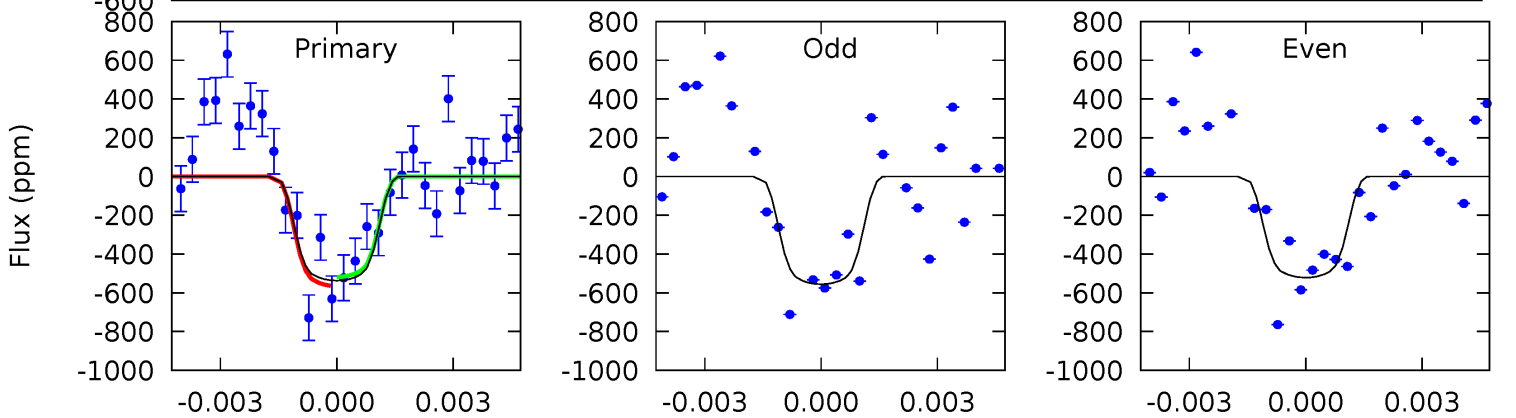


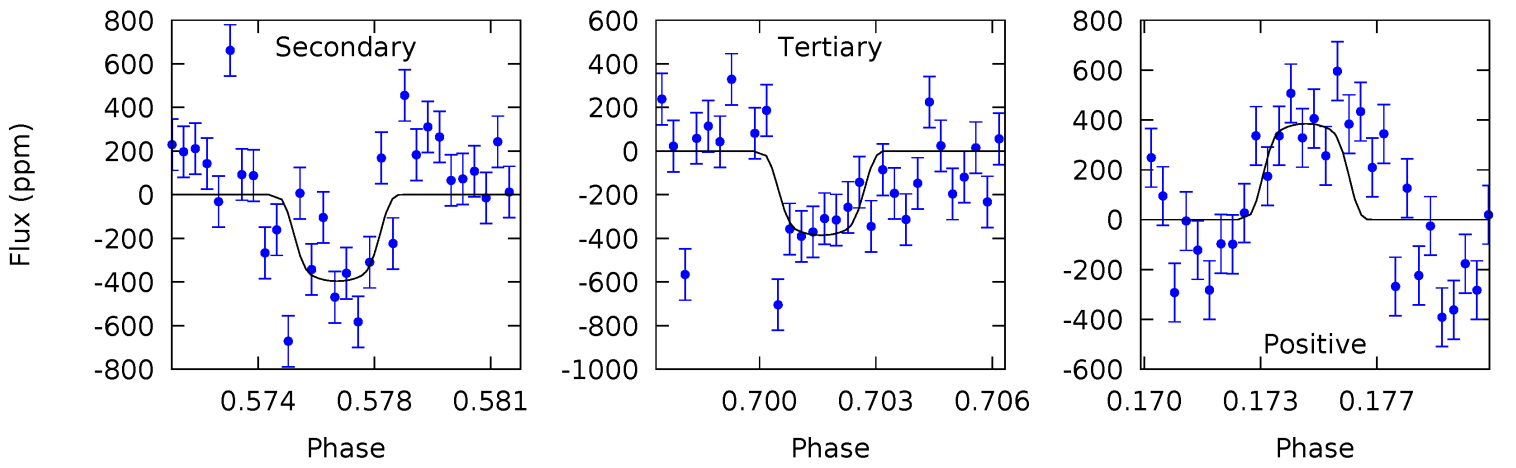
DV Model-Shift Uniqueness Test

009242059-07, P = 40.141945 Days, E = 113.131075 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.84	6.52	6.35	6.34	5.24	2.95	1.86	2.49	2.51	0.18	0.19	0.28	0.99	0.42	0.37



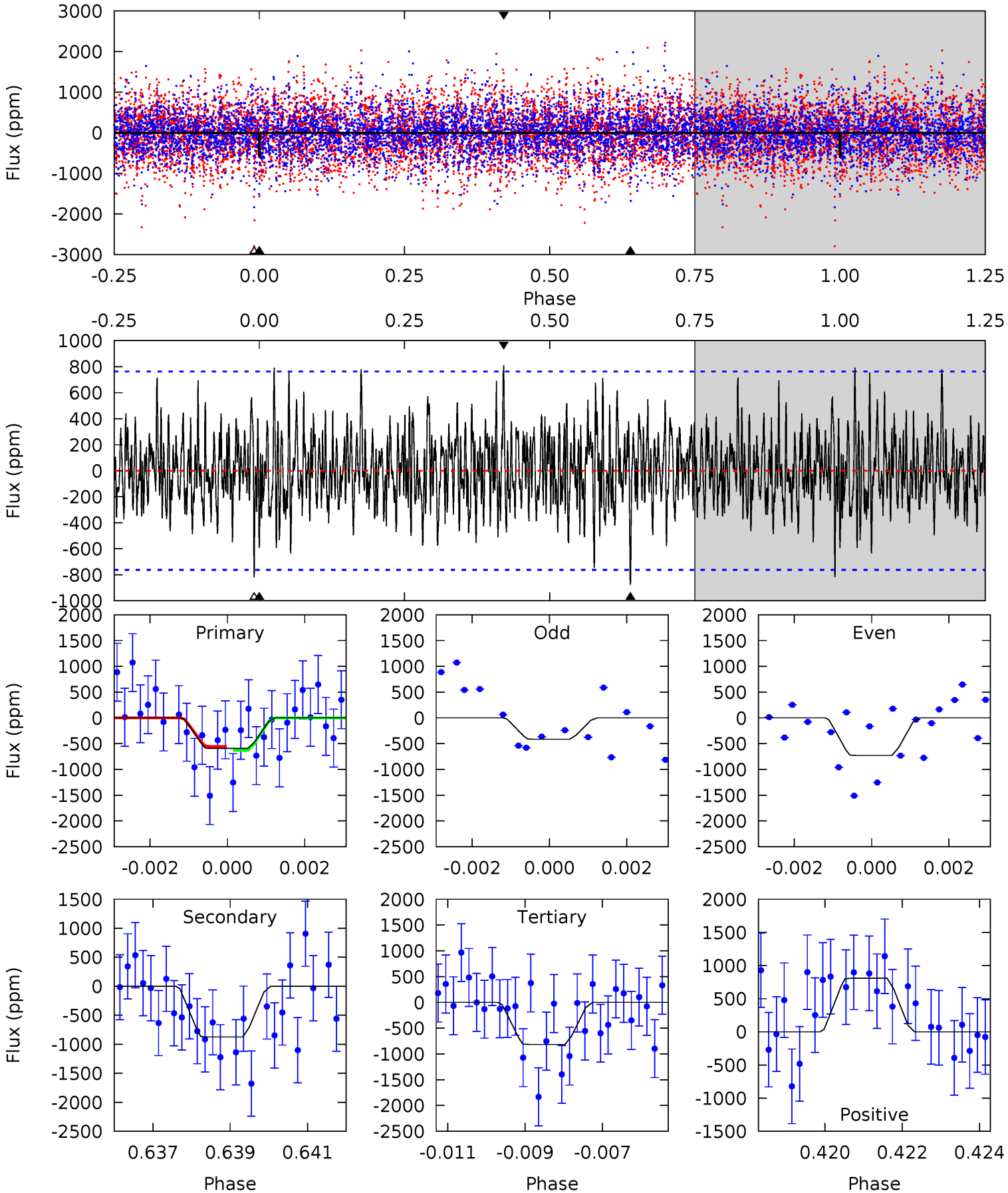




Alt Model-Shift Uniqueness Test

009242059-07, P = 40.141493 Days, E = 113.134424 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.15	6.12	5.72	5.67	5.34	3.11	1.69	-1.57	-1.52	0.41	0.45	1.13	0.91	0.48	0.26



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-07 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-396±61	$5.85^{+1.84}_{-1.59}$	1182^{+97}_{-130}	5815^{+680}_{-543}	404^{+360}_{-170}
Alt.	-875±143	$6.31^{+1.60}_{-1.69}$	1184^{+89}_{-137}	6965^{+1003}_{-734}	812^{+695}_{-315}

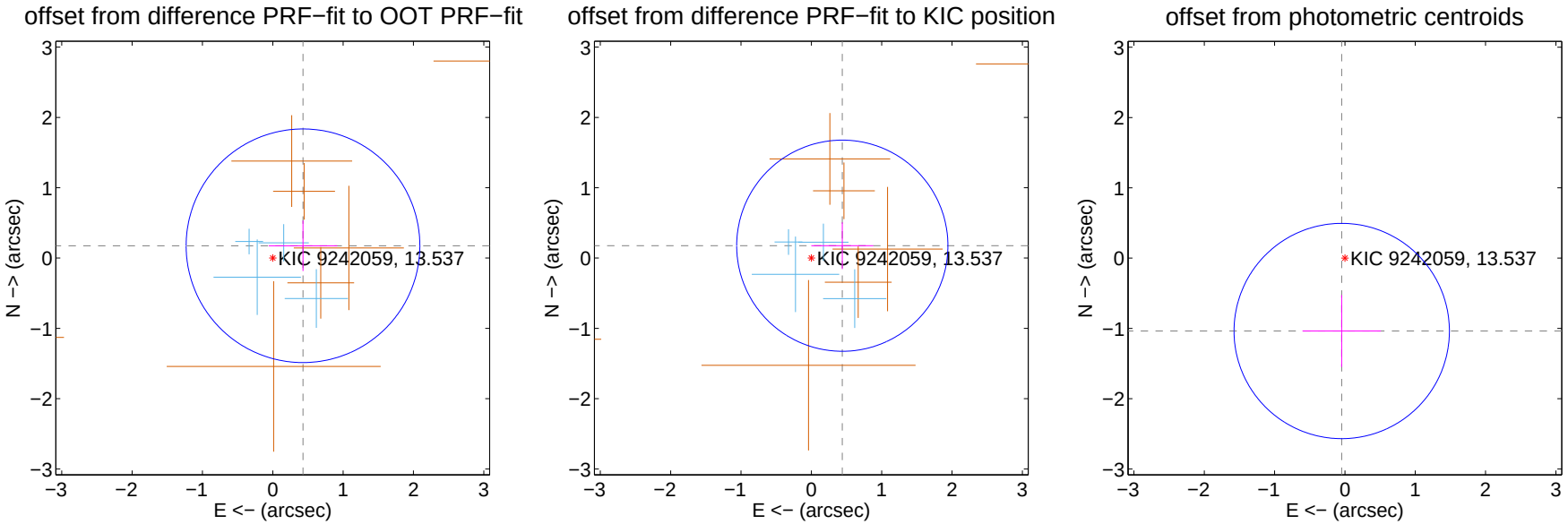
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

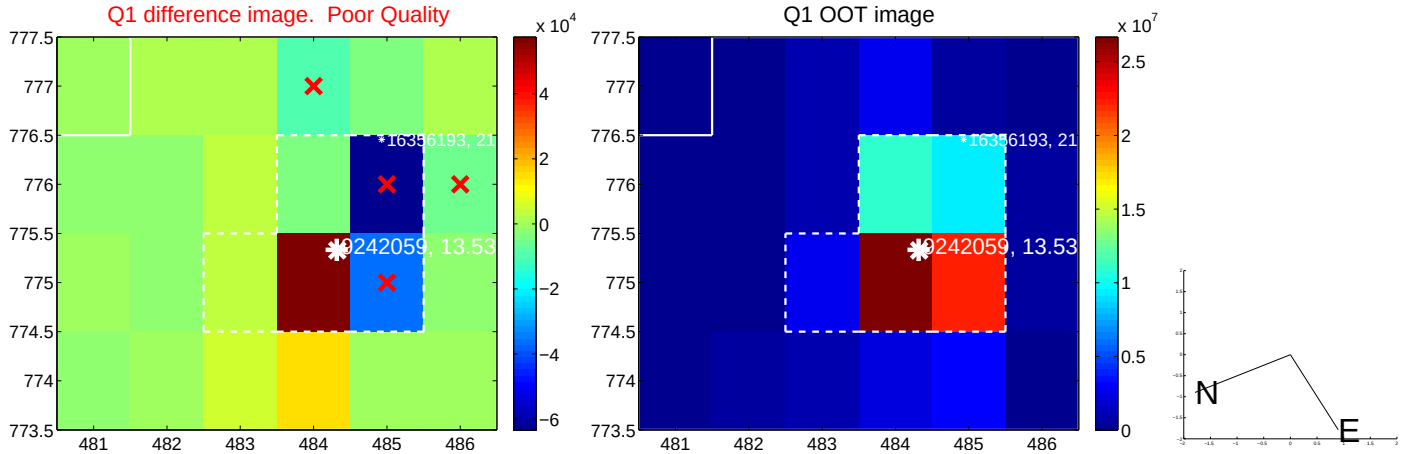
Supplemental centroid analysis for 009242059-07. Kepler magnitude: 13.54. Transit SNR 9.82
There are 4 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.00 arcsec

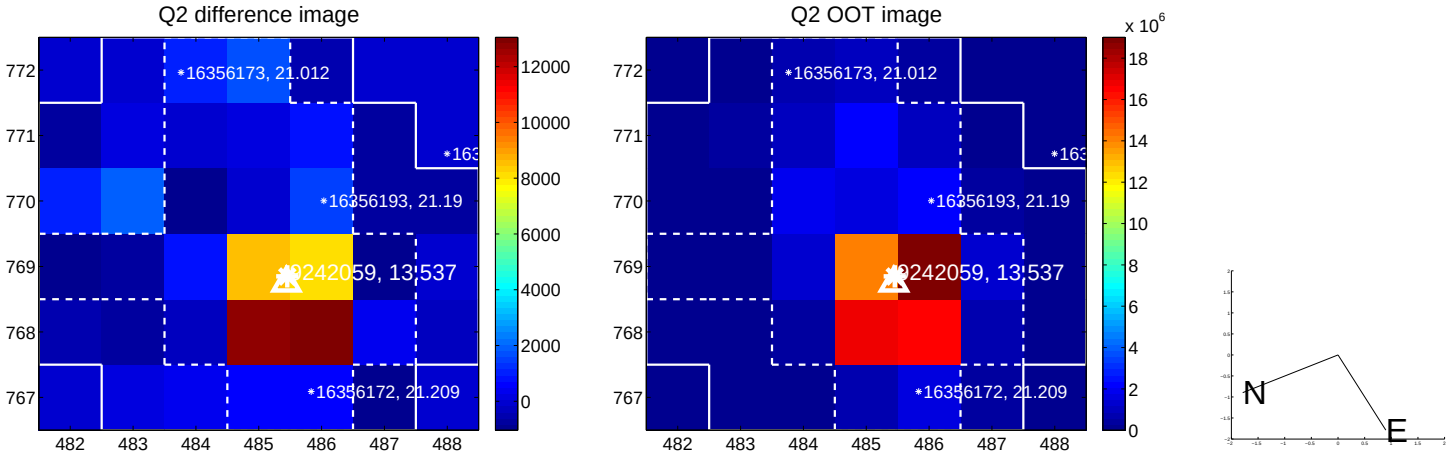
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.464 ± 0.554	0.84	-0.430 ± 0.488	0.175 ± 0.360
PRF-fit source offset from KIC position	0.474 ± 0.501	0.95	-0.440 ± 0.441	0.176 ± 0.332
photometric centroid source offset	1.04 ± 0.51	2.03	0.05 ± 0.56	-1.04 ± 0.51

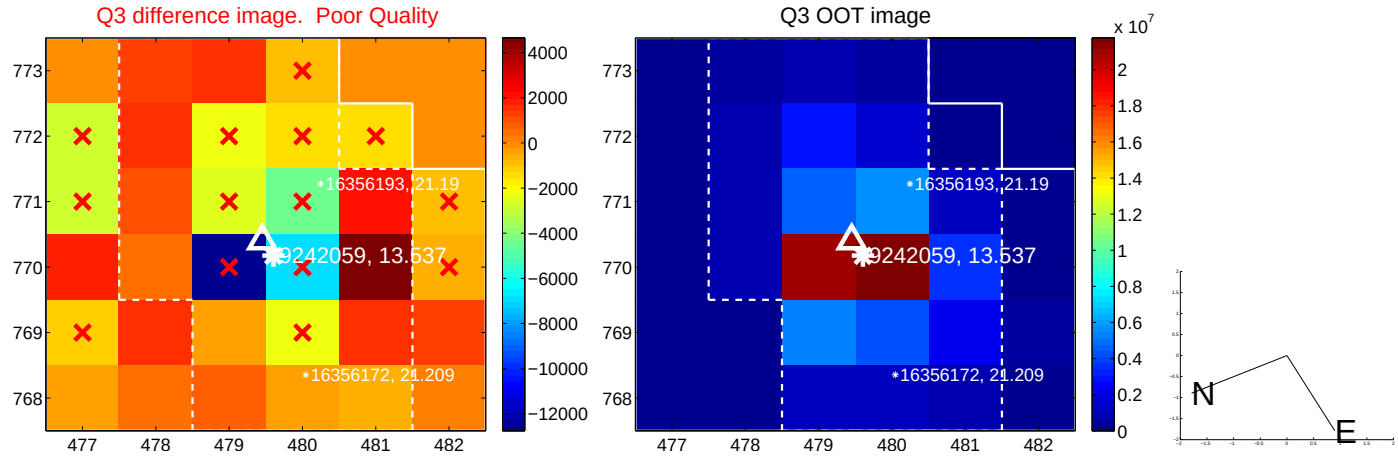


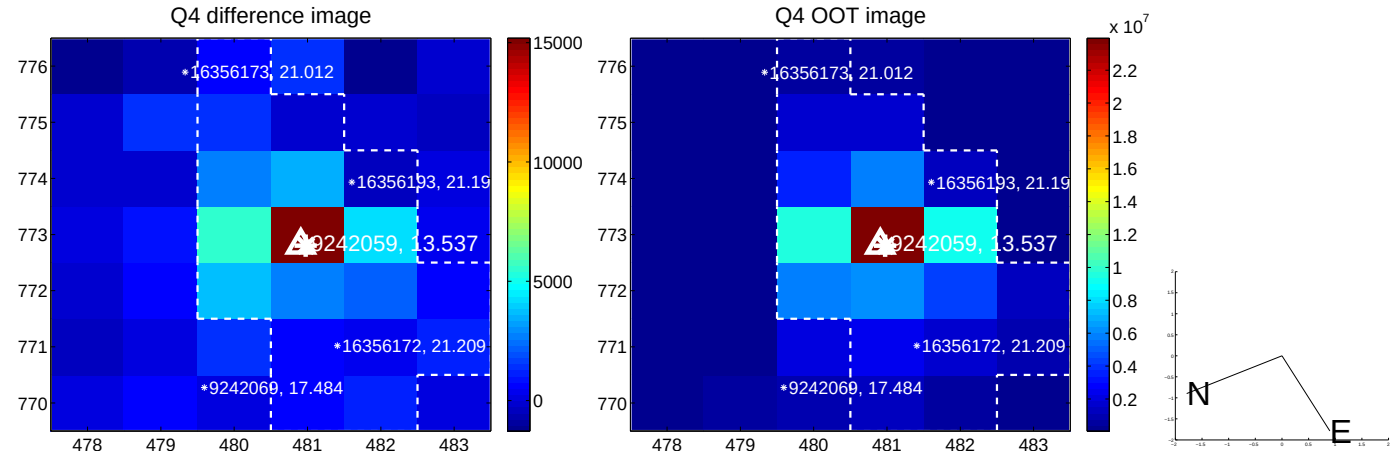
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

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

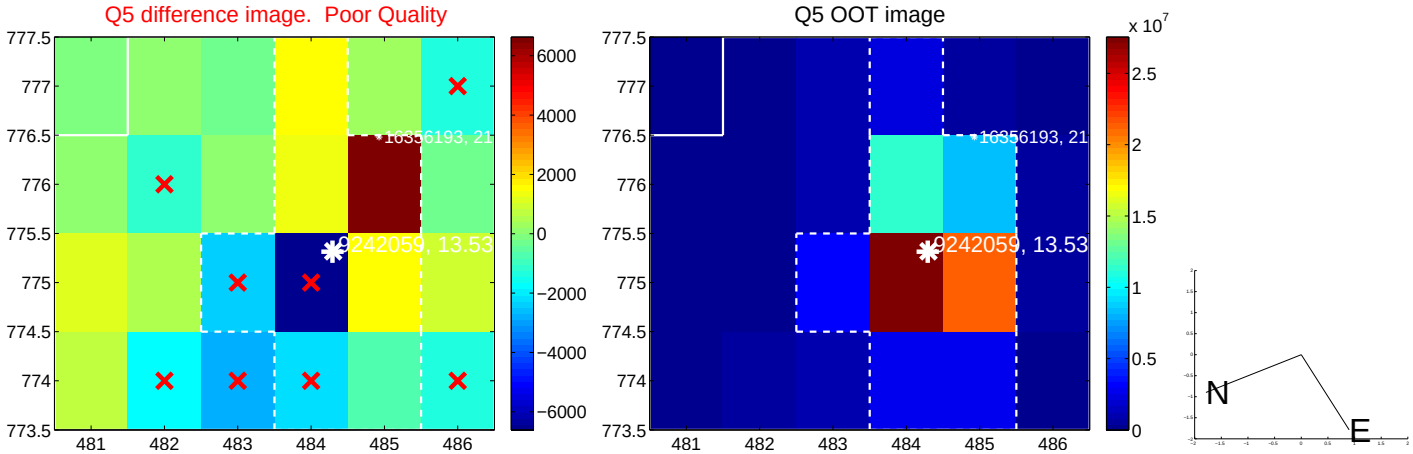


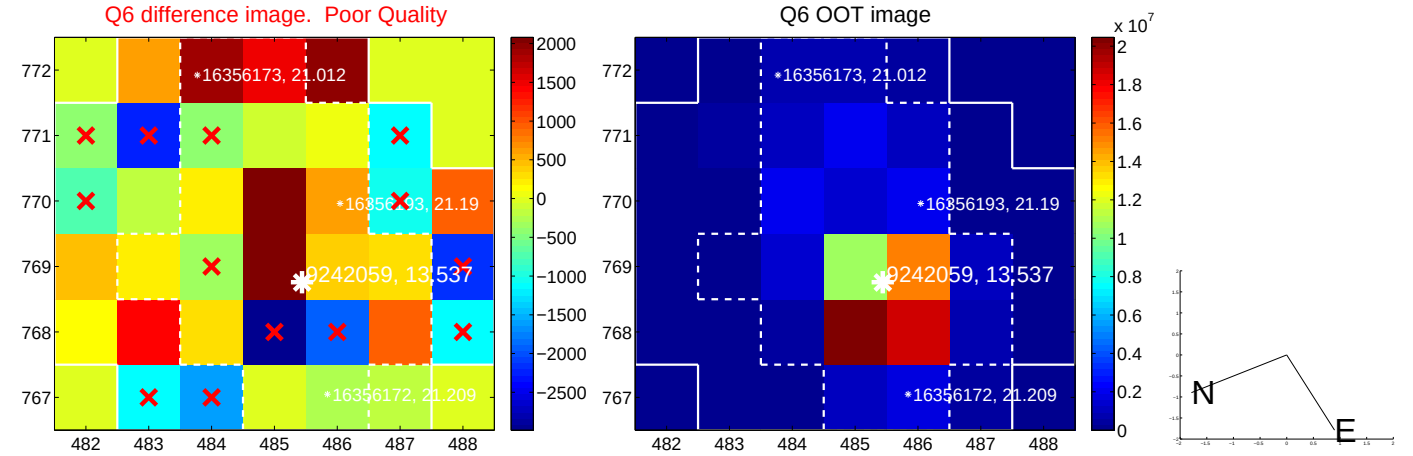


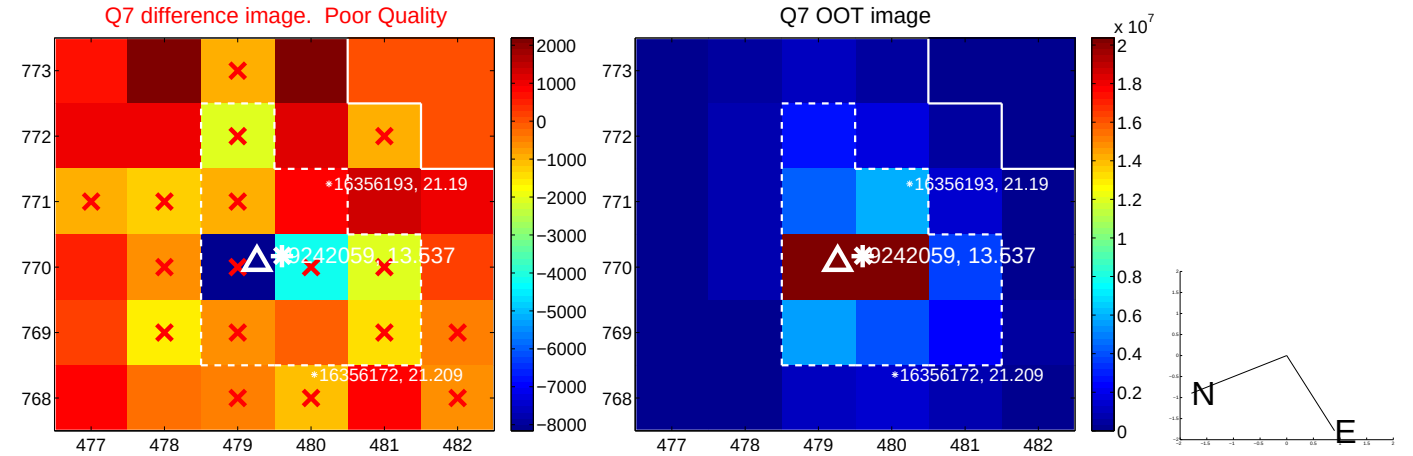


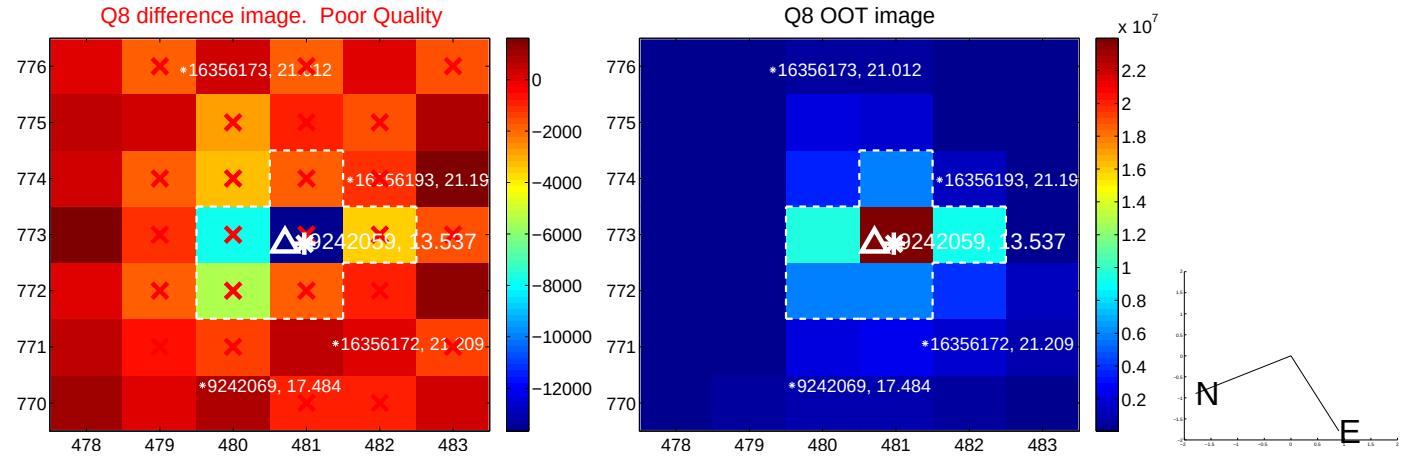


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

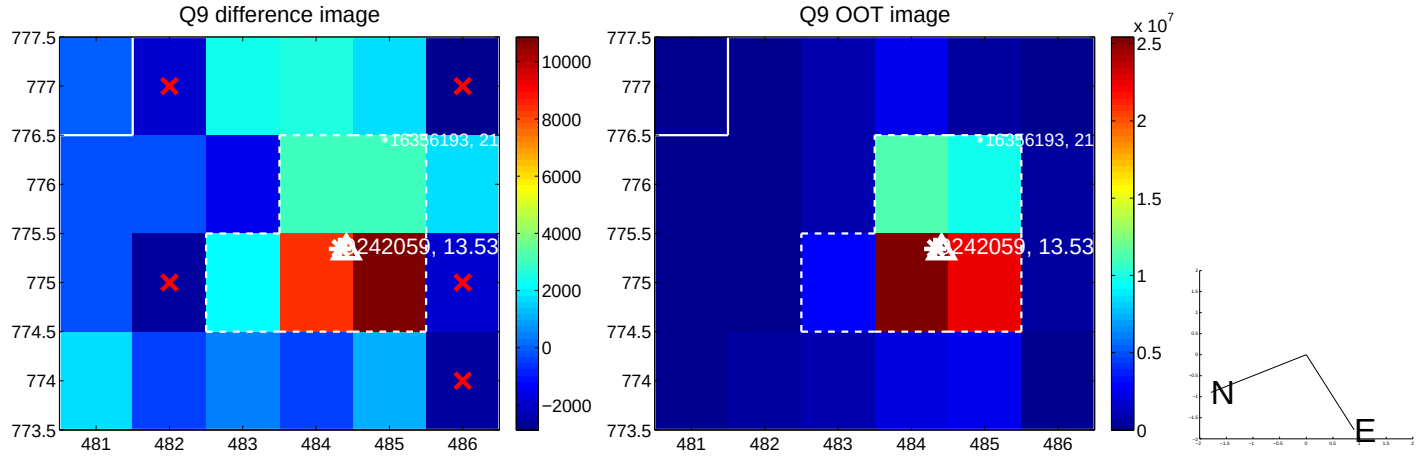


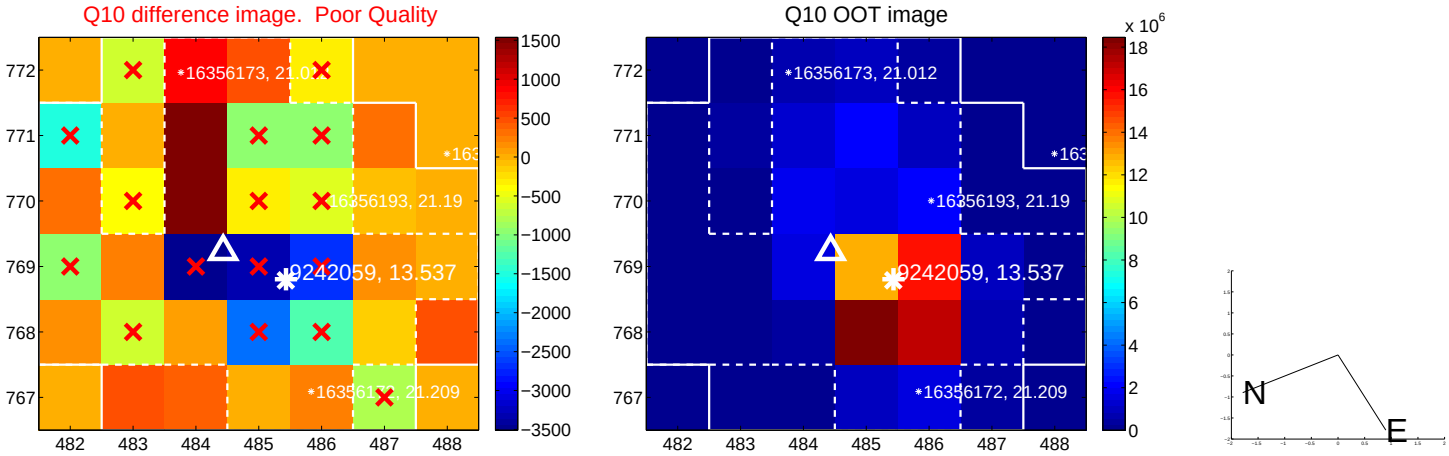


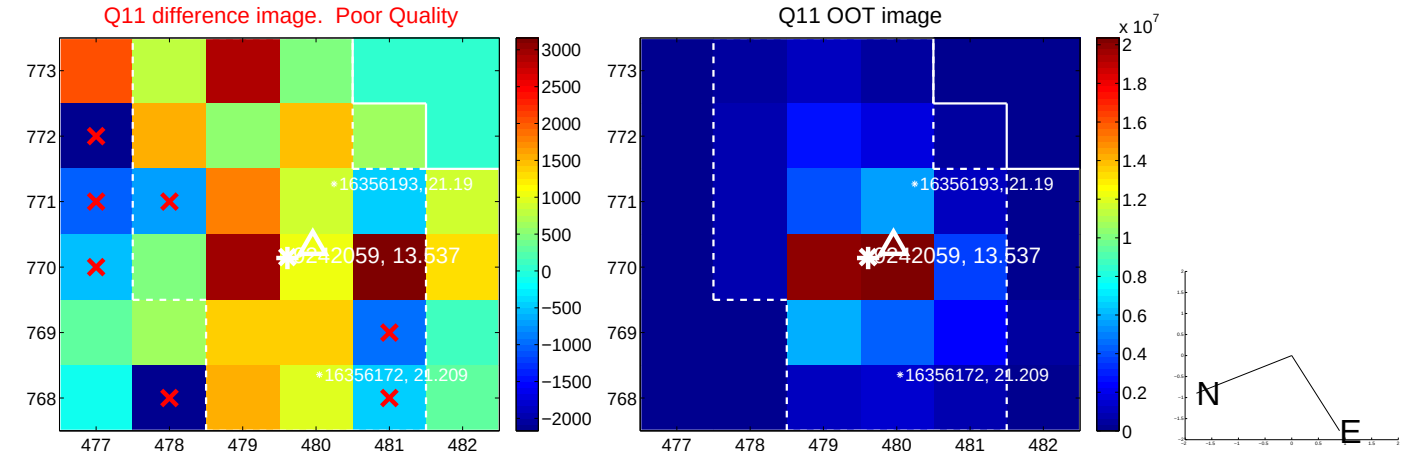


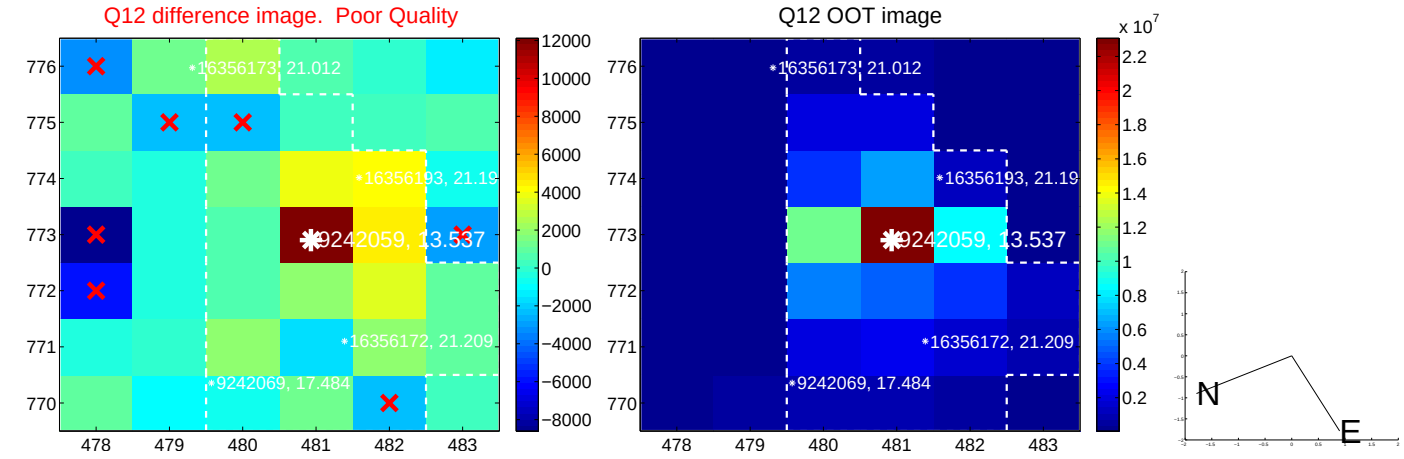


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

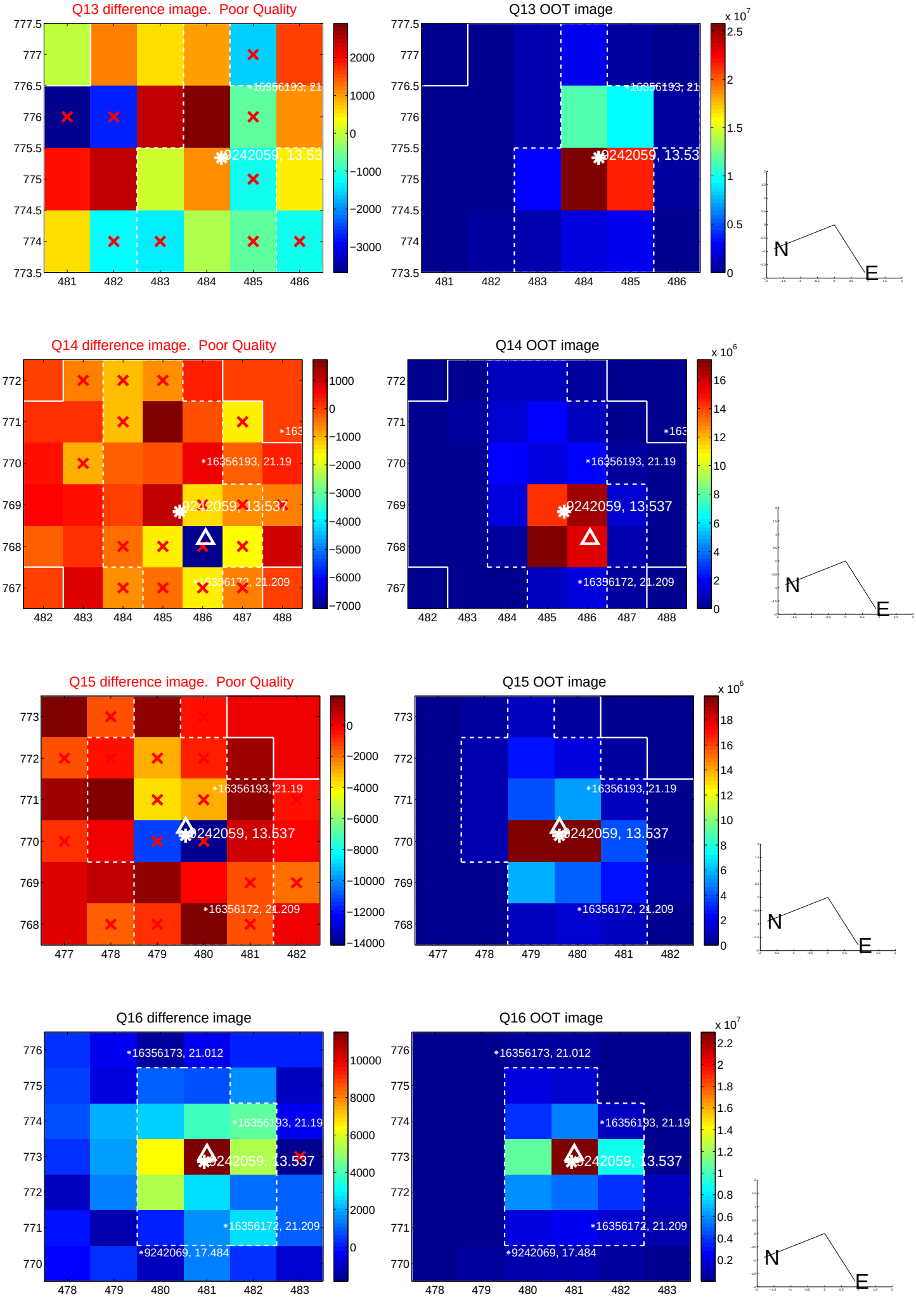




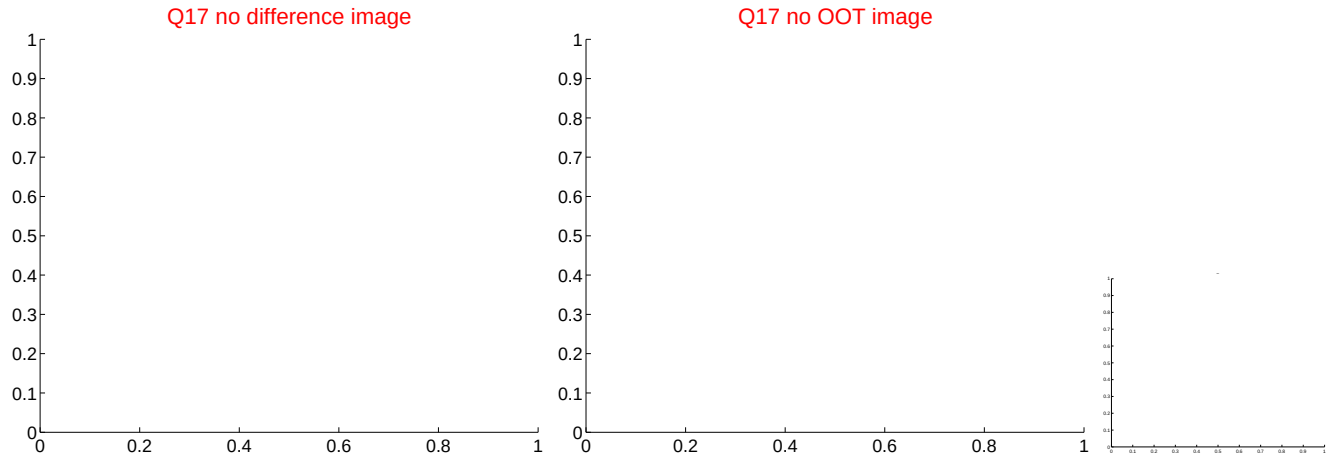


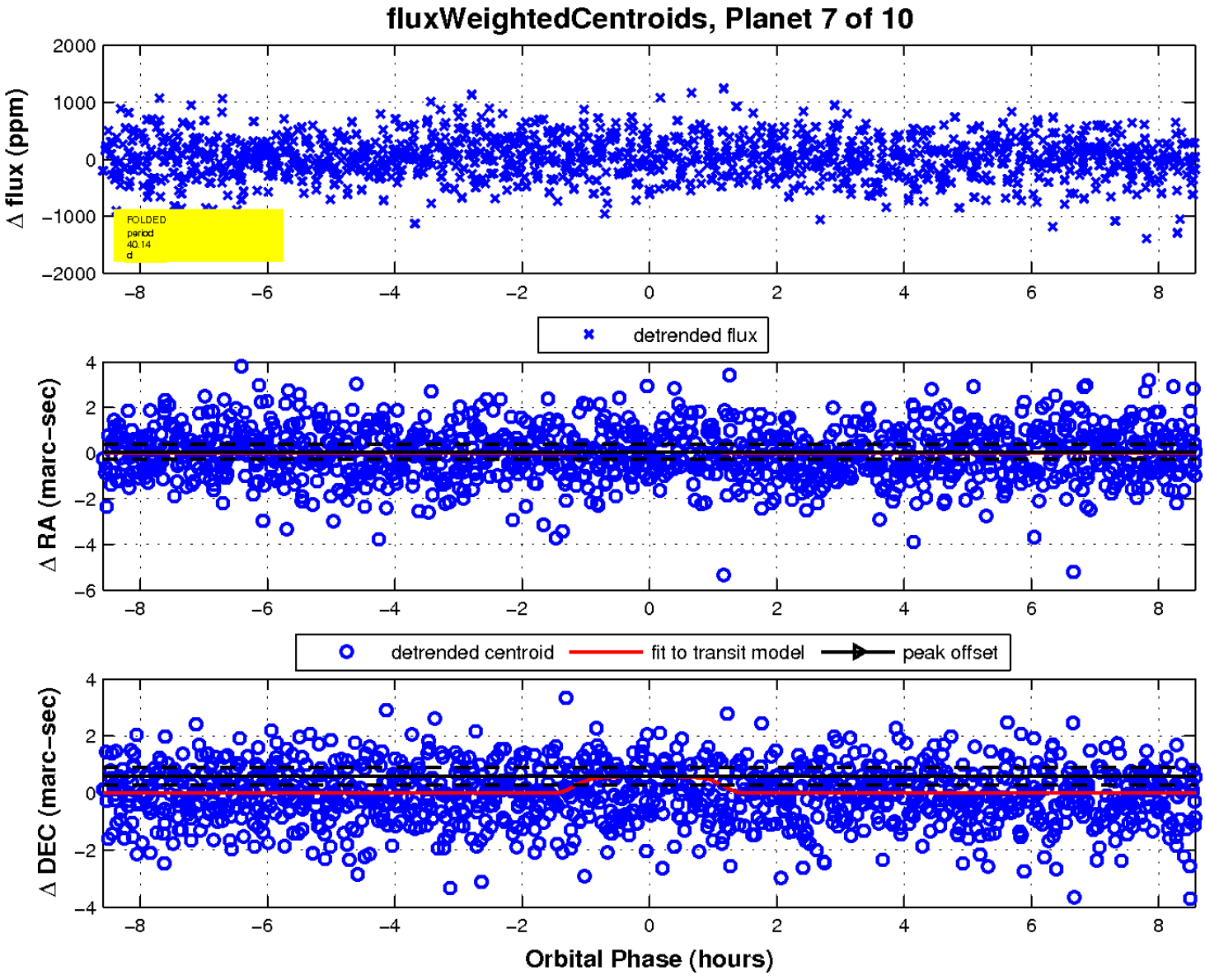


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

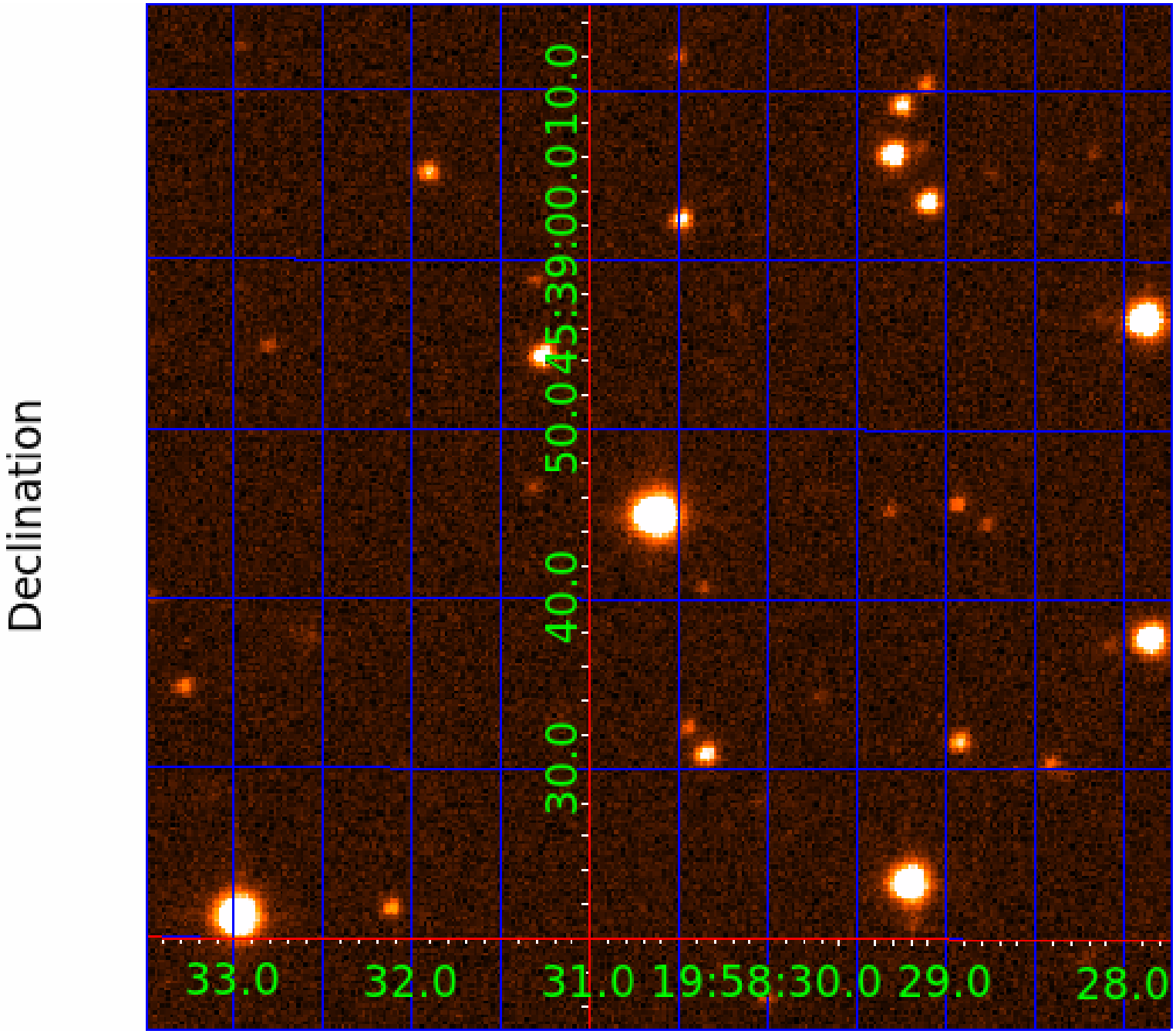


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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40.0
30.0
33.0
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31.0
19:58:30.0
29.0
28.0

KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

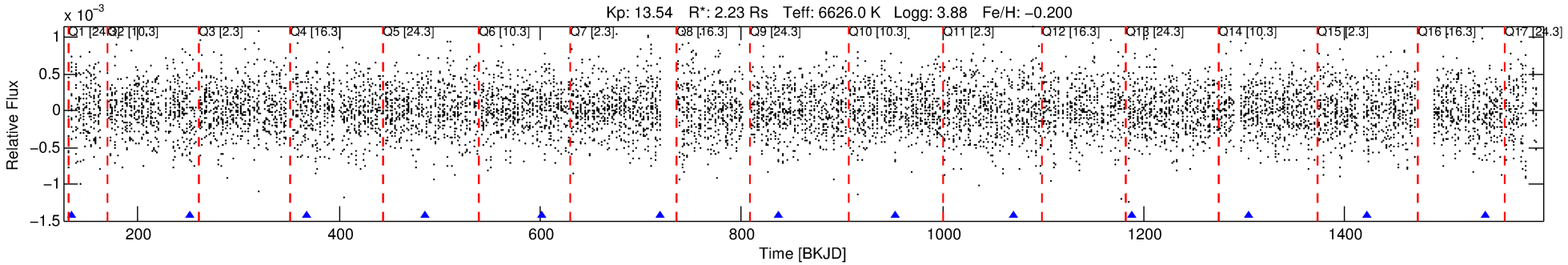
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

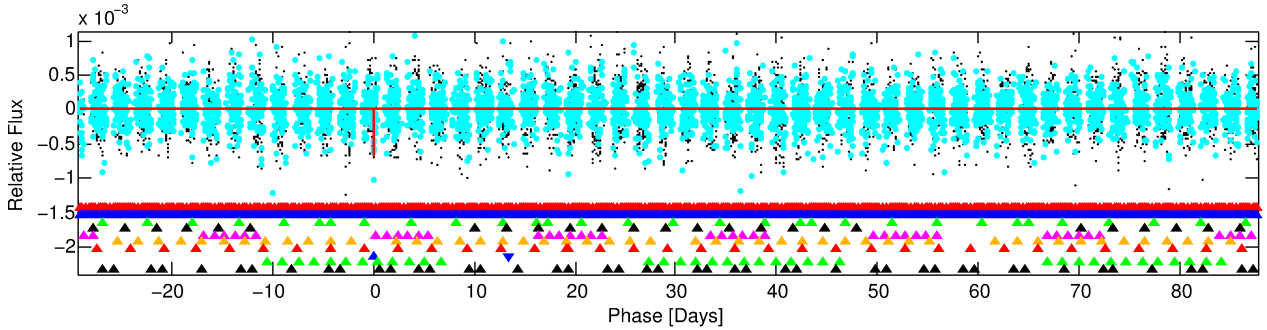
Ephemeris Match Information For 009242059-08

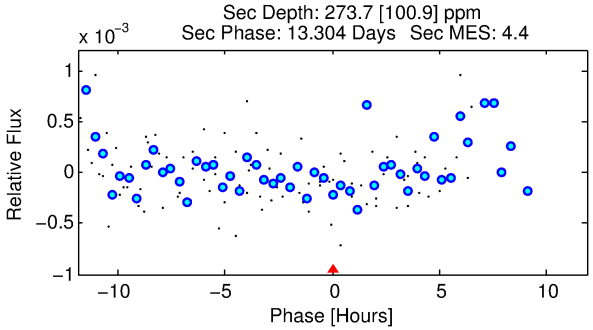
No Significant Match Found

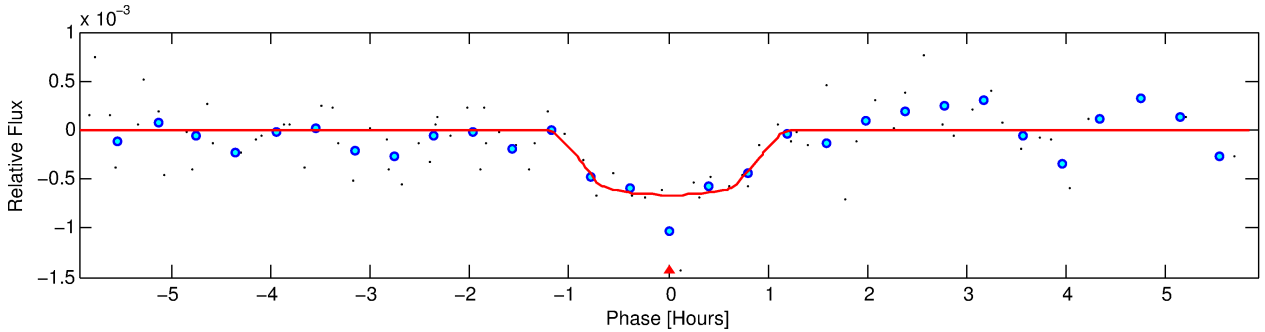
DV One-Page Summary

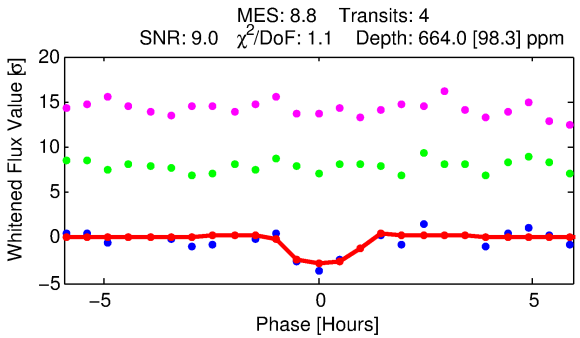
KIC: 9242059 Candidate: 8 of 10 Period: 117.066 d

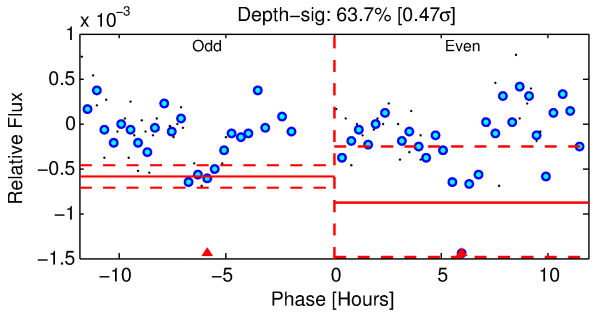


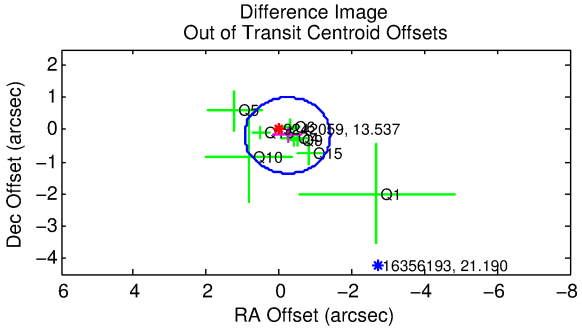












DV Fit Results:

Period = 117.06621 [0.00097] d
Epoch = 134.1634 [0.0087] BKJD
Rp/R* = 0.0255 [0.0377]
a/R* = 325.11 [2687.84]
b = 0.73 [5.28]

Seff = 31.93 [21.97]
Teq = 606 [104] K
Rp = 6.23 [9.58] Re
a = 0.5198 [0.2177] AU

Ag = 1048.55 [3197.71] [0.33σ]
Teffp = 5333 [3970] K [1.19σ]

DV Diagnostic Results:

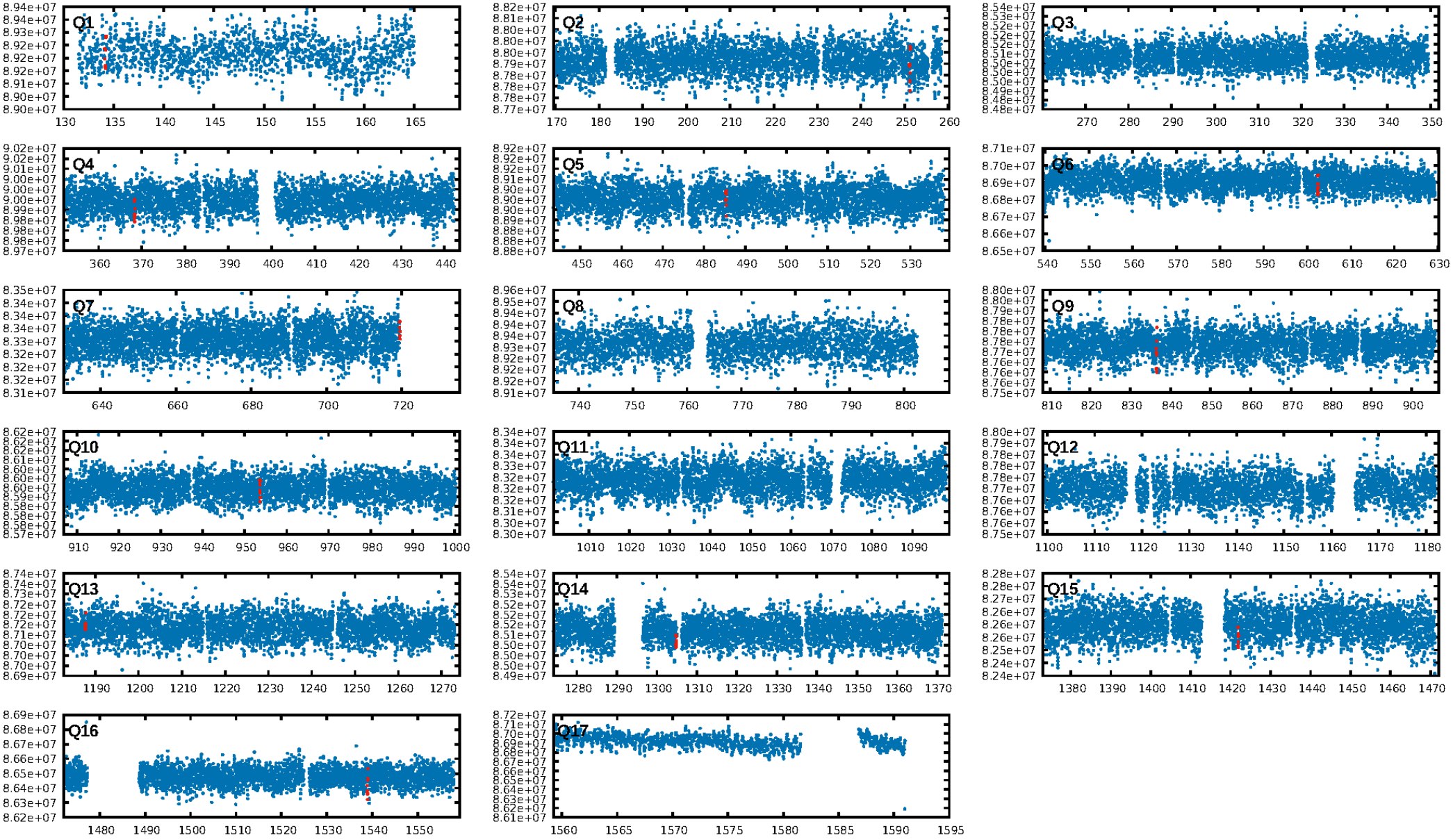
ShortPeriod−sig: 100.0% [491.00σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 39.4%
ModelChiSquareGof−sig: 99.5%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [4/4]
GhostDiagnostic−chr: −3.656

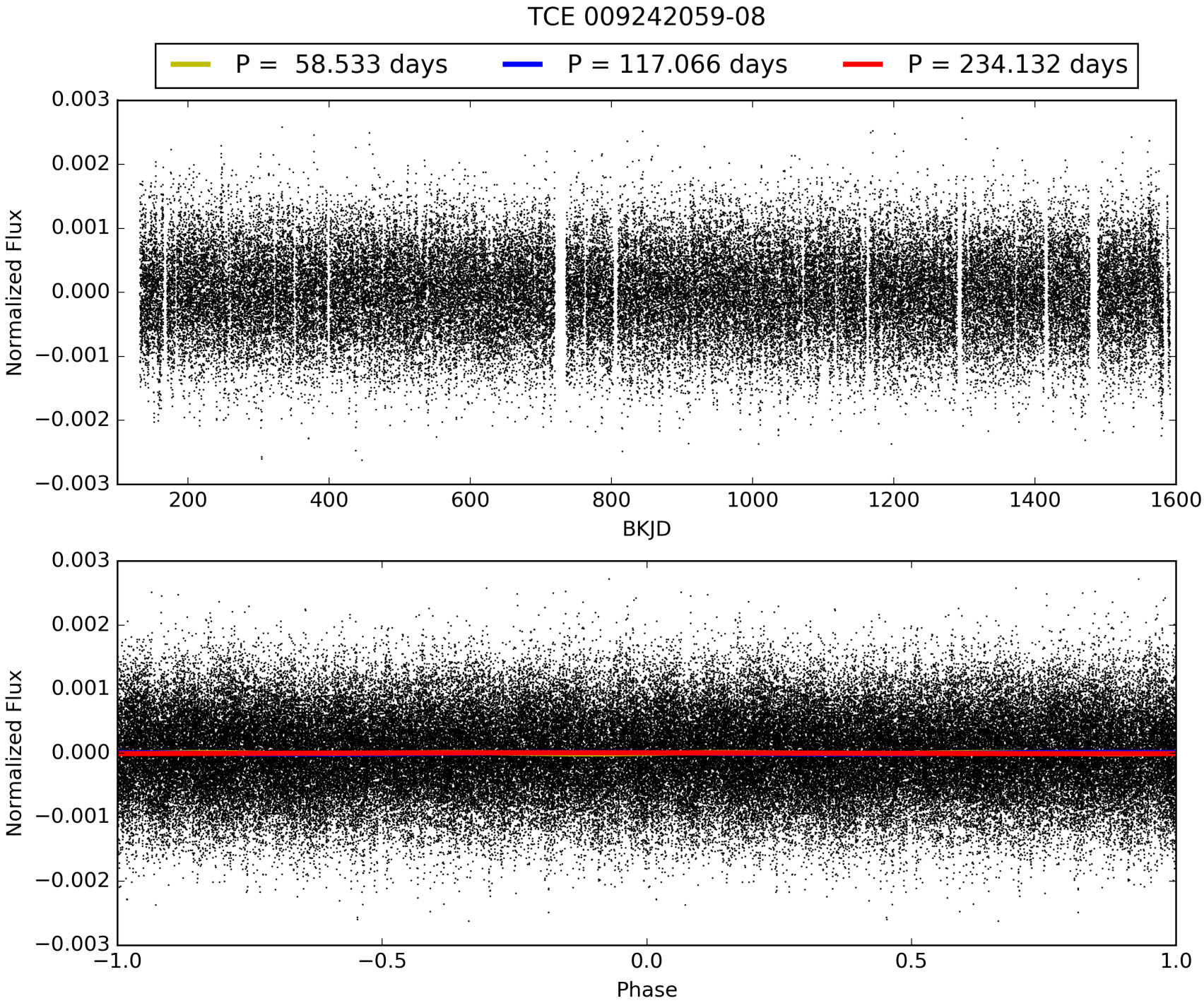
Centroid−sig: 0.6%
Centroid−so: 1.312 arcsec [1.66σ]
OotOffset−rm: 0.293 arcsec [0.74σ]
KicOffset−rm: 0.292 arcsec [0.56σ]
OotOffset−st: 2/1/2/3 [8]
KicOffset−st: 2/1/2/3 [8]
DiffImageQuality−fgm: 0.88 [7/8]
DiffImageOverlap−fno: 0.44 [4/9]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:53:13 Z

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

TCE 009242059-08, PDC Light Curves




TCE 009242059-08
P = 58.533 days
P = 117.066 days
P = 234.132 days
Normalized Flux
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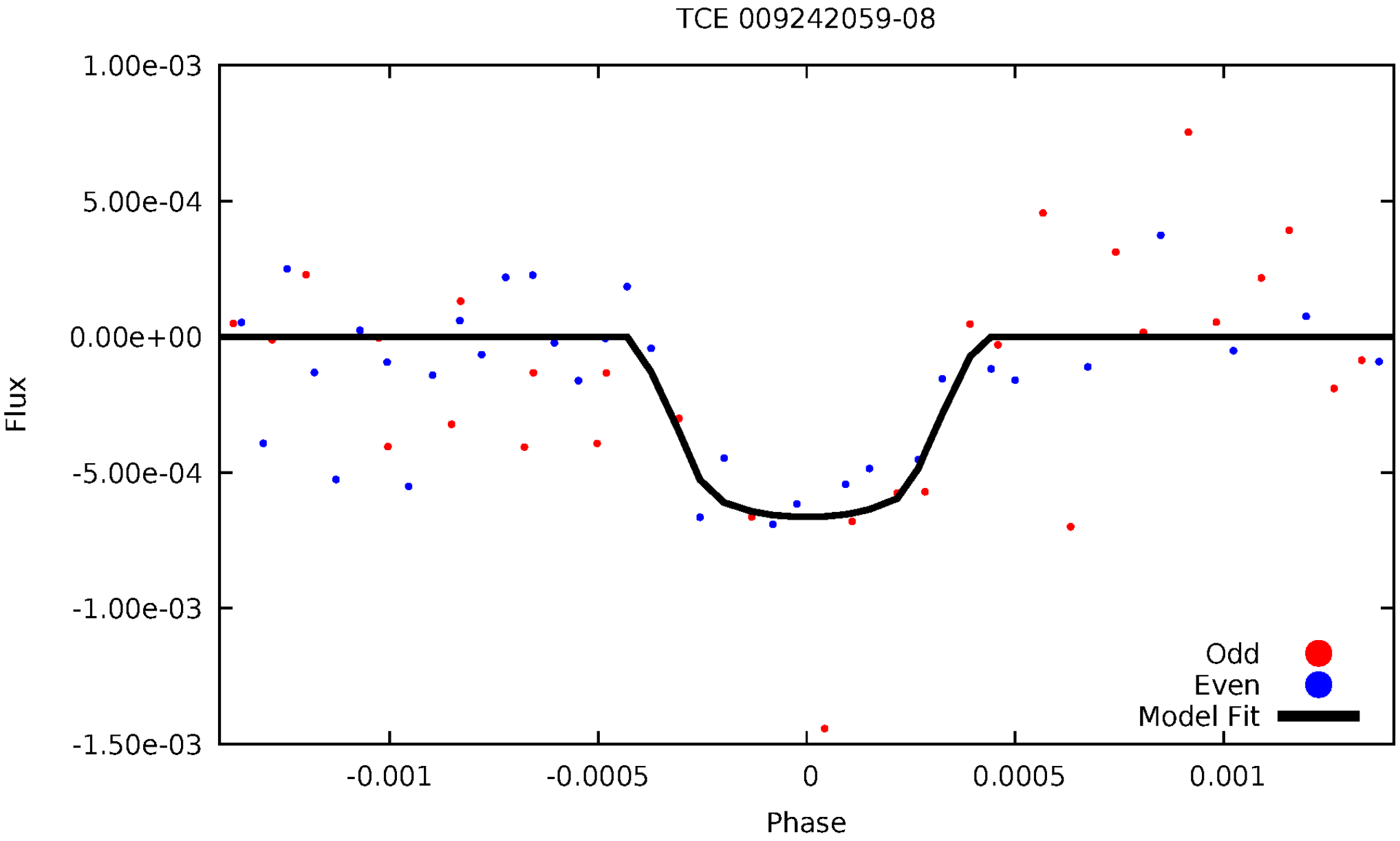
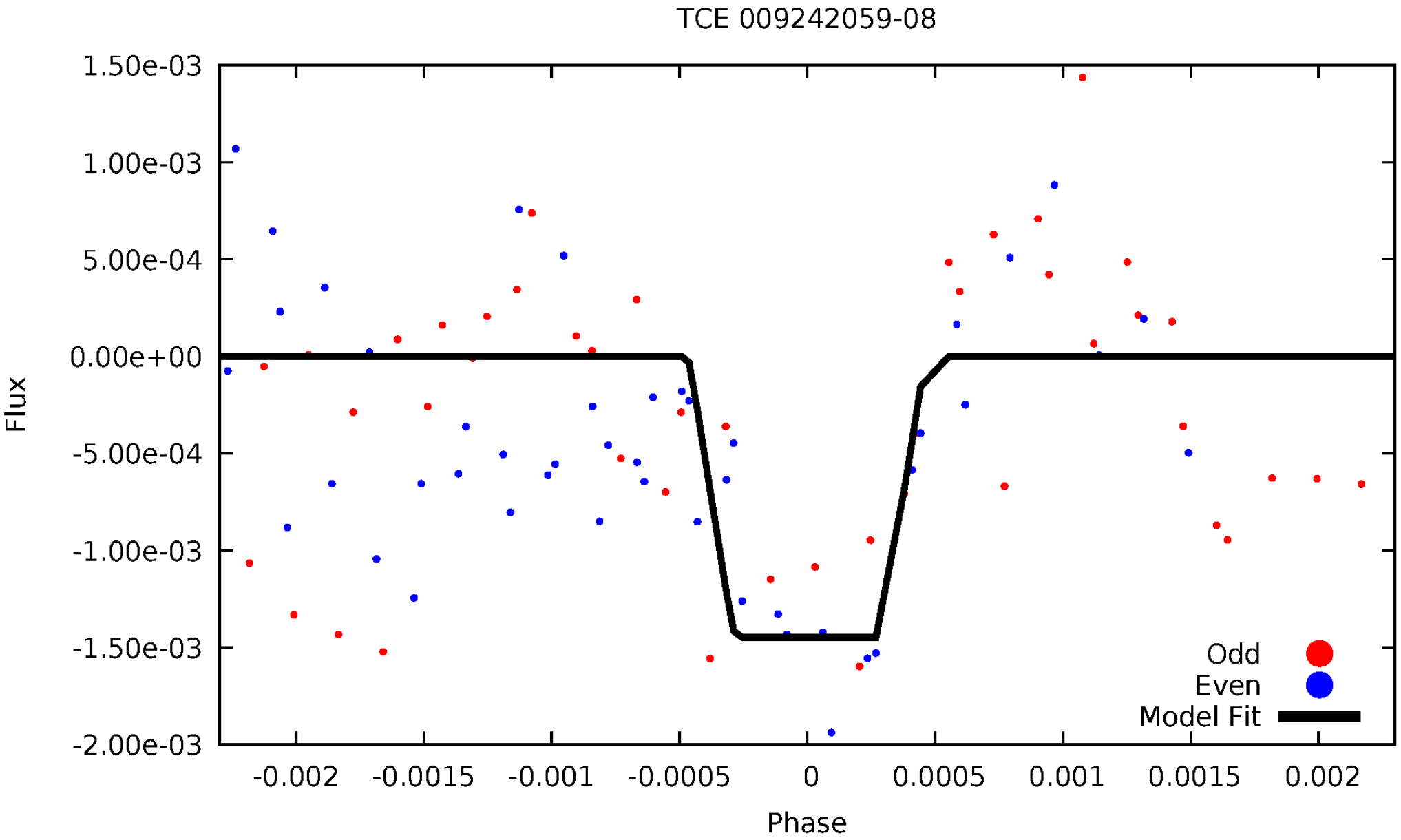
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even


TCE 009242059-08
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009242059-08
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
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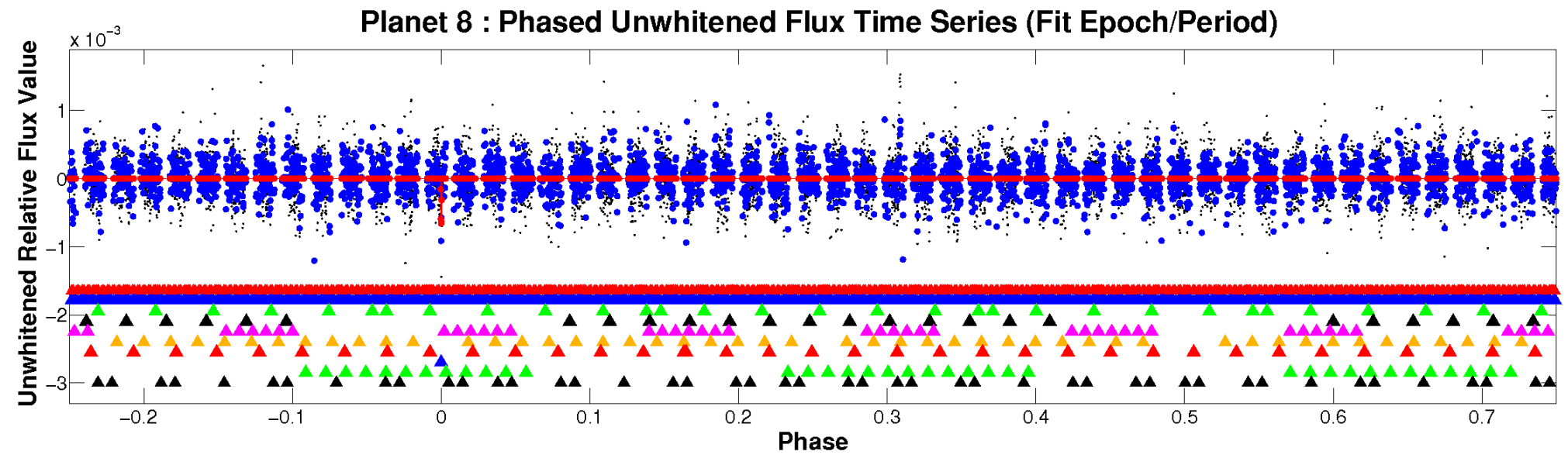
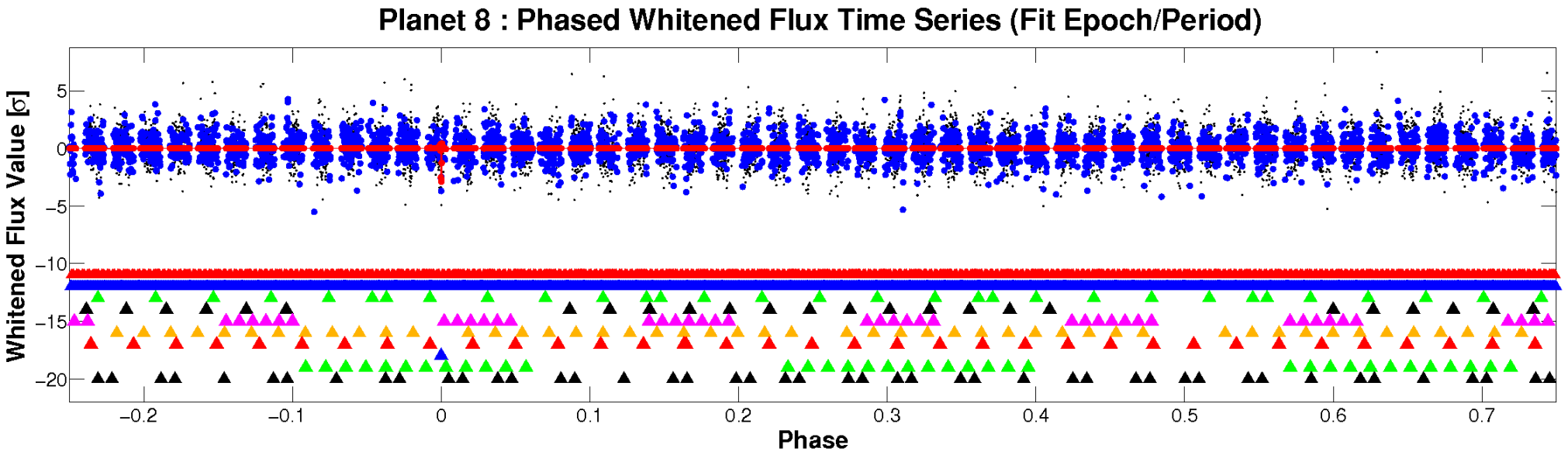
-2.00e-03
Flux
-0.002
-0.0015
-0.001
-0.0005
0
0.0005
0.001
0.0015
0.002
Phase
Odd
Even
Model Fit

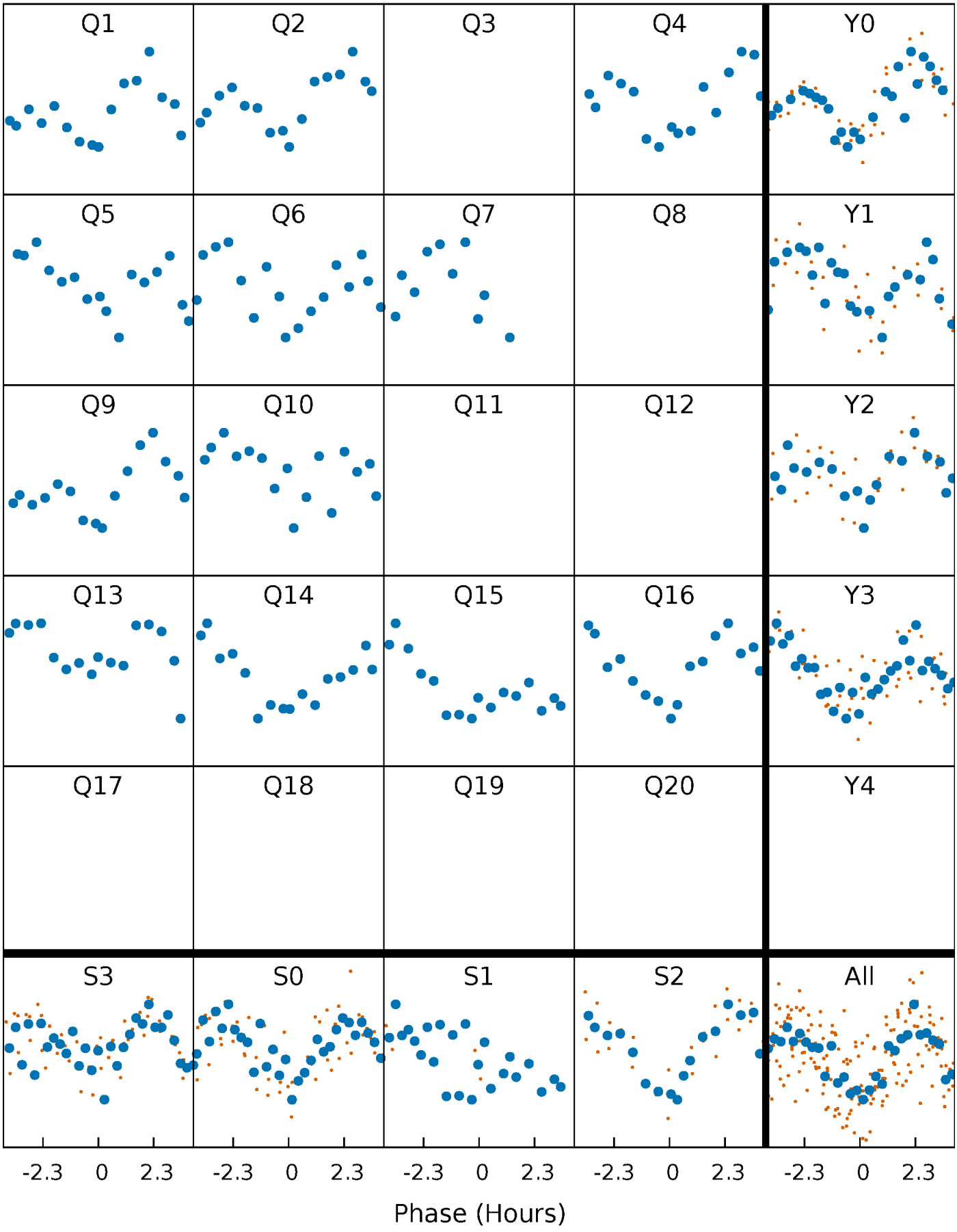
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009242059-08 P=117.066211 Days T_0=134.163356 (BKJD)



DV Quarter-Phased Transit Curves

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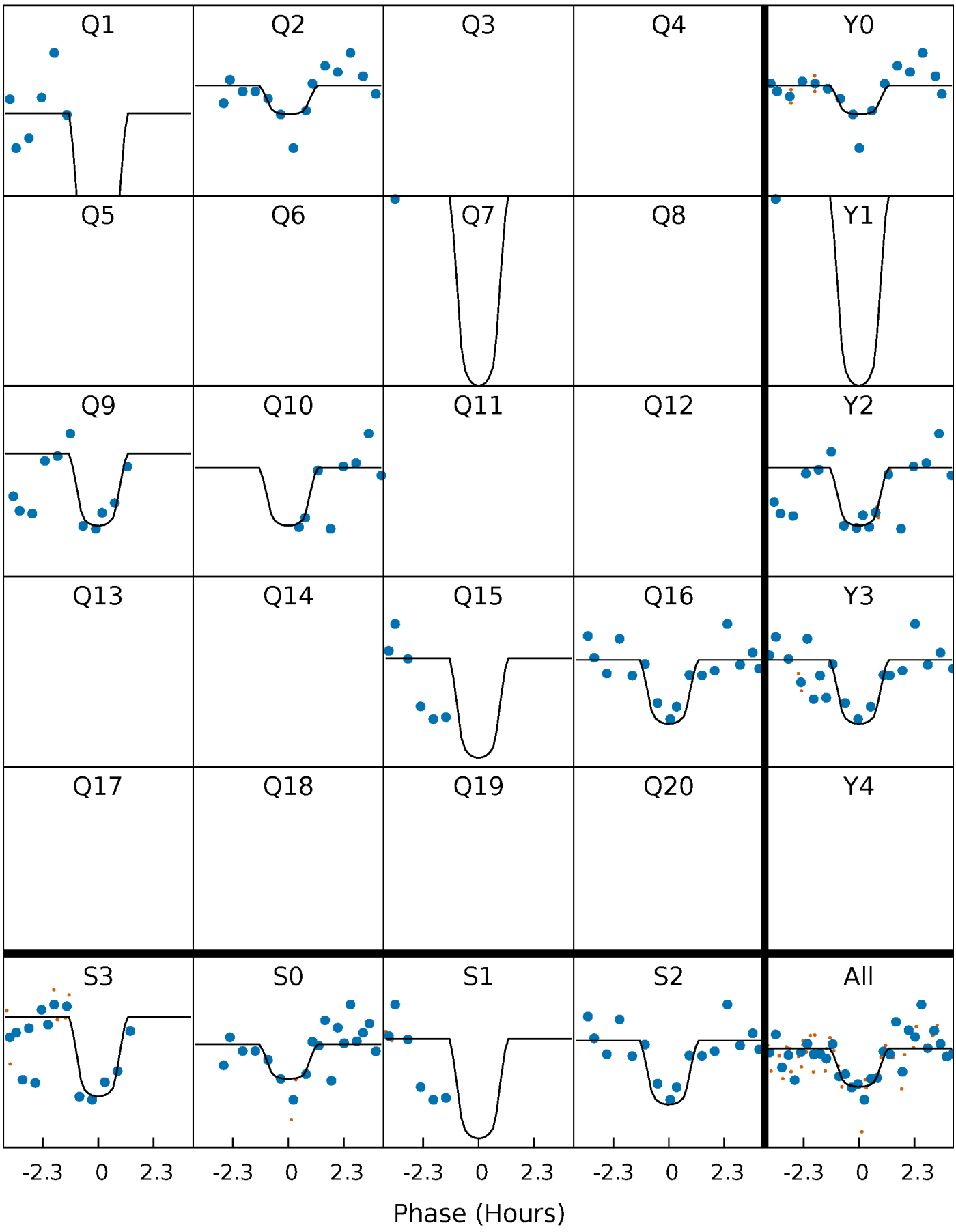
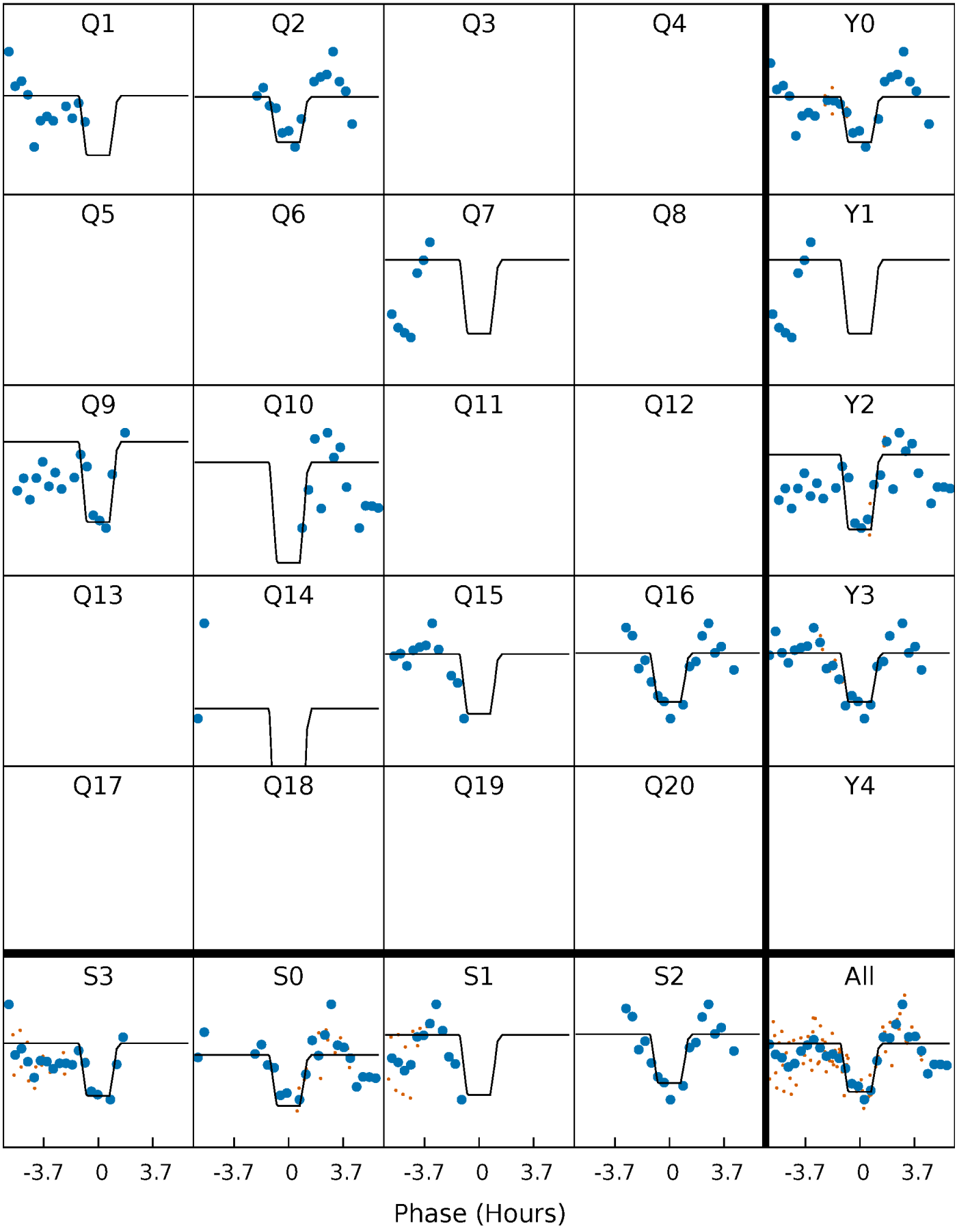


Alt. Detrend Quarter-Phased Transit Curves

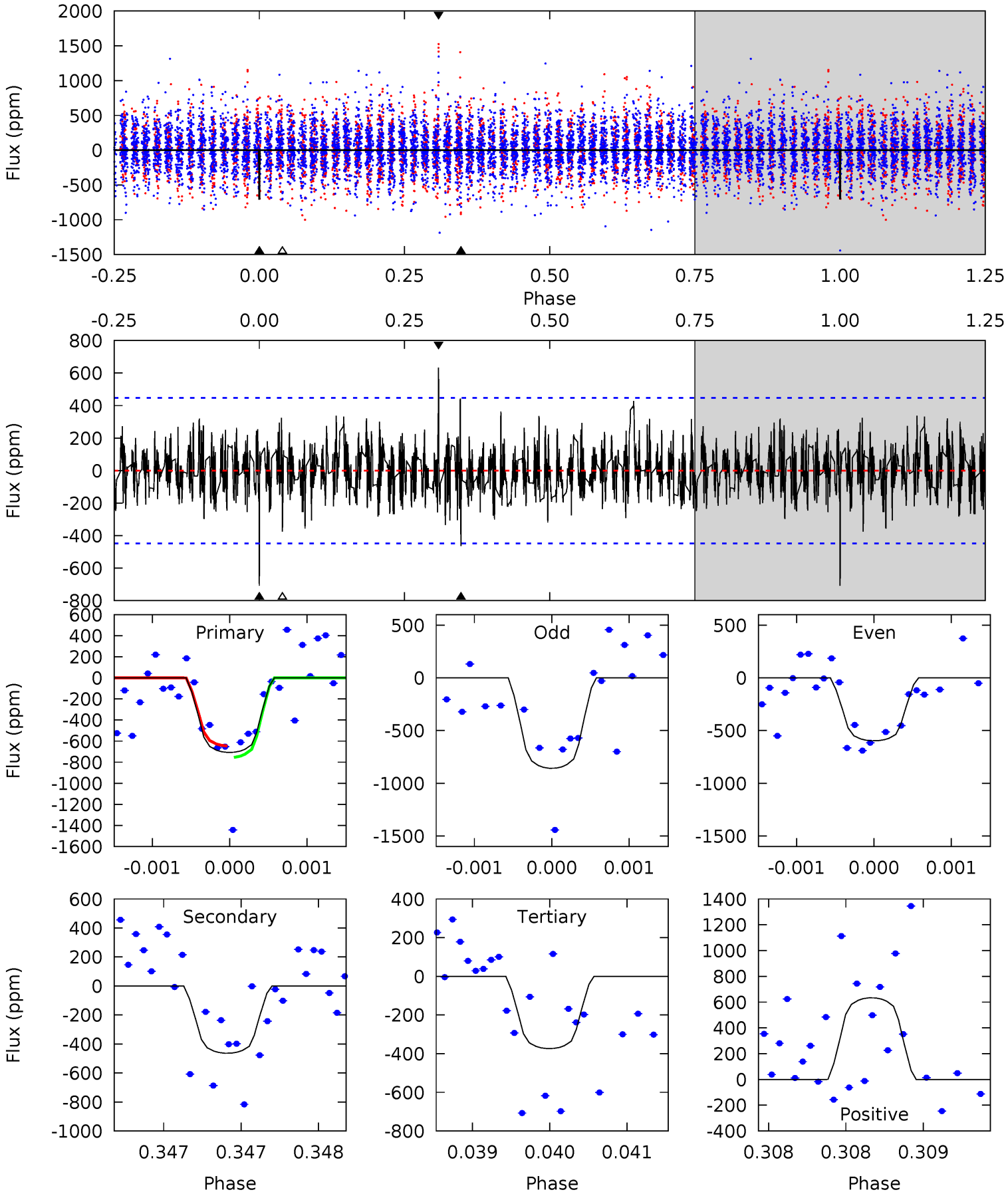
TCE 009242059-08 P=117.066676 Days T_0=134.143909 (BKJD)



DV Model-Shift Uniqueness Test

009242059-08, P = 117.066211 Days, E = 17.097145 Days

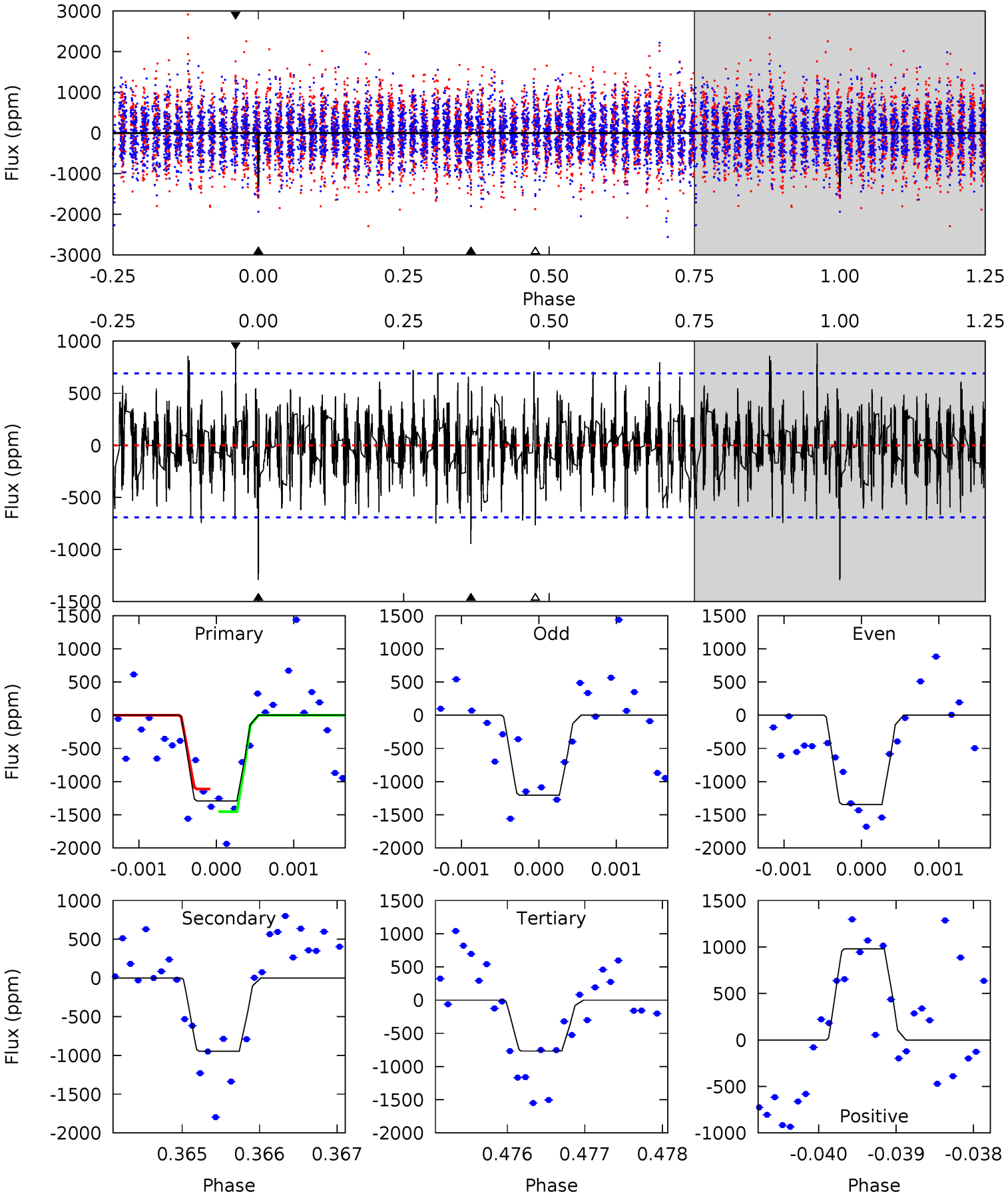
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.69	5.70	4.59	7.78	5.50	3.37	1.46	4.10	0.91	1.10	-2.09	1.58	1.00	0.47	0.66



Alt Model-Shift Uniqueness Test

009242059-08, P = 117.066676 Days, E = 17.077233 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	7.47	6.05	7.73	5.45	3.29	2.01	4.14	2.47	1.42	-0.26	0.54	1.04	0.43	1.33



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-08 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-464±81	$8.42^{+8.08}_{-5.60}$	831^{+60}_{-90}	5075^{+3945}_{-1126}	949^{+7468}_{-698}
Alt.	-947±127	$10.08^{+8.59}_{-6.21}$	827^{+68}_{-90}	5418^{+3844}_{-1102}	1344^{+8029}_{-942}

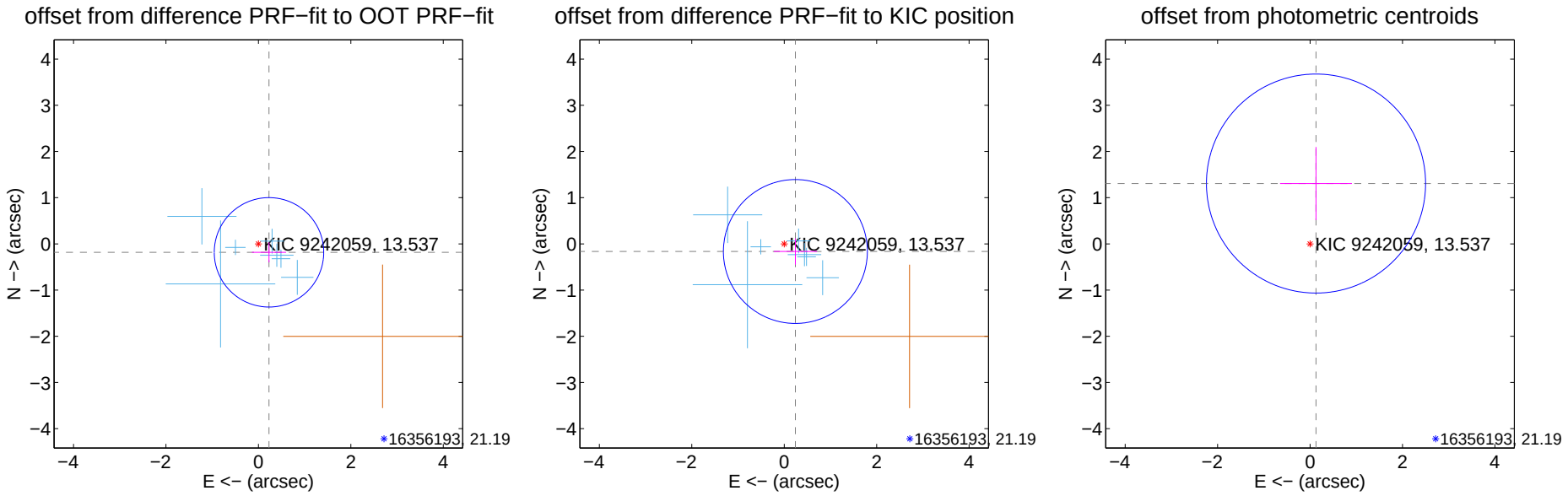
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

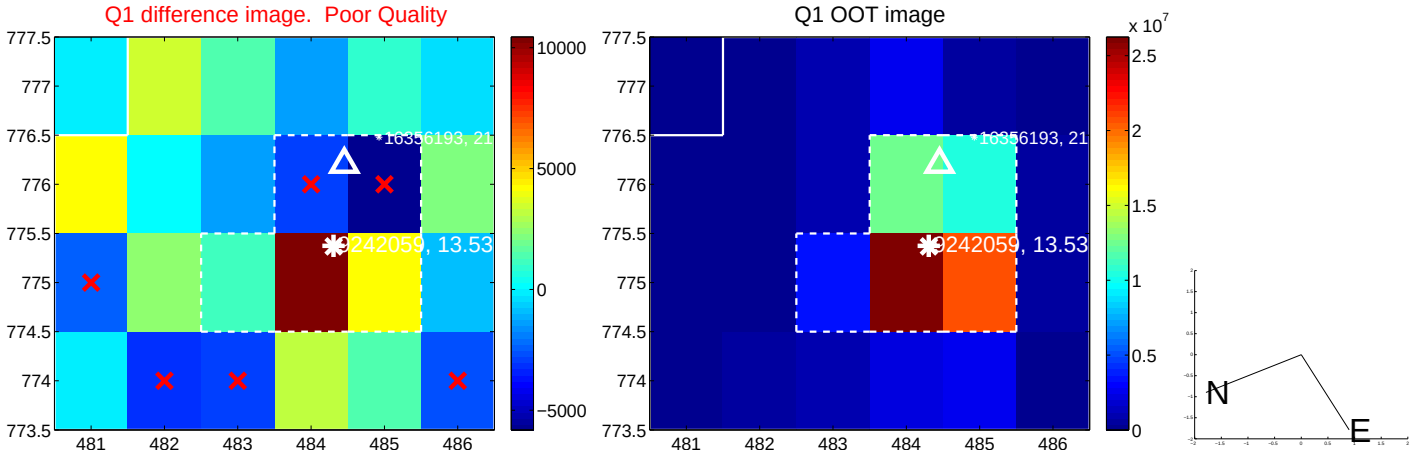
Supplemental centroid analysis for 009242059-08. Kepler magnitude: 13.54. Transit SNR 9.01
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

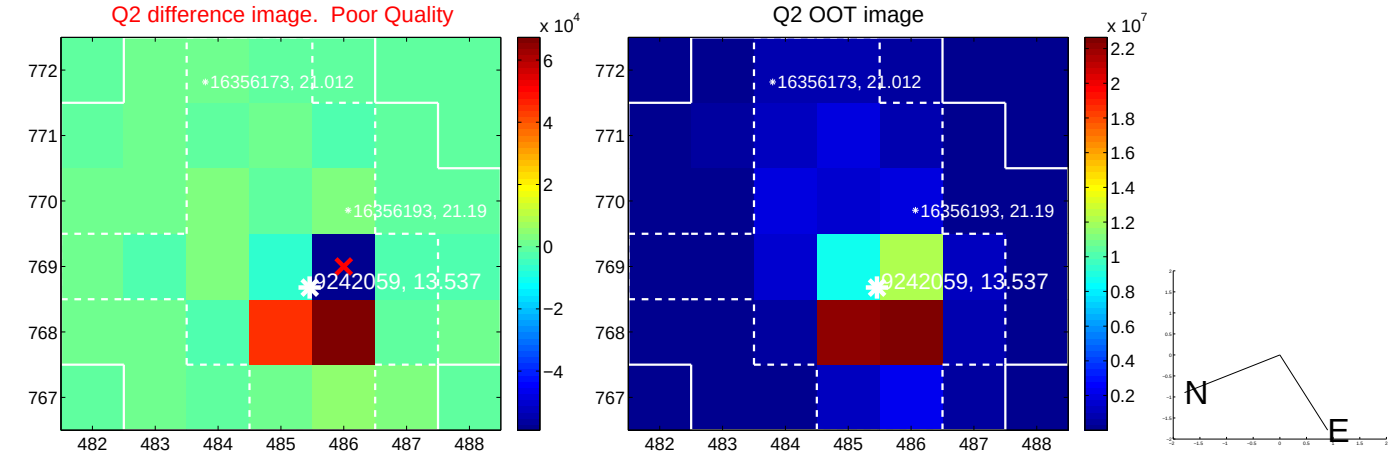
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.293 $\pm$ 0.395	0.74	-0.229 $\pm$ 0.369	-0.183 $\pm$ 0.215
PRF-fit source offset from KIC position	0.292 $\pm$ 0.519	0.56	-0.241 $\pm$ 0.467	-0.165 $\pm$ 0.285
photometric centroid source offset	1.31 $\pm$ 0.79	1.66	-0.13 $\pm$ 0.78	1.31 $\pm$ 0.79

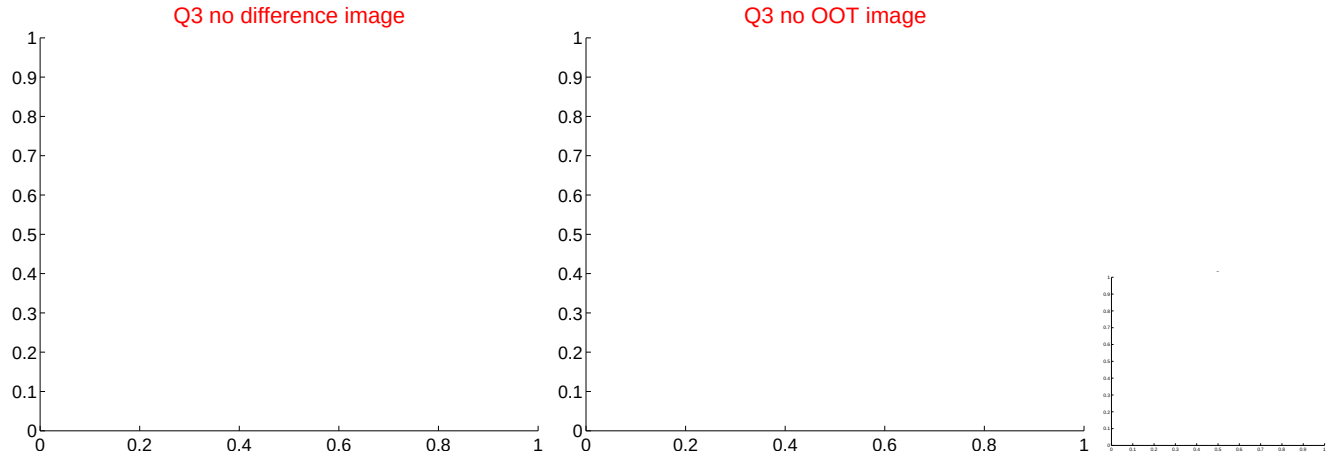


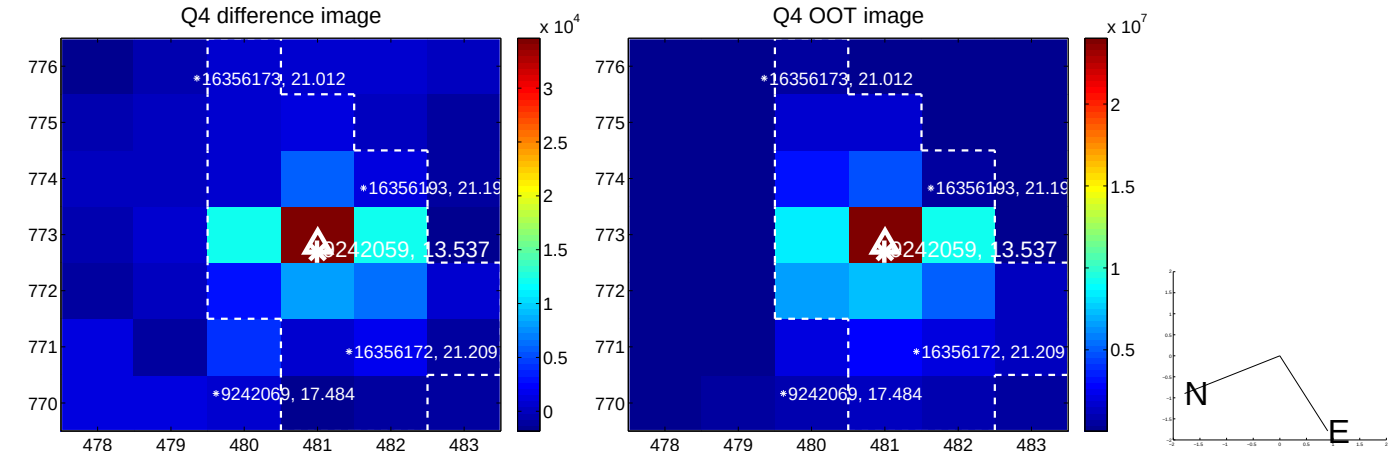
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

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

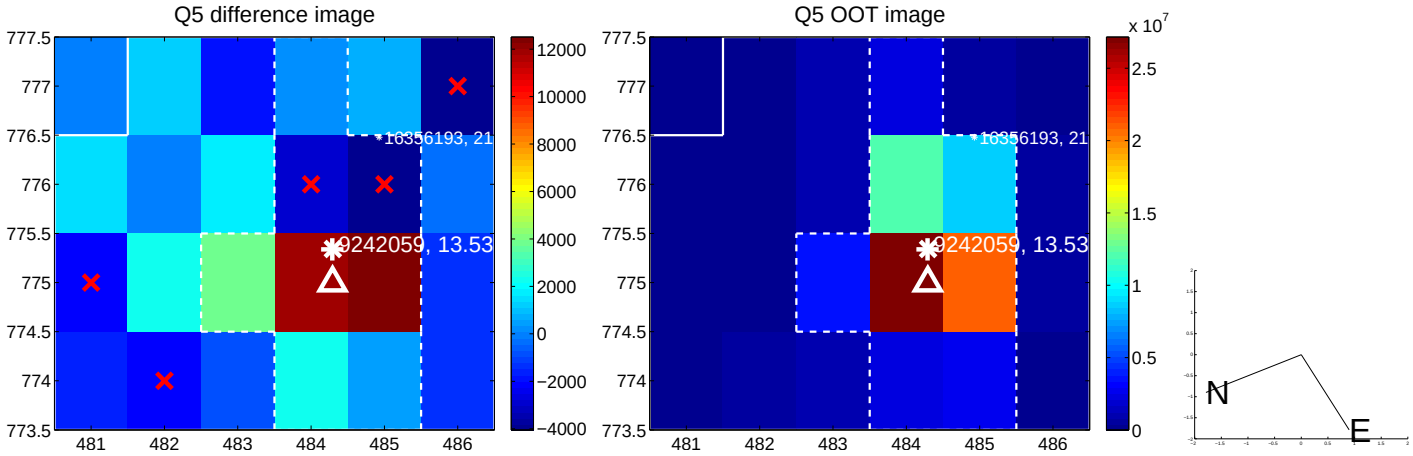


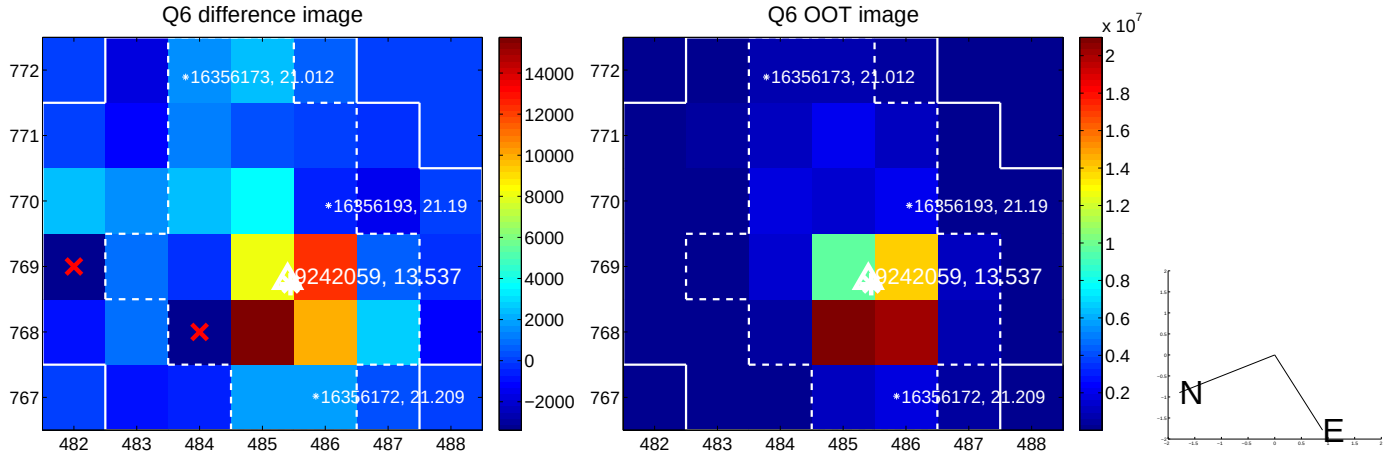


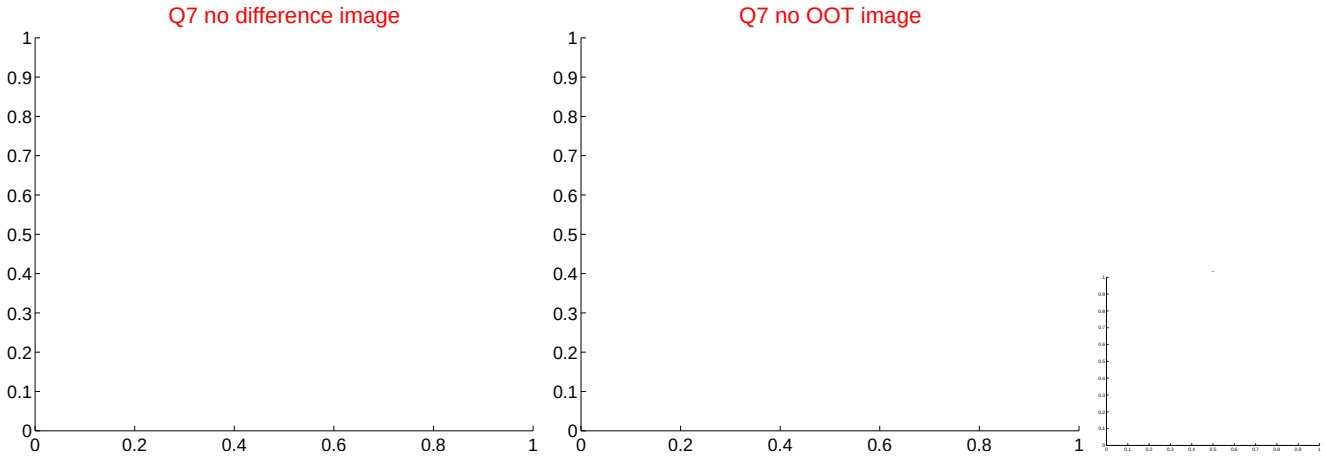


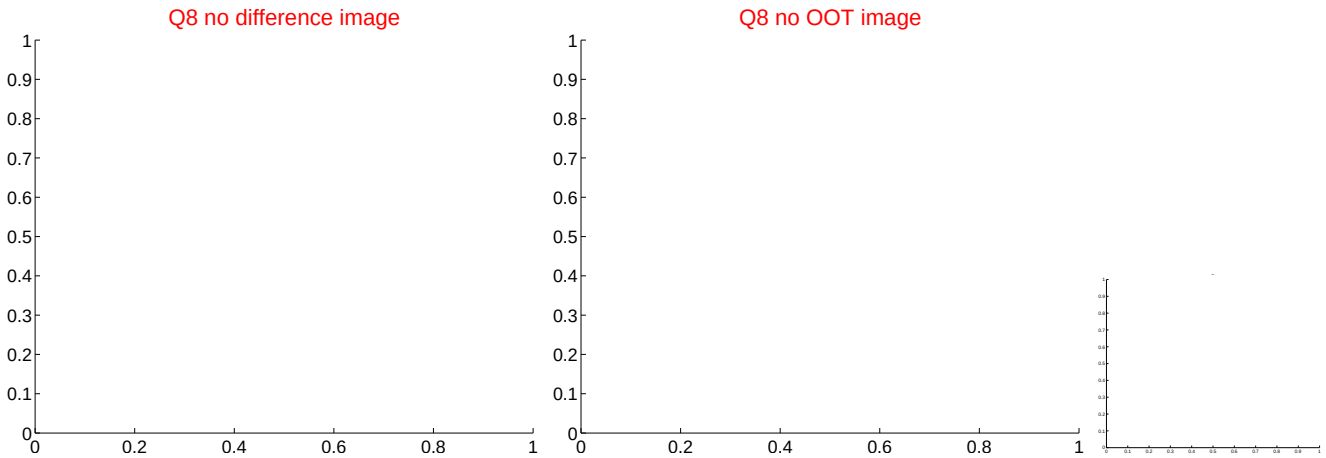


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

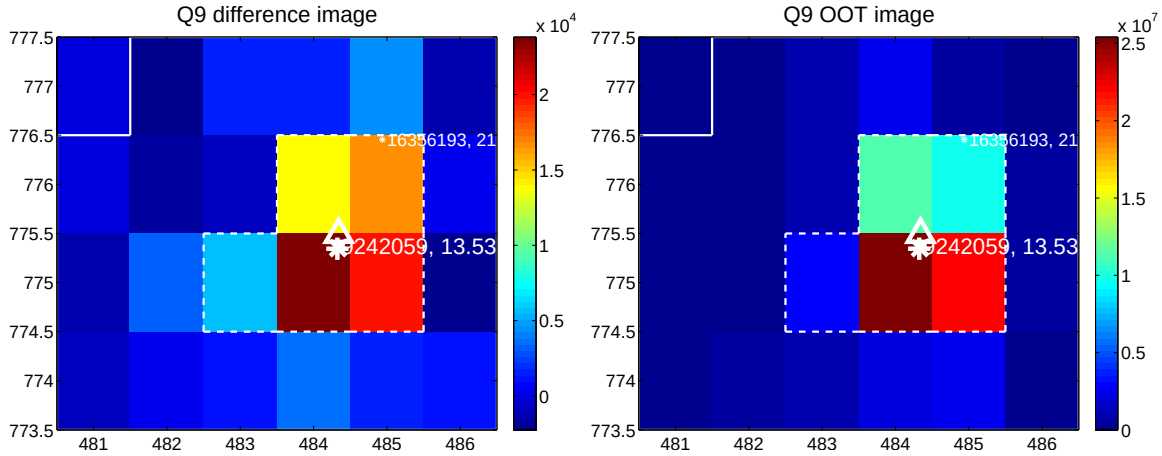


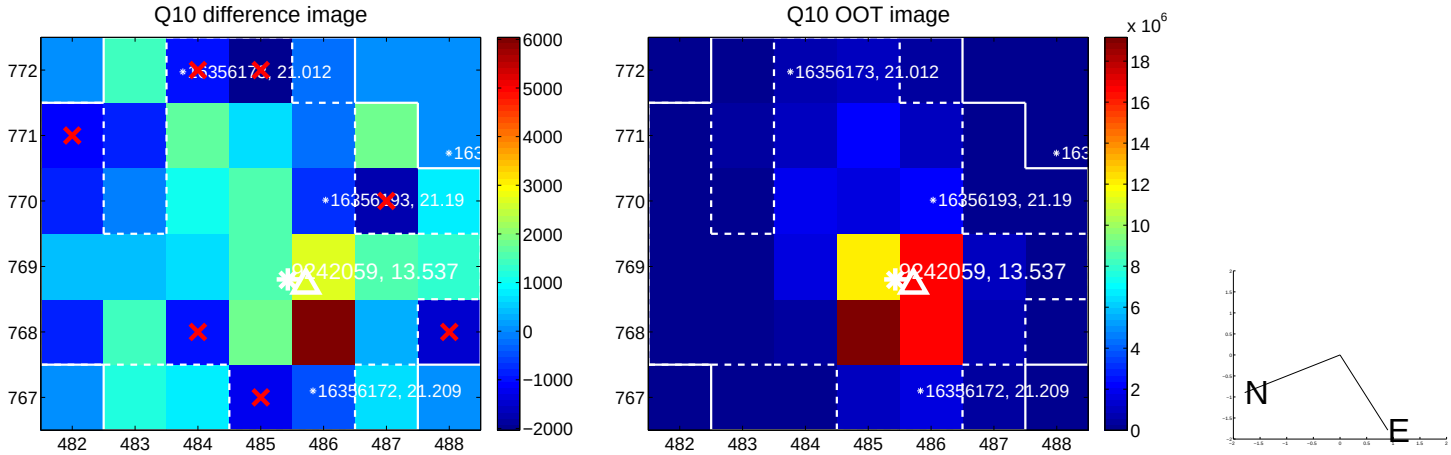


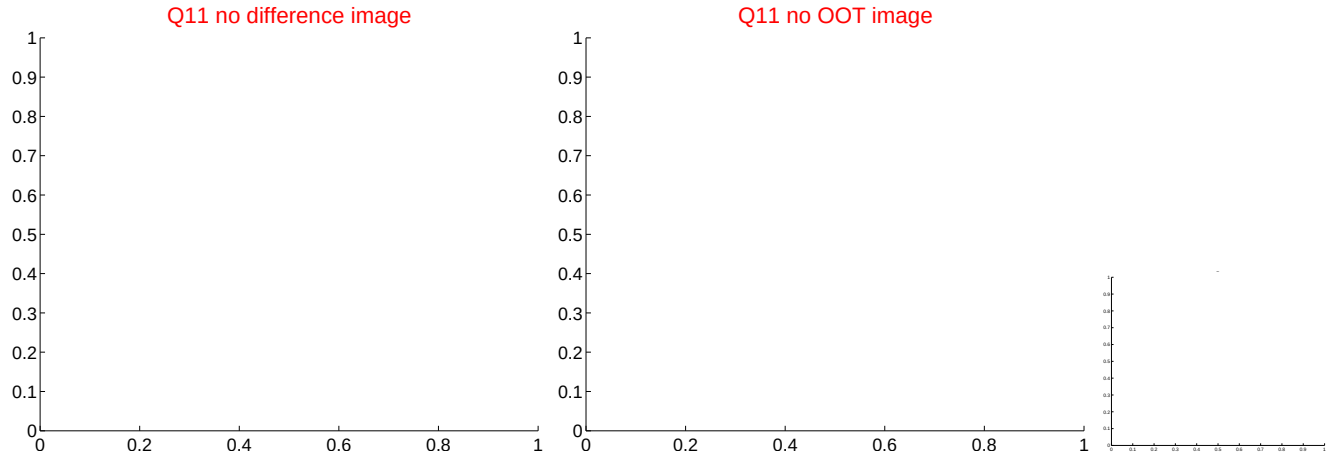


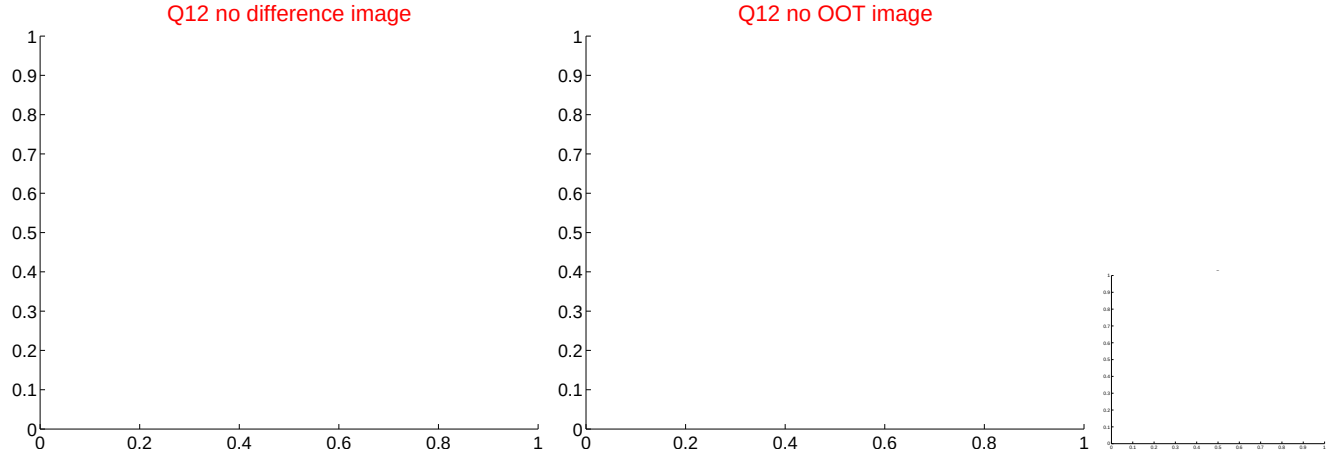


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

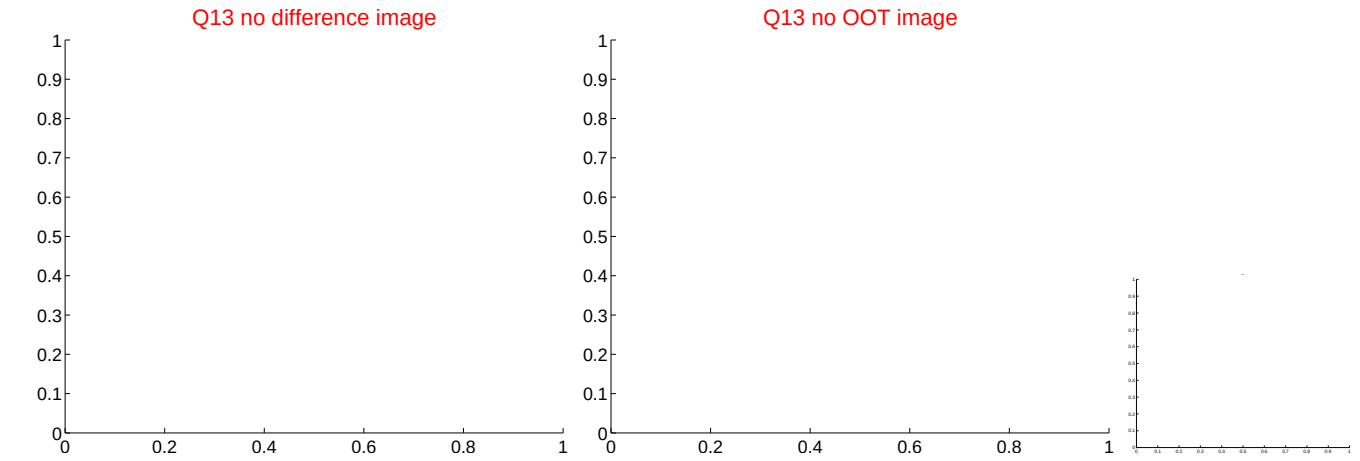


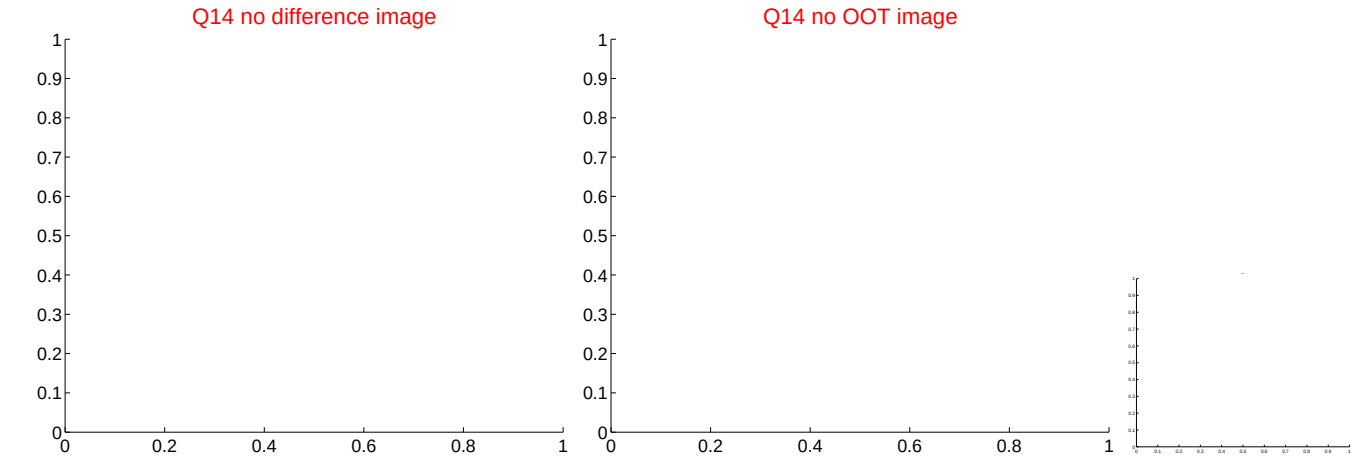


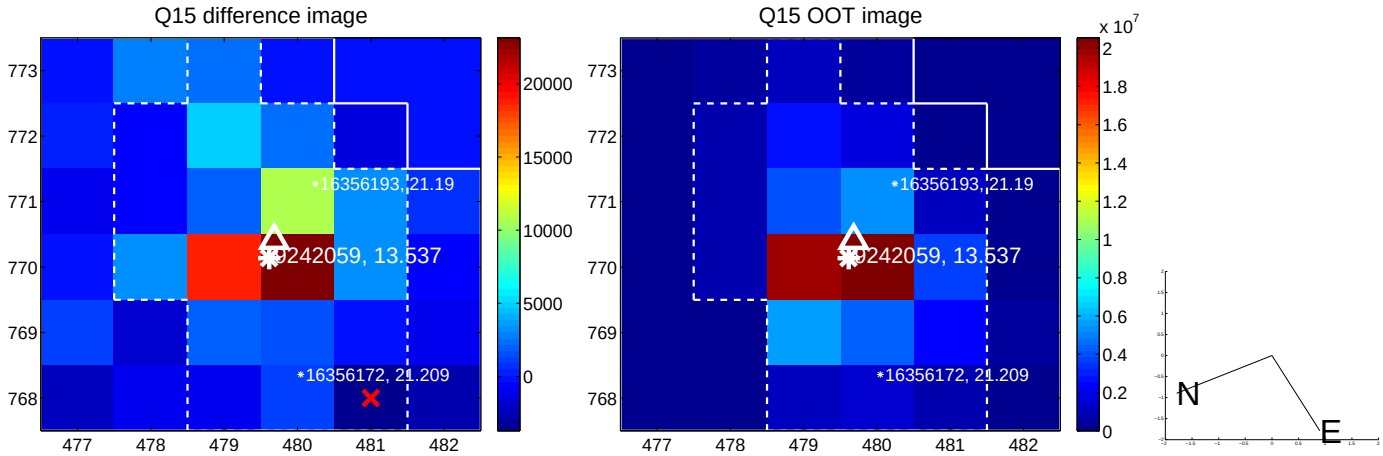


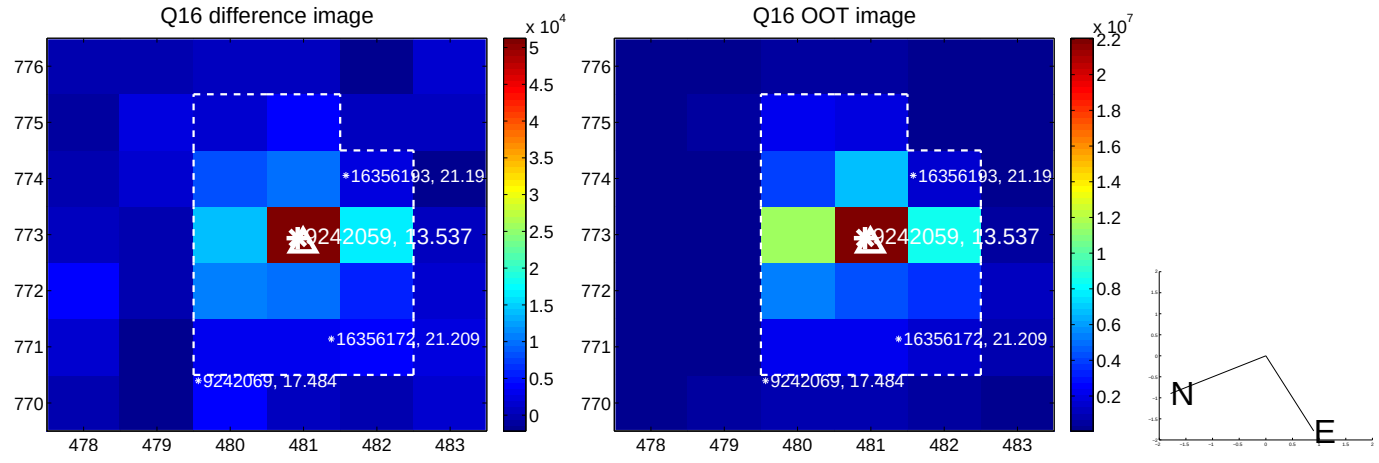


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

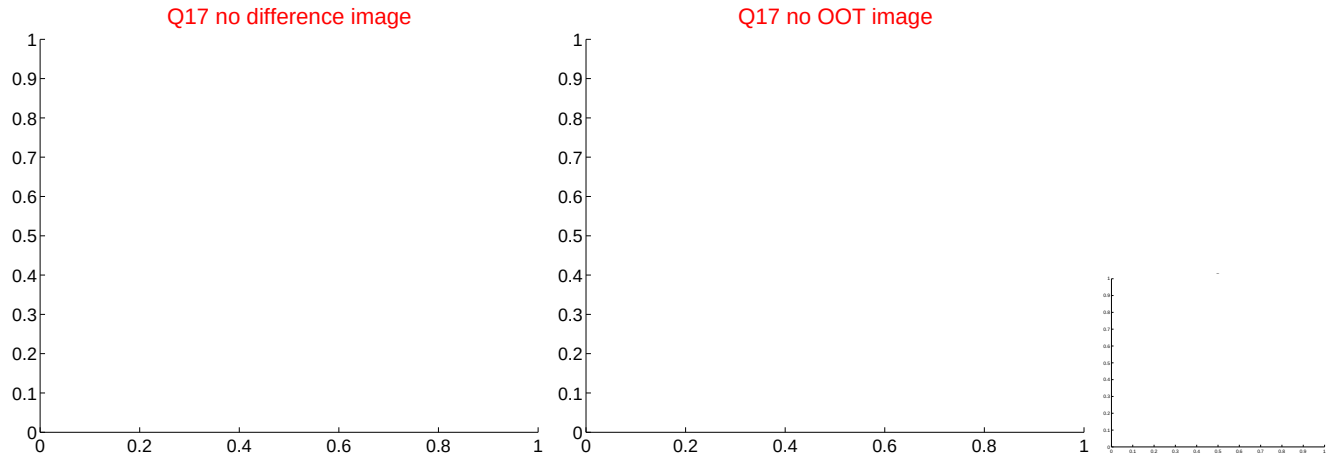


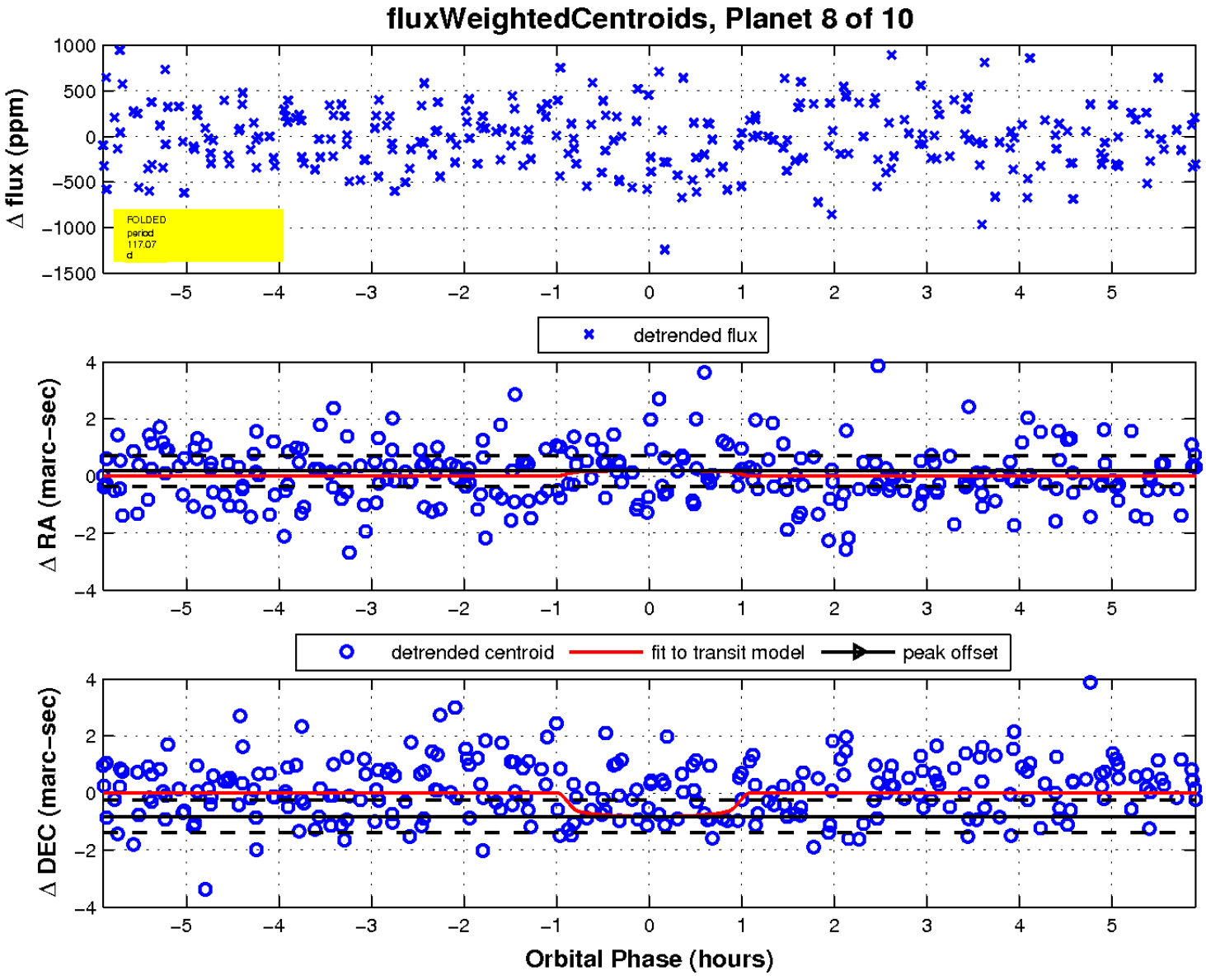




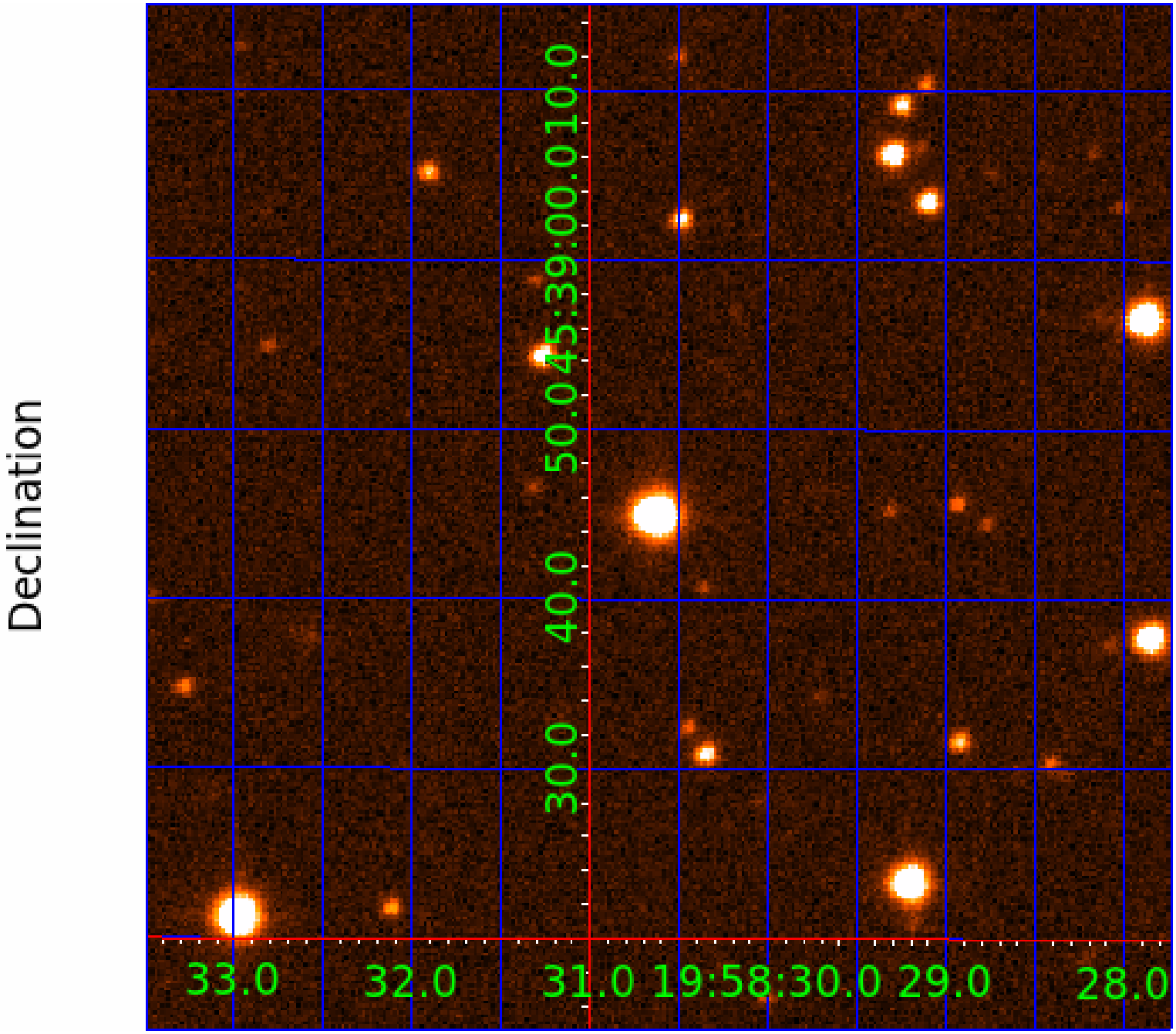


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

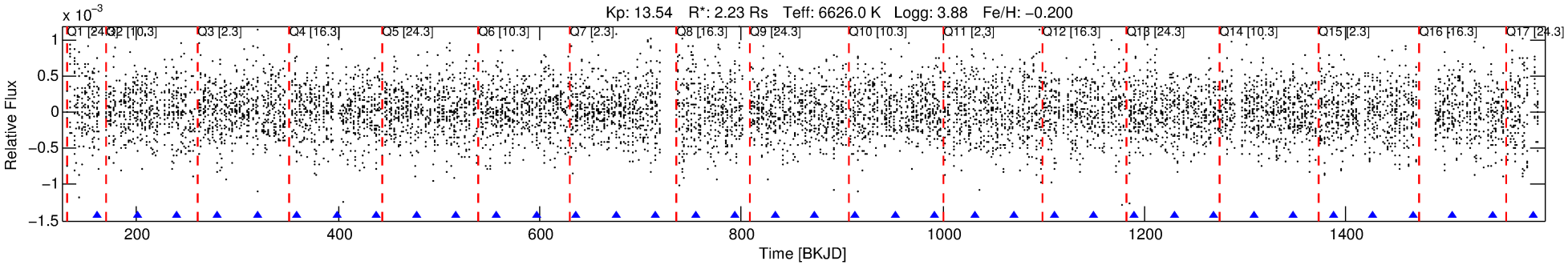
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

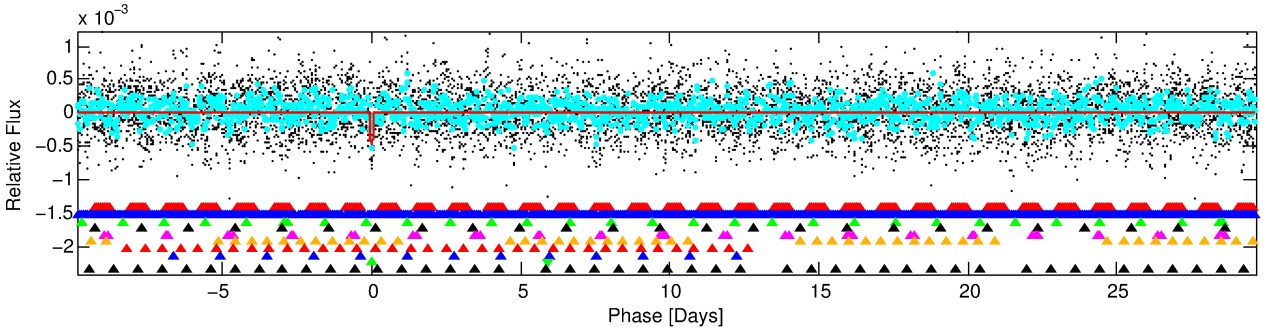
Ephemeris Match Information For 009242059-09

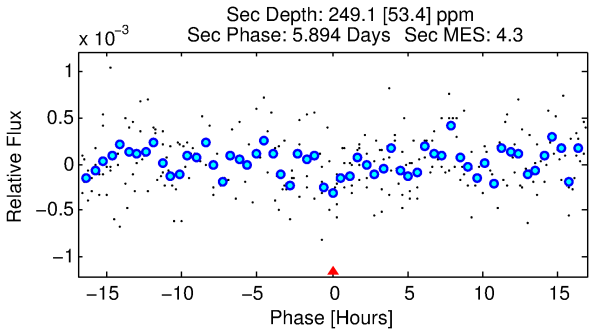
No Significant Match Found

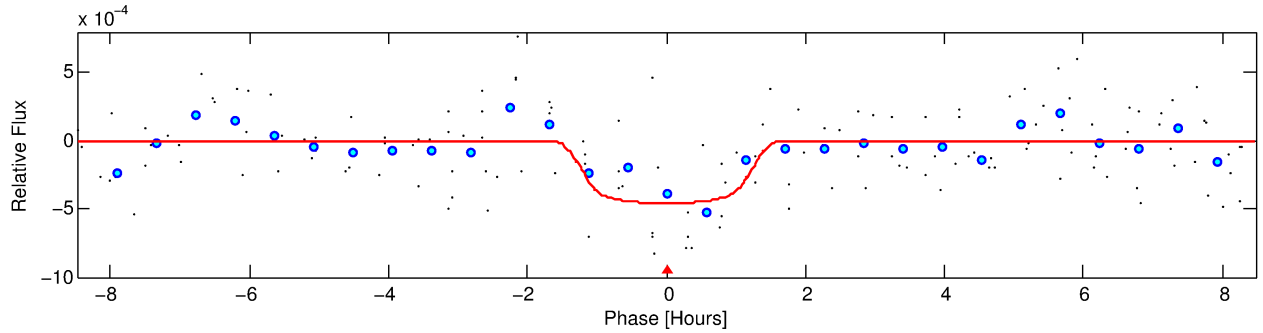
DV One-Page Summary

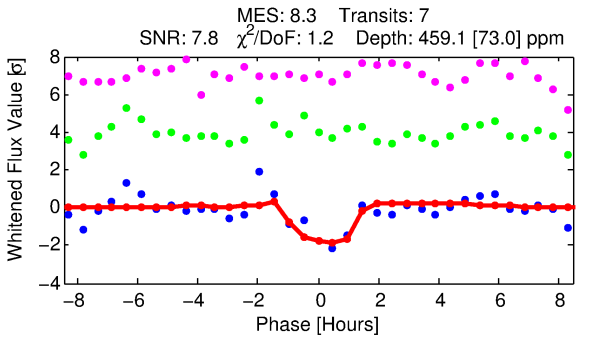
KIC: 9242059 Candidate: 9 of 10 Period: 39.548 d

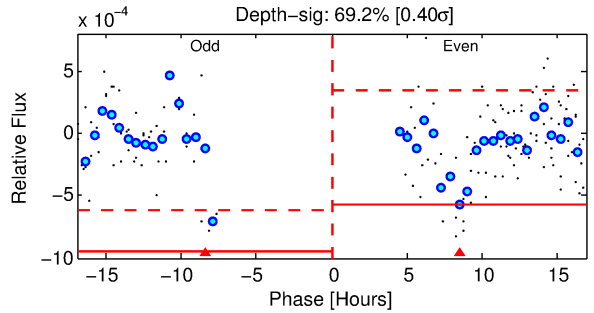


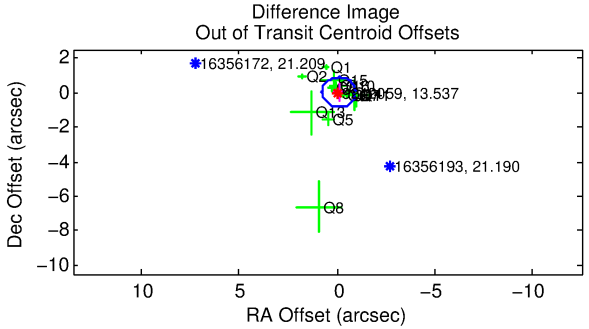












DV Fit Results:

Period = 39.54764 [0.00054] d
Epoch = 161.4715 [0.0082] BKJD
Rp/R* = 0.0229 [0.0133]
a/R* = 52.59 [172.19]
b = 0.90 [0.73]

Seff = 135.70 [93.40]
Teq = 870 [150] K
Rp = 5.58 [4.03] Re
a = 0.2521 [0.1056] AU

Ag = 280.24 [381.31] [0.73σ]
Teffp = 5506 [1639] K [2.82σ]

DV Diagnostic Results:

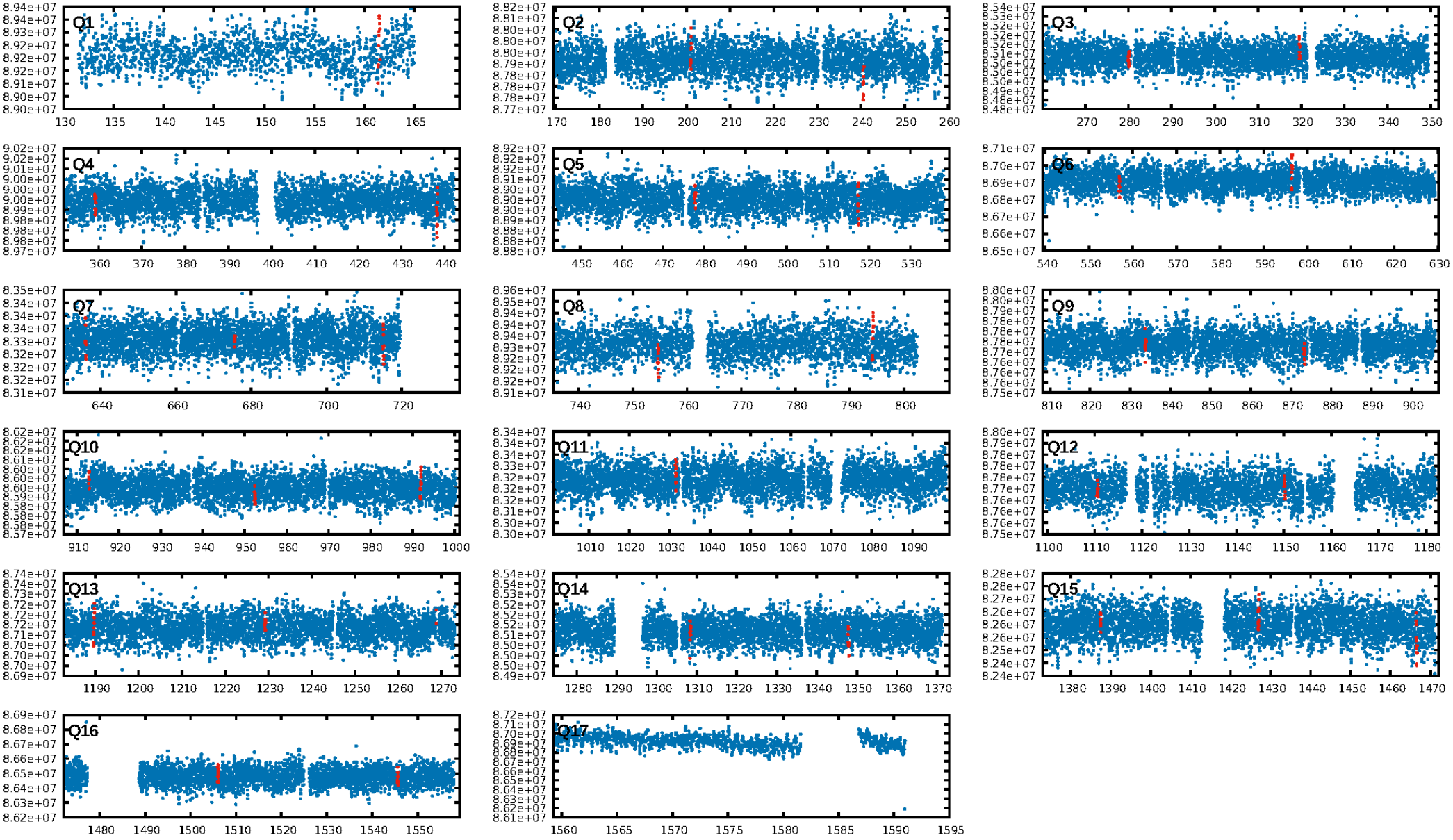
ShortPeriod−sig: 100.0% [42.46σ]
LongPeriod−sig: 100.0% [3.54σ]
ModelChiSquare2−sig: 8.5%
ModelChiSquareGof−sig: 98.7%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [7/7]
GhostDiagnostic−chr: 1.711

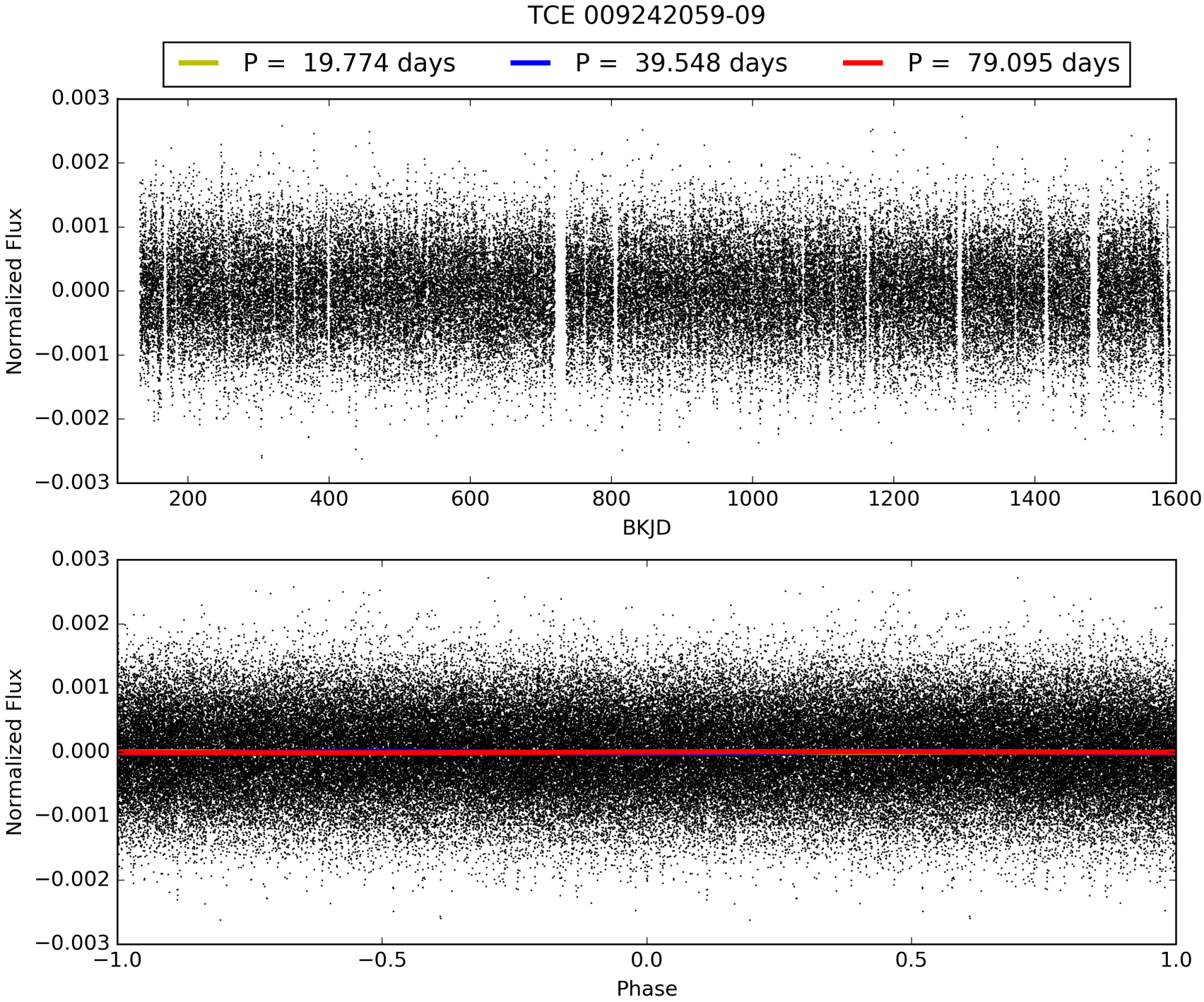
Centroid−sig: 65.8%
Centroid−so: 0.552 arcsec [0.87σ]
OotOffset−rm: 0.077 arcsec [0.27σ]
KicOffset−rm: 0.092 arcsec [0.34σ]
OotOffset−st: 4/3/3/4 [14]
KicOffset−st: 4/3/3/4 [14]
DiffImageQuality−fgm: 0.43 [6/14]
DiffImageOverlap−fno: 0.25 [4/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:53:16 Z

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

TCE 009242059-09, PDC Light Curves

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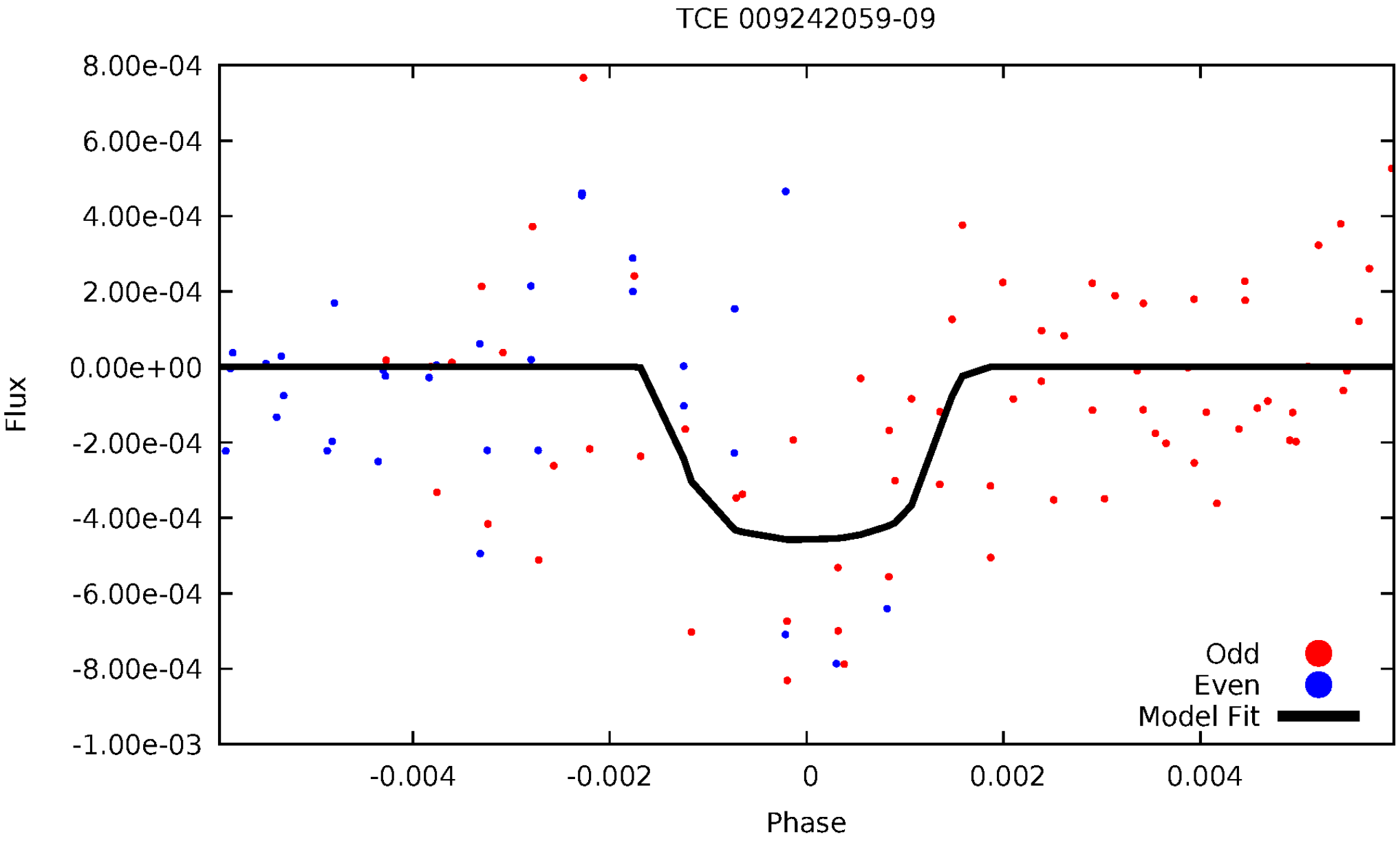
P = 19.774 days
P = 39.548 days
P = 79.095 days
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even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6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
Flux
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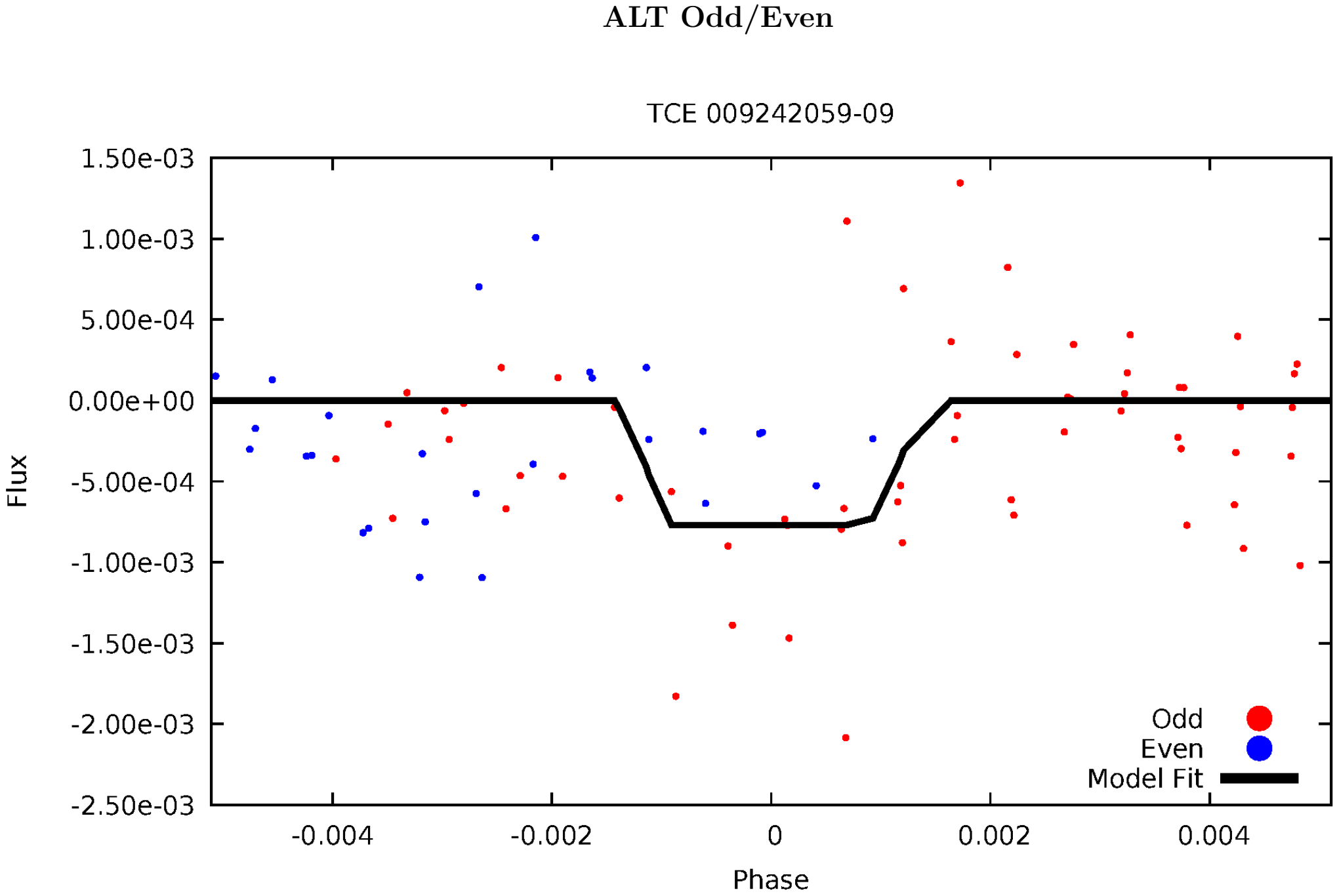
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-09
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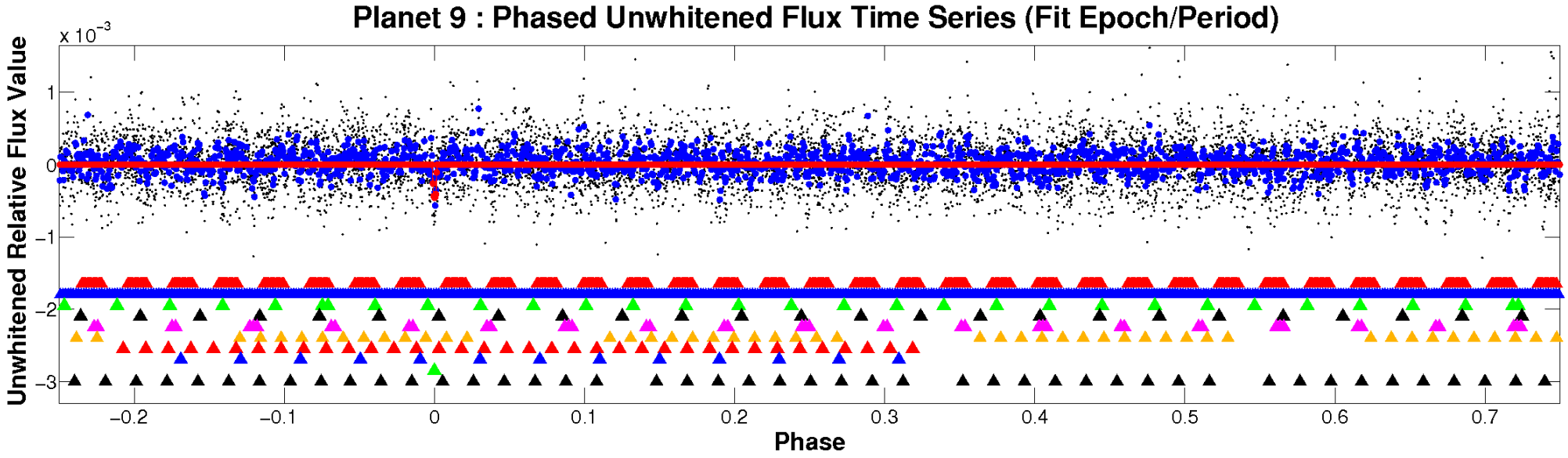
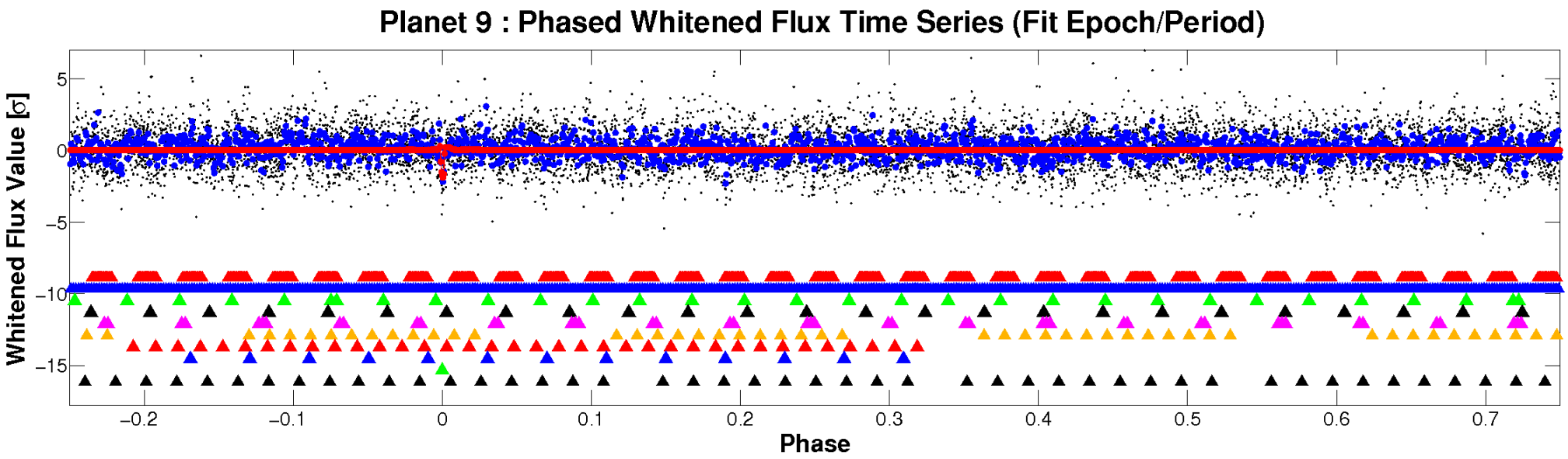
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

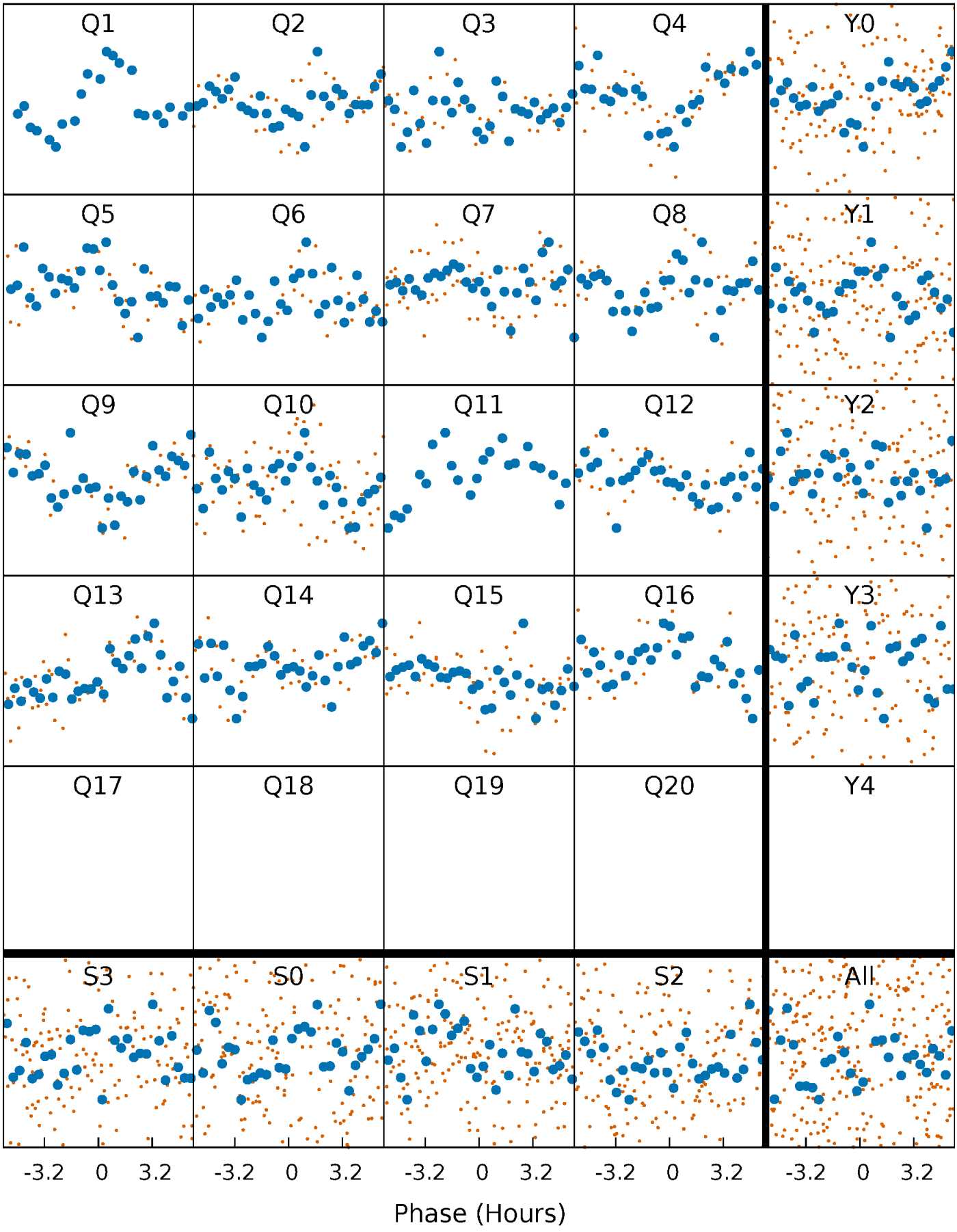
Non-Whitened Vs. Whitened Light Curve





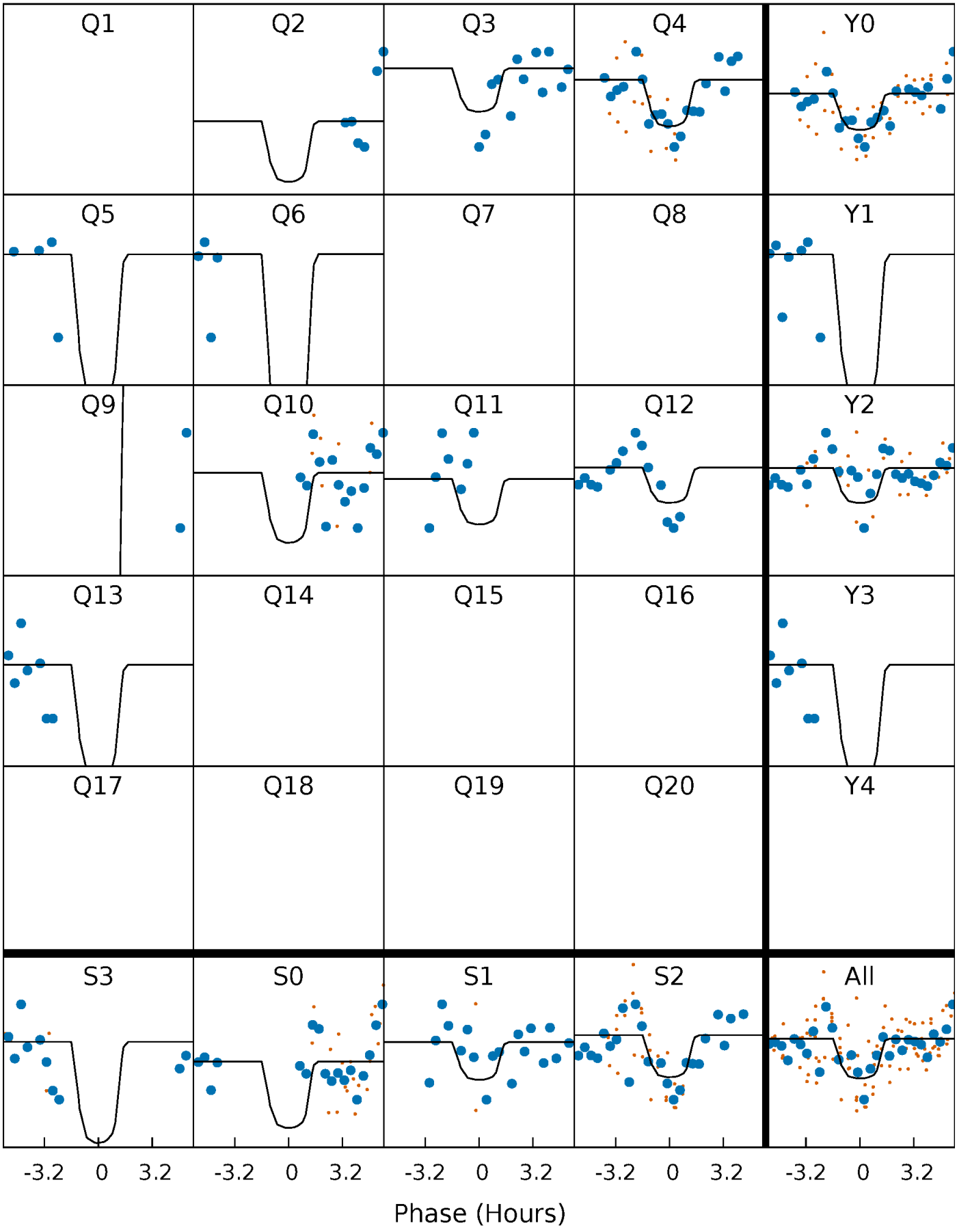
PDC Quarter-Phased Transit Curves

TCE 009242059-09 P= 39.547637 Days T_0=161.471460 (BKJD)



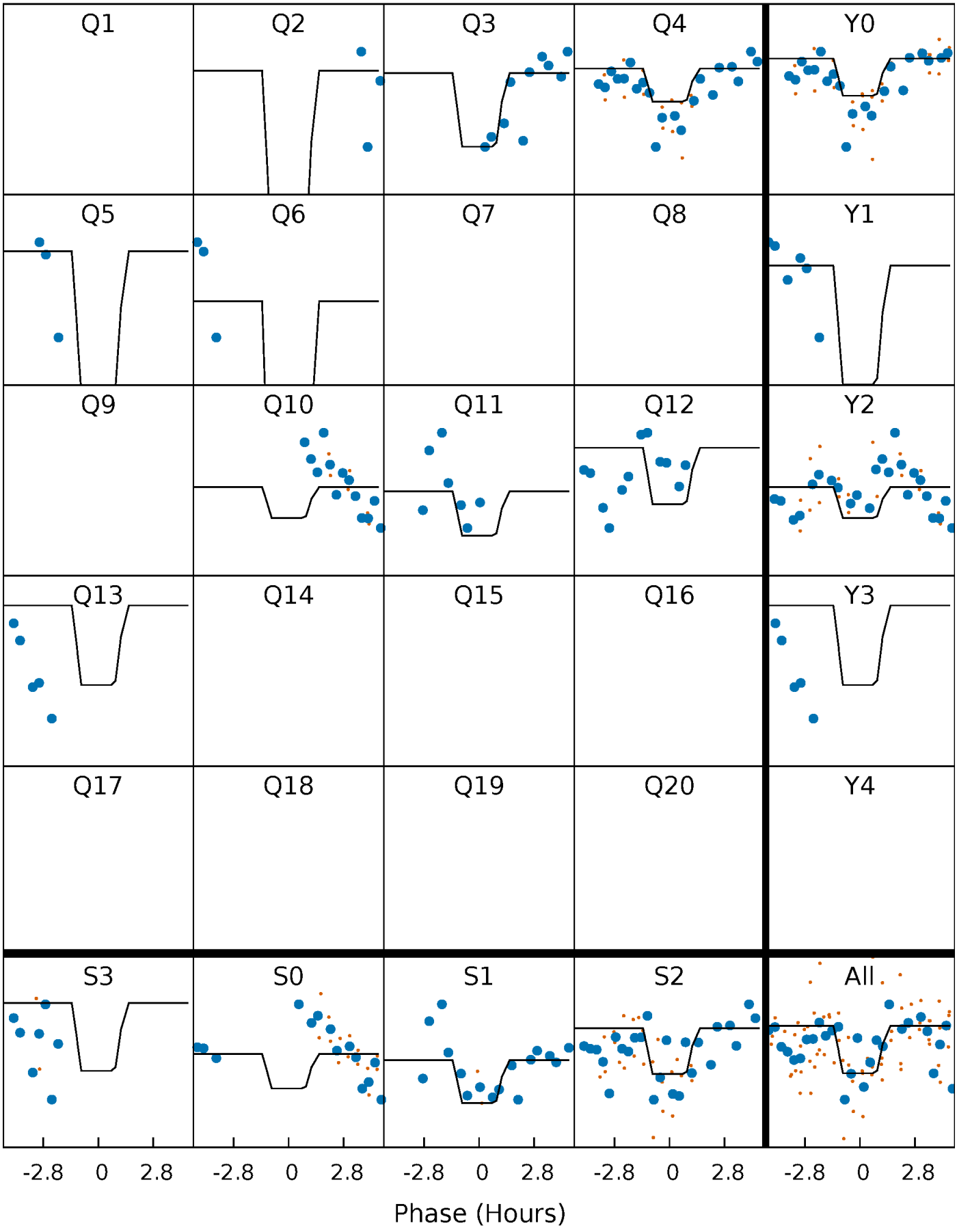
DV Quarter-Phased Transit Curves

TCE 009242059-09 P= 39.547637 Days T_0=161.471460 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

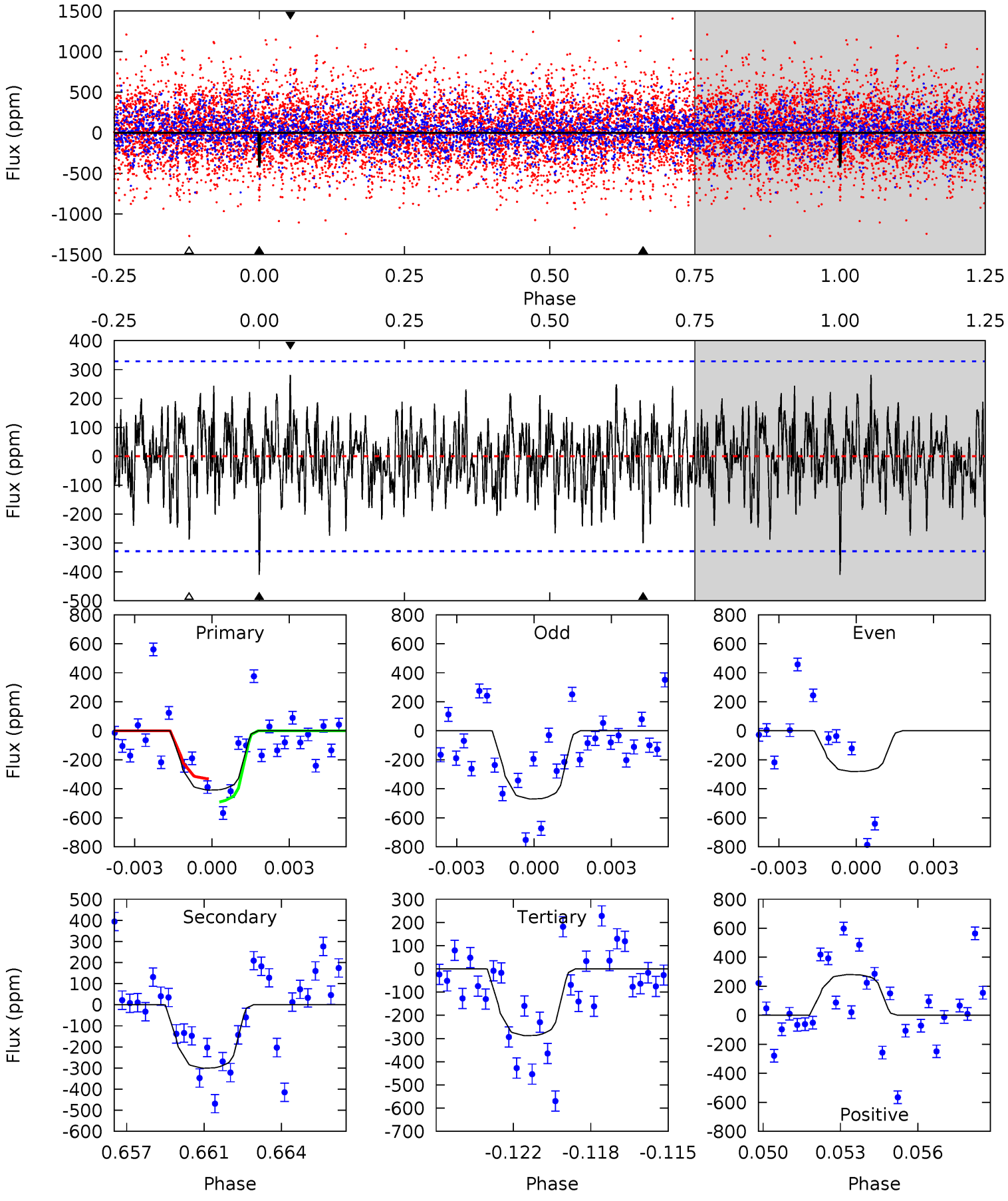
TCE 009242059-09 P= 39.548078 Days T_0=161.456516 (BKJD)



DV Model-Shift Uniqueness Test

009242059-09, P = 39.547637 Days, E = 121.923823 Days

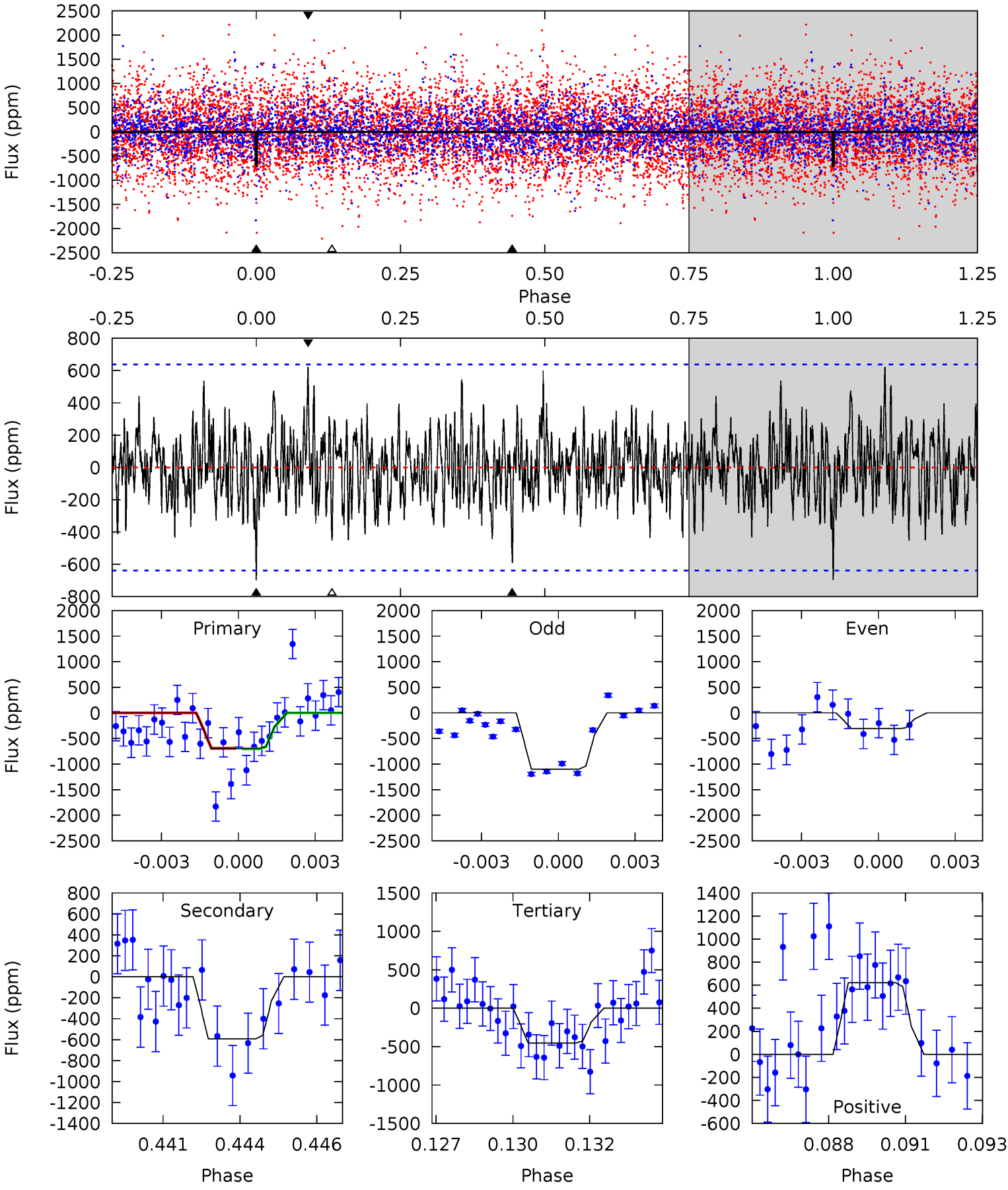
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.54	4.80	4.60	4.48	5.25	2.96	1.48	1.94	2.05	0.20	0.32	1.34	0.64	0.41	1.27



Alt Model-Shift Uniqueness Test

009242059-09, P = 39.548078 Days, E = 121.908438 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.77	4.90	3.75	5.14	5.28	3.01	1.40	2.02	0.63	1.15	-0.24	3.10	0.77	0.47	0.04



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-09 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-301±63	$5.05^{+3.40}_{-2.60}$	1193^{+98}_{-134}	5744^{+2964}_{-1074}	396^{+1304}_{-253}
Alt.	-592±121	$6.22^{+3.50}_{-2.92}$	1189^{+90}_{-127}	6118^{+2429}_{-1073}	516^{+1340}_{-296}

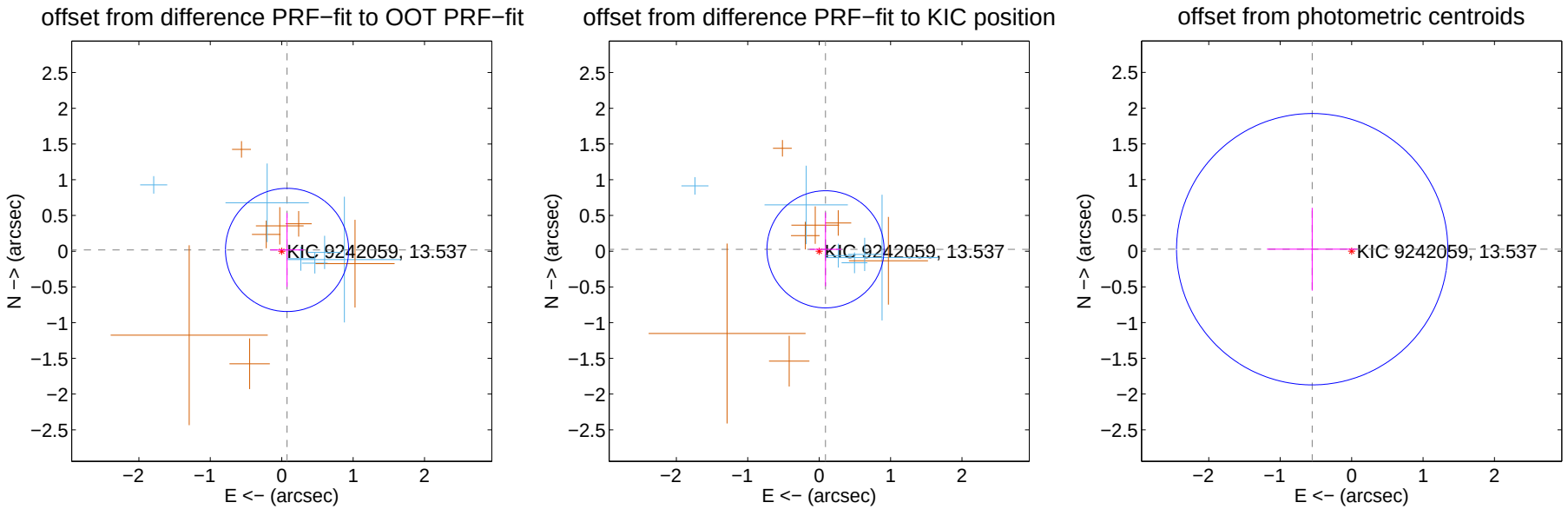
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

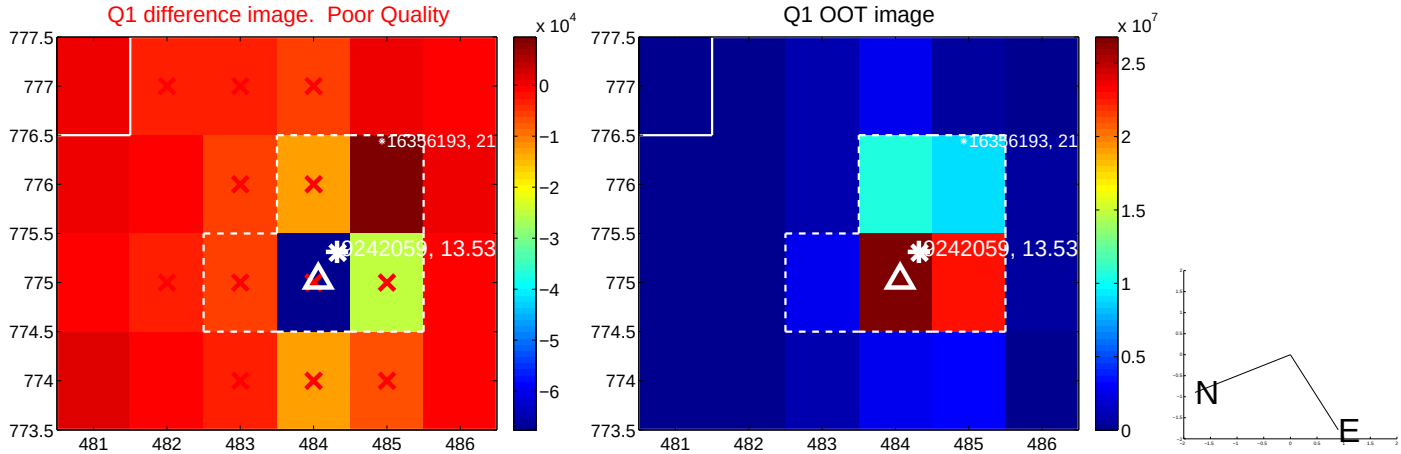
Supplemental centroid analysis for 009242059-09. Kepler magnitude: 13.54. Transit SNR 7.79
There are 6 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

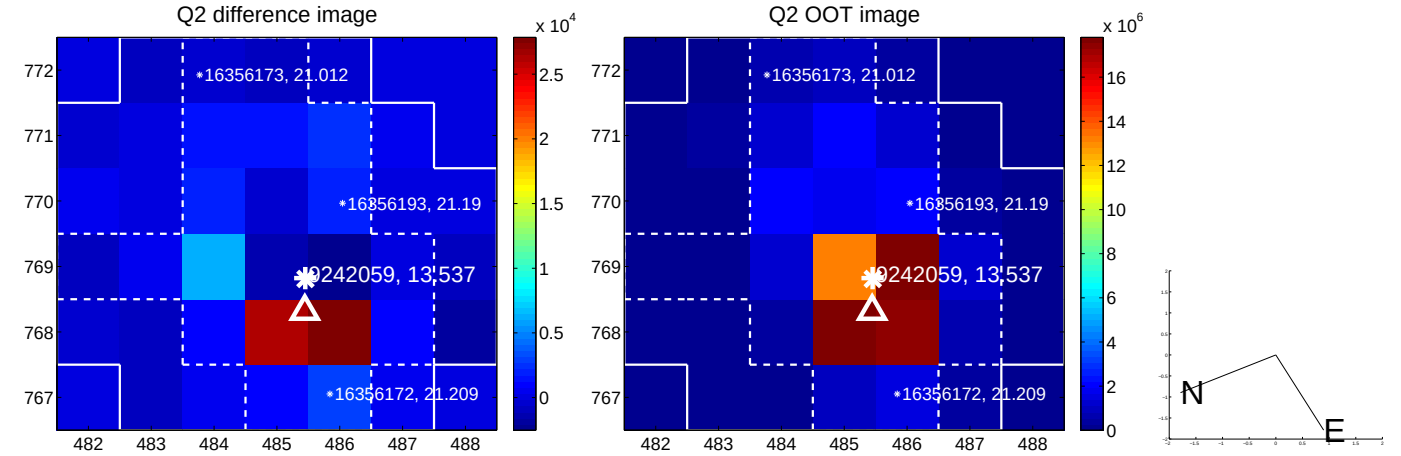
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.077 ± 0.287	0.27	-0.075 ± 0.236	0.018 ± 0.516
PRF-fit source offset from KIC position	0.092 ± 0.273	0.34	-0.089 ± 0.222	0.026 ± 0.516
photometric centroid source offset	0.55 ± 0.63	0.87	0.55 ± 0.63	0.03 ± 0.58

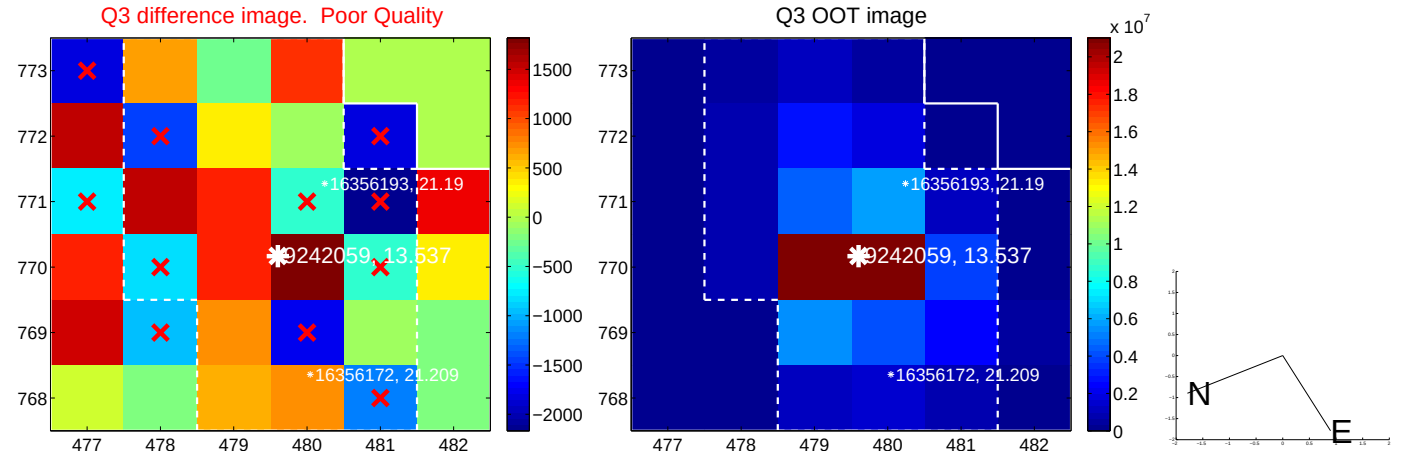


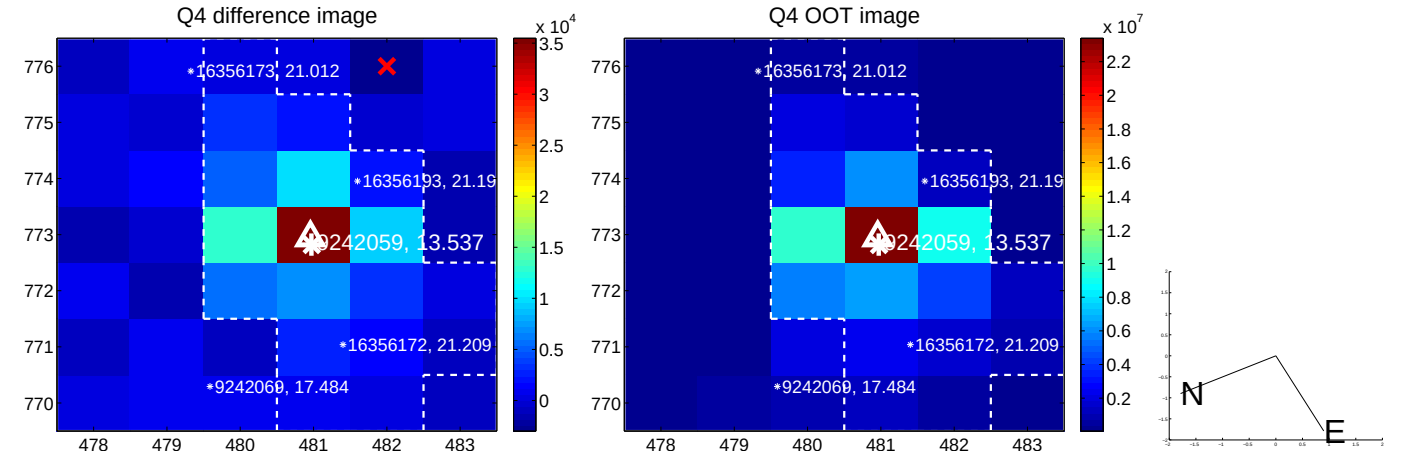
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

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

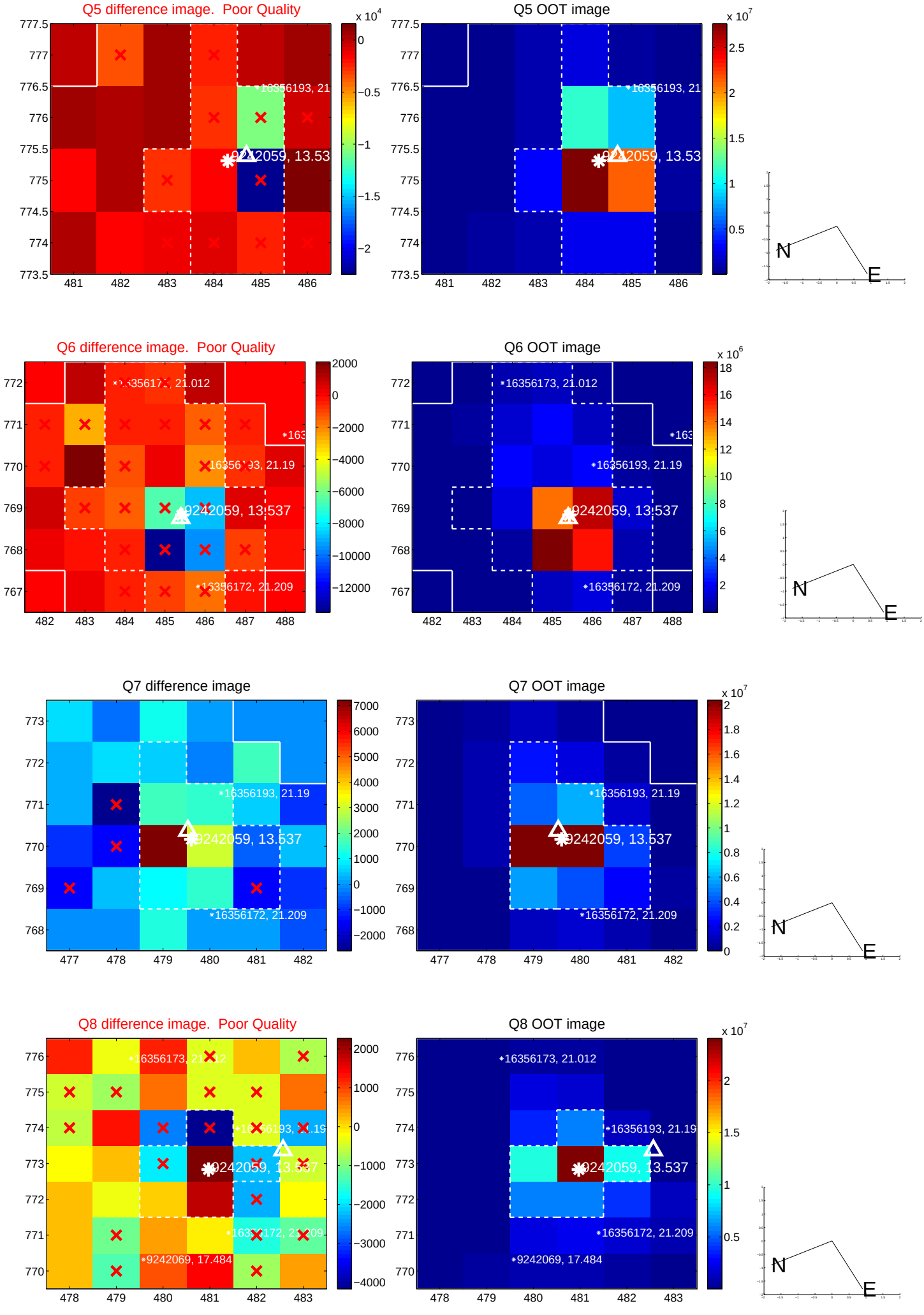




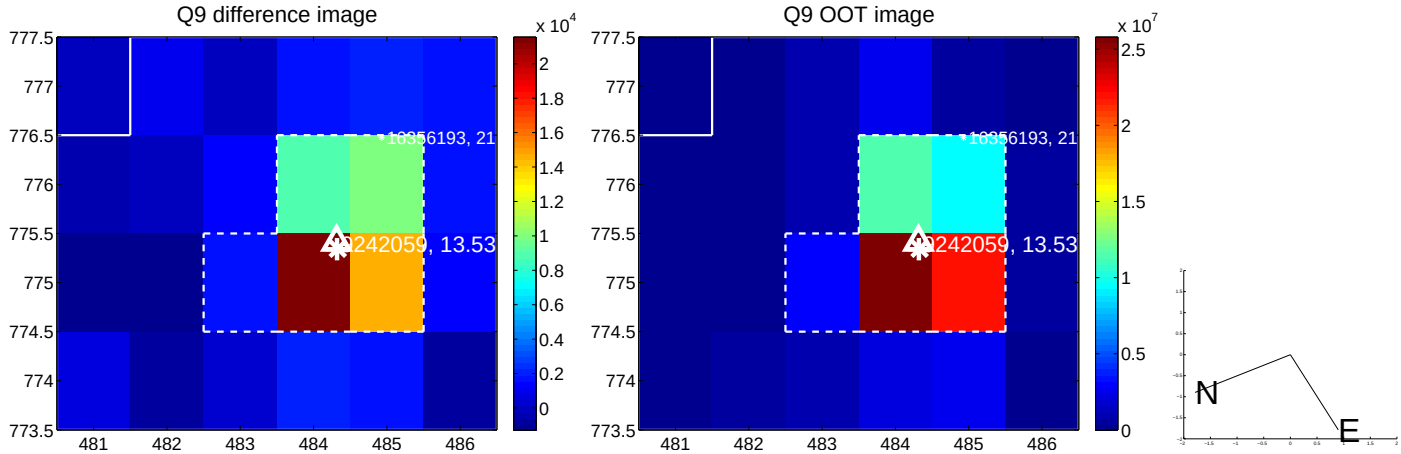


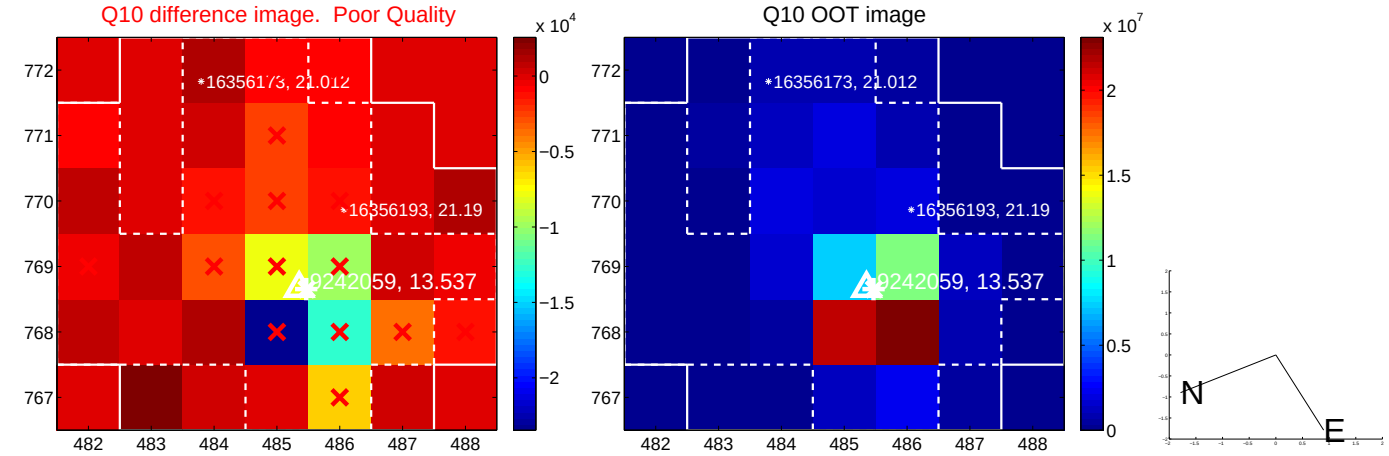


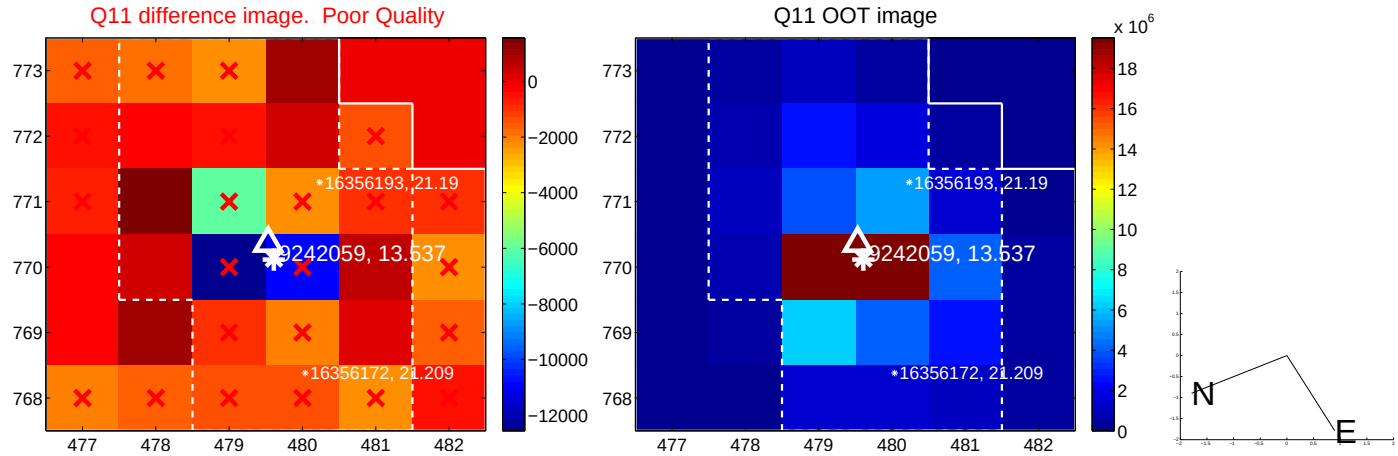
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

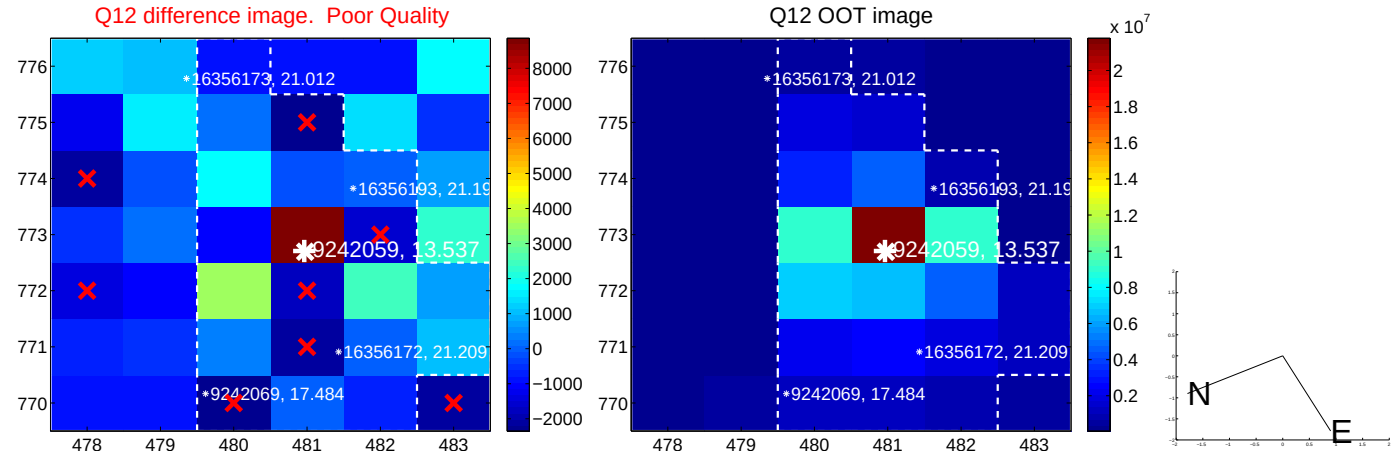


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

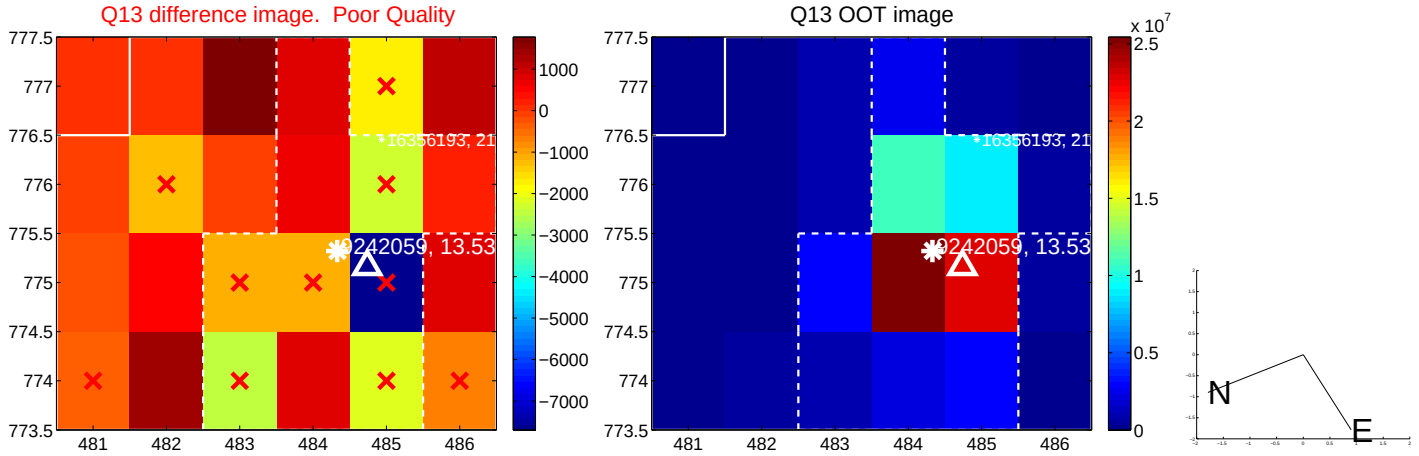


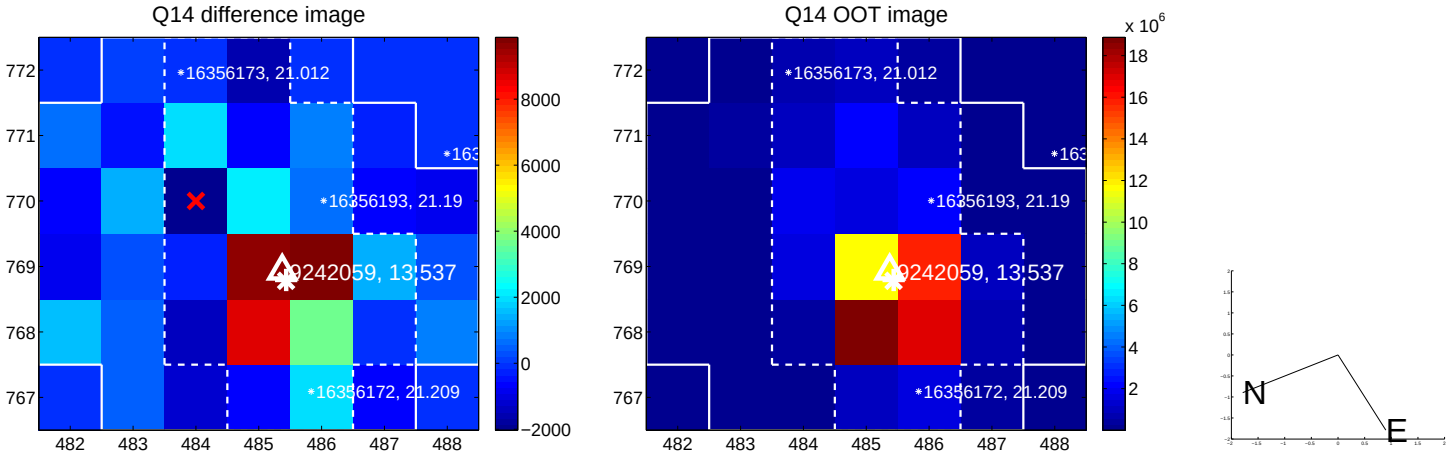


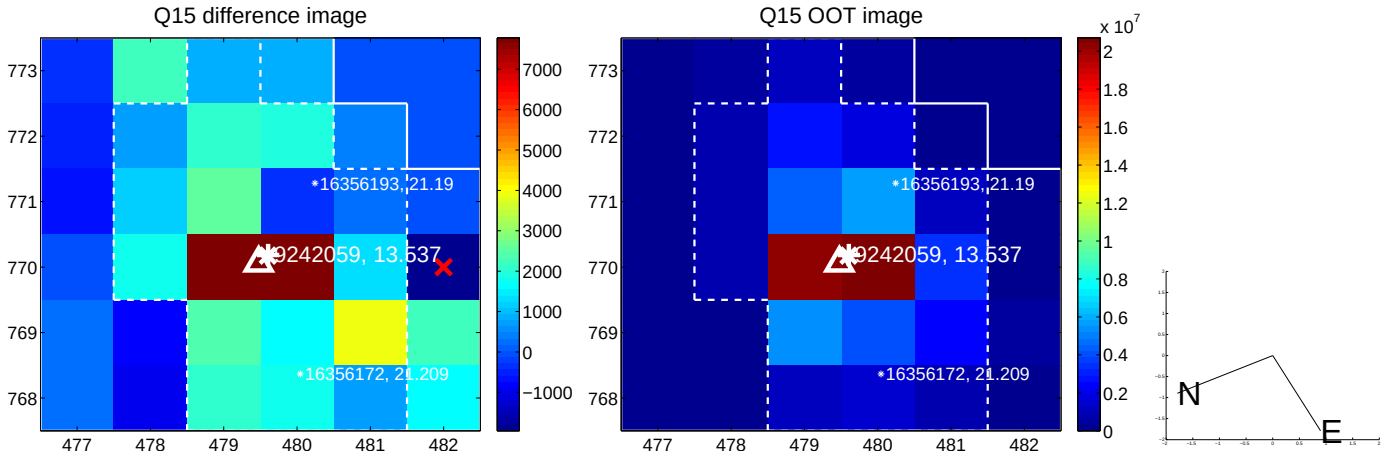


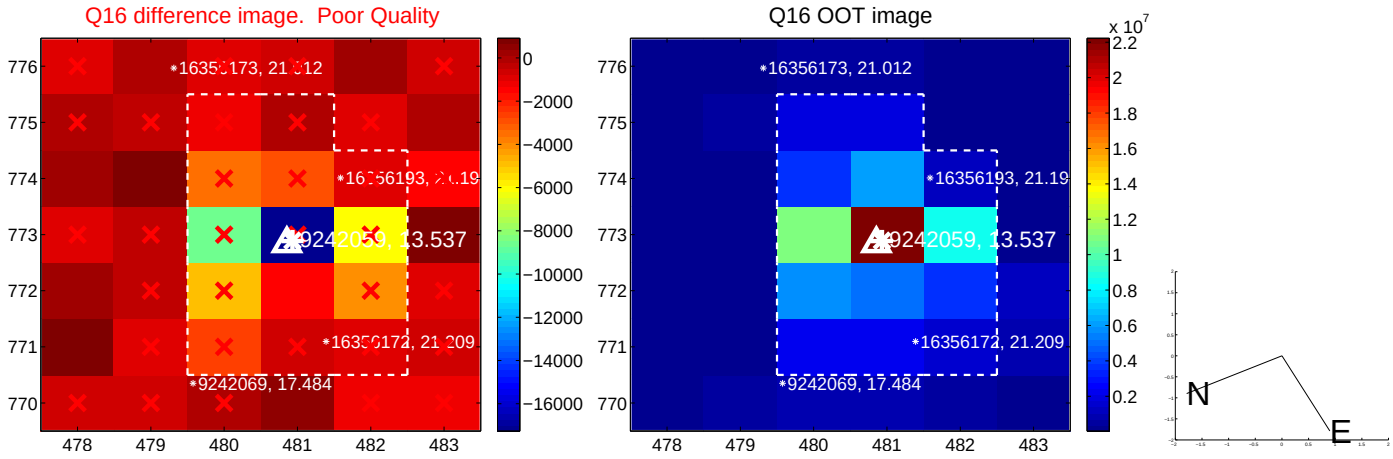


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

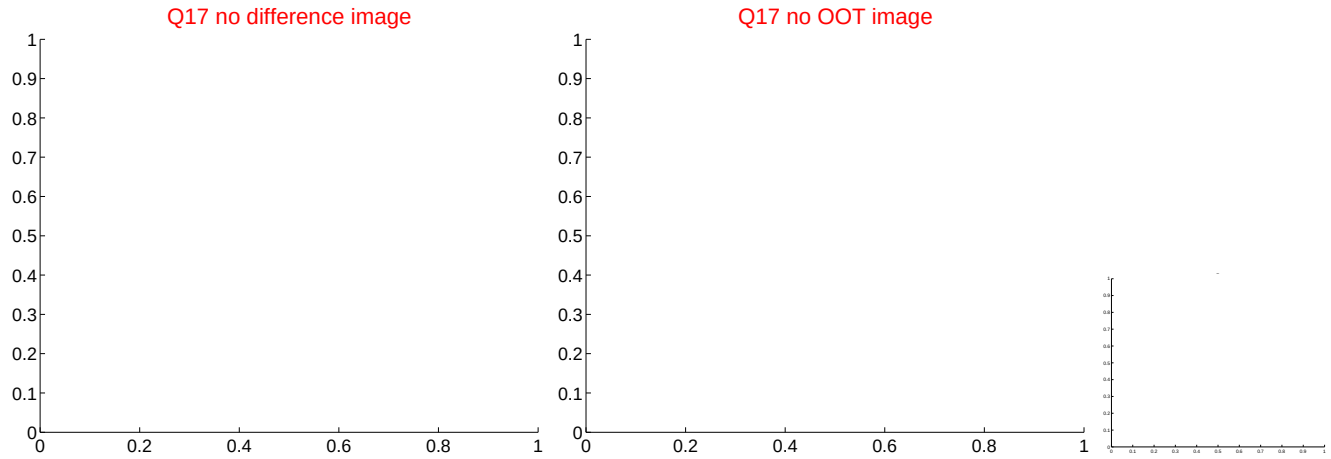


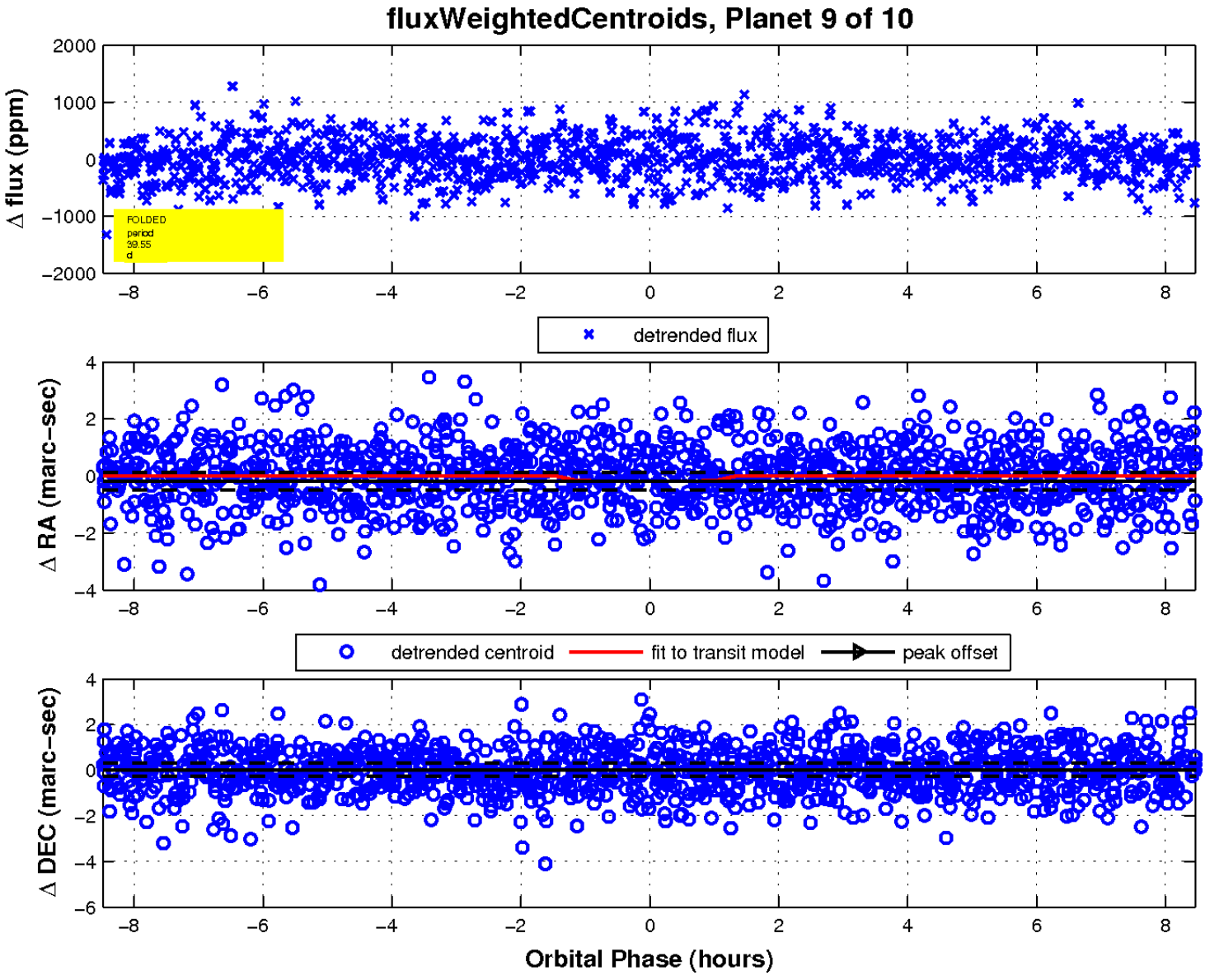




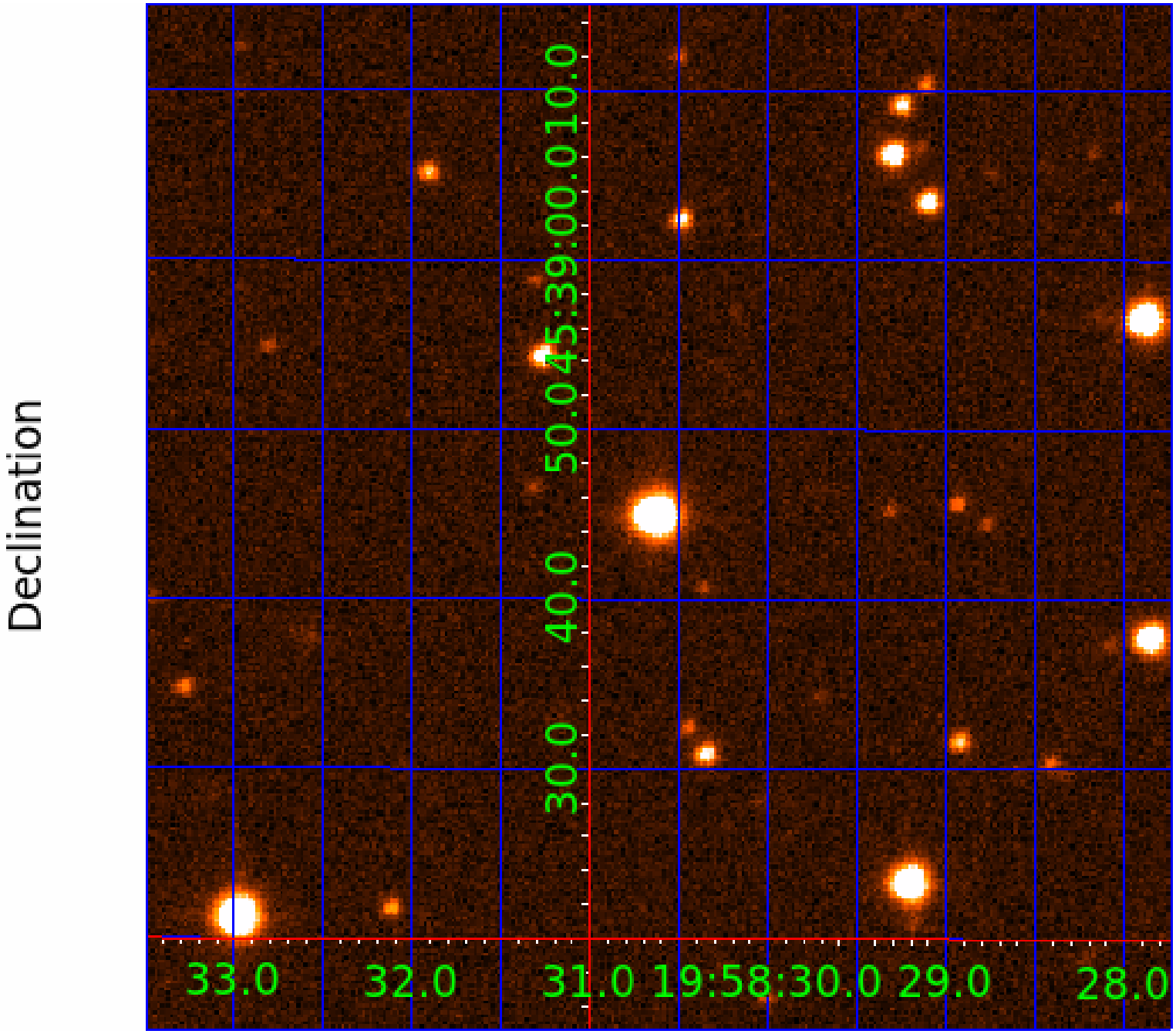


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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28.0

KIC 009242059

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 ($S_\oplus$)
009242059-01	OBS	No	2.397719	132.995822	53.4	9.621	10.5	9.4	2.23	6626	1.91	5697.54
009242059-02	OBS	No	1.161164	132.213539	73.4	6.474	9.2	11.5	2.23	6626	2.28	14981.67
009242059-03	OBS	No	47.735127	150.332168	605.4	3.474	10.7	9.9	2.23	6626	6.43	105.59
009242059-04	OBS	No	60.107767	144.288423	735.2	1.960	10.7	9.1	2.23	6626	6.13	77.66
009242059-05	OBS	No	33.298180	156.800223	602.0	2.117	10.0	9.2	2.23	6626	6.41	170.68
009242059-06	OBS	No	29.796775	136.301051	606.6	2.352	9.5	9.8	2.23	6626	6.40	197.94
009242059-07	OBS	No	40.141945	153.273020	534.0	2.864	9.0	9.8	2.23	6626	6.30	133.03
009242059-08	OBS	No	117.066211	134.163356	664.0	1.978	8.8	9.0	2.23	6626	6.23	31.93
009242059-09	OBS	No	39.547637	161.471460	459.1	2.828	8.3	7.8	2.23	6626	5.58	135.70
009242059-10	OBS	No	31.475694	158.488487	533.3	3.865	8.8	9.0	2.23	6626	6.52	183.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009242059-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009242059-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-04	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
009242059-05	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
009242059-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009242059-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009242059-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
009242059-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

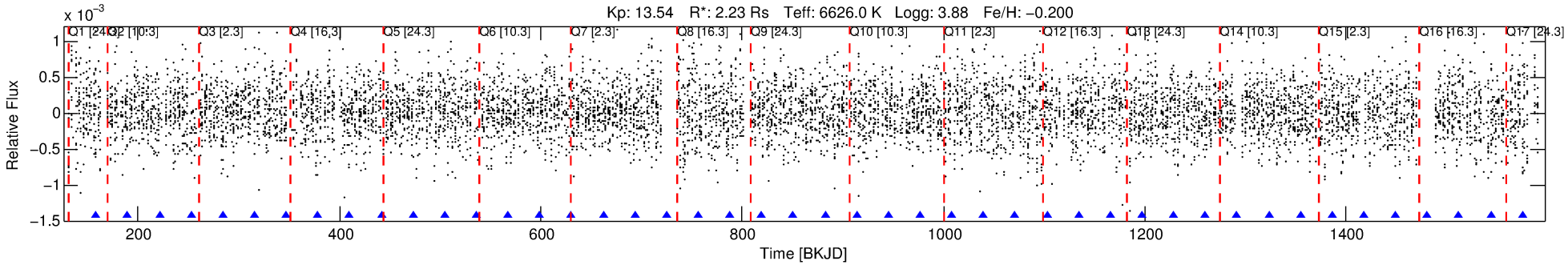
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

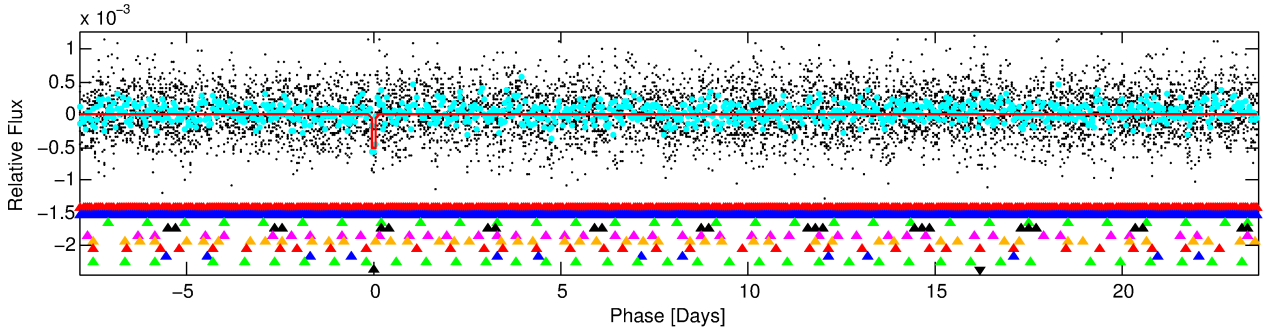
Ephemeris Match Information For 009242059-10

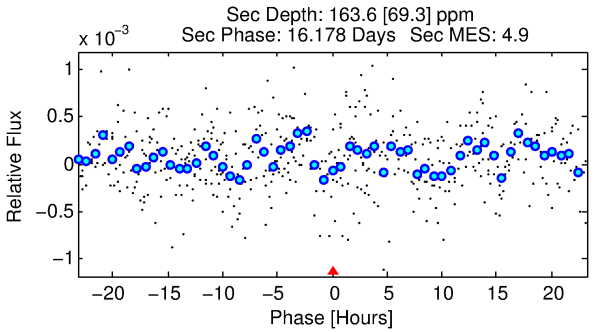
No Significant Match Found

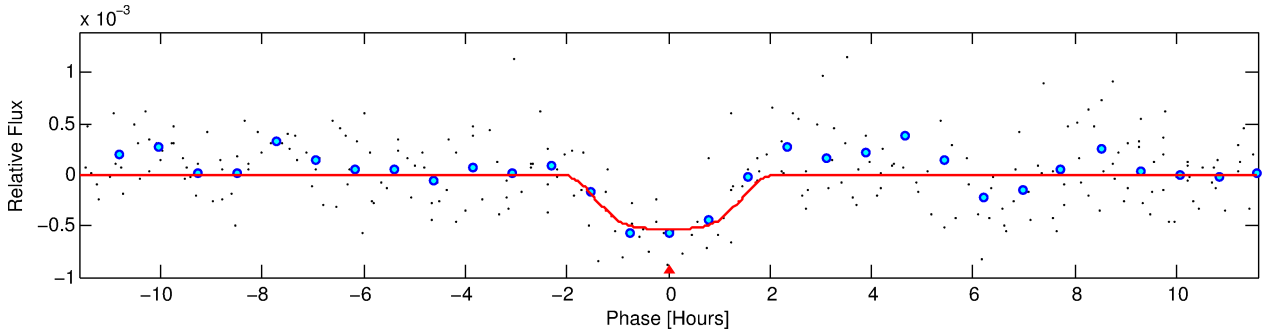
DV One-Page Summary

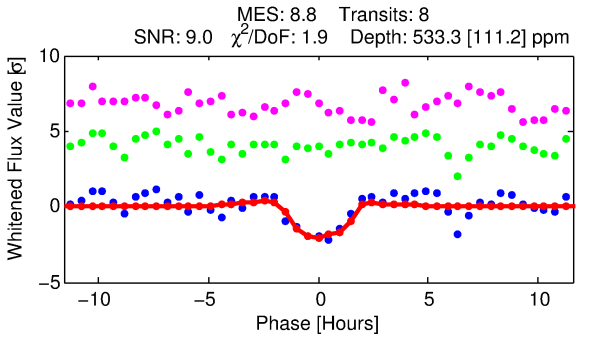
KIC: 9242059 Candidate: 10 of 10 Period: 31.476 d

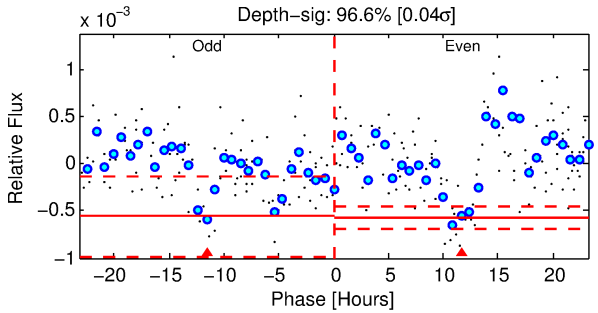


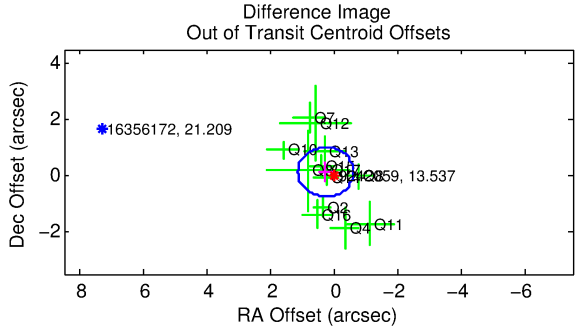












DV Fit Results:

Period = 31.47569 [0.00039] d
Epoch = 158.4885 [0.0117] BKJD
Rp/R* = 0.0267 [0.0041]
a/R* = 22.25 [9.28]
b = 0.96 [0.03]

Seff = 183.99 [126.63]
Teq = 939 [162] K
Rp = 6.52 [2.98] Re
a = 0.2165 [0.0907] AU

Ag = 99.18 [84.51] [1.16σ]
Teffp = 4582 [619] K [5.69σ]

DV Diagnostic Results:

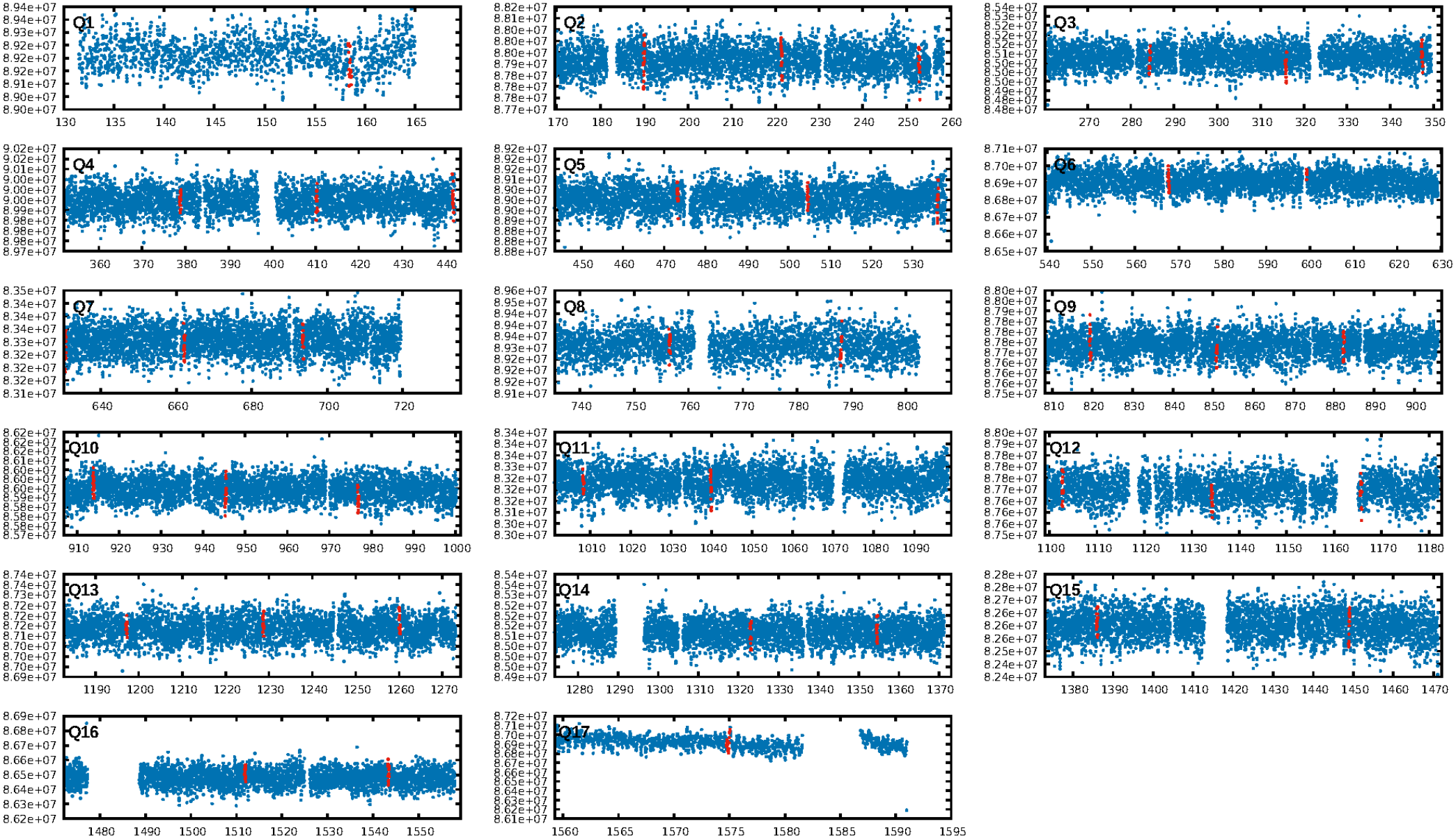
ShortPeriod−sig: 100.0% [8.91σ]
LongPeriod−sig: 100.0% [9.92σ]
ModelChiSquare2−sig: 4.8%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [6/6]
GhostDiagnostic−chr: −12.74

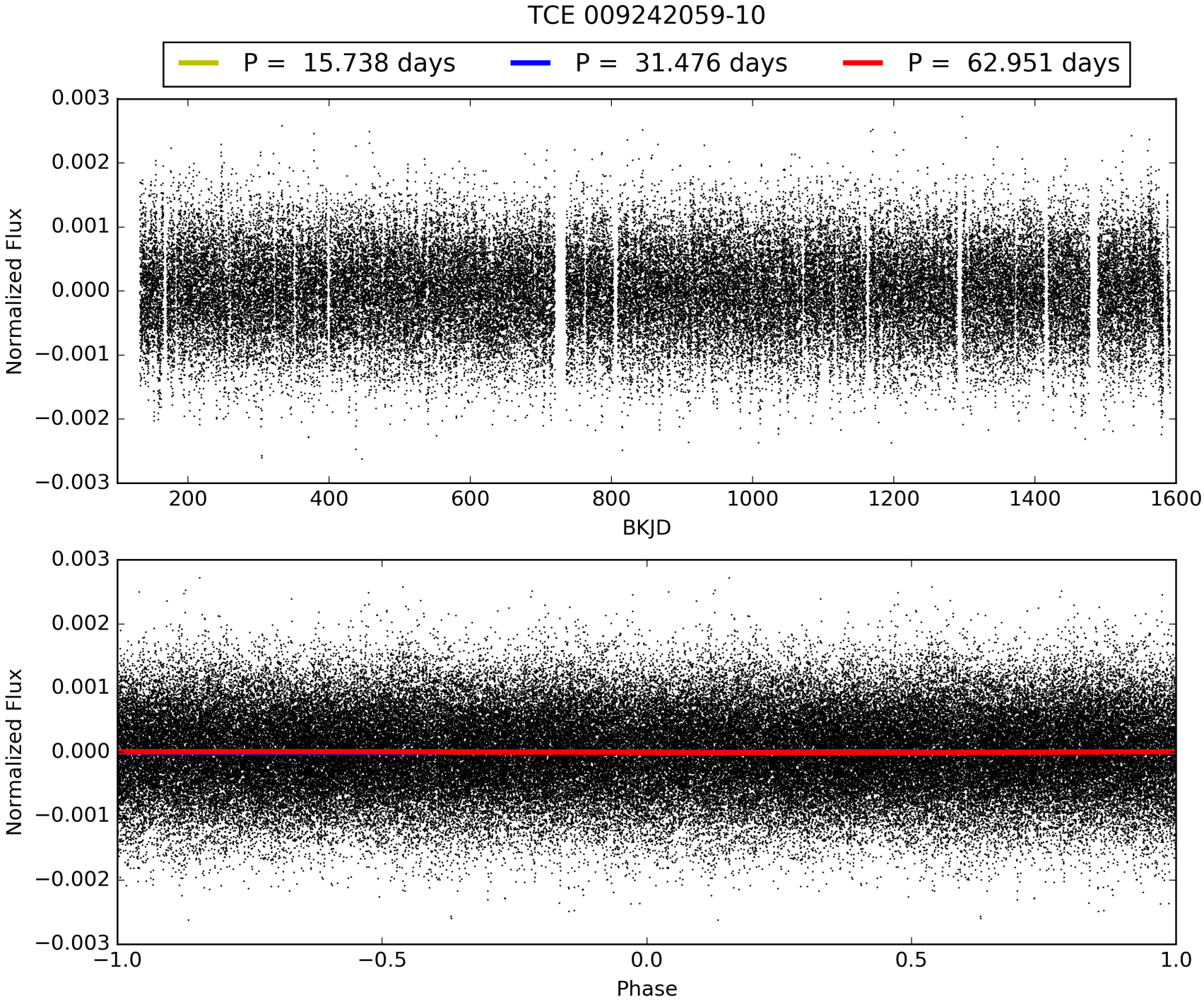
Centroid−sig: 0.2%
Centroid−so: 1.204 arcsec [2.65σ]
OotOffset−rm: 0.303 arcsec [1.04σ]
KicOffset−rm: 0.271 arcsec [0.98σ]
OotOffset−st: 3/4/4/2 [13]
KicOffset−st: 3/4/4/2 [13]
DiffImageQuality−fgm: 0.38 [5/13]
DiffImageOverlap−fno: 0.12 [2/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 10:53:19 Z

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

TCE 009242059-10, PDC Light Curves

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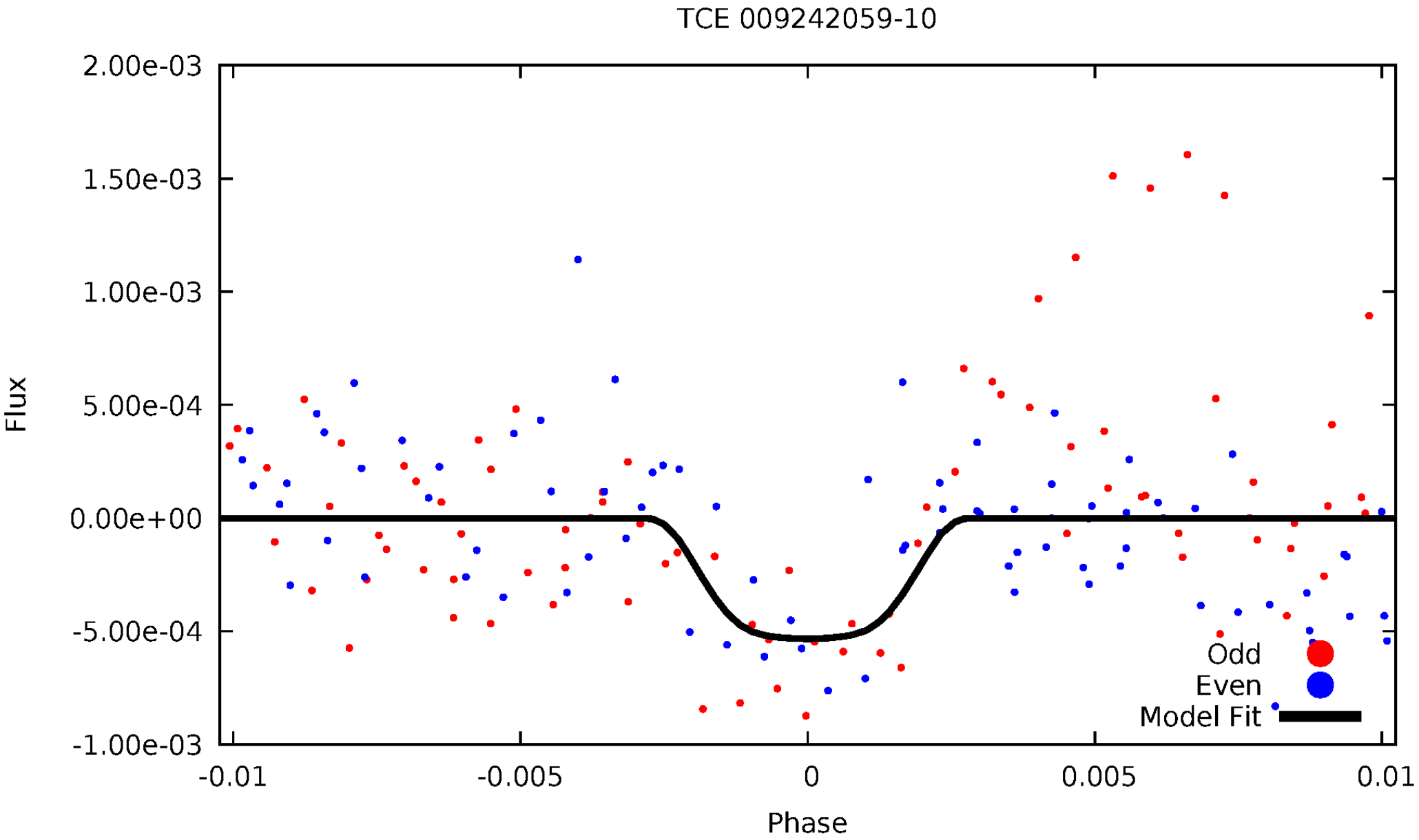
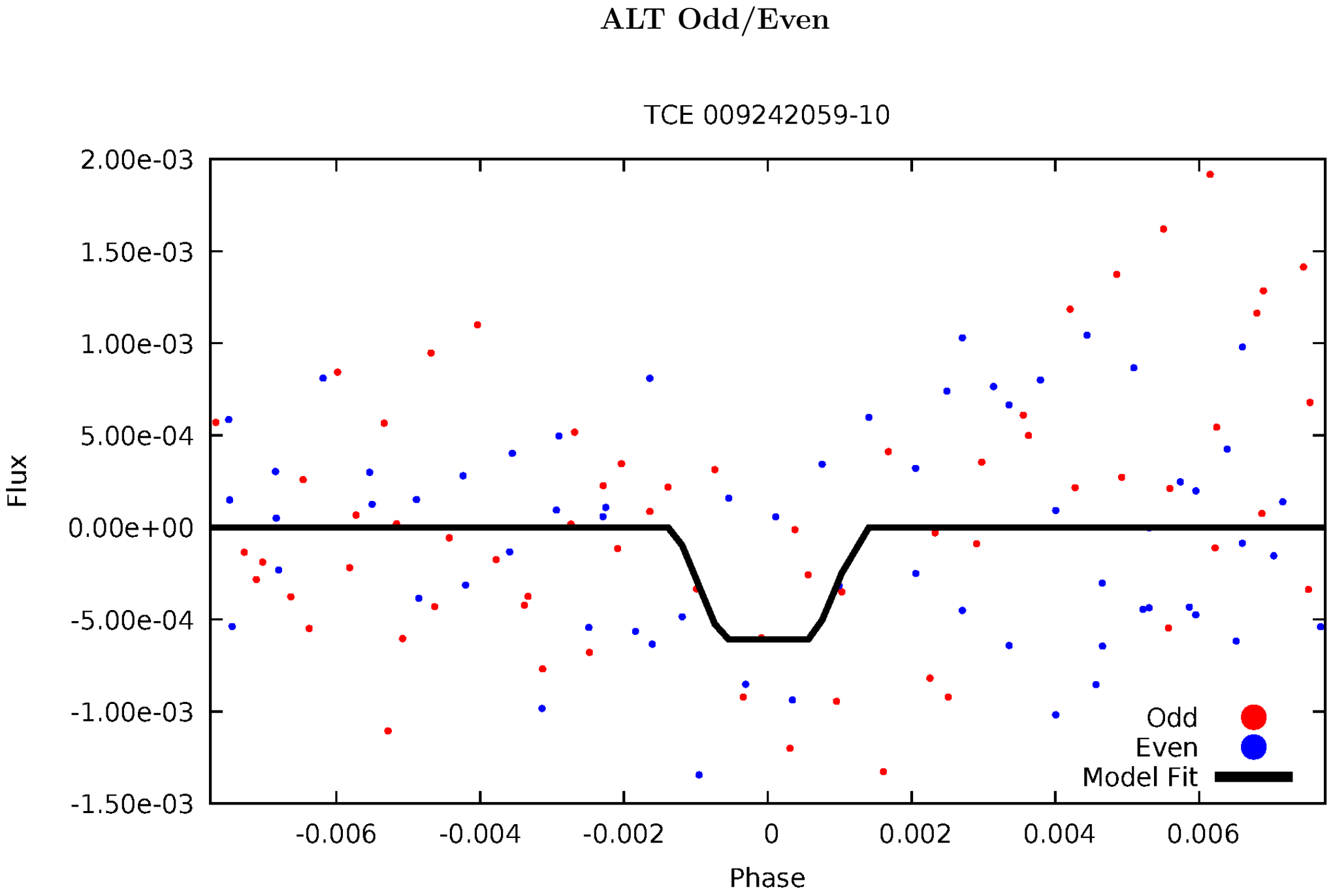
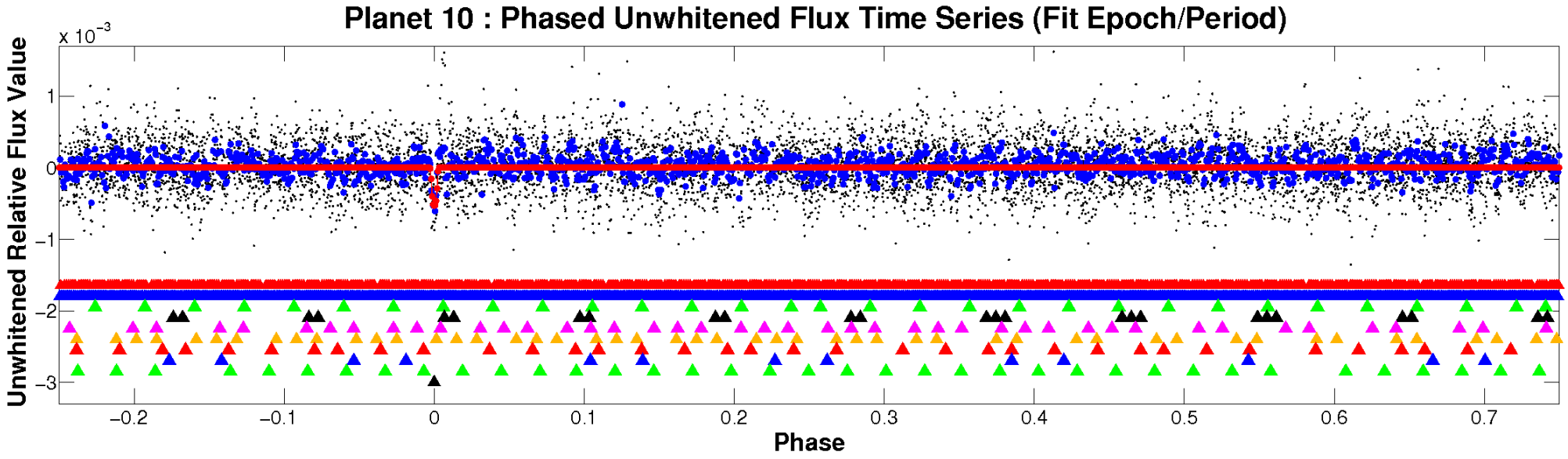
P = 15.738 days
P = 31.476 days
P = 62.951 days
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
0.003
0.002
0.001
0.000
−0.001
−0.002
−0.003
−1.0
−0.5
0.0
0.5
1.0
Phase

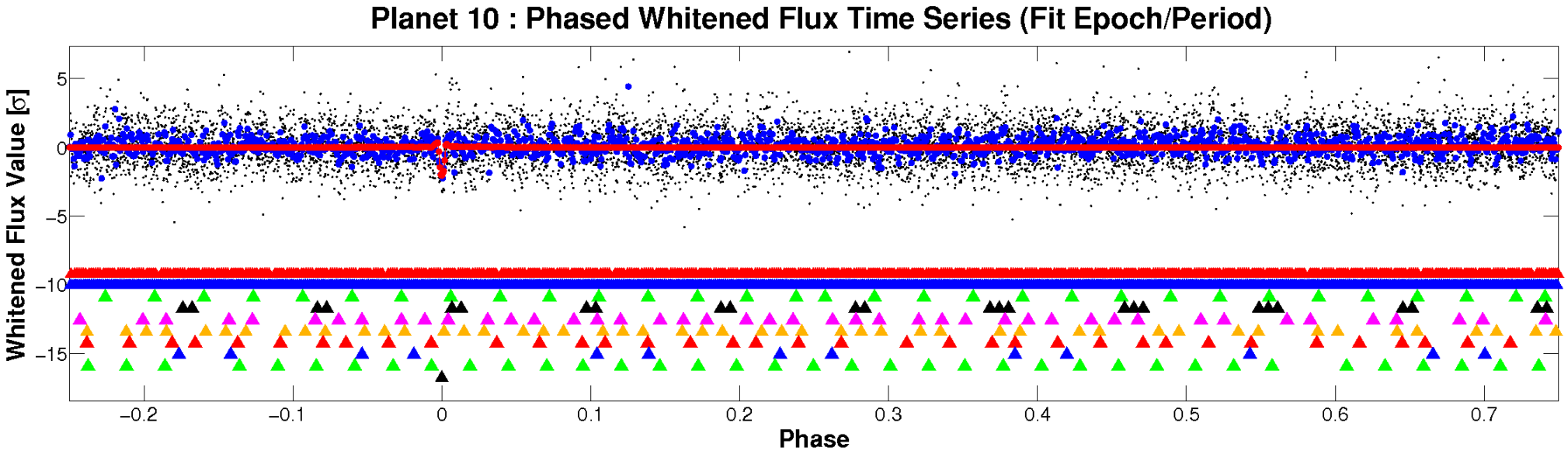
DV Odd/Even


TCE 009242059-10
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009242059-10
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

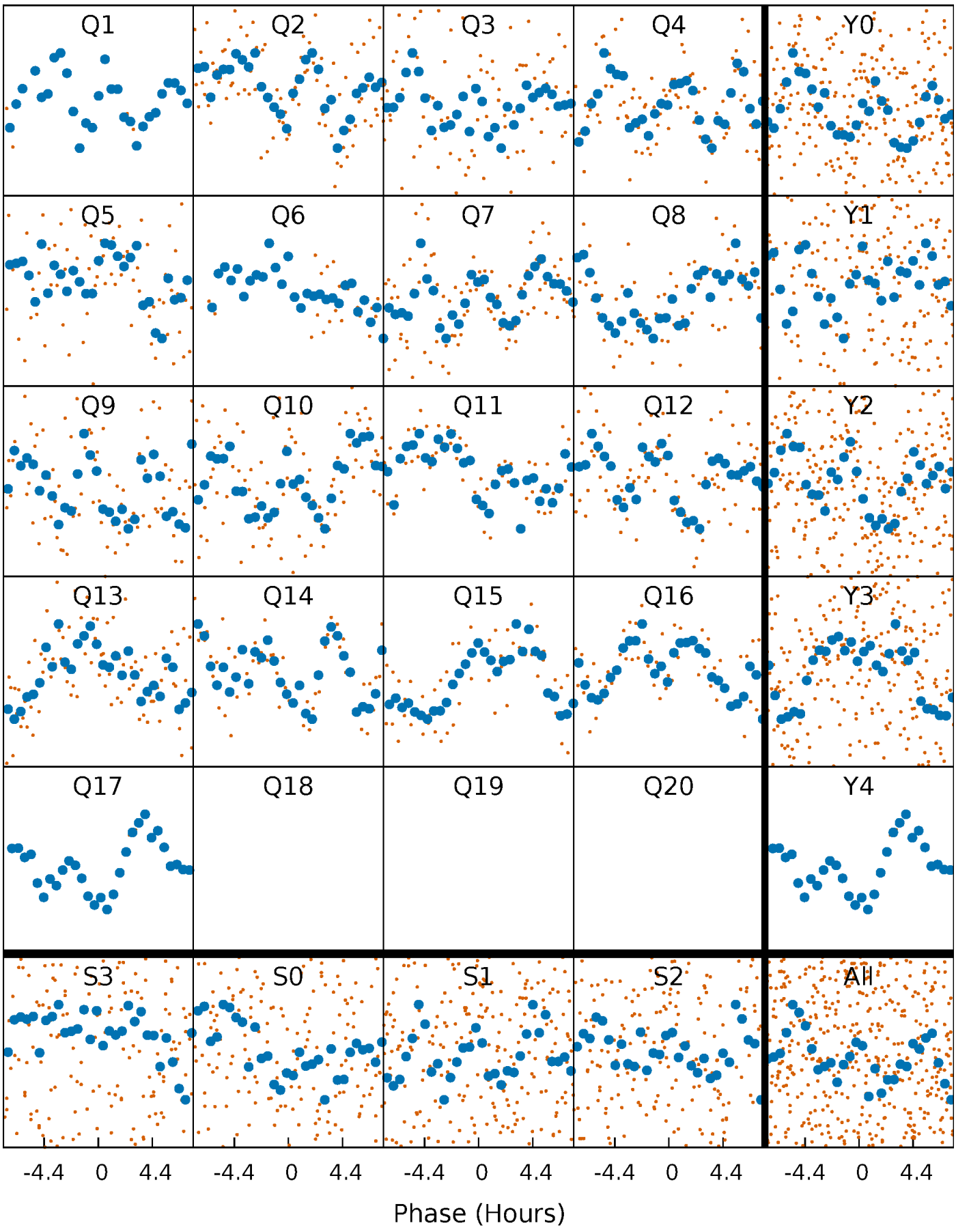
Non-Whitened Vs. Whitened Light Curve





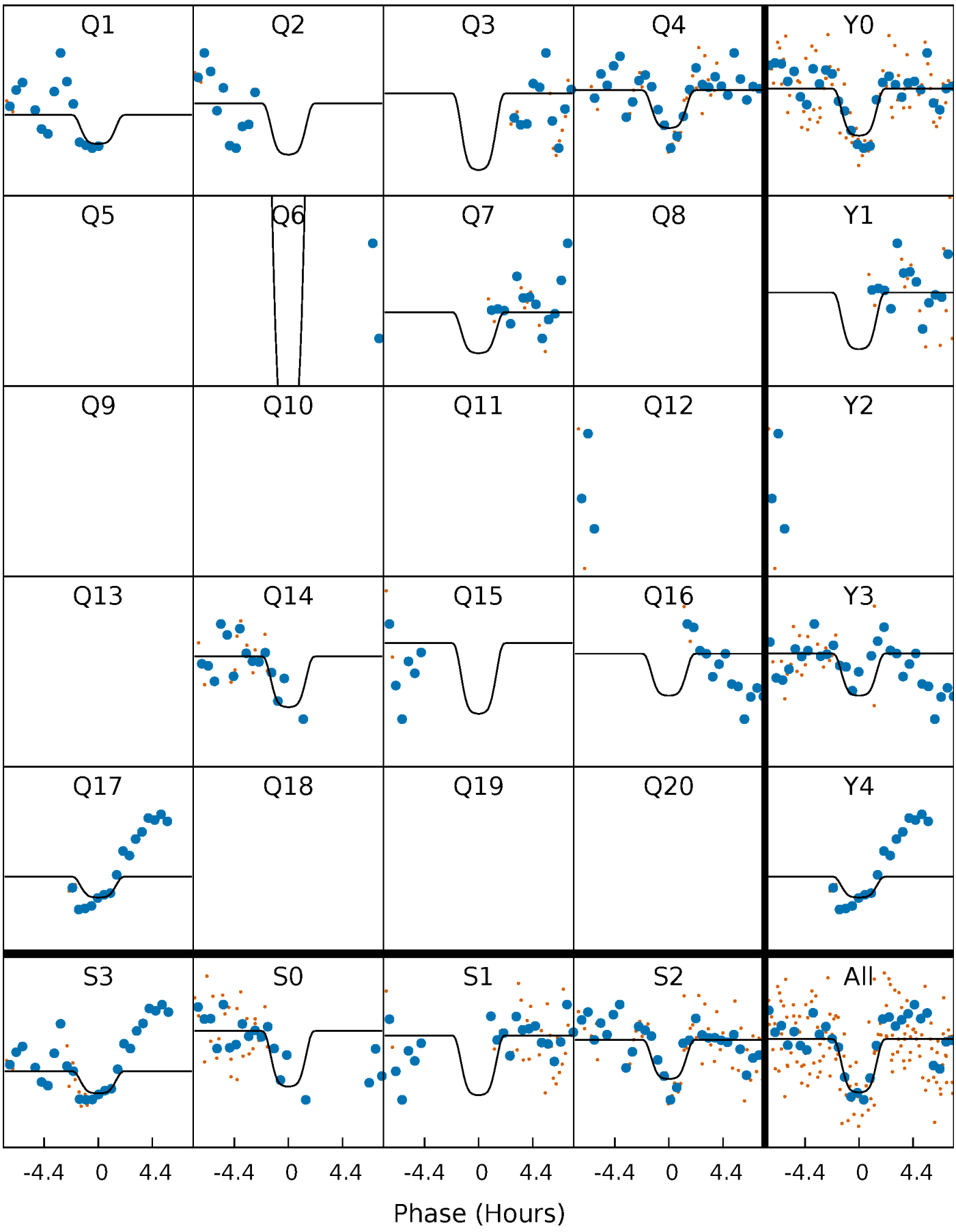
PDC Quarter-Phased Transit Curves

TCE 009242059-10 P= 31.475694 Days T_0=158.488487 (BKJD)



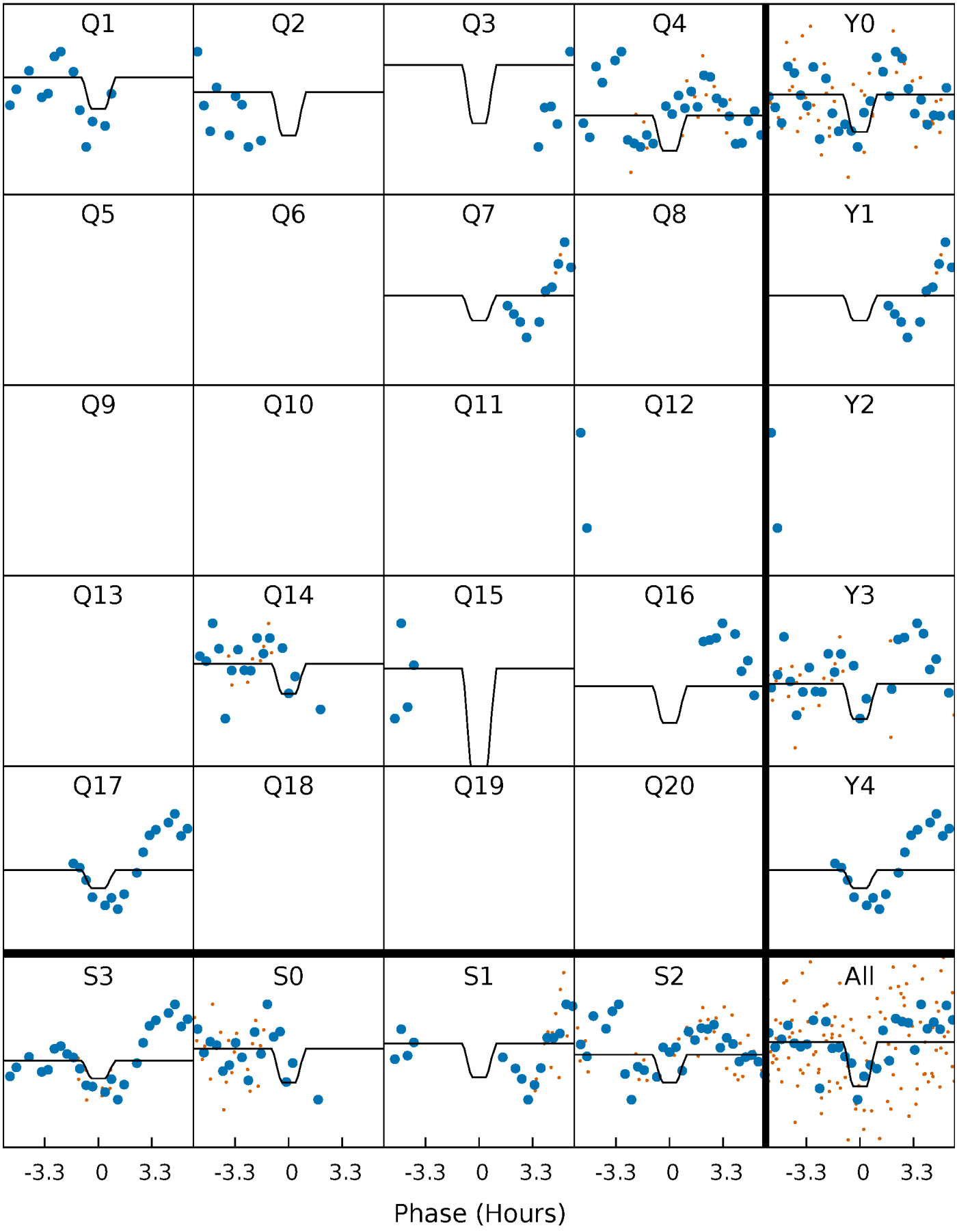
DV Quarter-Phased Transit Curves

TCE 009242059-10 P= 31.475694 Days T_0=158.488487 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

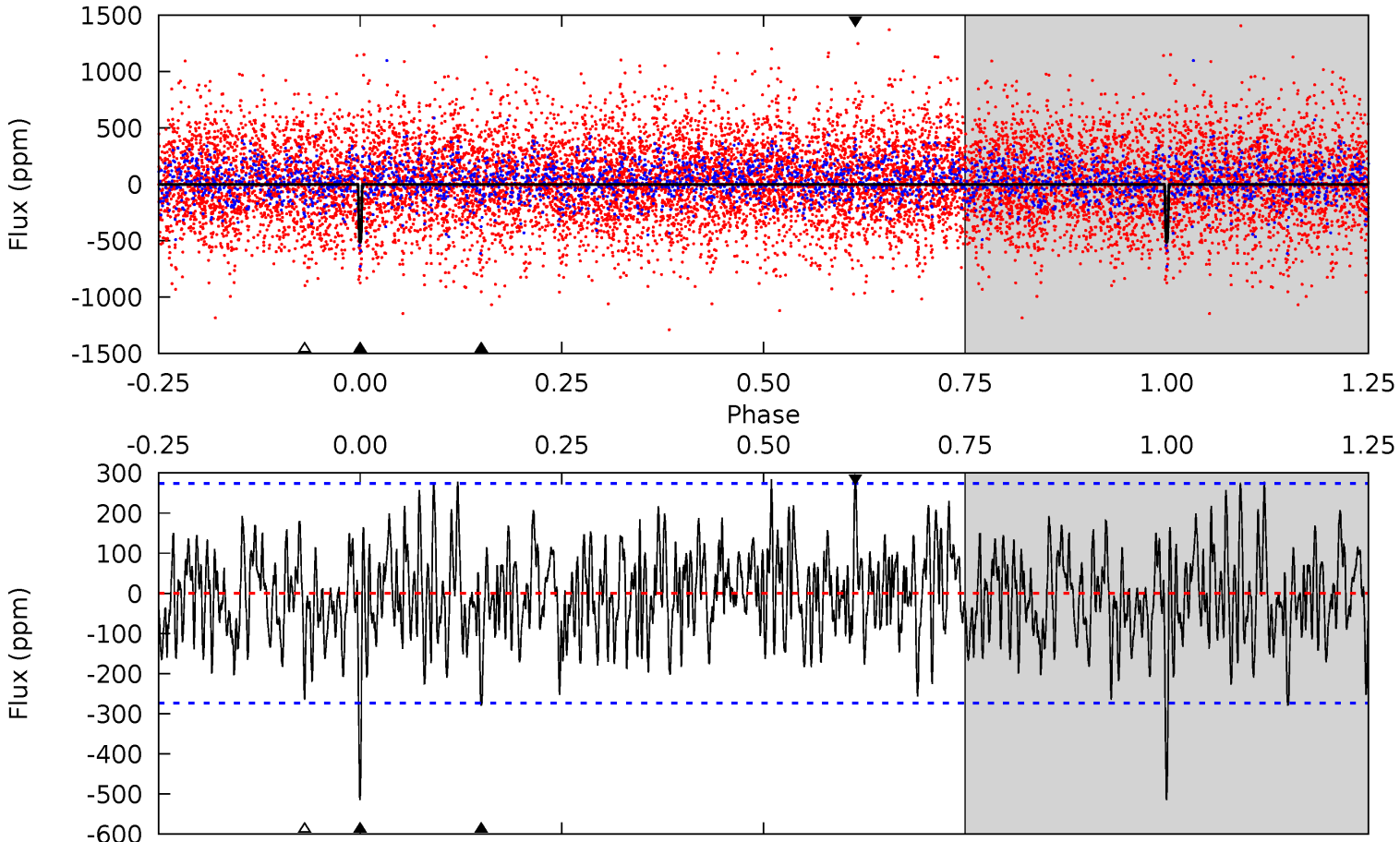
TCE 009242059-10 P= 31.475877 Days T_0=158.453918 (BKJD)

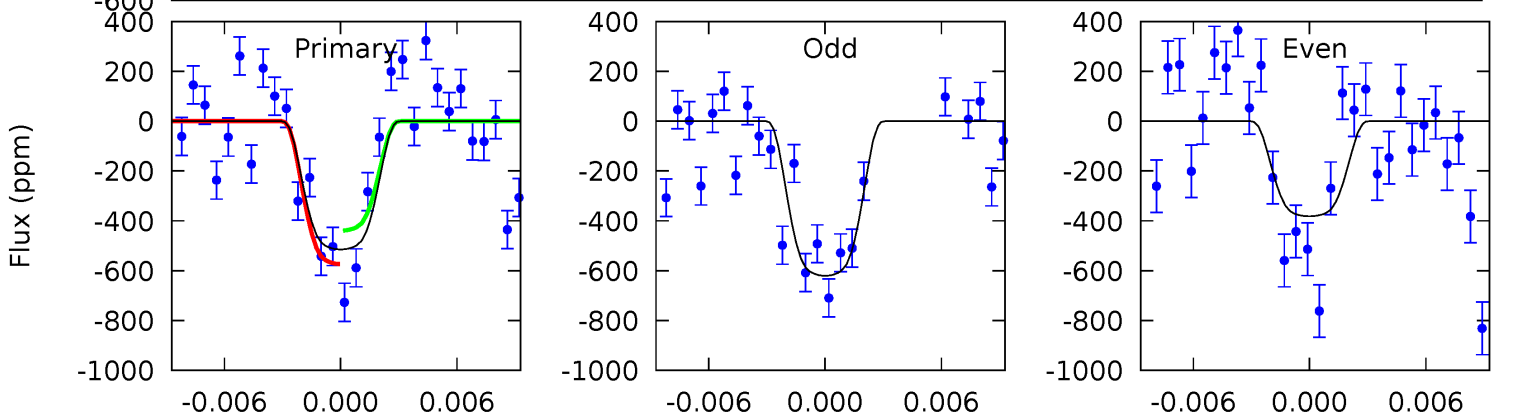


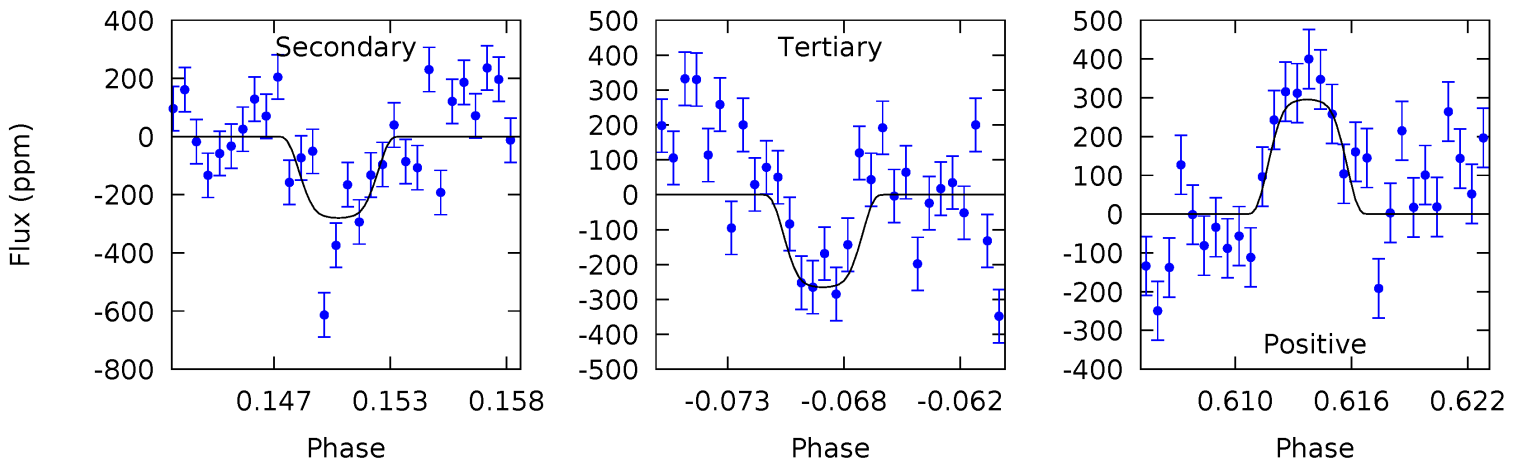
DV Model-Shift Uniqueness Test

009242059-10, P = 31.475694 Days, E = 127.012793 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.66	5.25	4.97	5.55	5.13	2.77	1.78	4.68	4.11	0.28	-0.30	2.27	0.59	0.36	1.26



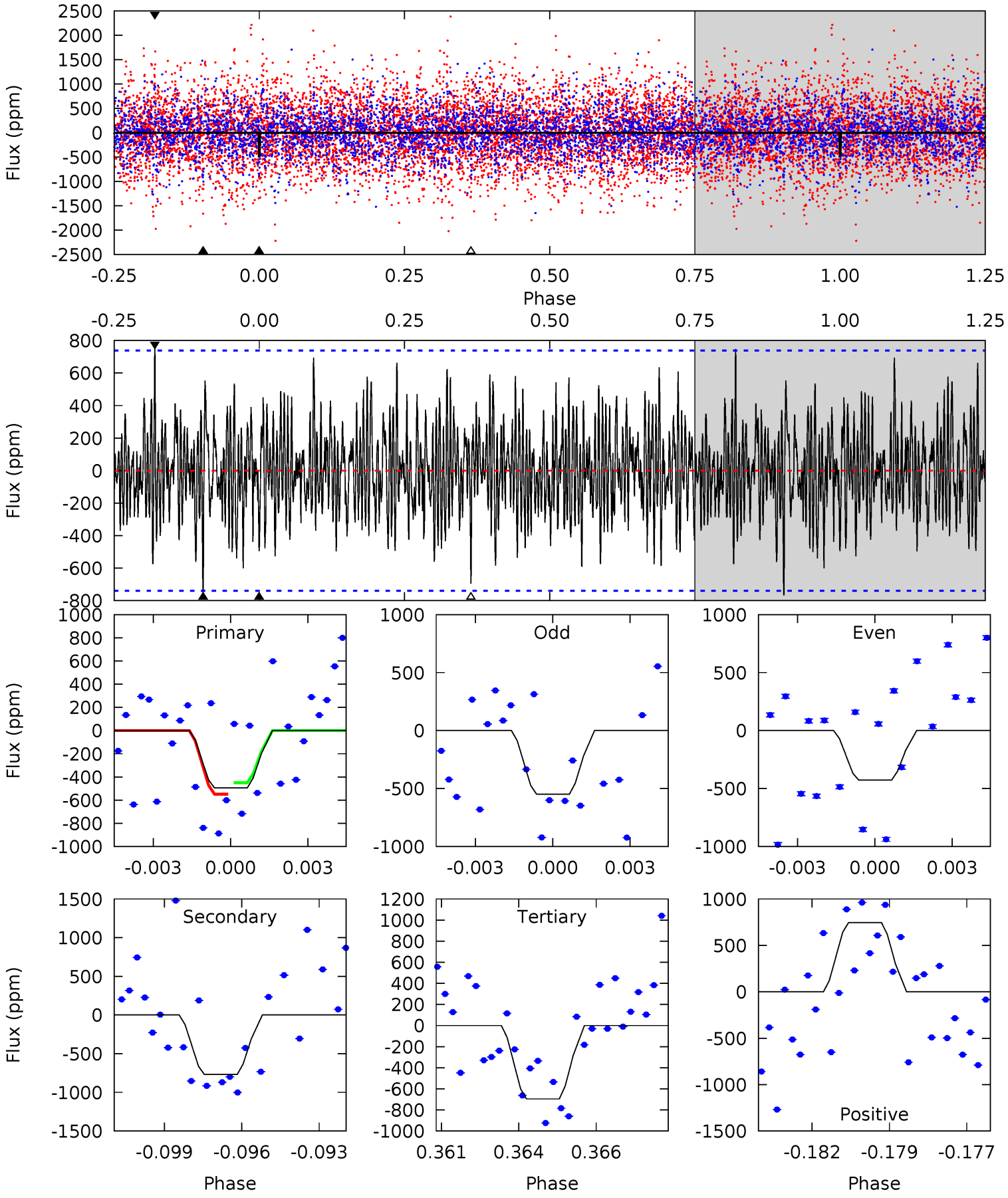




Alt Model-Shift Uniqueness Test

009242059-10, P = 31.475877 Days, E = 126.978041 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.53	5.49	4.97	5.34	5.28	3.01	1.67	-1.44	-1.80	0.52	0.16	0.43	2.20	0.49	0.35



Stellar Parameters For KIC 009242059

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6626^{+187}_{-233}	$3.875^{+0.397}_{-0.132}$	$-0.200^{+0.250}_{-0.300}$	$2.235^{+0.519}_{-0.963}$	$1.368^{+0.198}_{-0.297}$	$0.173^{+0.595}_{-0.067}$
	+3%/-4%	+10%/-3%	+125%/-150%	+23%/-43%	+14%/-22%	+345%/-39%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009242059-10 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-280±53	$6.24^{+1.45}_{-1.54}$	1285^{+100}_{-145}	5265^{+452}_{-425}	189^{+145}_{-72}
Alt.	-769±140	$5.67^{+1.51}_{-1.55}$	1278^{+104}_{-148}	6991^{+851}_{-642}	616^{+530}_{-244}

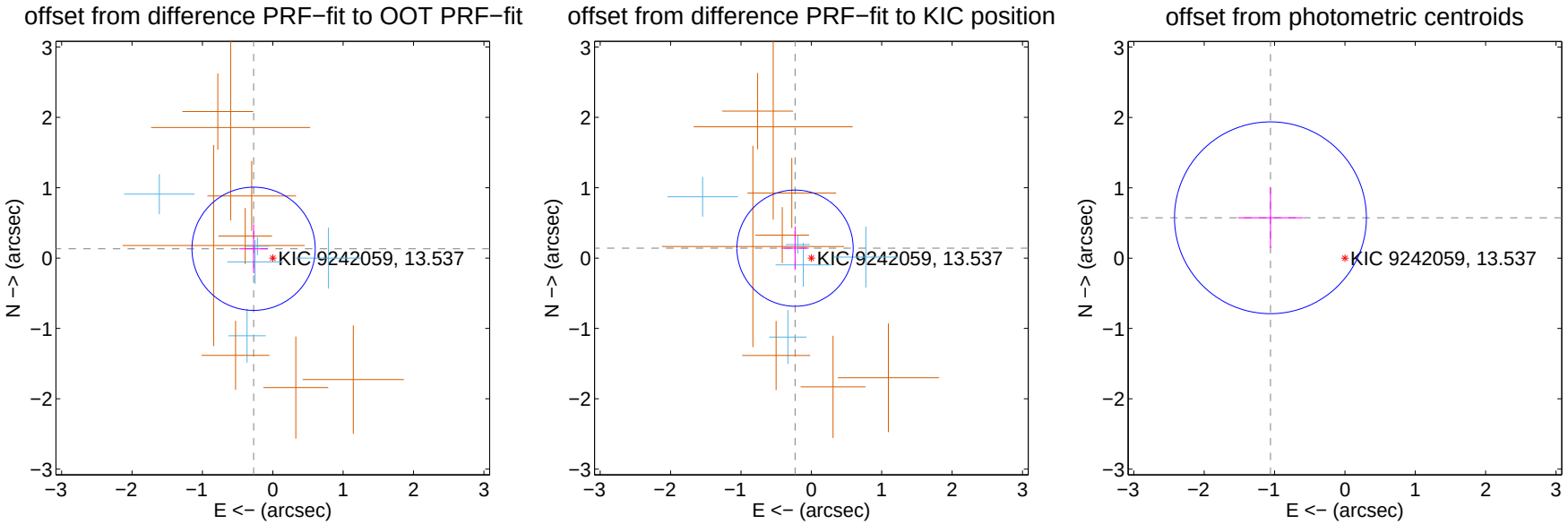
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

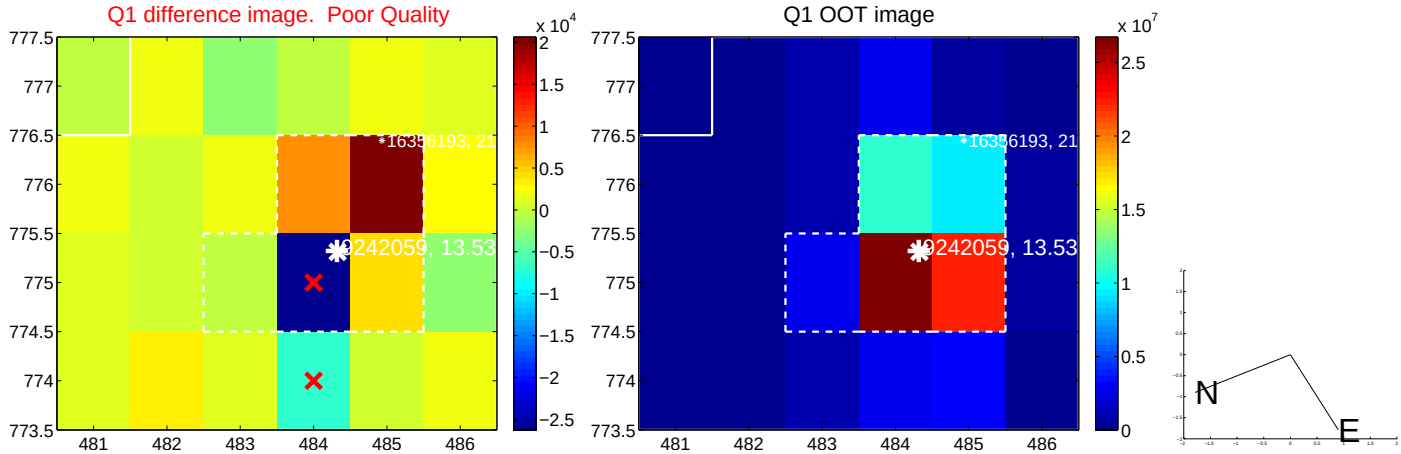
Supplemental centroid analysis for 009242059-10. Kepler magnitude: 13.54. Transit SNR 8.97
There are 5 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

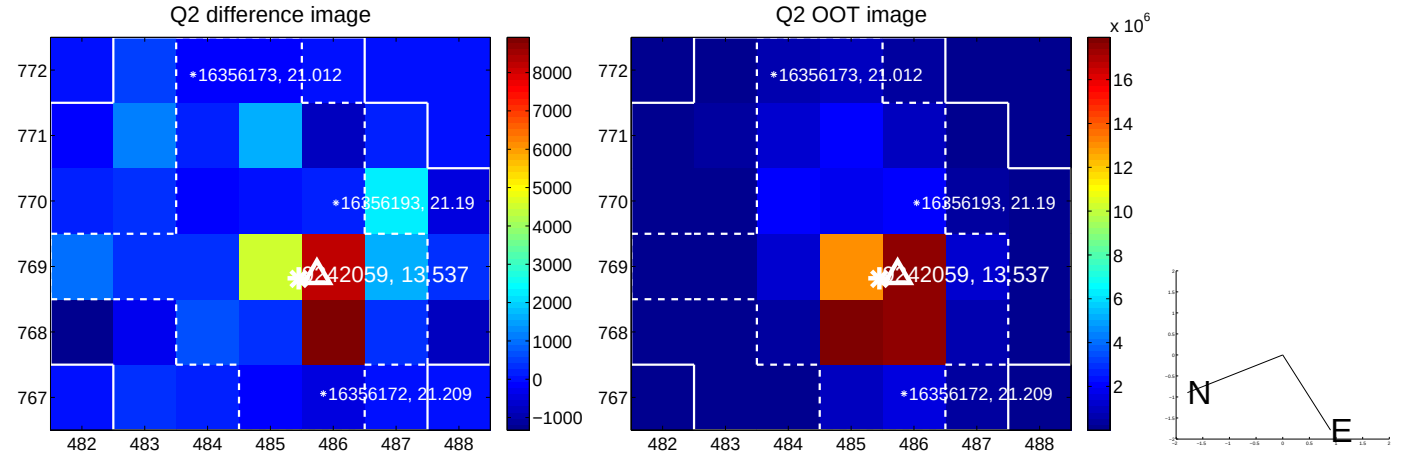
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.303 ± 0.292	1.04	0.272 ± 0.203	0.132 ± 0.347
PRF-fit source offset from KIC position	0.271 ± 0.275	0.98	0.232 ± 0.194	0.141 ± 0.308
photometric centroid source offset	1.20 ± 0.45	2.65	1.06 ± 0.46	0.57 ± 0.43

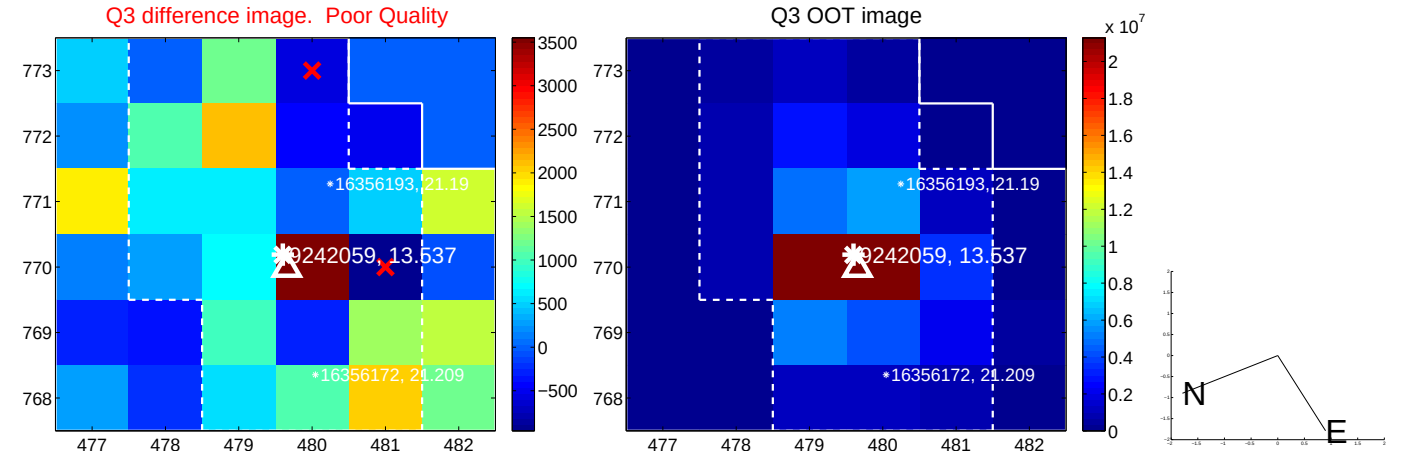


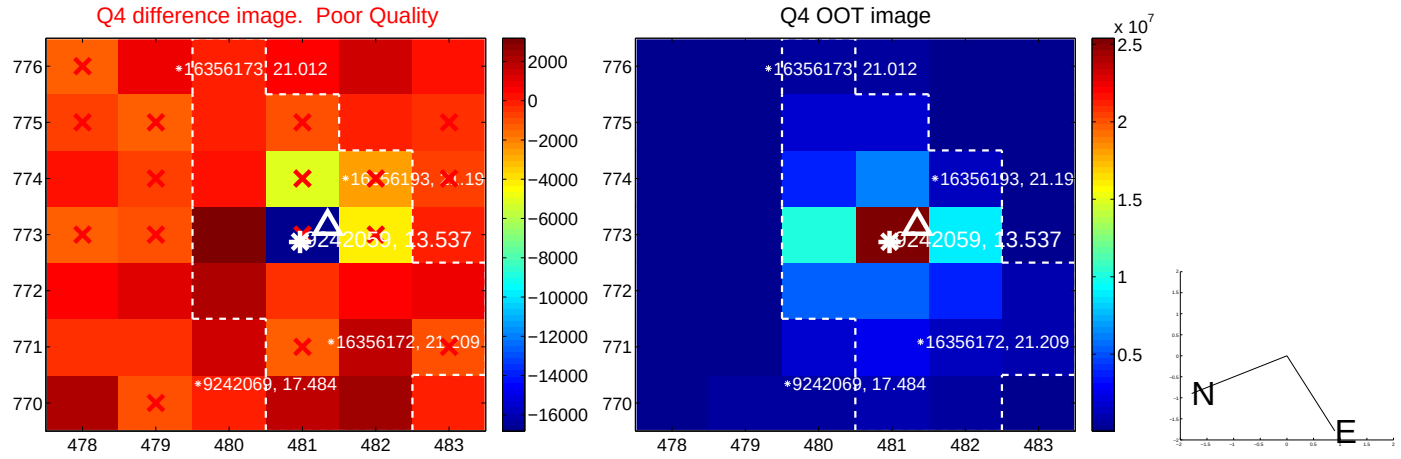
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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









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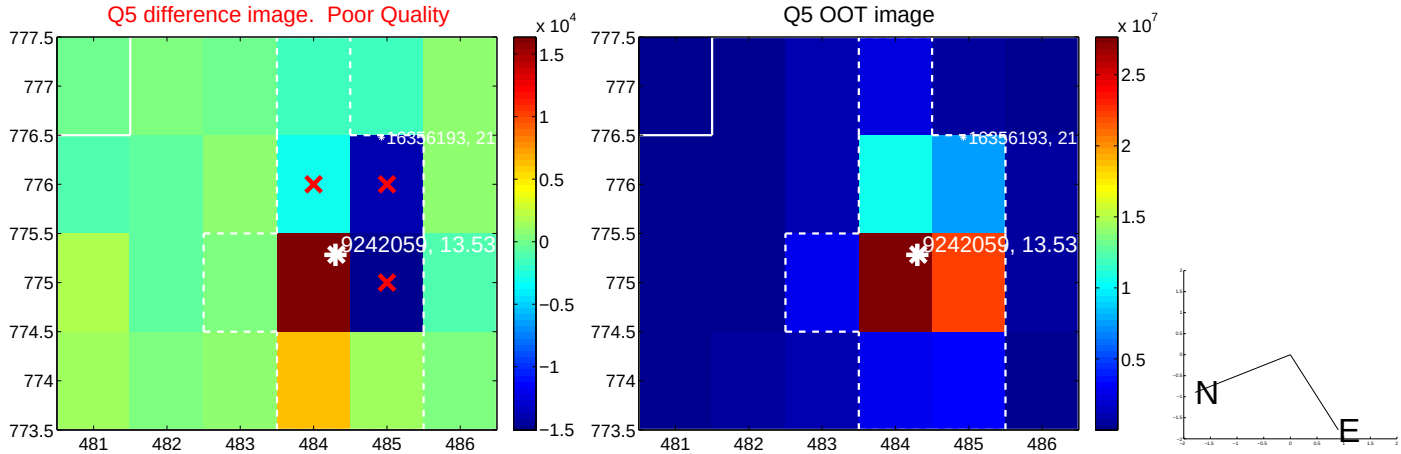

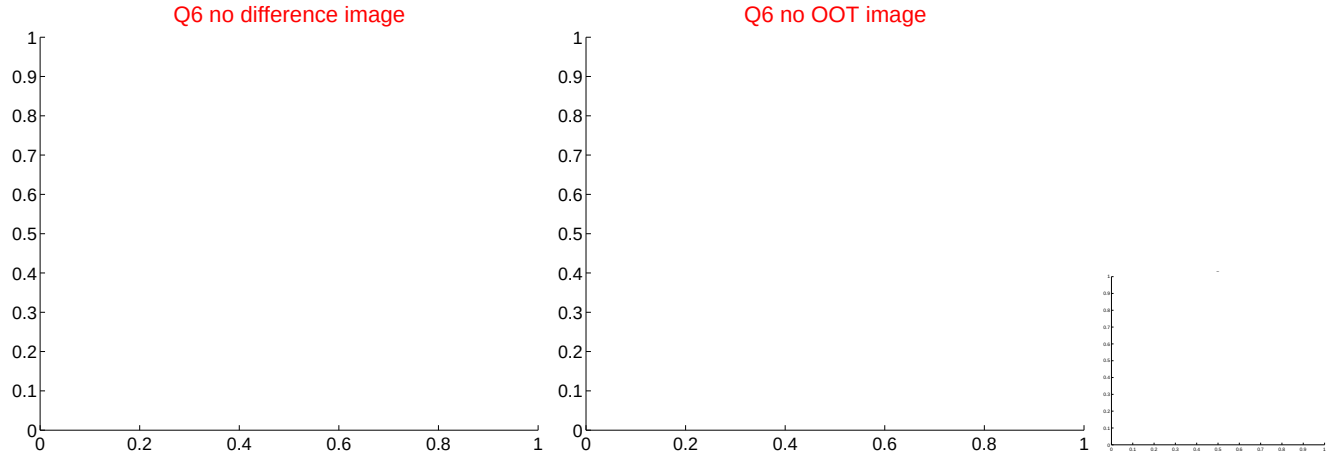

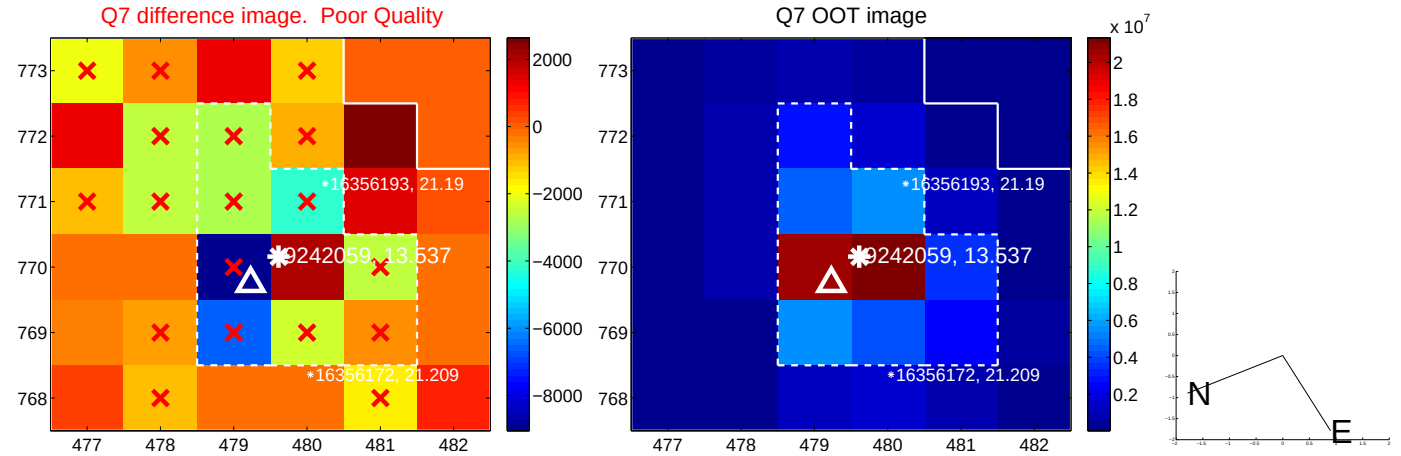

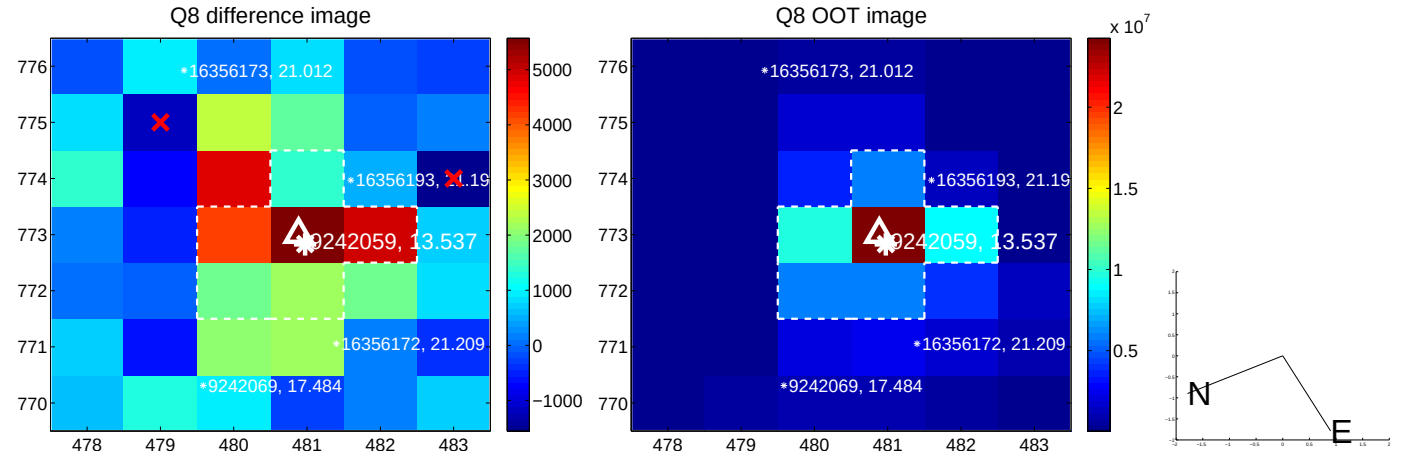

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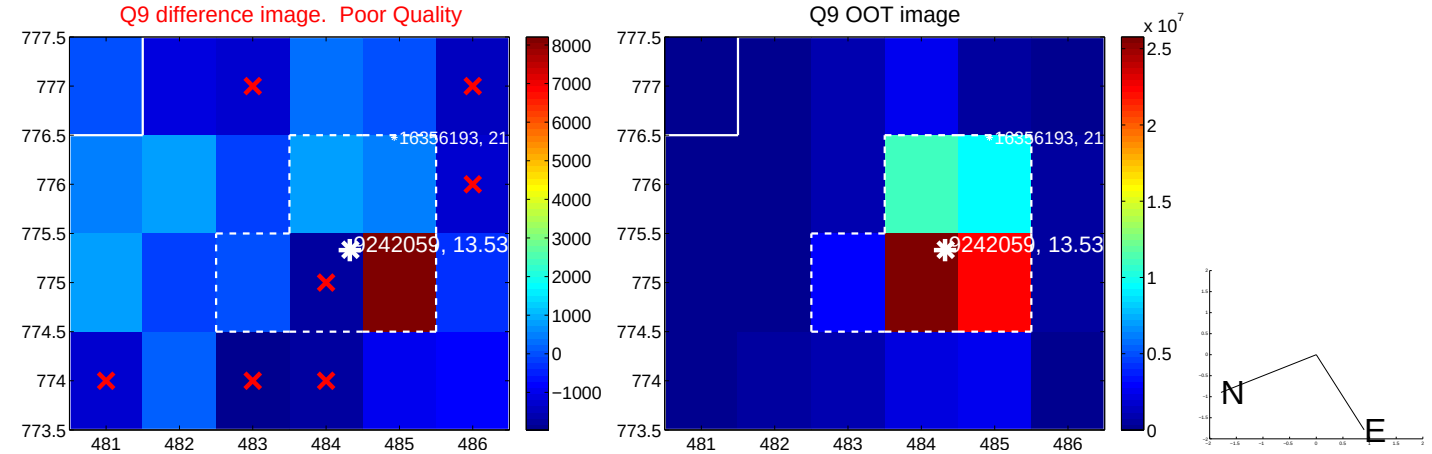

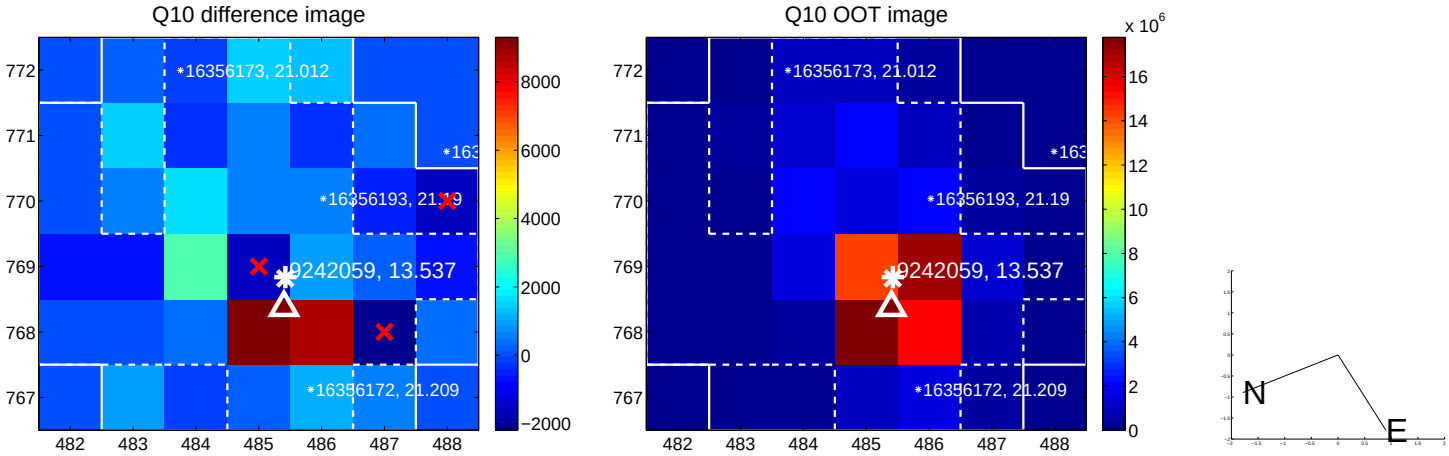

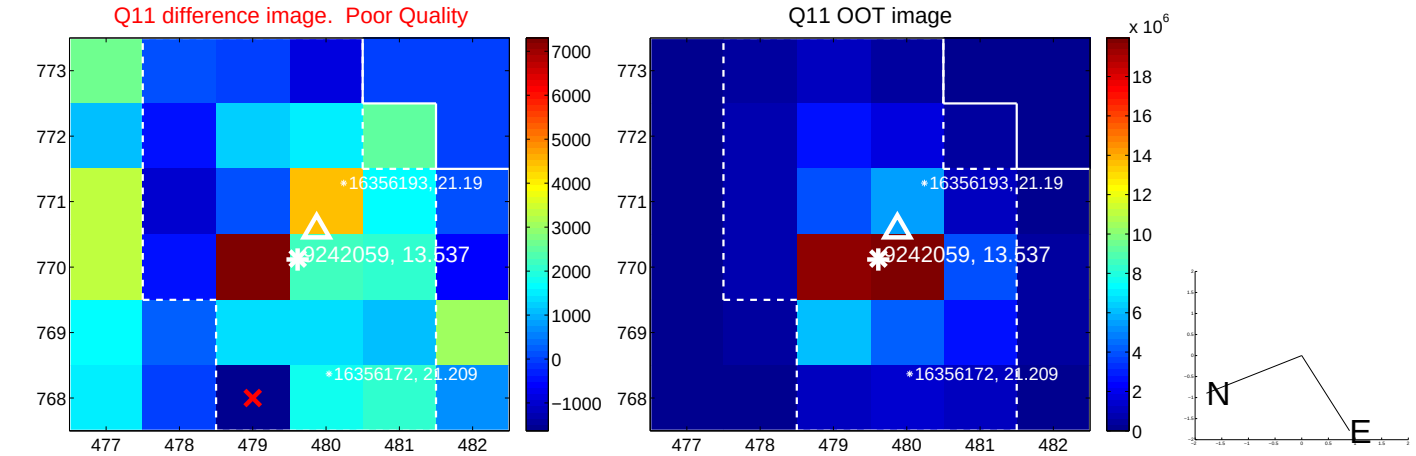

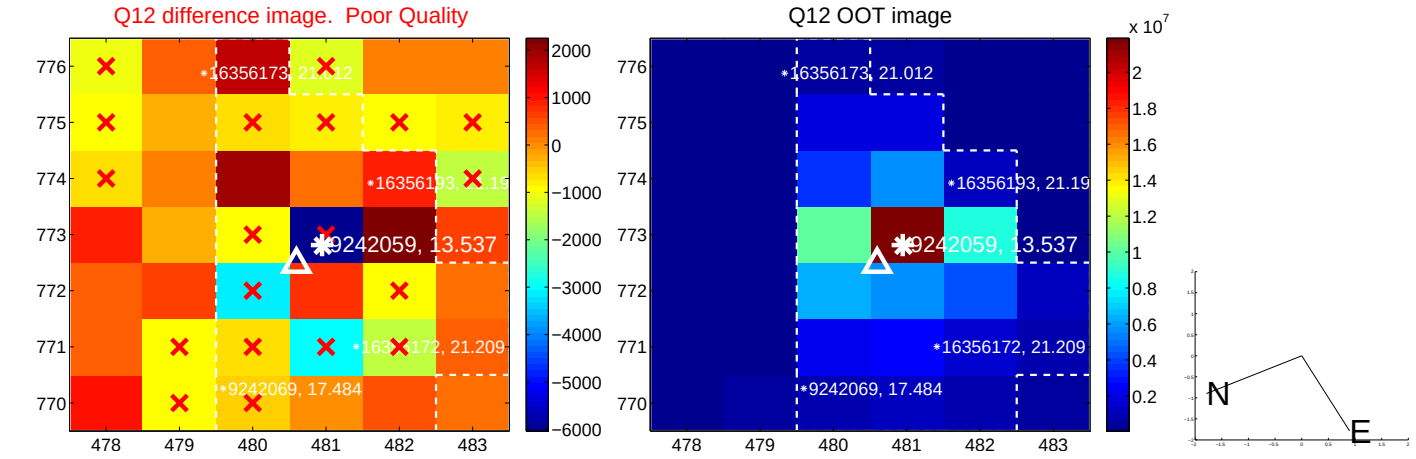

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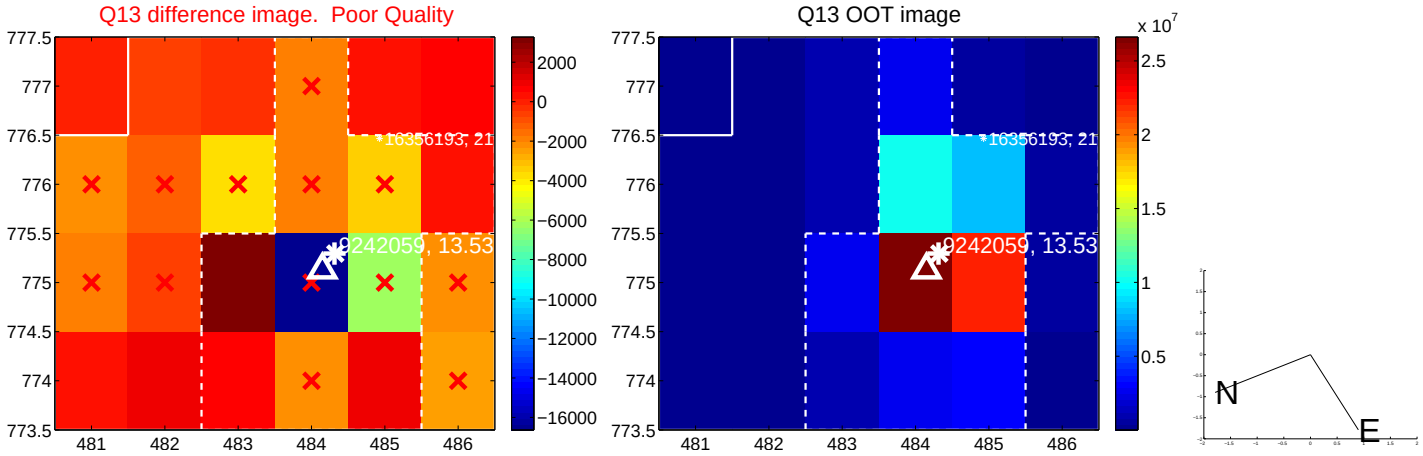

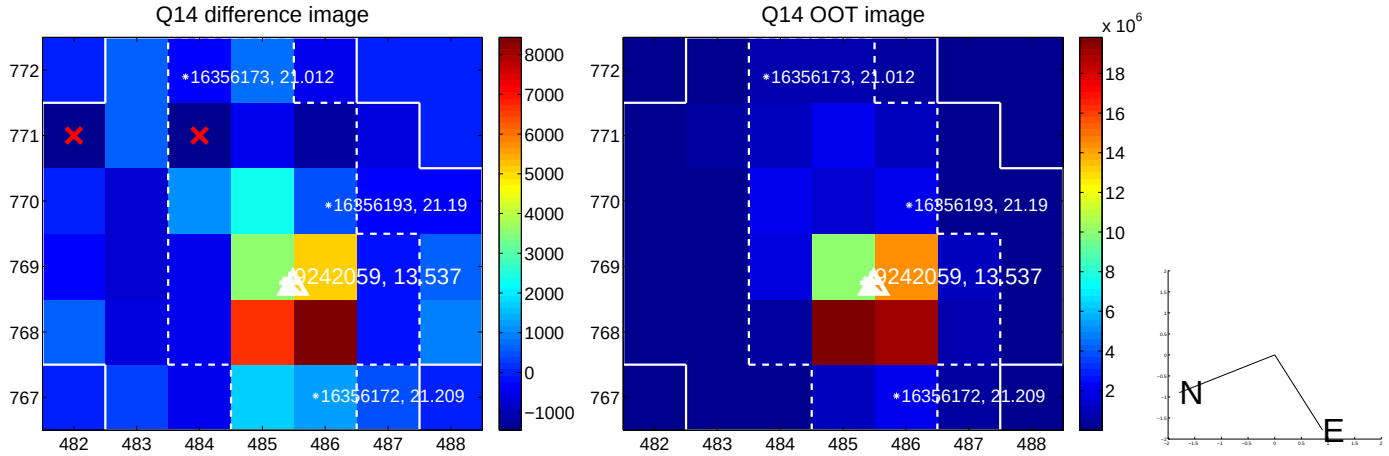

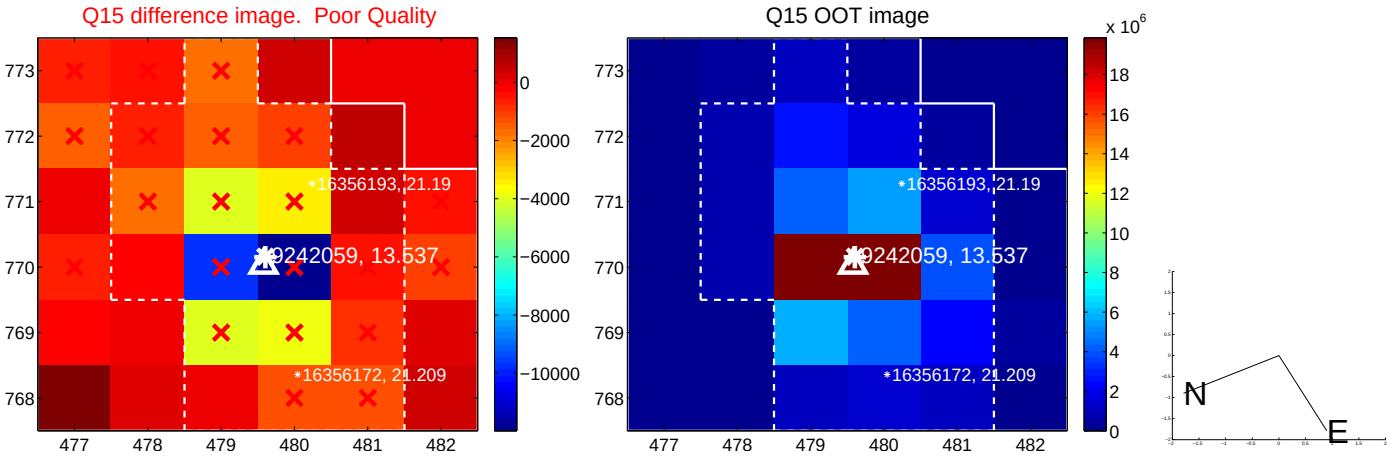

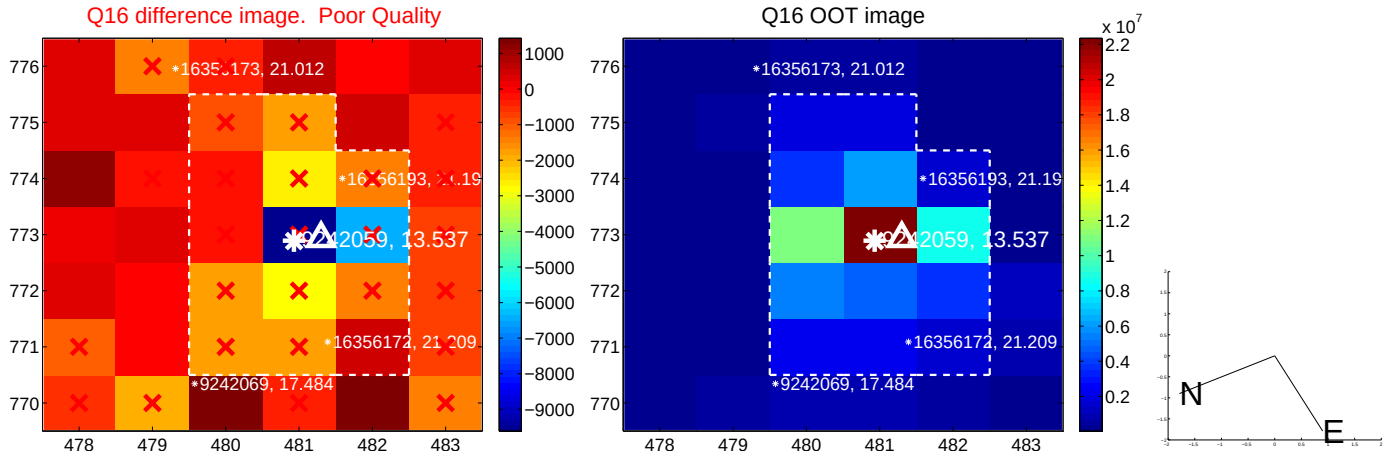

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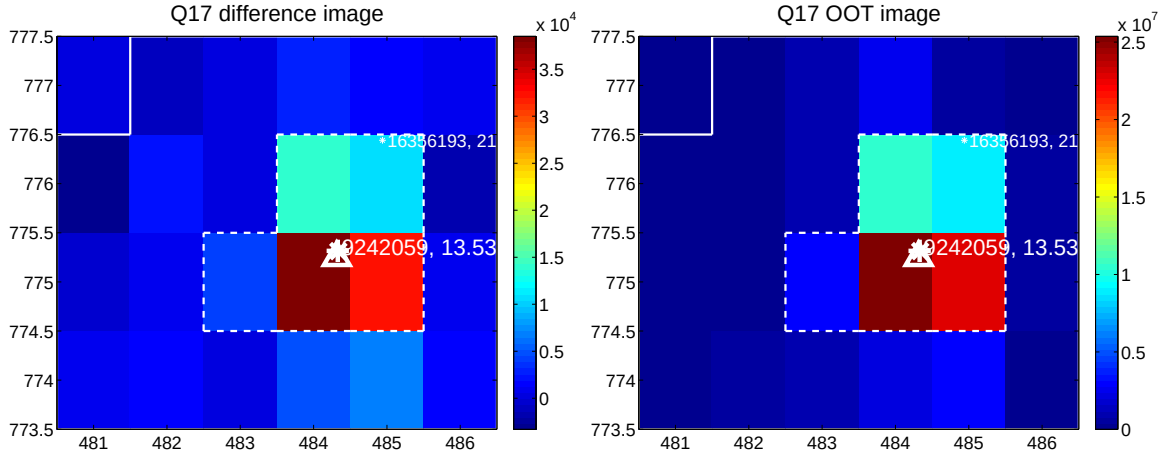
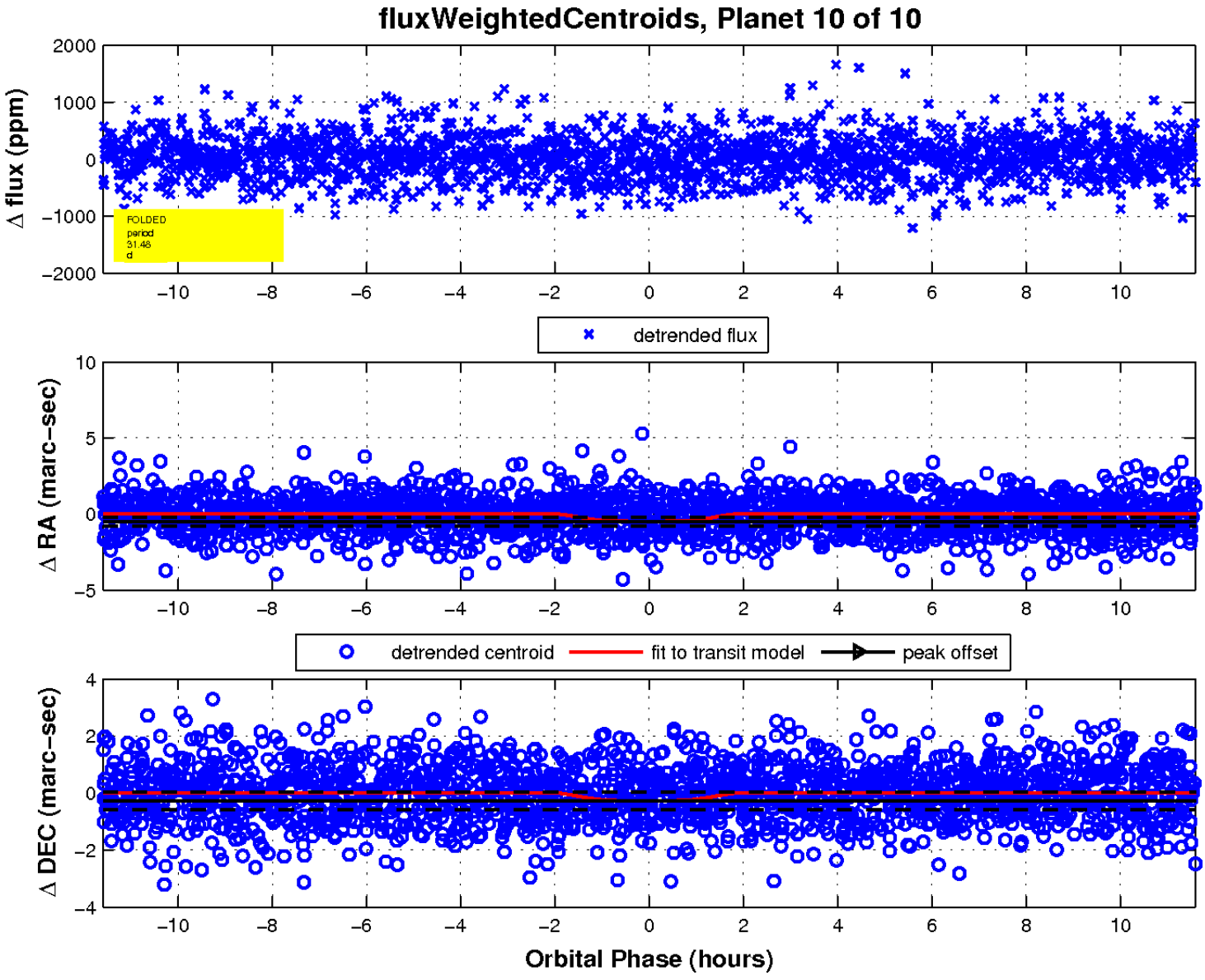
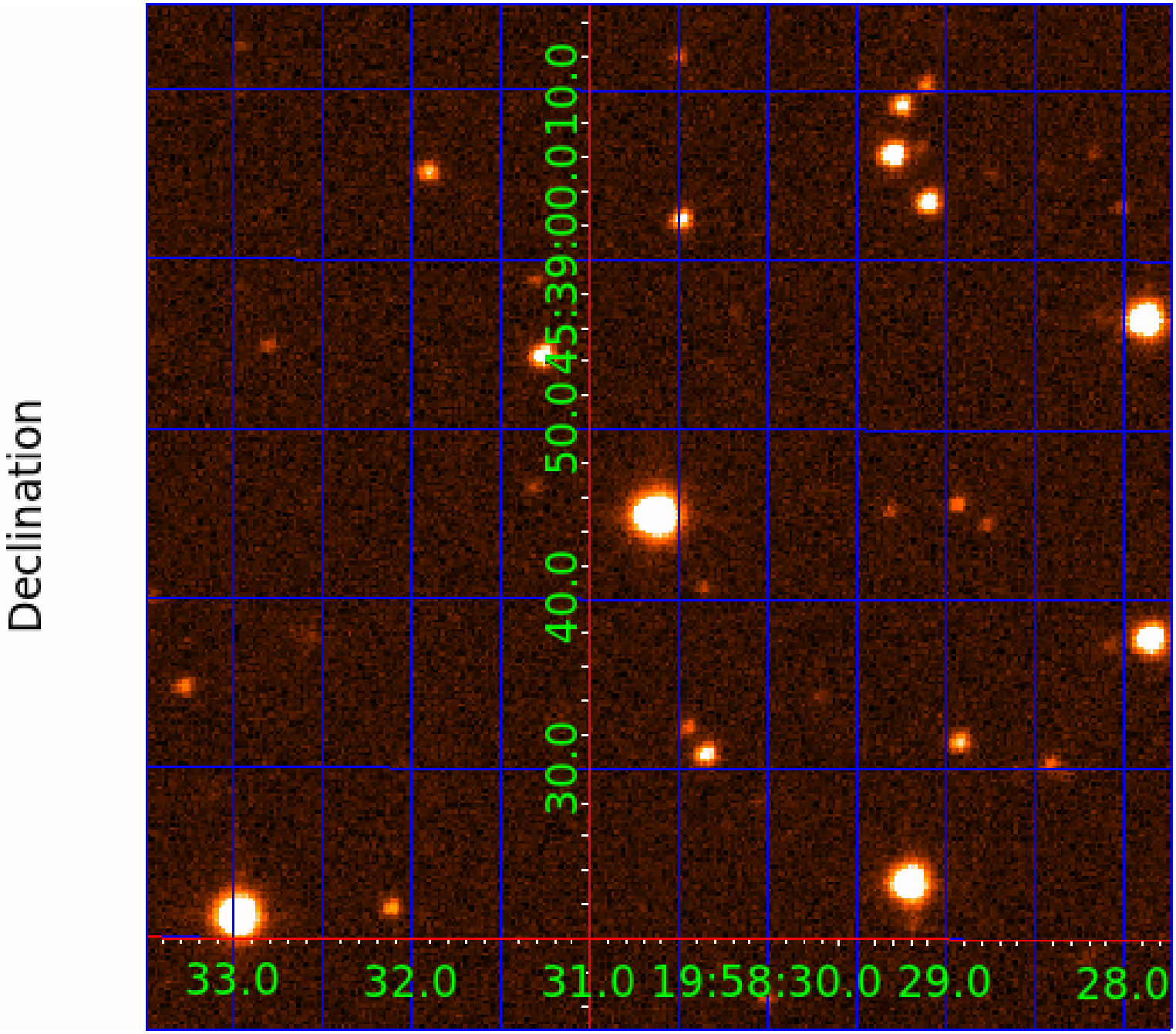




UKIRT Image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