KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

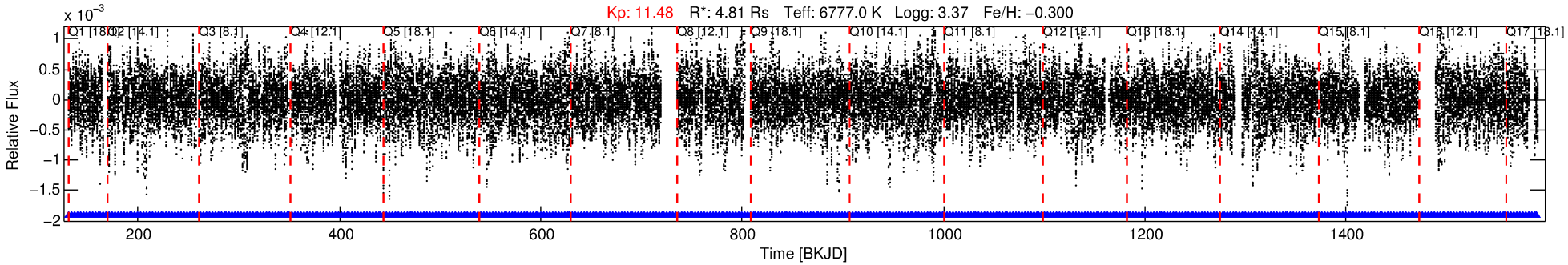
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

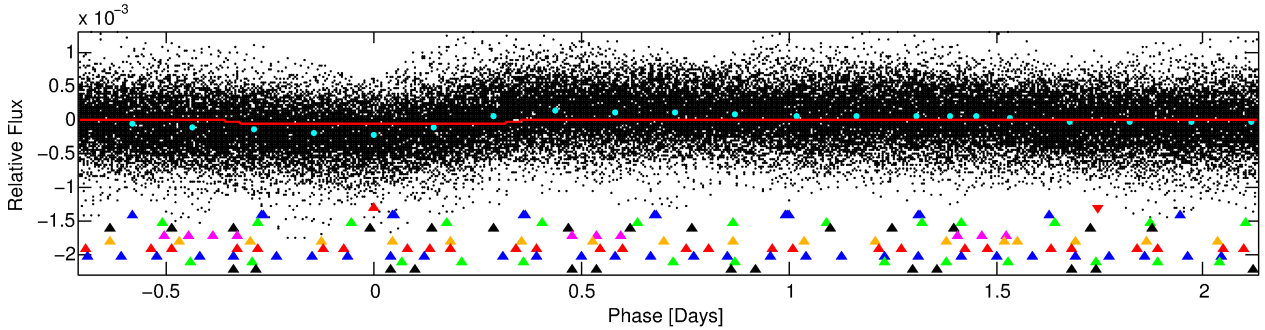
Ephemeris Match Information For 009027876-01

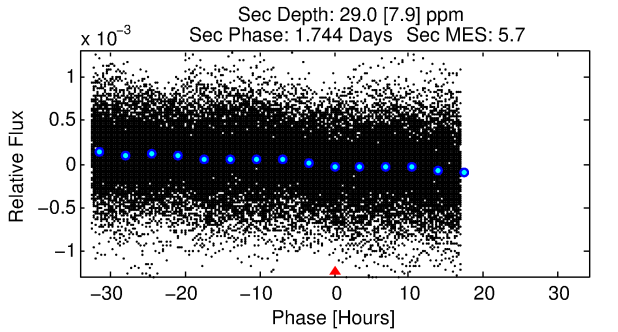
No Significant Match Found

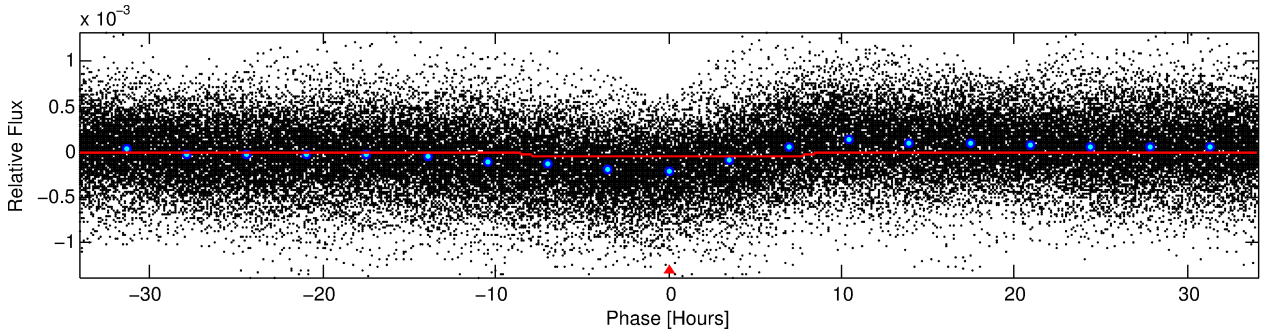
DV One-Page Summary

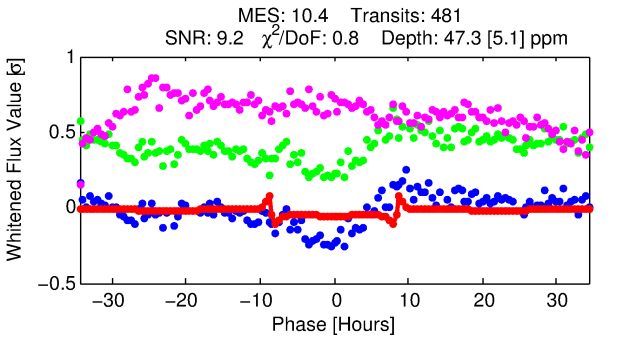
KIC: 9027876 Candidate: 1 of 10 Period: 2.841 d

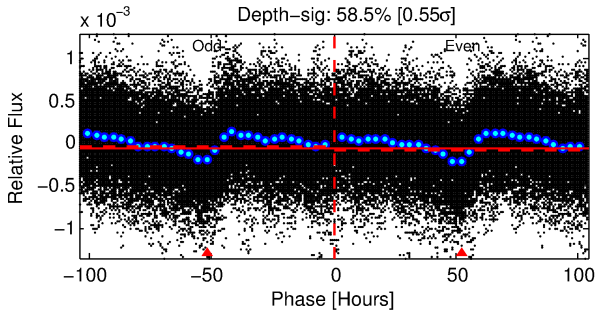


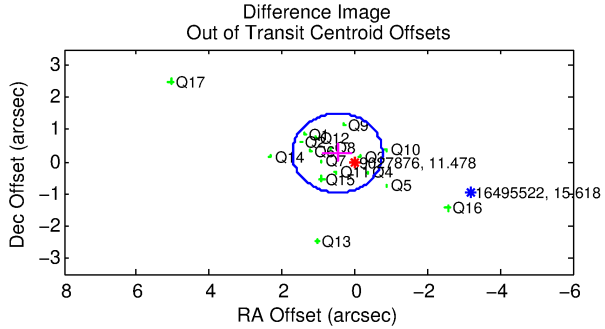












DV Fit Results:

Period = 2.84138 [0.00002] d
Epoch = 131.8985 [0.0035] BKJD
Rp/R* = 0.0071 [0.0006]
a/R* = 1.14 [0.09]
b = 0.85 [0.11]

Seff = 17982.94 [12407.48]
Teq = 2953 [509] K
Rp = 3.72 [1.58] Re
a = 0.0493 [0.0206] AU

Ag = 2.80 [2.10] [0.86σ]
Teffp = 5905 [492] K [4.17σ]

DV Diagnostic Results:

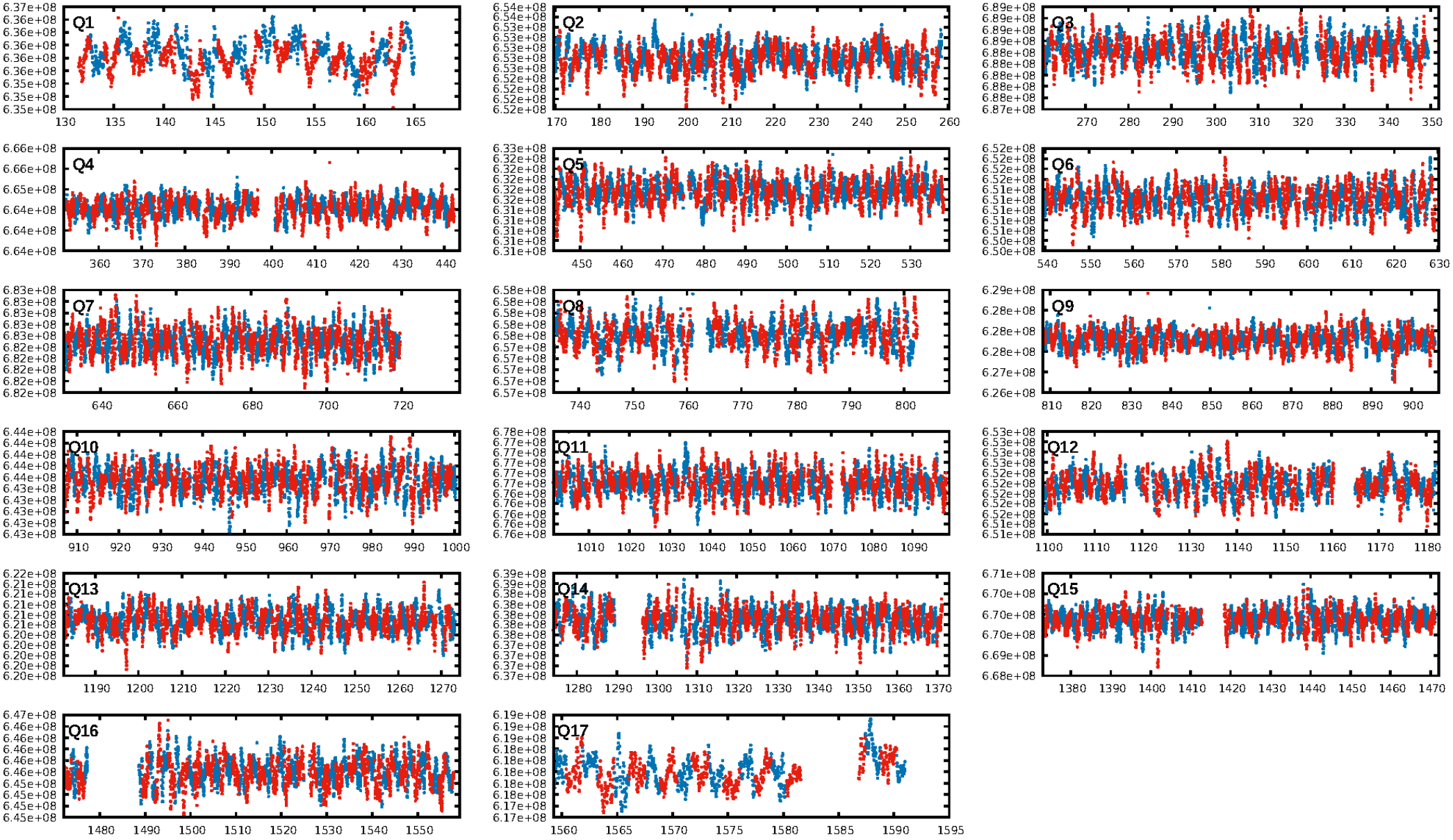
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [57.63σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [459/459]
GhostDiagnostic−chr: 1.311

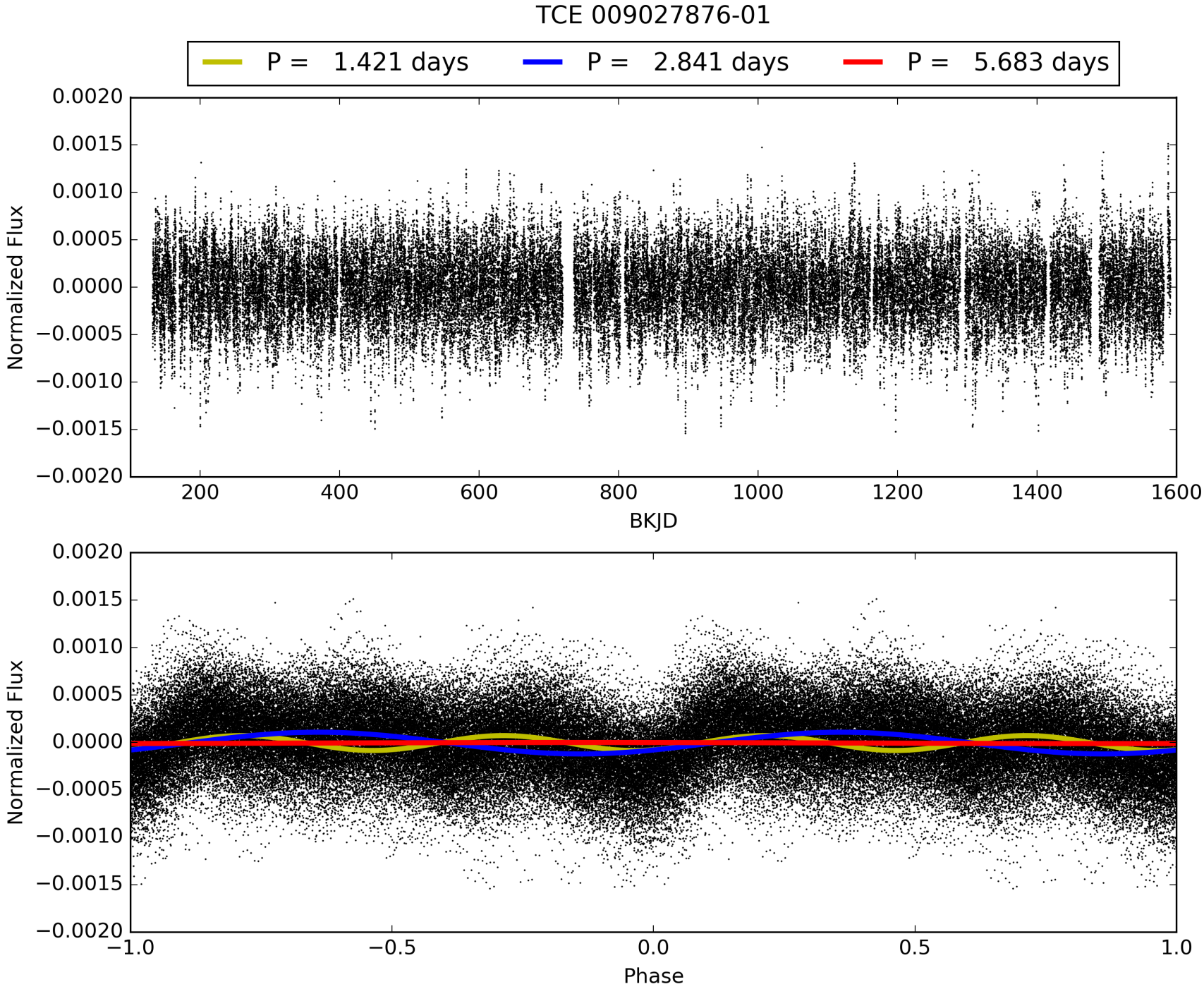
Centroid−sig: 8.0%
Centroid−so: 0.109 arcsec [0.68σ]
OotOffset−rm: 0.549 arcsec [1.33σ]
KicOffset−rm: 0.497 arcsec [1.21σ]
OotOffset−st: 4/4/4/5 [17]
KicOffset−st: 4/4/4/5 [17]
DiffImageQuality−fgm: 0.82 [14/17]
DiffImageOverlap−fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:58:51 Z

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

TCE 009027876-01, PDC Light Curves

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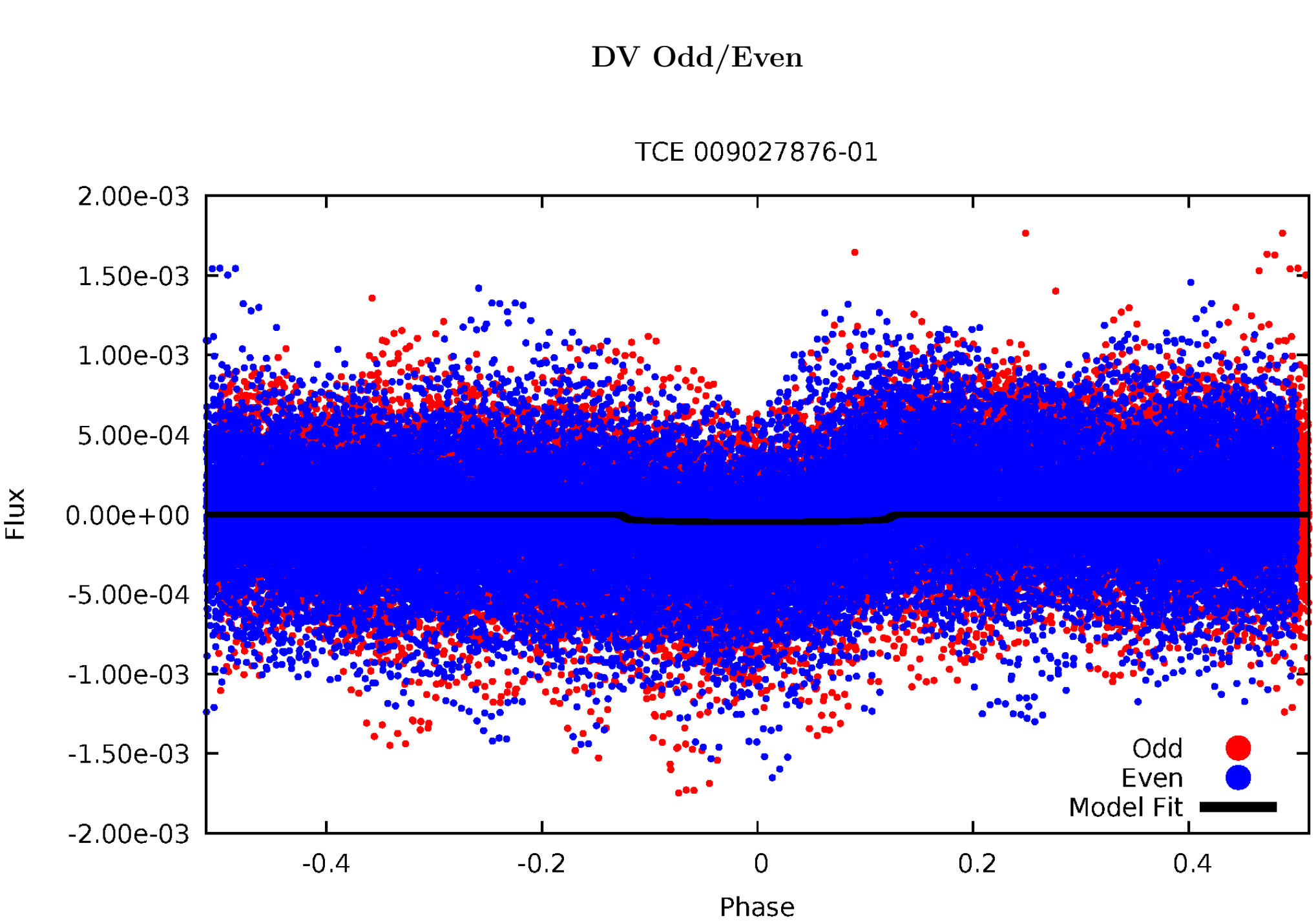
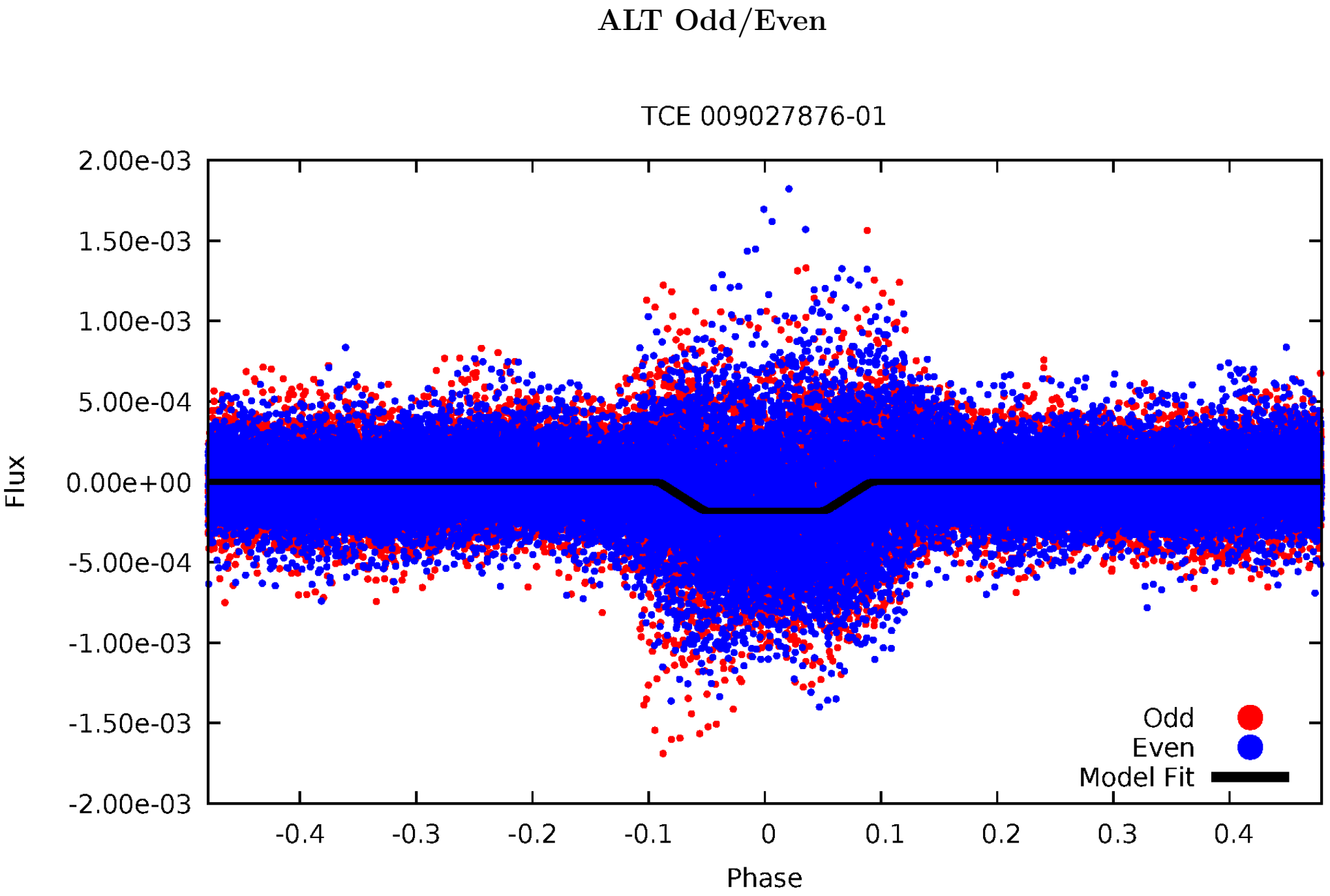
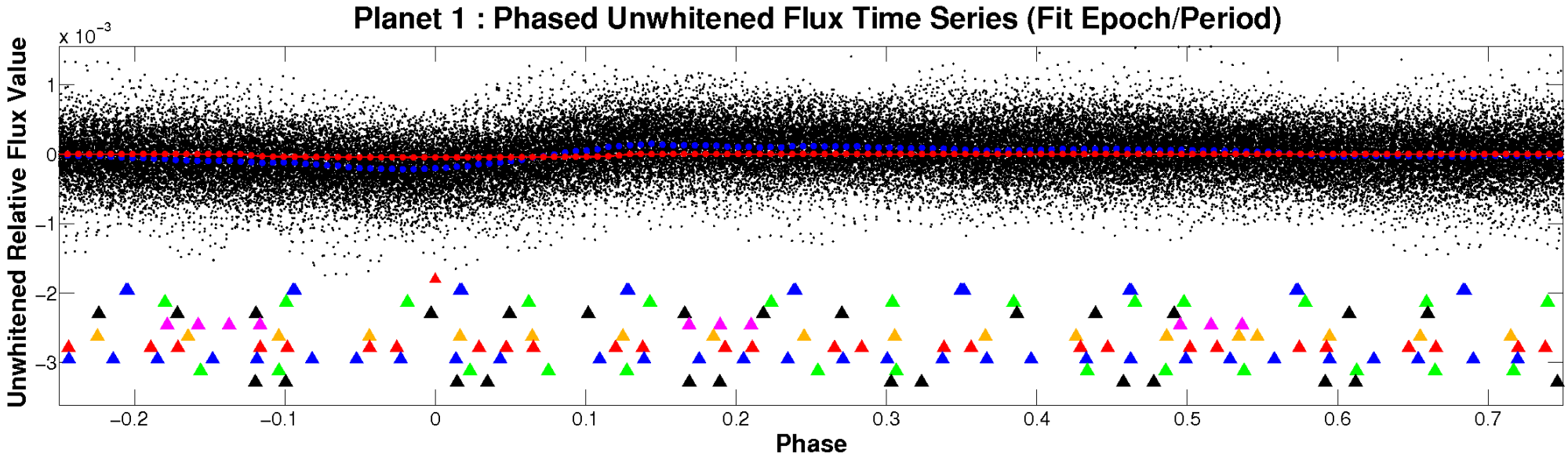
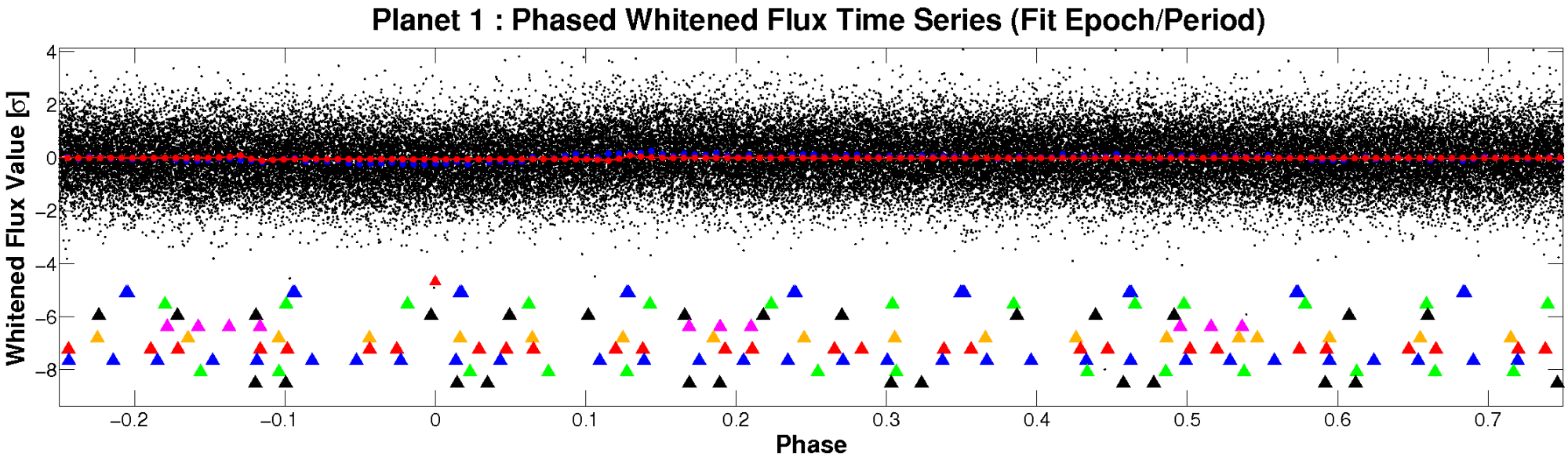
P = 2.841 days
P = 5.683 days
Normalized Flux
BKJD
Normalized Flux
Phase


DV Odd/Even
TCE 009027876-01
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
Flux
-0.4
-0.2
0
0.2
0.4
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009027876-01
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
Flux
-0.4
-0.3
-0.2
-0.1
0
0.1
0.2
0.3
0.4
Phase
Odd
Even
Model Fit

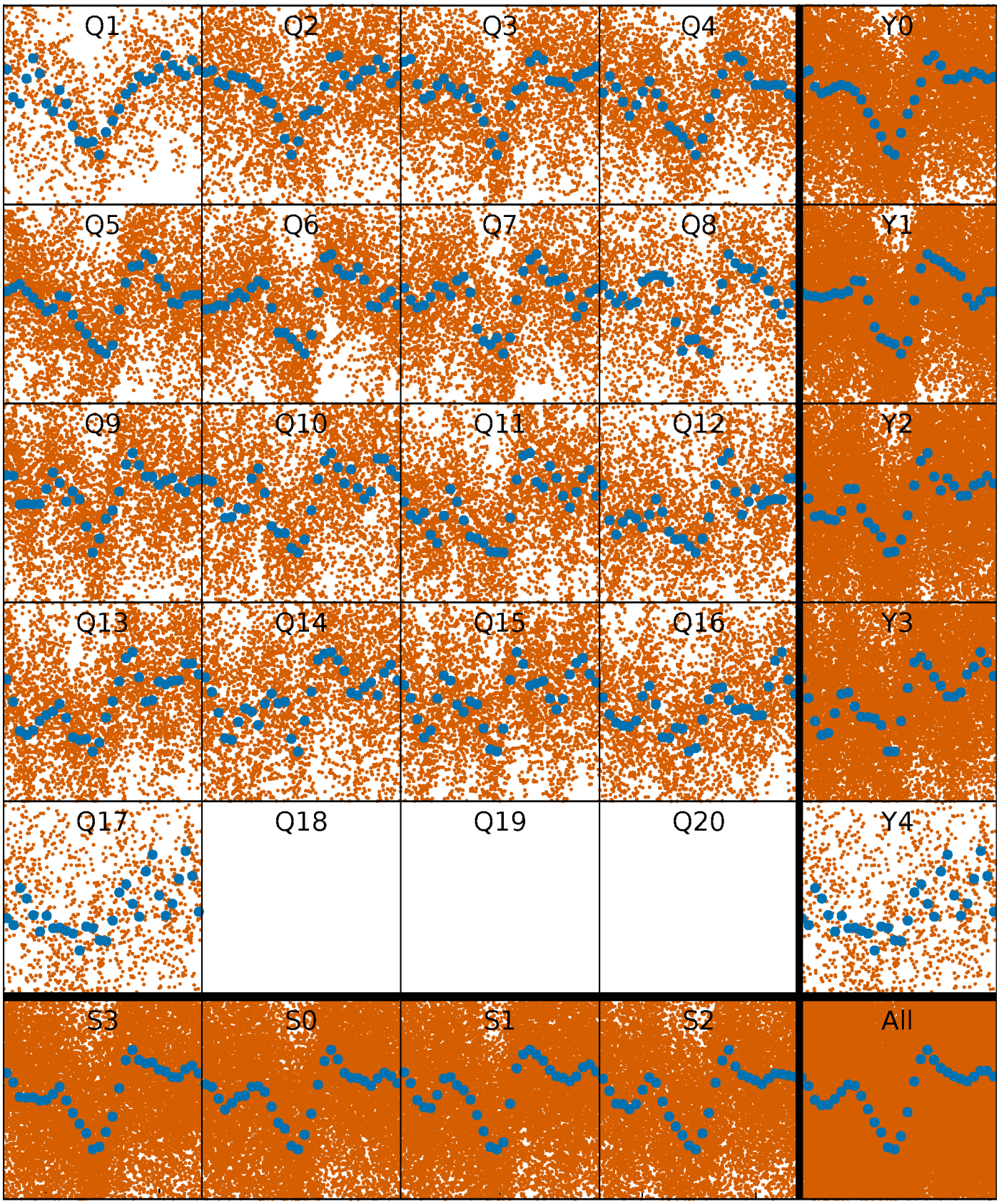
Non-Whitened Vs. Whitened Light Curve





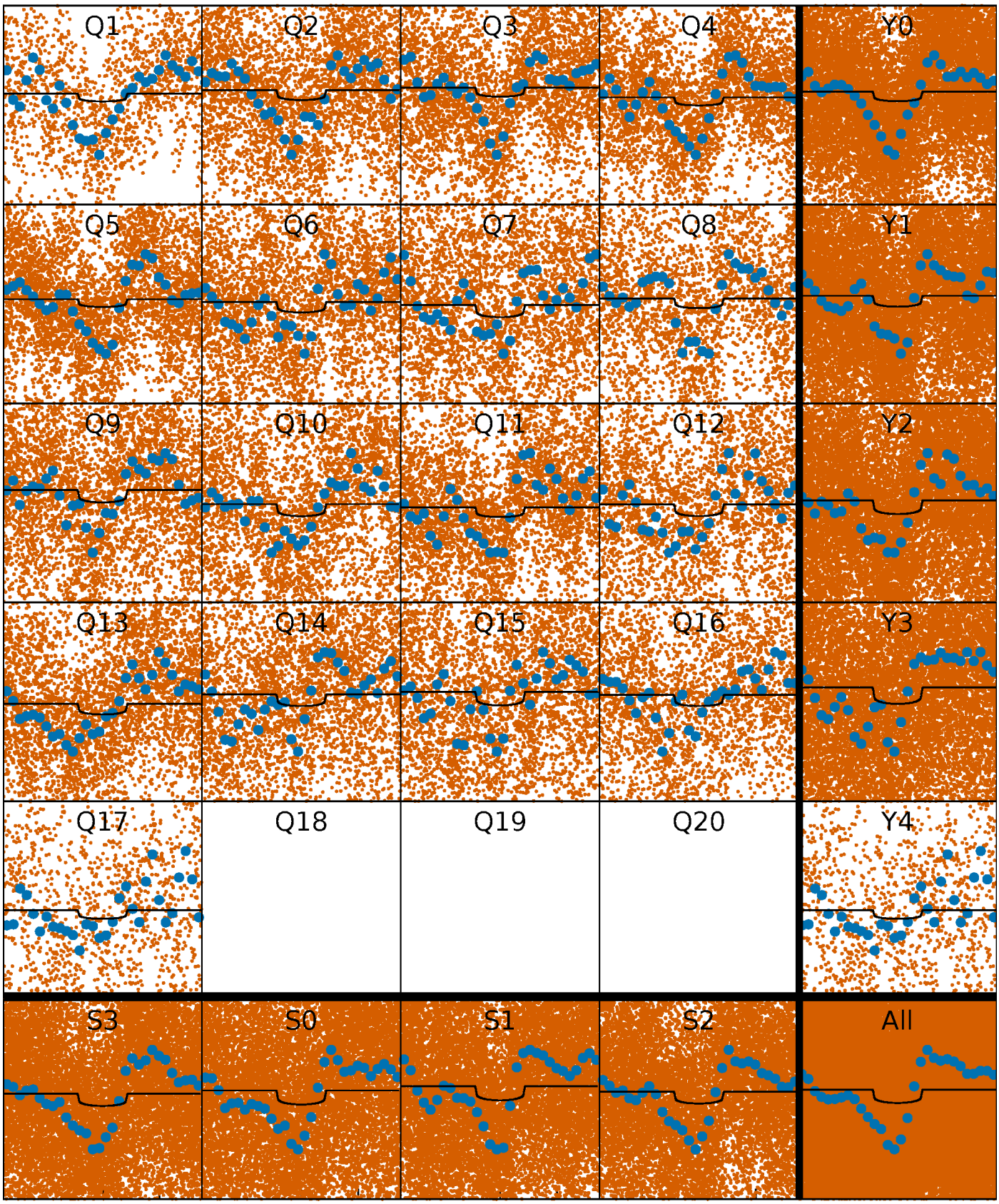
PDC Quarter-Phased Transit Curves

TCE 009027876-01 P= 2.841382 Days T_0=131.898545 (BKJD)



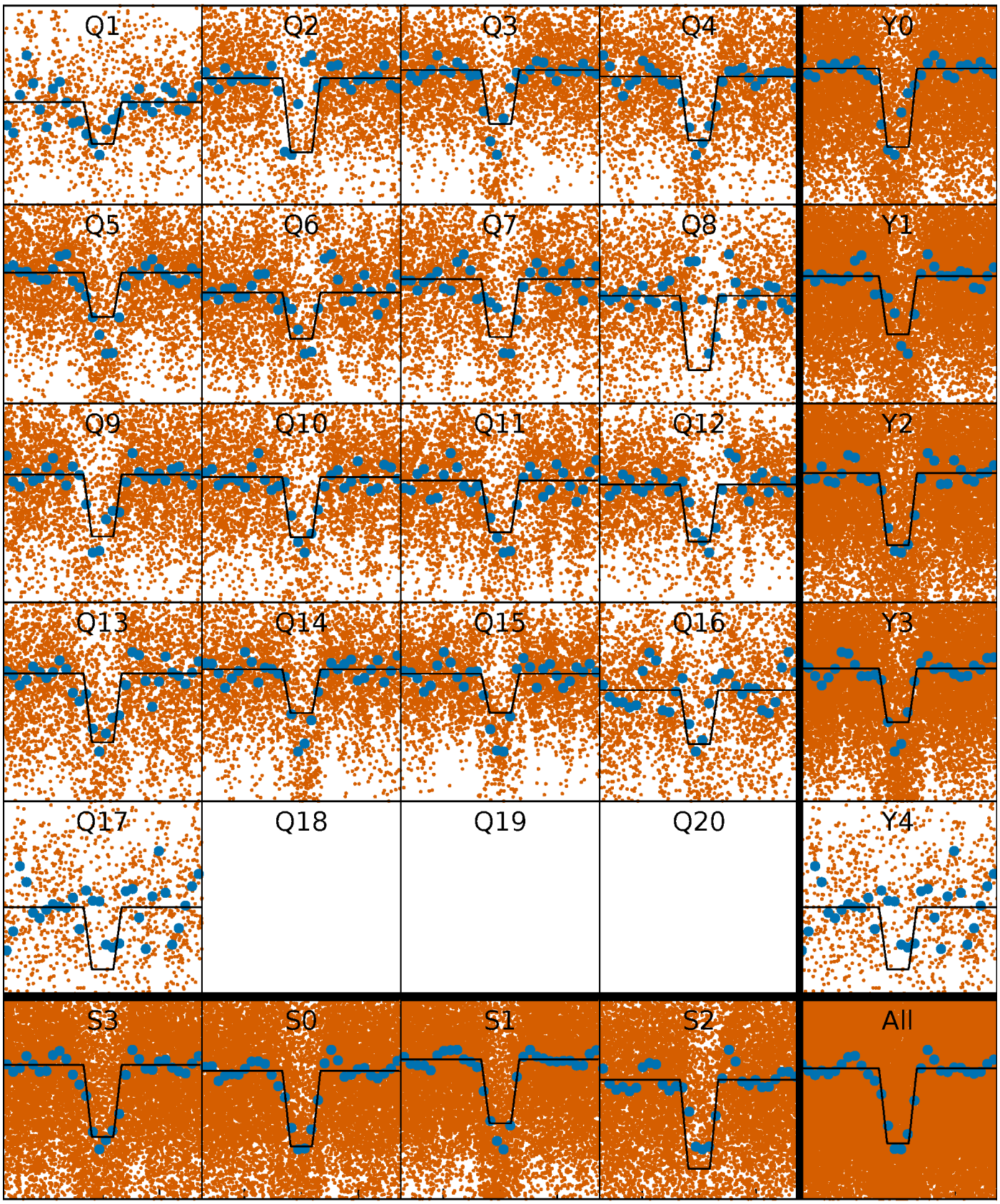
DV Quarter-Phased Transit Curves

TCE 009027876-01 P= 2.841382 Days T_0=131.898545 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

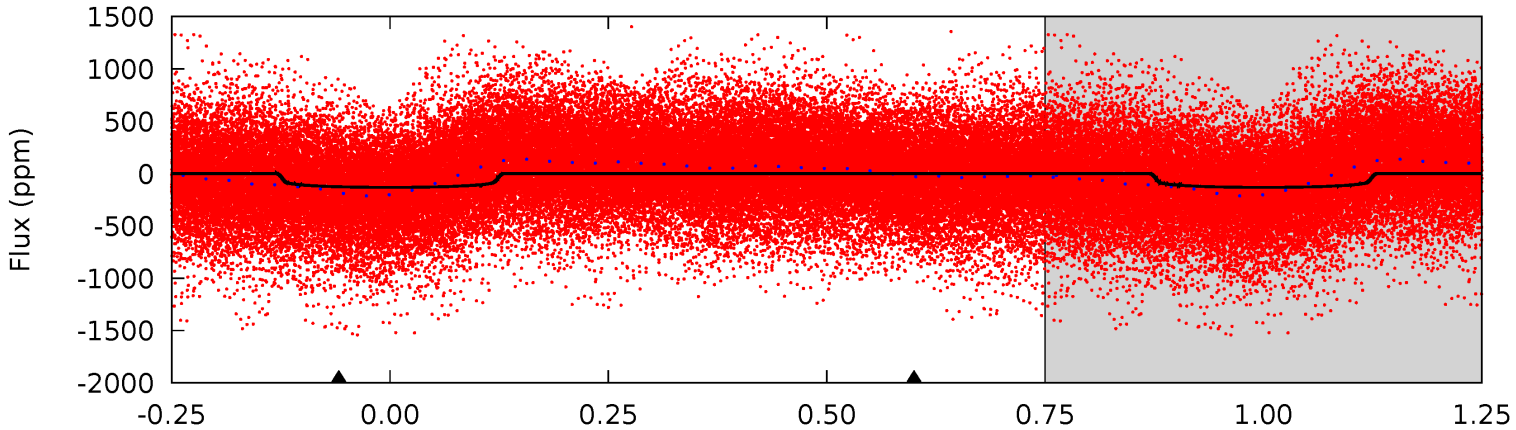
TCE 009027876-01 P= 2.841222 Days T_0=131.920956 (BKJD)

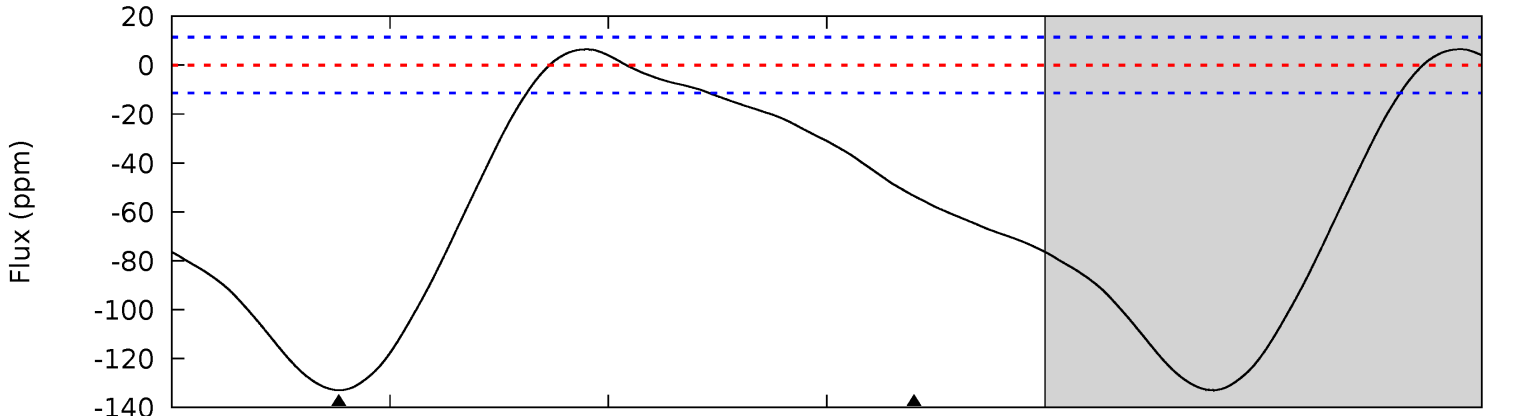


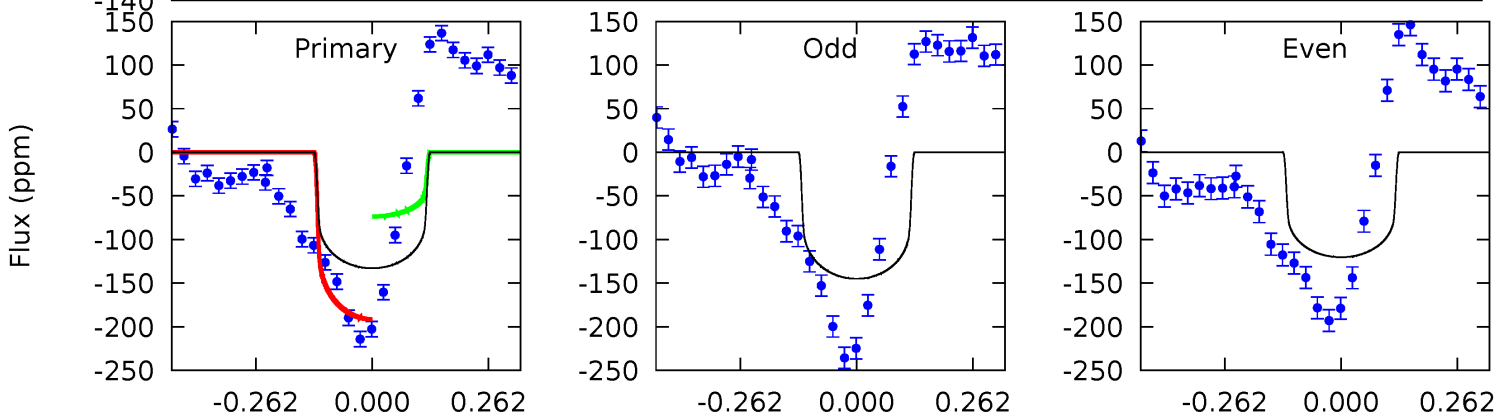
DV Model-Shift Uniqueness Test

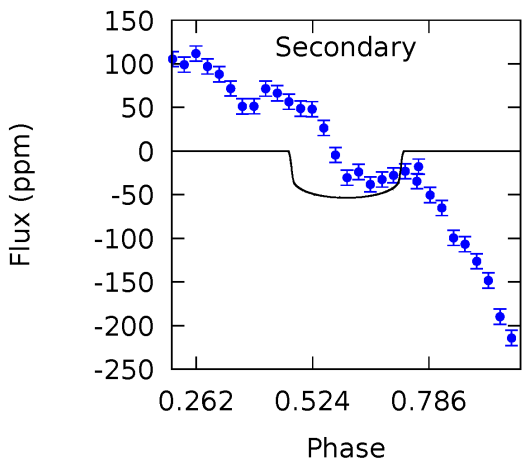
009027876-01, P = 2.841382 Days, E = 129.057163 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.8	20.5	0	0	4.36	1.12	1.99	50.8	50.8	20.5	20.5	4.74	1.03	0.05	21.7





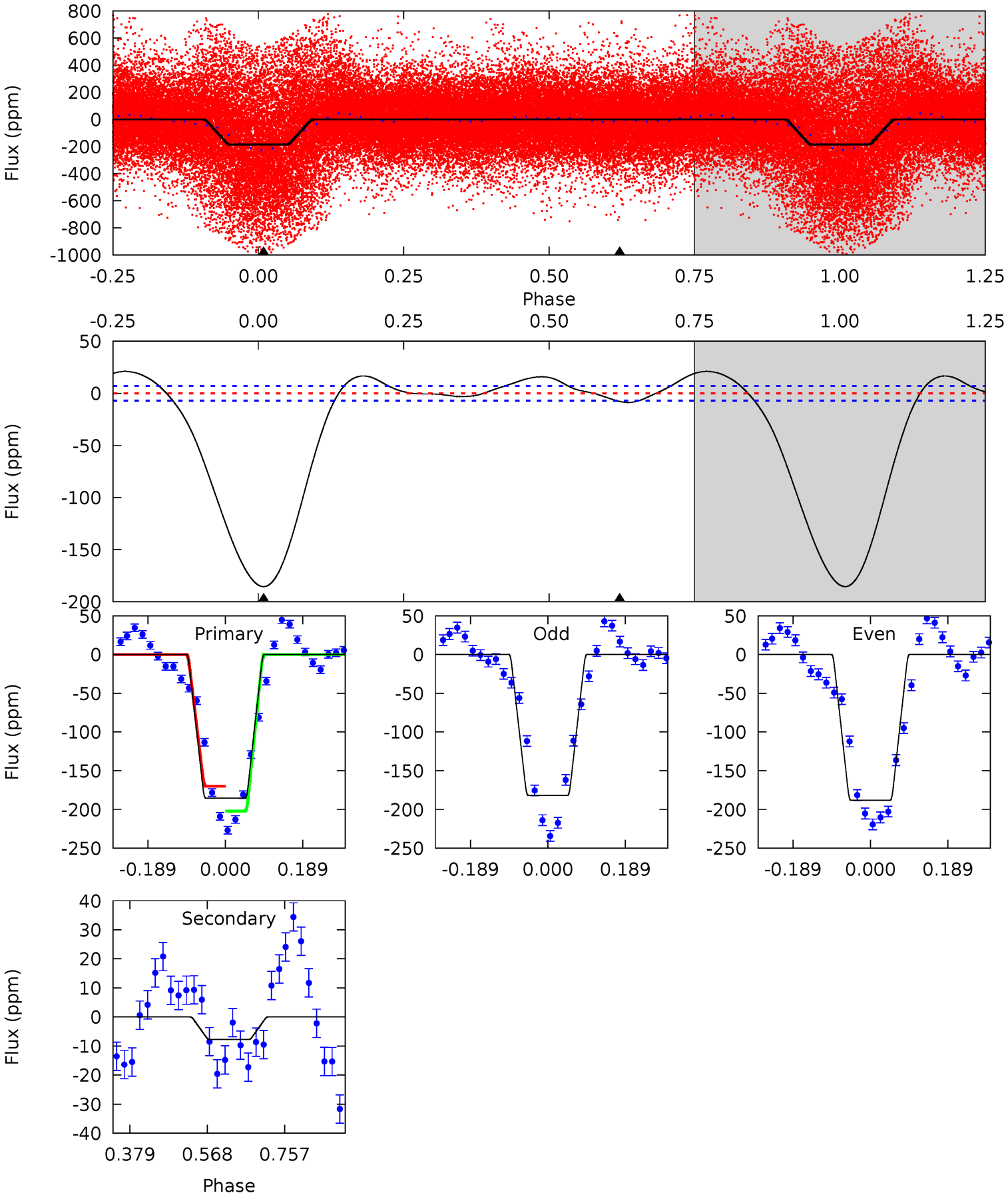




Alt Model-Shift Uniqueness Test

009027876-01, P = 2.841222 Days, E = 129.079734 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
118.1	4.91	0	0	4.43	1.31	3.07	118.1	118.1	4.91	4.91	1.98	0.95	0.10	10.0



Stellar Parameters For KIC 009027876

	$T_{eff} (K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-54±3	$3.51^{+0.47}_{-0.73}$	4023^{+195}_{-418}	6819^{+383}_{-372}	$5.912^{+3.397}_{-1.362}$
Alt.	-8±2	$6.61^{+0.82}_{-1.38}$	3995^{+221}_{-400}	-2916^{+5722}_{-362}	$0.238^{+0.132}_{-0.064}$

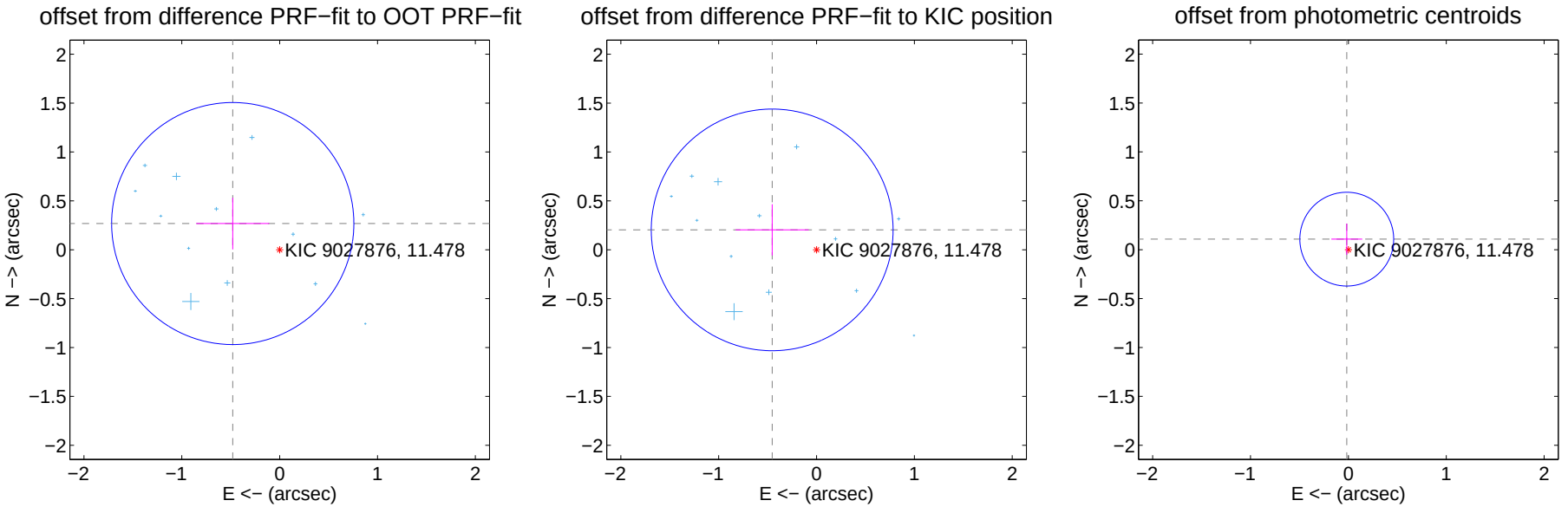
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

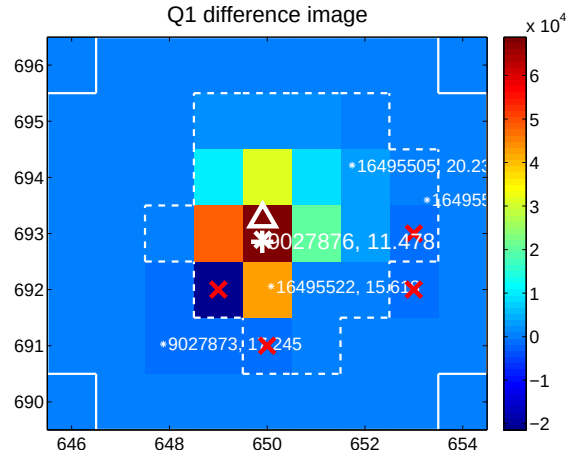
Supplemental centroid analysis for 009027876-01. Kepler magnitude: 11.48. Transit SNR 9.19
There are 14 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

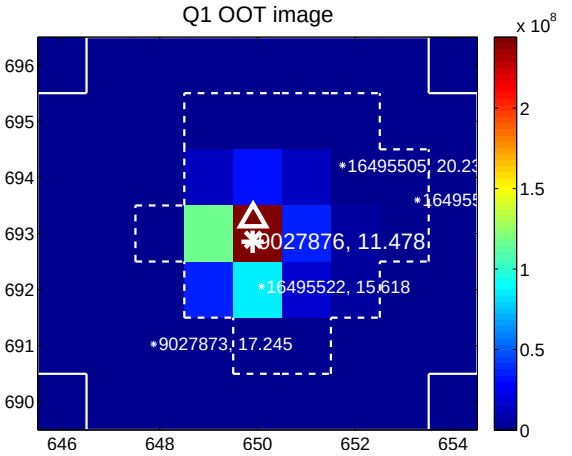
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.549 ± 0.413	1.33	0.480 ± 0.373	0.268 ± 0.264
PRF-fit source offset from KIC position	0.497 ± 0.412	1.21	0.453 ± 0.374	0.203 ± 0.262
photometric centroid source offset	0.11 ± 0.16	0.68	0.02 ± 0.16	0.11 ± 0.16

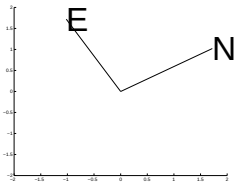


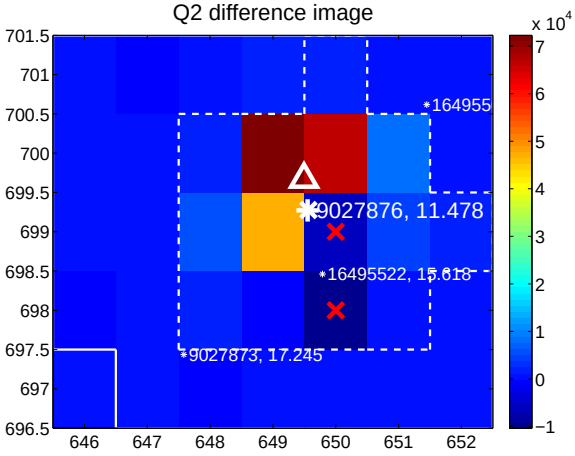
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

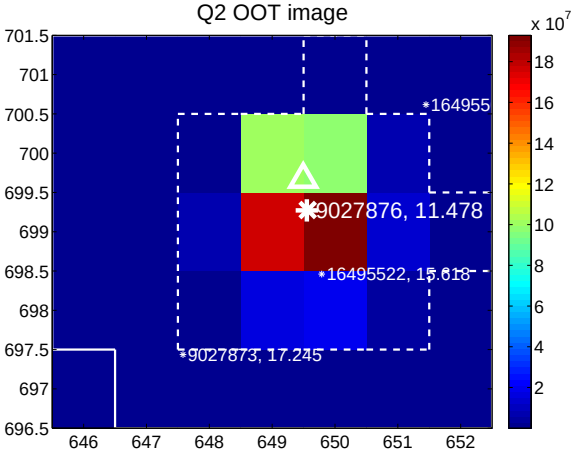
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

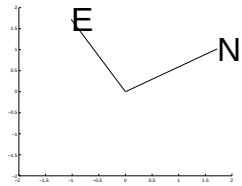


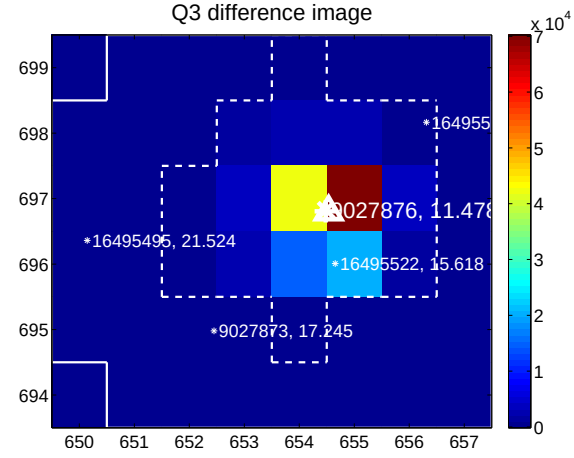


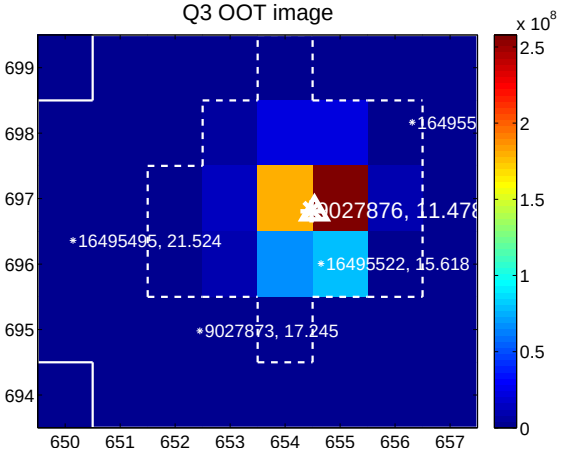


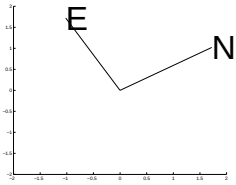


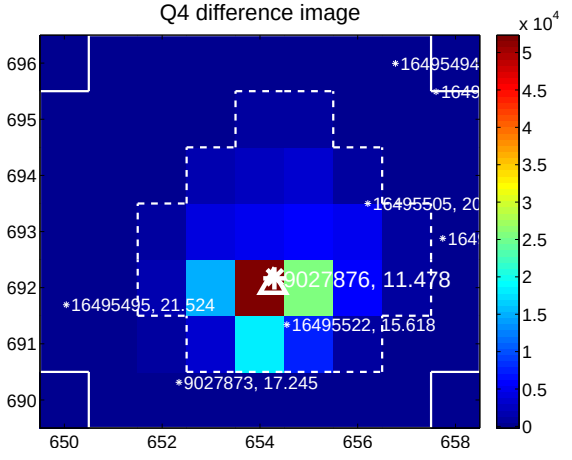


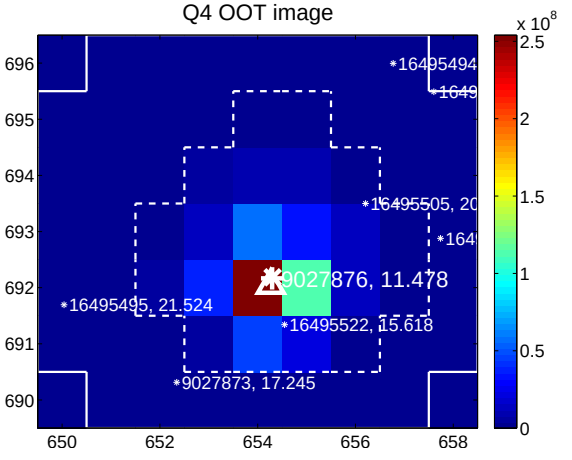


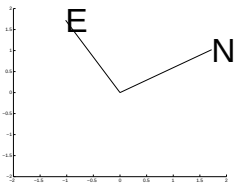




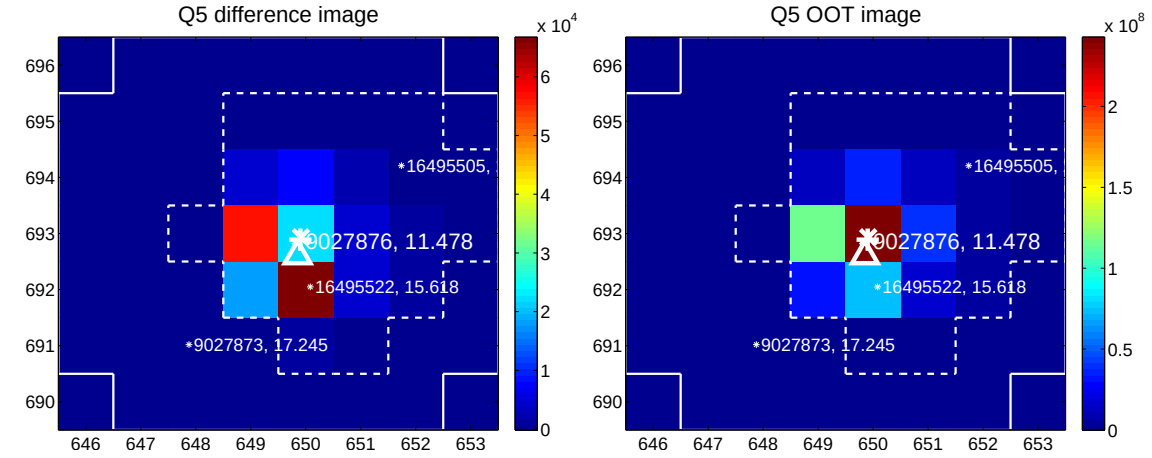


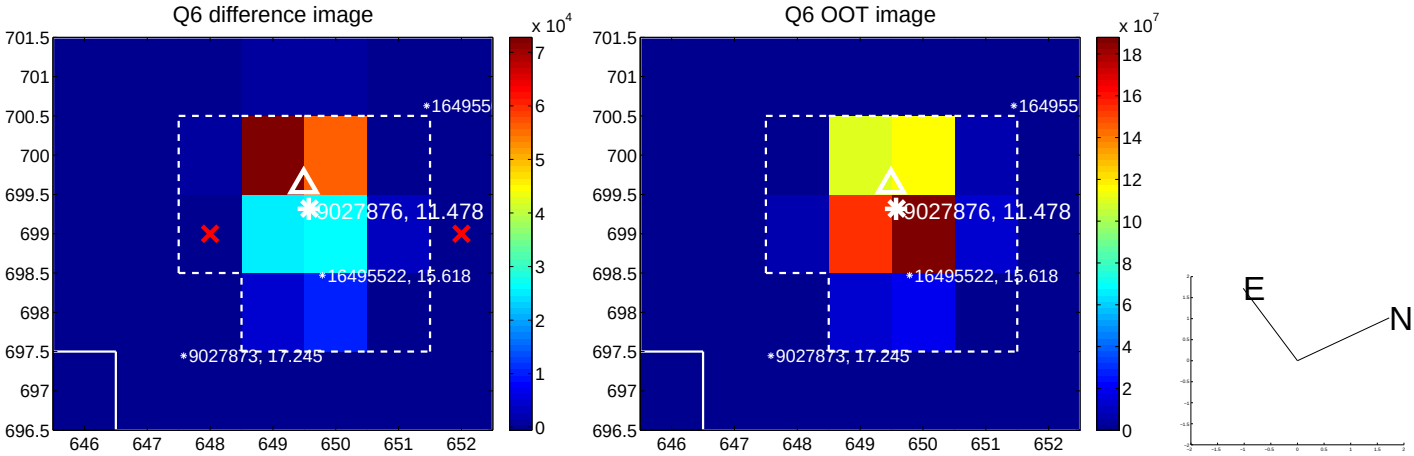


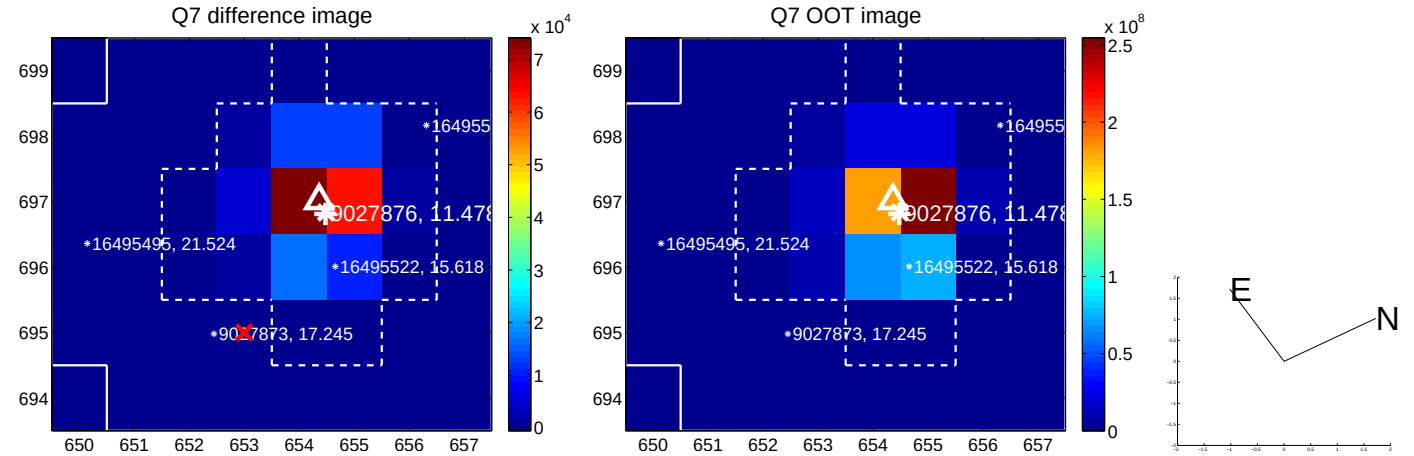


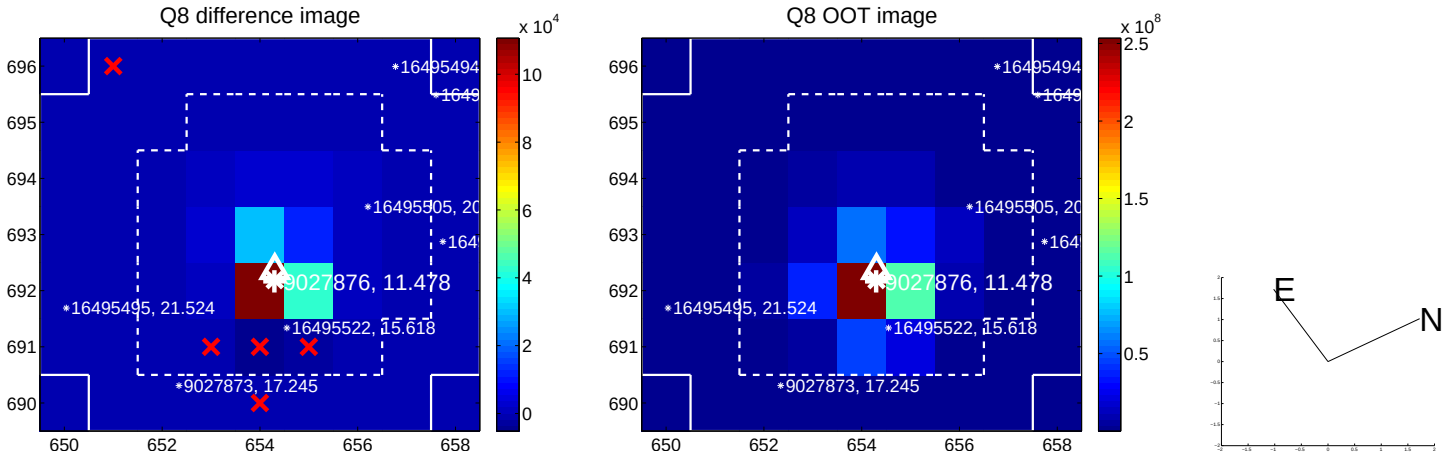


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

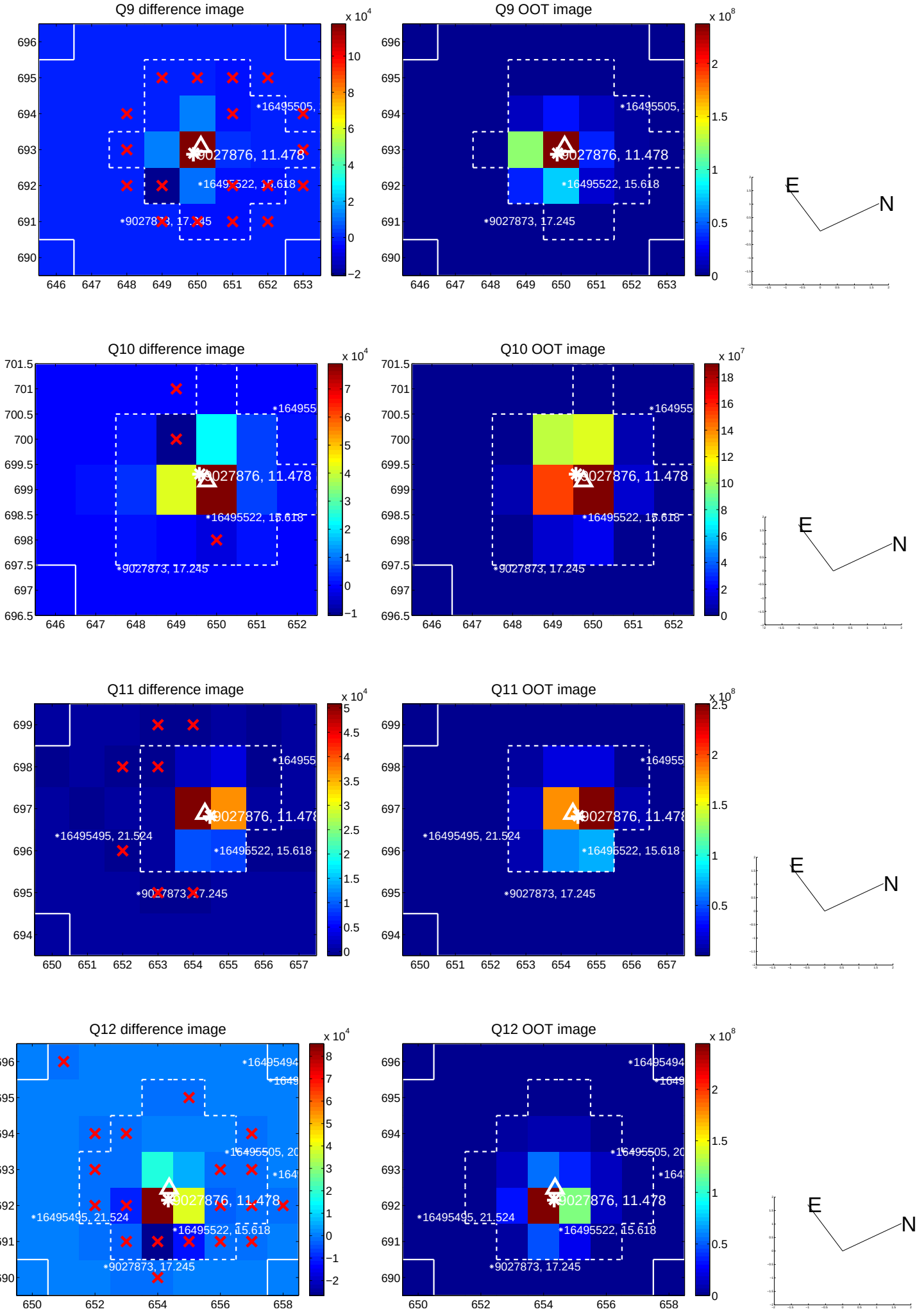




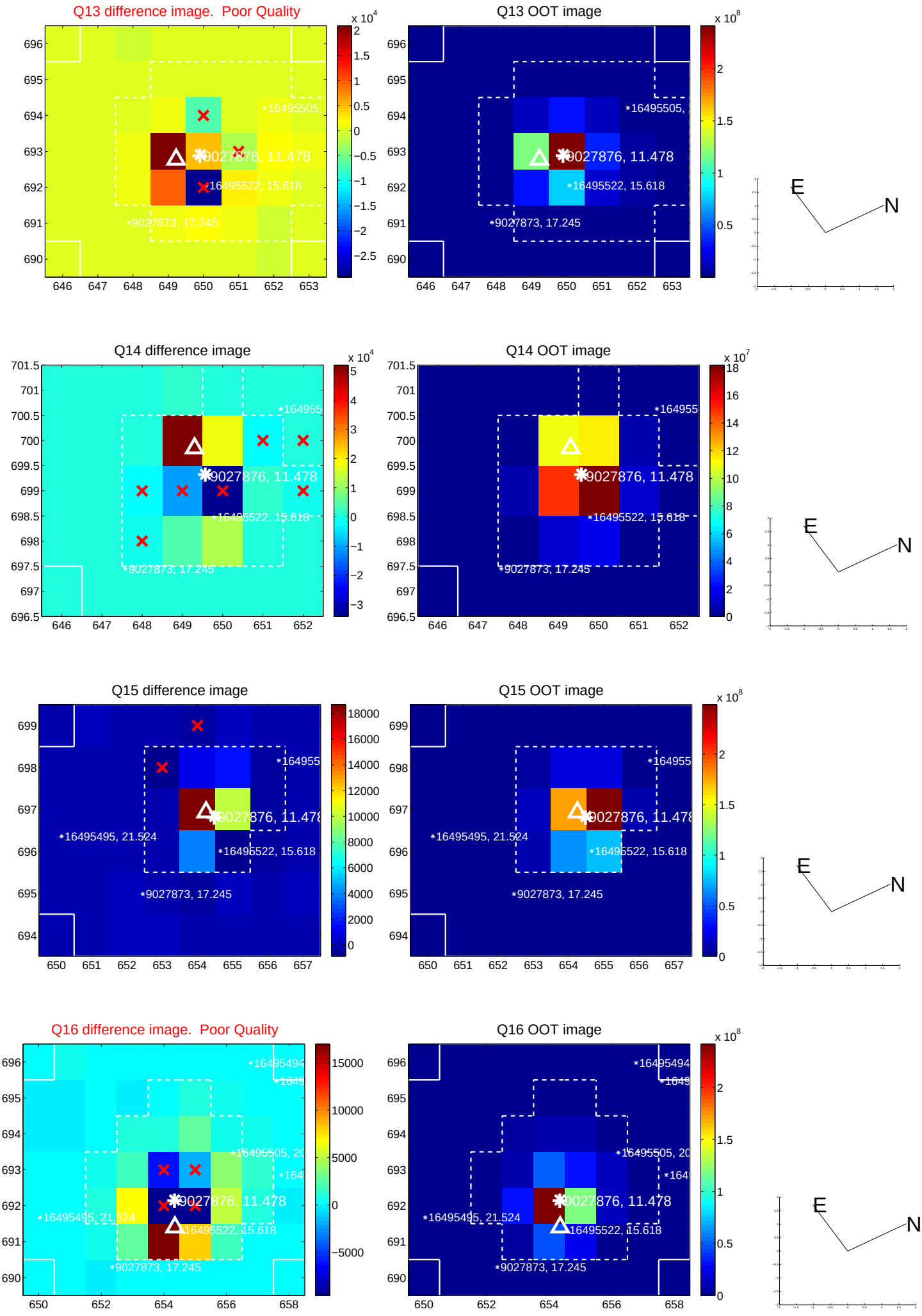




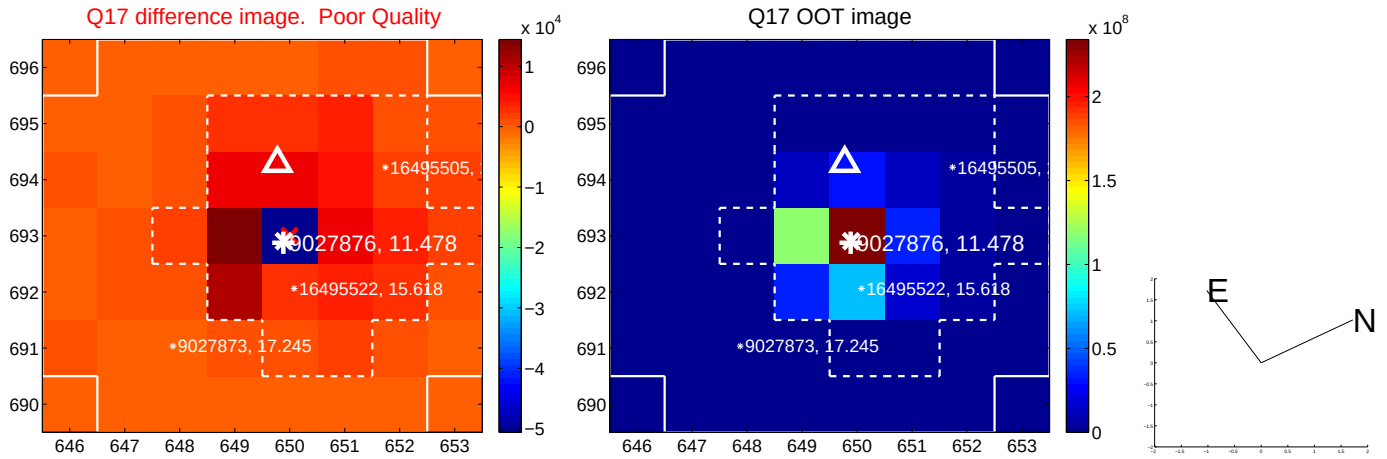
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

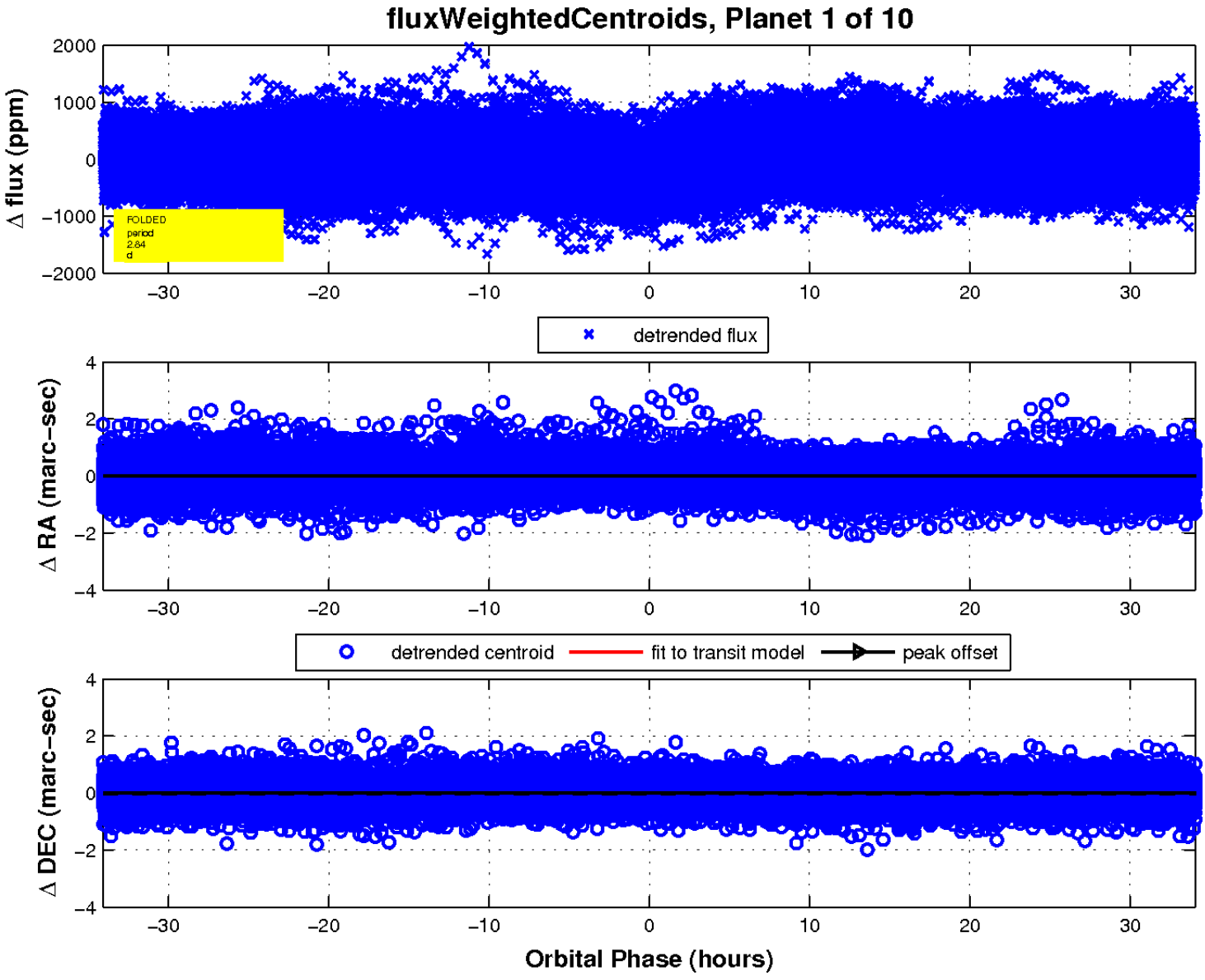


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

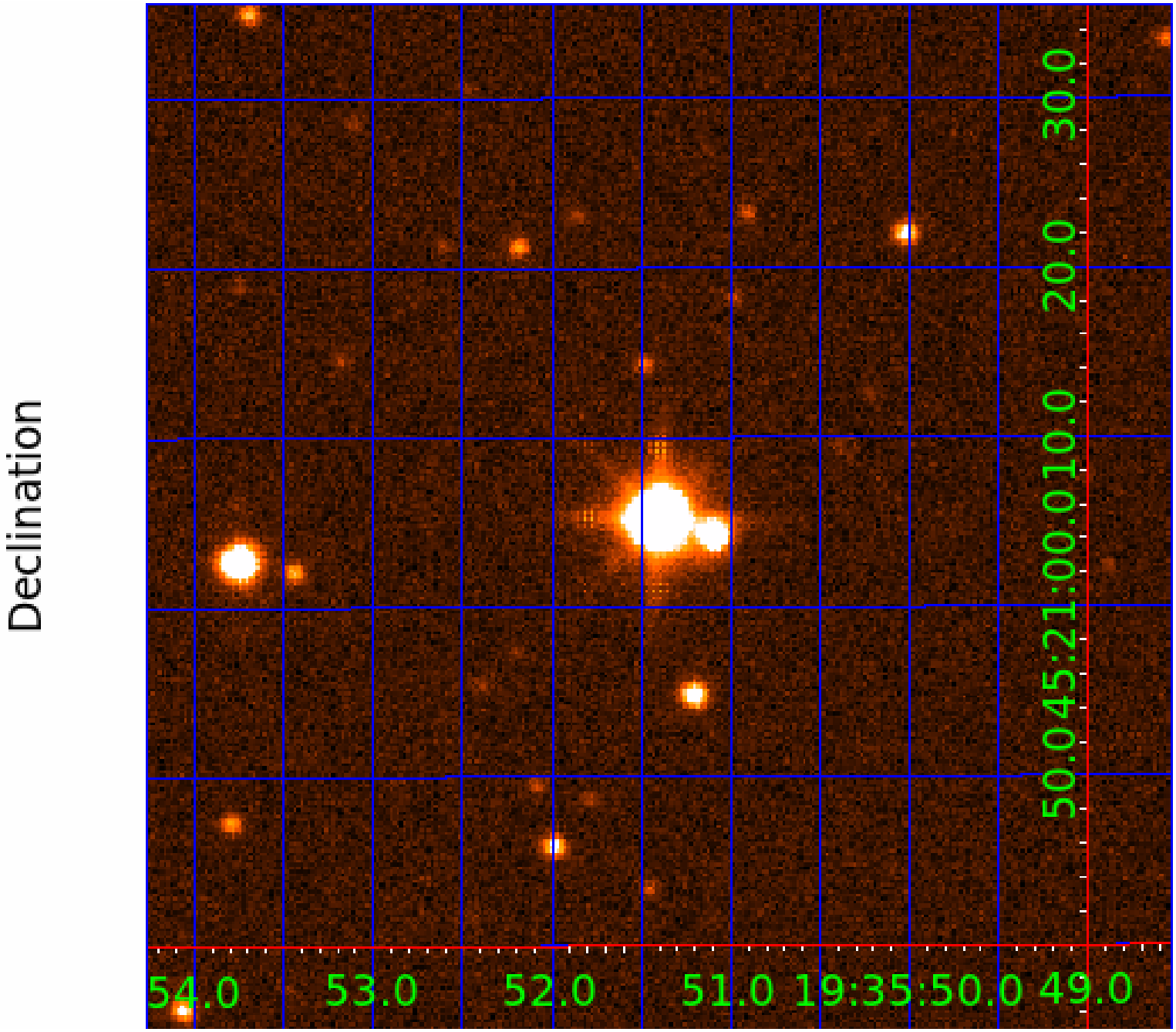


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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49.0

KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

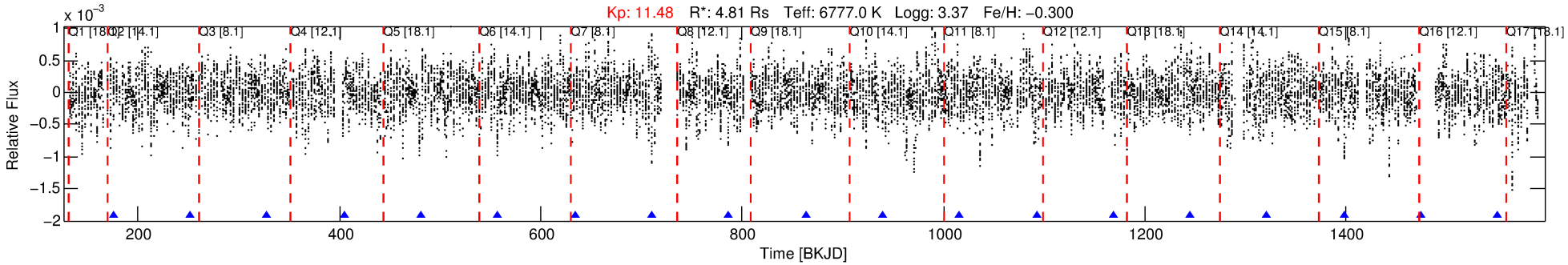
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

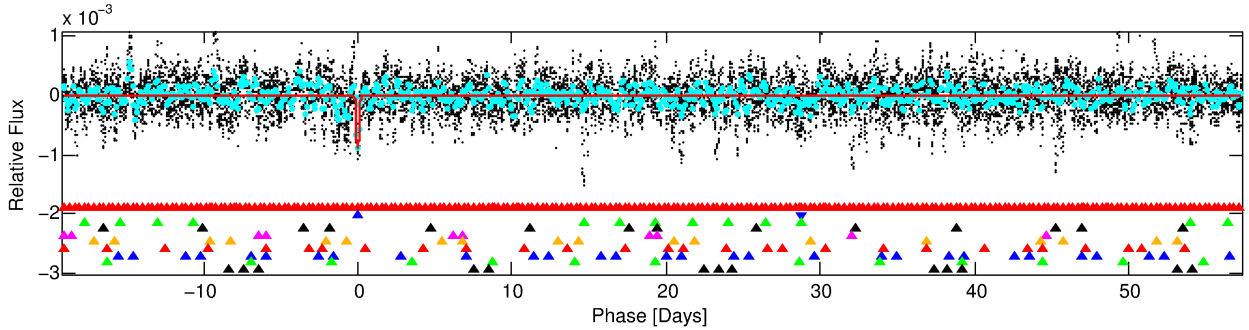
Ephemeris Match Information For 009027876-02

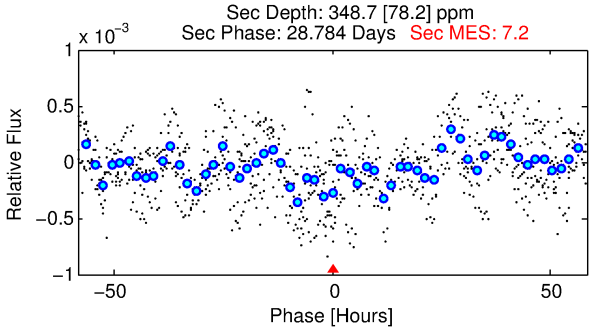
No Significant Match Found

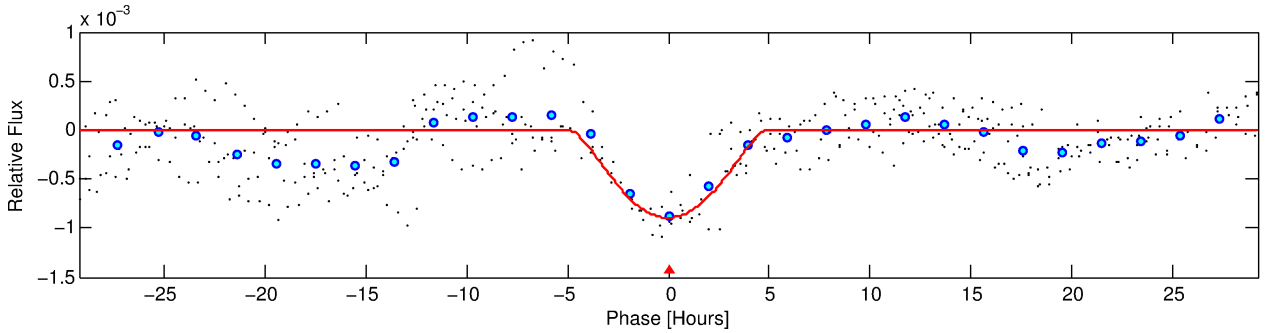
DV One-Page Summary

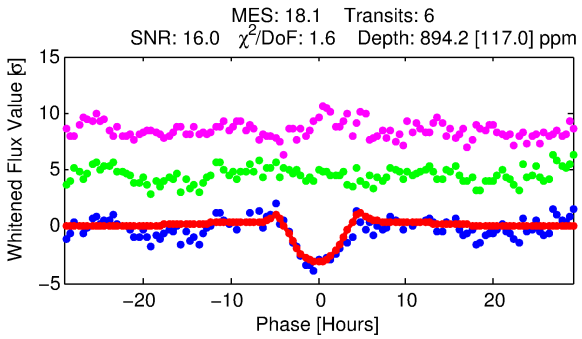
KIC: 9027876 Candidate: 2 of 10 Period: 76.402 d

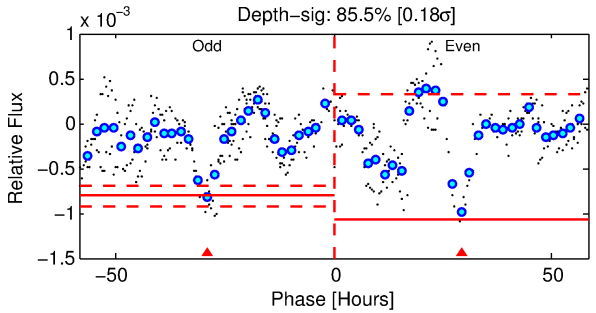


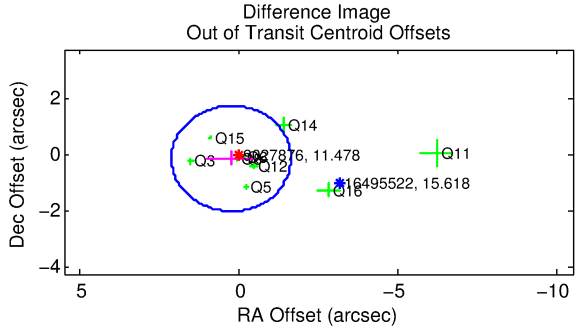












DV Fit Results:

Period = 76.40197 [0.00148] d
Epoch = 175.5119 [0.0156] BKJD
Rp/R* = 0.0511 [0.0739]
a/R* = 19.53 [6.94]
b = 1.00 [0.11]

Seff = 223.23 [154.02]
Teq = 986 [170] K
Rp = 26.81 [40.34] Re
a = 0.4422 [0.1847] AU

Ag = 52.18 [155.40] [0.33σ]
Teffp = 4096 [2971] K [1.05σ]

DV Diagnostic Results:

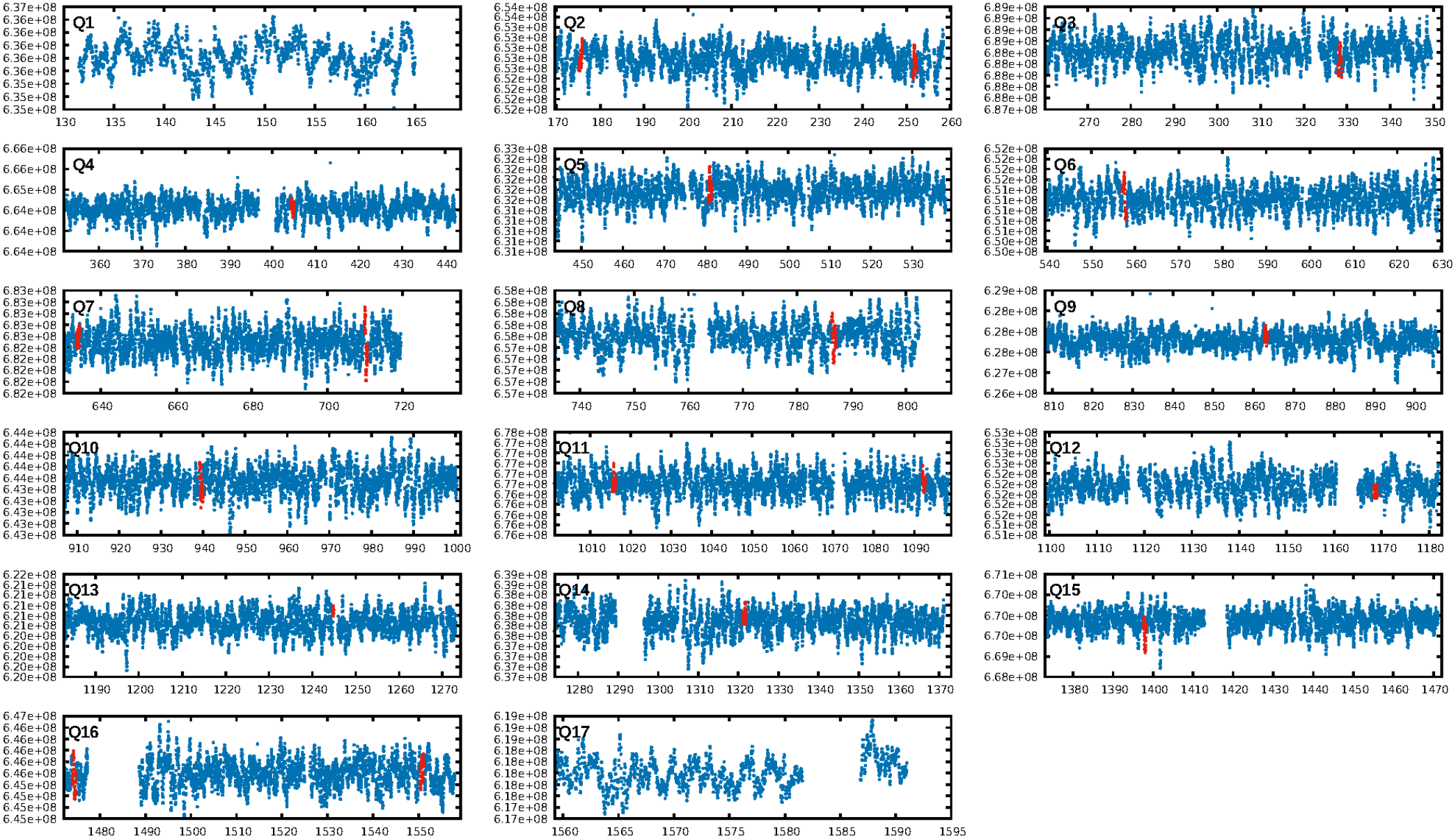
ShortPeriod−sig: 100.0% [47.19σ]
LongPeriod−sig: 100.0% [13.06σ]
ModelChiSquare2−sig: 13.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [6/6]
GhostDiagnostic−chr: −0.02747

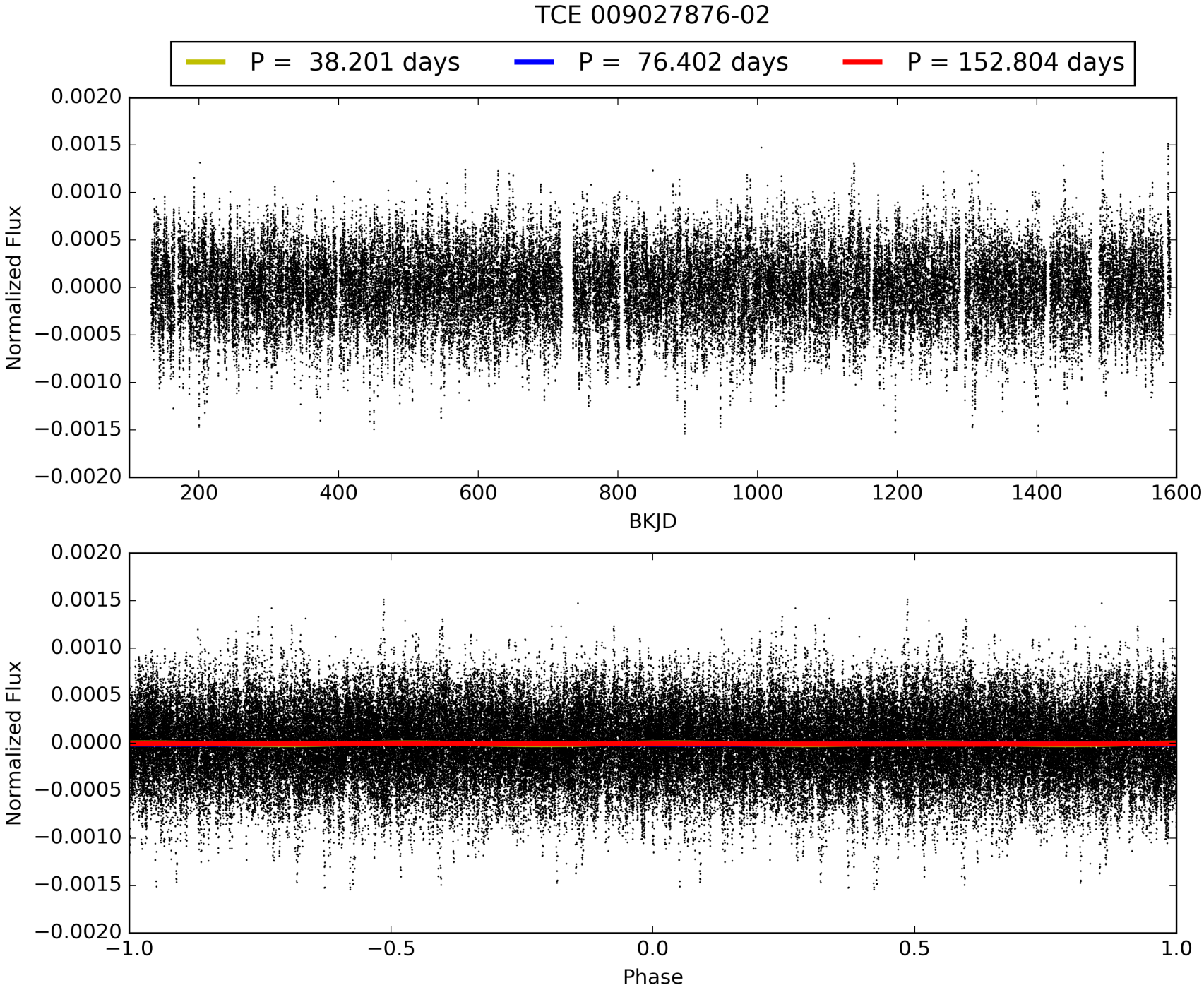
Centroid−sig: 95.9%
Centroid−so: 0.057 arcsec [0.77σ]
OotOffset−rm: 0.280 arcsec [0.45σ]
KicOffset−rm: 0.283 arcsec [0.53σ]
OotOffset−st: 2/3/3/1 [9]
KicOffset−st: 2/3/3/1 [9]
DiffImageQuality−fgm: 0.33 [3/9]
DiffImageOverlap−fno: 0.15 [2/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:02 Z

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

TCE 009027876-02, PDC Light Curves

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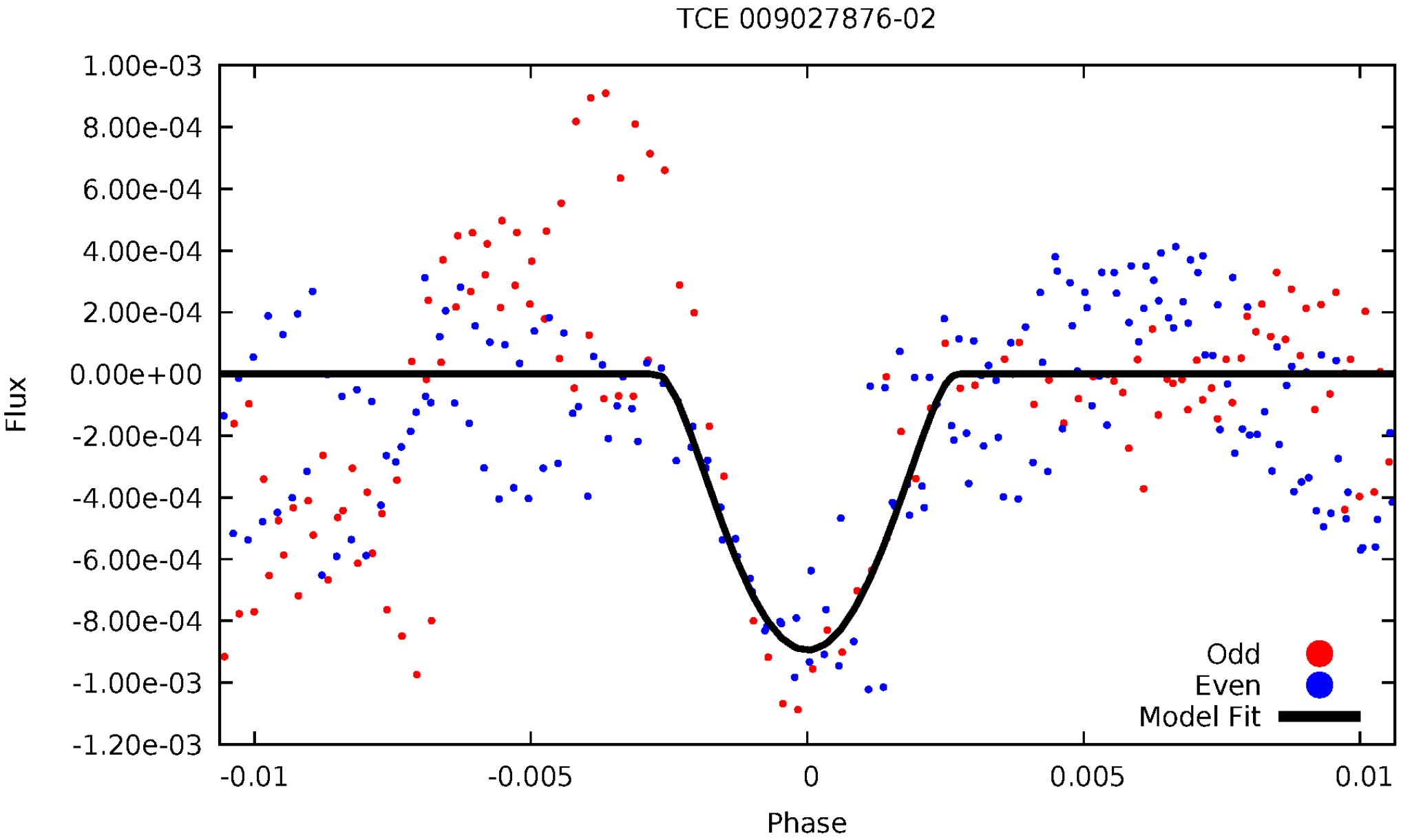
P = 38.201 days
P = 76.402 days
P = 152.804 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even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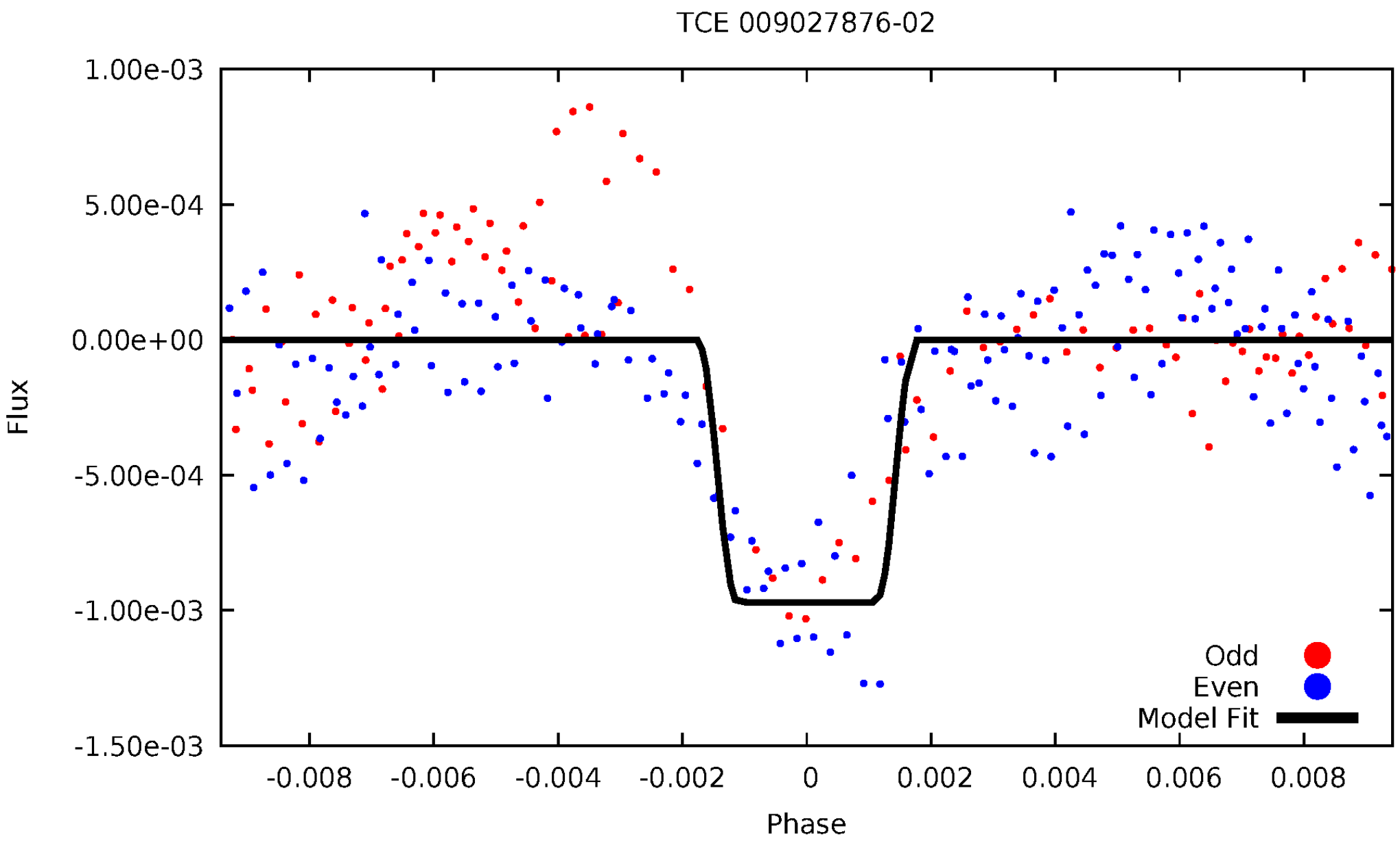
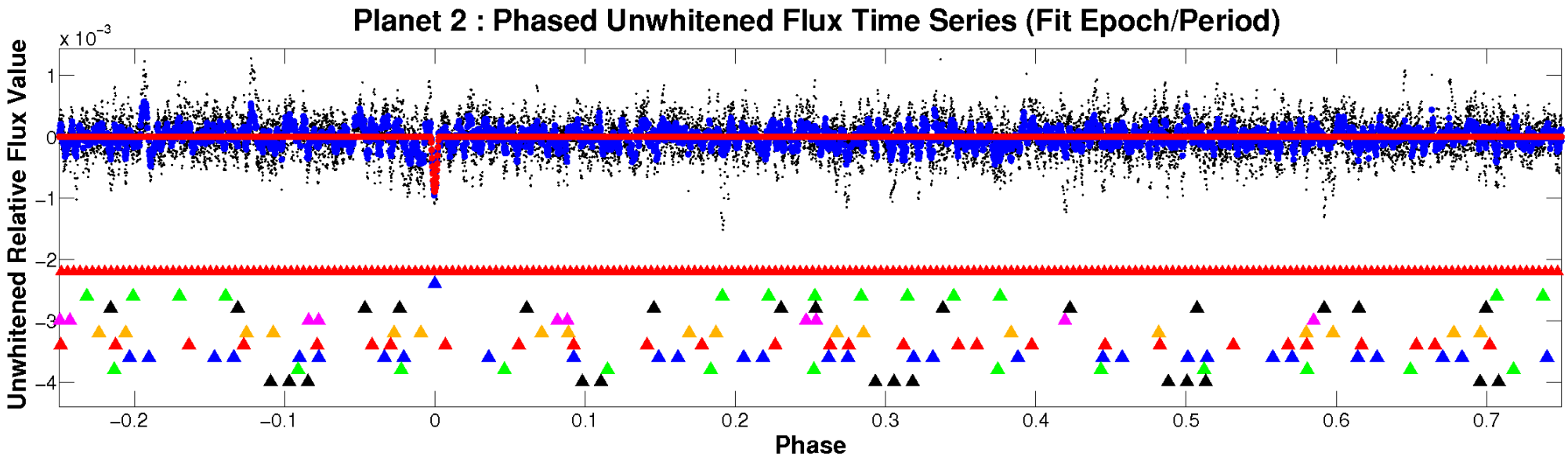
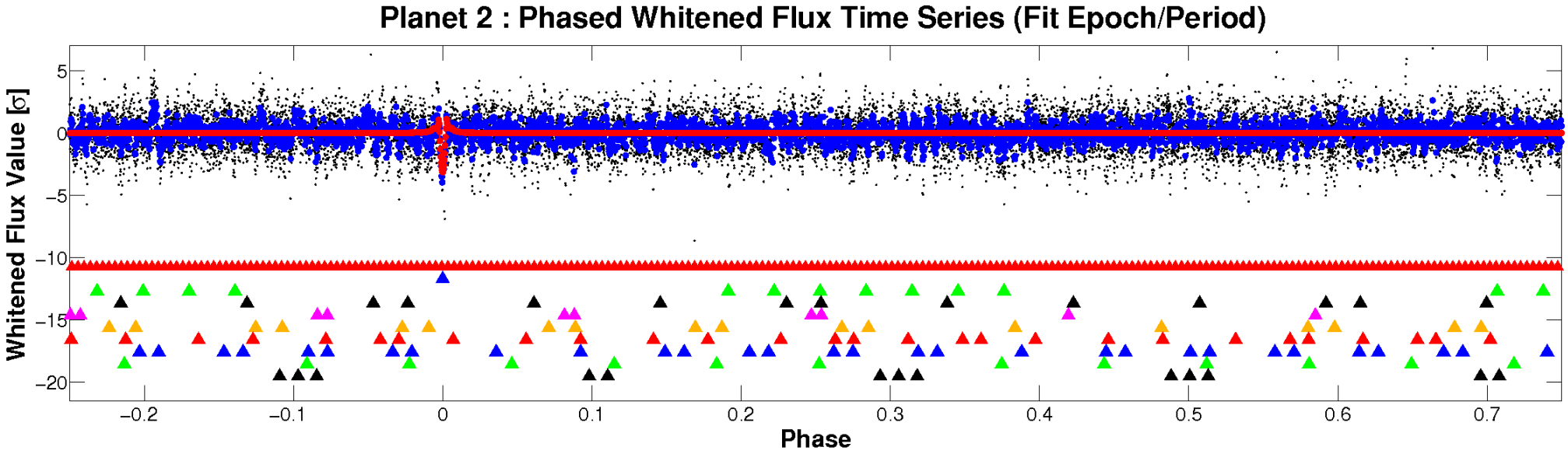
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009027876-02
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.008
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
0.008
Phase
Odd
Even
Model Fit

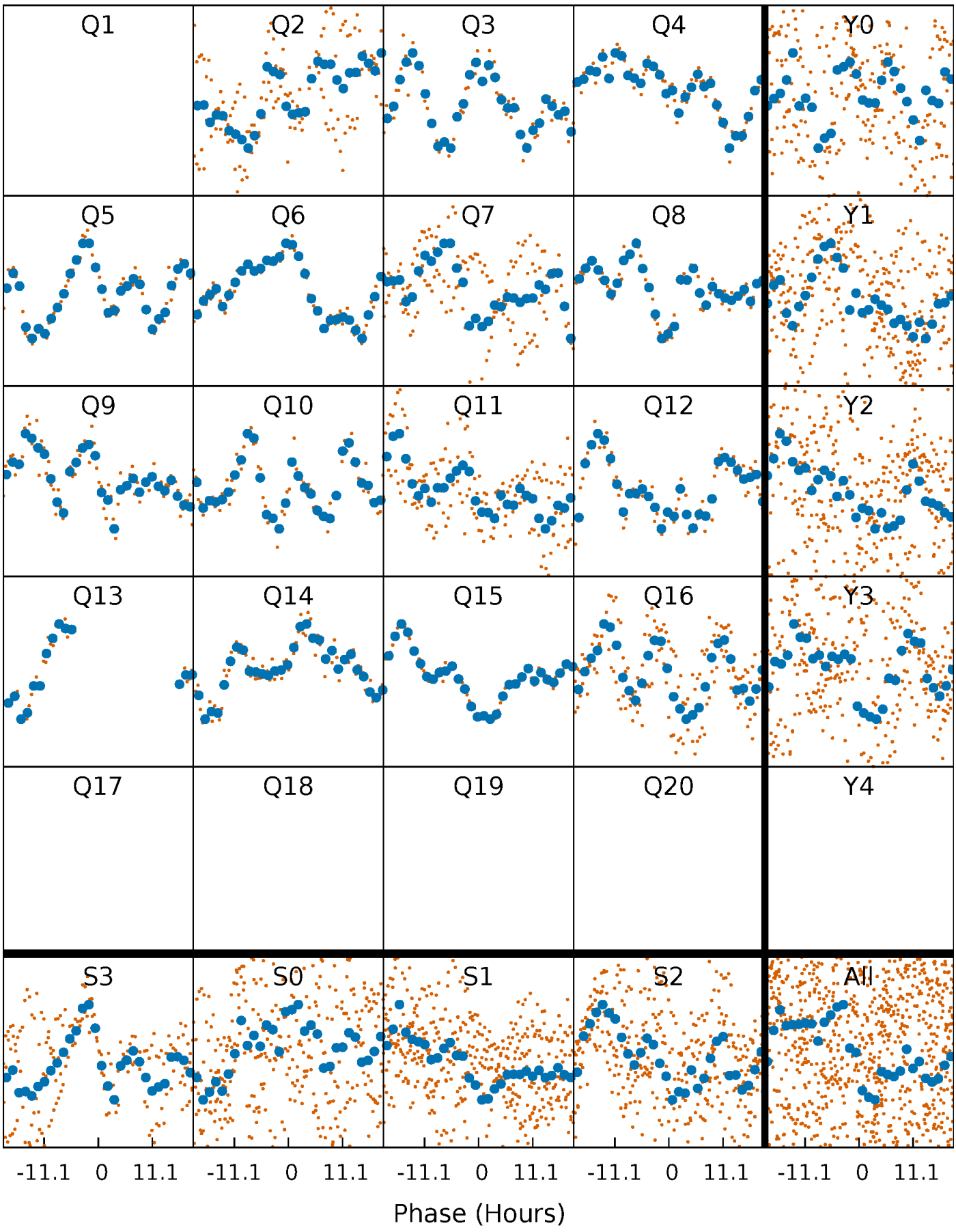
Non-Whitened Vs. Whitened Light Curve





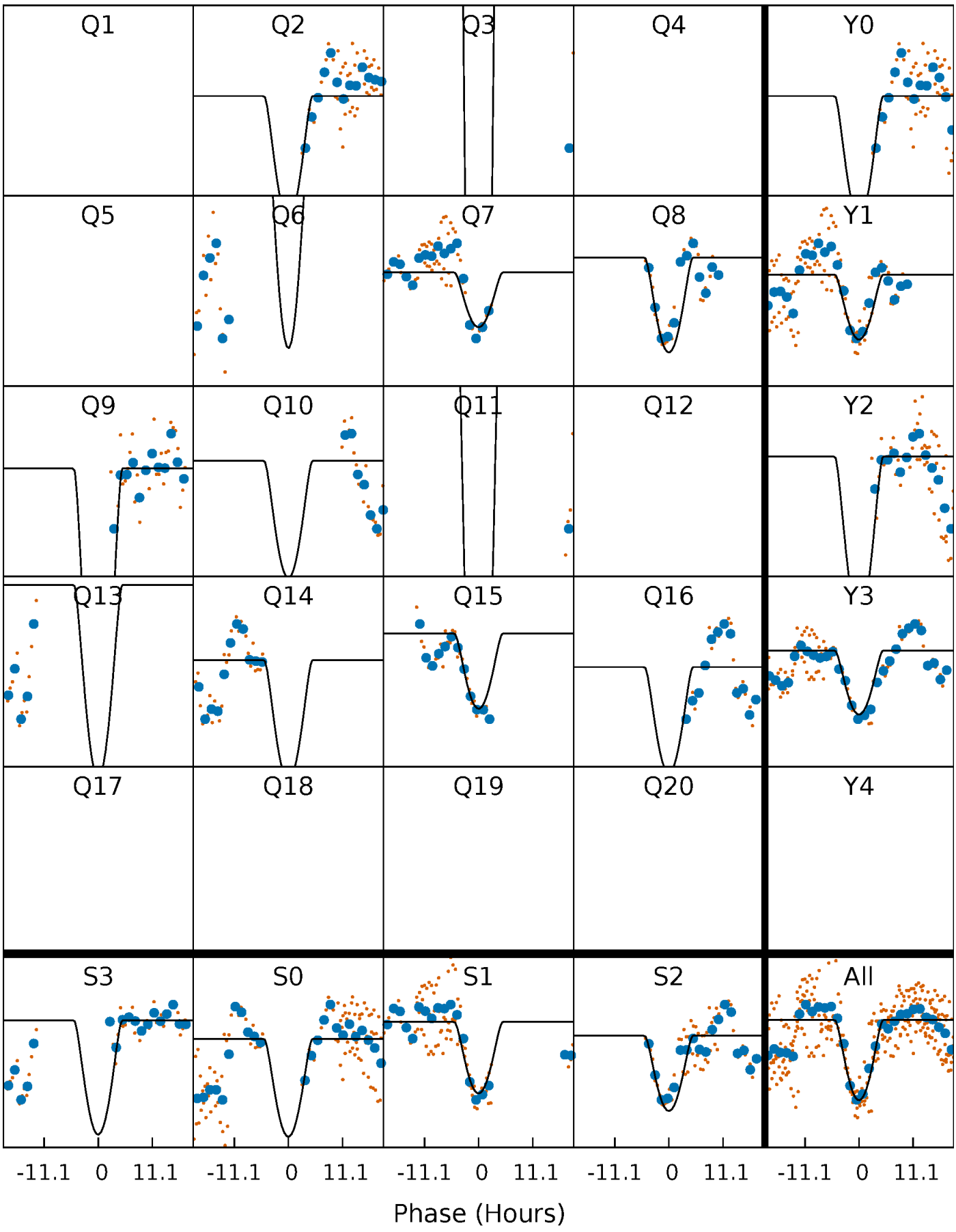
PDC Quarter-Phased Transit Curves

TCE 009027876-02 P= 76.401973 Days T_0=175.511943 (BKJD)



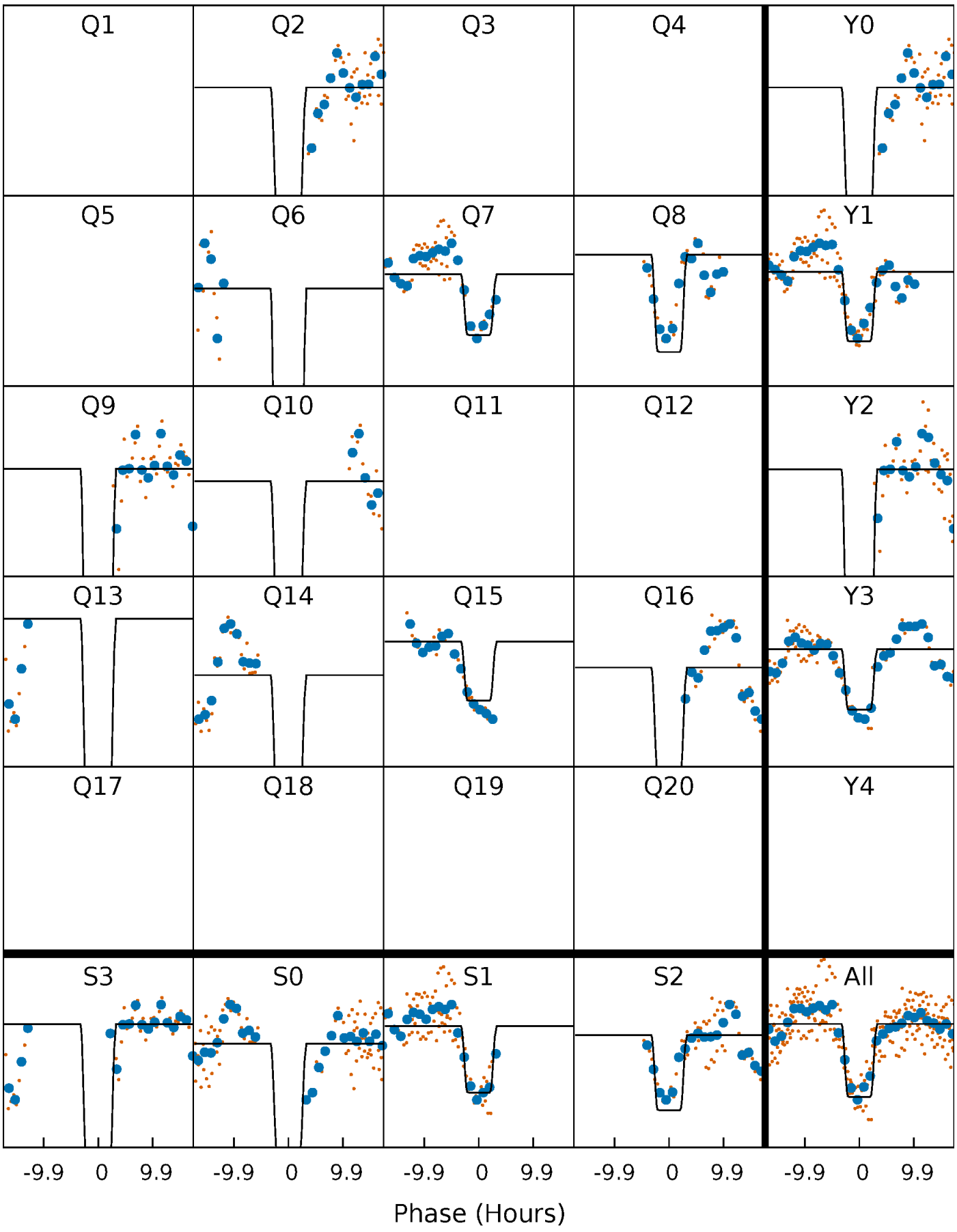
DV Quarter-Phased Transit Curves

TCE 009027876-02 P= 76.401973 Days T_0=175.511943 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

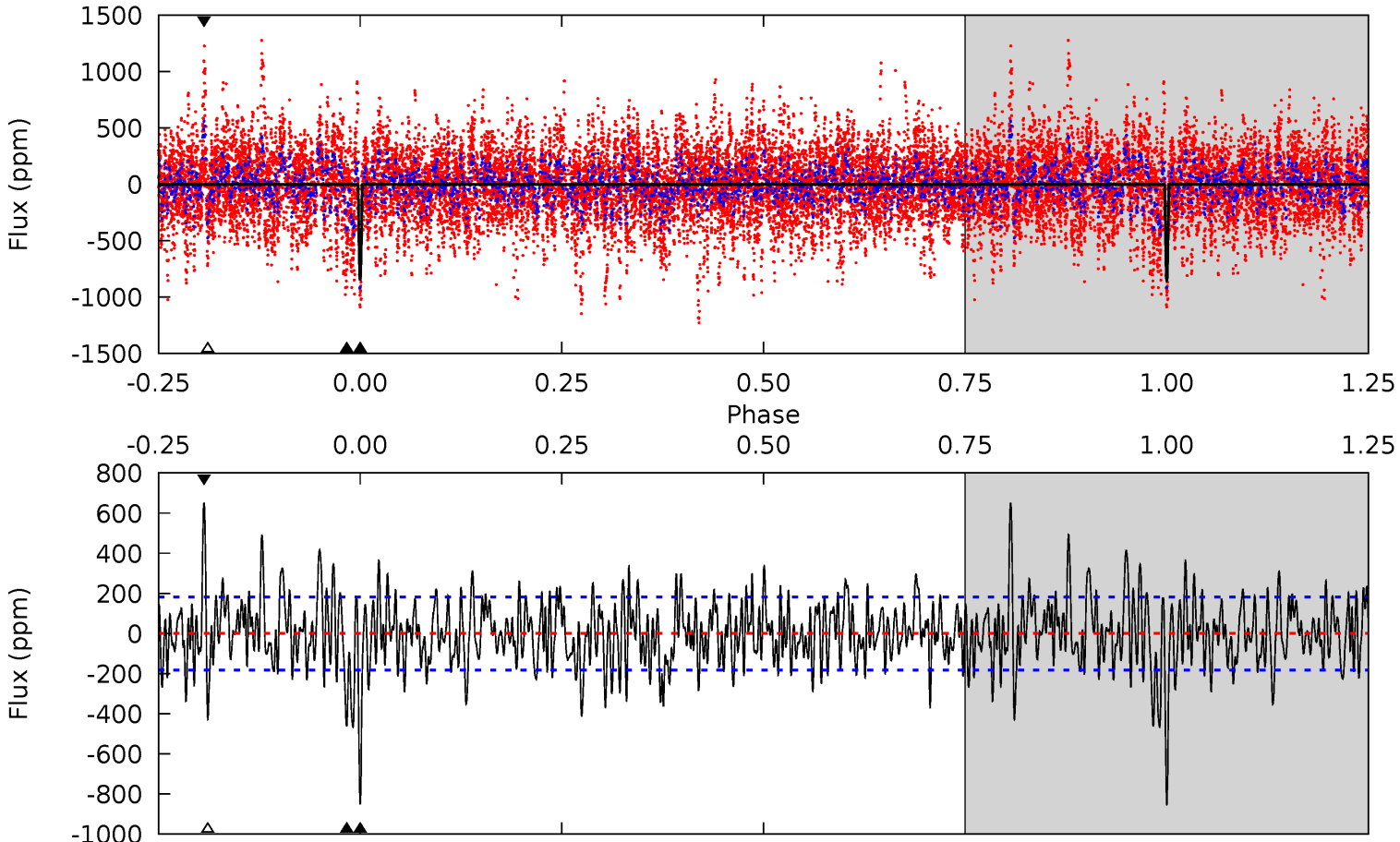
TCE 009027876-02 P= 76.404958 Days T_0=175.479186 (BKJD)

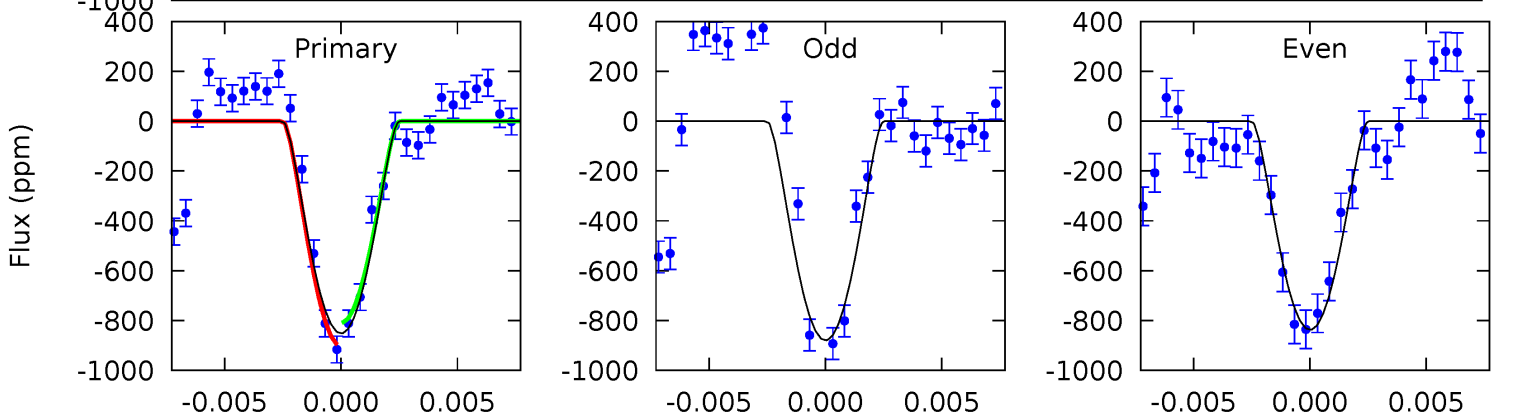


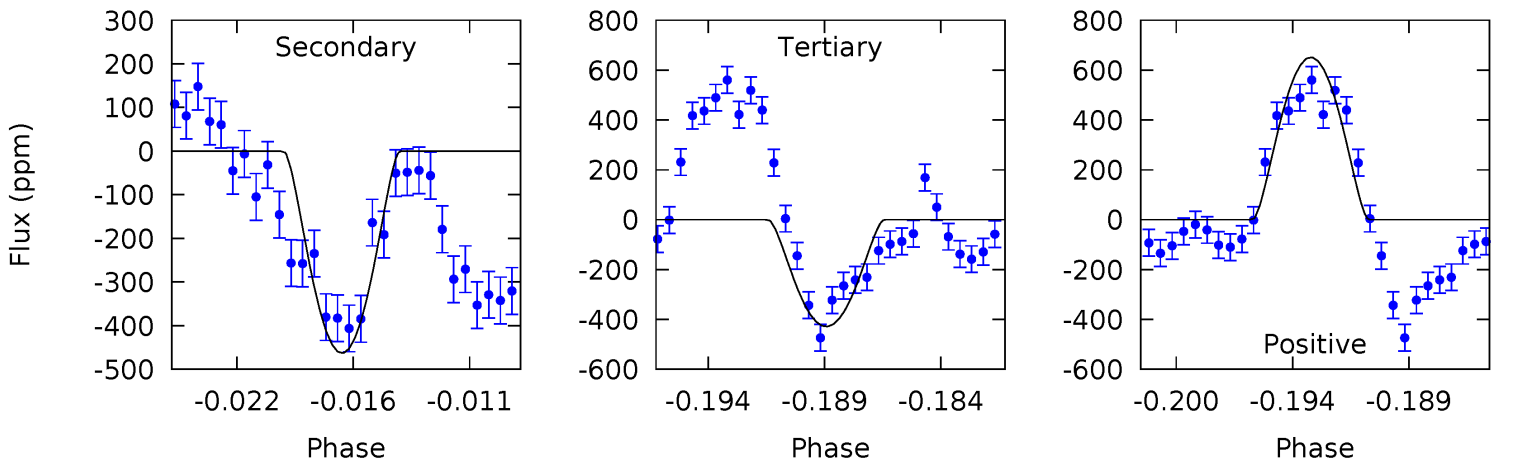
DV Model-Shift Uniqueness Test

009027876-02, P = 76.401973 Days, E = 99.109970 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.0	13.1	12.1	18.4	5.14	2.78	4.08	11.9	5.66	0.97	-5.30	0.56	0.88	0.43	1.23



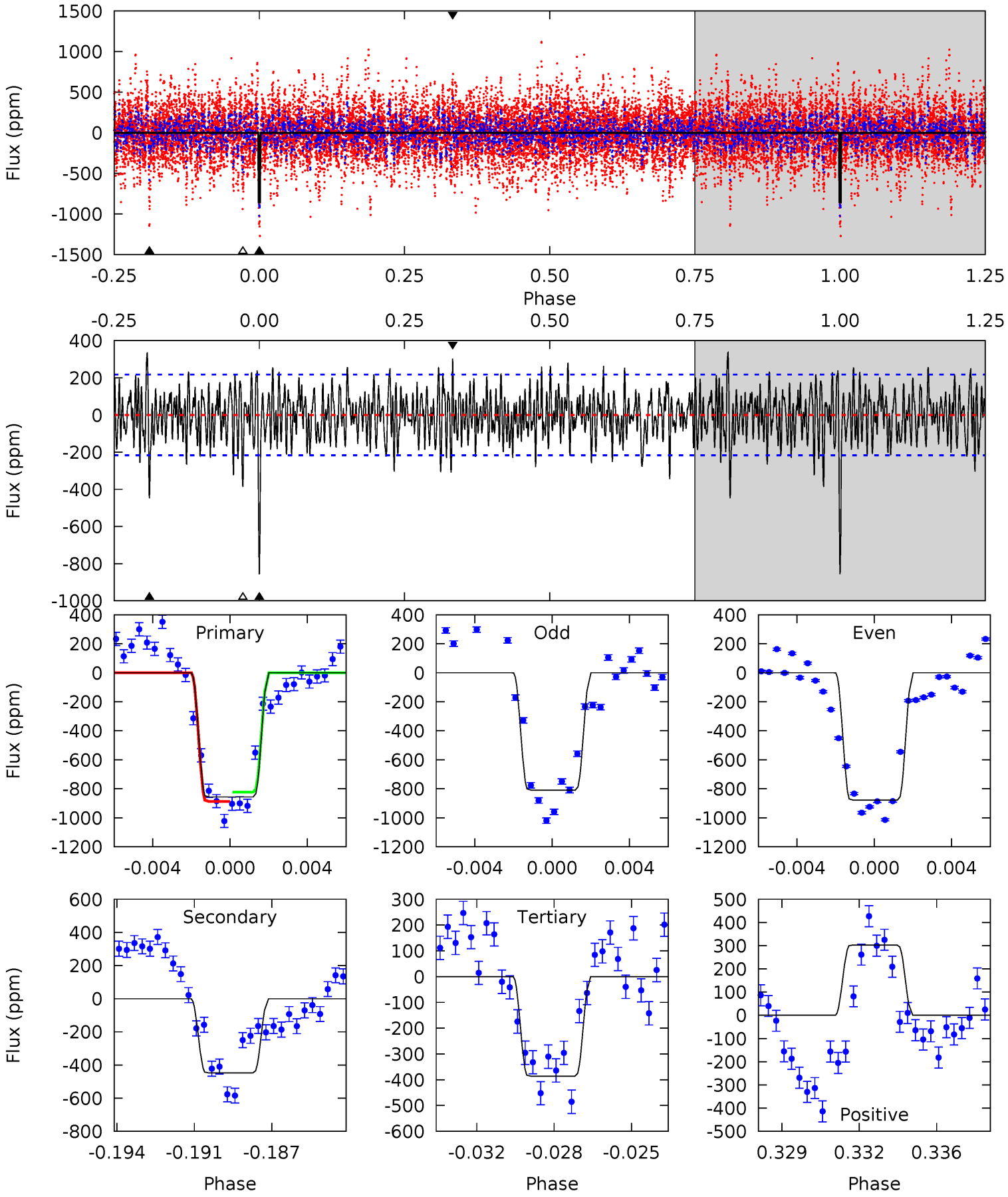




Alt Model-Shift Uniqueness Test

009027876-02, P = 76.404958 Days, E = 99.074228 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	10.7	9.27	7.27	5.22	2.92	2.55	11.3	13.3	1.48	3.48	0.79	1.00	0.28	0.77



Stellar Parameters For KIC 009027876

	$T_{eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-463±35	$33.44^{+33.35}_{-21.35}$	1340^{+67}_{-146}	4007^{+2065}_{-782}	44^{+278}_{-33}
Alt.	-447±42	$30.08^{+29.24}_{-19.56}$	1346^{+64}_{-132}	4150^{+2408}_{-820}	51^{+359}_{-38}

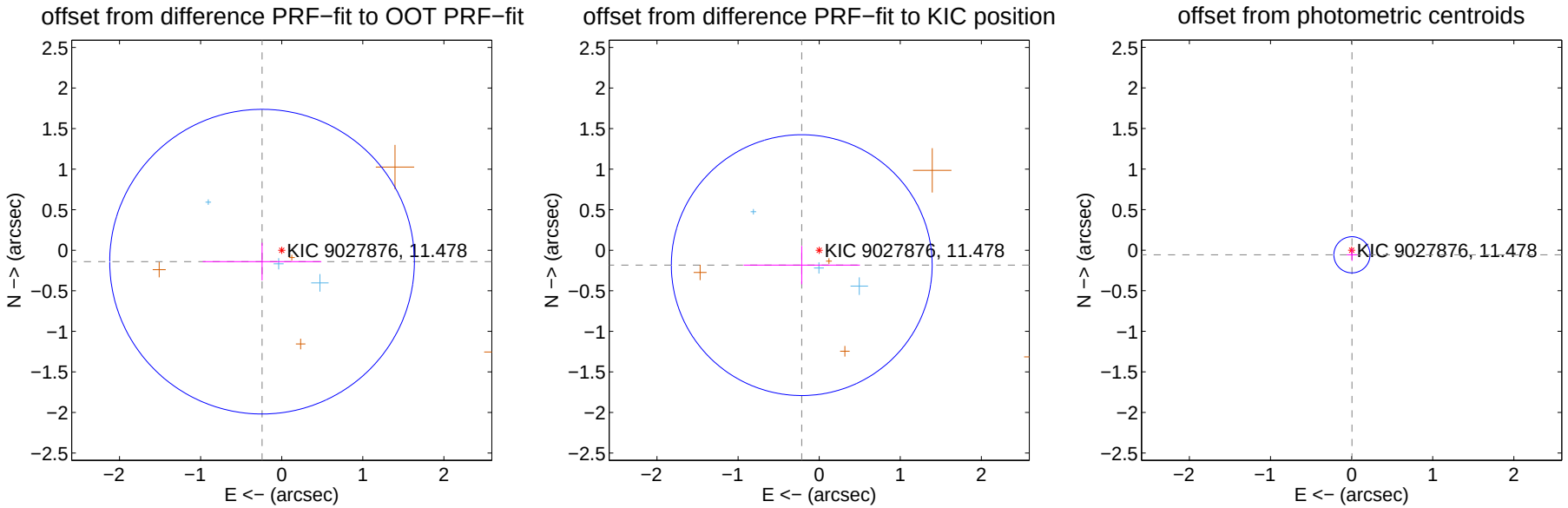
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

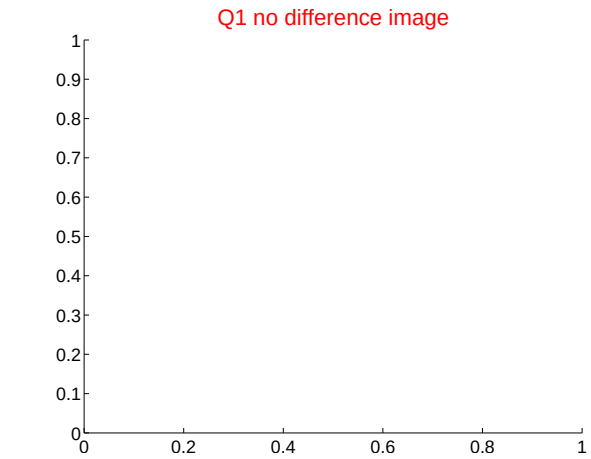
Supplemental centroid analysis for 009027876-02. Kepler magnitude: 11.48. Transit SNR 16.01
There are 3 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

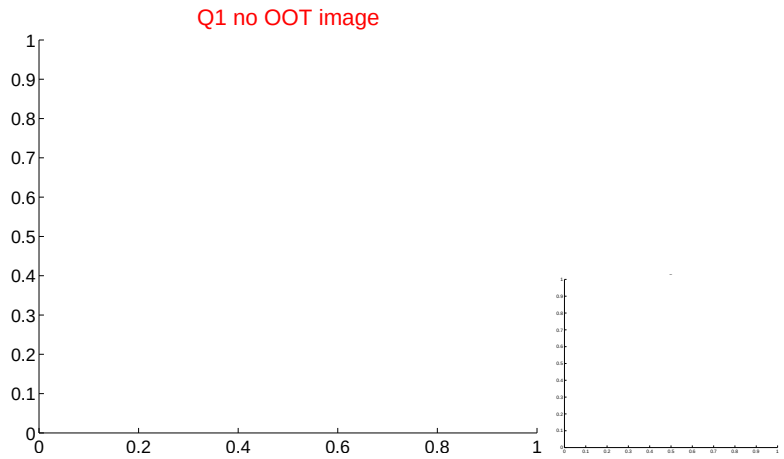
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.280 ± 0.626	0.45	0.243 ± 0.731	-0.141 ± 0.232
PRF-fit source offset from KIC position	0.283 ± 0.536	0.53	0.215 ± 0.718	-0.184 ± 0.237
photometric centroid source offset	0.06 ± 0.07	0.77	-0.00 ± 0.06	-0.06 ± 0.07

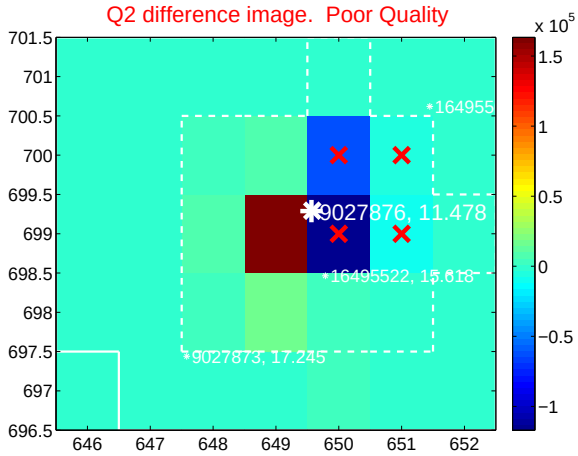


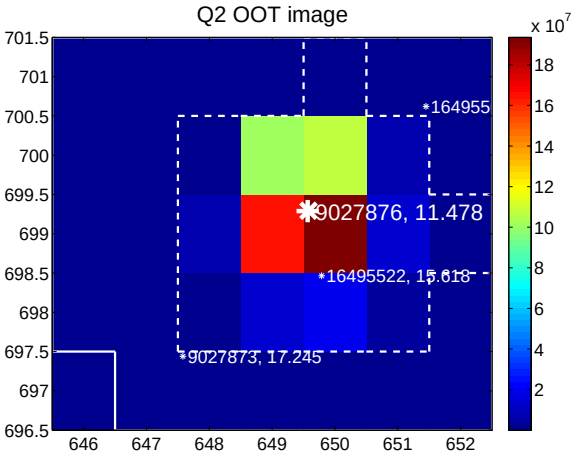
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

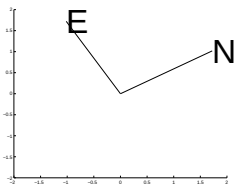
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

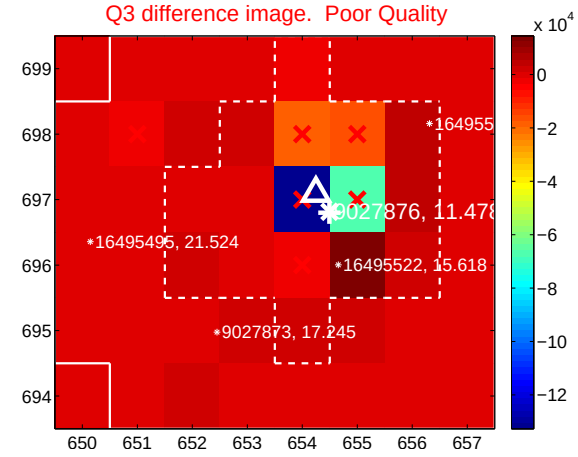


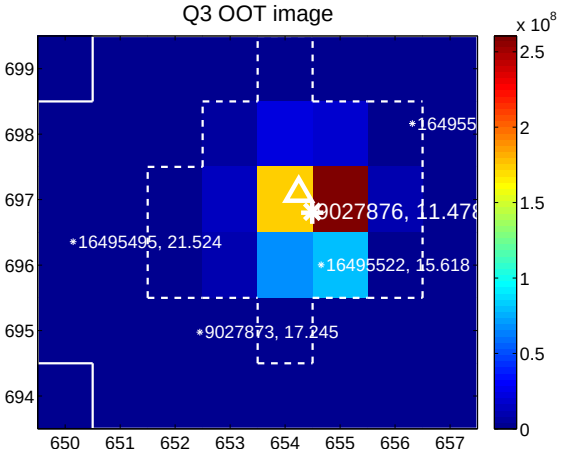


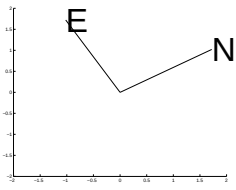


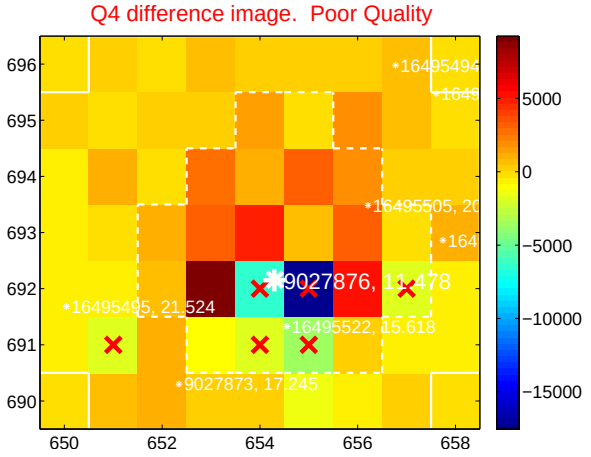


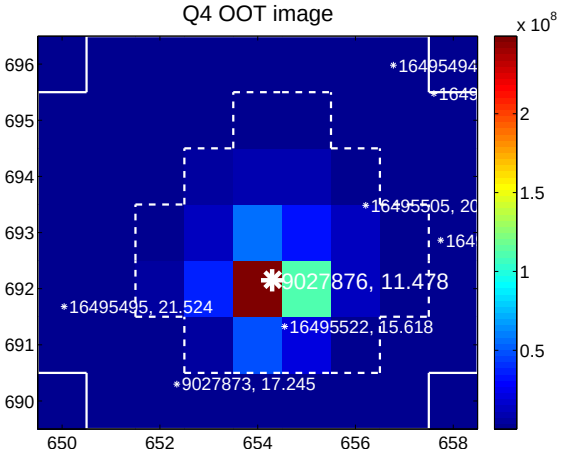


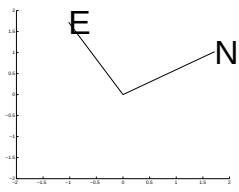




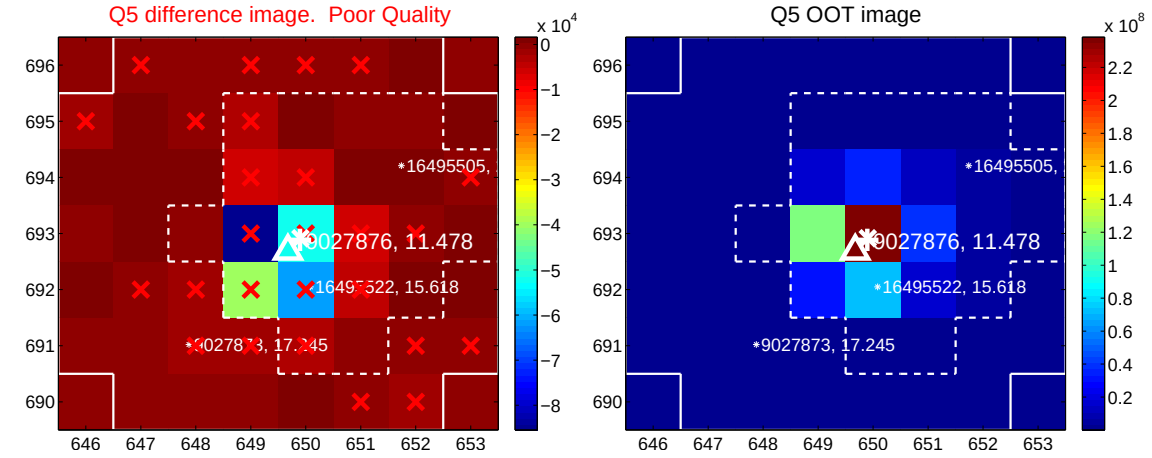


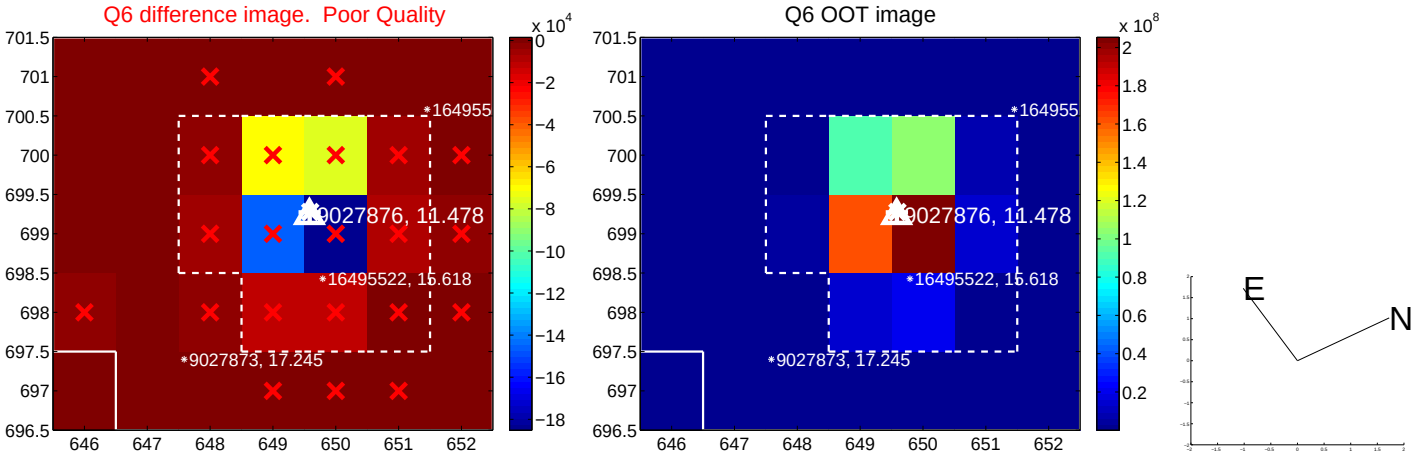


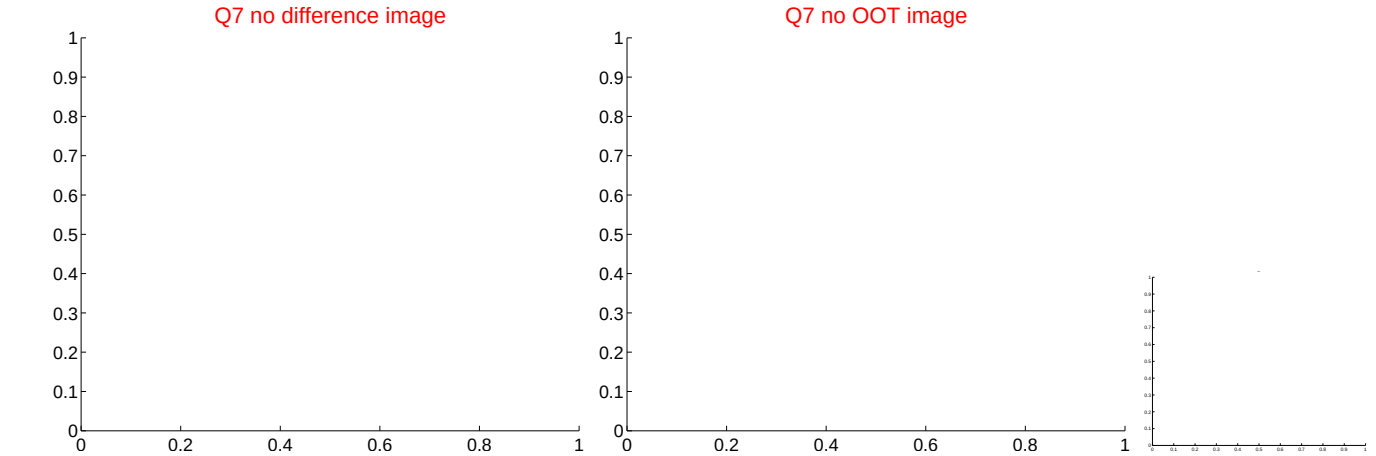


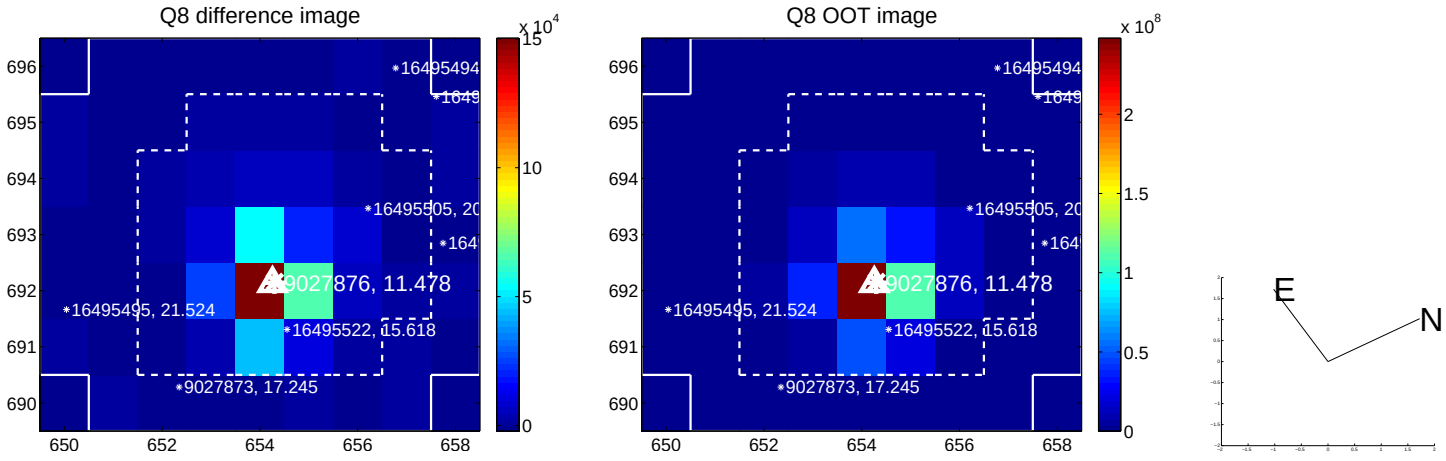


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

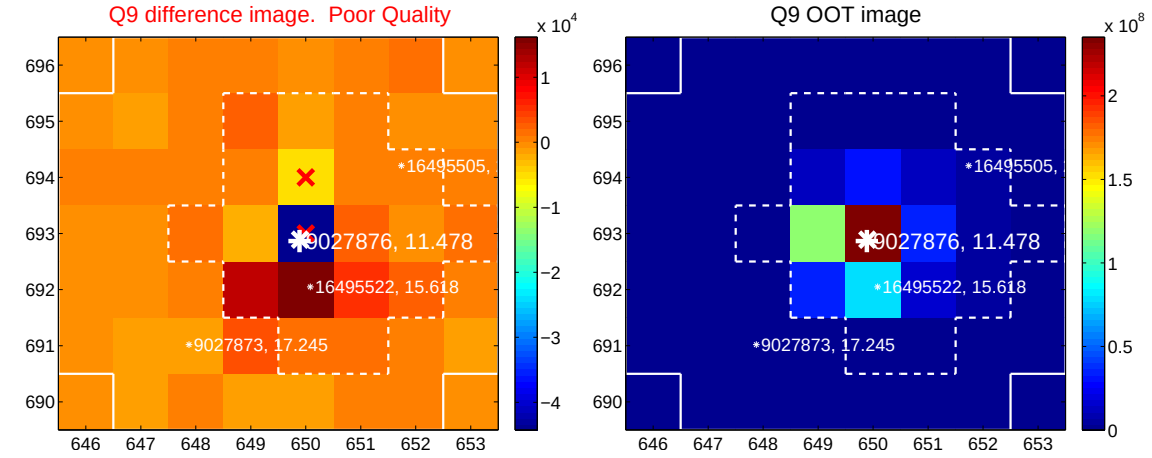


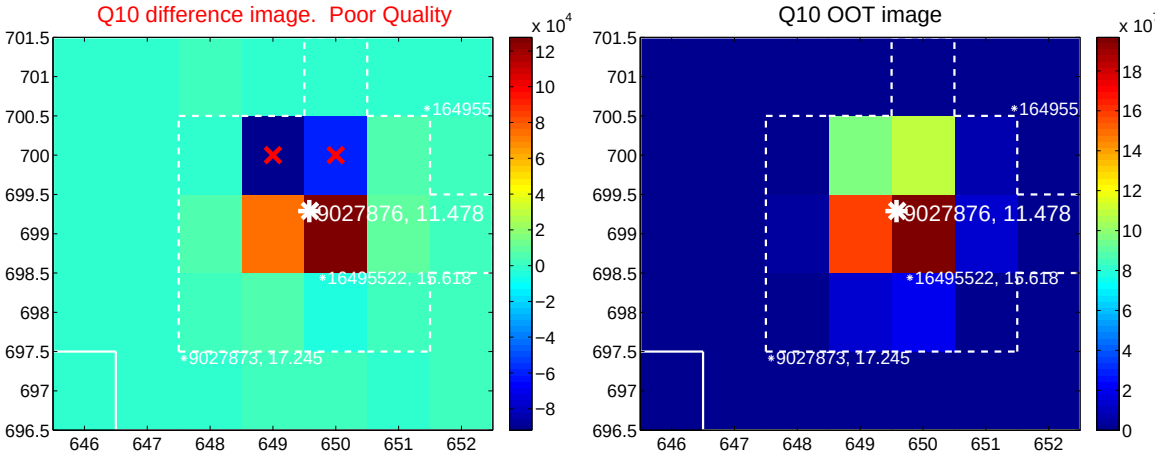


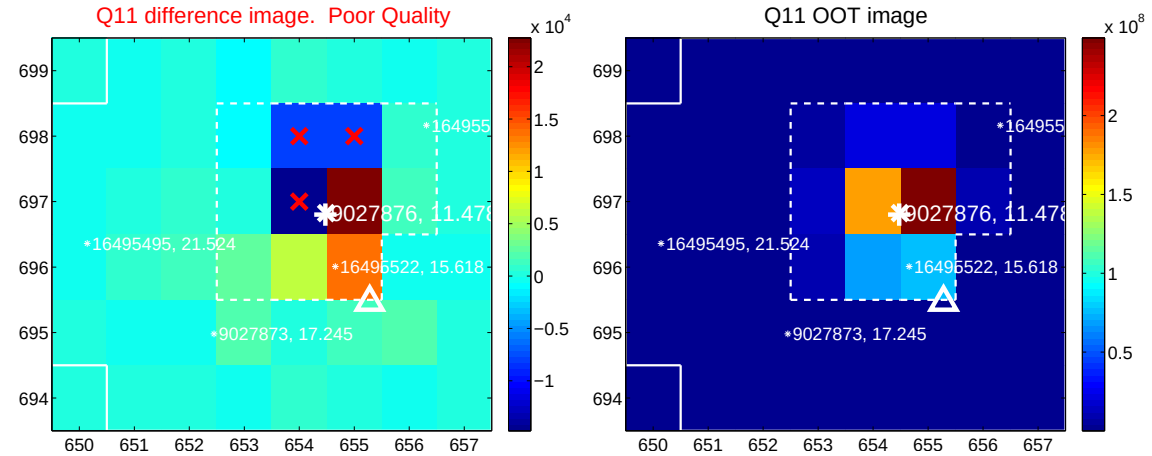


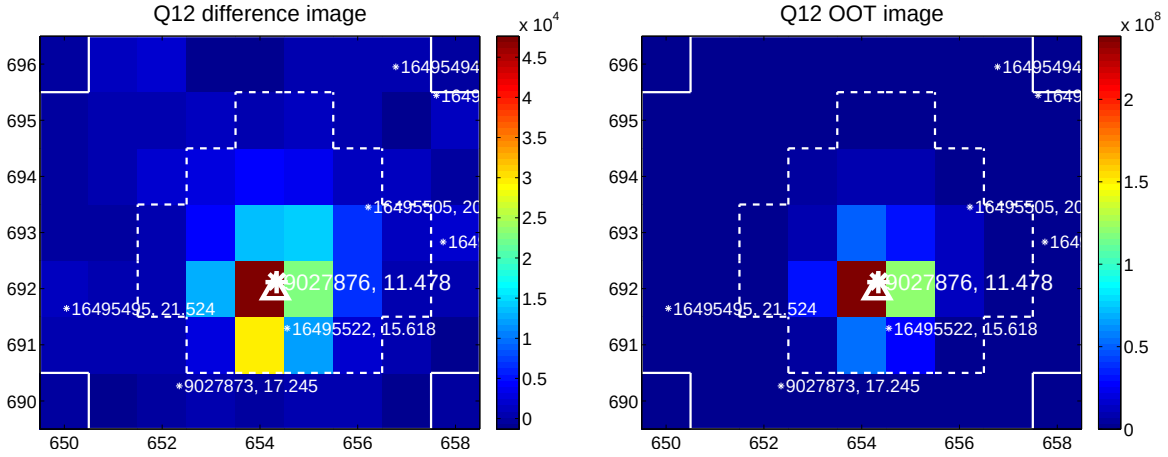


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

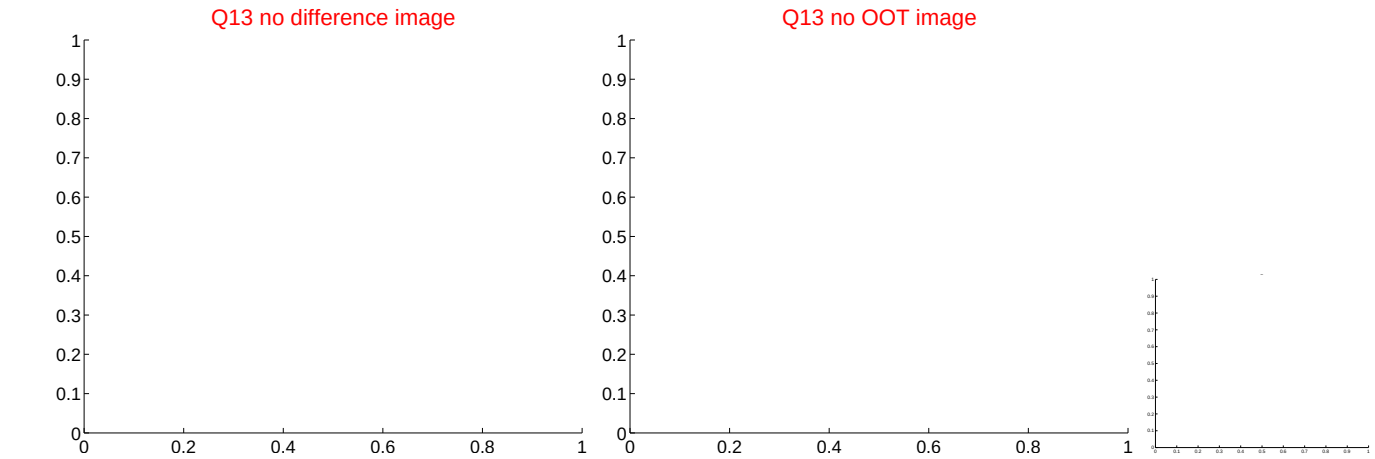


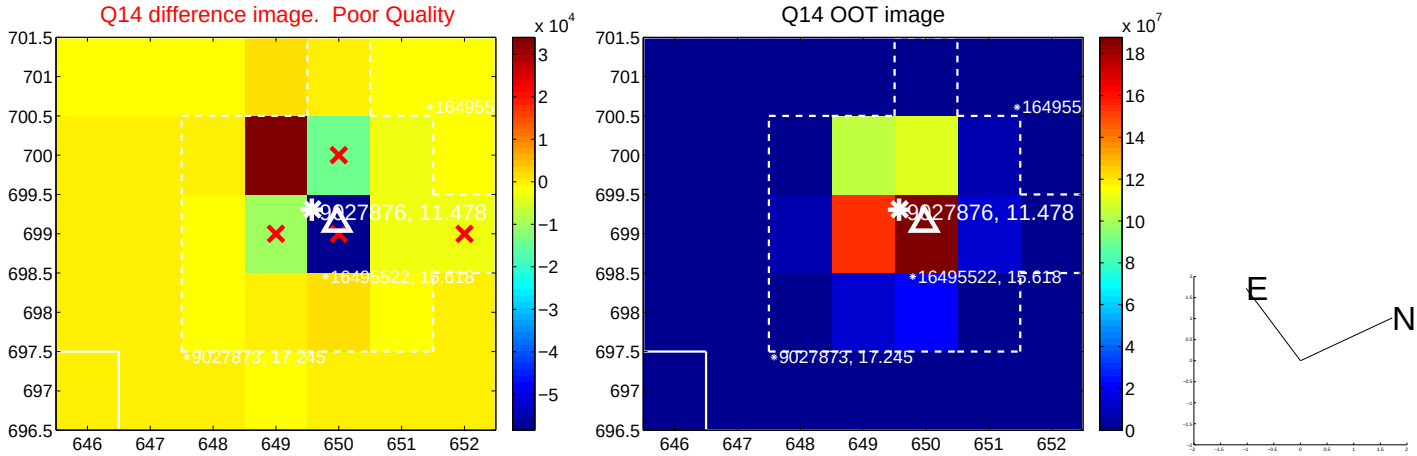


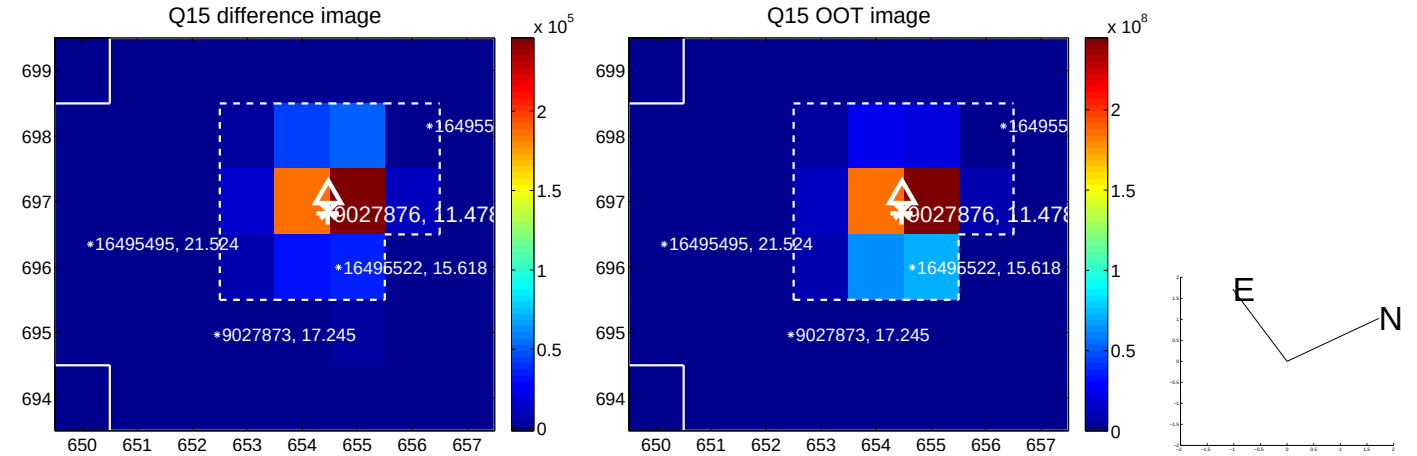


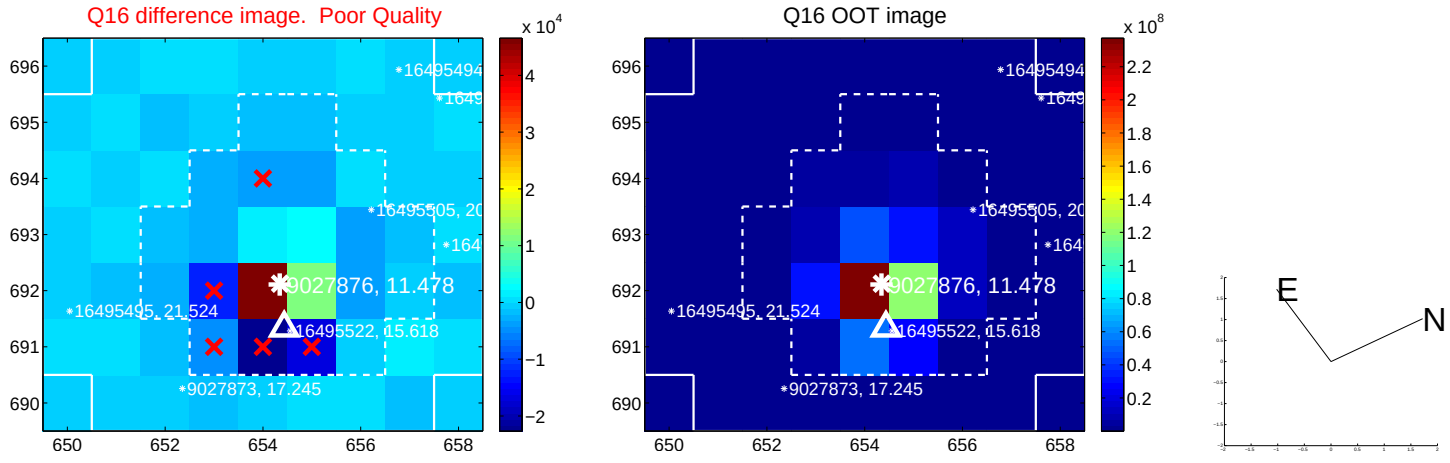


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

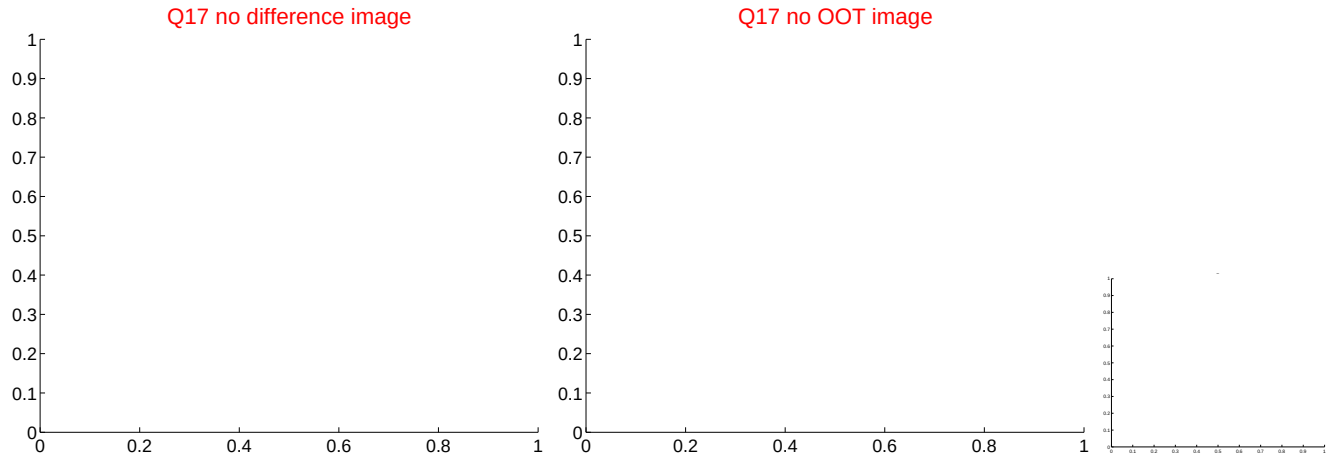


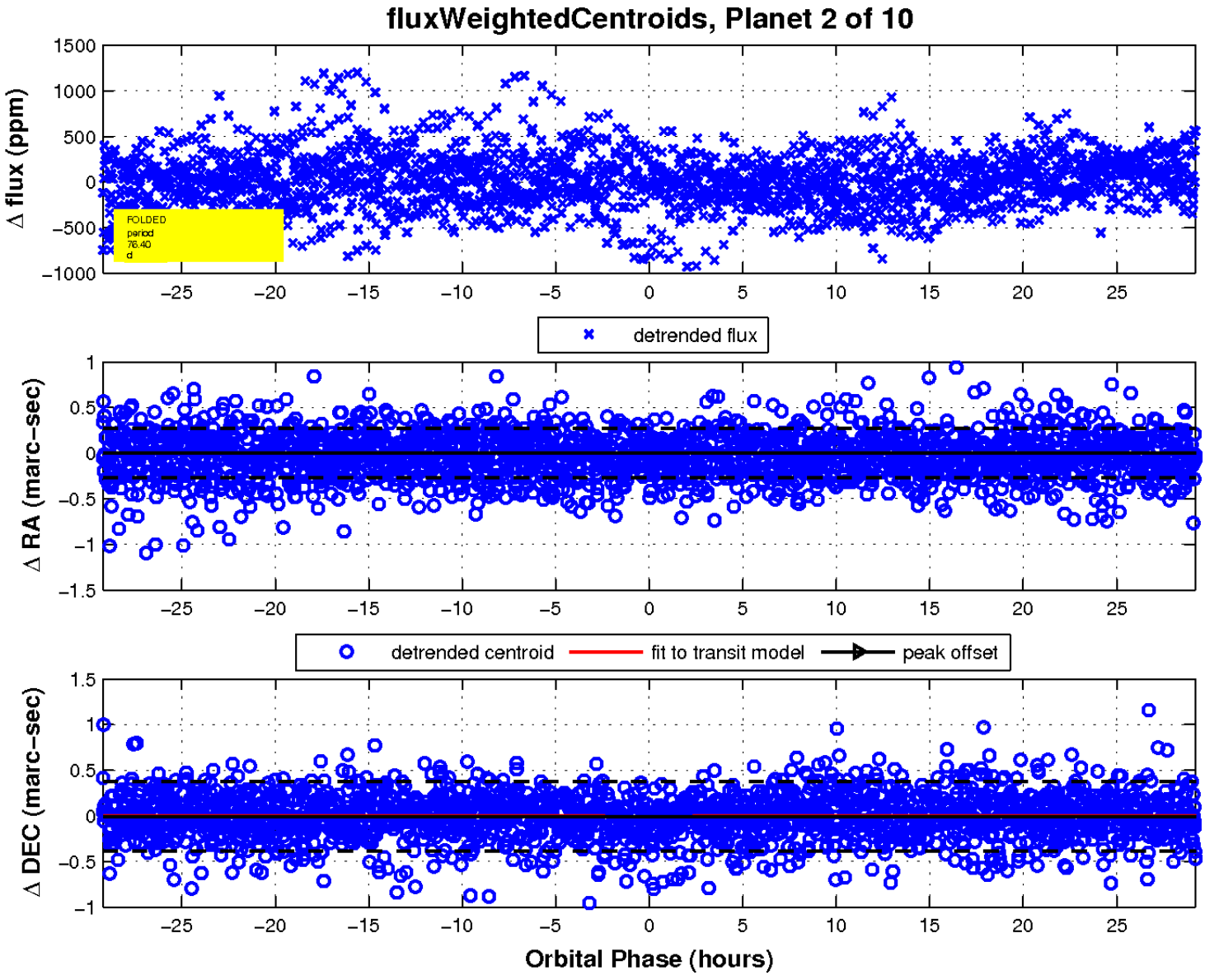




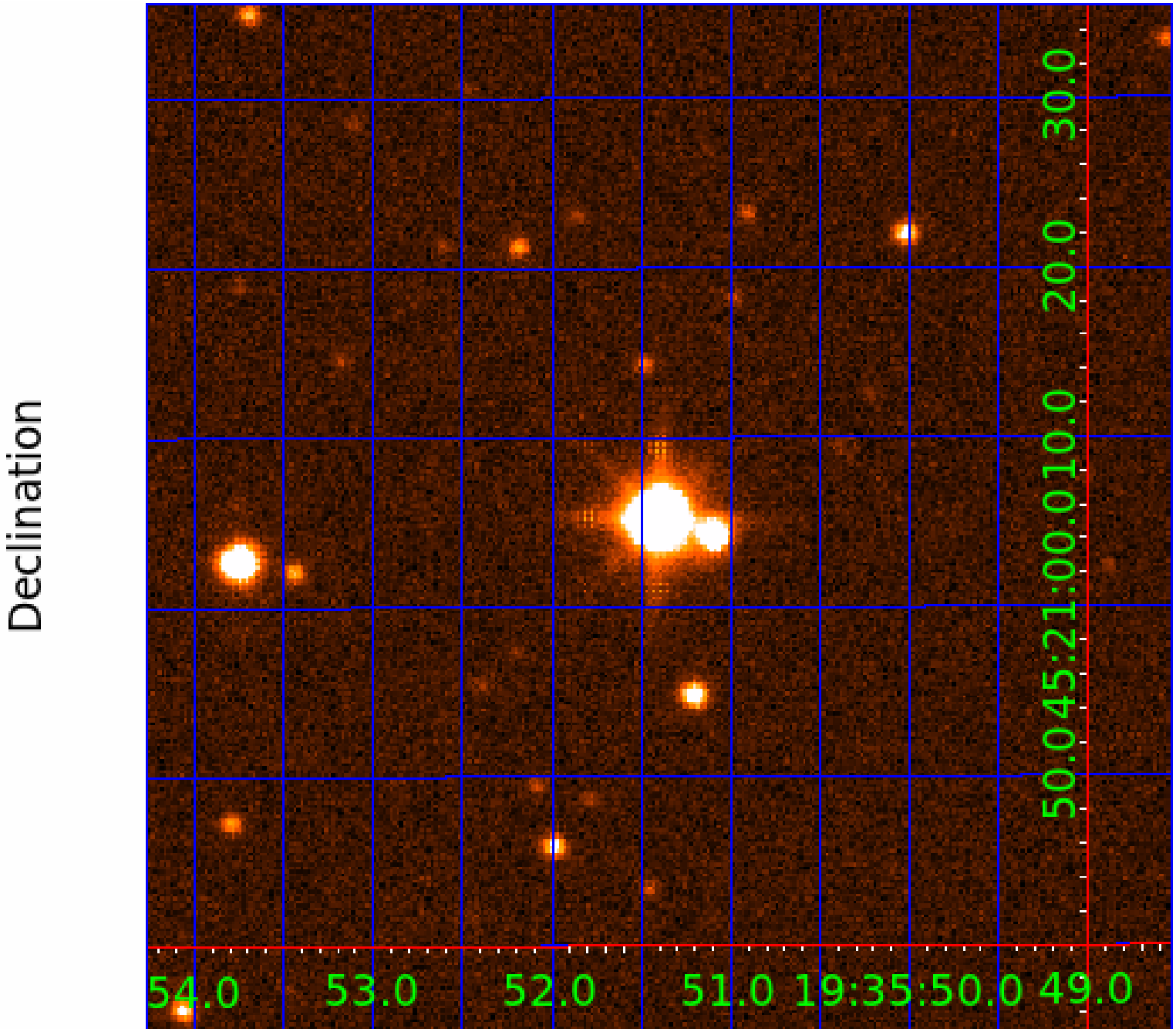


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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49.0

KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

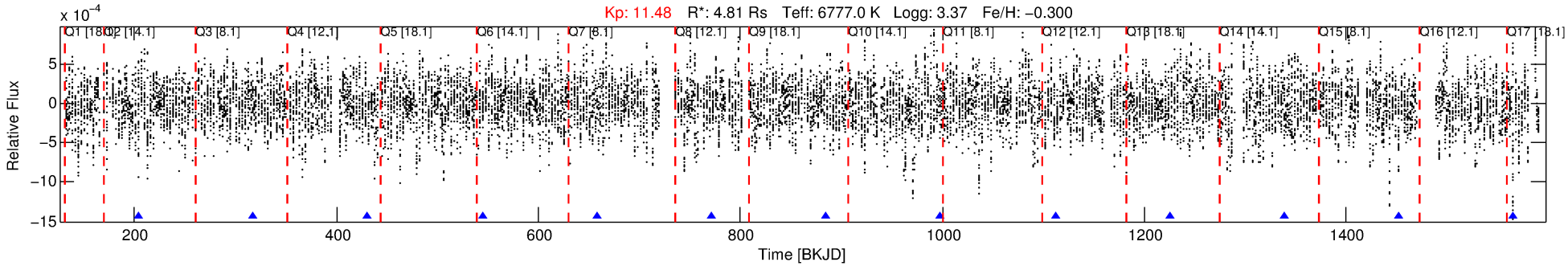
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

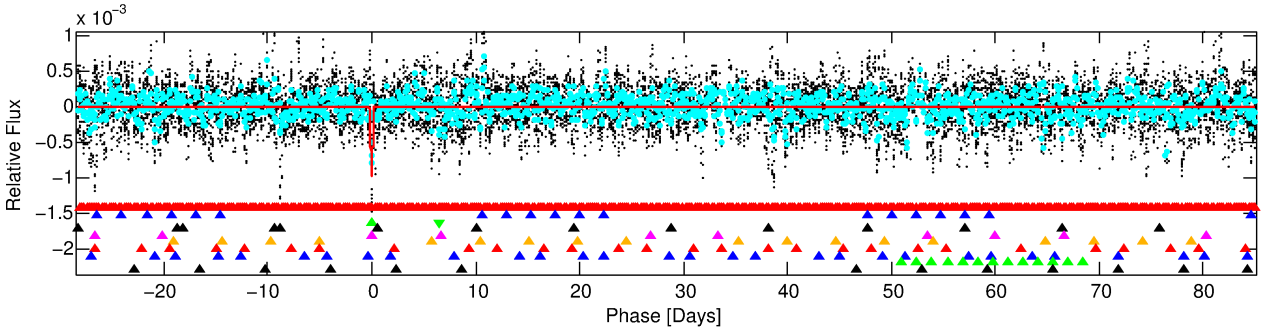
Ephemeris Match Information For 009027876-03

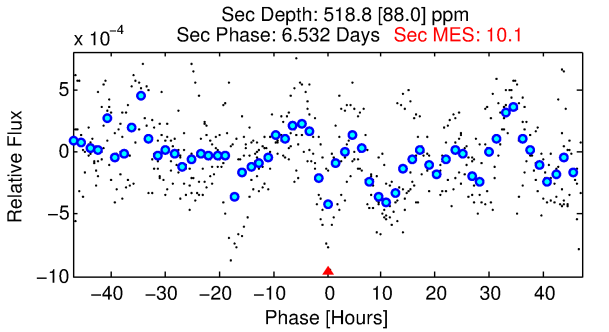
No Significant Match Found

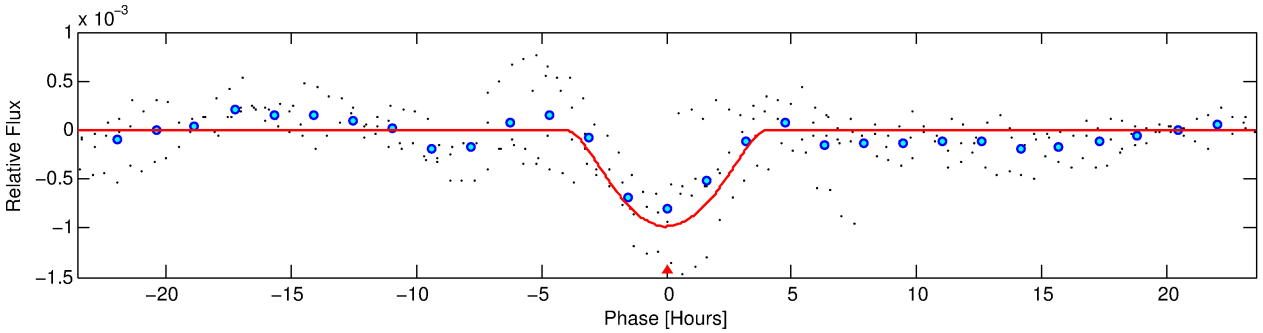
DV One-Page Summary

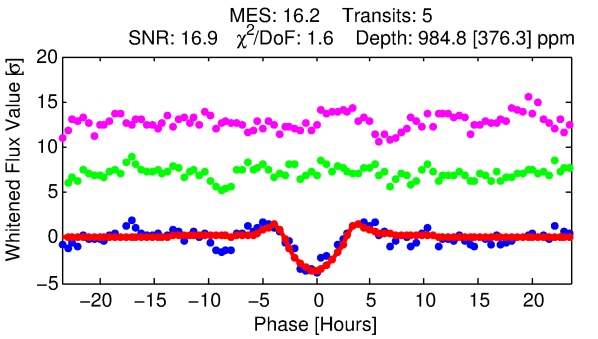
KIC: 9027876 Candidate: 3 of 10 Period: 113.426 d

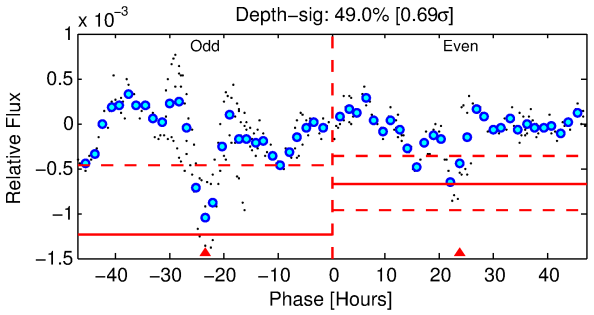


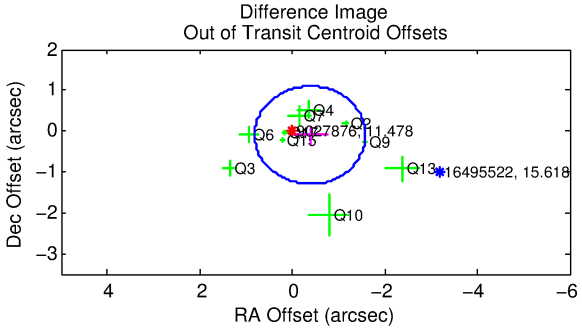












DV Fit Results:

Period = 113.42620 [0.00099] d
Epoch = 204.2550 [0.0068] BKJD
Rp/R* = 0.0539 [0.0746]
a/R* = 36.69 [12.19]
b = 1.00 [0.09]

Seff = 131.81 [90.94]
Teq = 864 [149] K
Rp = 28.26 [40.85] Re
a = 0.5755 [0.2403] AU

Ag = 118.34 [337.90] [0.35σ]
Teffp = 4406 [3056] K [1.16σ]

DV Diagnostic Results:

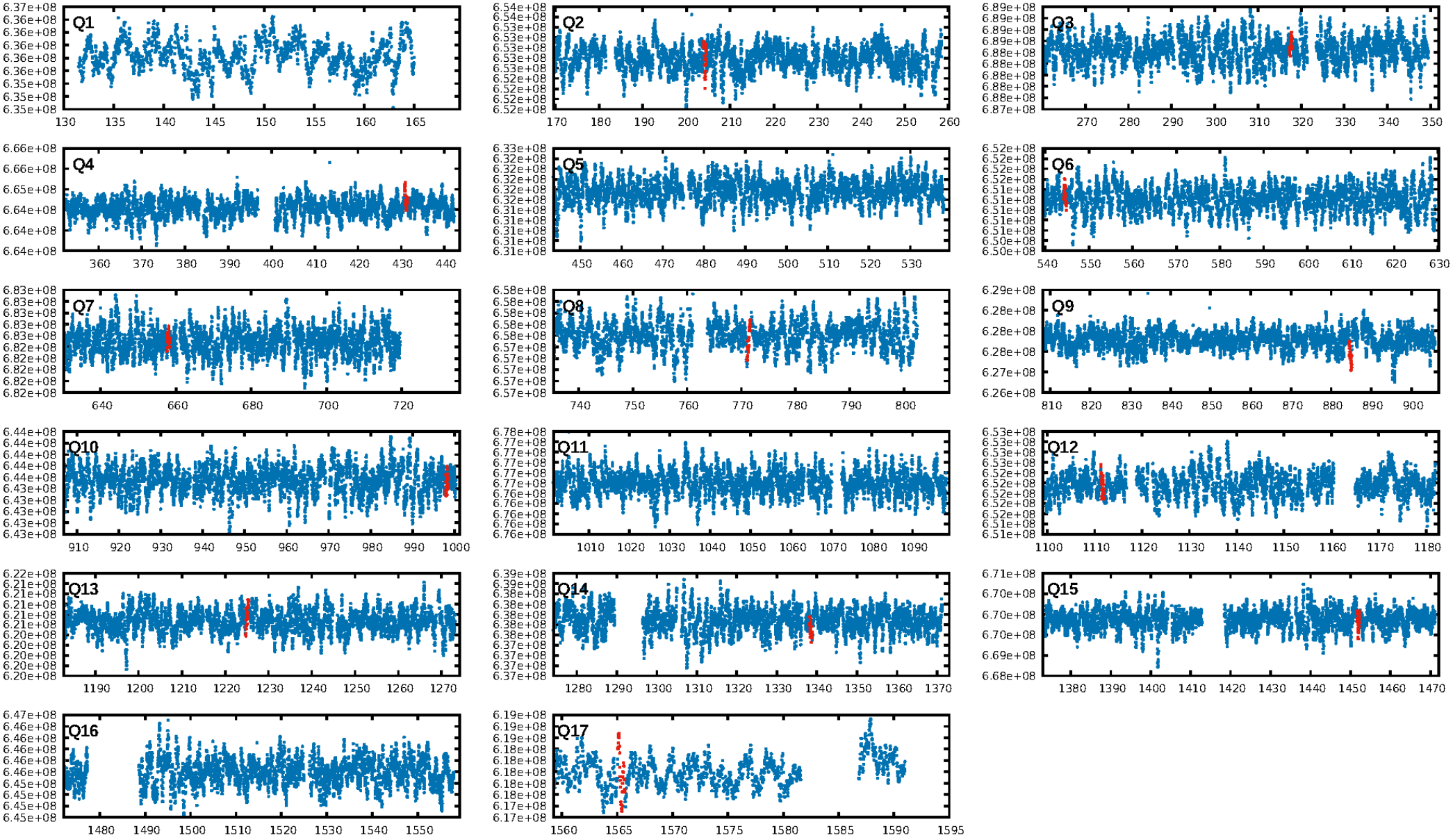
ShortPeriod−sig: 88.0% [1.55σ]
LongPeriod−sig: 100.0% [48.20σ]
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 98.8%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [4/4]
GhostDiagnostic−chr: 0.05316

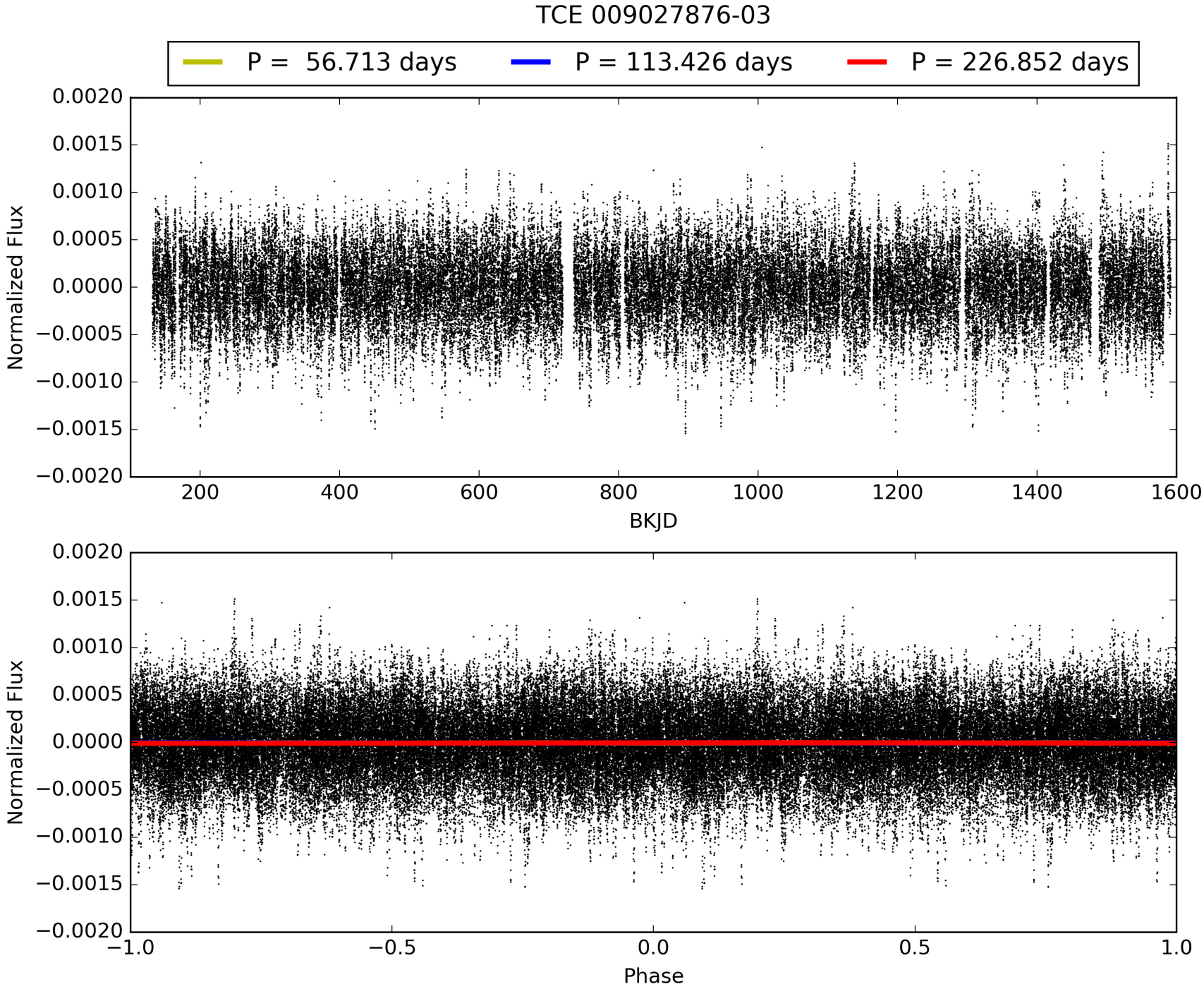
Centroid−sig: 0.7%
Centroid−so: 0.194 arcsec [2.41σ]
OotOffset−rm: 0.395 arcsec [0.99σ]
KicOffset−rm: 0.454 arcsec [1.44σ]
OotOffset−st: 3/3/1/3 [10]
KicOffset−st: 3/3/1/3 [10]
DiffImageQuality−fgm: 0.50 [5/10]
DiffImageOverlap−fno: 0.33 [4/12]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:06 Z

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

TCE 009027876-03, PDC Light Curves

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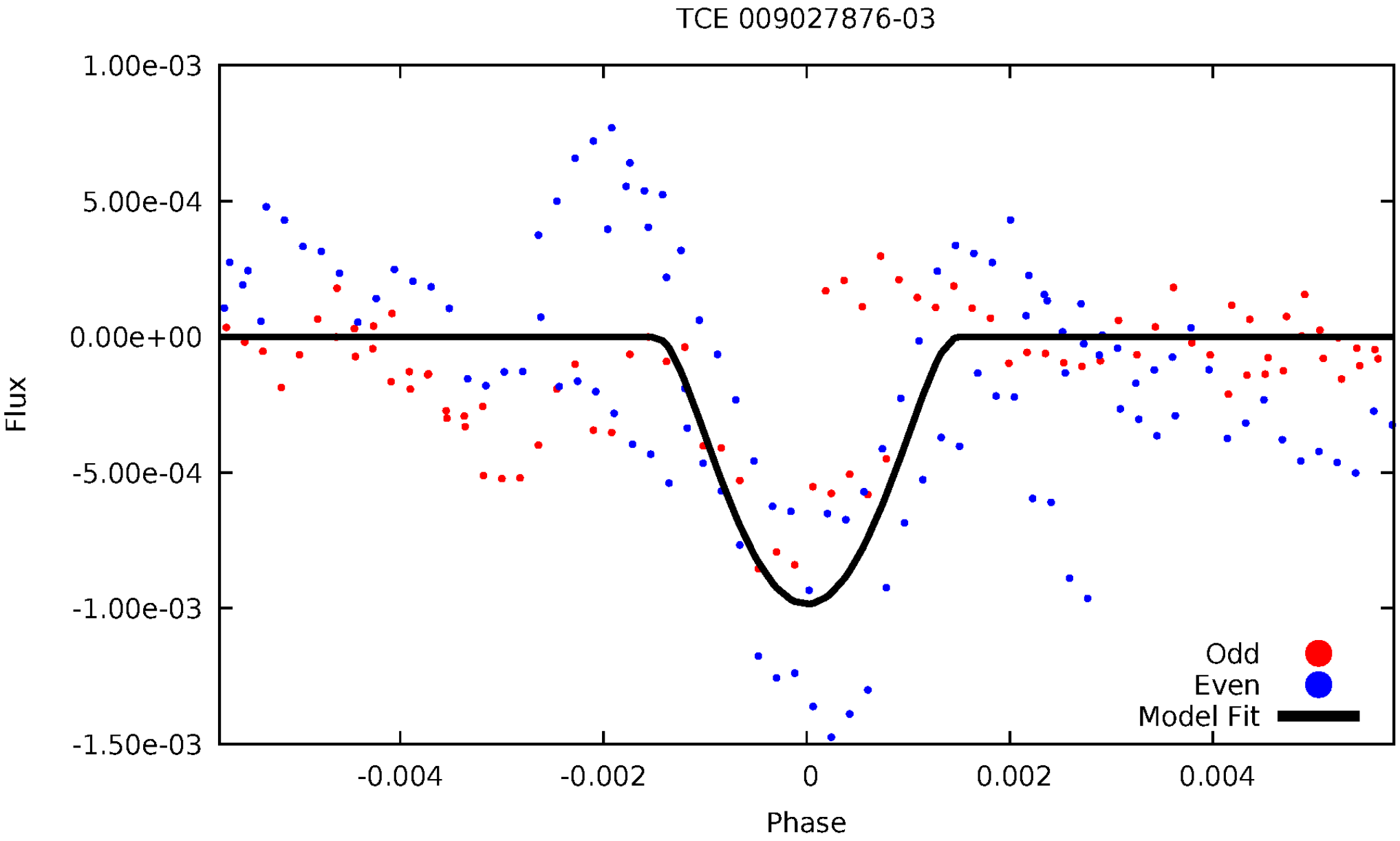
P = 56.713 days
P = 113.426 days
P = 226.852 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 009027876-03
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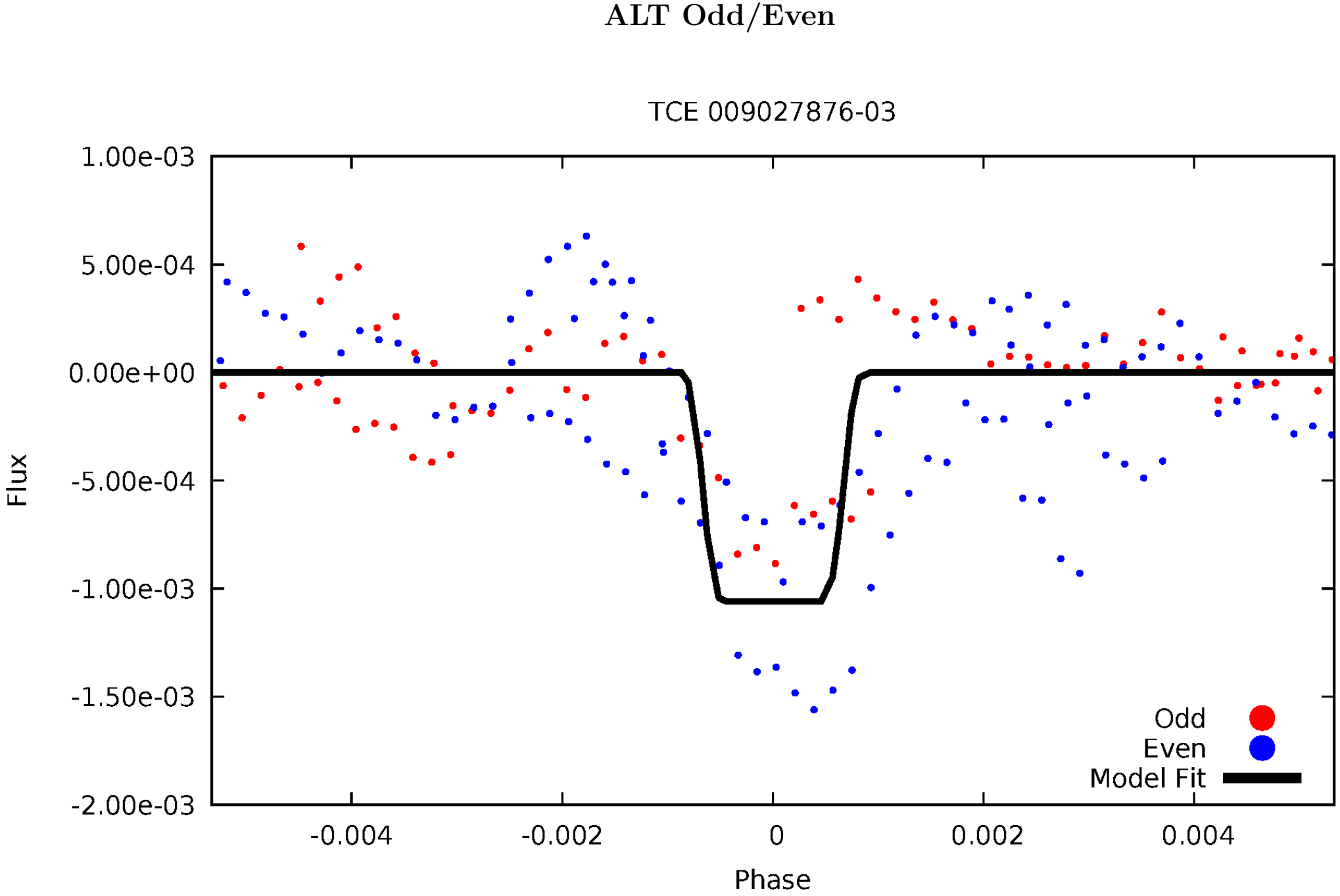
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit


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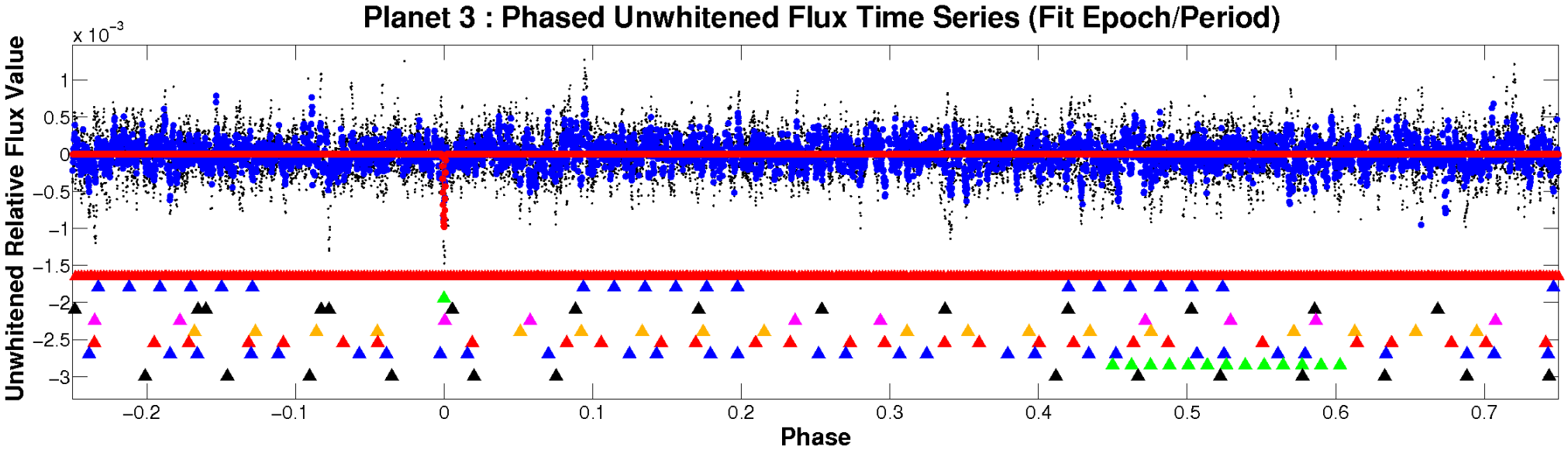
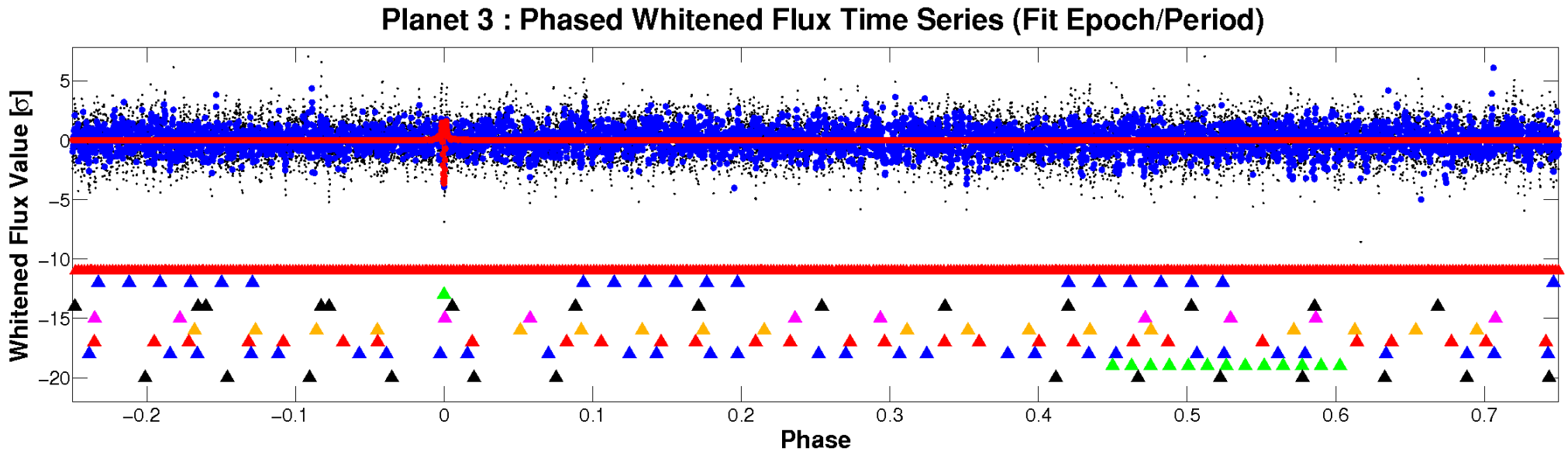
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

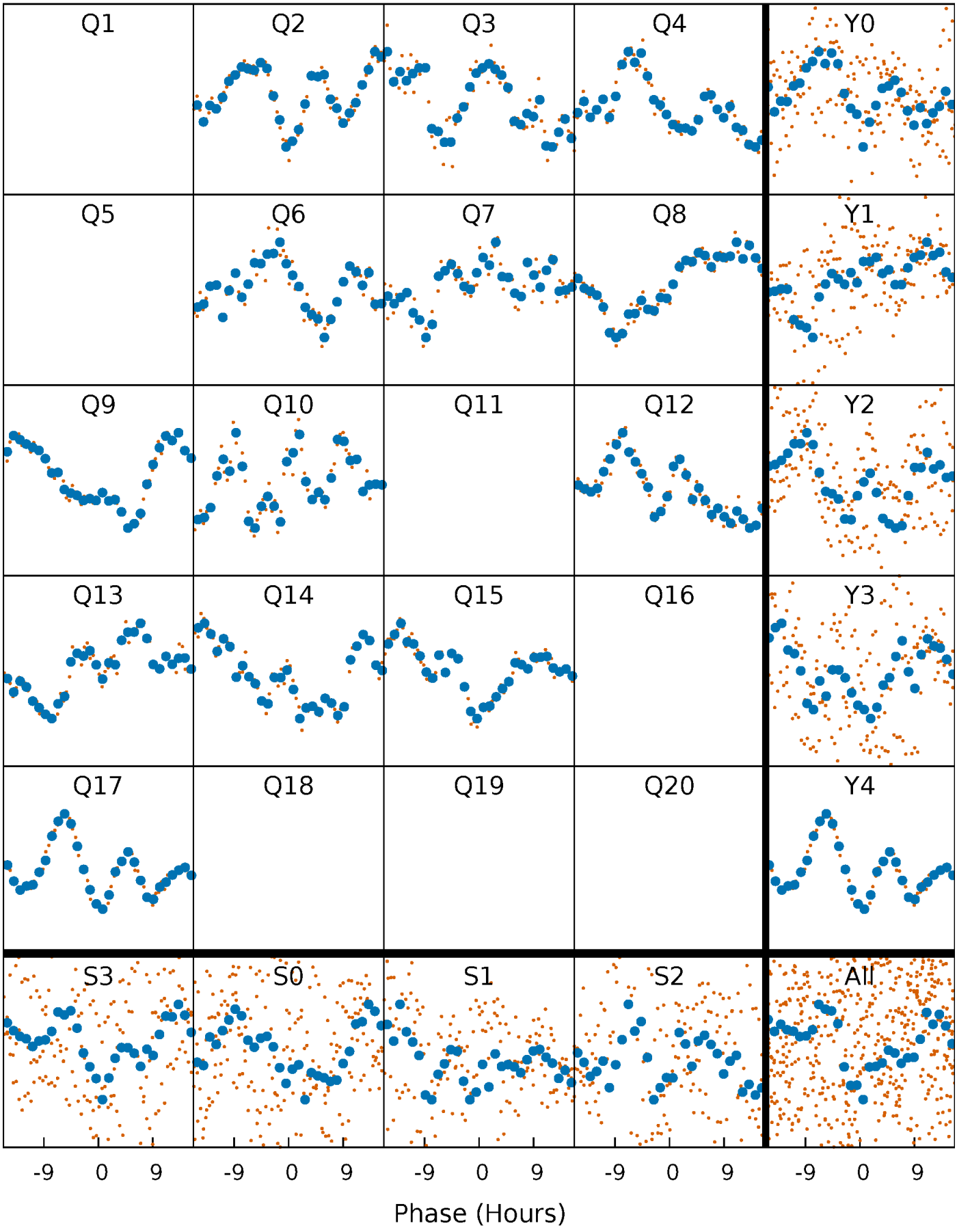
Non-Whitened Vs. Whitened Light Curve





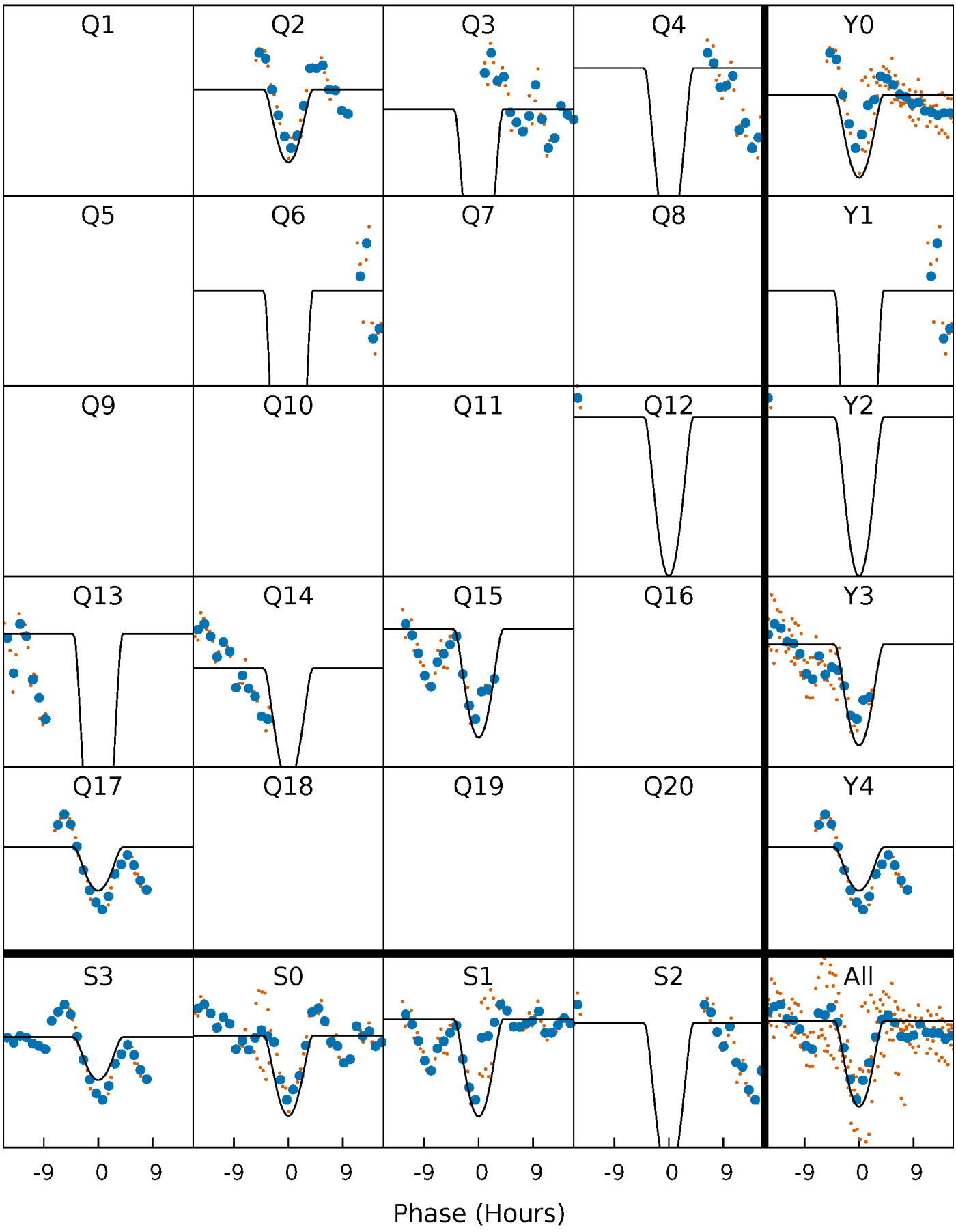
PDC Quarter-Phased Transit Curves

TCE 009027876-03 P=113.426204 Days T_0=204.254991 (BKJD)



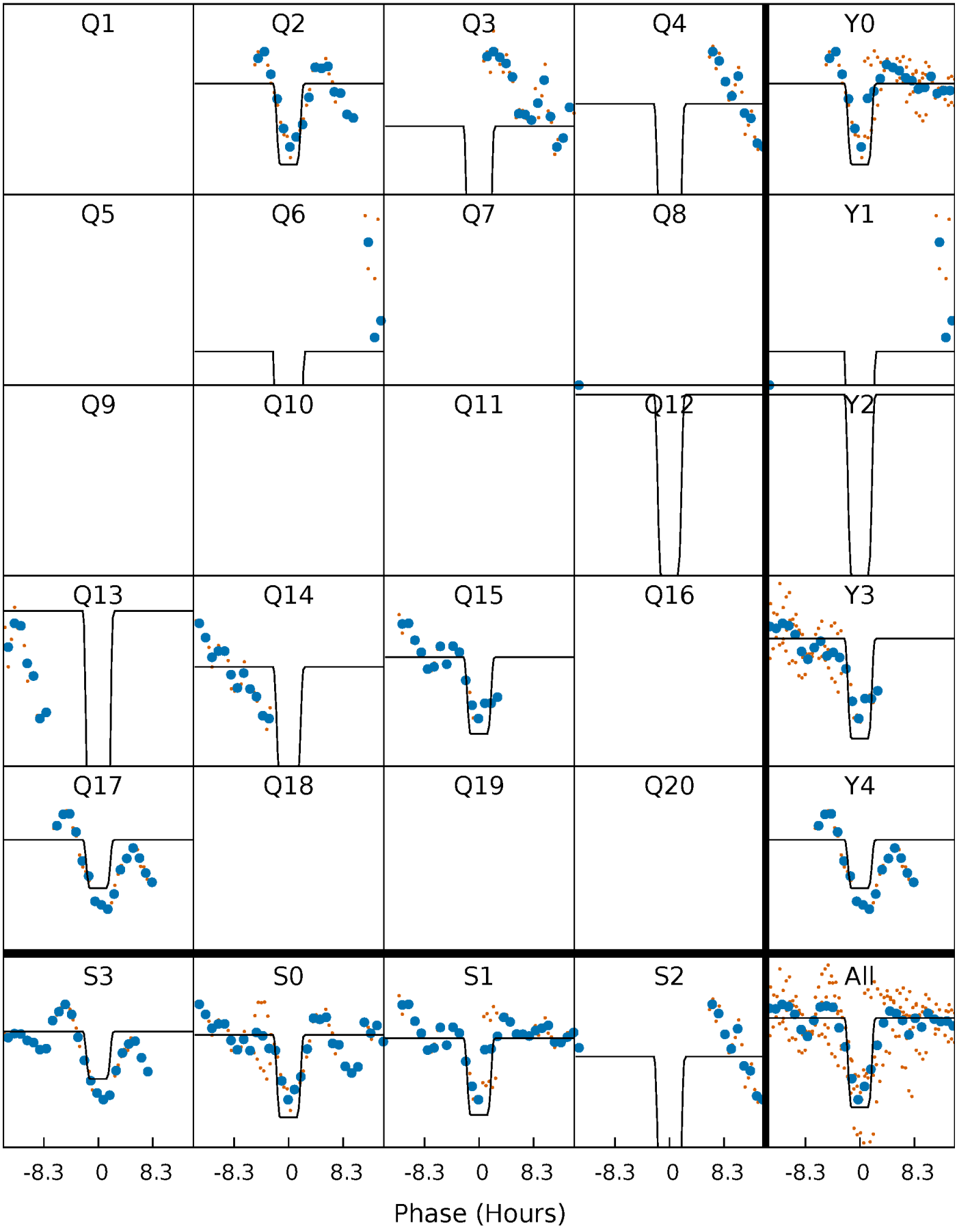
DV Quarter-Phased Transit Curves

TCE 009027876-03 P=113.426204 Days T_0=204.254991 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

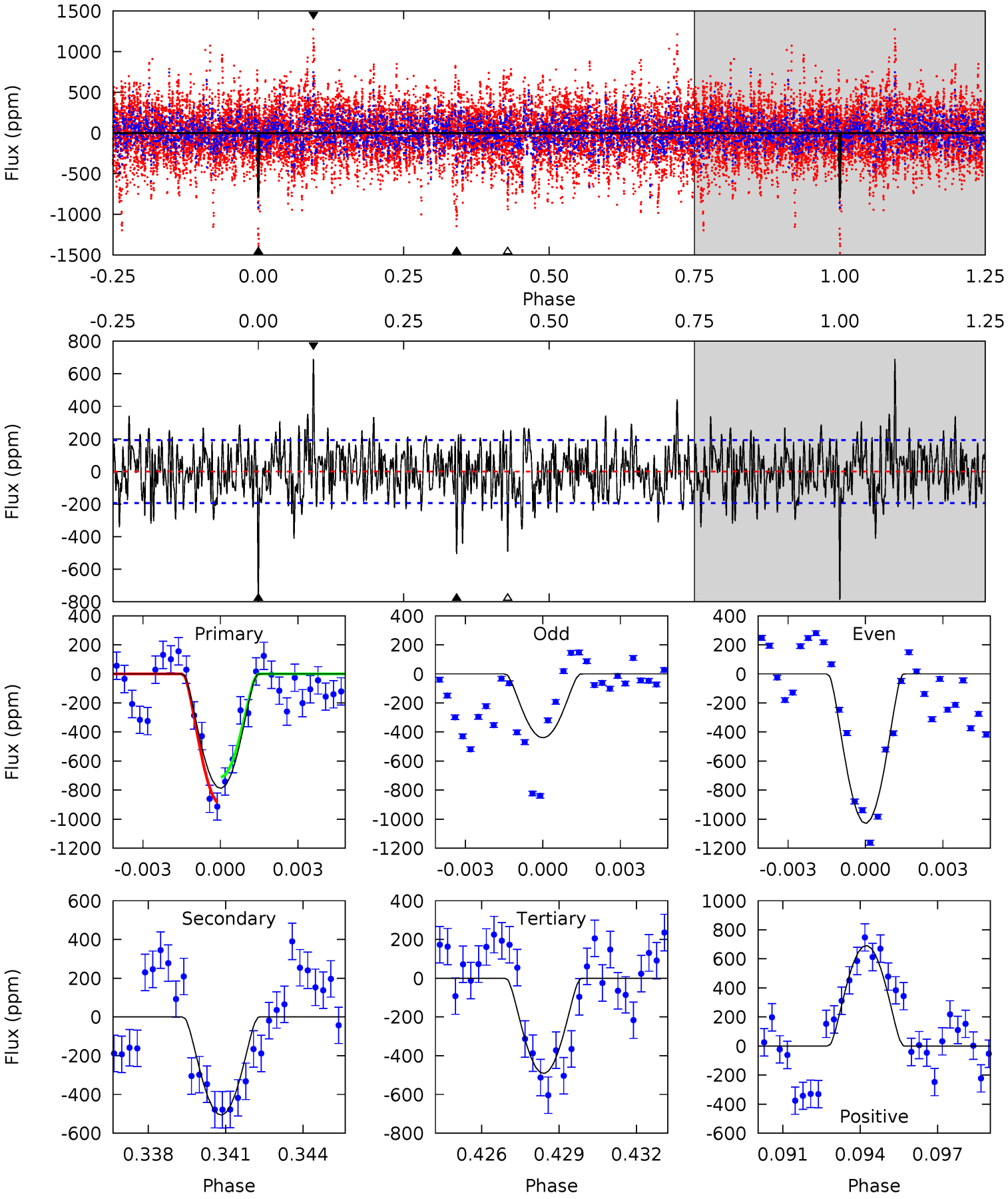
TCE 009027876-03 P=113.425500 Days T_0=204.246661 (BKJD)



DV Model-Shift Uniqueness Test

009027876-03, P = 113.426204 Days, E = 90.828787 Days

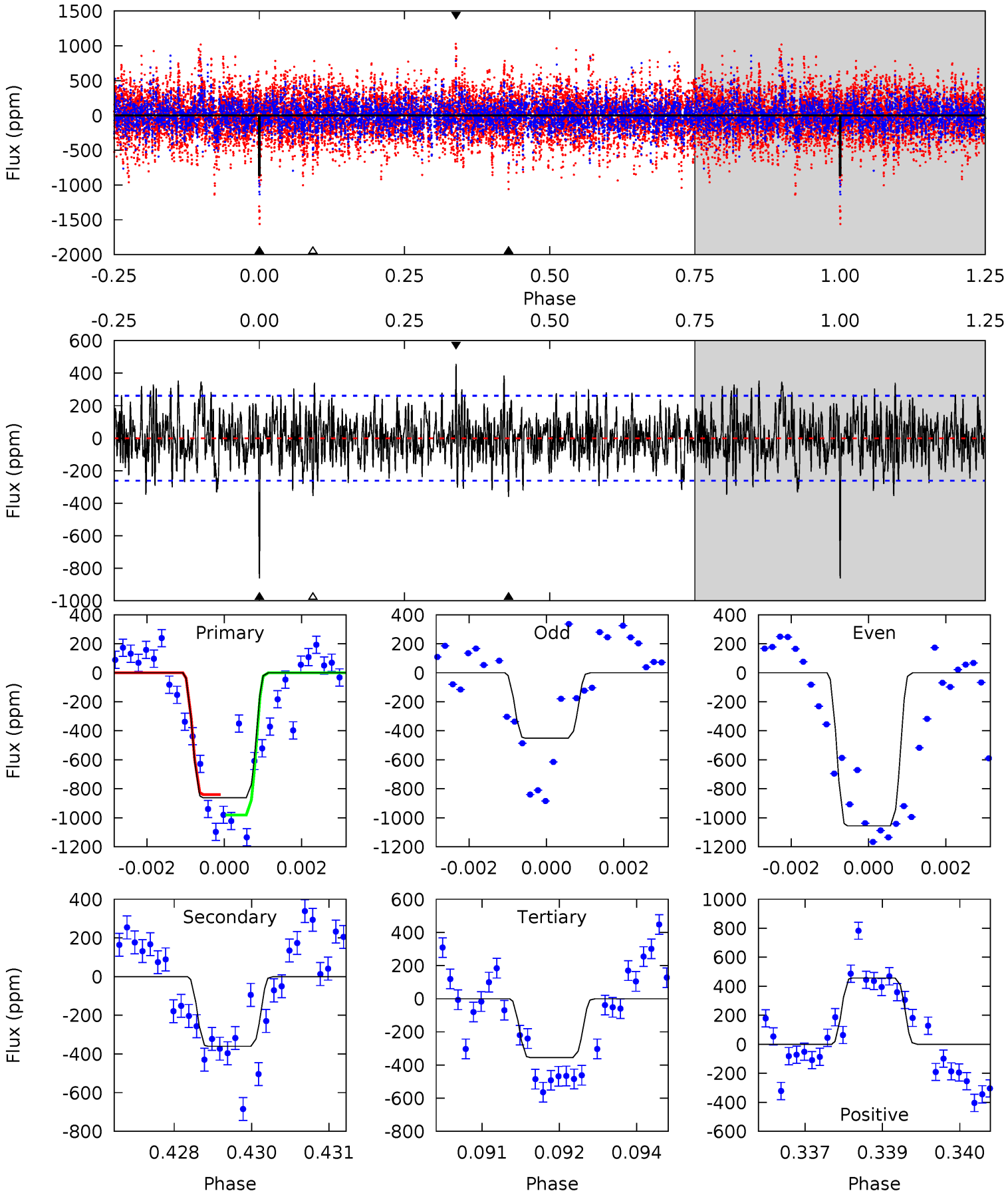
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.4	13.8	13.4	18.8	5.25	2.96	3.47	8.05	2.63	0.40	-5.03	7.72	1.30	0.47	2.35



Alt Model-Shift Uniqueness Test

009027876-03, P = 113.425500 Days, E = 90.821161 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	7.40	7.28	9.37	5.36	3.15	2.43	10.4	8.33	0.12	-1.98	6.26	0.88	0.35	1.41



Stellar Parameters For KIC 009027876

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-506±37	$33.38^{+33.56}_{-21.53}$	1170^{+60}_{-128}	4056^{+2054}_{-772}	82^{+562}_{-61}
Alt.	-360±49	$30.16^{+30.52}_{-20.45}$	1174^{+62}_{-129}	3944^{+2479}_{-731}	67^{+611}_{-49}

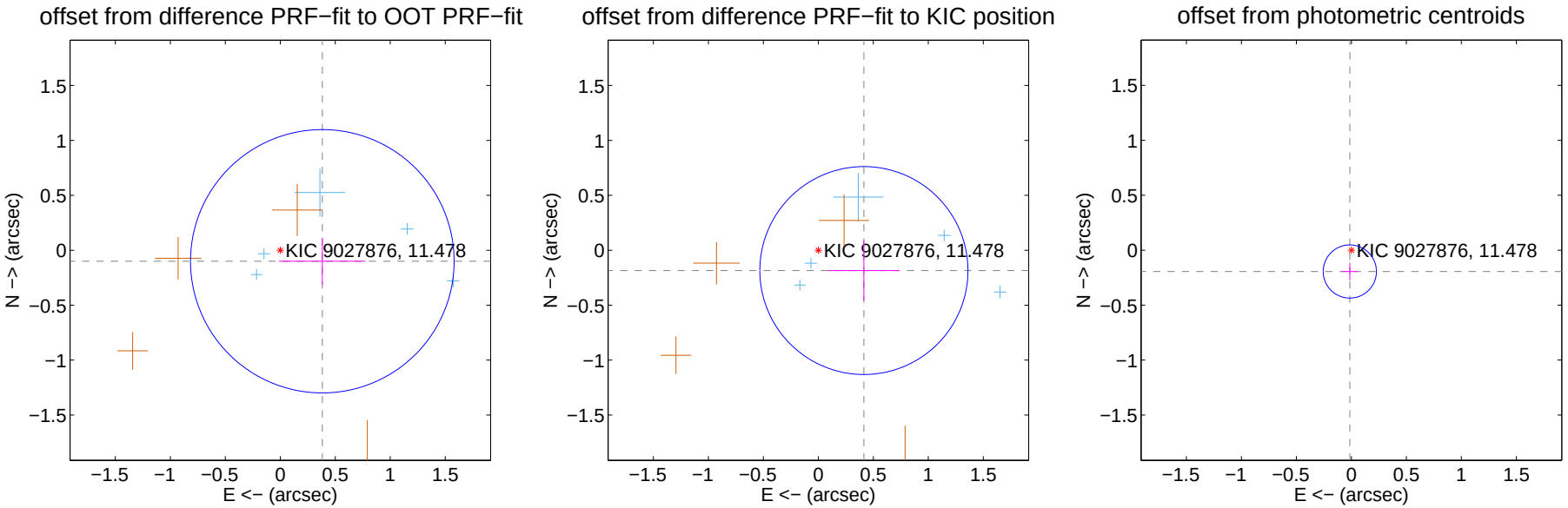
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

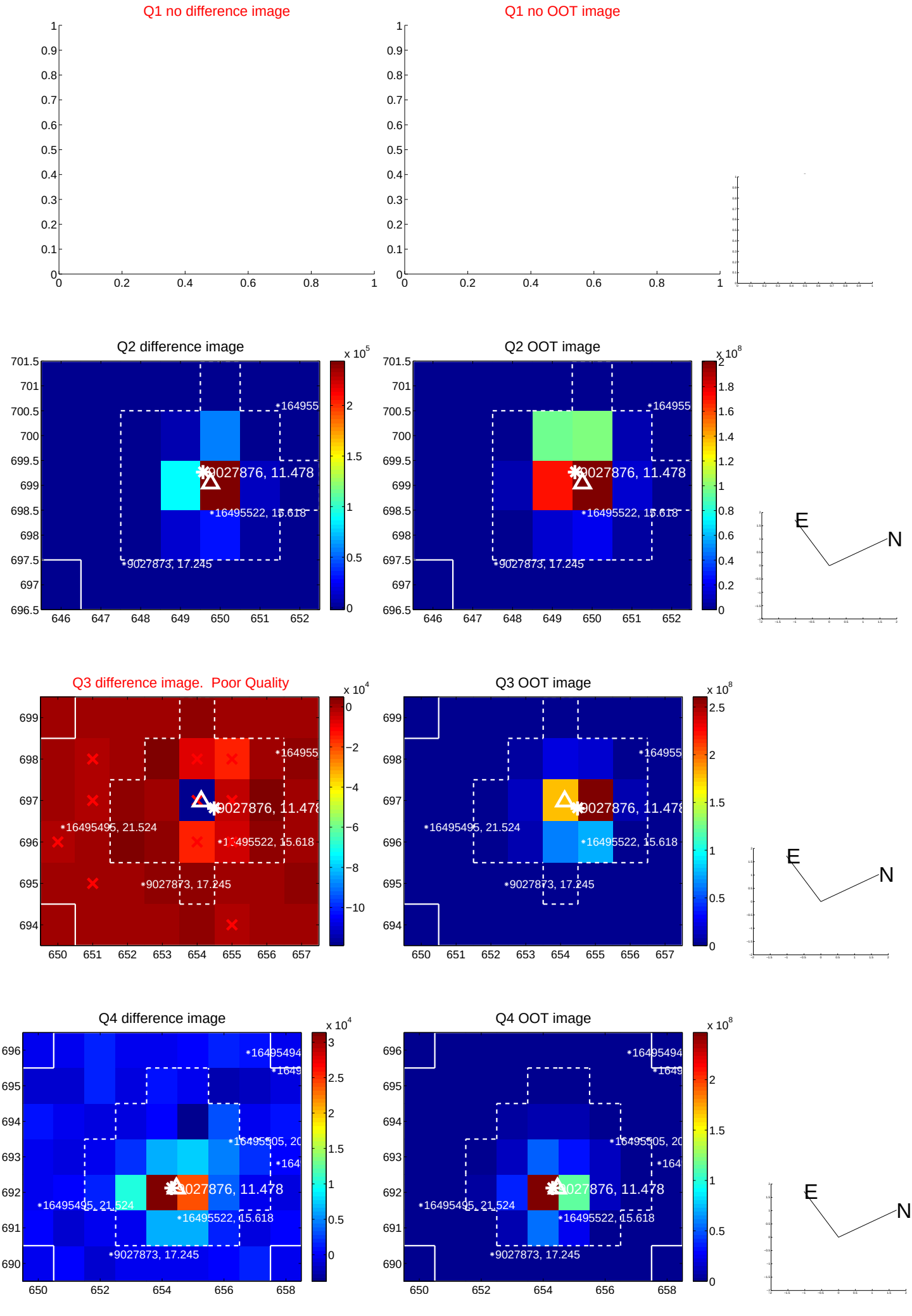
Supplemental centroid analysis for 009027876-03. Kepler magnitude: 11.48. Transit SNR 16.95
There are 5 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.395 ± 0.400	0.99	-0.382 ± 0.393	-0.100 ± 0.212
PRF-fit source offset from KIC position	0.454 ± 0.315	1.44	-0.414 ± 0.326	-0.185 ± 0.274
photometric centroid source offset	0.19 ± 0.08	2.41	0.01 ± 0.07	-0.19 ± 0.08

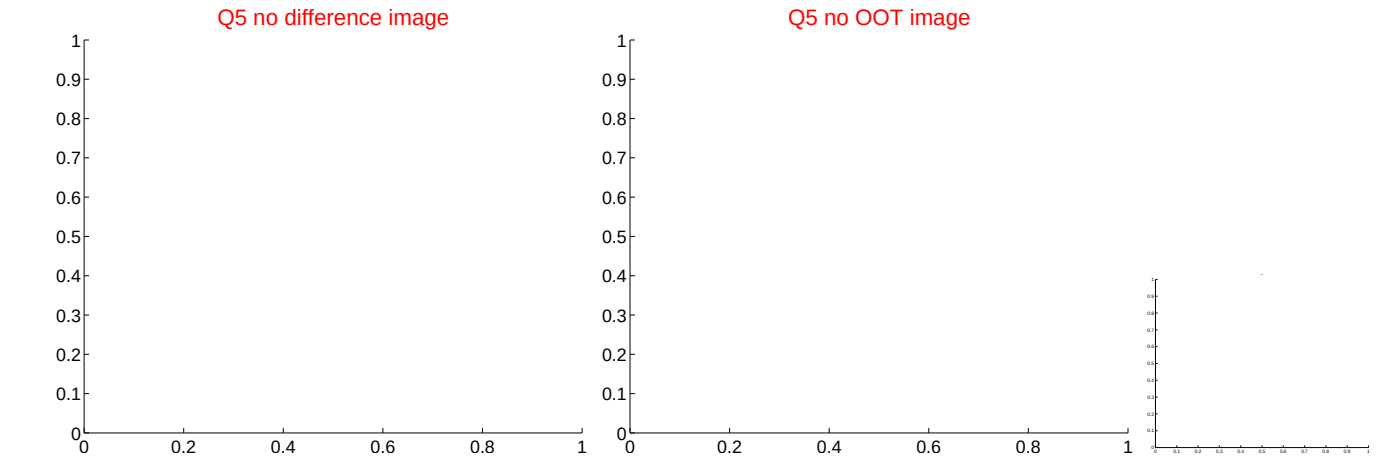


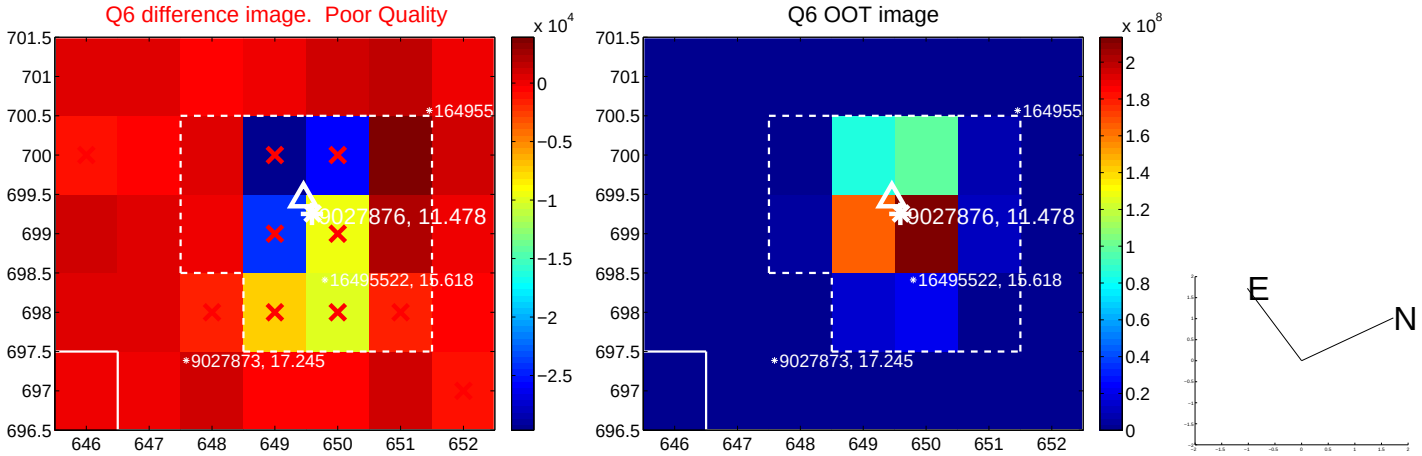
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

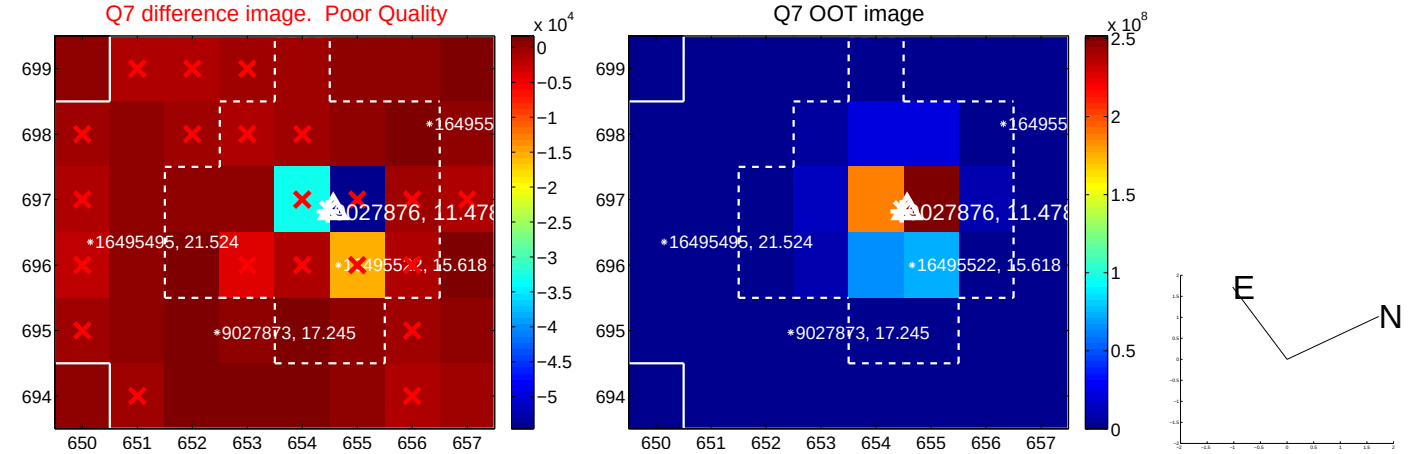
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

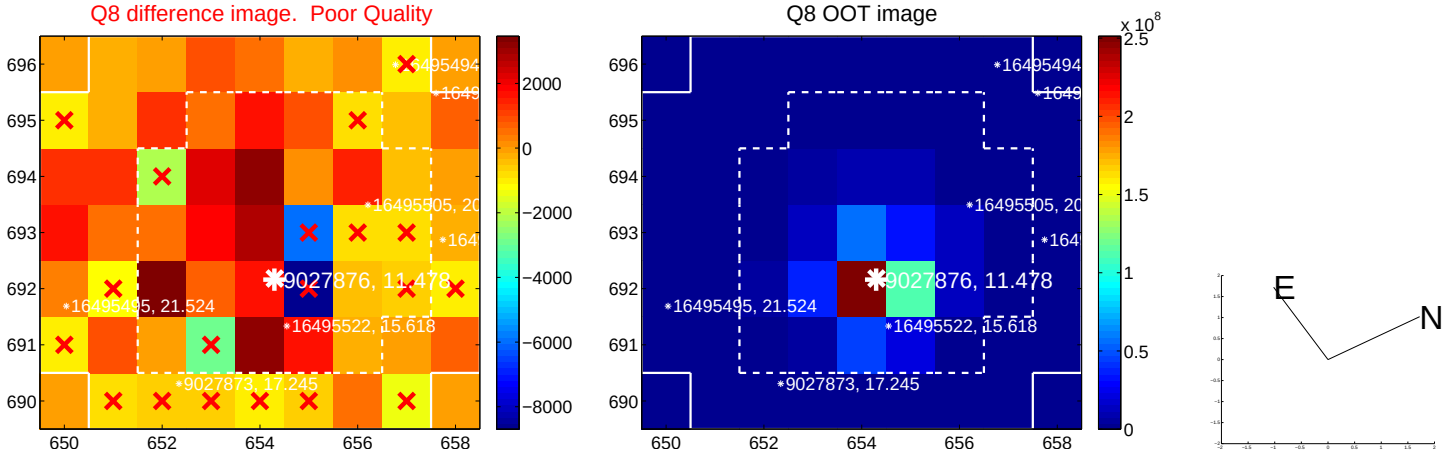


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

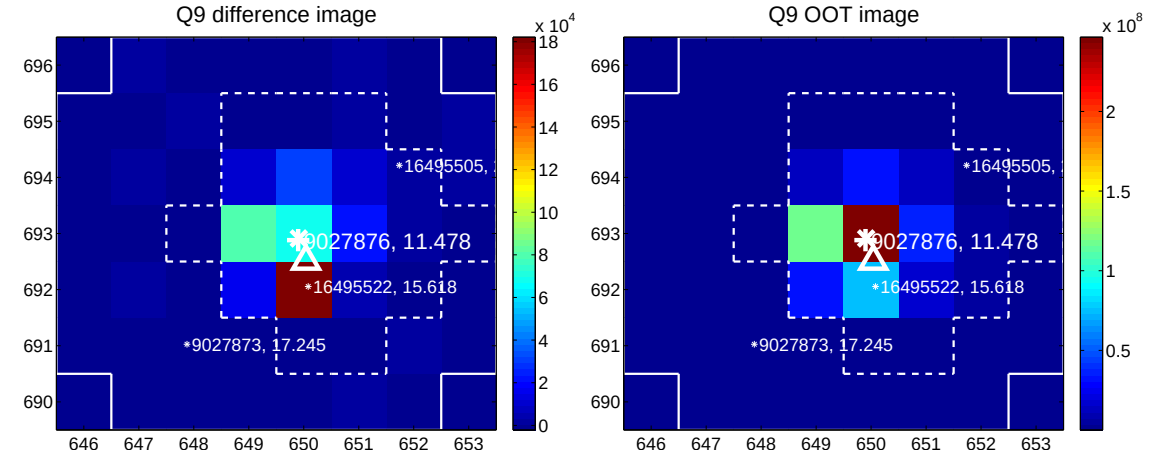


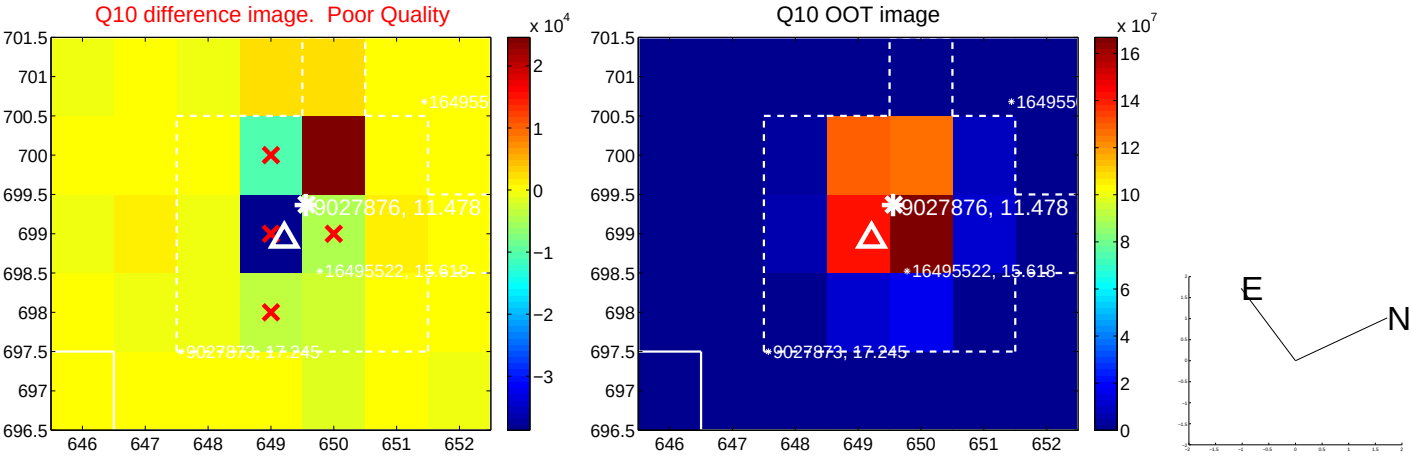


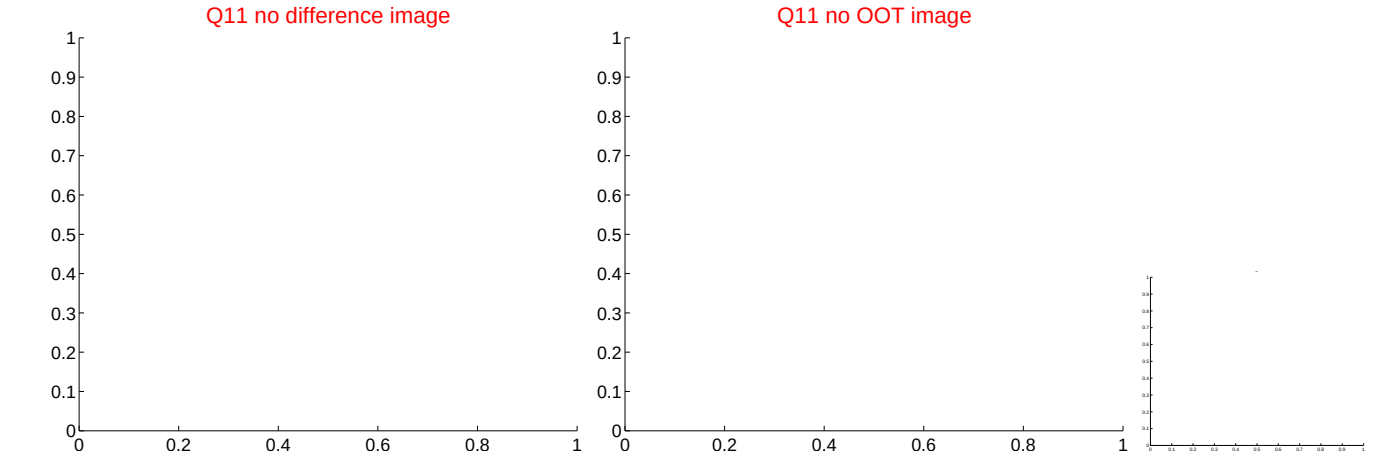


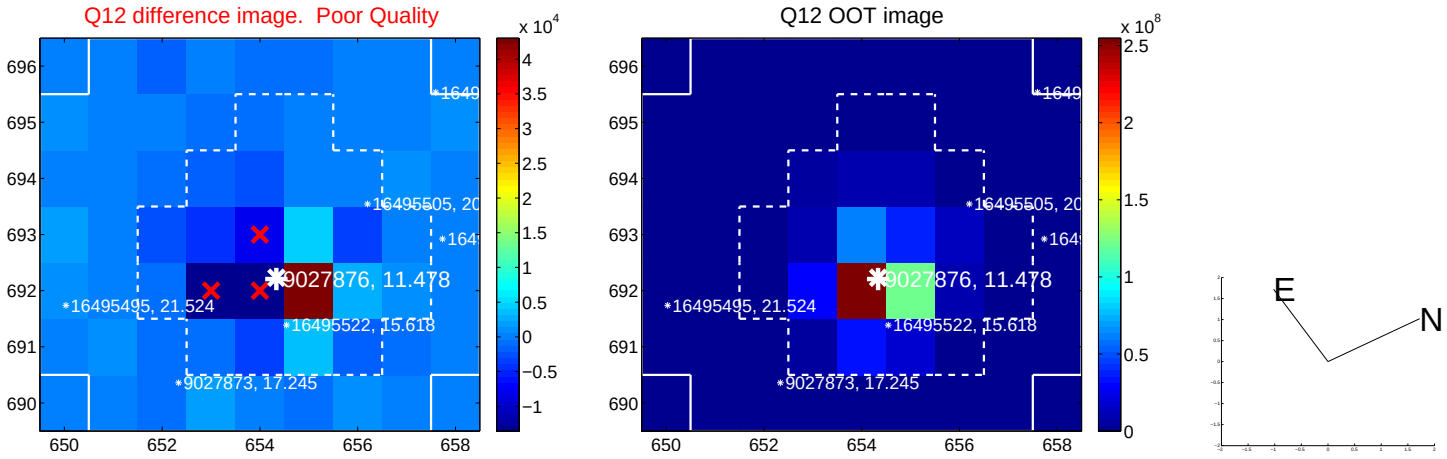


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

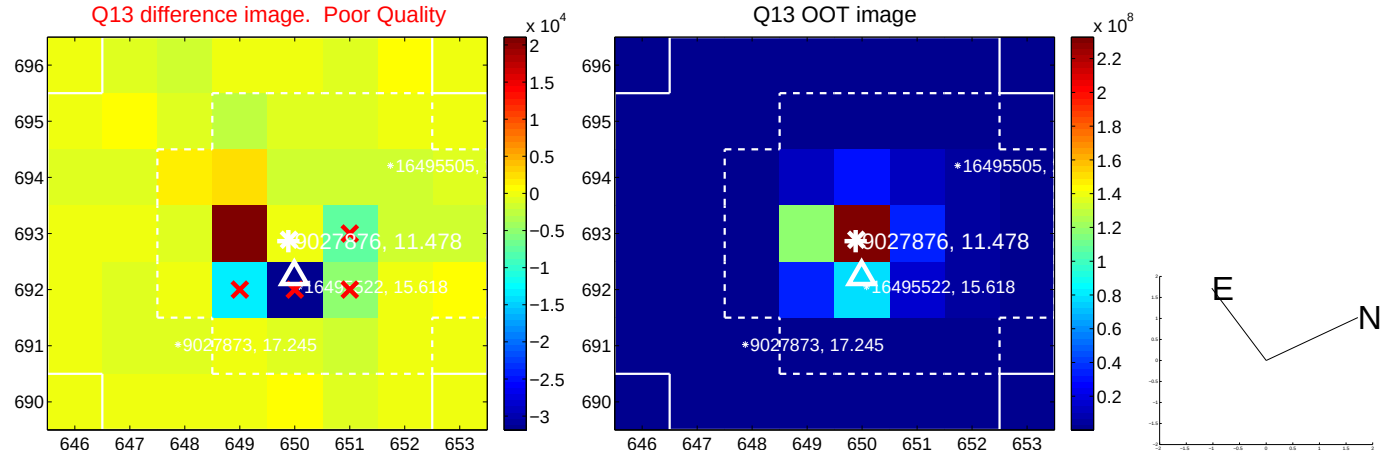


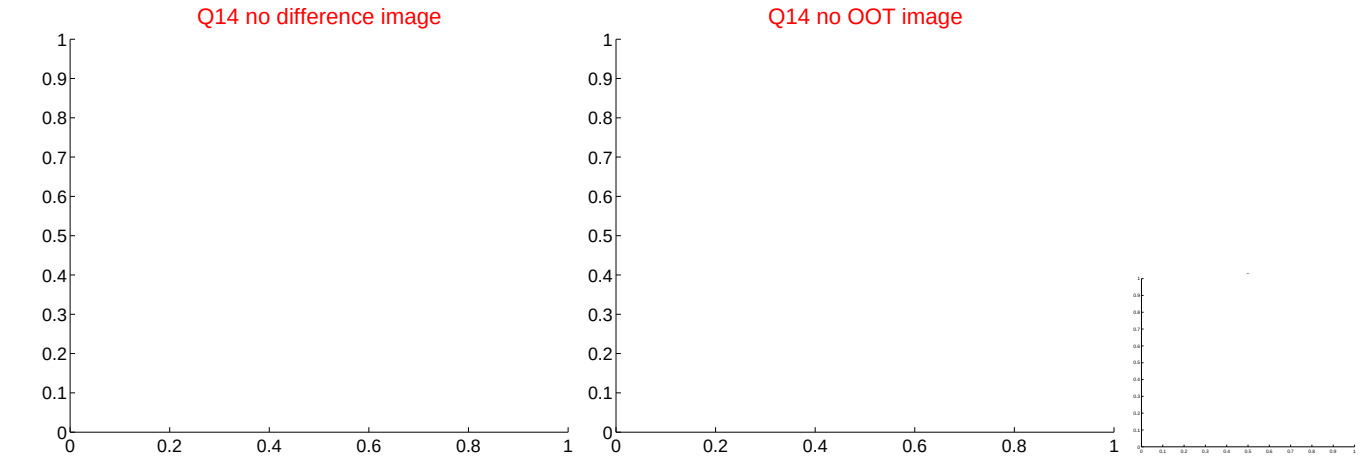


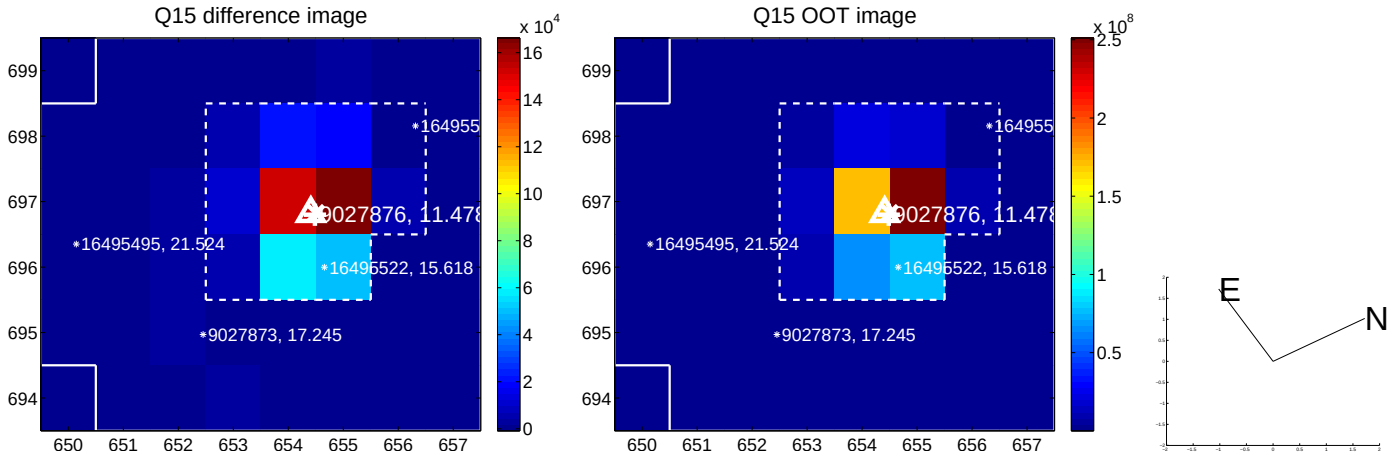


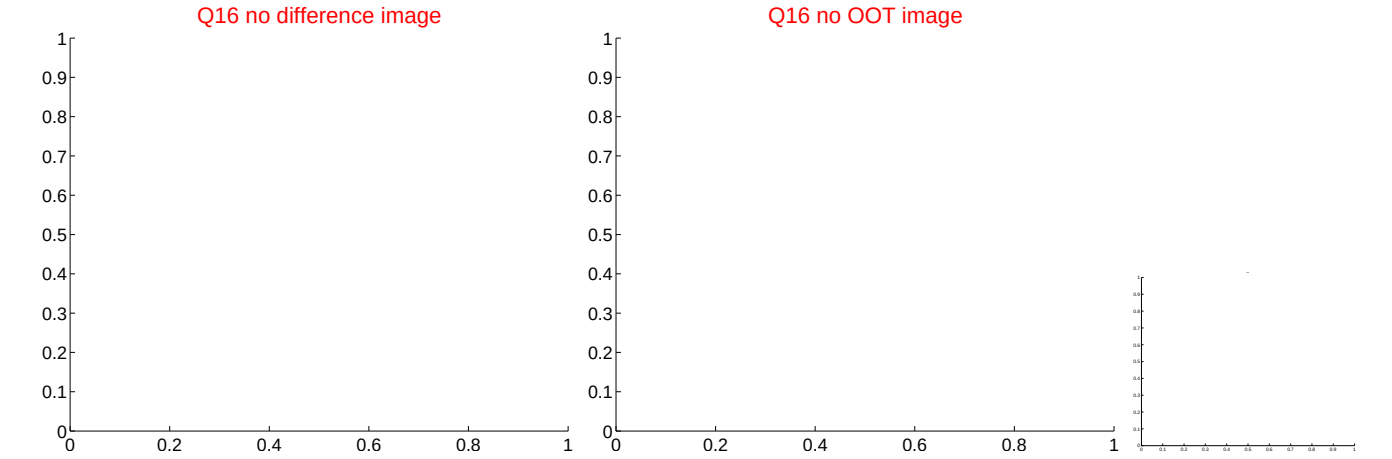


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

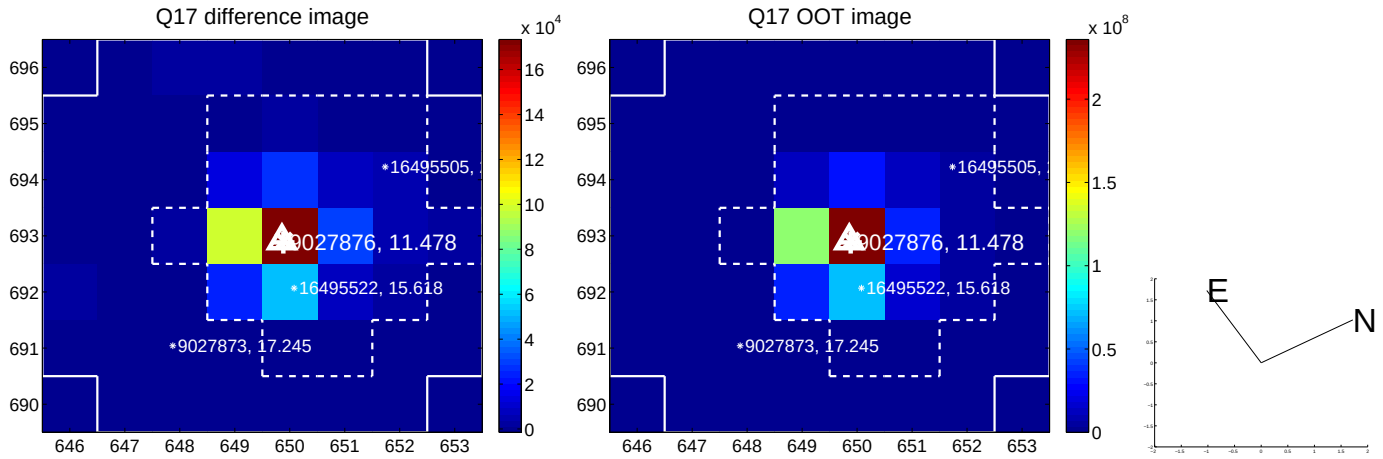


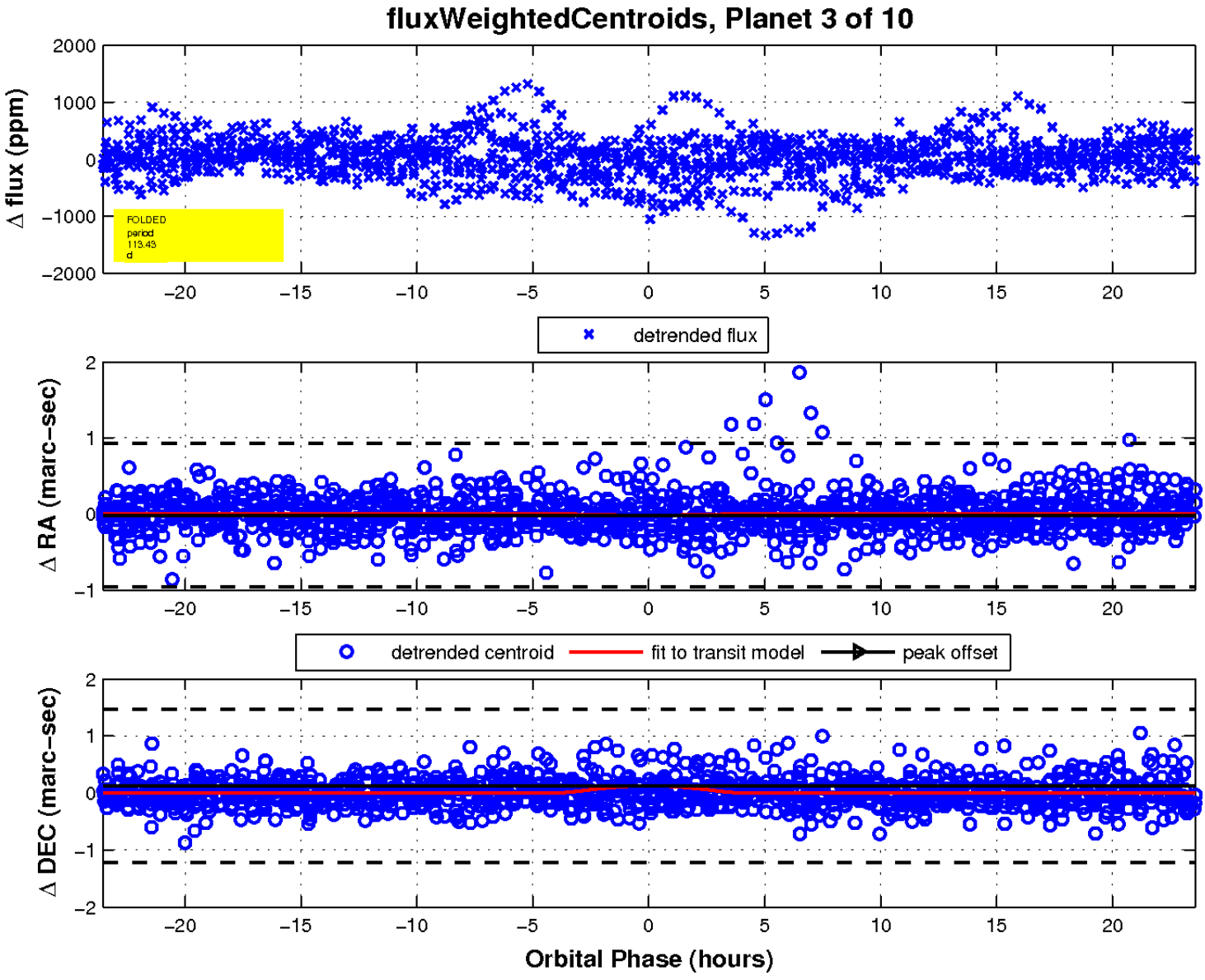




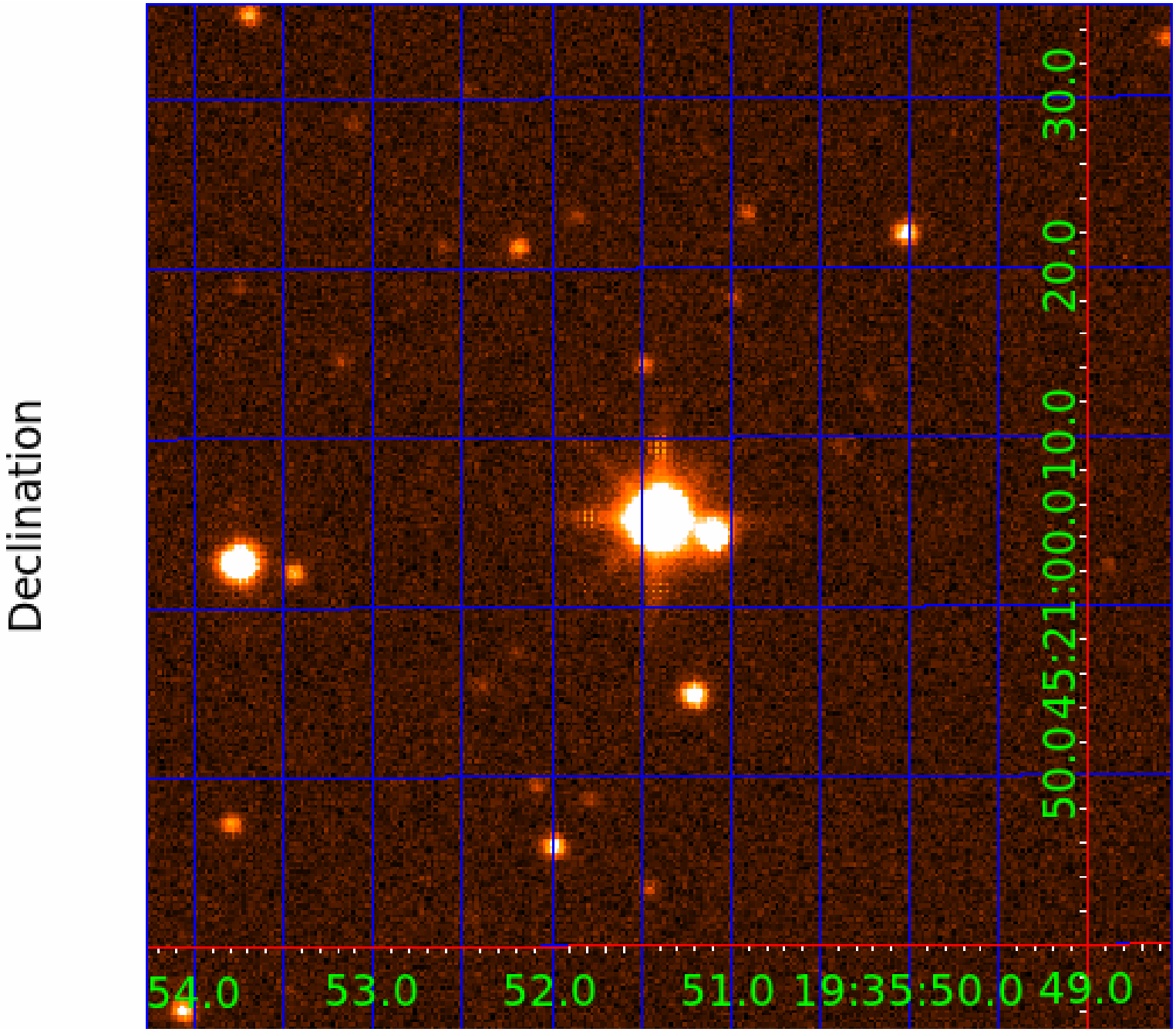


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

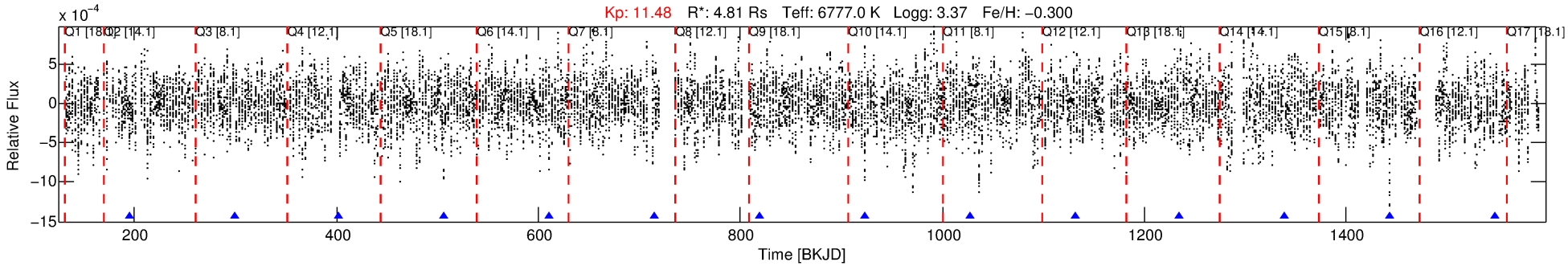
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

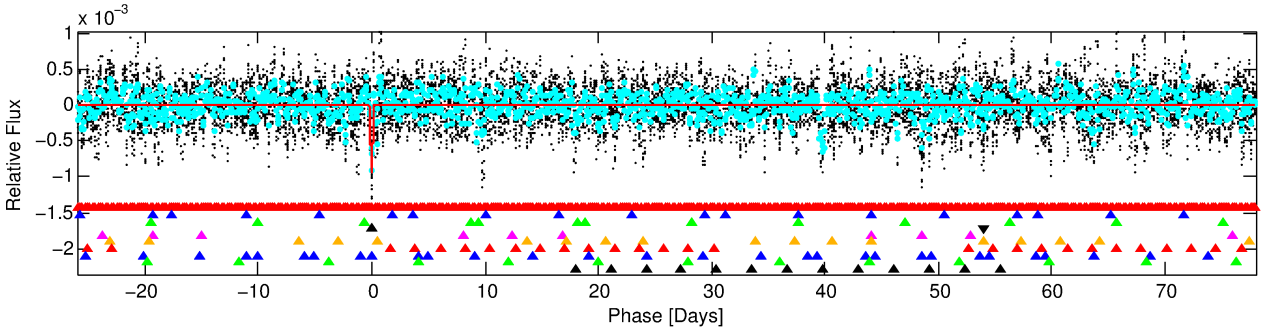
Ephemeris Match Information For 009027876-04

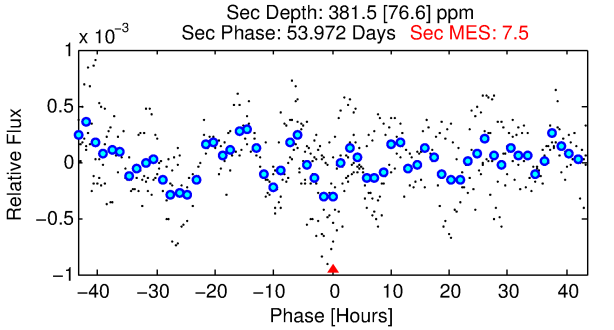
No Significant Match Found

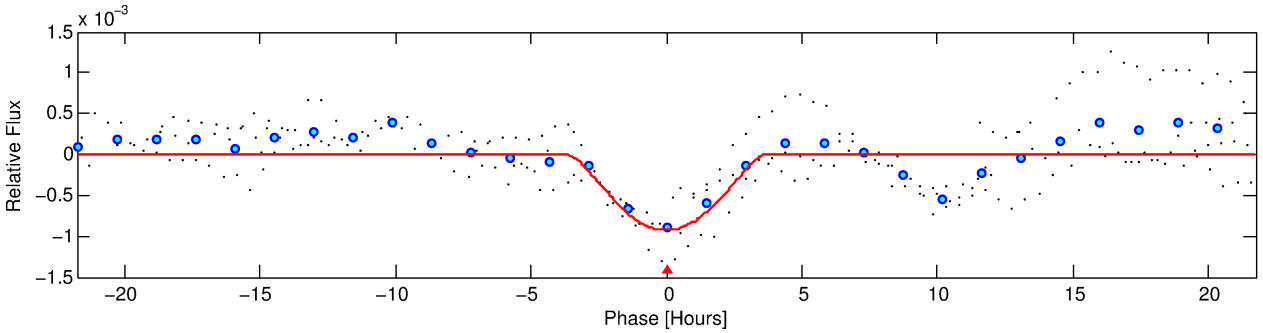
DV One-Page Summary

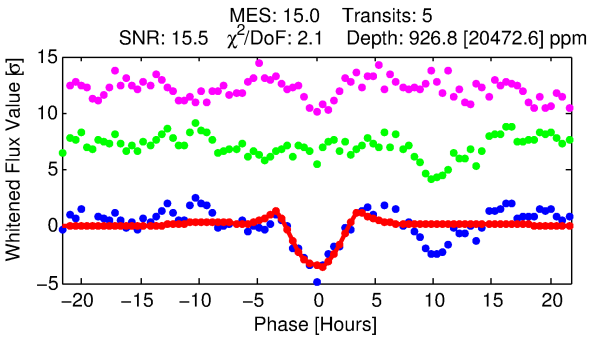
KIC: 9027876 Candidate: 4 of 10 Period: 104.024 d

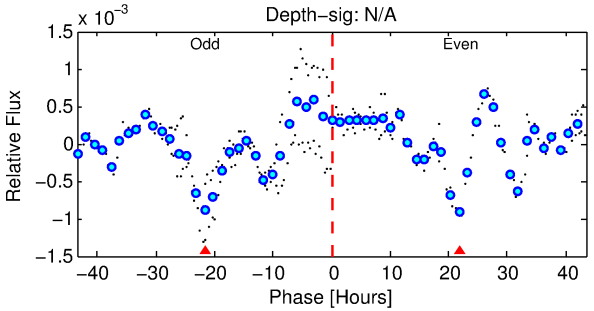


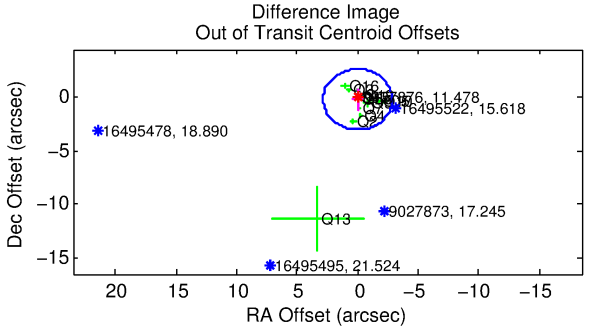












DV Fit Results:

Period = 104.02426 [0.00174] d
Epoch = 194.8802 [0.0138] BKJD
Rp/R* = 0.0524 [0.0973]
a/R* = 35.98 [16.19]
b = 1.00 [0.65]

Seff = 147.93 [102.06]
Teq = 889 [153] K
Rp = 27.47 [52.31] Re
a = 0.5432 [0.2268] AU

Ag = 82.05 [310.35] [0.26σ]
Teffp = 4138 [3851] K [0.84σ]

DV Diagnostic Results:

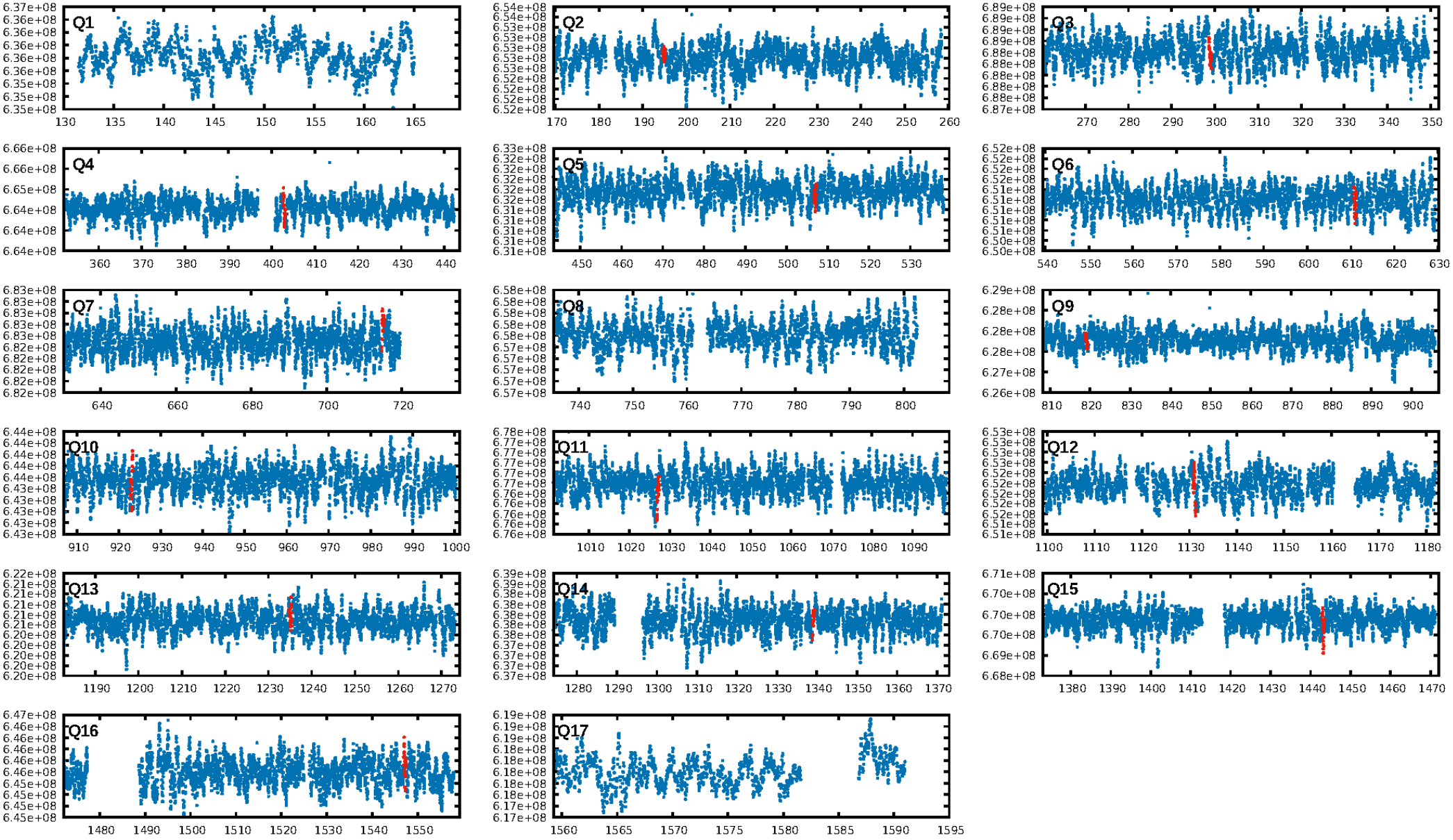
ShortPeriod−sig: 100.0% [39.71σ]
LongPeriod−sig: 100.0% [6.18σ]
ModelChiSquare2−sig: 0.3%
ModelChiSquareGof−sig: 95.2%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [5/5]
GhostDiagnostic−chr: −3.475

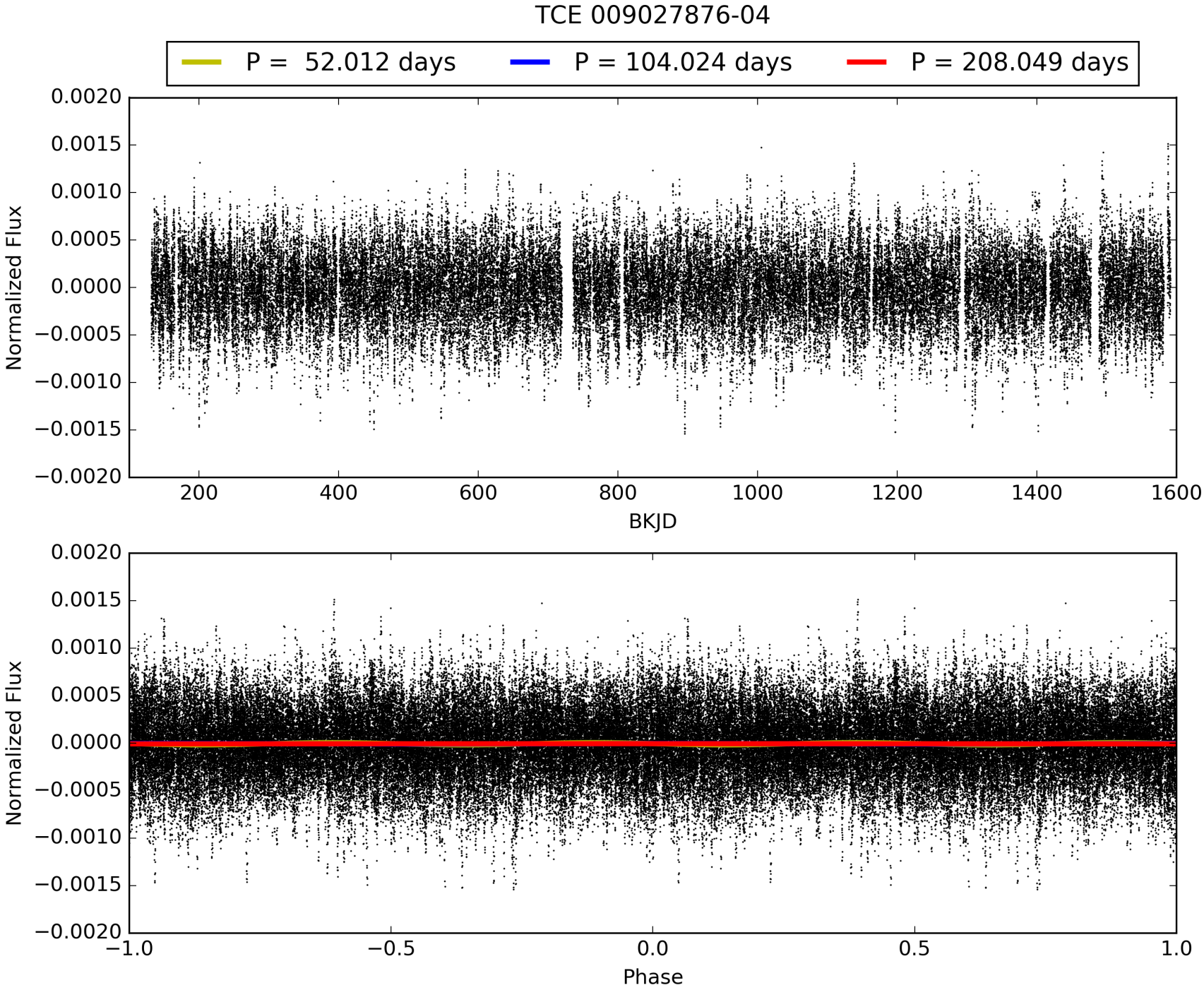
Centroid−sig: 15.8%
Centroid−so: 0.141 arcsec [1.70σ]
OotOffset−rm: 0.183 arcsec [0.19σ]
KicOffset−rm: 0.262 arcsec [0.28σ]
OotOffset−st: 3/3/3/3 [12]
KicOffset−st: 3/3/3/3 [12]
DiffImageQuality−fgm: 0.67 [8/12]
DiffImageOverlap−fno: 0.38 [5/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:10 Z

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

TCE 009027876-04, PDC Light Curves

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P = 104.024 days
P = 208.049 days
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0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
−0.0020
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
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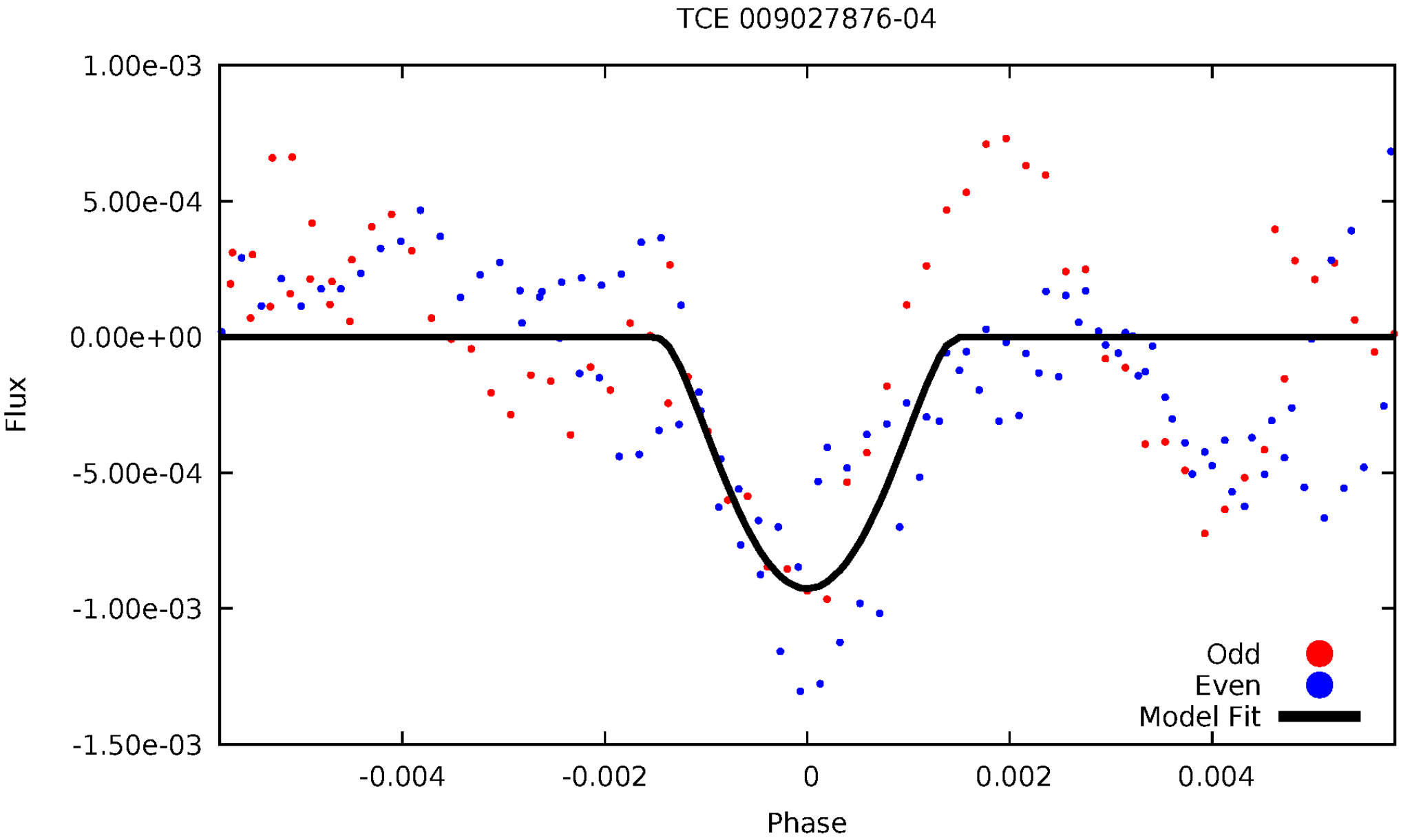
0.0
0.5
1.0
Phase

DV Odd/Even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-1.00e-03
-1.50e-03
Flux
-0.004
-0.002
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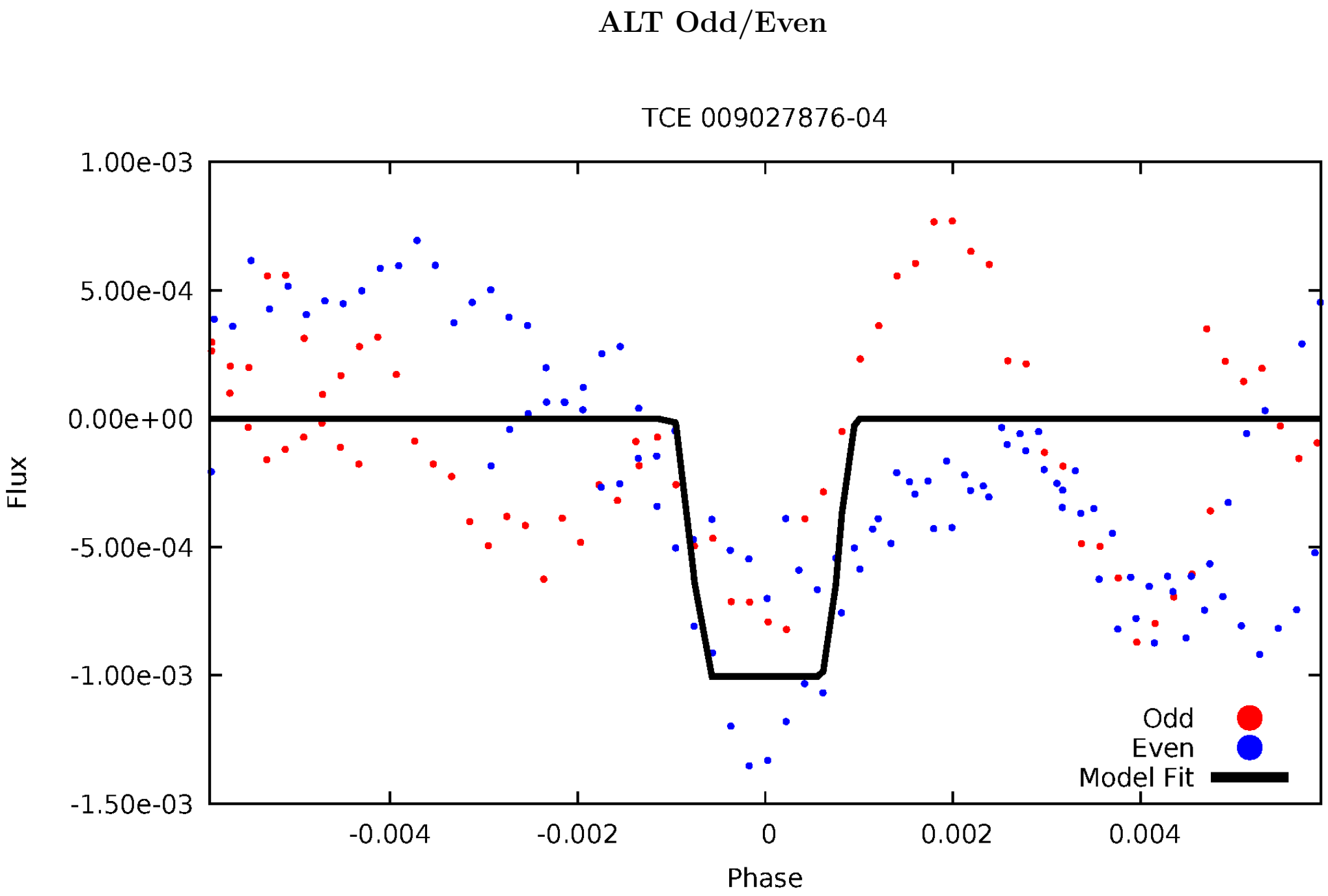
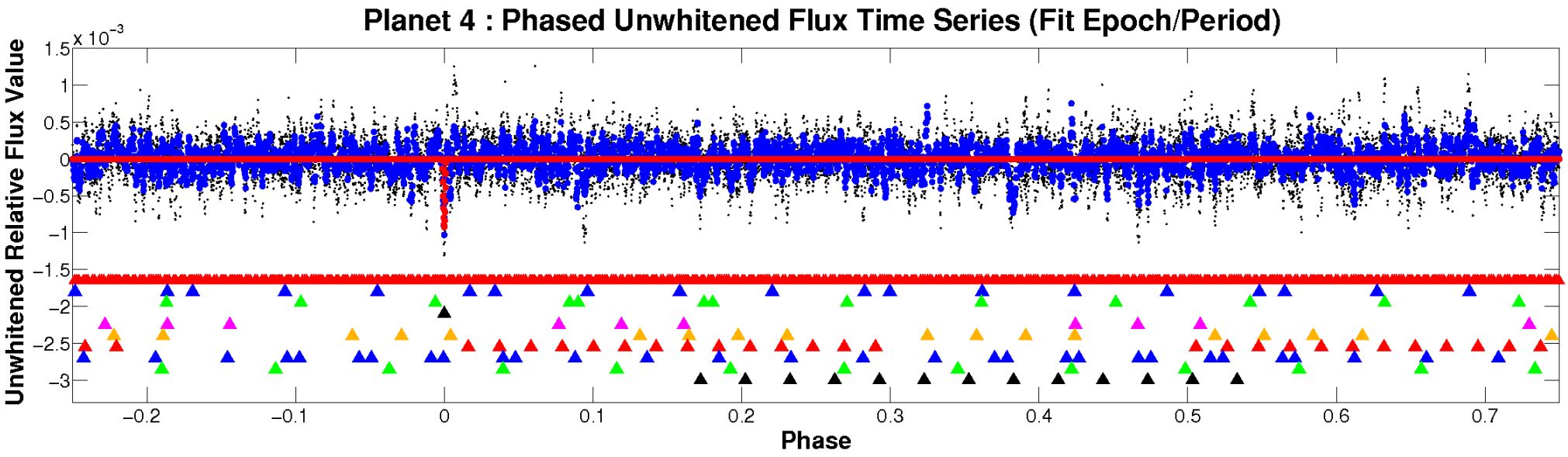
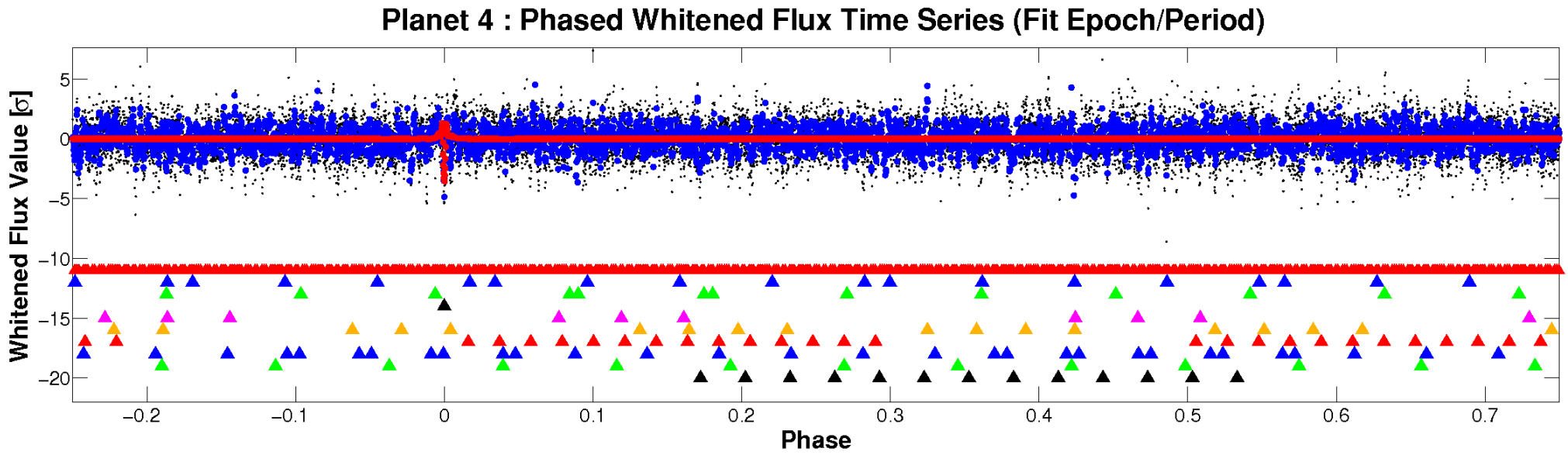
0.002
0.004
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009027876-04
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

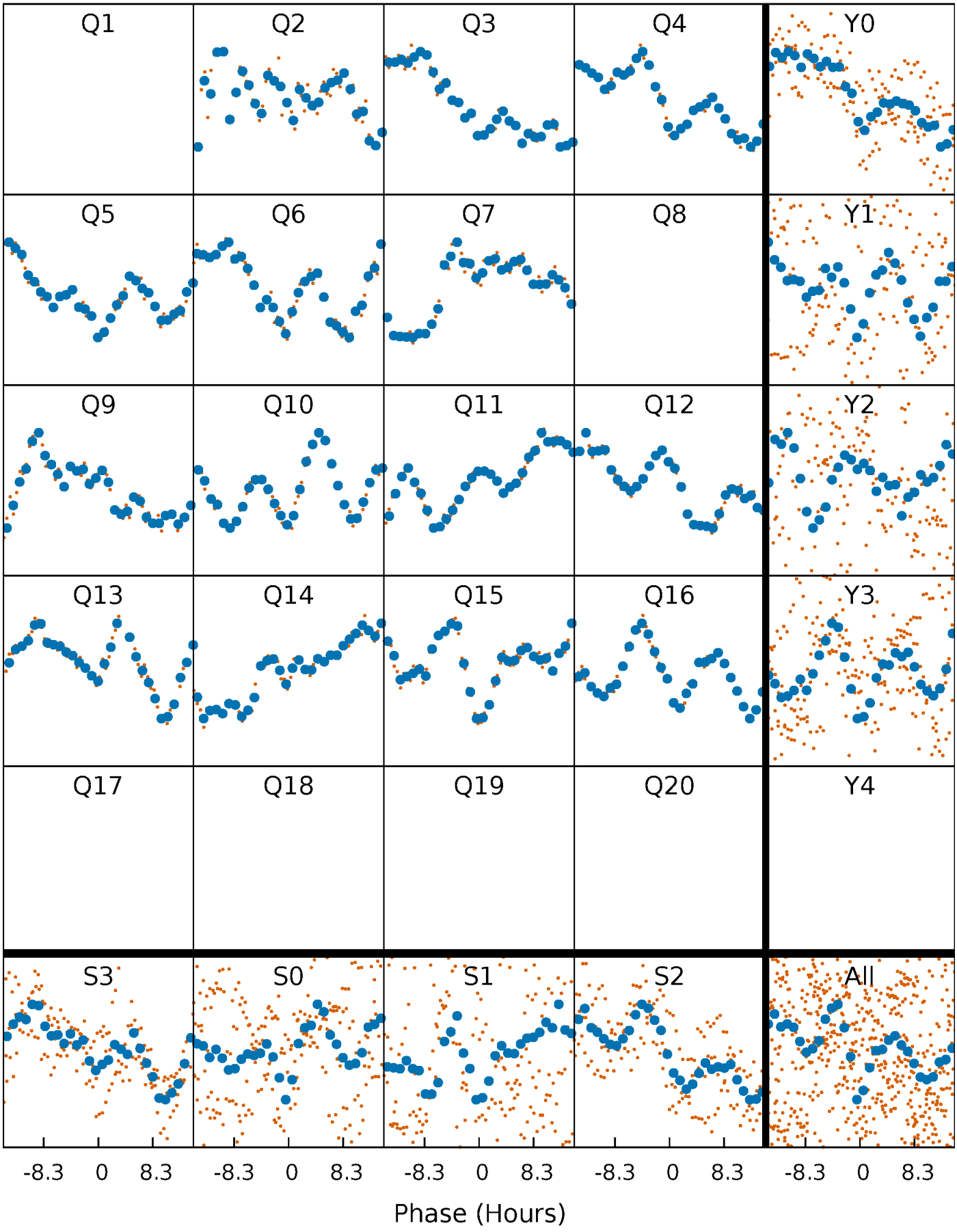
Non-Whitened Vs. Whitened Light Curve





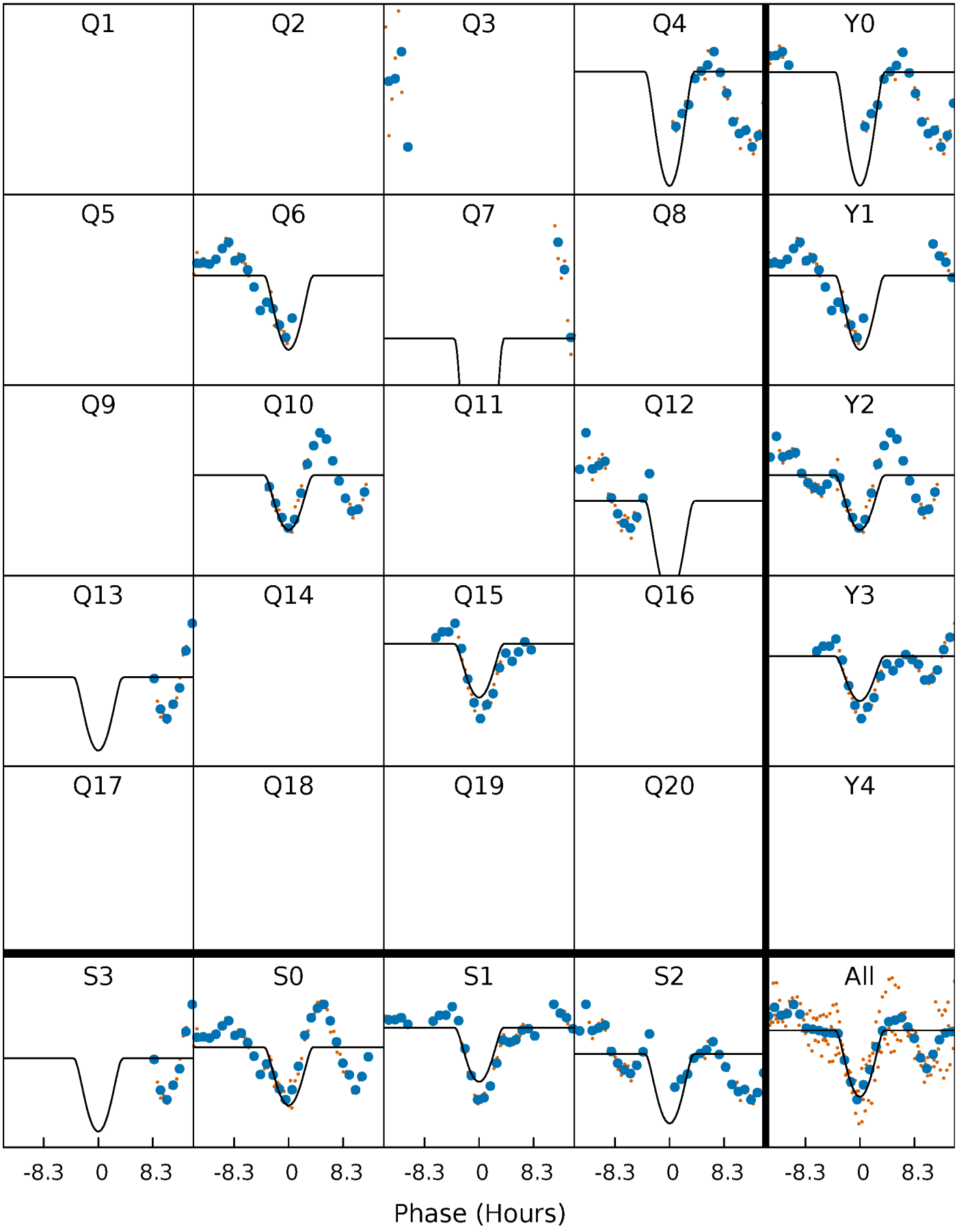
PDC Quarter-Phased Transit Curves

TCE 009027876-04 P=104.024264 Days T_0=194.880208 (BKJD)



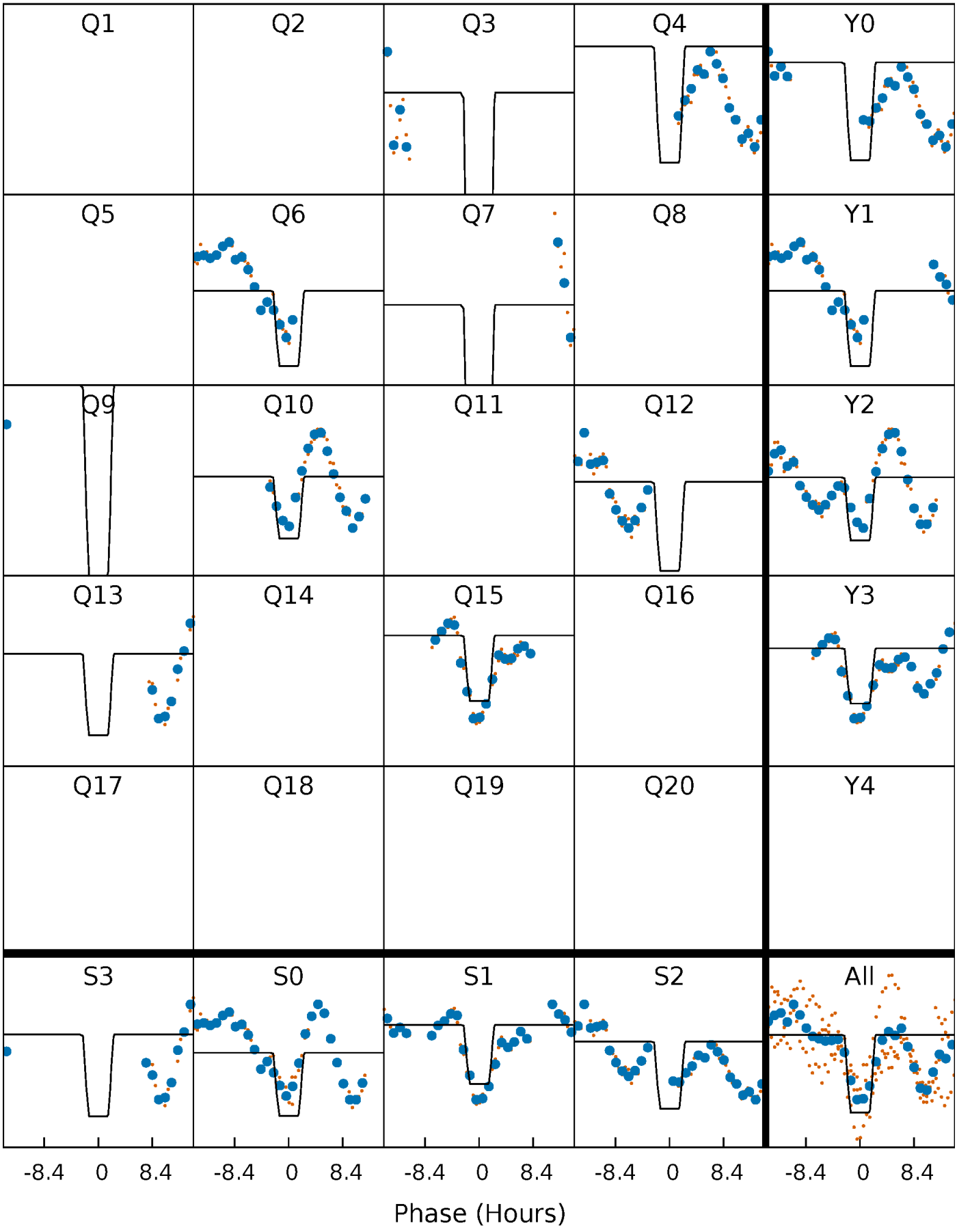
DV Quarter-Phased Transit Curves

TCE 009027876-04 P=104.024264 Days T_0=194.880208 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

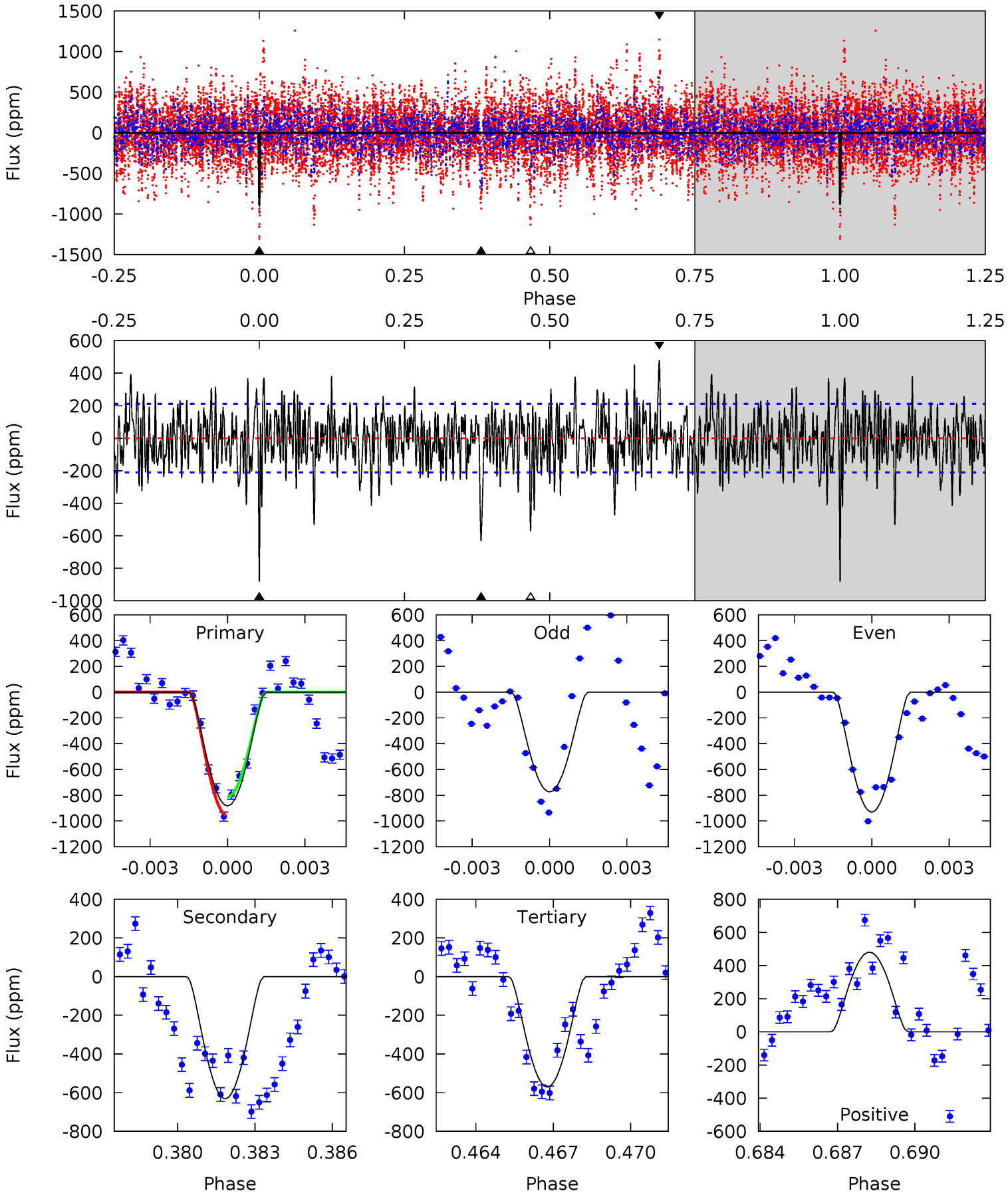
TCE 009027876-04 P=104.027009 Days T_0=194.857854 (BKJD)



DV Model-Shift Uniqueness Test

009027876-04, P = 104.024264 Days, E = 90.855944 Days

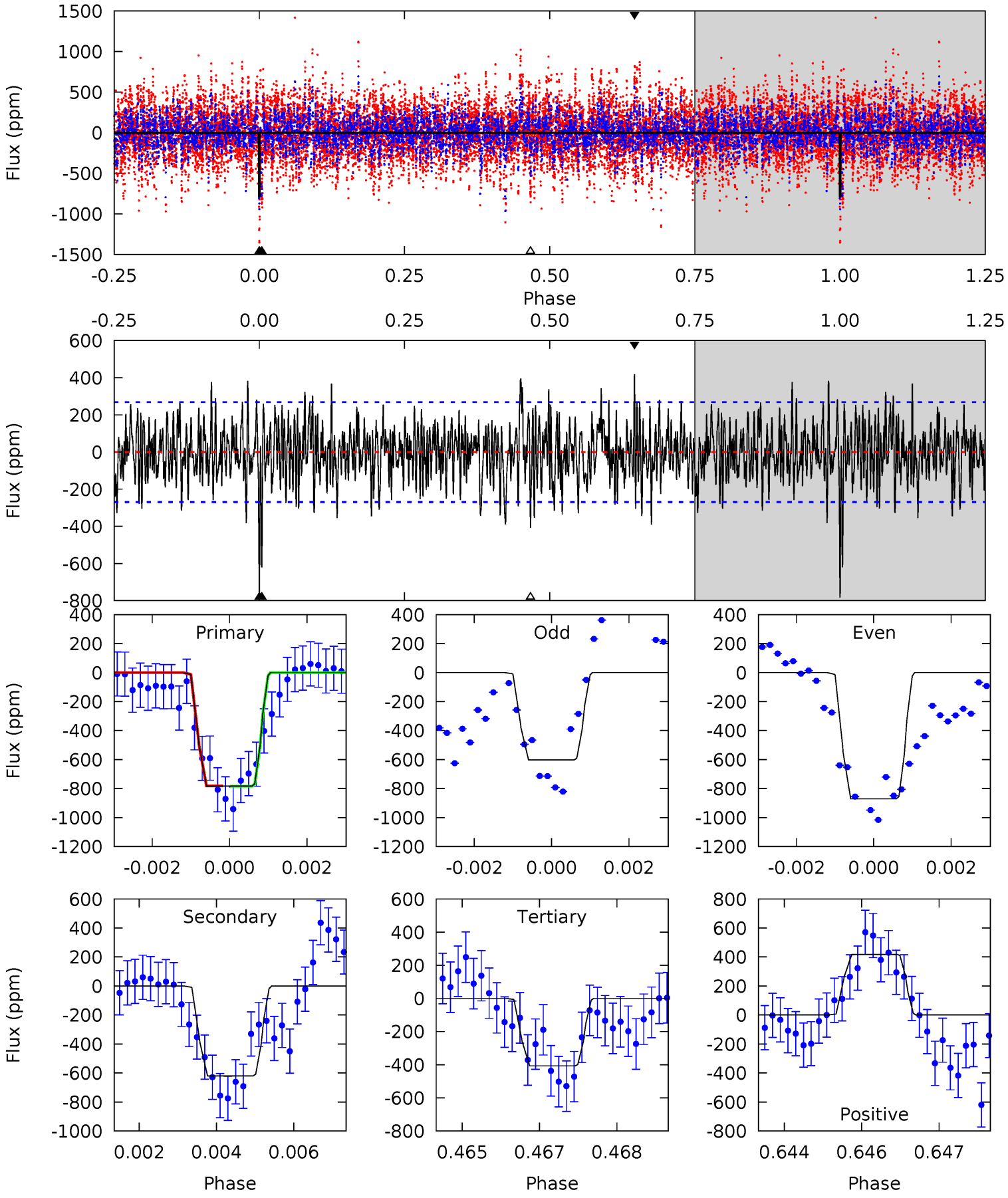
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	15.7	14.2	12.0	5.25	2.97	3.54	7.75	10.0	1.49	3.74	1.86	1.06	0.35	1.78



Alt Model-Shift Uniqueness Test

009027876-04, P = 104.027009 Days, E = 90.830845 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	12.3	8.07	8.28	5.34	3.10	2.53	7.44	7.23	4.22	4.01	2.57	1.17	0.35	0.03



Stellar Parameters For KIC 009027876

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-04 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-631±40	$44.79^{+37.54}_{-32.19}$	1211^{+62}_{-122}	3887^{+2544}_{-733}	51^{+586}_{-36}
Alt.	-620±50	$38.21^{+36.25}_{-27.48}$	1210^{+60}_{-122}	4104^{+2806}_{-846}	70^{+780}_{-52}

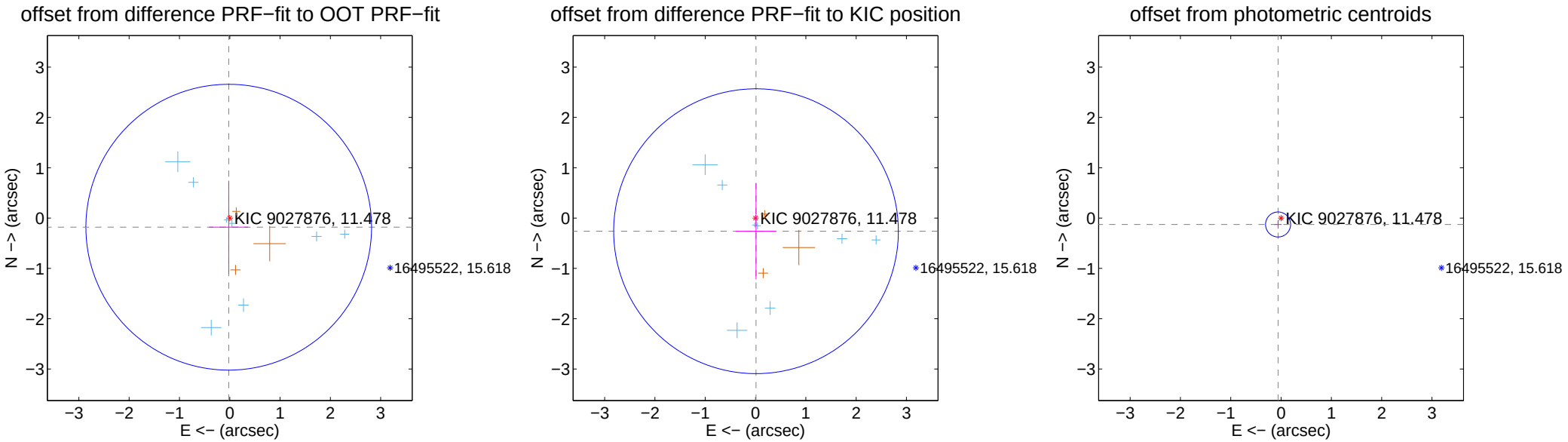
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

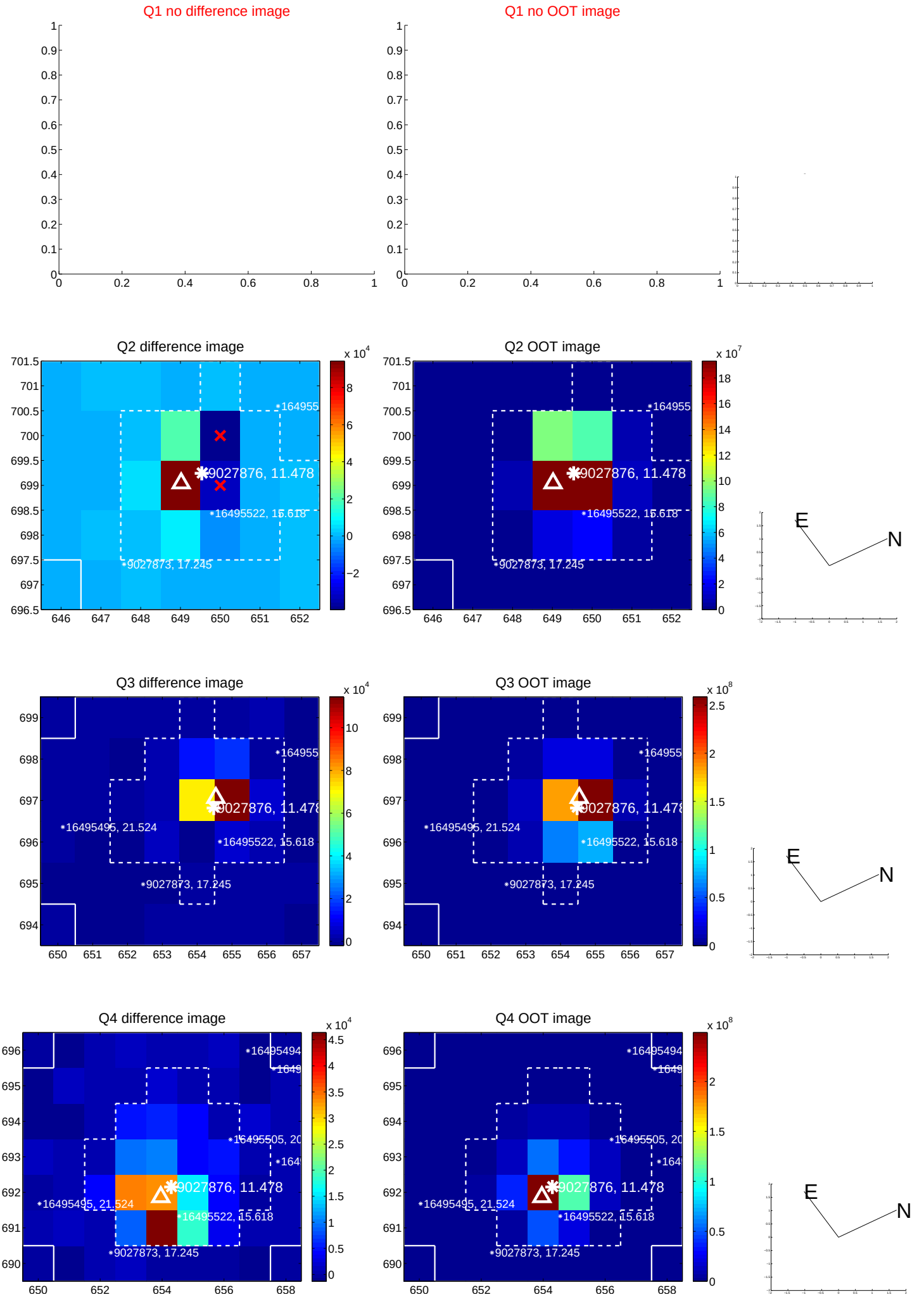
Supplemental centroid analysis for 009027876-04. Kepler magnitude: 11.48. Transit SNR 15.46
There are 8 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.183 ± 0.946	0.19	0.020 ± 0.389	-0.182 ± 0.924
PRF-fit source offset from KIC position	0.262 ± 0.943	0.28	-0.009 ± 0.401	-0.262 ± 0.954
photometric centroid source offset	0.14 ± 0.08	1.70	0.06 ± 0.07	-0.13 ± 0.08

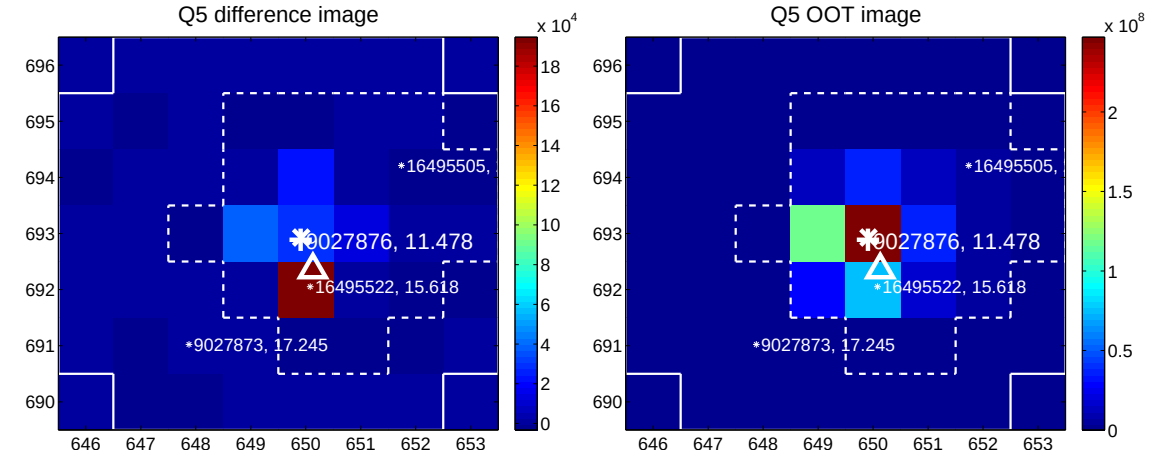


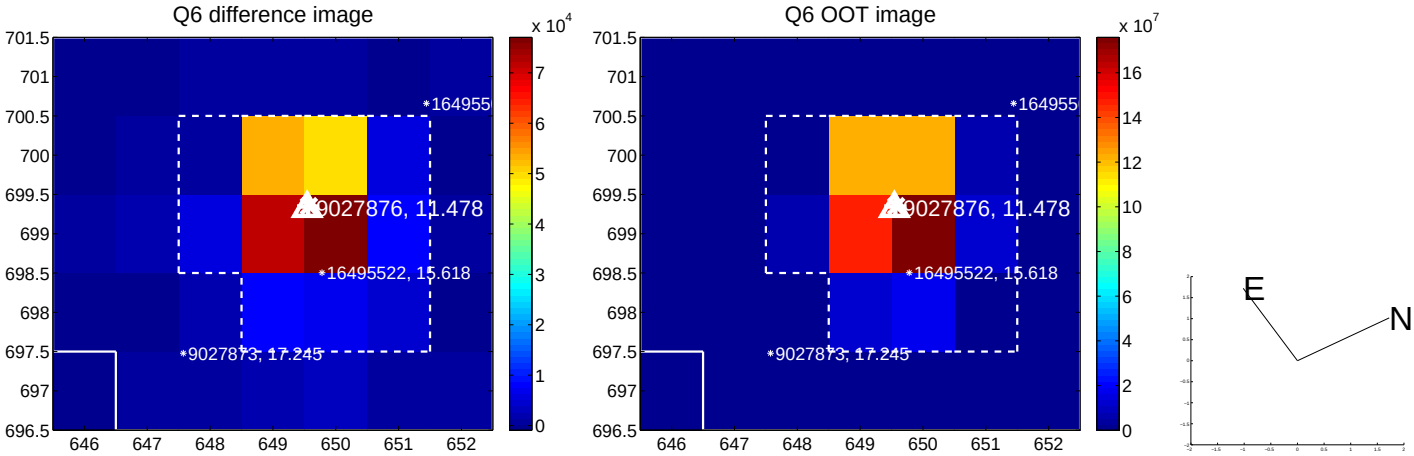
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

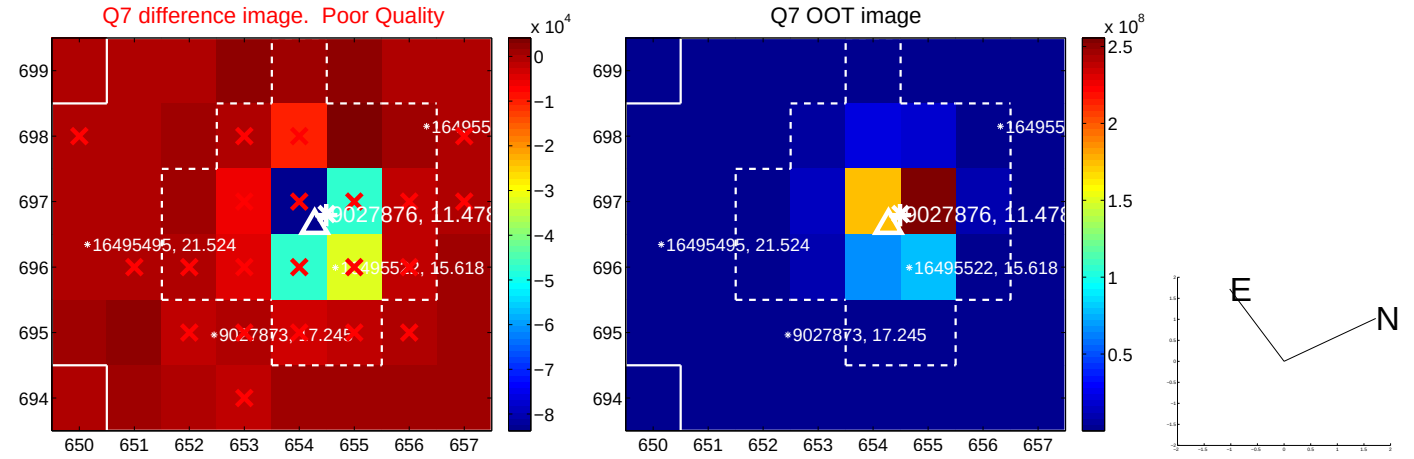
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

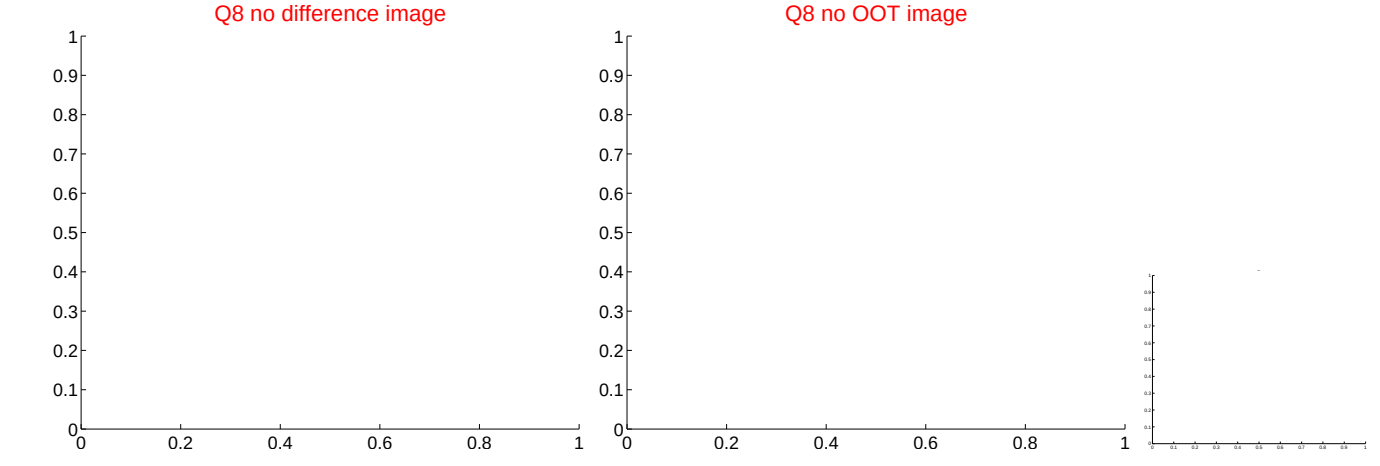


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

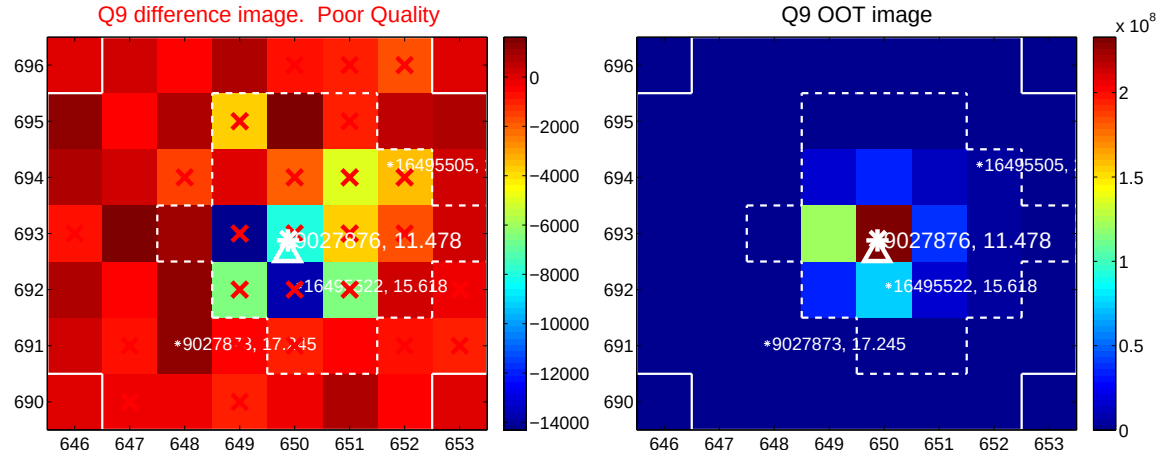


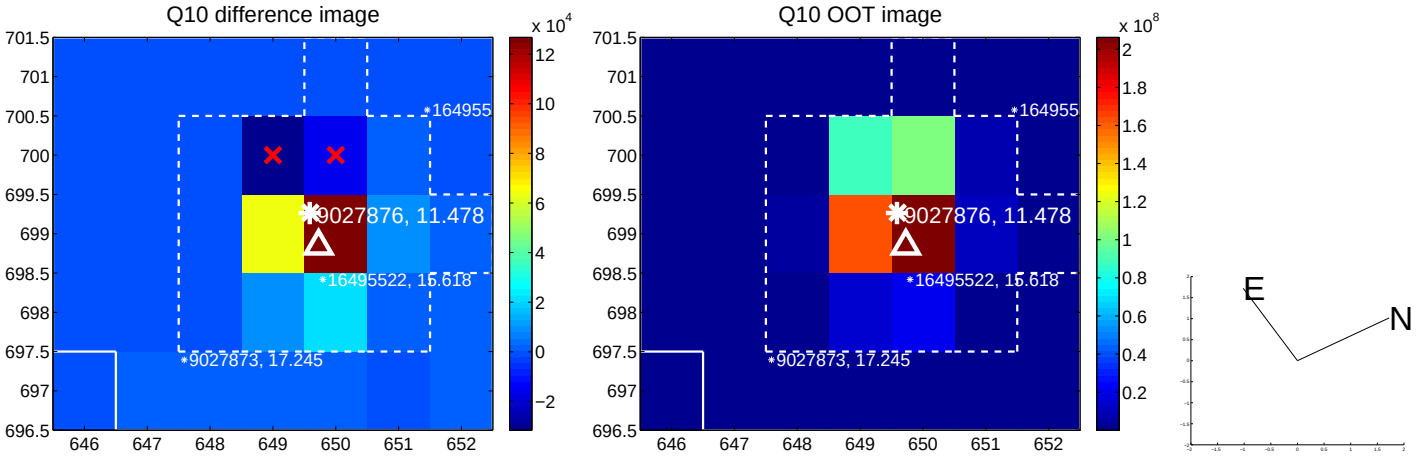


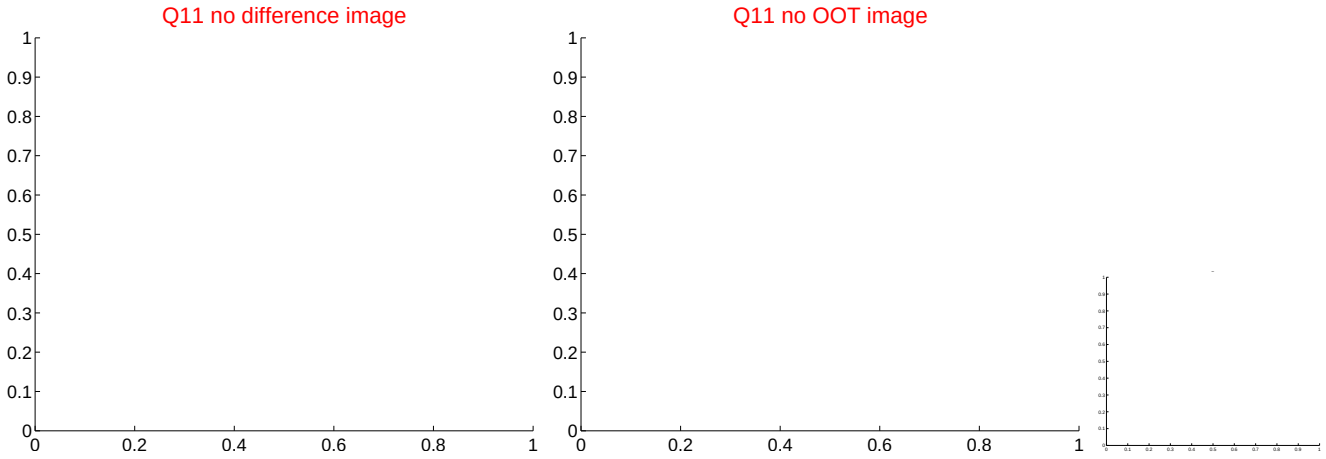


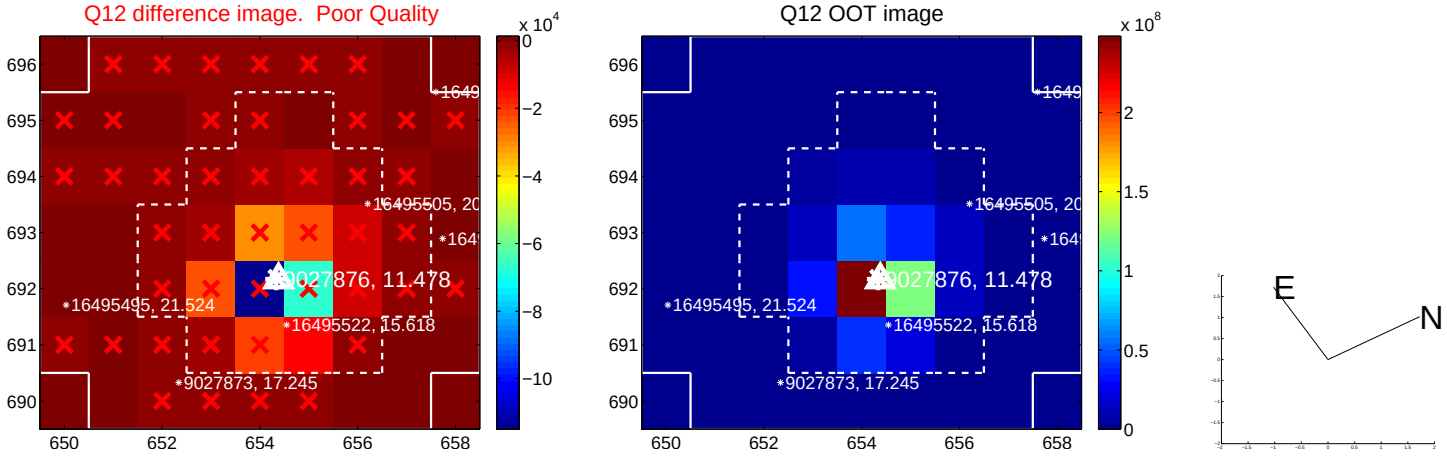


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

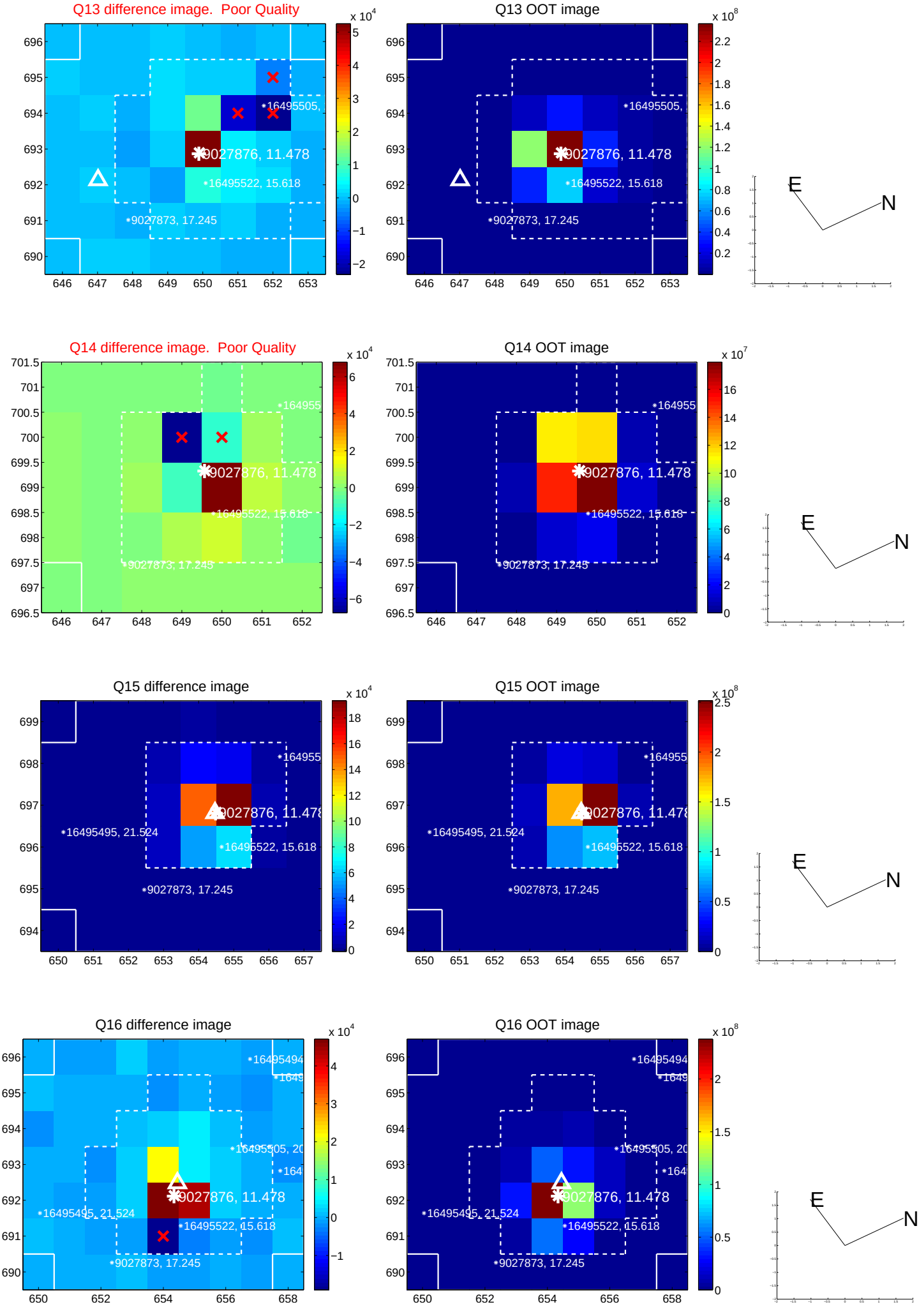




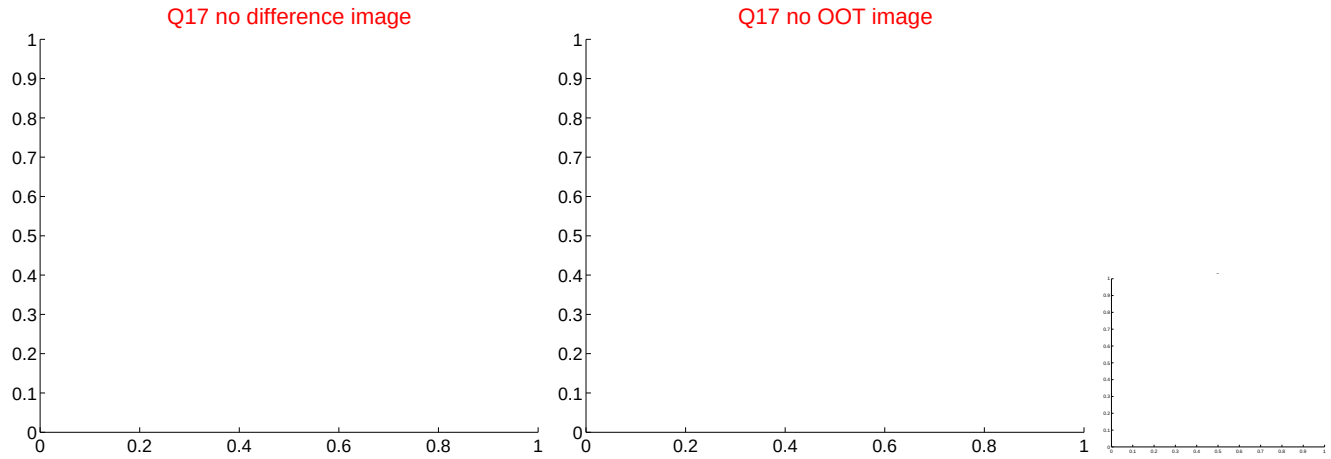


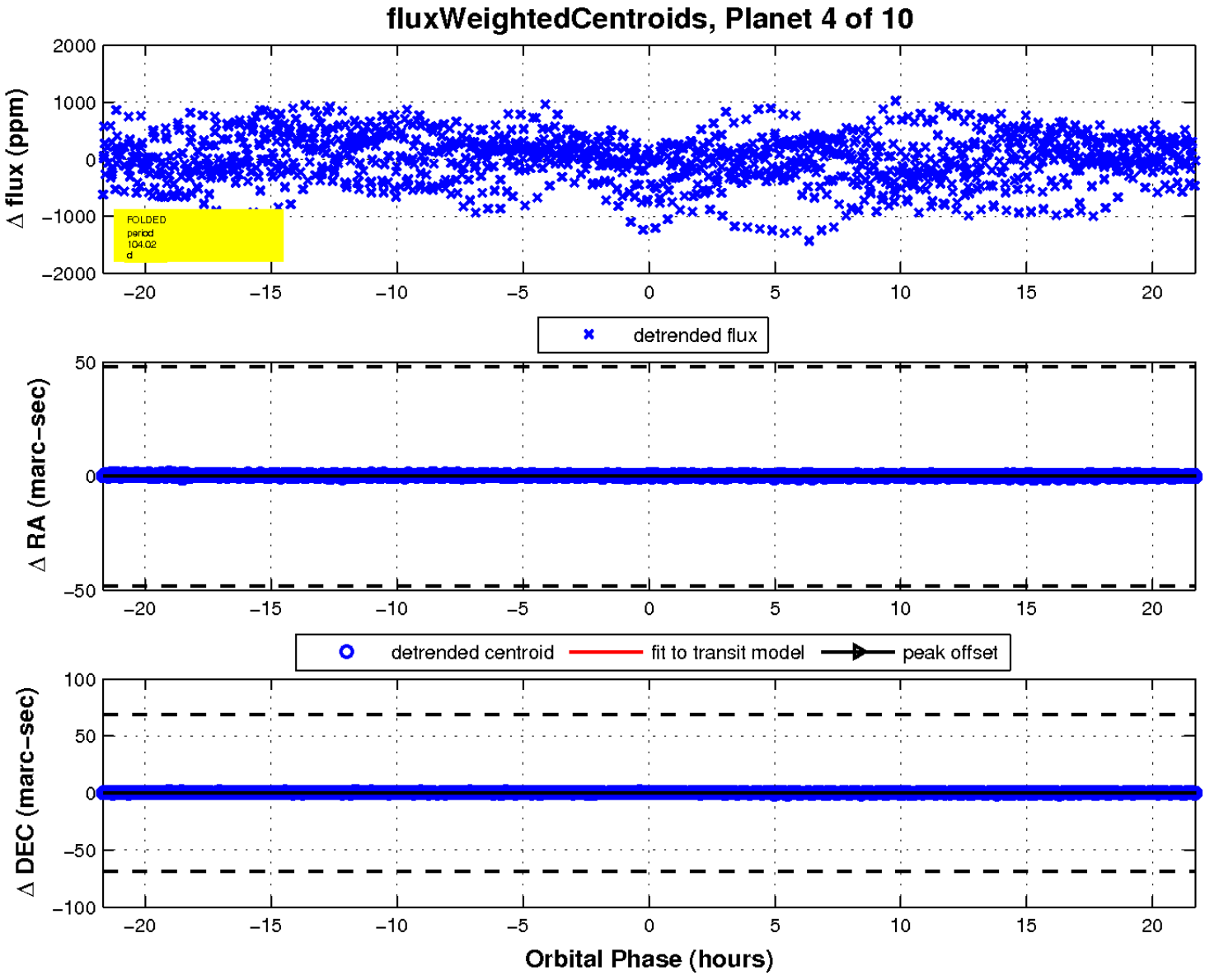


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

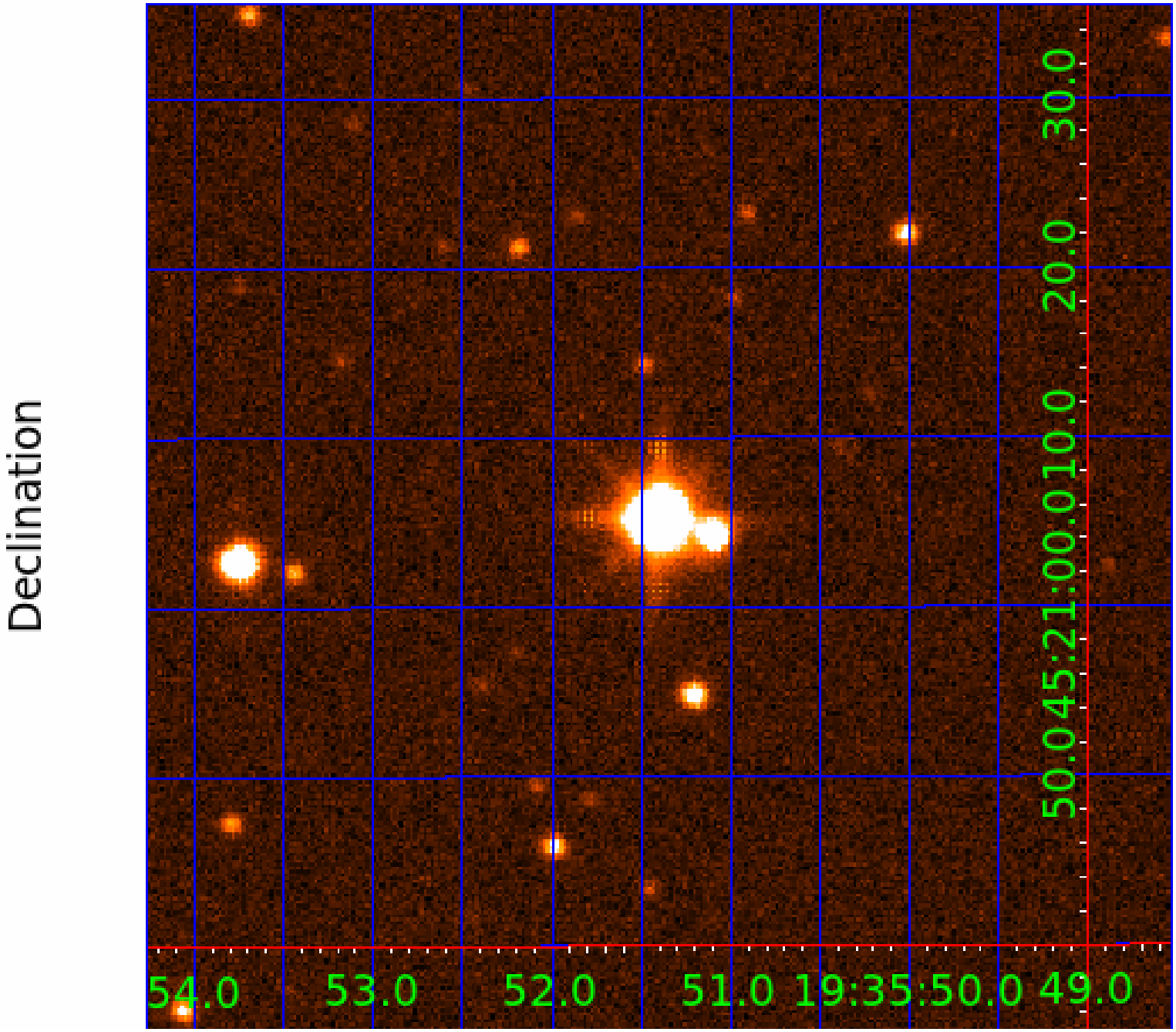


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
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10.0
21:00:00.0
50.0
45:
54.0
53.0
52.0
51.0
19:35:50.0
49.0

KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

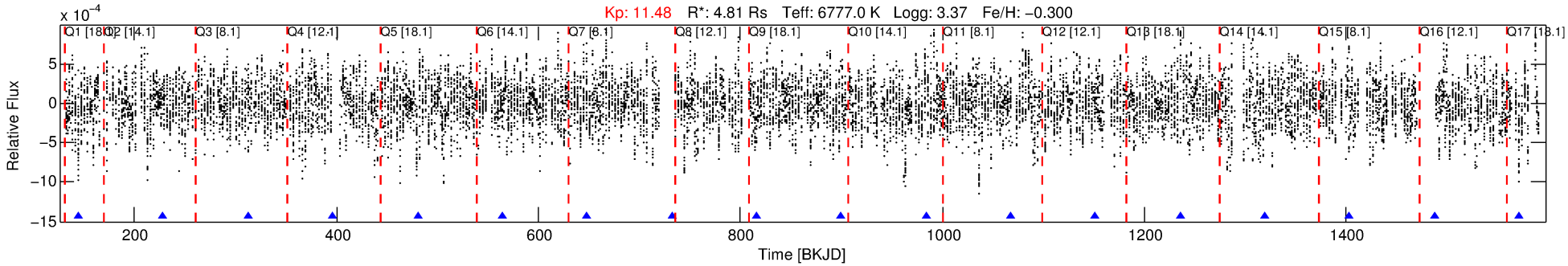
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

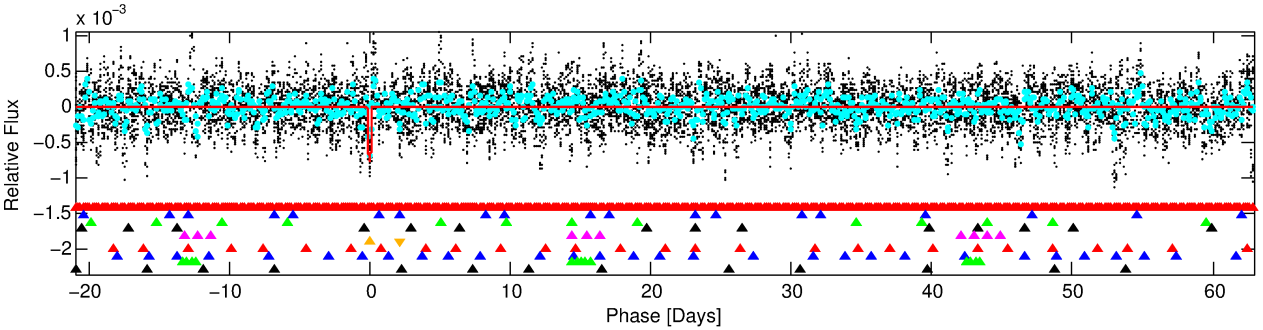
Ephemeris Match Information For 009027876-06

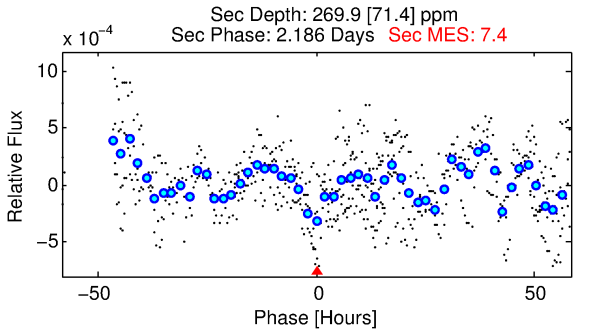
No Significant Match Found

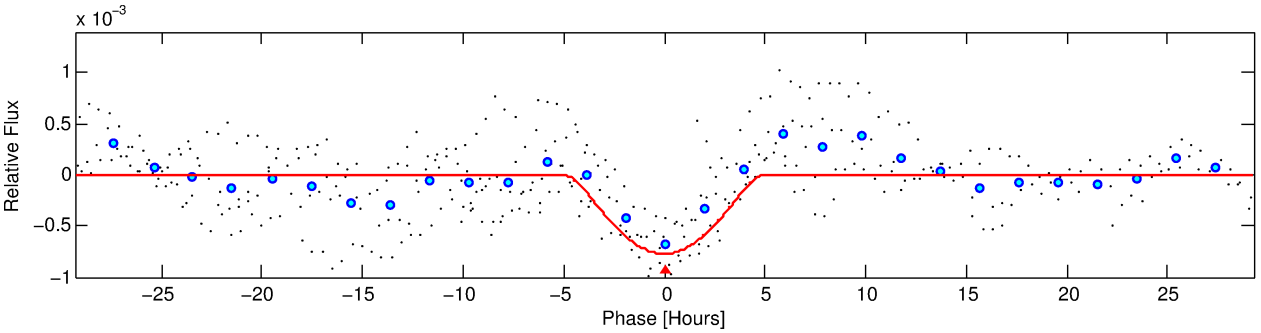
DV One-Page Summary

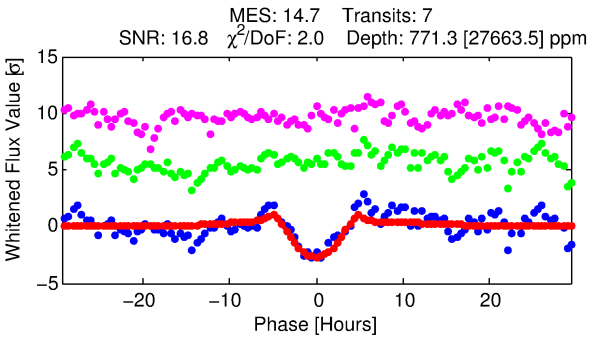
KIC: 9027876 Candidate: 6 of 10 Period: 83.906 d

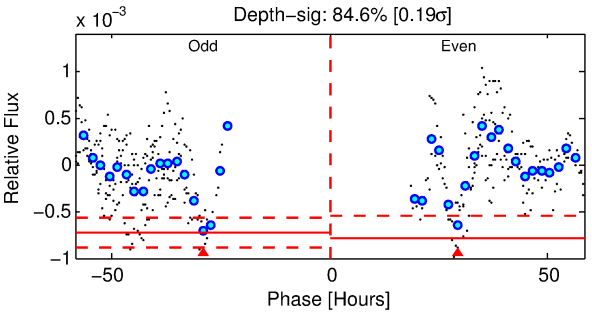


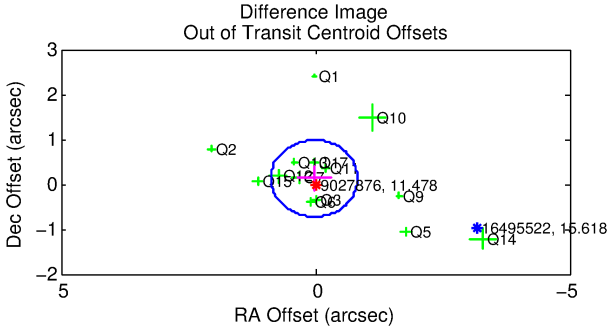












DV Fit Results:

Period = 83.90637 [0.00116] d
Epoch = 144.7824 [0.0127] BKJD
Rp/R* = 0.0480 [0.0839]
a/R* = 20.61 [8.74]
b = 1.00 [1.06]

Seff = 197.02 [135.93]
Teq = 955 [165] K
Rp = 25.18 [45.26] Re
a = 0.4707 [0.1966] AU

Ag = 51.89 [185.30] [0.27σ]
Teffp = 3964 [3476] K [0.86σ]

DV Diagnostic Results:

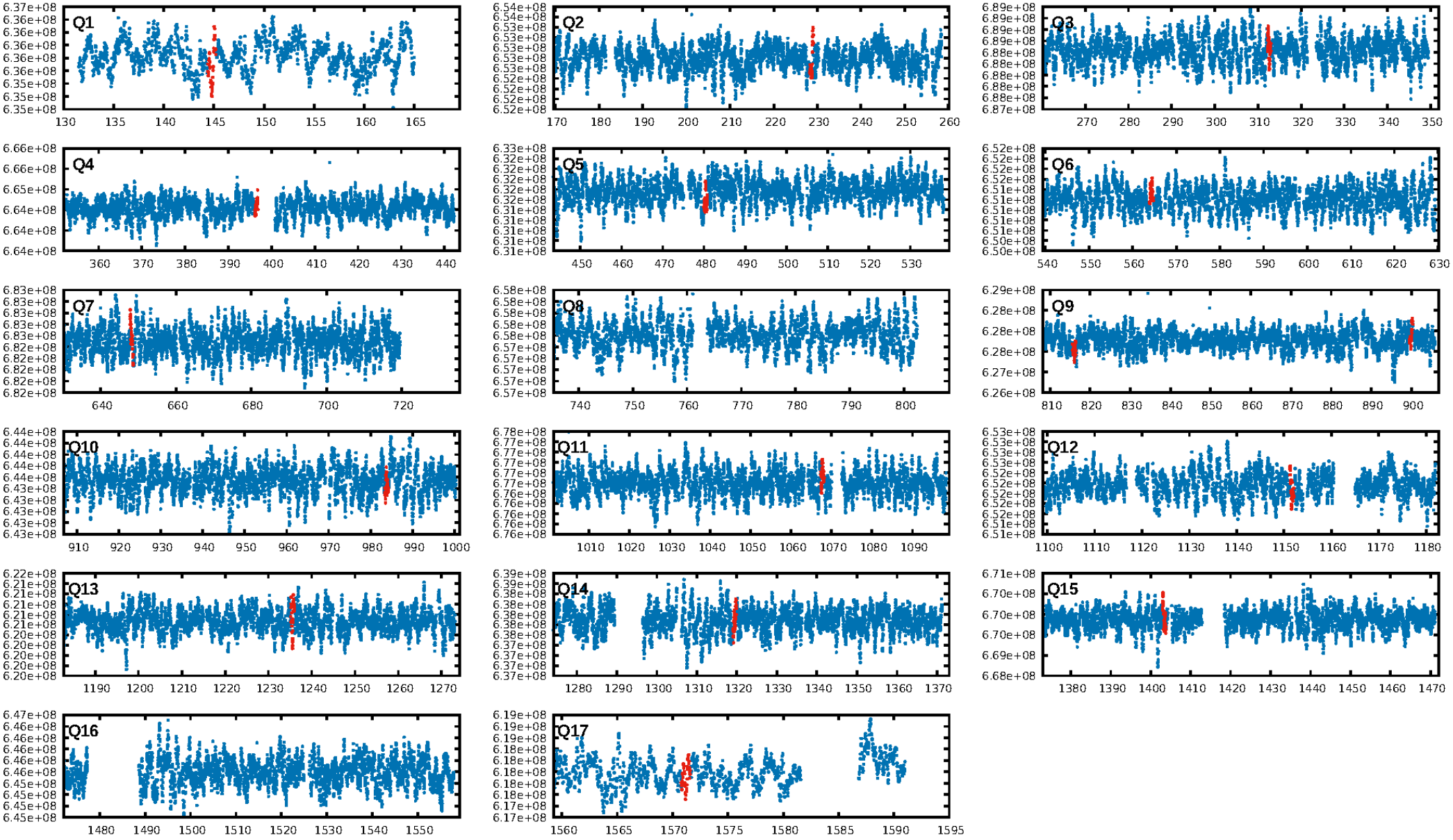
ShortPeriod−sig: 100.0% [13.06σ]
LongPeriod−sig: 100.0% [39.71σ]
ModelChiSquare2−sig: 6.2%
ModelChiSquareGof−sig: 99.8%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [5/5]
GhostDiagnostic−chr: 3.982

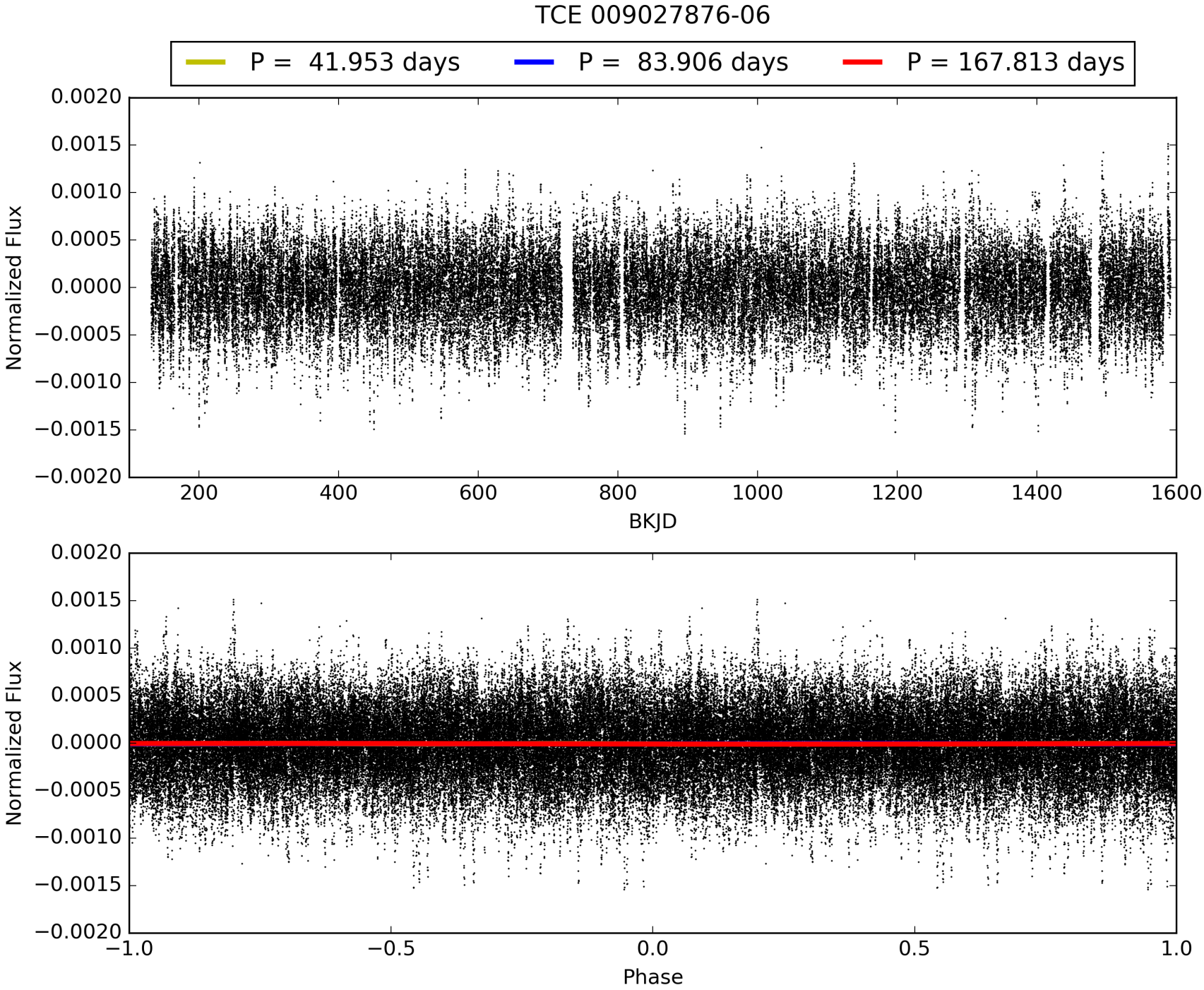
Centroid−sig: 24.6%
Centroid−so: 0.054 arcsec [0.67σ]
OotOffset−rm: 0.129 arcsec [0.45σ]
KicOffset−rm: 0.058 arcsec [0.25σ]
OotOffset−st: 4/4/1/5 [14]
KicOffset−st: 4/4/1/5 [14]
DiffImageQuality−fgm: 0.64 [9/14]
DiffImageOverlap−fno: 0.29 [4/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:18 Z

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

TCE 009027876-06, PDC Light Curves

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P = 83.906 days
P = 167.813 days
Normalized Flux
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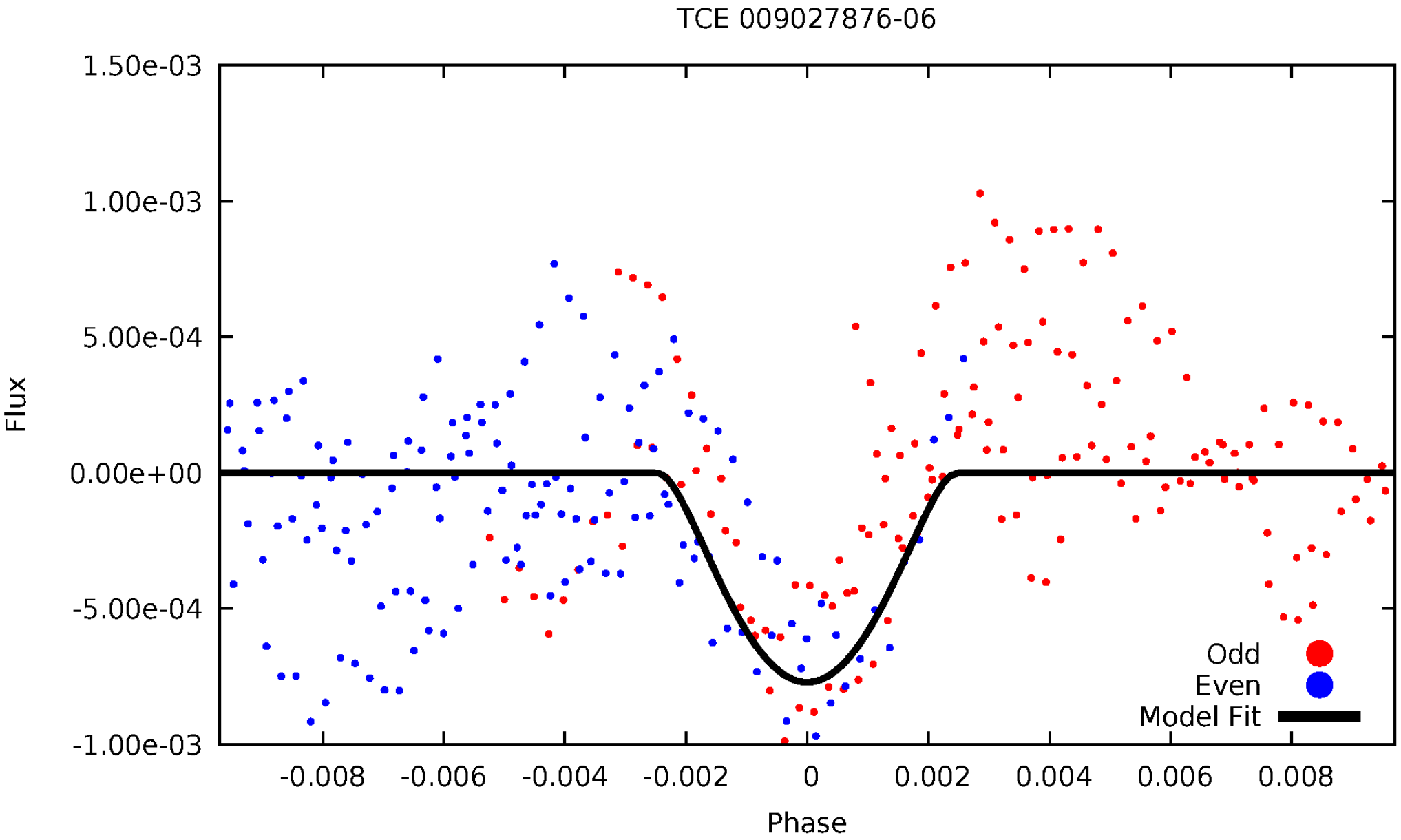
0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
−0.0020
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even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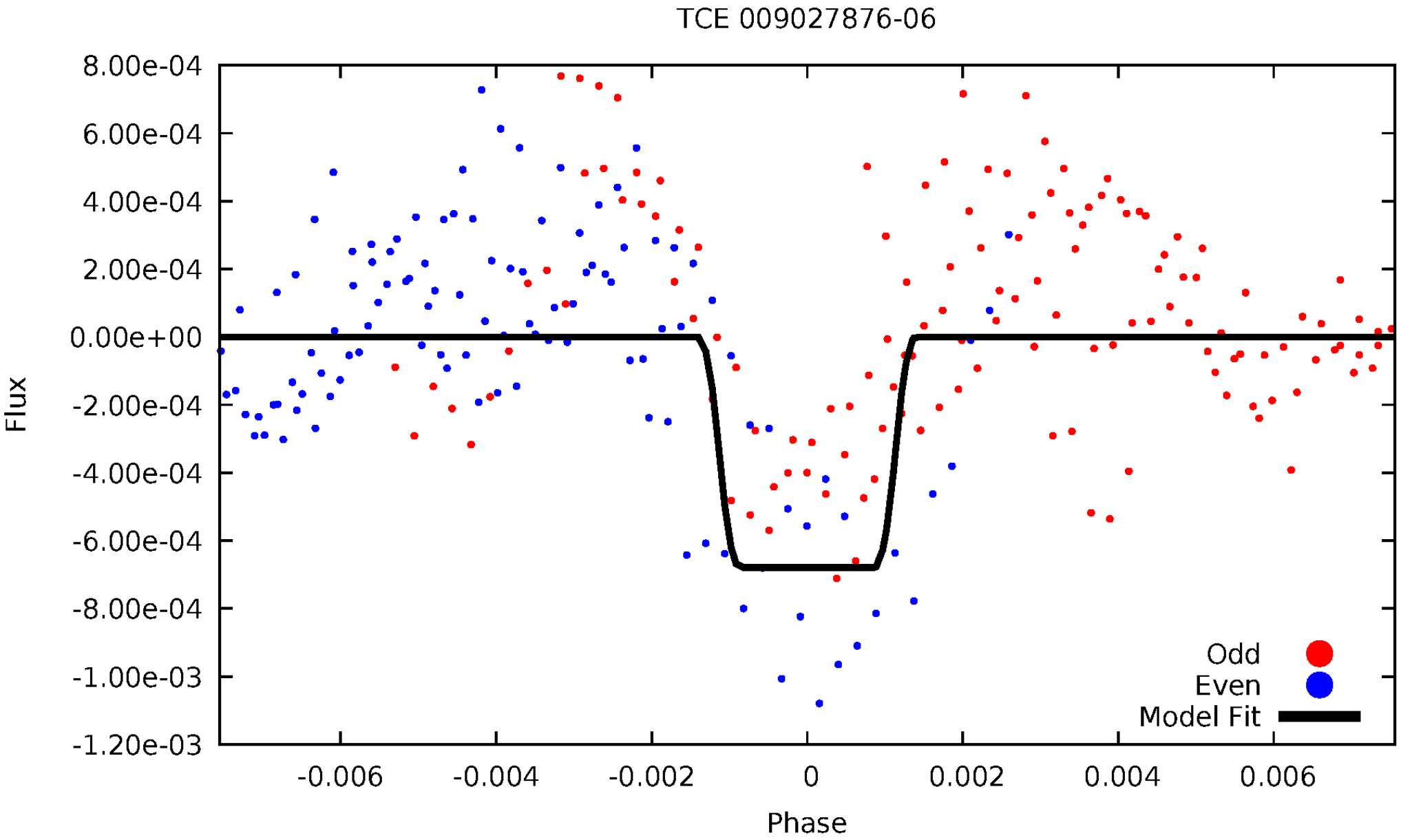
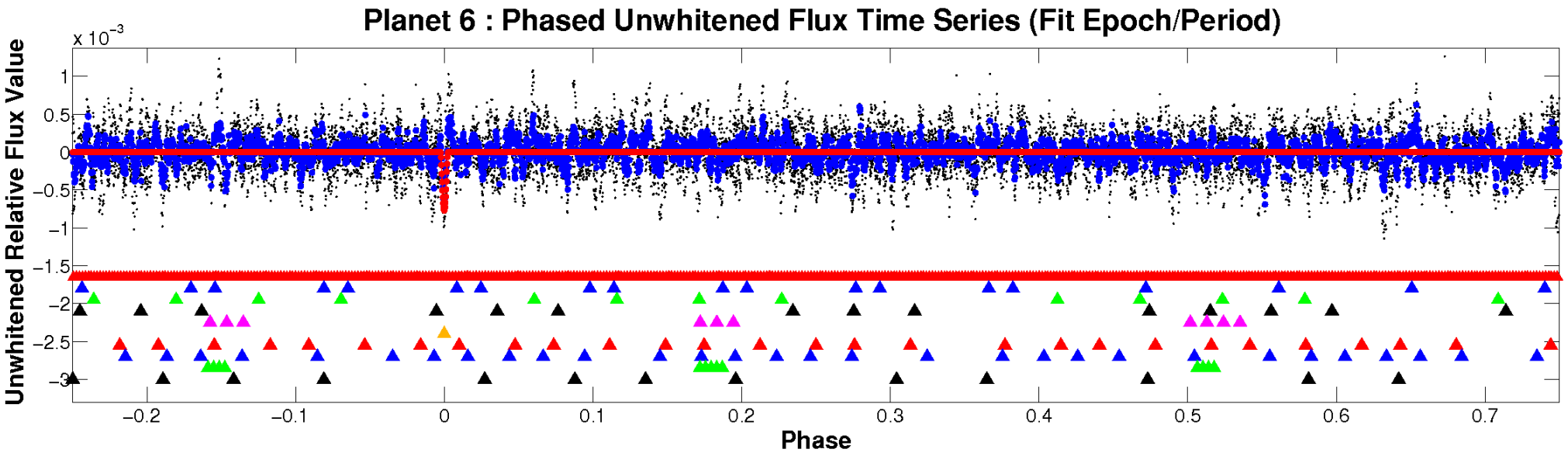
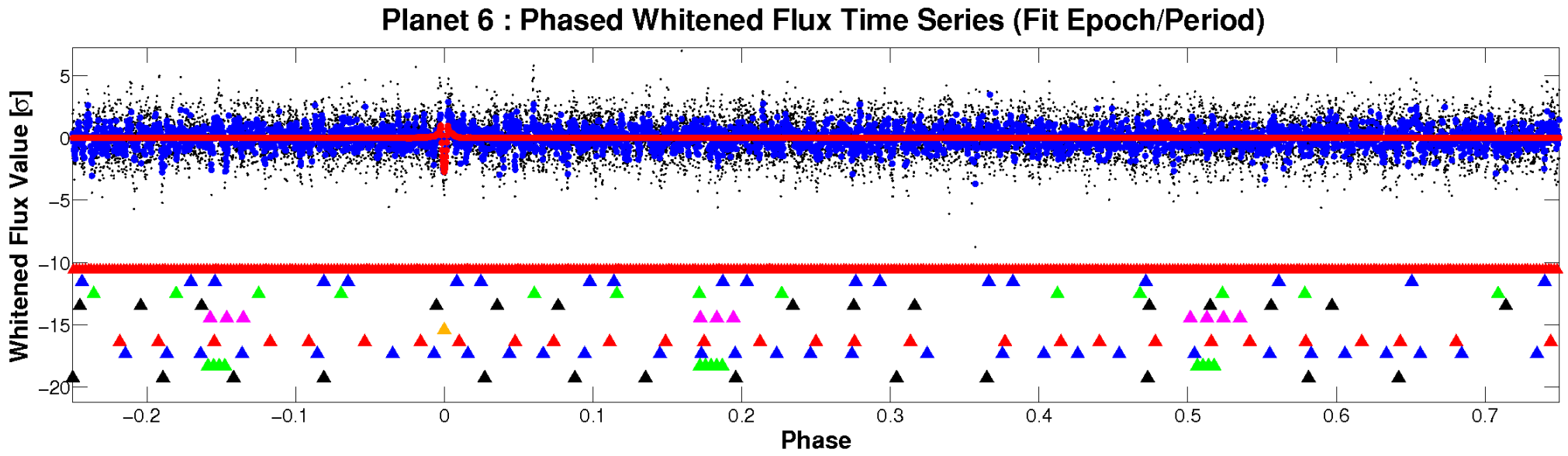
-5.00e-04
-1.00e-03
Flux
-0.008
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
0.008
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 009027876-06
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit

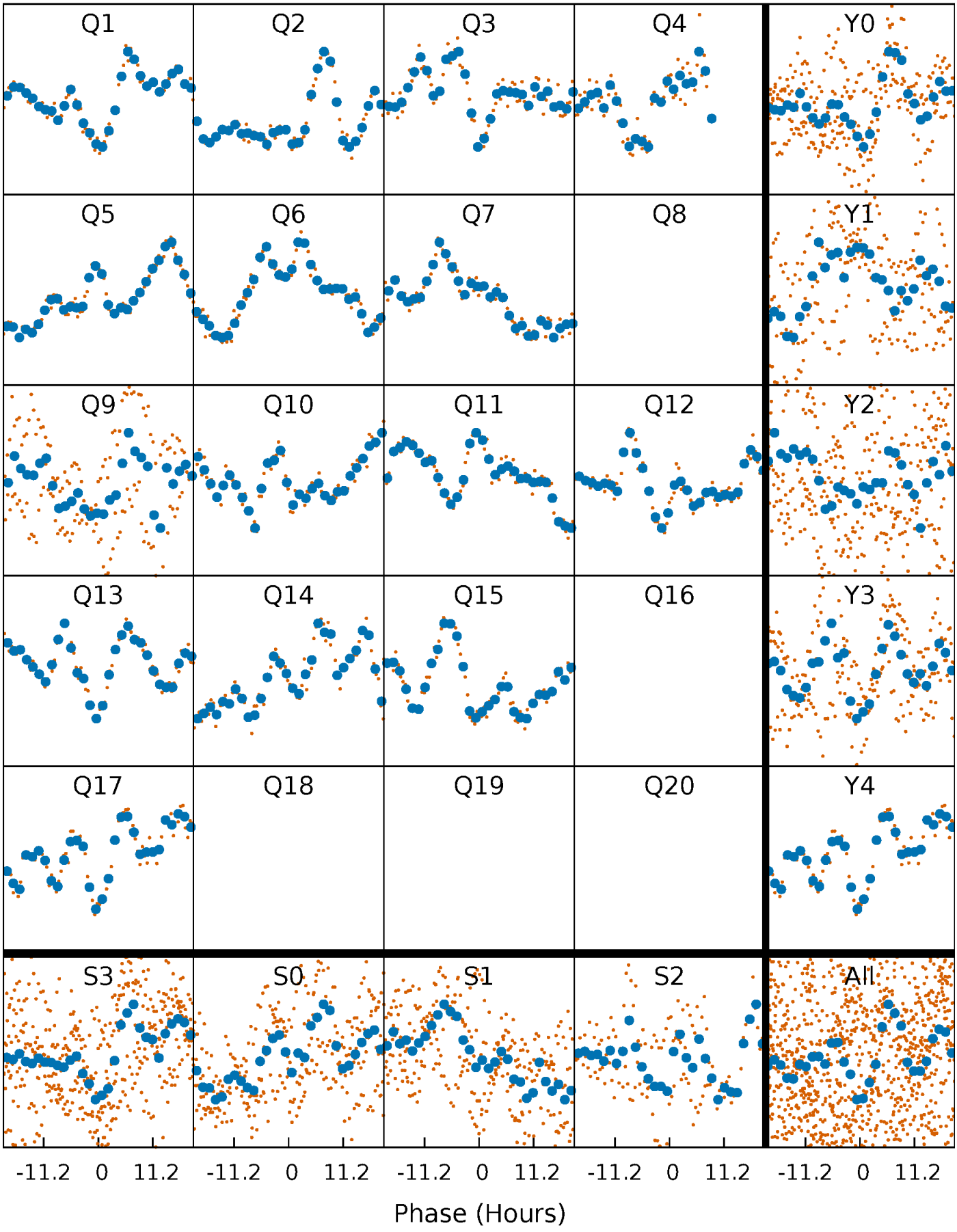
Non-Whitened Vs. Whitened Light Curve





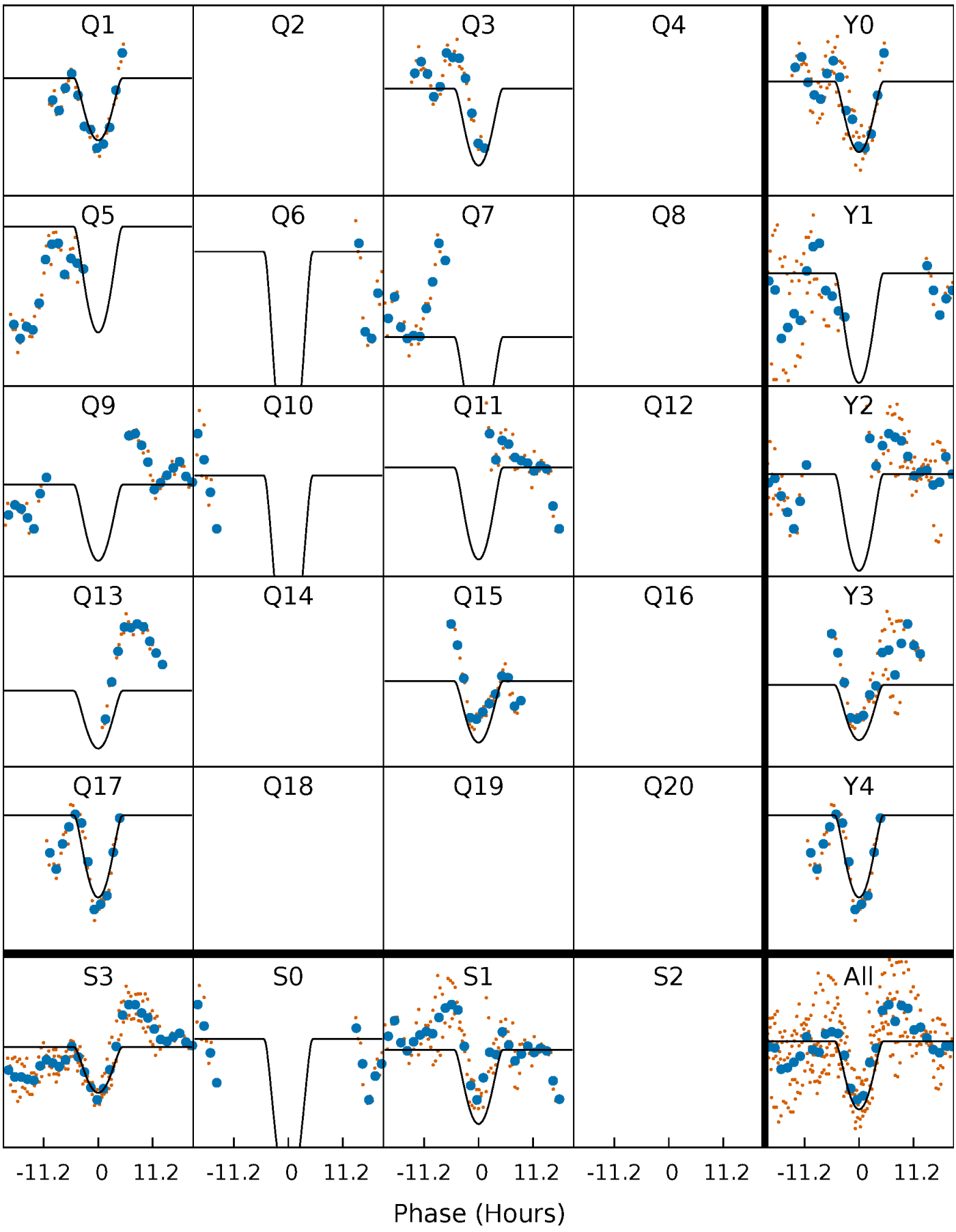
PDC Quarter-Phased Transit Curves

TCE 009027876-06 P= 83.906371 Days T_0=144.782399 (BKJD)



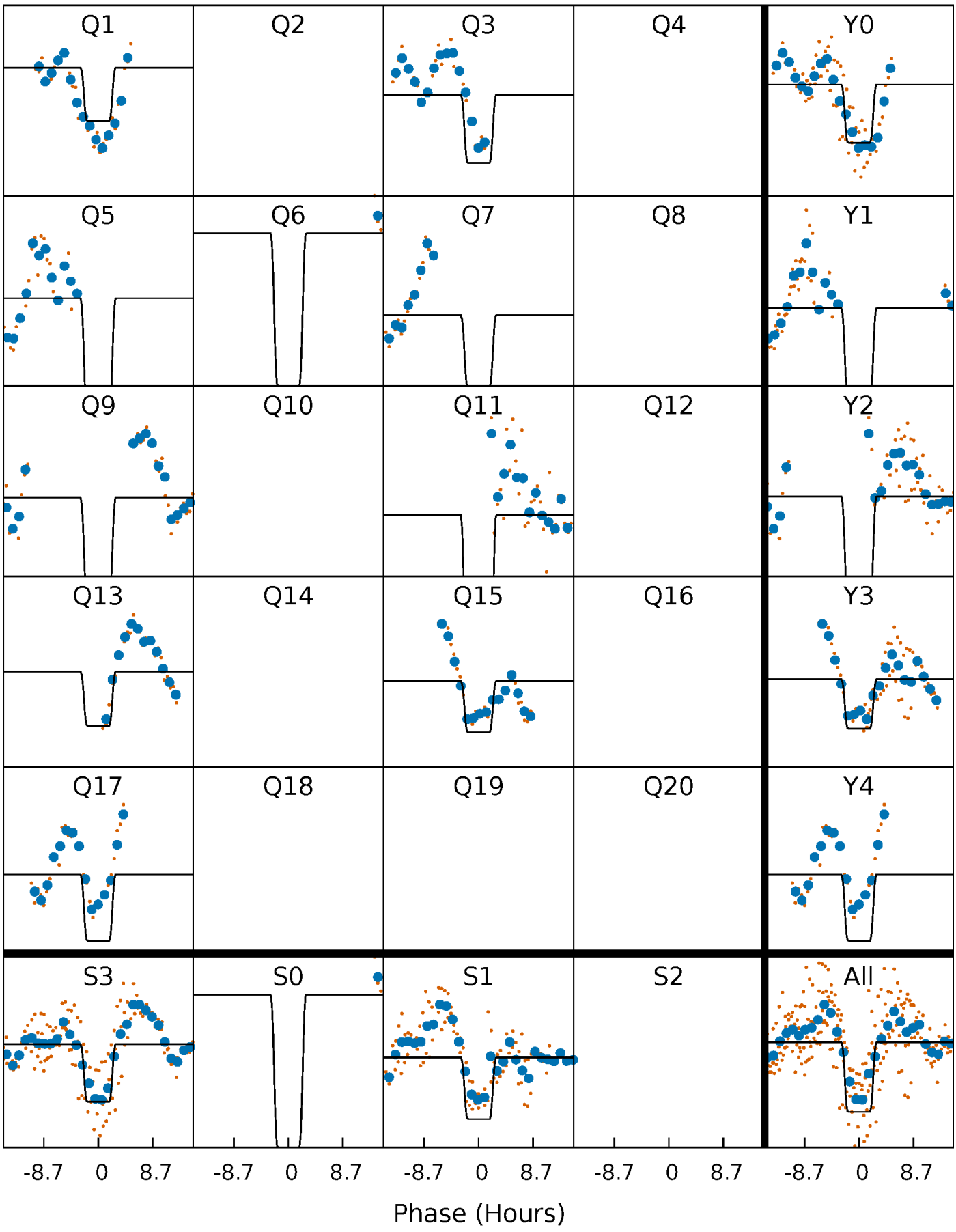
DV Quarter-Phased Transit Curves

TCE 009027876-06 P= 83.906371 Days T_0=144.782399 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

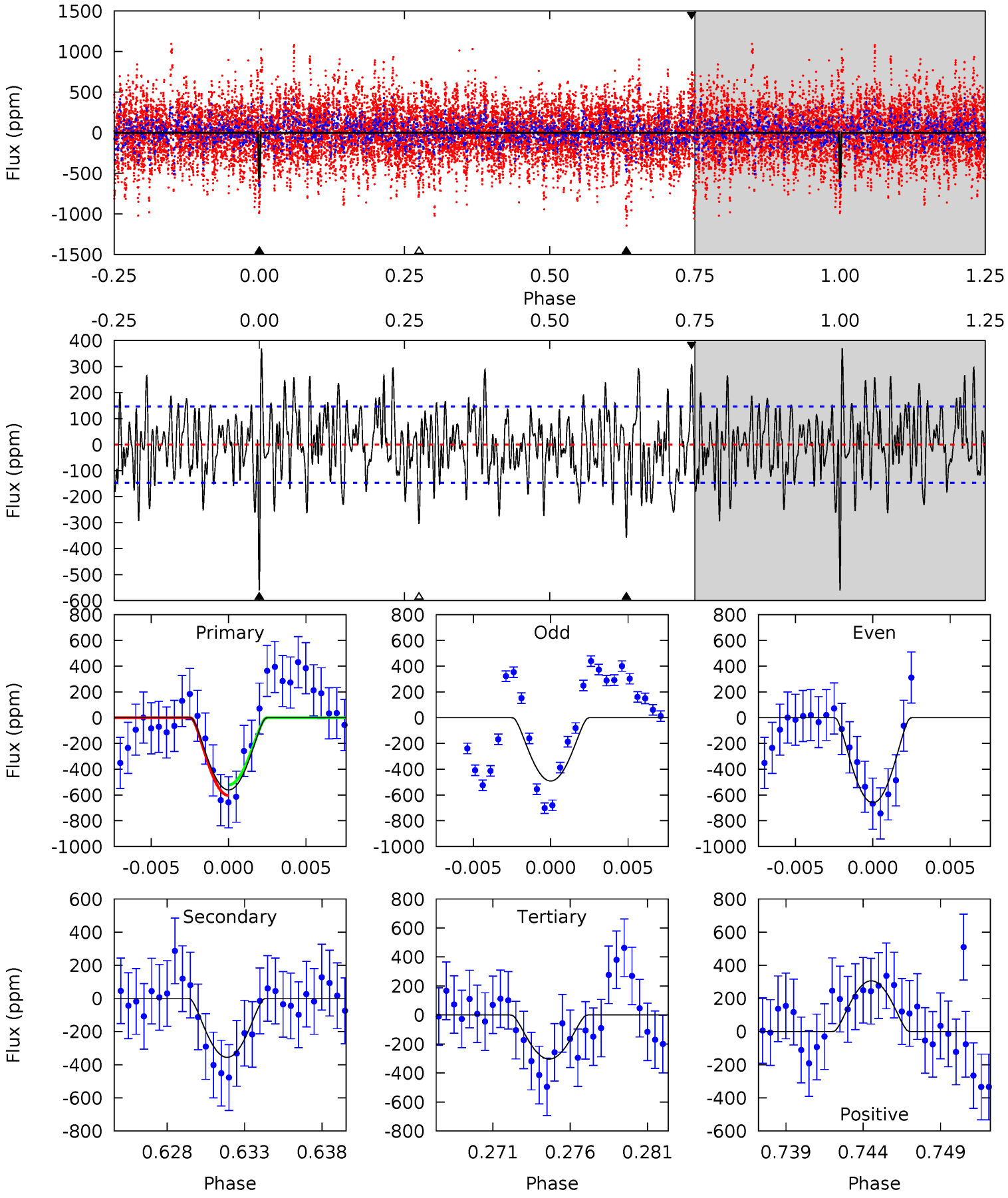
TCE 009027876-06 P= 83.906706 Days T_0=144.781349 (BKJD)



DV Model-Shift Uniqueness Test

009027876-06, P = 83.906371 Days, E = 60.876028 Days

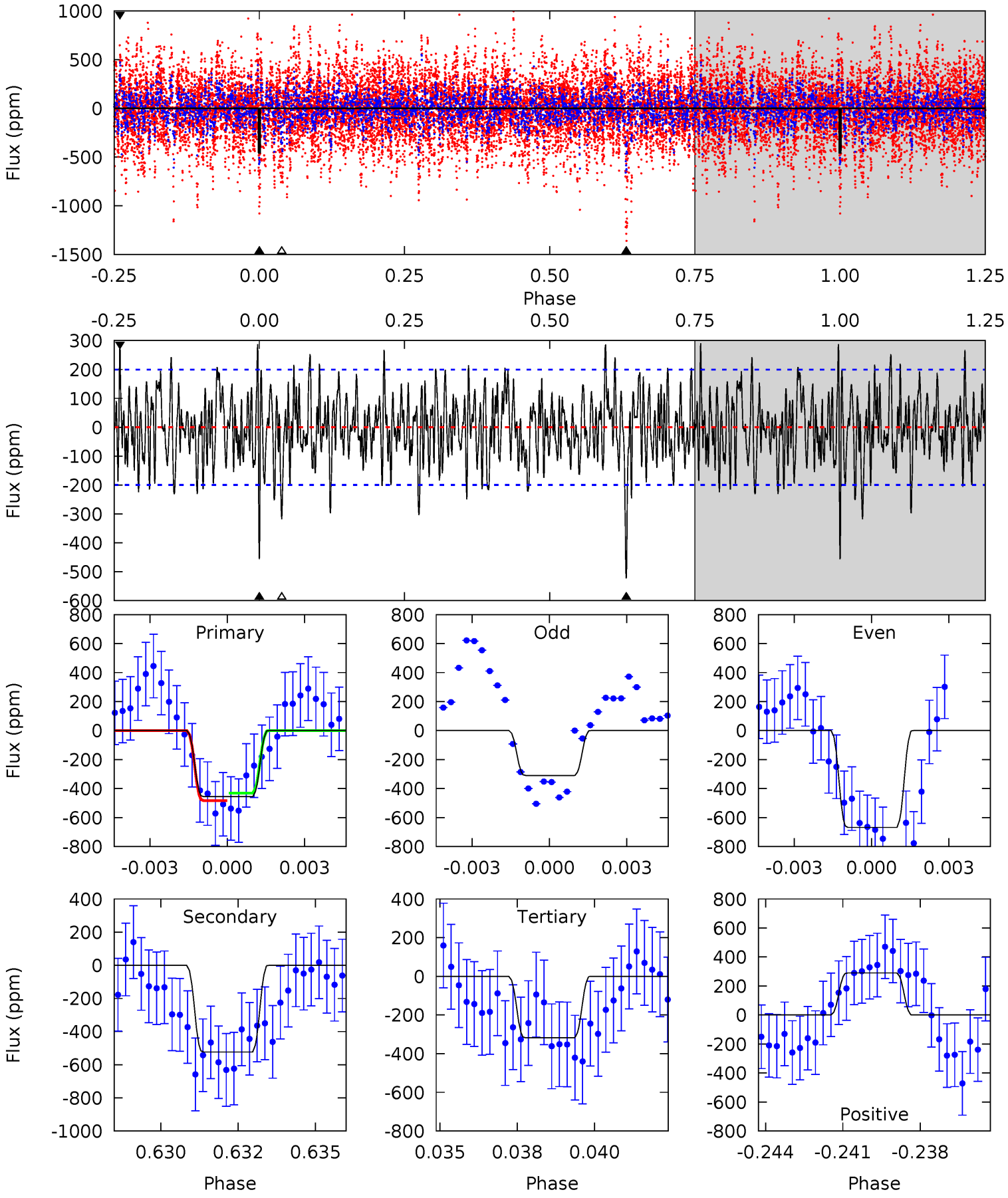
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.7	12.5	10.7	10.8	5.16	2.81	3.80	9.02	8.93	1.82	1.73	2.91	1.11	0.40	1.43



Alt Model-Shift Uniqueness Test

009027876-06, P = 83.906706 Days, E = 60.874643 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	13.8	8.40	7.68	5.27	3.00	2.61	3.65	4.38	5.43	6.16	4.58	0.84	0.36	0.69



Stellar Parameters For KIC 009027876

	$T_{eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-06 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-356±28	$35.48^{+37.84}_{-23.89}$	1298^{+68}_{-116}	3725^{+2100}_{-683}	34^{+282}_{-26}
Alt.	-523±38	$29.14^{+31.10}_{-19.60}$	1302^{+57}_{-136}	4286^{+2931}_{-895}	72^{+651}_{-55}

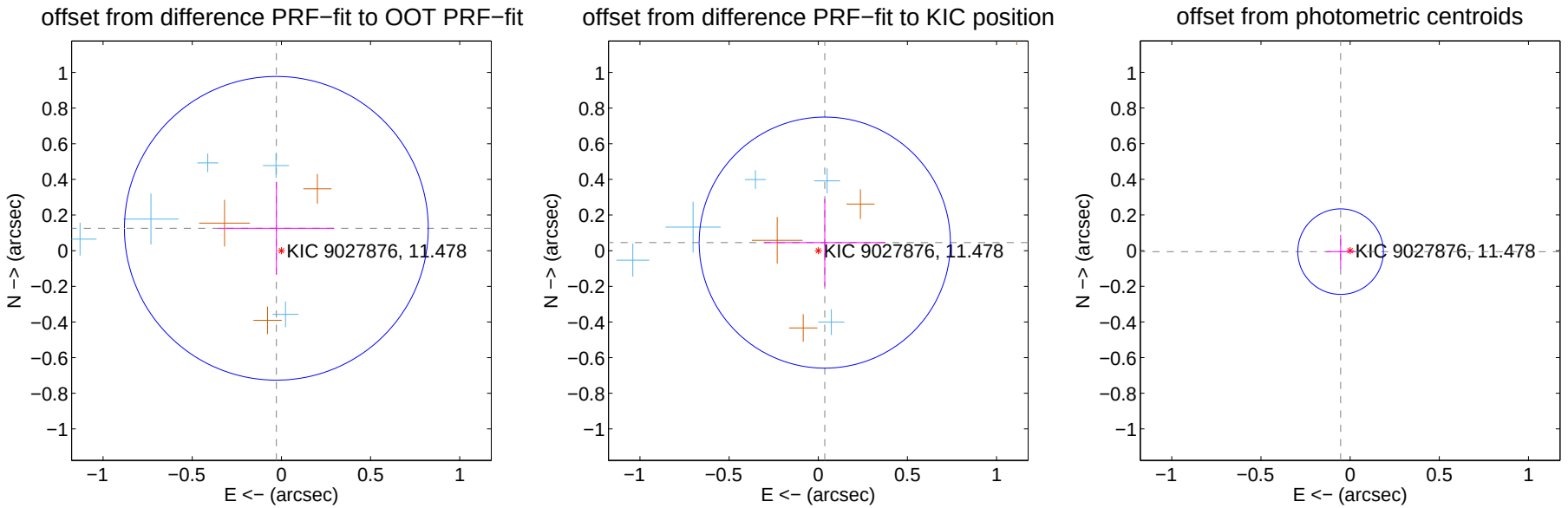
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

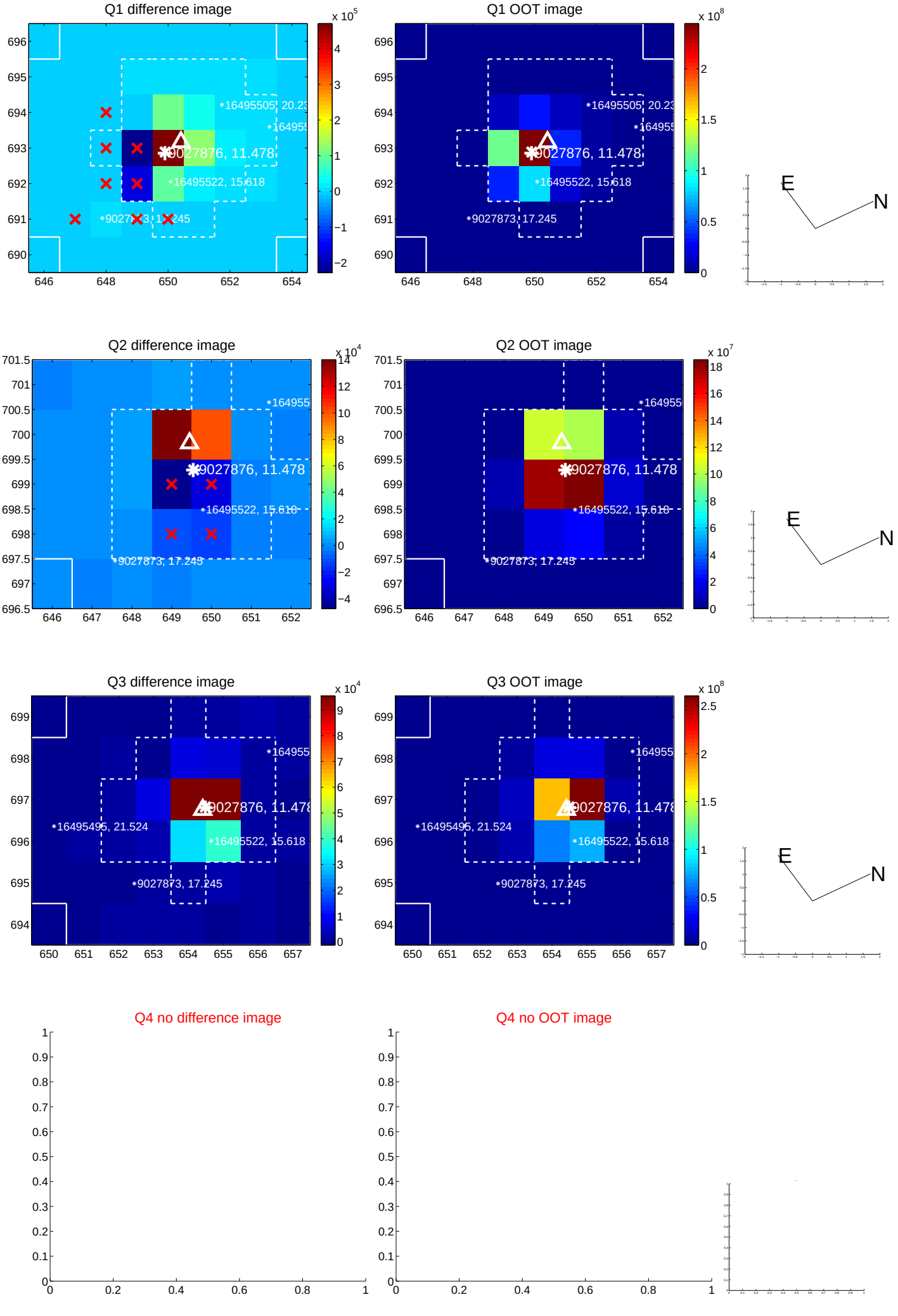
Supplemental centroid analysis for 009027876-06. Kepler magnitude: 11.48. Transit SNR 16.83
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.129 ± 0.284	0.45	0.028 ± 0.324	0.126 ± 0.260
PRF-fit source offset from KIC position	0.058 ± 0.235	0.25	-0.037 ± 0.340	0.045 ± 0.245
photometric centroid source offset	0.05 ± 0.08	0.67	0.05 ± 0.08	-0.01 ± 0.09

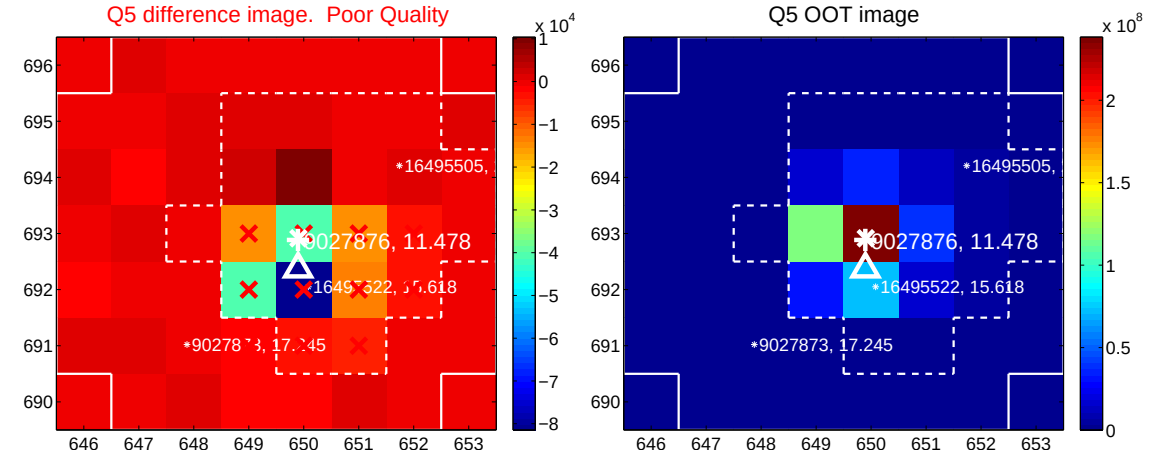


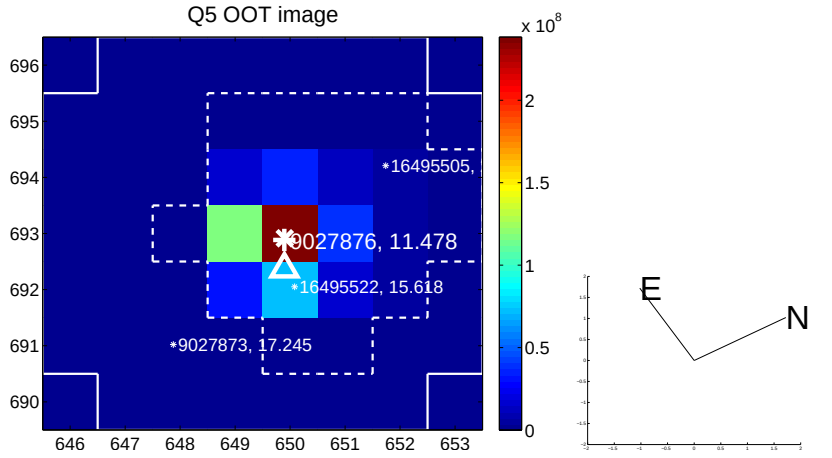
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

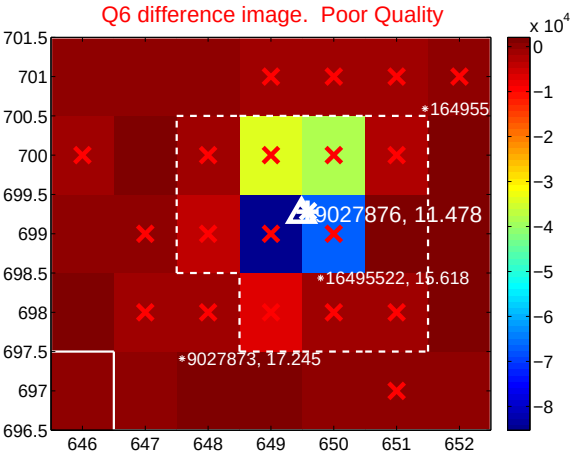
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

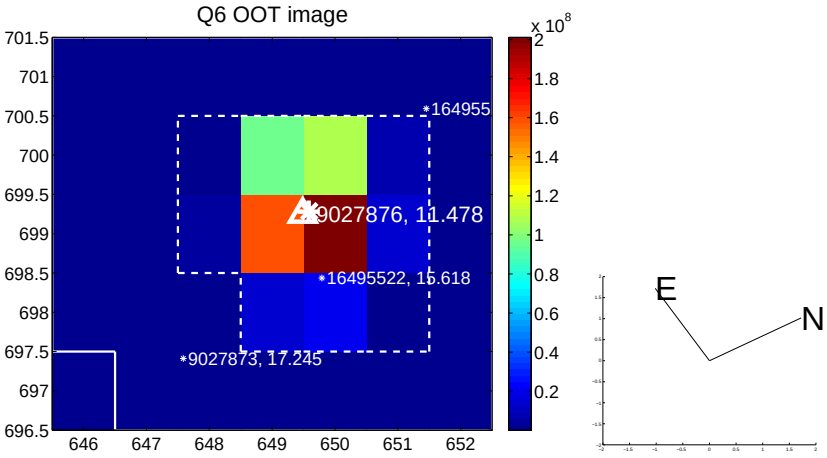


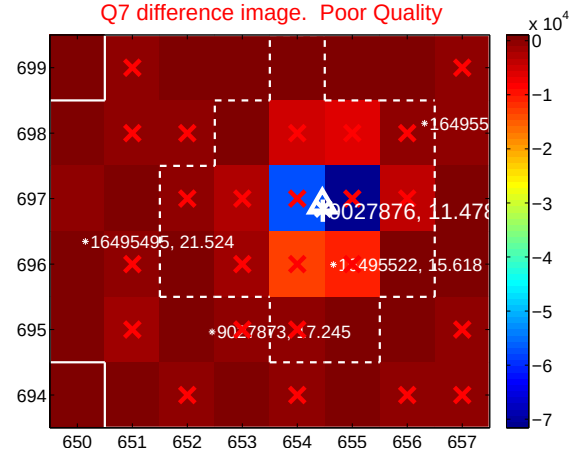
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

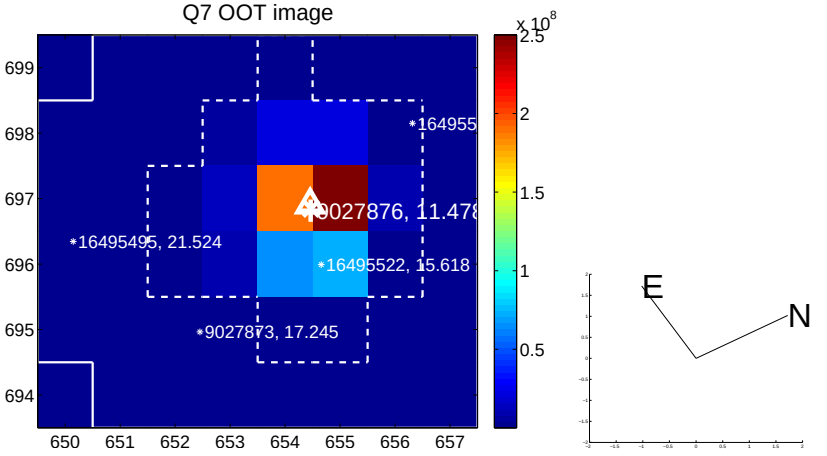


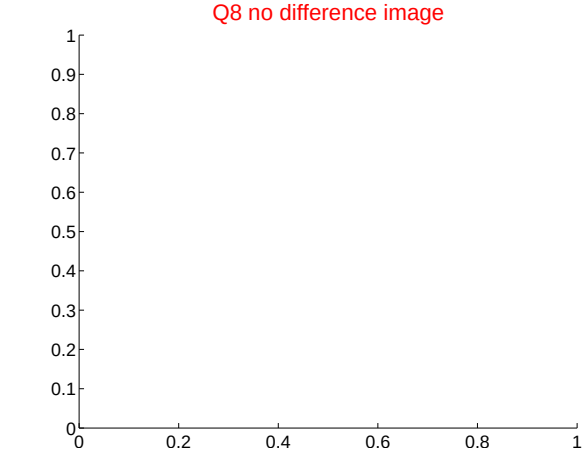


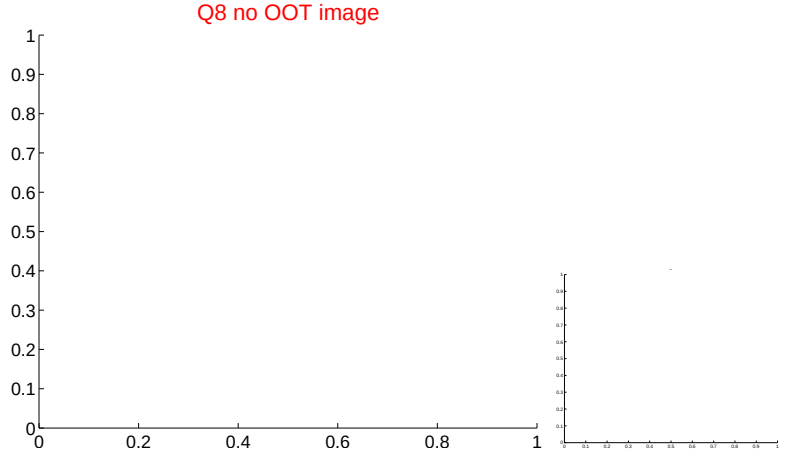




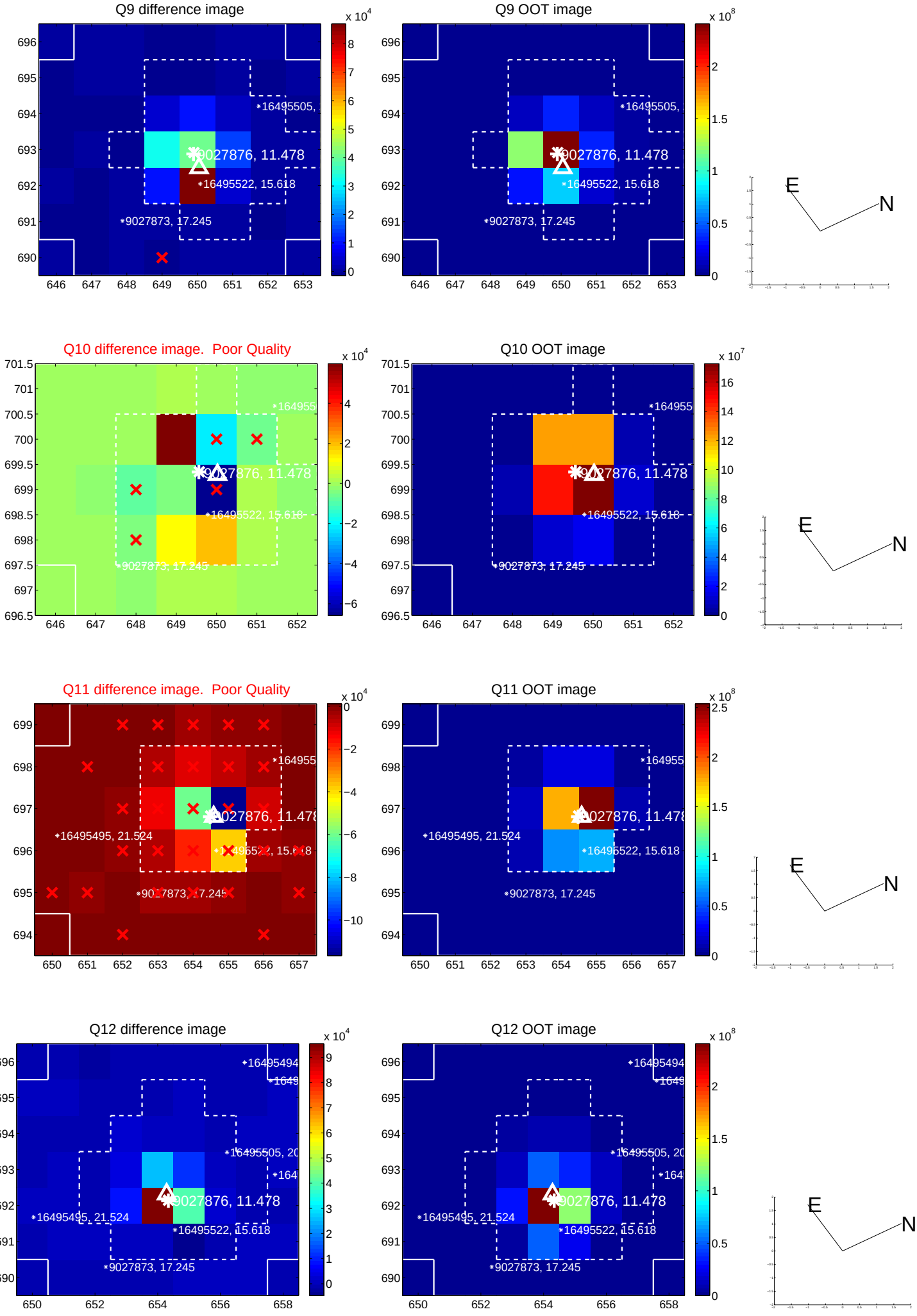




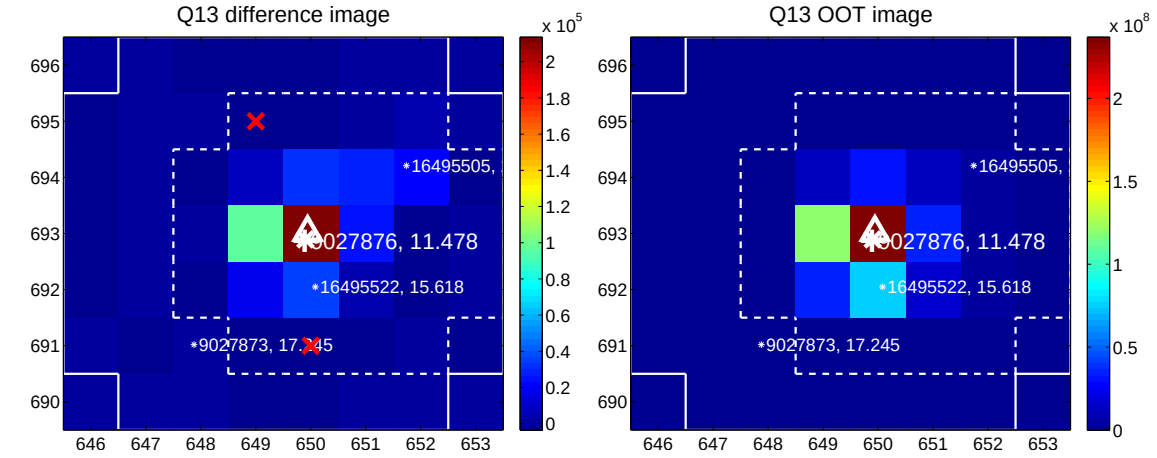


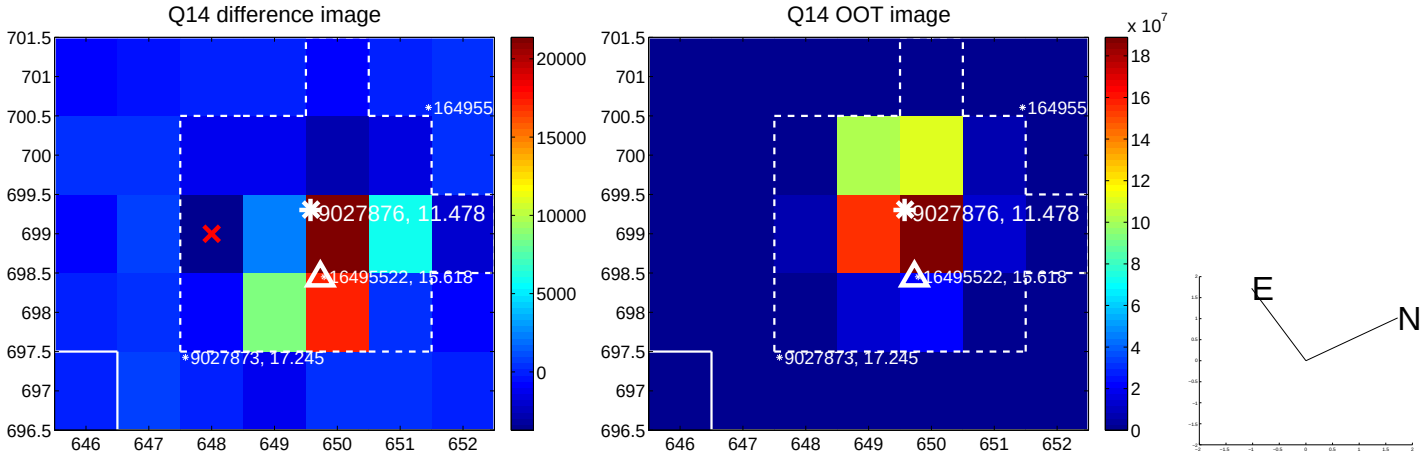


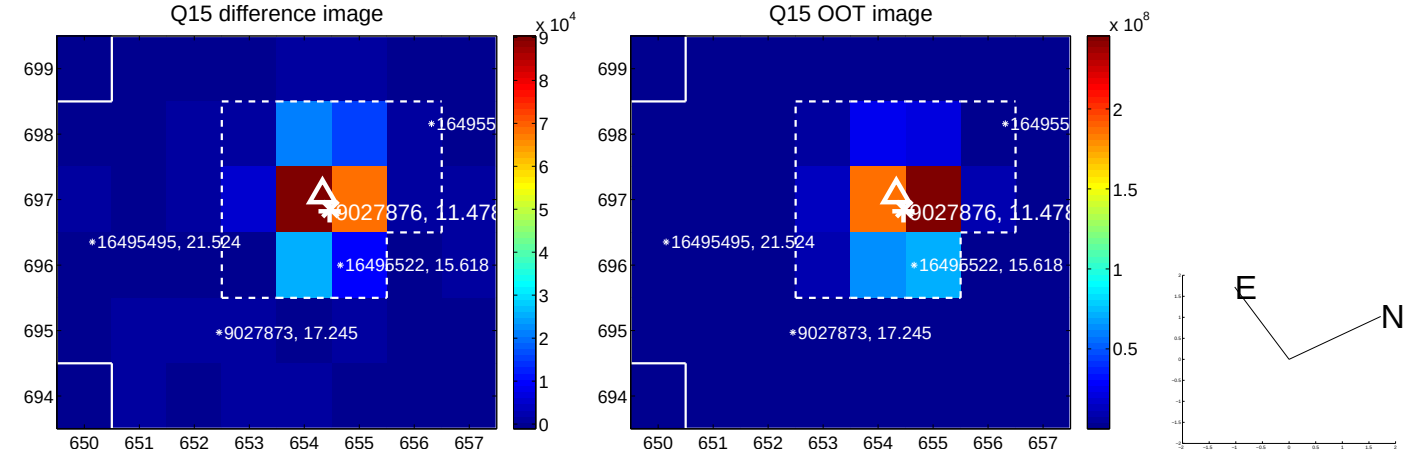
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

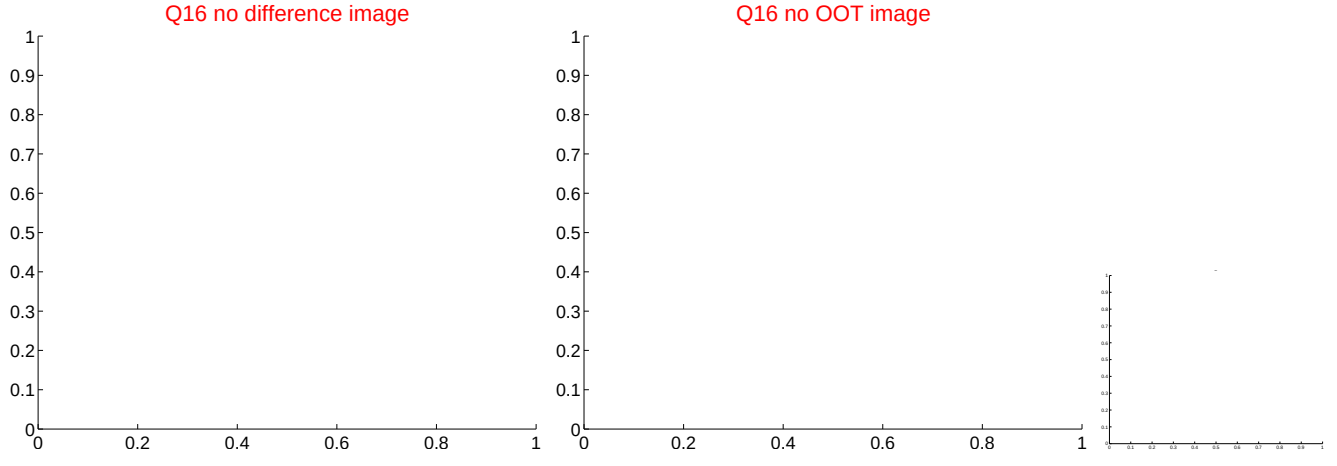


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

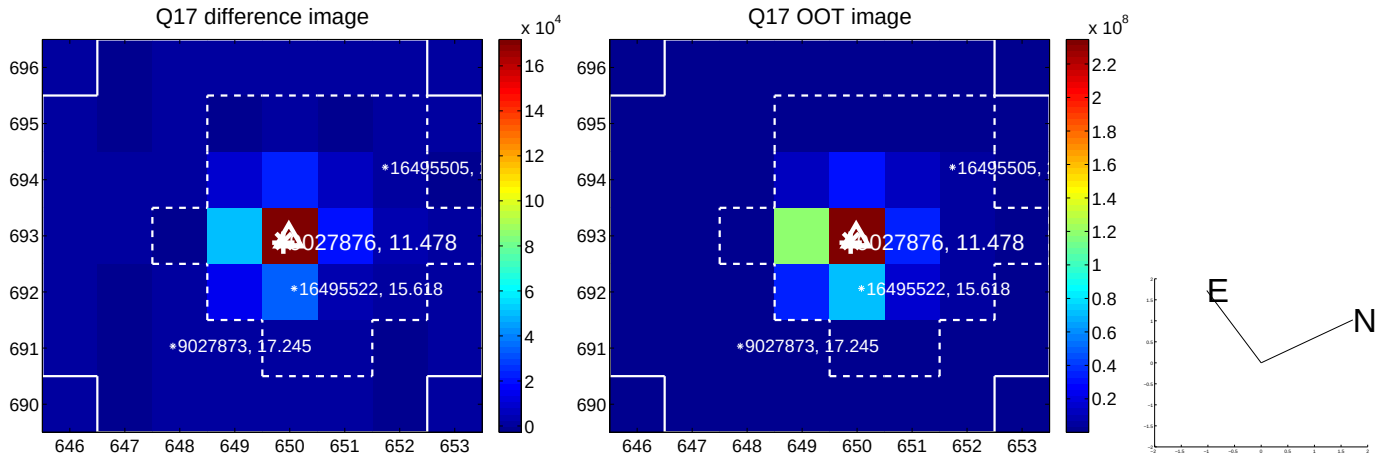


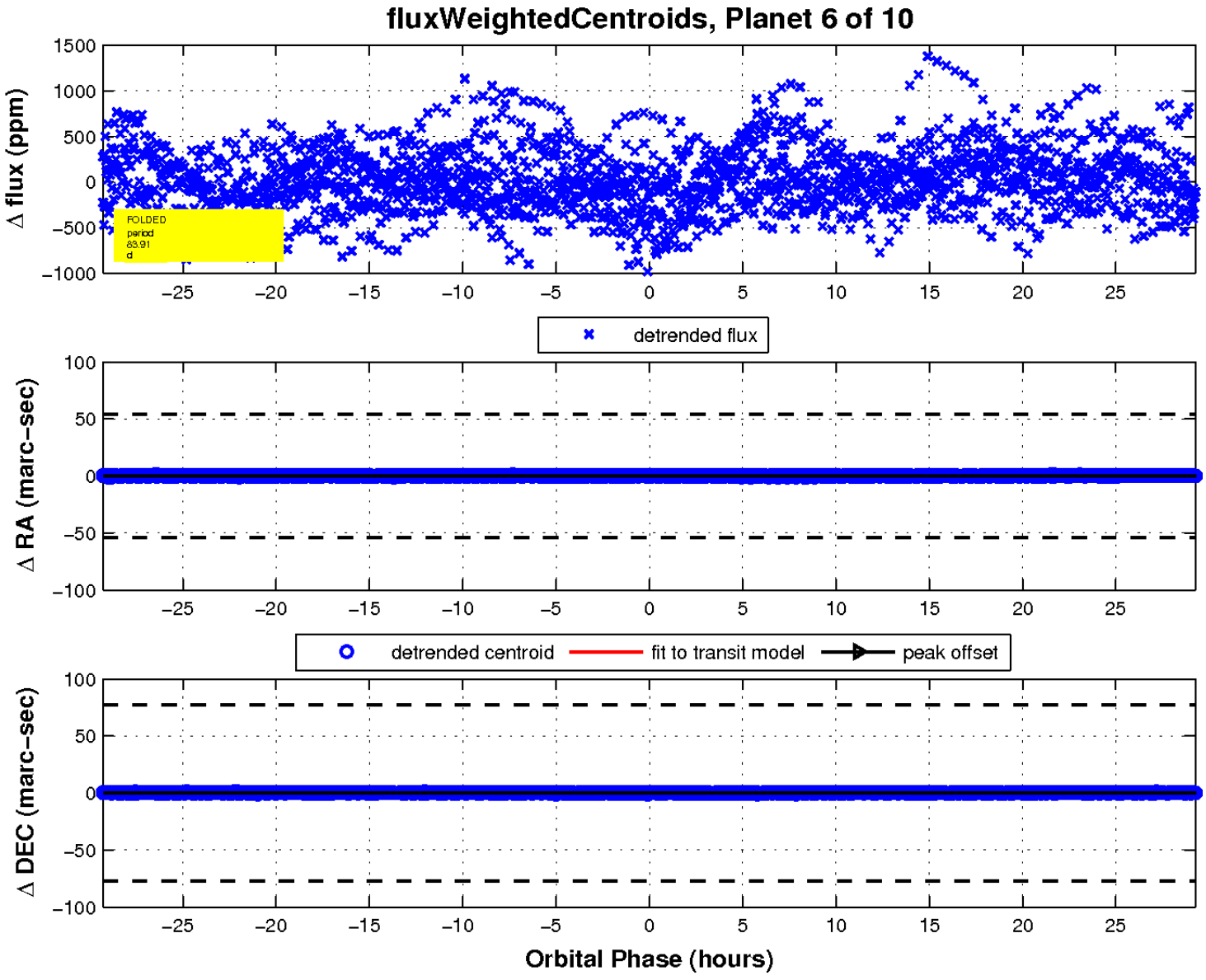




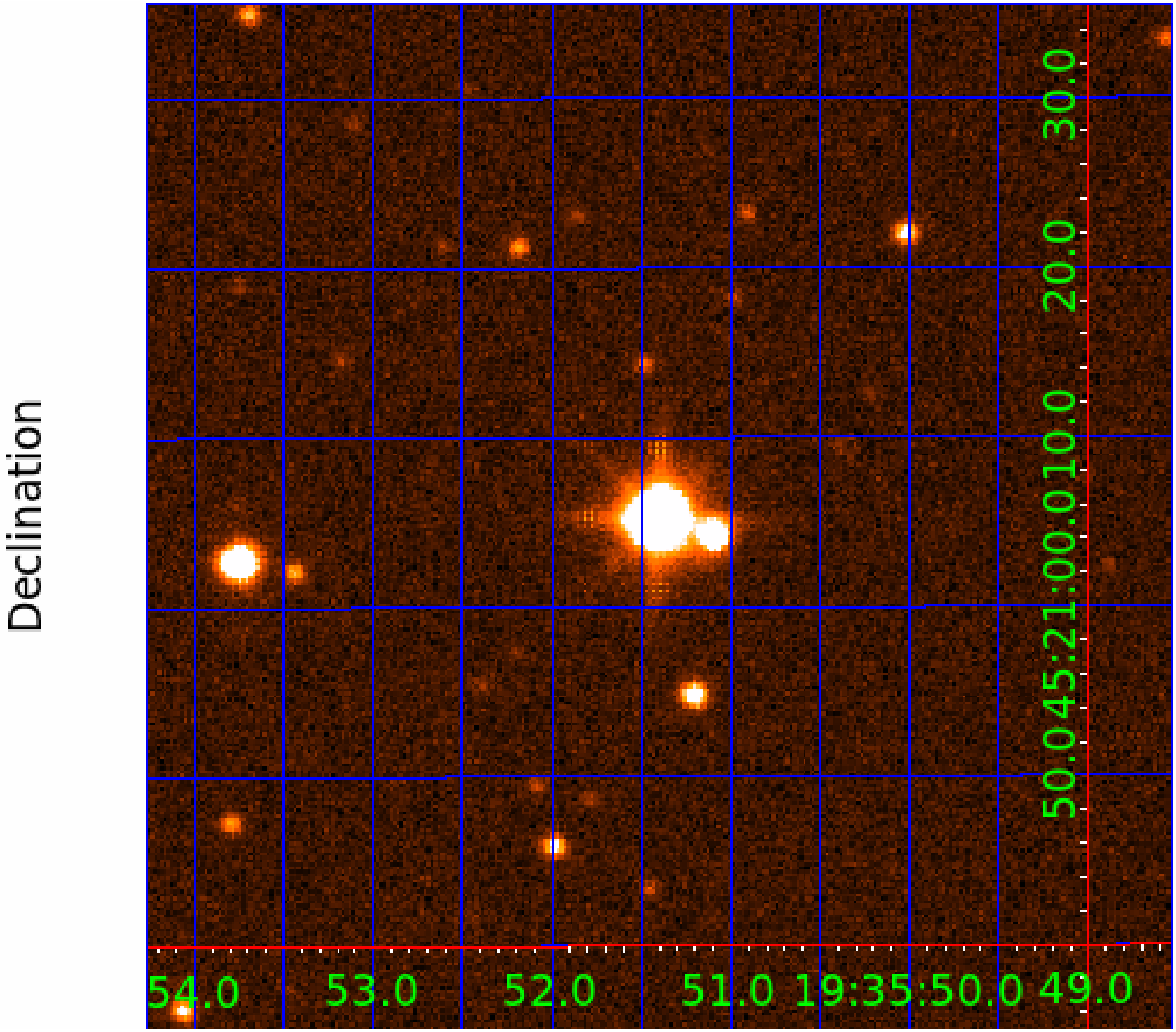


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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49.0

KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

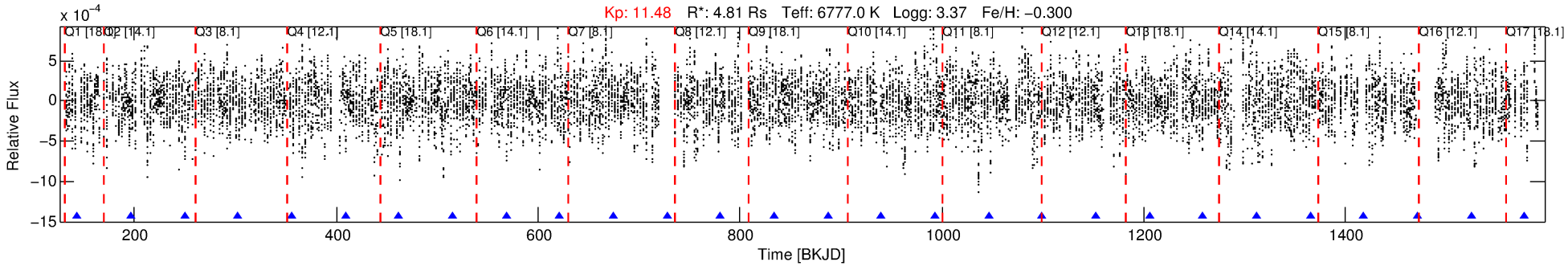
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

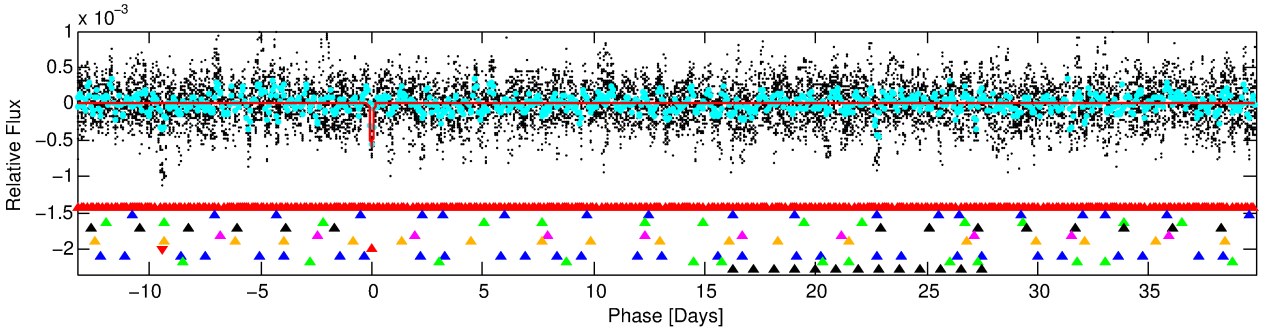
Ephemeris Match Information For 009027876-07

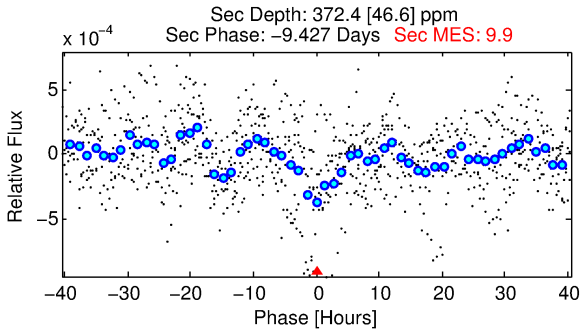
No Significant Match Found

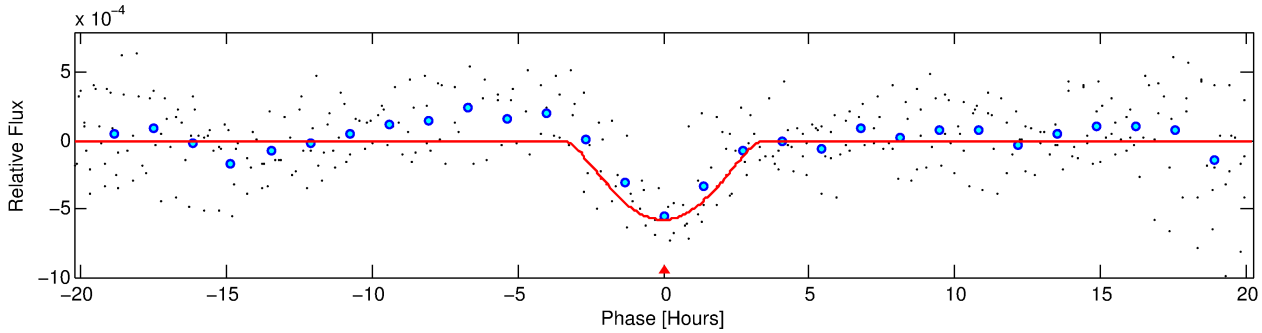
DV One-Page Summary

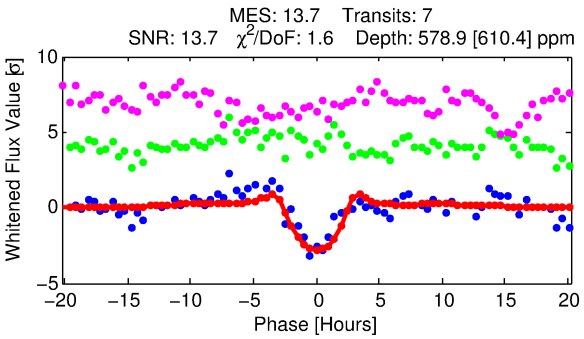
KIC: 9027876 Candidate: 7 of 10 Period: 53.108 d

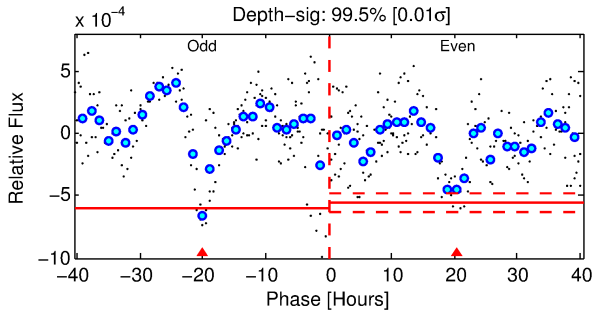


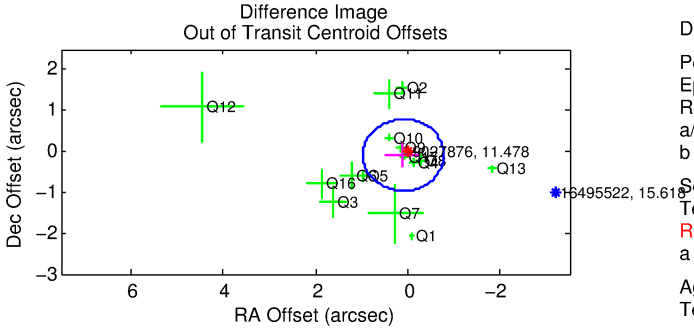












DV Fit Results:

Period = 53.10804 [0.00089] d
Epoch = 143.4495 [0.0103] BKJD
Rp/R* = 0.0420 [0.0821]
a/R* = 17.64 [8.66]
b = 1.00 [0.15]

Seff = 362.54 [250.14]
Teq = 1113 [192] K
Rp = 22.01 [44.01] Re
a = 0.3470 [0.1449] AU

Ag = 50.94 [202.36] [0.25σ]
Teffp = 4596 [4498] K [0.77σ]

DV Diagnostic Results:

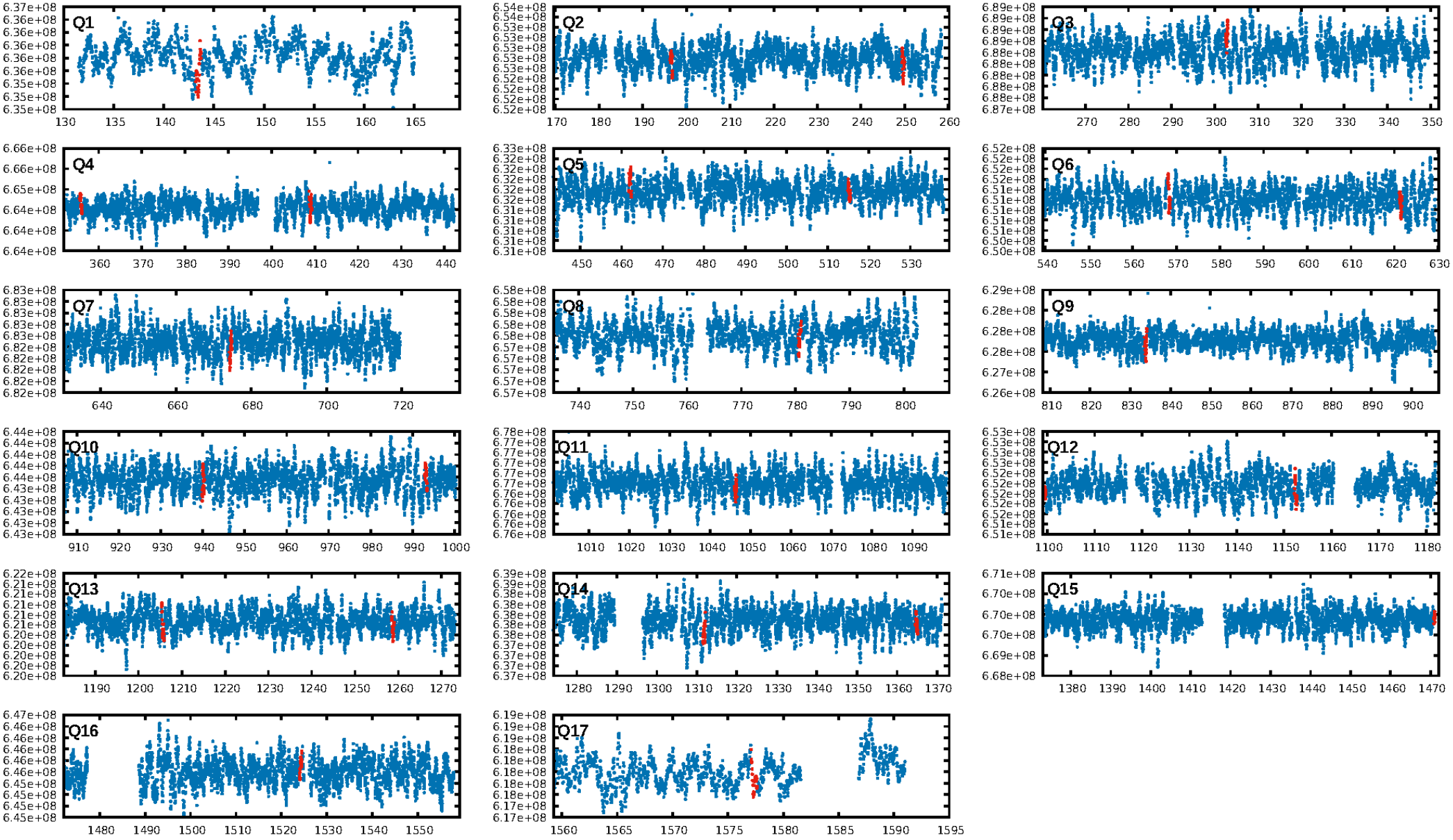
ShortPeriod−sig: 100.0% [7.95σ]
LongPeriod−sig: 100.0% [47.19σ]
ModelChiSquare2−sig: 0.8%
ModelChiSquareGof−sig: 96.7%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [7/7]
GhostDiagnostic−chr: 2.619

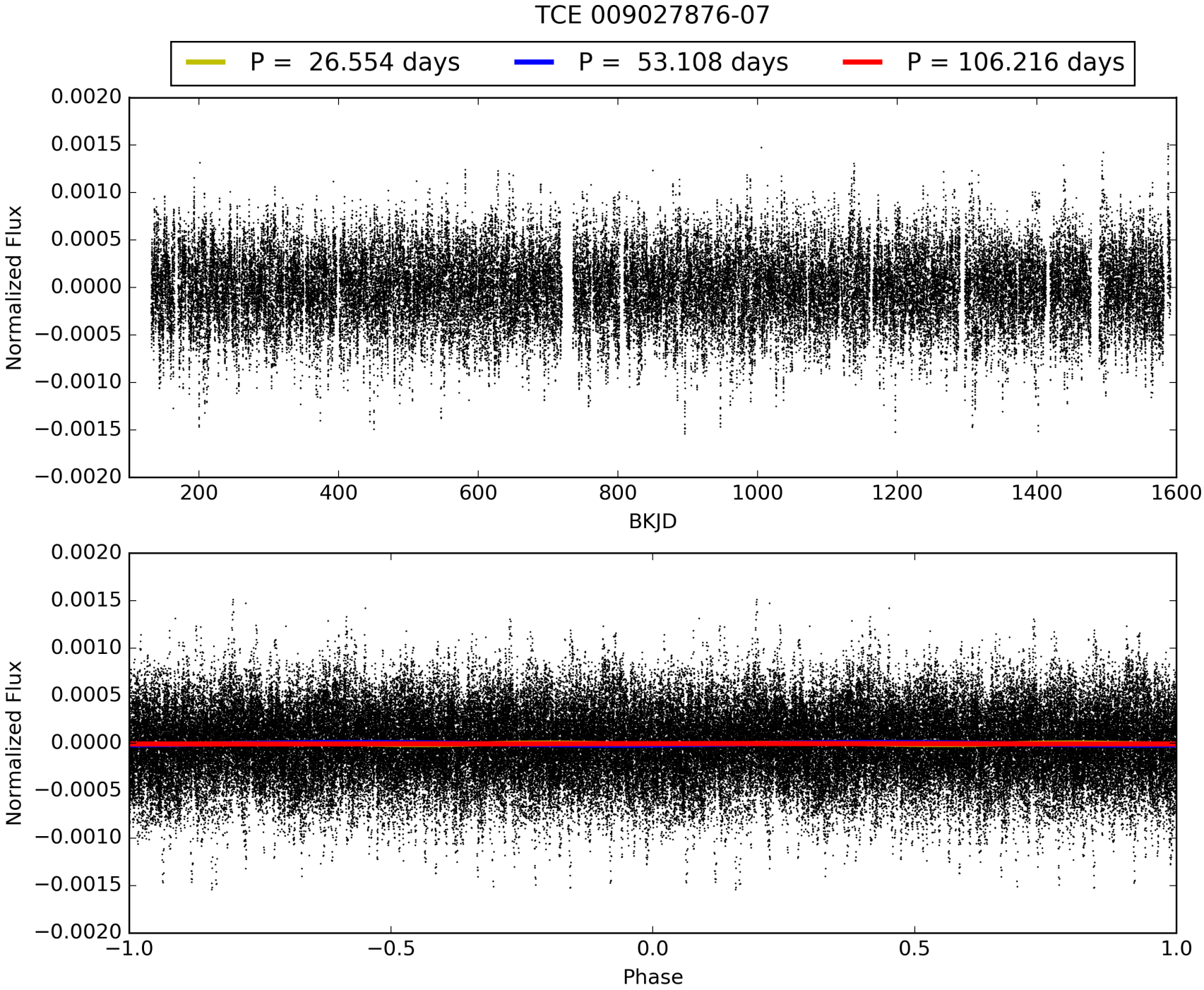
Centroid−sig: 30.6%
Centroid−so: 0.039 arcsec [0.41σ]
OotOffset−rm: 0.136 arcsec [0.47σ]
KicOffset−rm: 0.175 arcsec [0.68σ]
OotOffset−st: 3/3/4/5 [15]
KicOffset−st: 3/3/4/5 [15]
DiffImageQuality−fgm: 0.60 [9/15]
DiffImageOverlap−fno: 0.19 [3/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:21 Z

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

TCE 009027876-07, PDC Light Curves




TCE 009027876-07
P = 26.554 days
P = 53.108 days
P = 106.216 days
Normalized Flux
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0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
−0.0020
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
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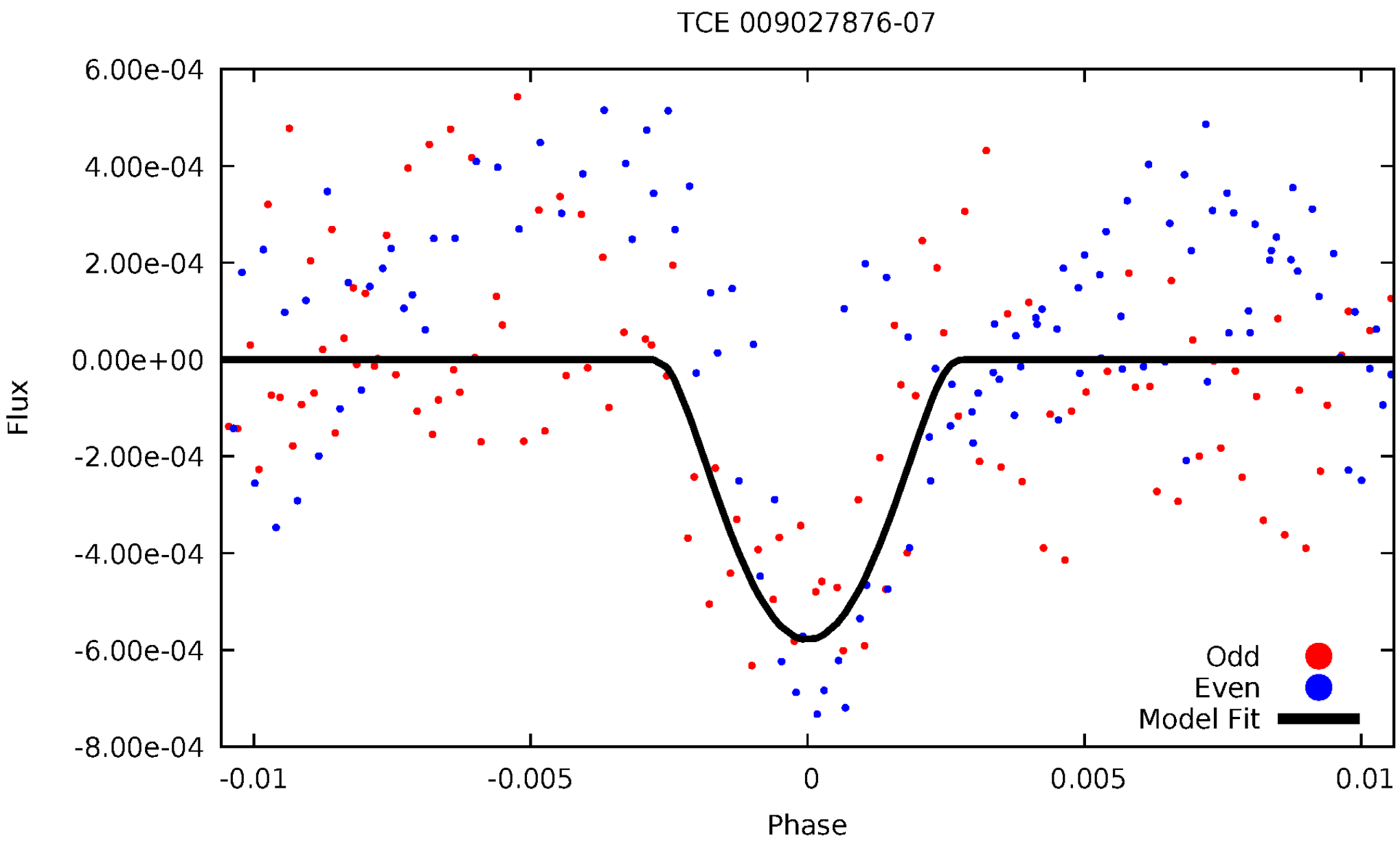
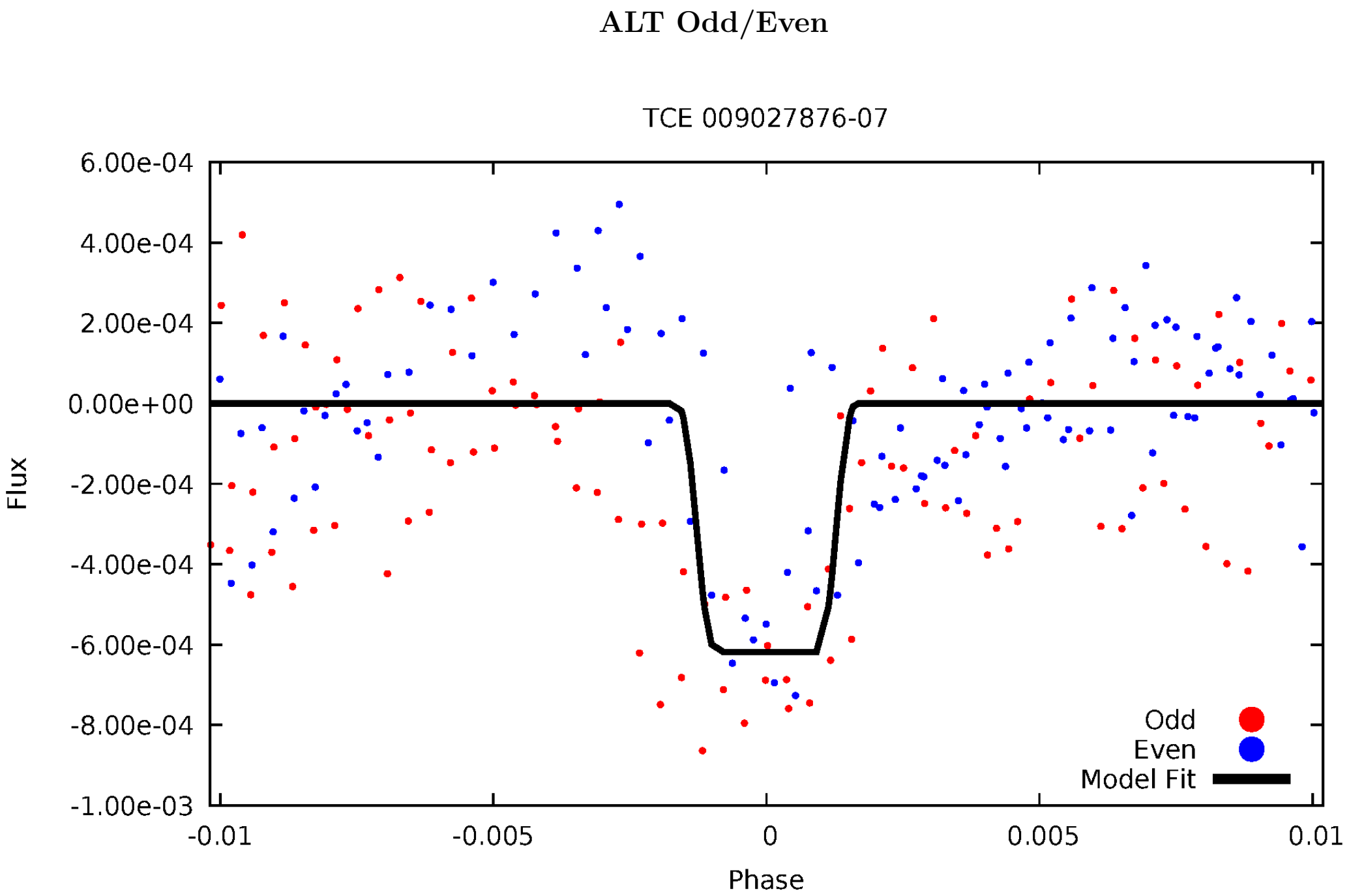
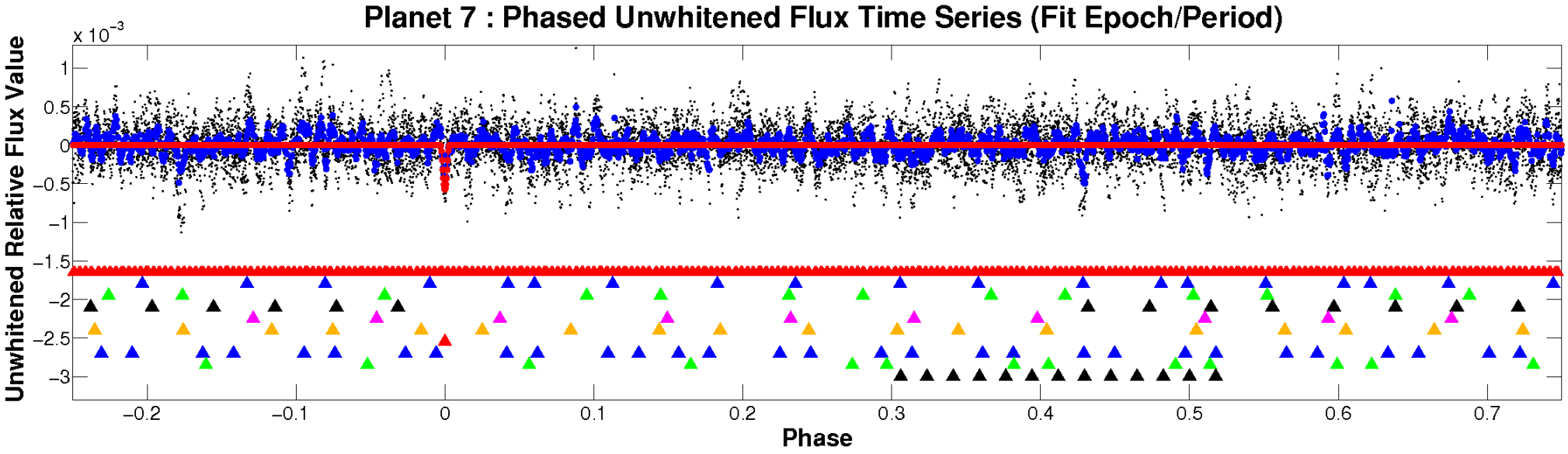
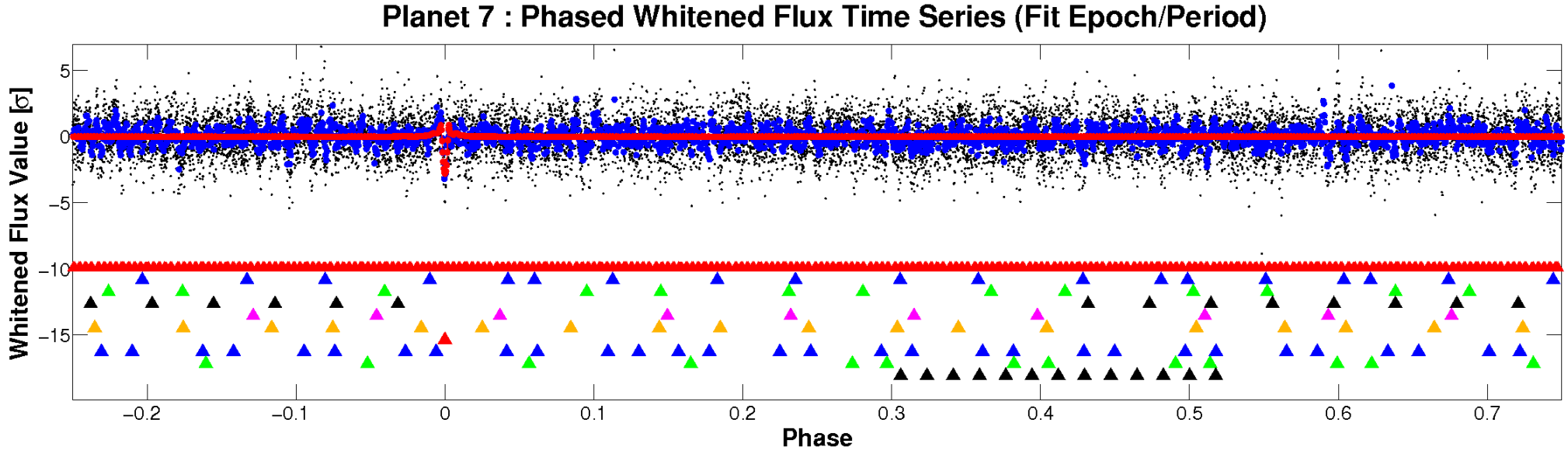
−0.5
0.0
0.5
1.0
Phase


DV Odd/Even
TCE 009027876-07
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009027876-07
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
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

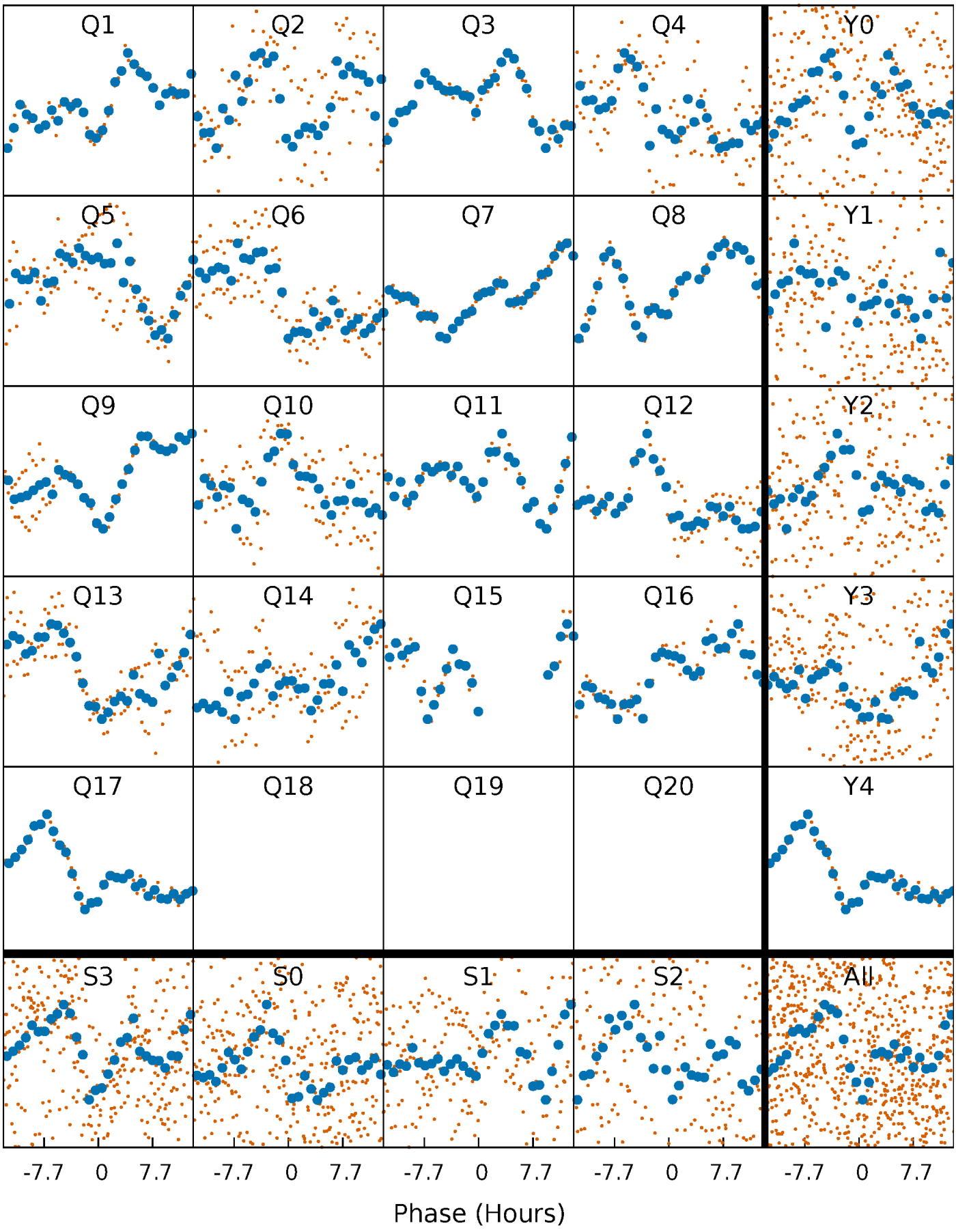
Non-Whitened Vs. Whitened Light Curve





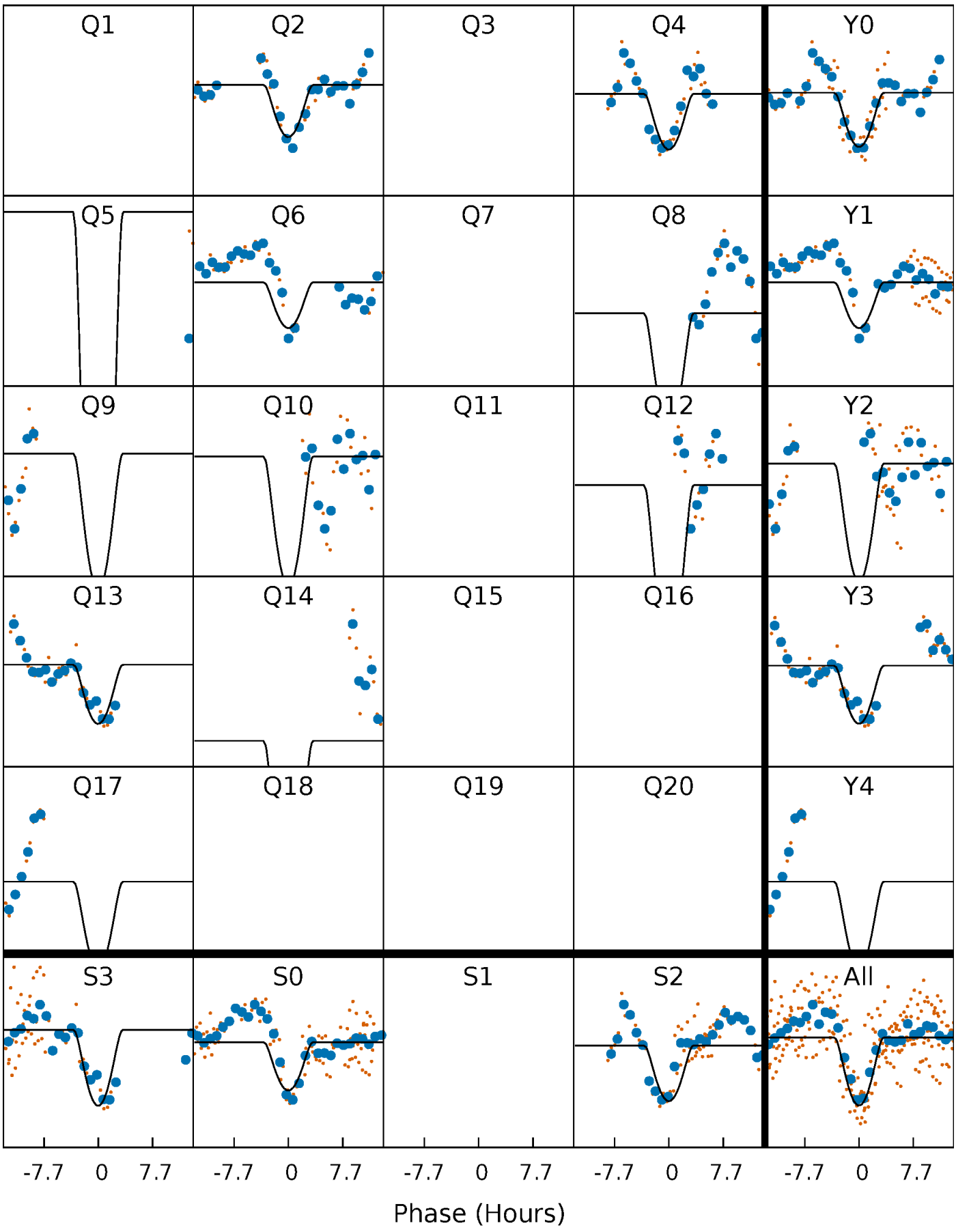
PDC Quarter-Phased Transit Curves

TCE 009027876-07 P= 53.108036 Days T_0=143.449485 (BKJD)



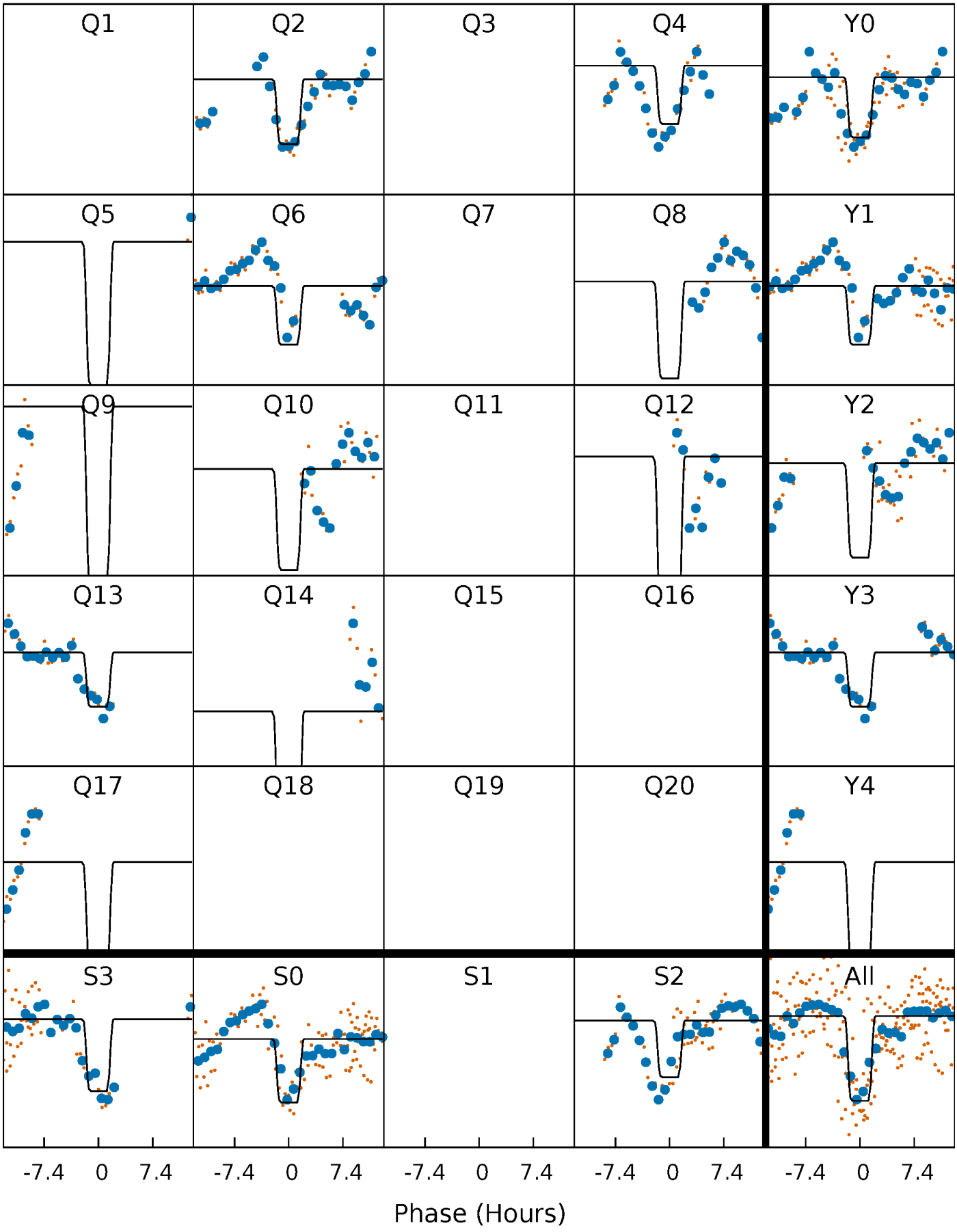
DV Quarter-Phased Transit Curves

TCE 009027876-07 P= 53.108036 Days T_0=143.449485 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

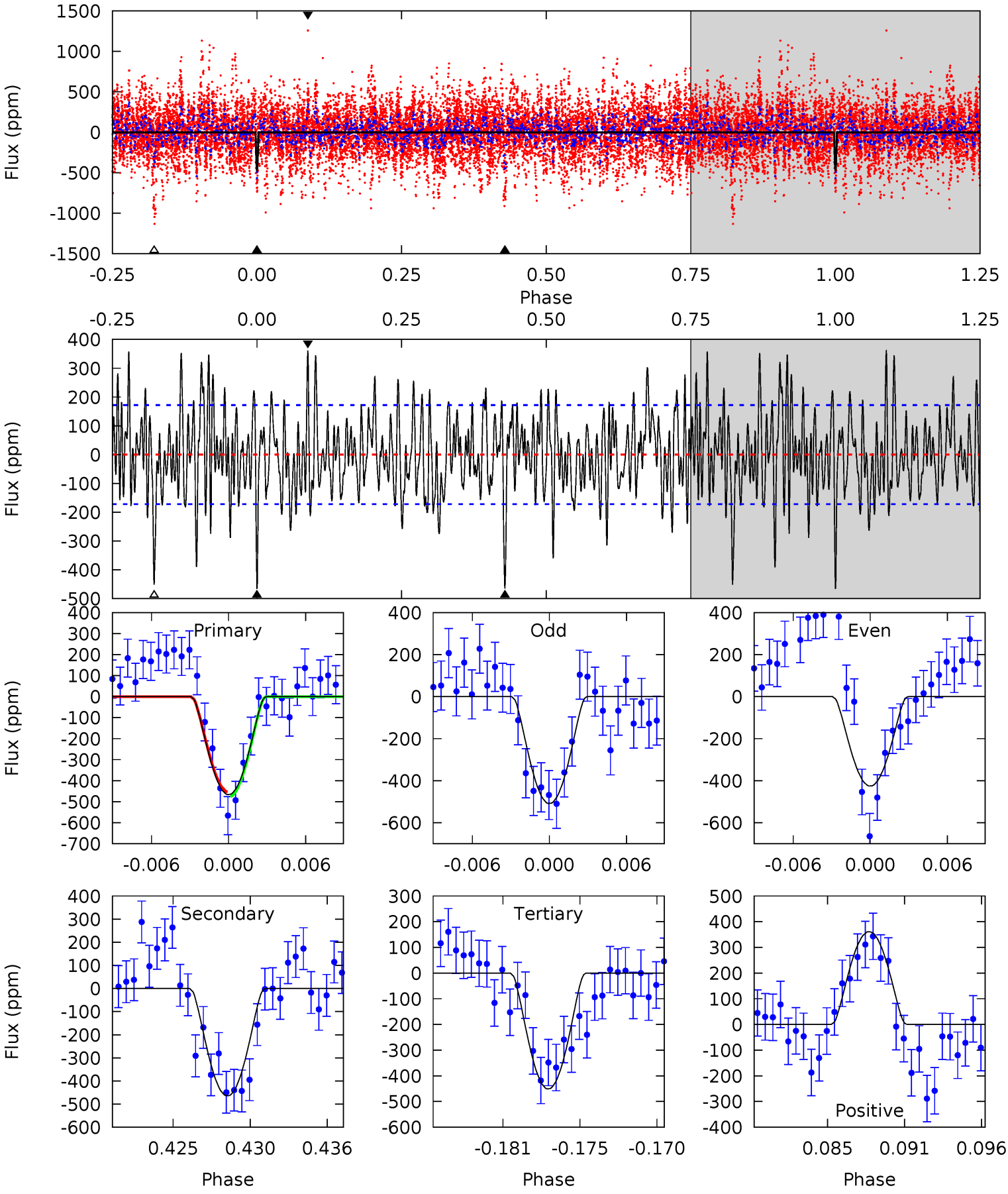
TCE 009027876-07 P= 53.108277 Days T_0=143.457106 (BKJD)



DV Model-Shift Uniqueness Test

009027876-07, P = 53.108036 Days, E = 90.341449 Days

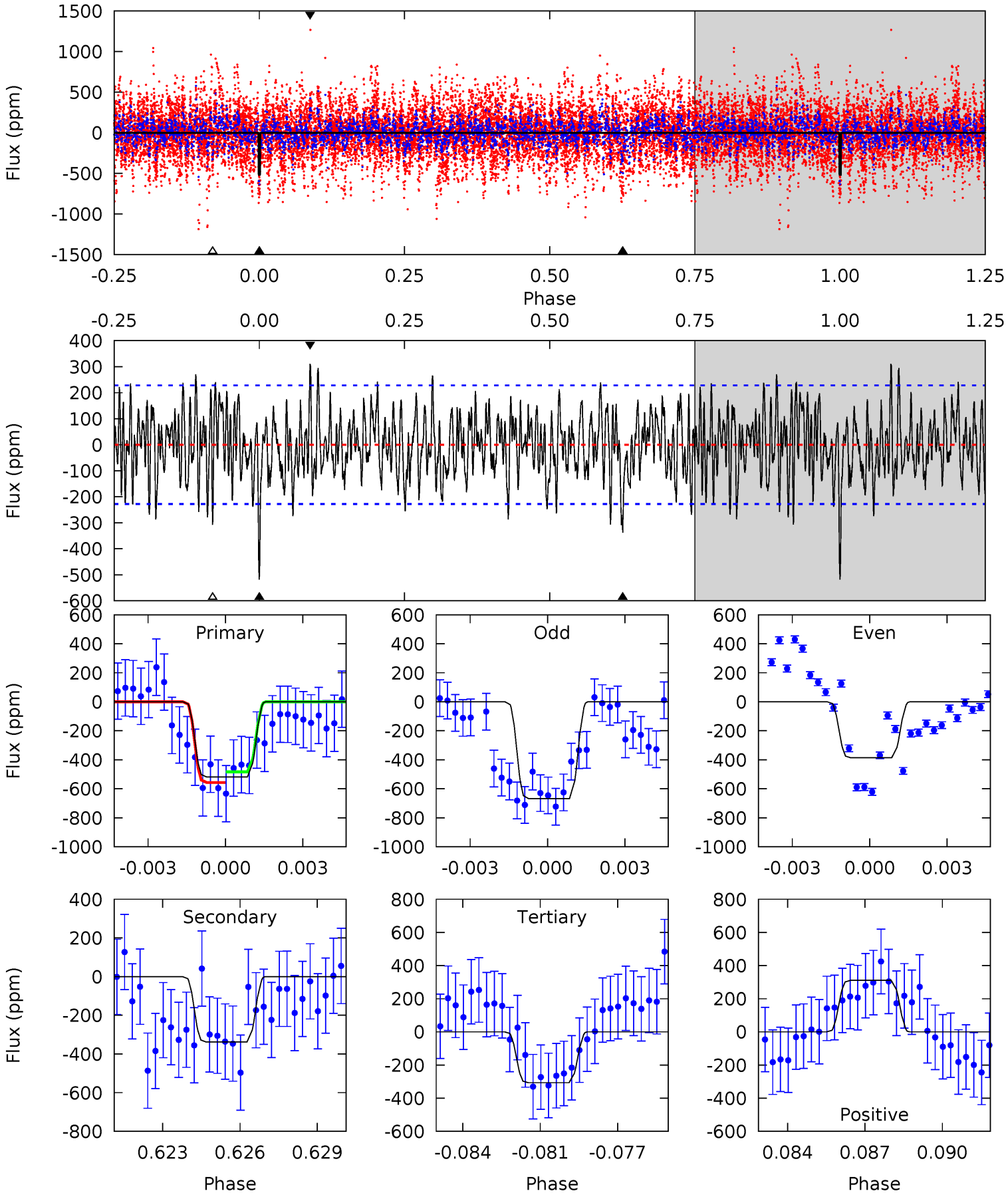
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	13.9	13.5	10.8	5.13	2.77	3.69	0.46	3.15	0.41	3.10	1.25	0.64	0.44	0.34



Alt Model-Shift Uniqueness Test

009027876-07, P = 53.108277 Days, E = 90.348829 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	7.78	7.05	7.15	5.24	2.95	2.43	4.87	4.77	0.73	0.63	3.23	0.71	0.37	0.84



Stellar Parameters For KIC 009027876

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-07 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-464±33	$33.60^{+34.33}_{-22.46}$	1508^{+76}_{-157}	3978^{+2340}_{-780}	26^{+226}_{-20}
Alt.	-338±43	$29.29^{+30.78}_{-19.86}$	1517^{+77}_{-161}	3962^{+2454}_{-807}	27^{+228}_{-21}

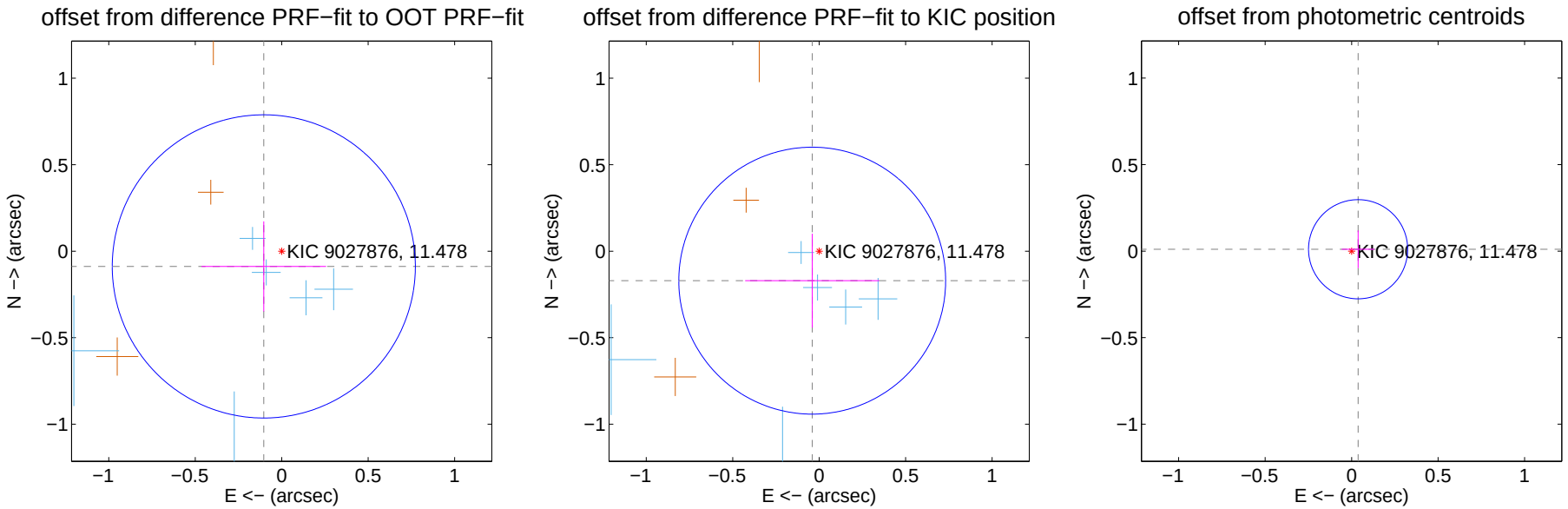
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

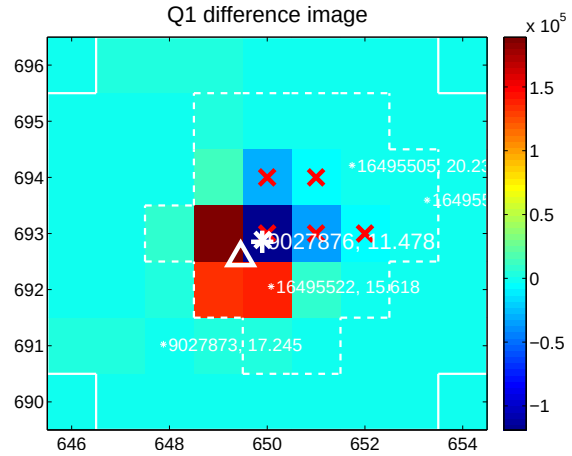
Supplemental centroid analysis for 009027876-07. Kepler magnitude: 11.48. Transit SNR 13.65
There are 9 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

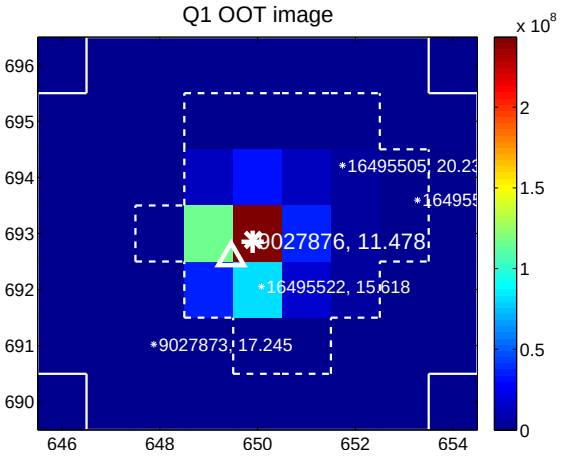
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.136 ± 0.292	0.47	0.104 ± 0.360	-0.088 ± 0.260
PRF-fit source offset from KIC position	0.175 ± 0.257	0.68	0.040 ± 0.388	-0.171 ± 0.271
photometric centroid source offset	0.04 ± 0.10	0.41	-0.04 ± 0.09	0.01 ± 0.11

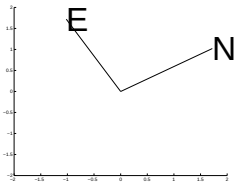


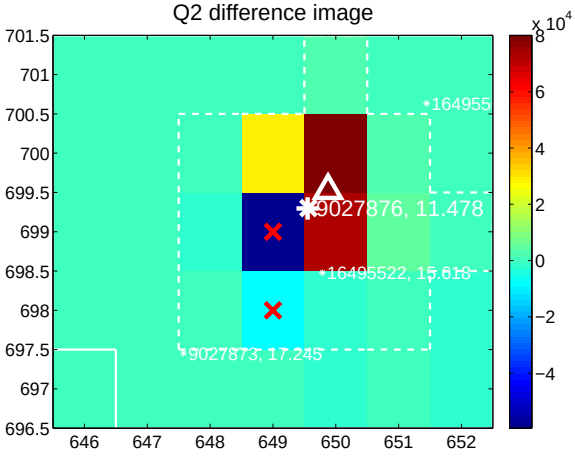
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

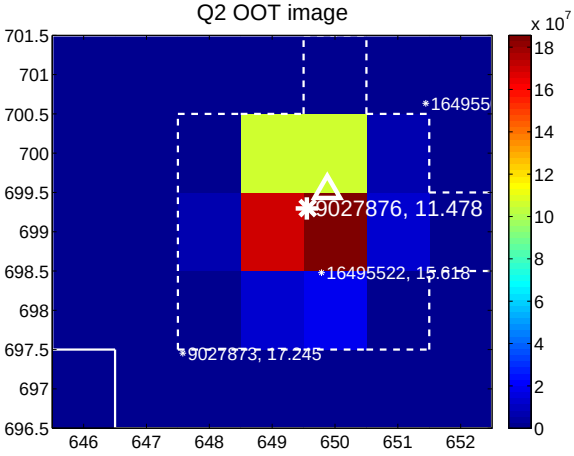
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

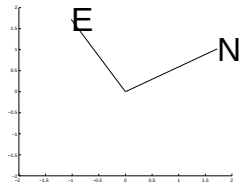


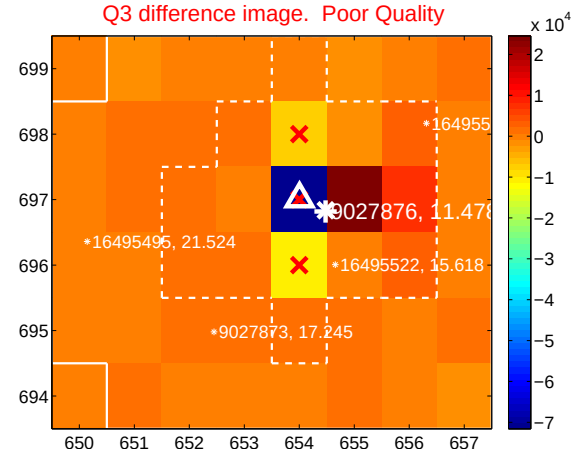


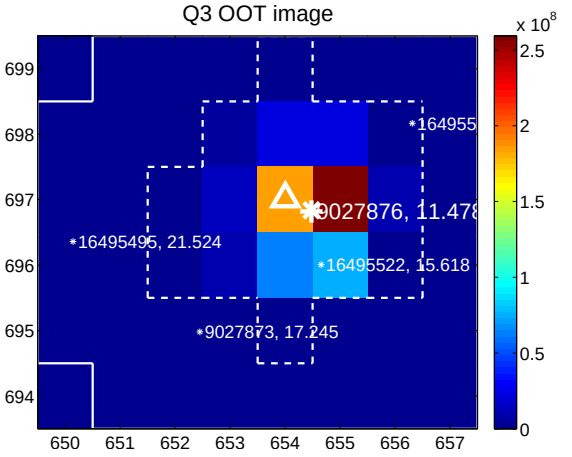


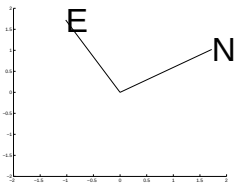


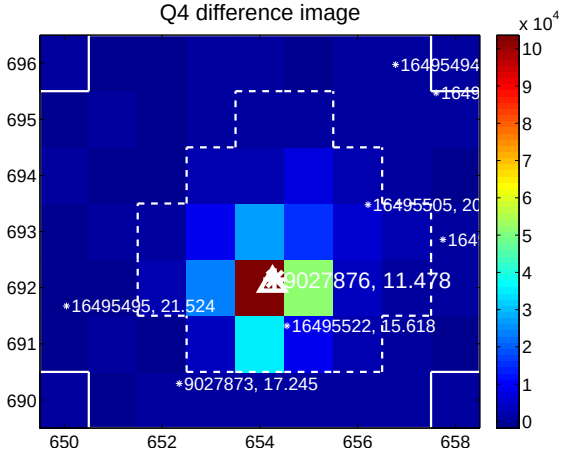


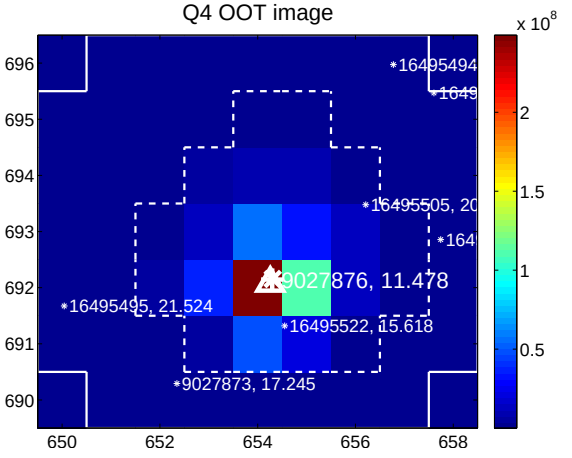


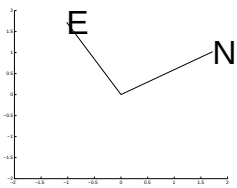




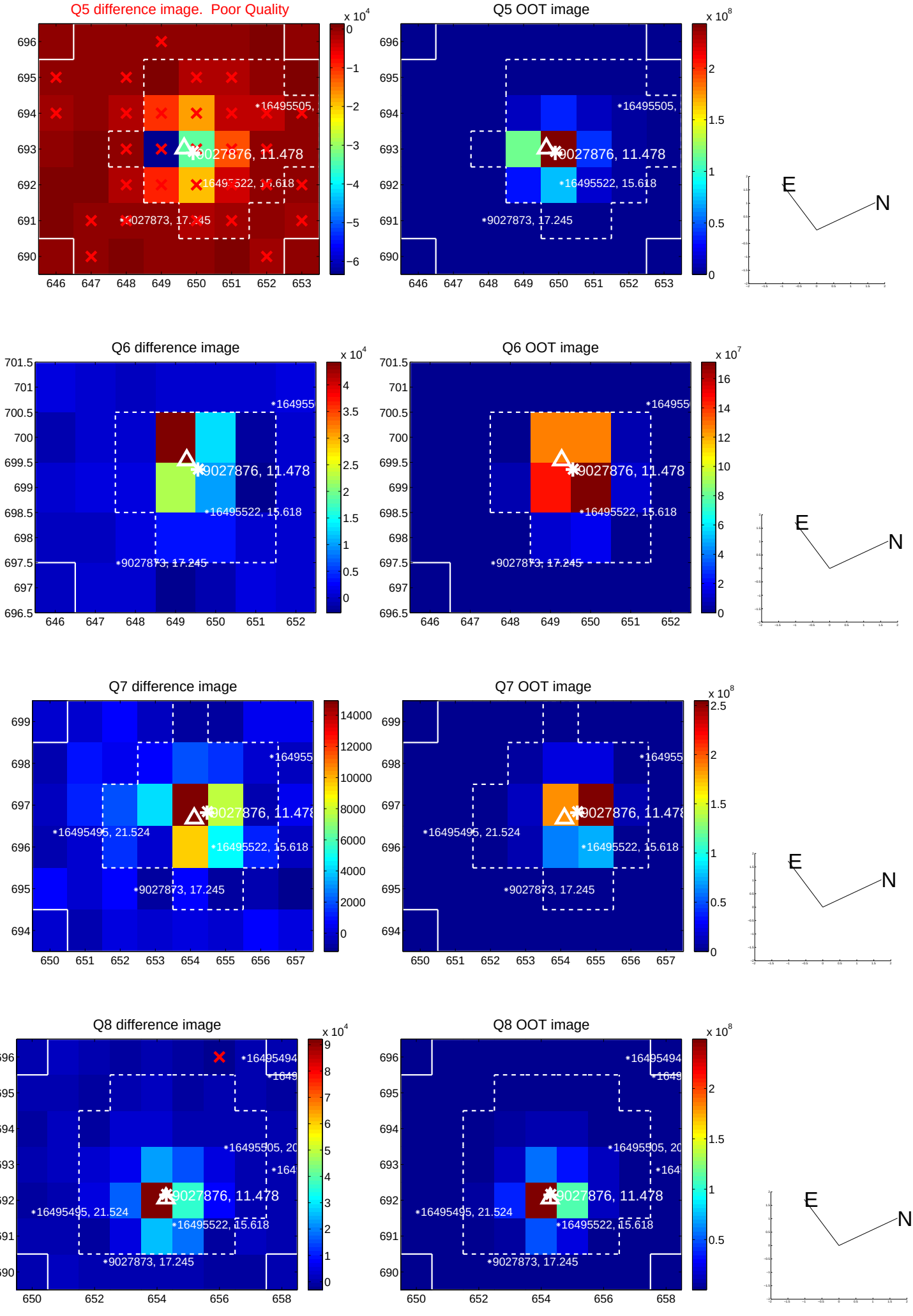




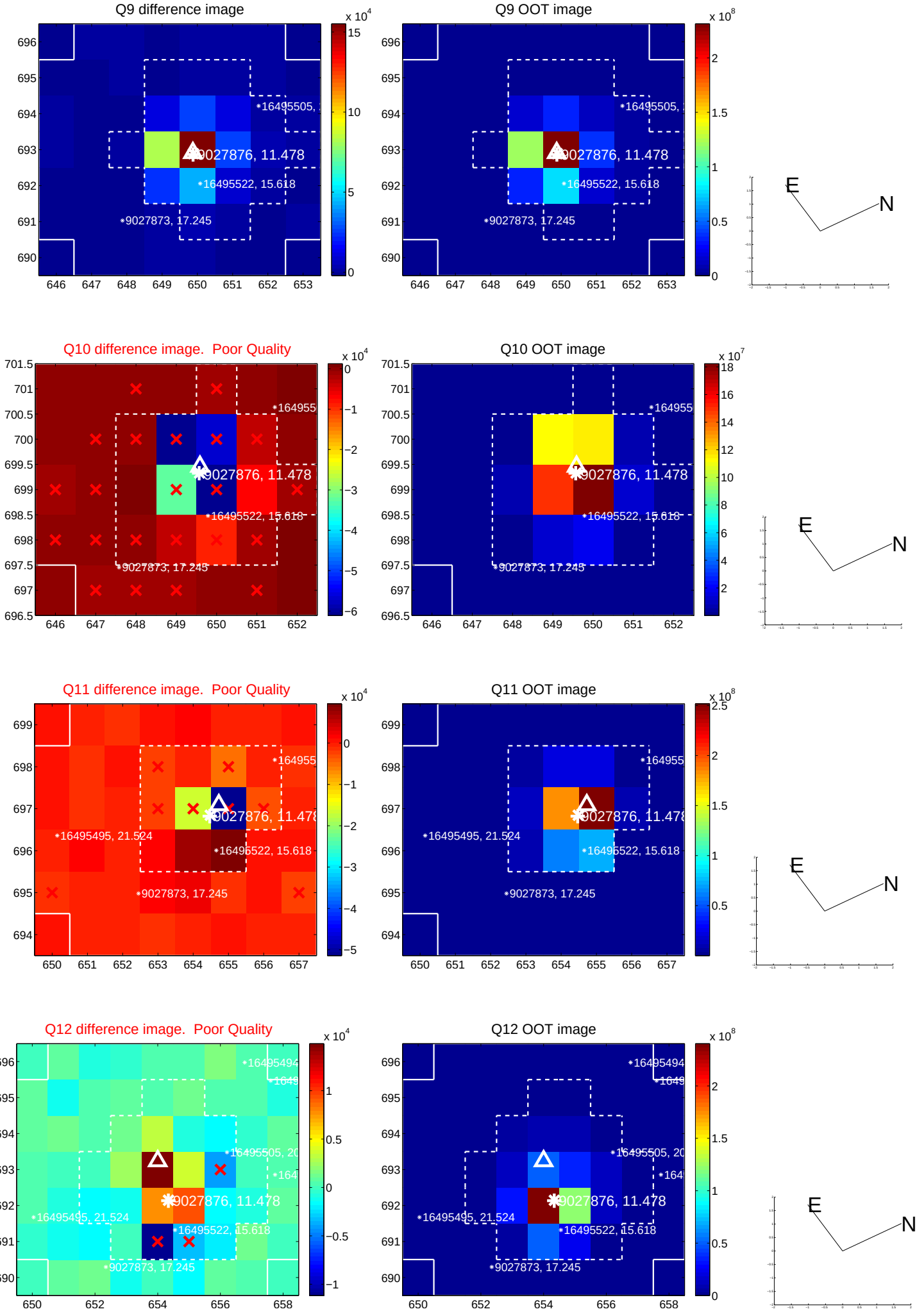




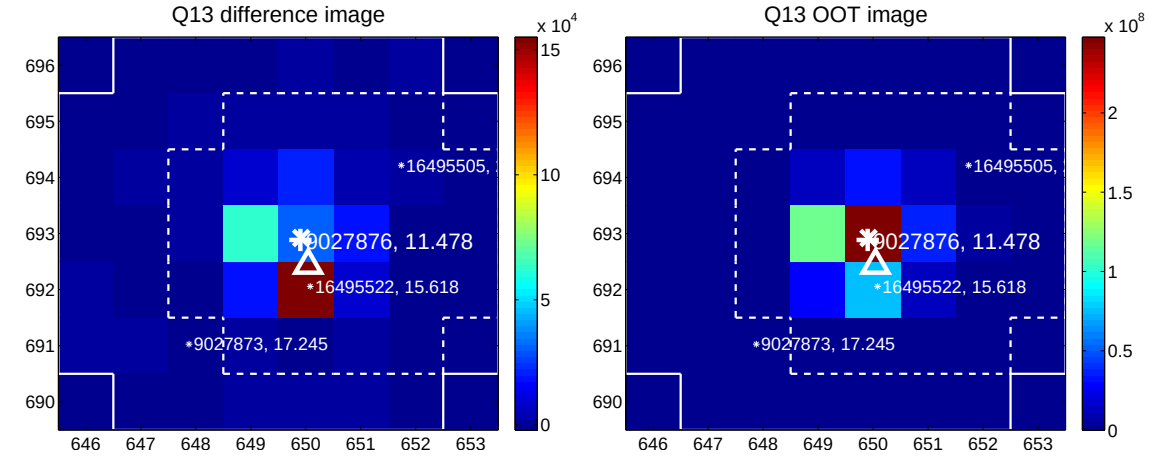
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

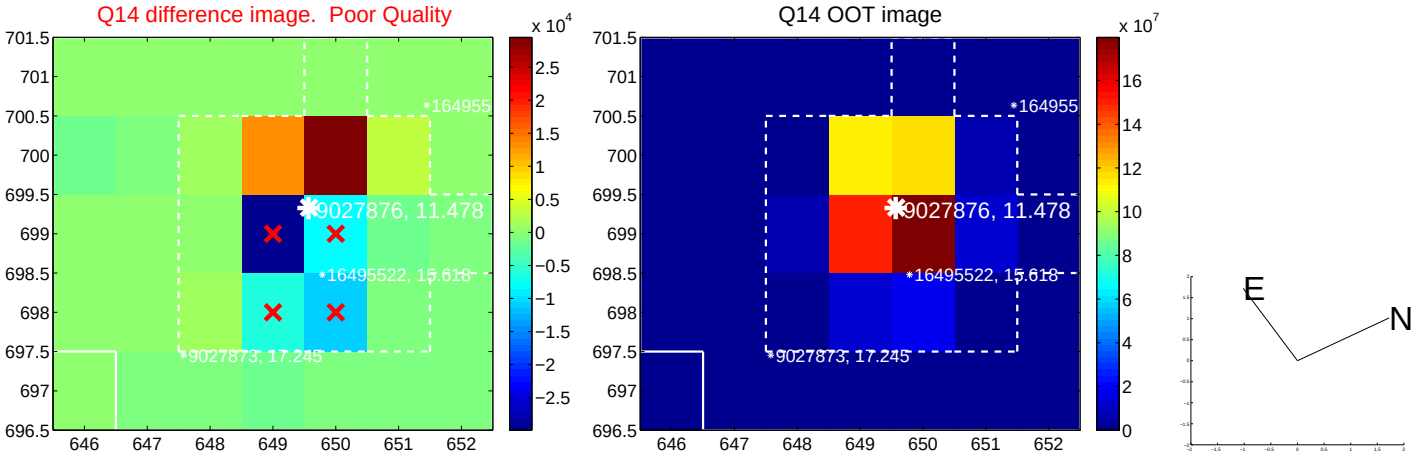


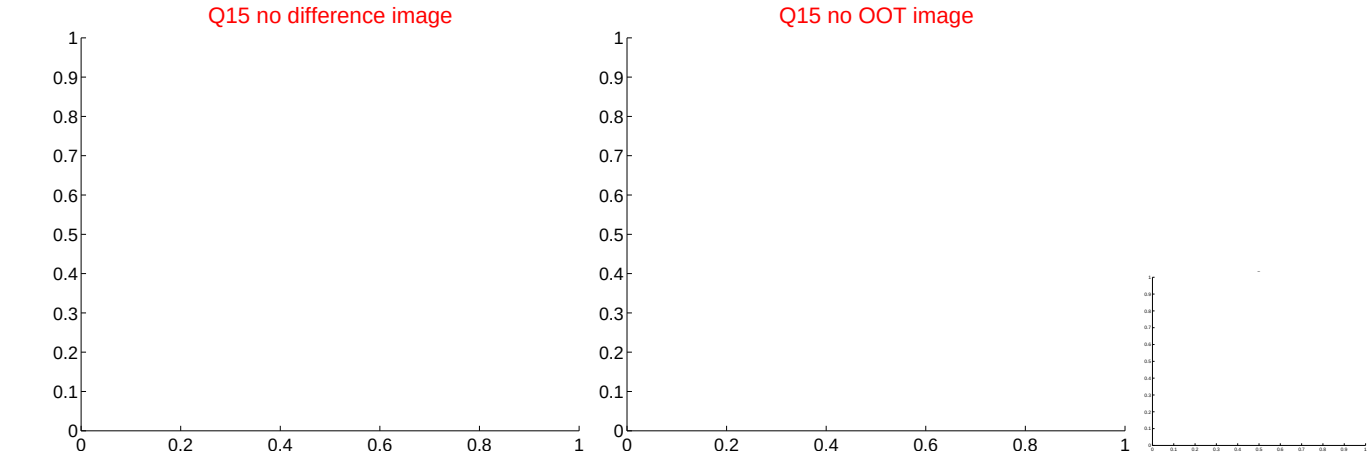
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

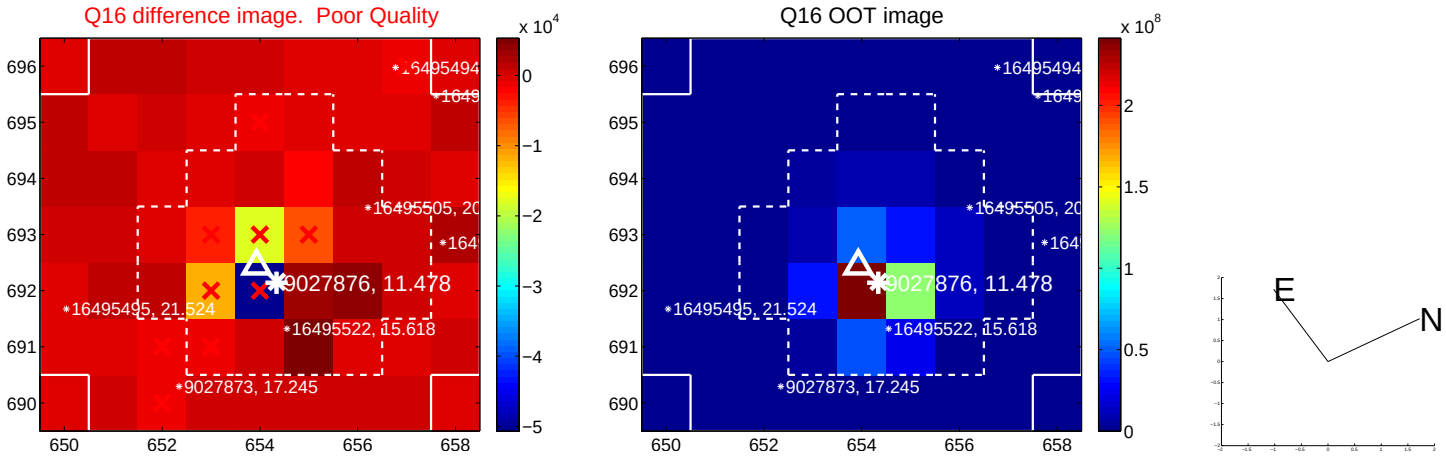


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

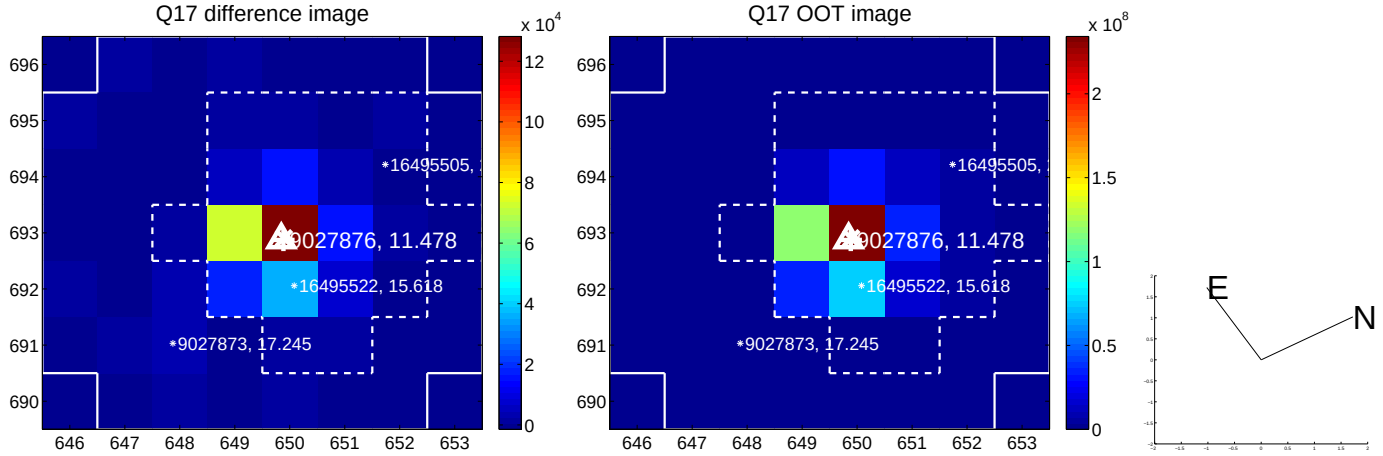


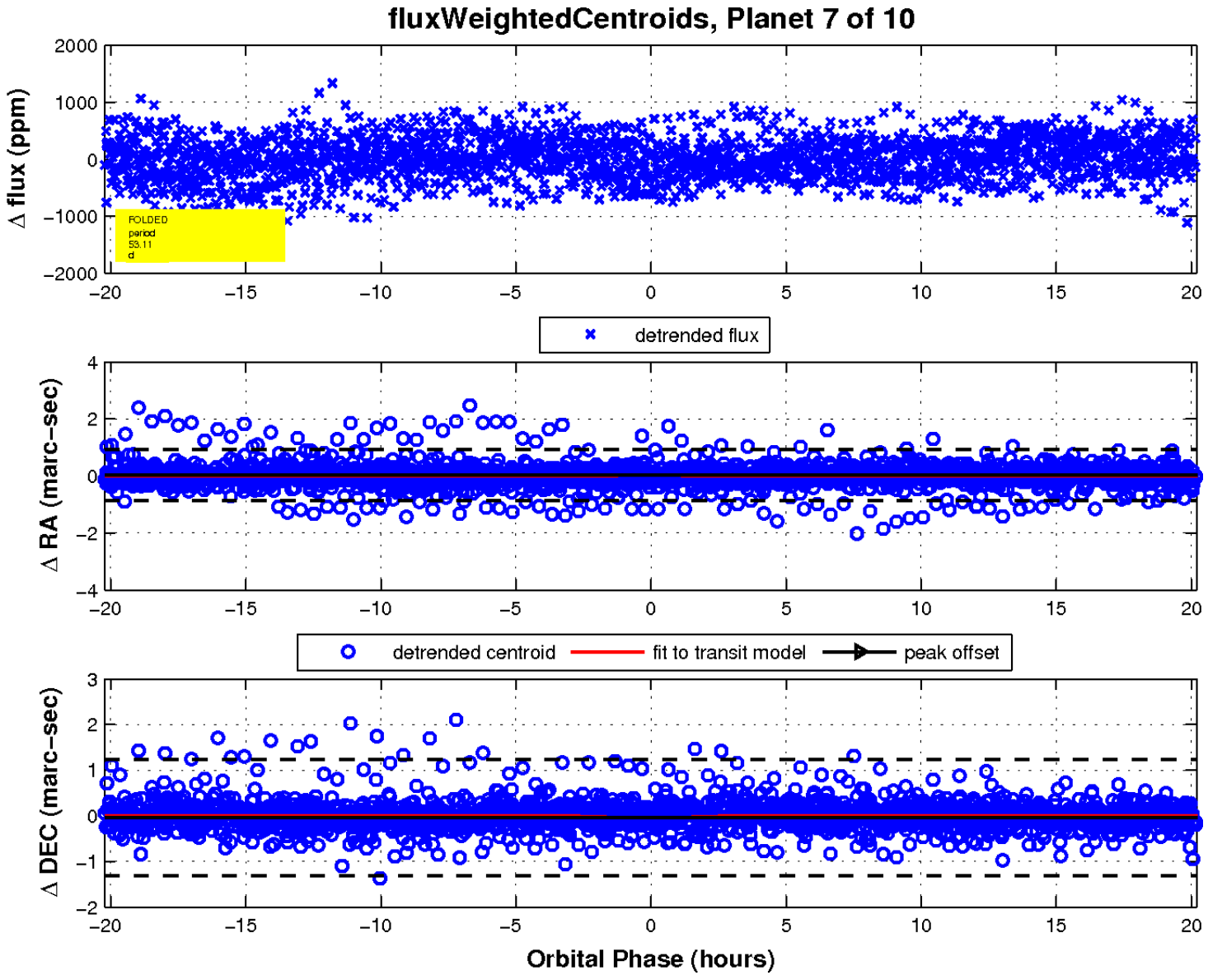




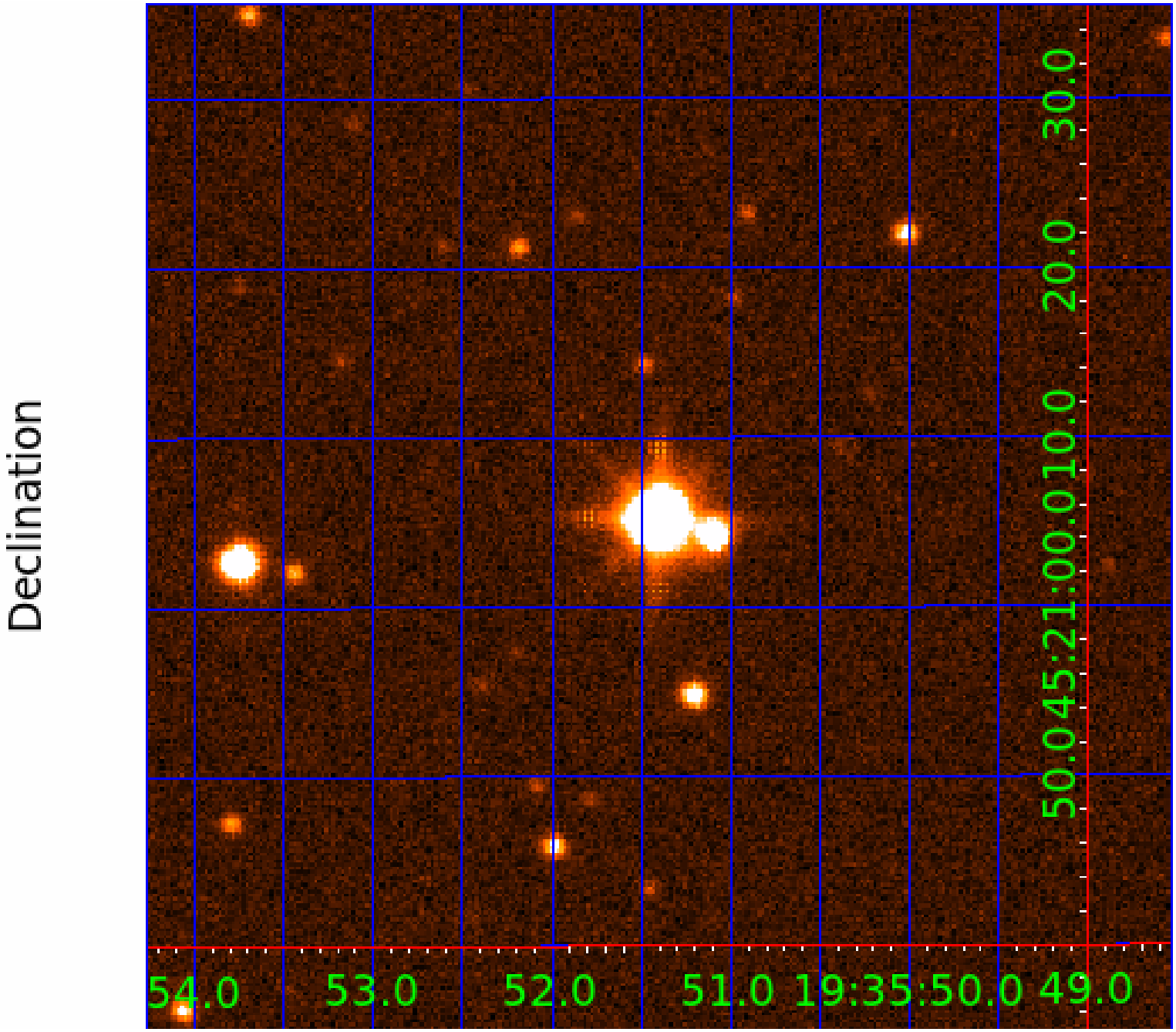


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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49.0

KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

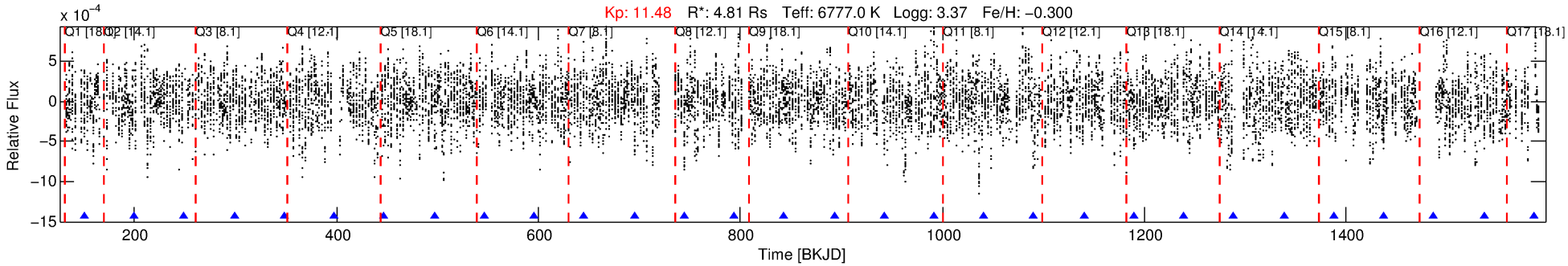
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

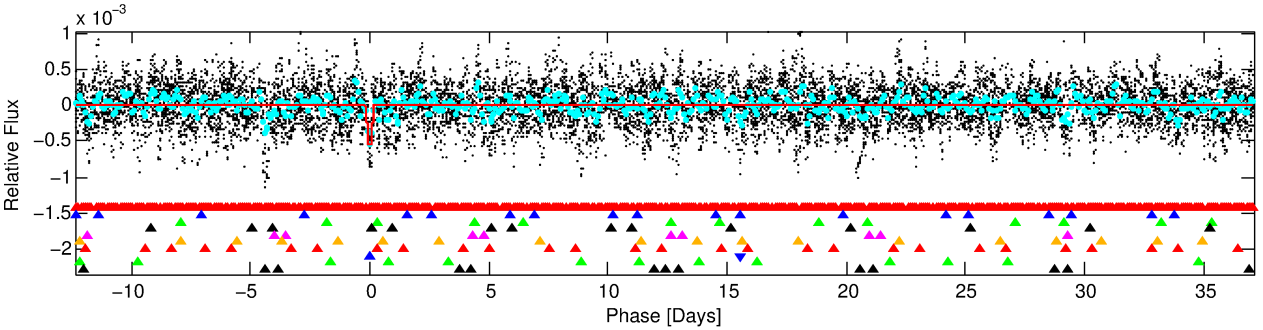
Ephemeris Match Information For 009027876-08

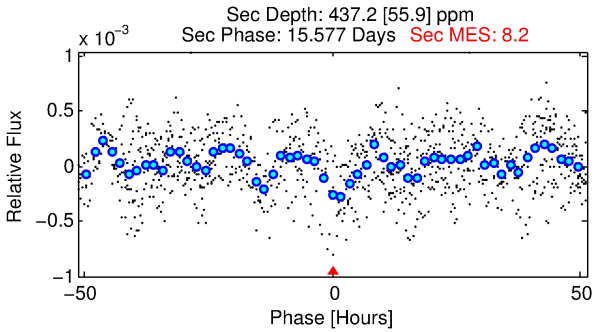
No Significant Match Found

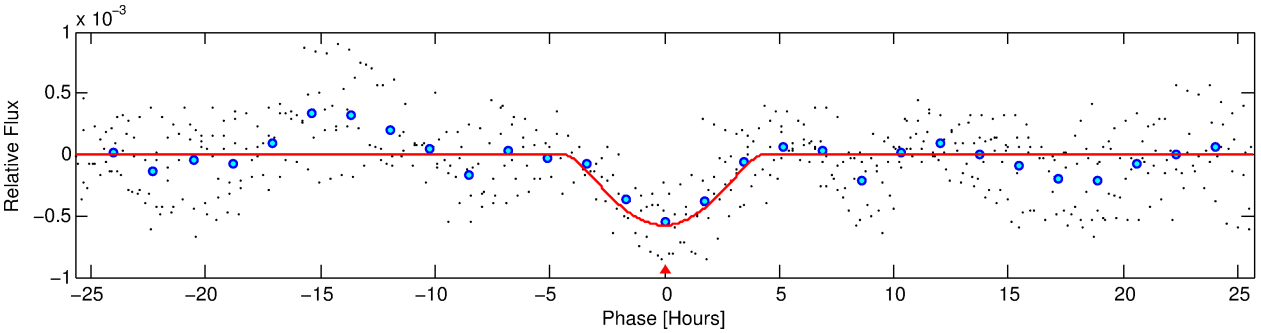
DV One-Page Summary

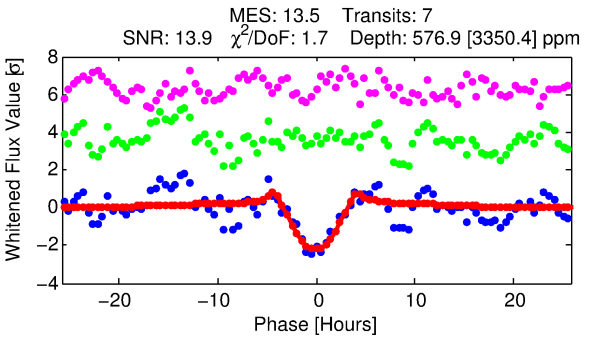
KIC: 9027876 Candidate: 8 of 10 Period: 49.494 d

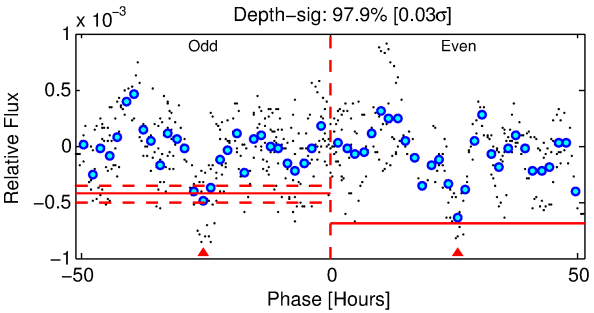


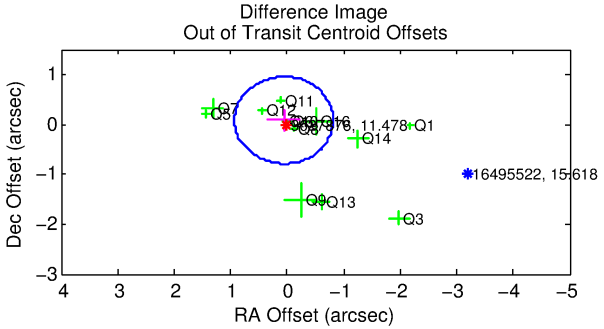












DV Fit Results:

Period = 49.49437 [0.00097] d
Epoch = 150.3648 [0.0120] BKJD
Rp/R* = 0.0419 [0.0806]
a/R* = 12.94 [6.25]
b = 1.00 [0.28]

Seff = 398.25 [274.78]
Teq = 1139 [196] K
Rp = 21.96 [43.25] Re
a = 0.3311 [0.1382] AU

Ag = 54.66 [213.74] [0.25σ]
Teffp = 4789 [4612] K [0.79σ]

DV Diagnostic Results:

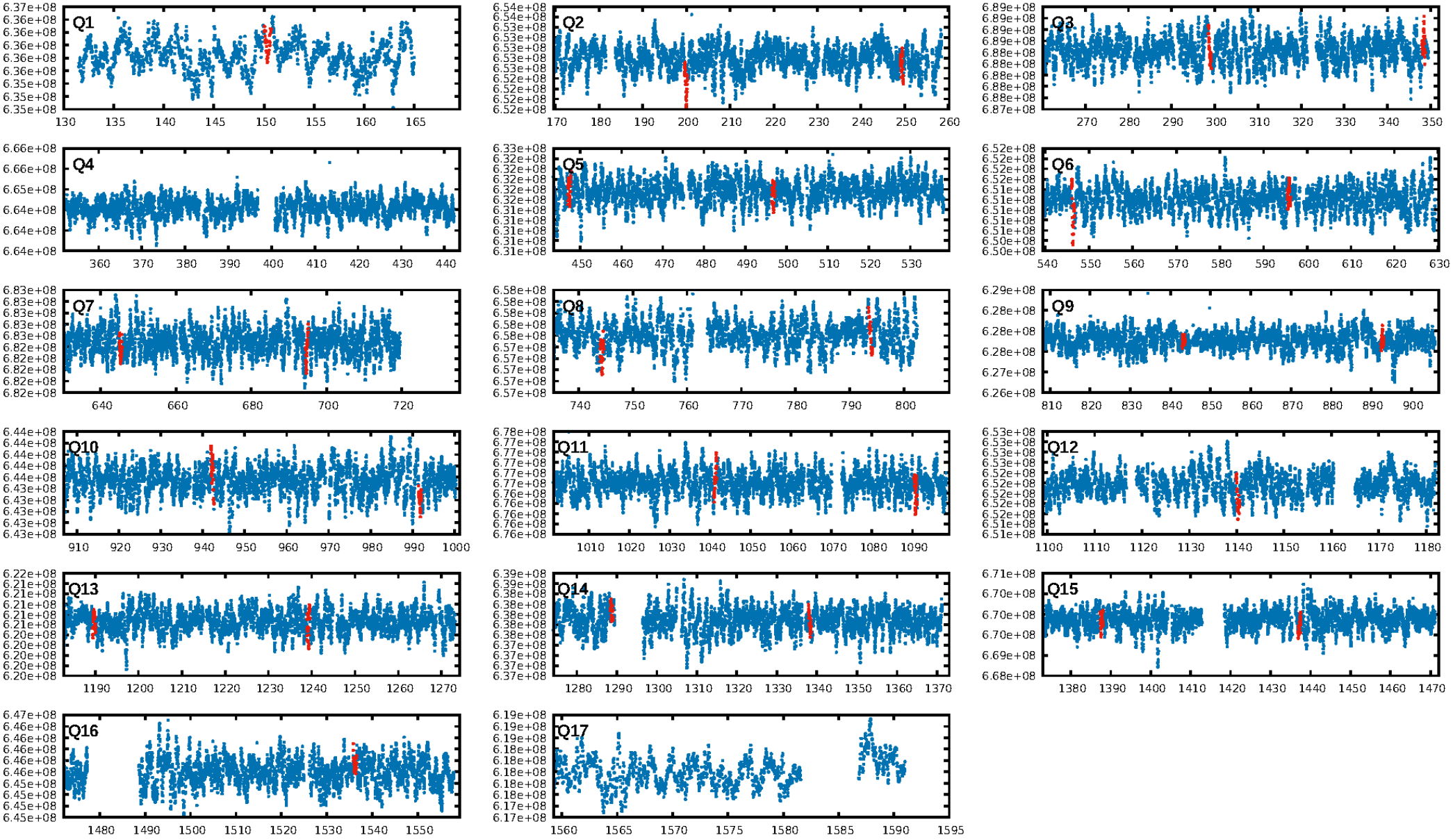
ShortPeriod−sig: 100.0% [57.63σ]
LongPeriod−sig: 100.0% [7.95σ]
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 98.8%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [6/6]
GhostDiagnostic−chr: 132.4

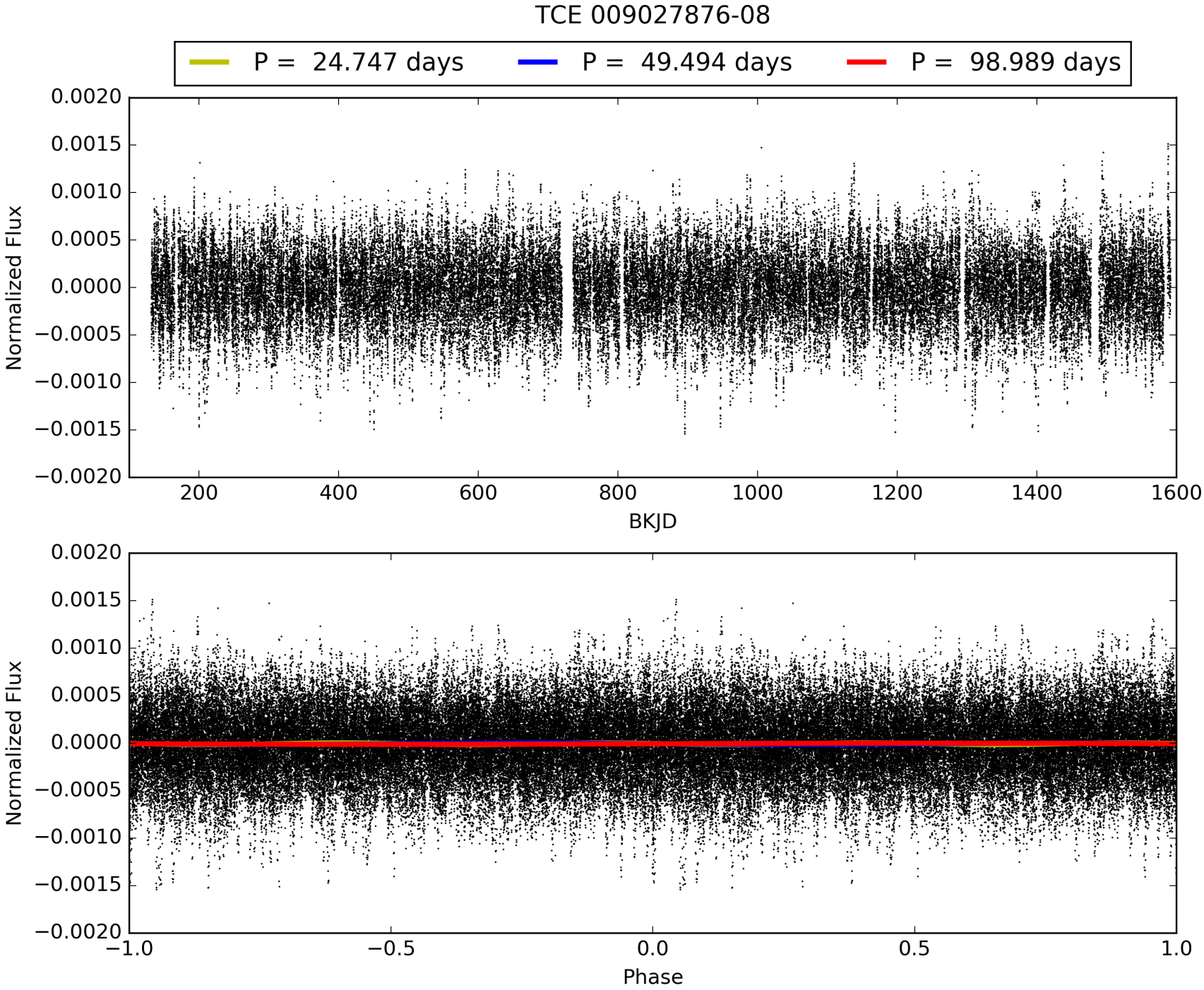
Centroid−sig: 4.9%
Centroid−so: 0.104 arcsec [1.24σ]
OotOffset−rm: 0.100 arcsec [0.34σ]
KicOffset−rm: 0.036 arcsec [0.12σ]
OotOffset−st: 3/3/3/4 [13]
KicOffset−st: 3/3/3/4 [13]
DiffImageQuality−fgm: 0.85 [11/13]
DiffImageOverlap−fno: 0.43 [6/14]

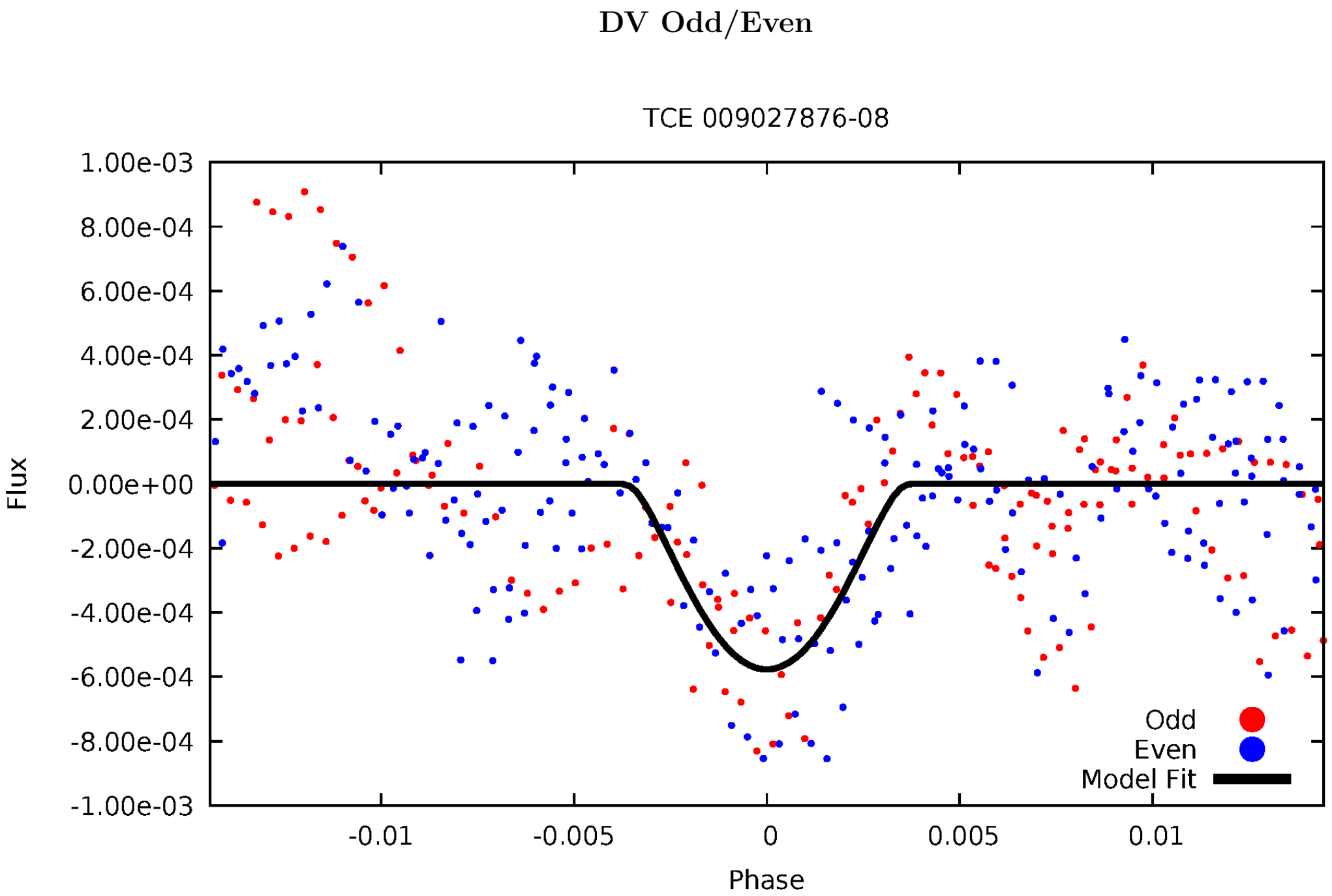
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:25 Z

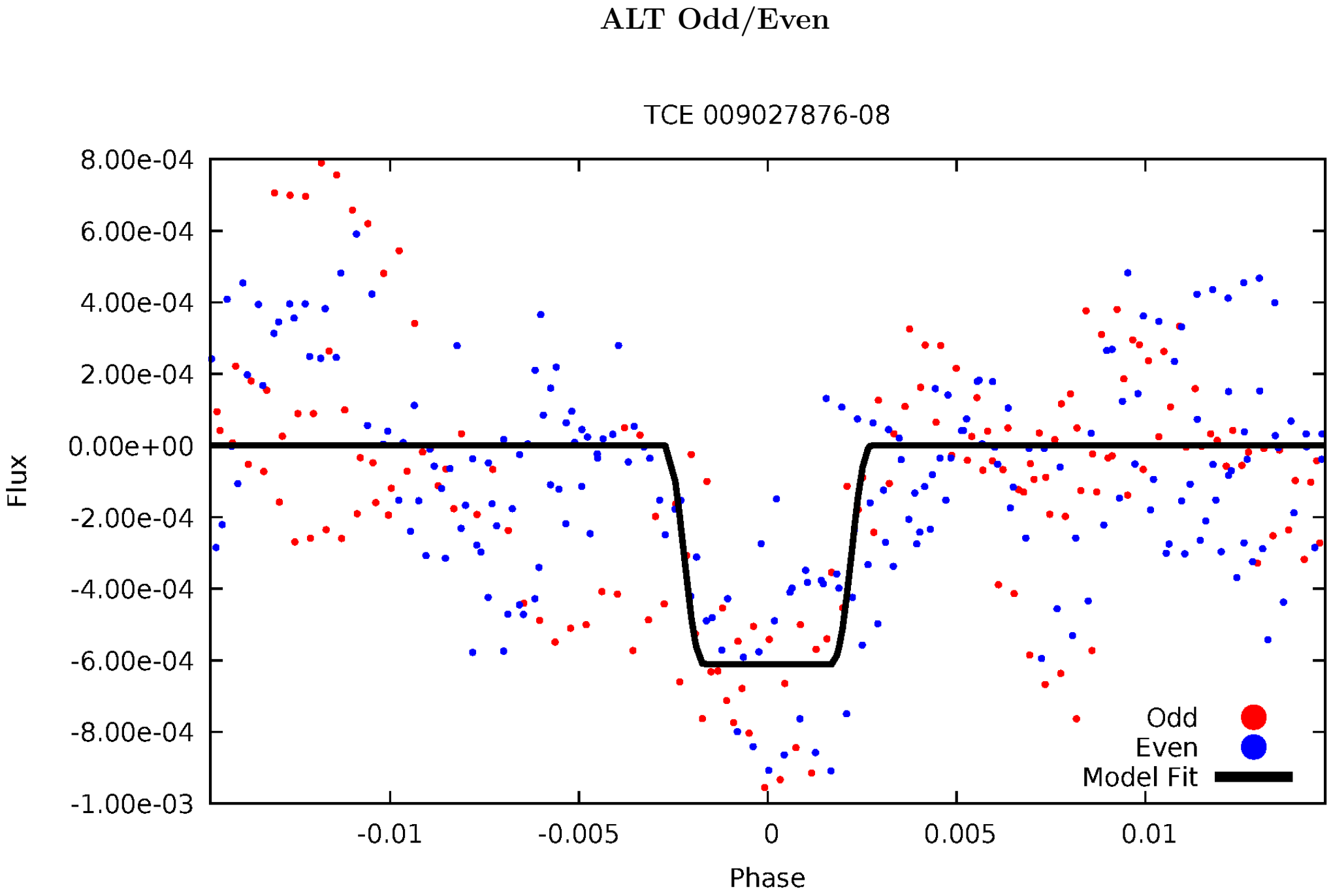
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009027876-08, PDC Light Curves

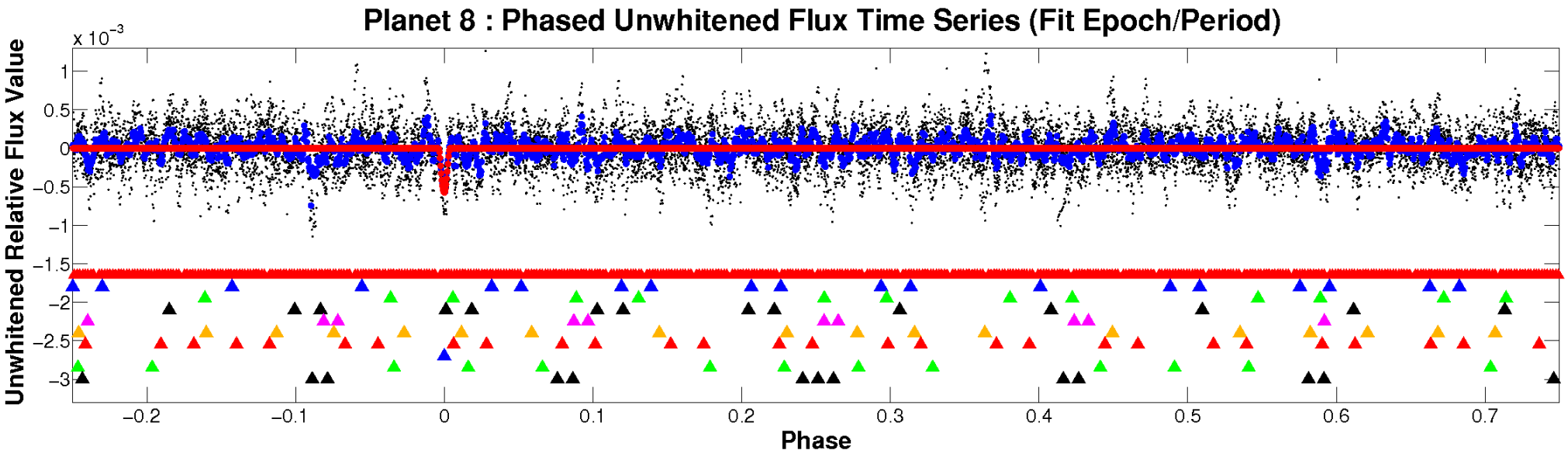


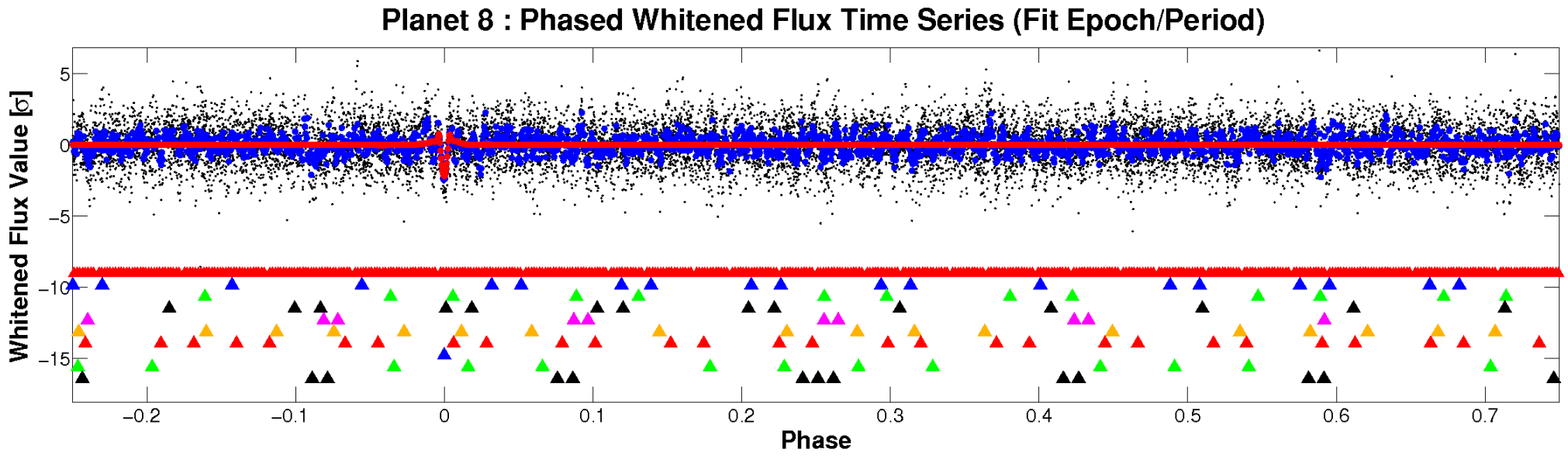

TCE 009027876-08
P = 24.747 days
P = 49.494 days
P = 98.989 days
Normalized Flux
0.0020
0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
−0.0020
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase


DV Odd/Even
TCE 009027876-08
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009027876-08
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
Flux
-0.01
-0.005
0
0.005
0.01
Phase
Odd
Even
Model Fit

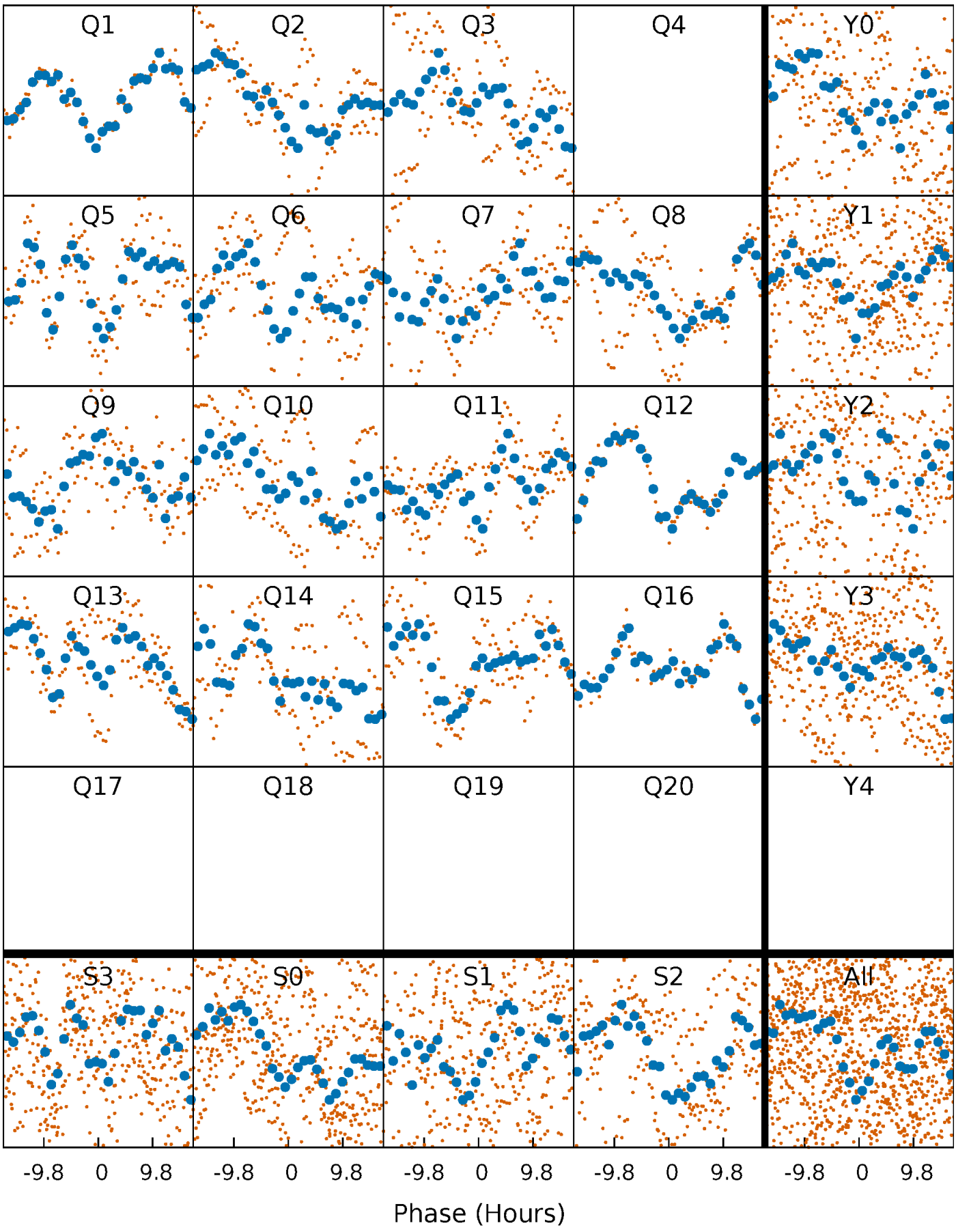
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009027876-08 P= 49.494373 Days T_0=150.364786 (BKJD)



DV Quarter-Phased Transit Curves

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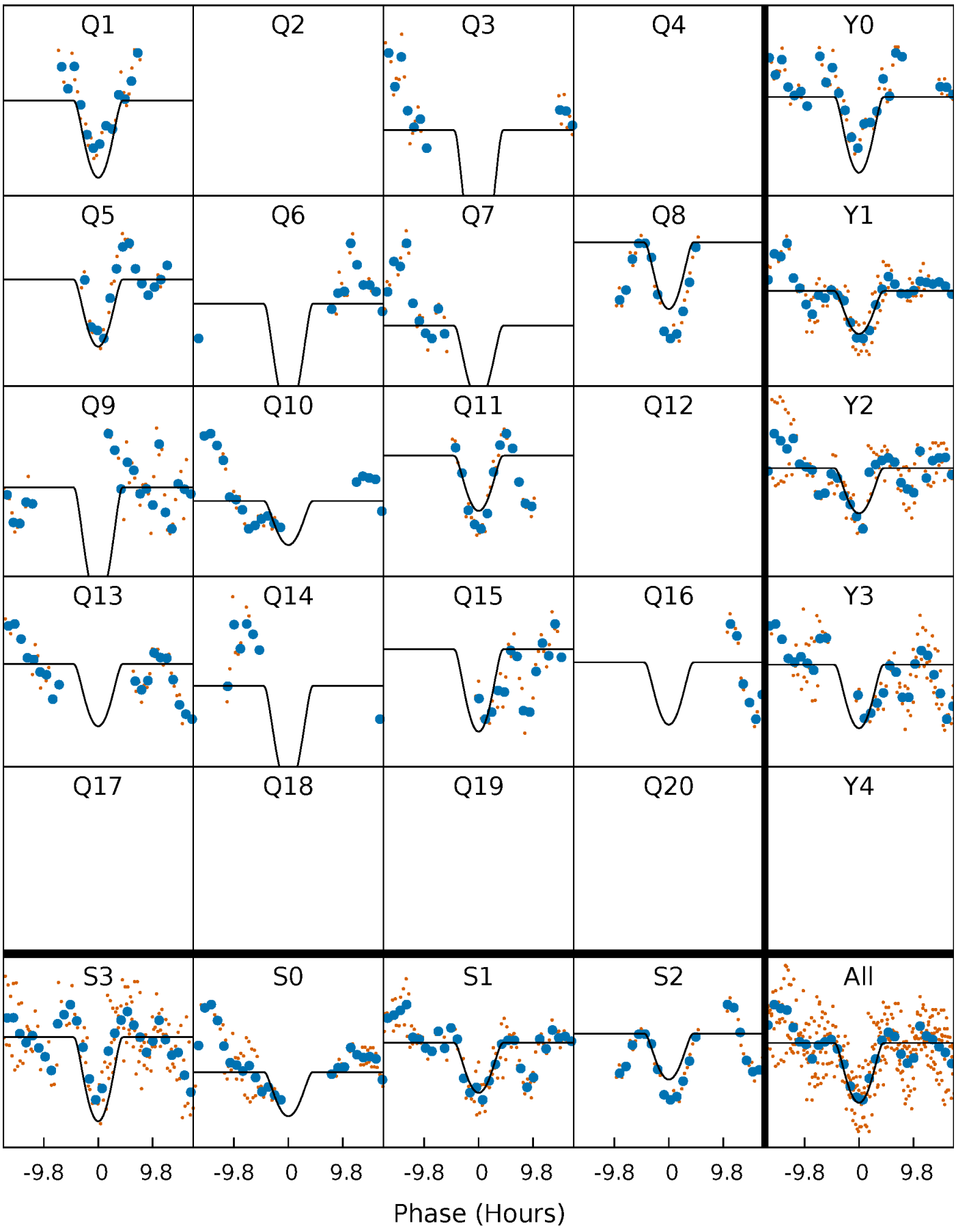
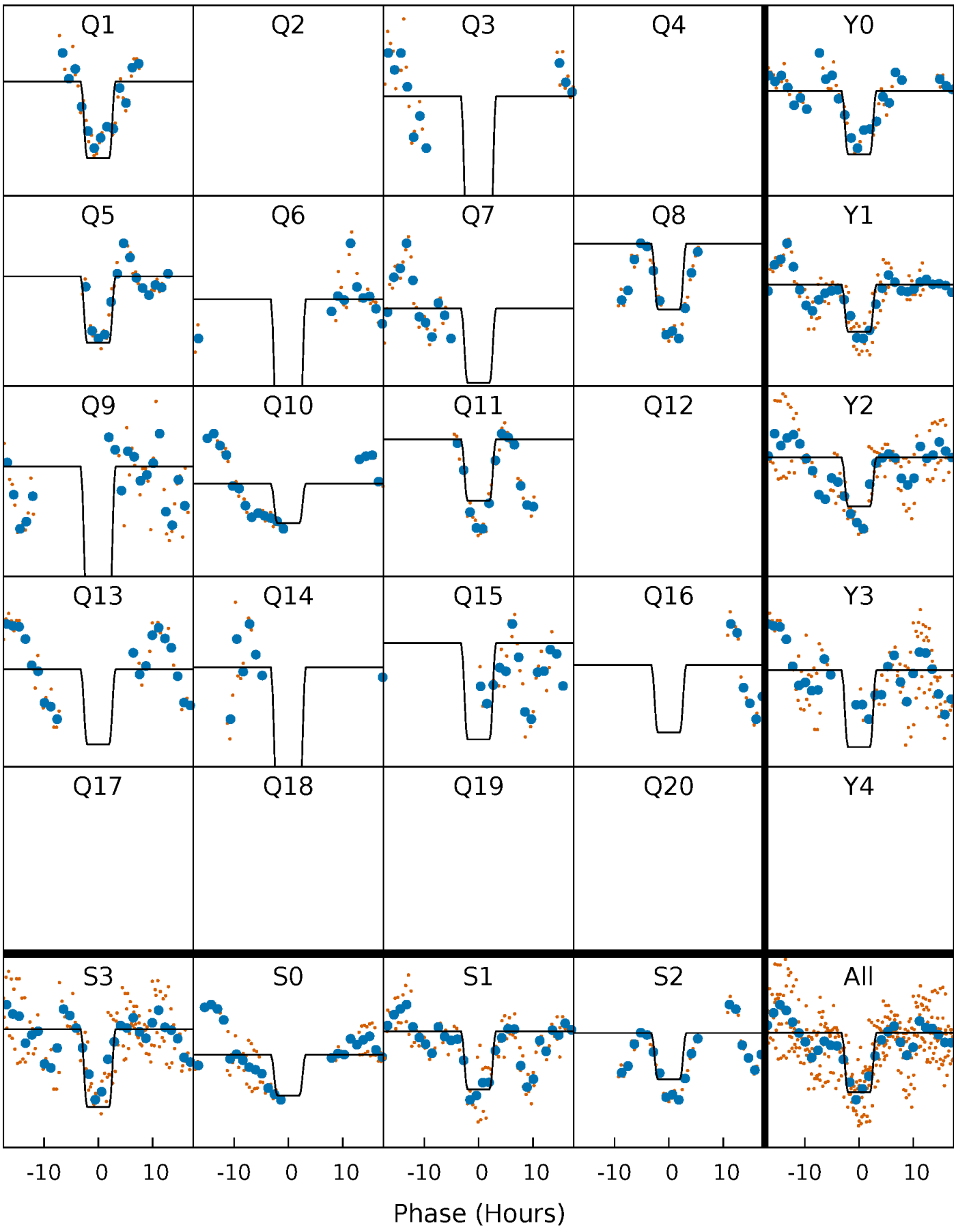


Alt. Detrend Quarter-Phased Transit Curves

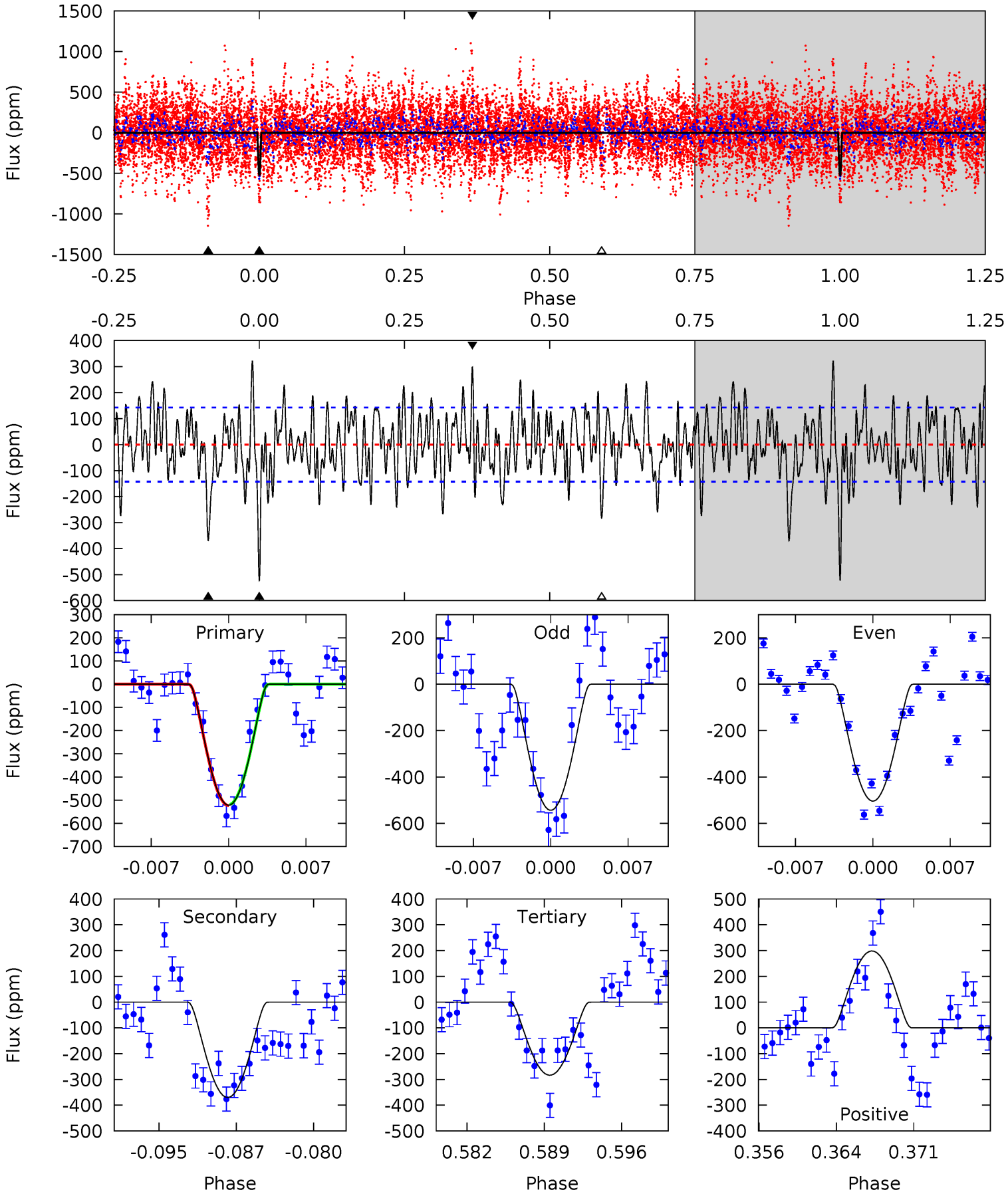
TCE 009027876-08 P= 49.493946 Days T_0=150.364206 (BKJD)



DV Model-Shift Uniqueness Test

009027876-08, P = 49.494373 Days, E = 100.870413 Days

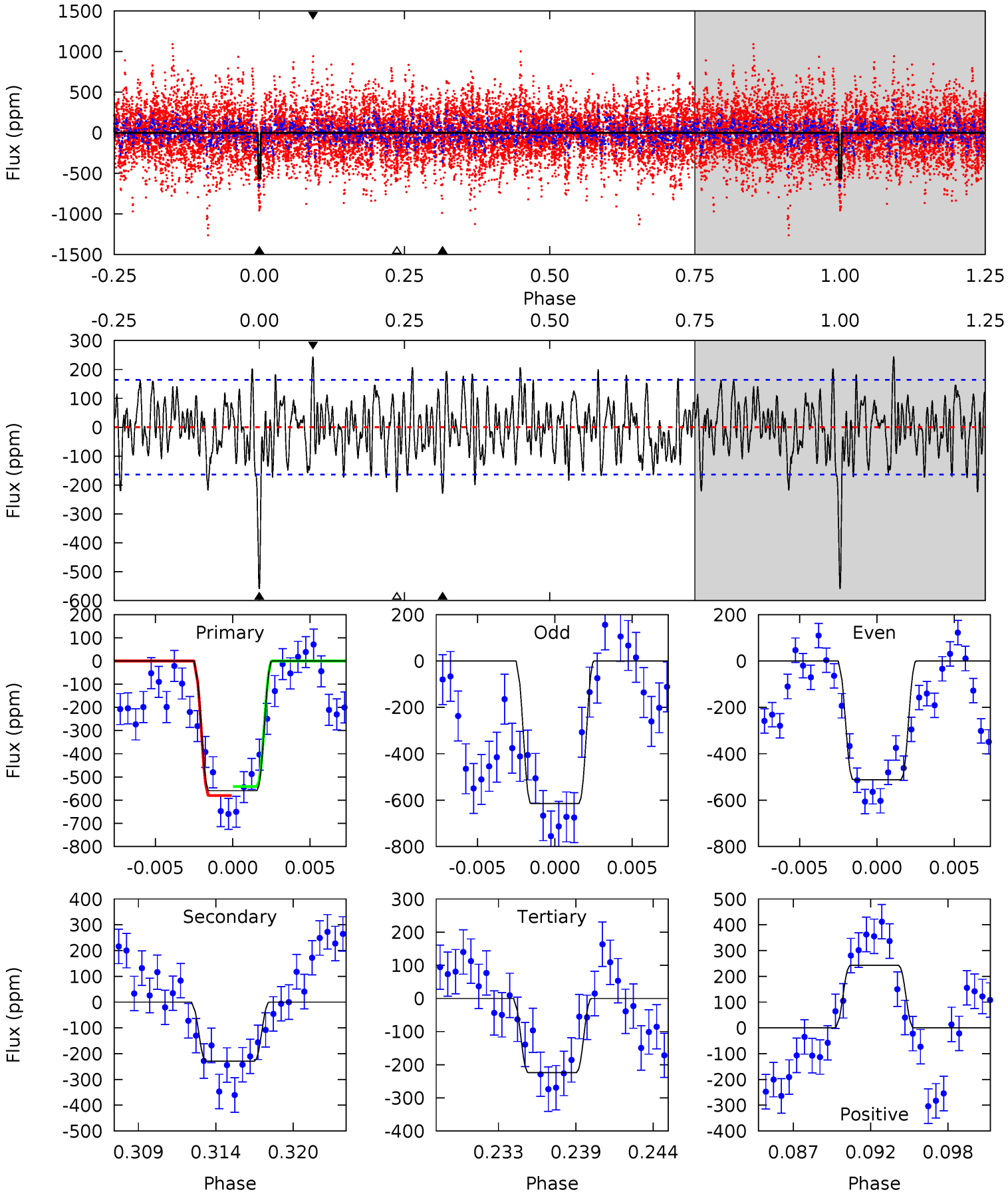
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	13.2	10.1	10.7	5.09	2.68	3.62	8.51	7.98	3.08	2.55	0.70	0.88	0.38	0.08



Alt Model-Shift Uniqueness Test

009027876-08, P = 49.493946 Days, E = 100.870260 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	7.21	7.03	7.62	5.14	2.78	2.50	10.5	9.94	0.18	-0.41	1.64	1.05	0.30	0.61



Stellar Parameters For KIC 009027876

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-08 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-370±28	$33.40^{+35.09}_{-23.68}$	1542^{+85}_{-163}	3886^{+2450}_{-798}	20^{+216}_{-15}
Alt.	-230±32	$30.73^{+28.96}_{-21.15}$	1542^{+81}_{-169}	3650^{+2054}_{-668}	14^{+121}_{-10}

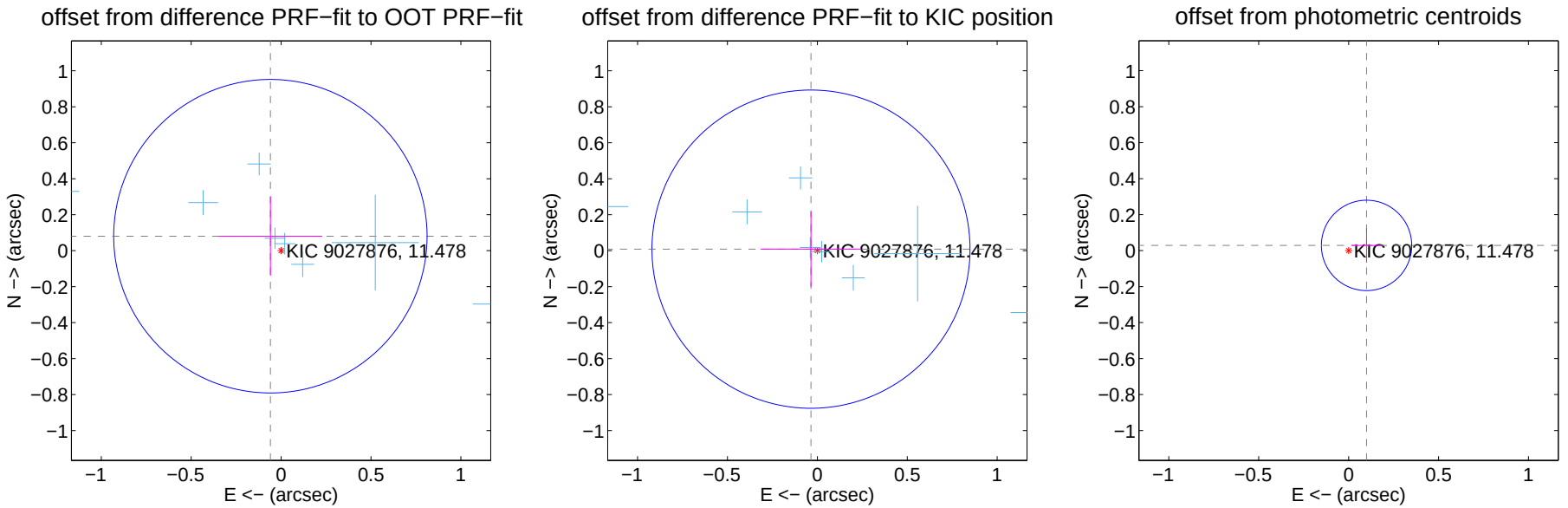
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

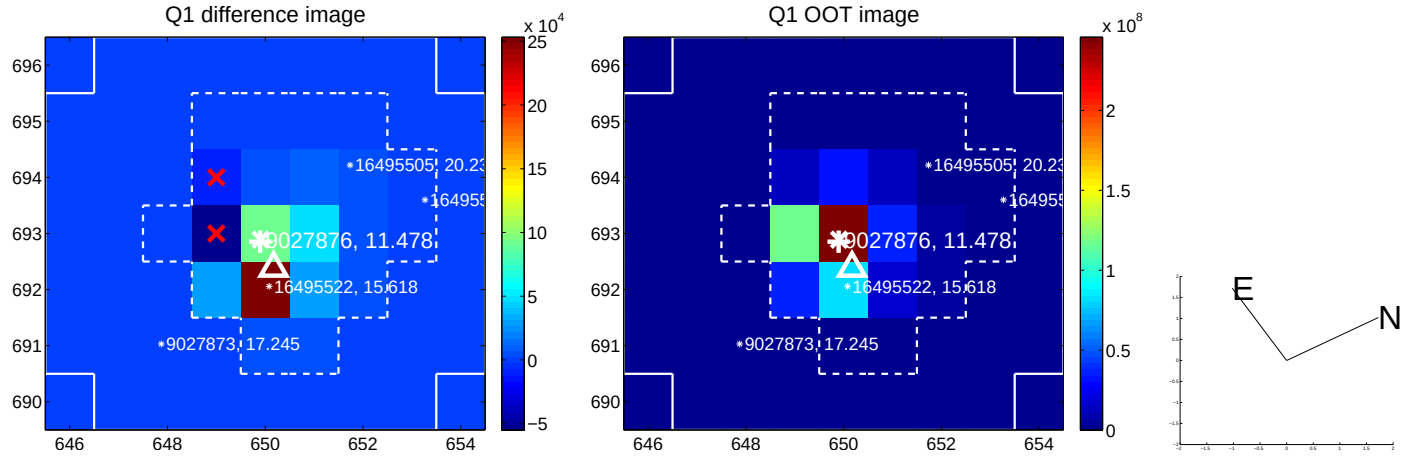
Supplemental centroid analysis for 009027876-08. Kepler magnitude: 11.48. Transit SNR 13.87
There are 11 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

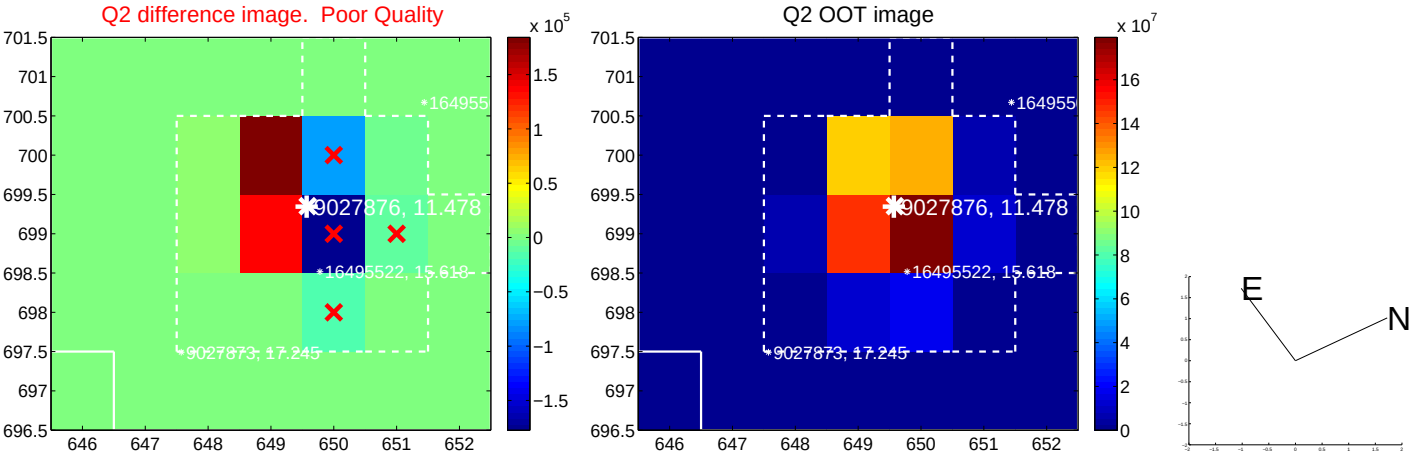
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.100 ± 0.291	0.34	0.060 ± 0.288	0.080 ± 0.219
PRF-fit source offset from KIC position	0.036 ± 0.295	0.12	0.035 ± 0.281	0.008 ± 0.208
photometric centroid source offset	0.10 ± 0.08	1.24	-0.10 ± 0.08	0.03 ± 0.10

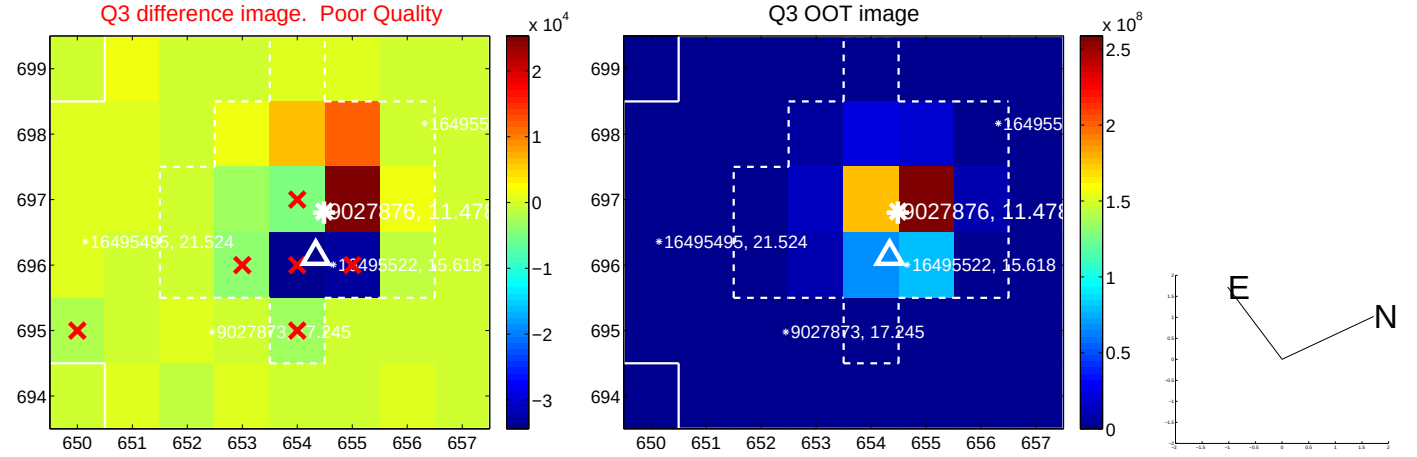


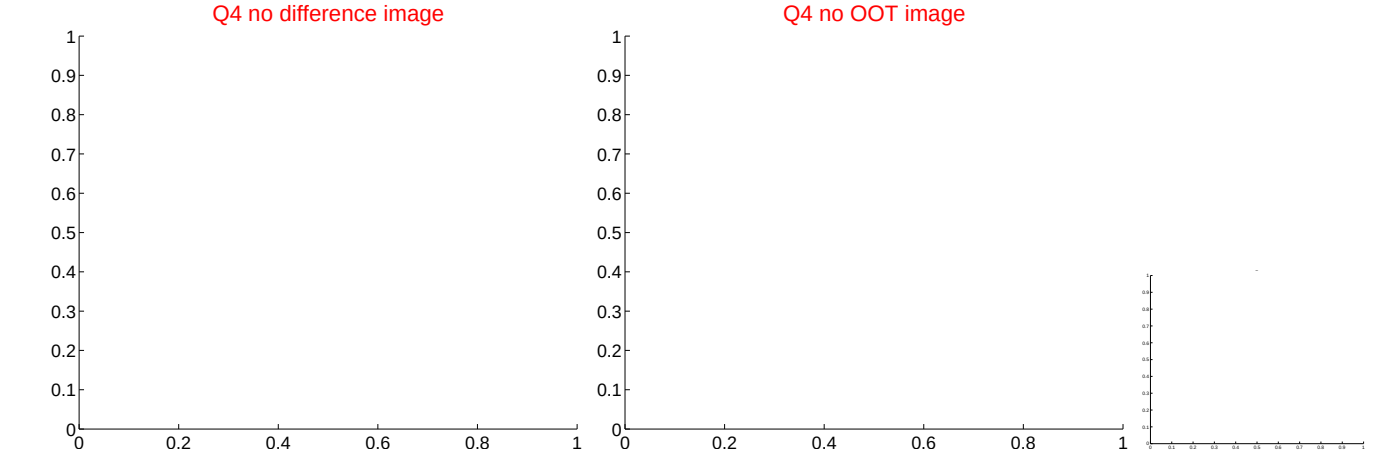
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

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

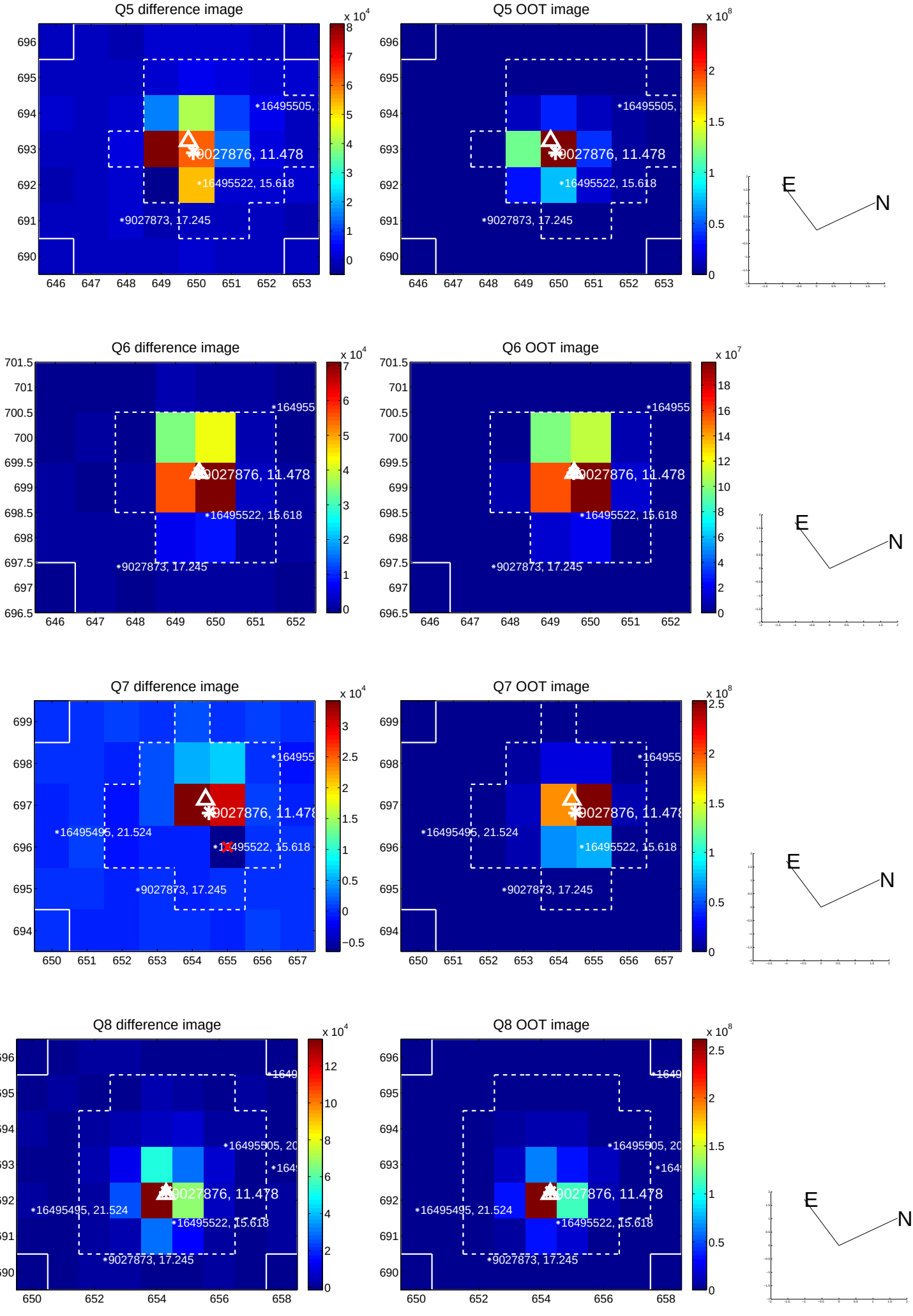




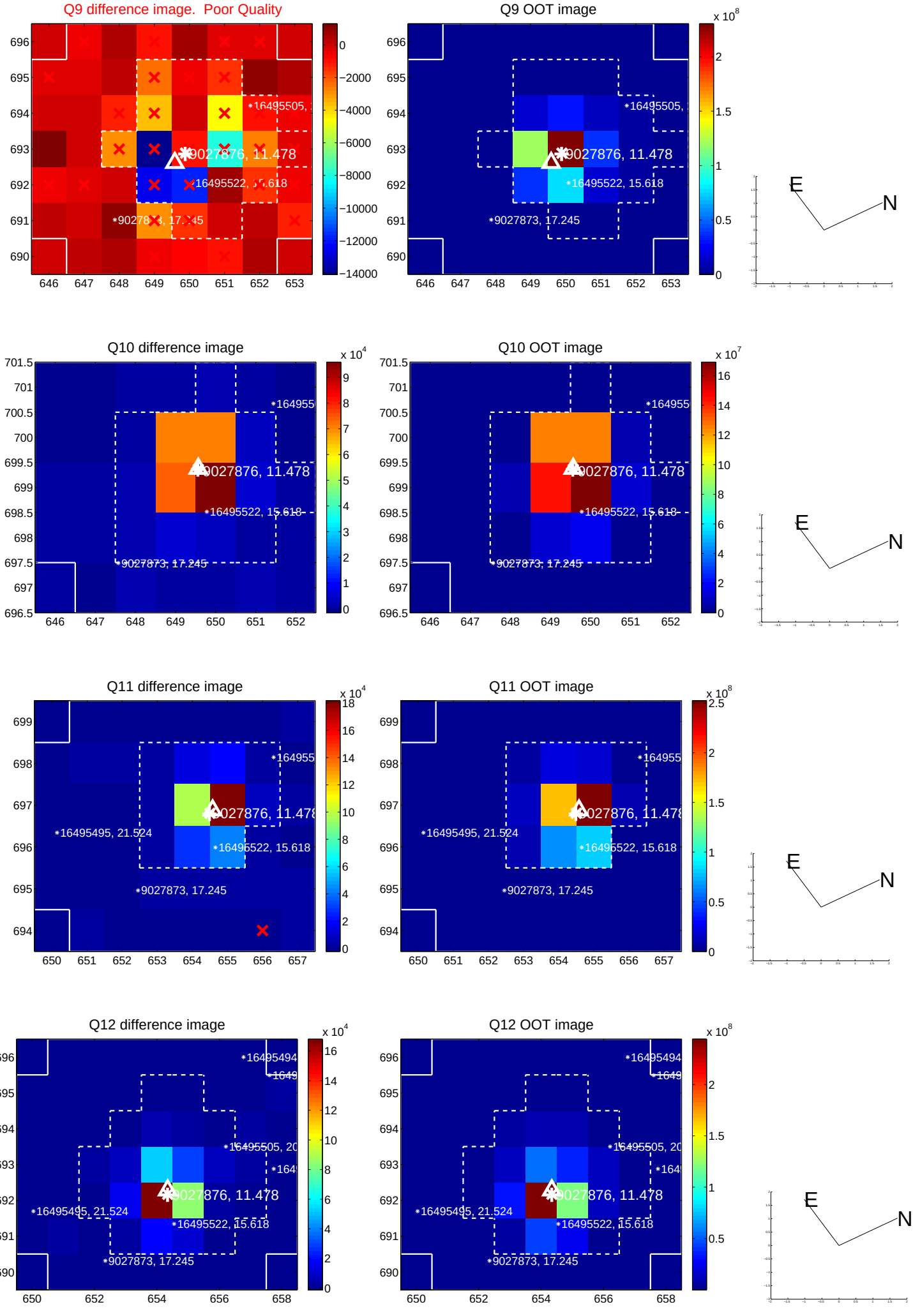




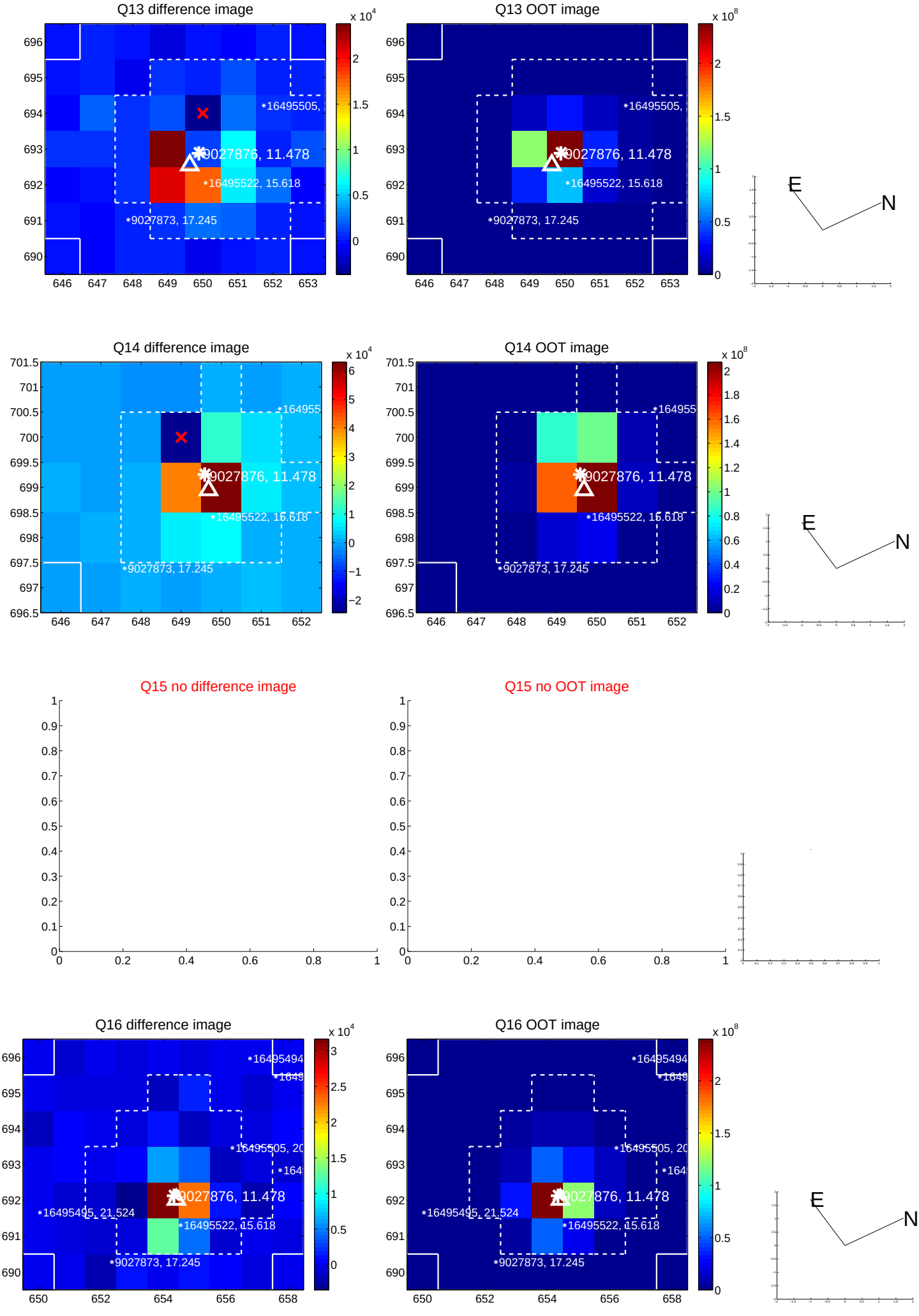
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



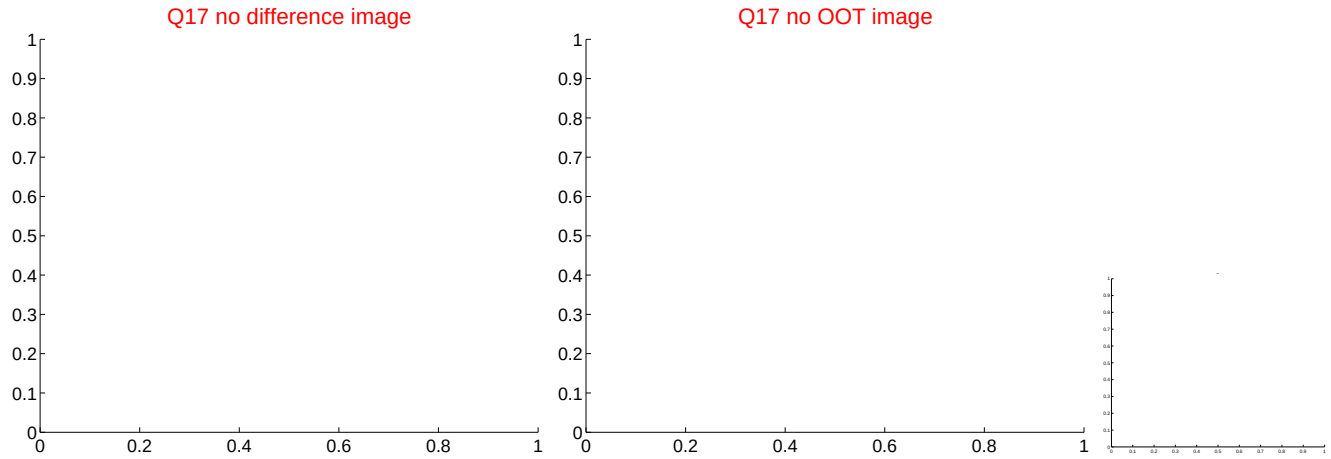
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

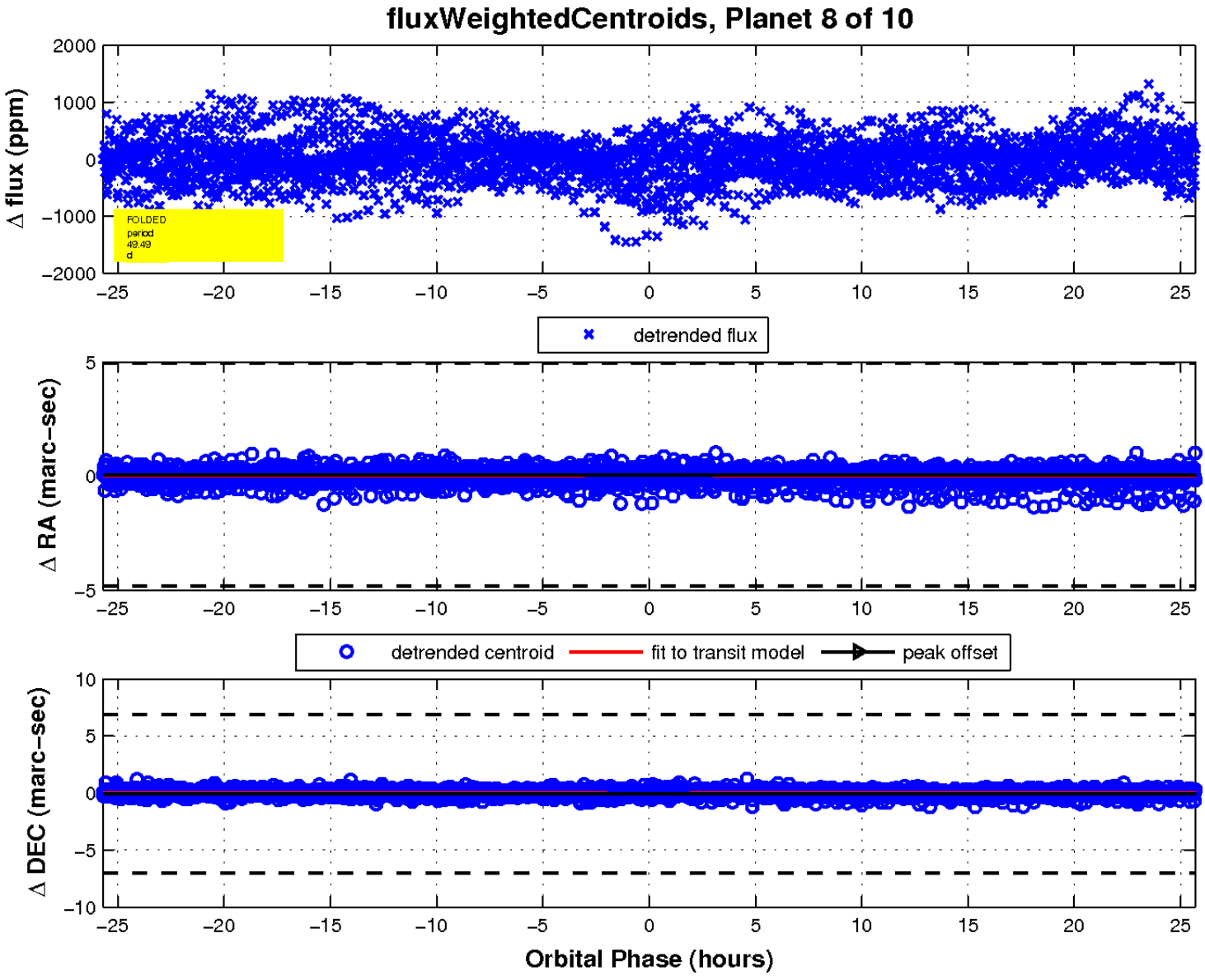


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

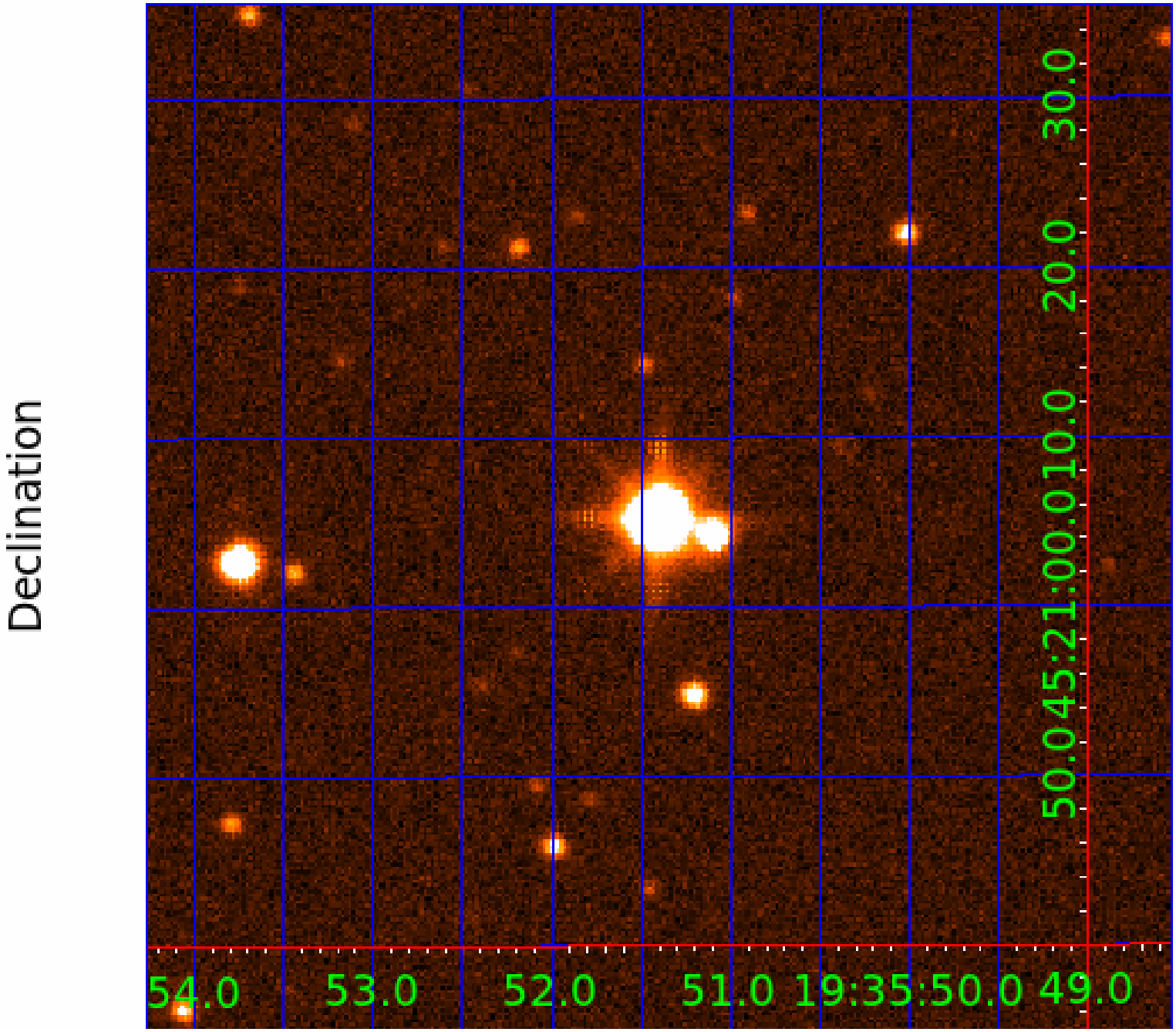


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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10.0
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50.0
45:
54.0
53.0
52.0
51.0
19:35:50.0
49.0

KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

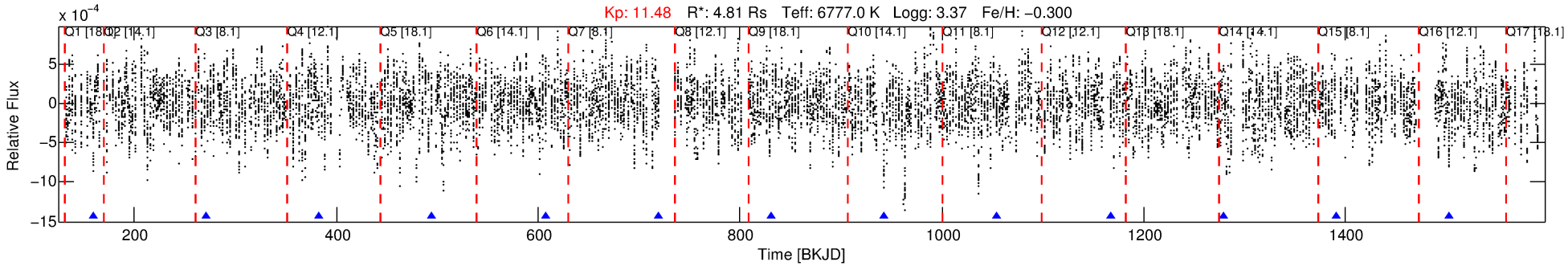
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

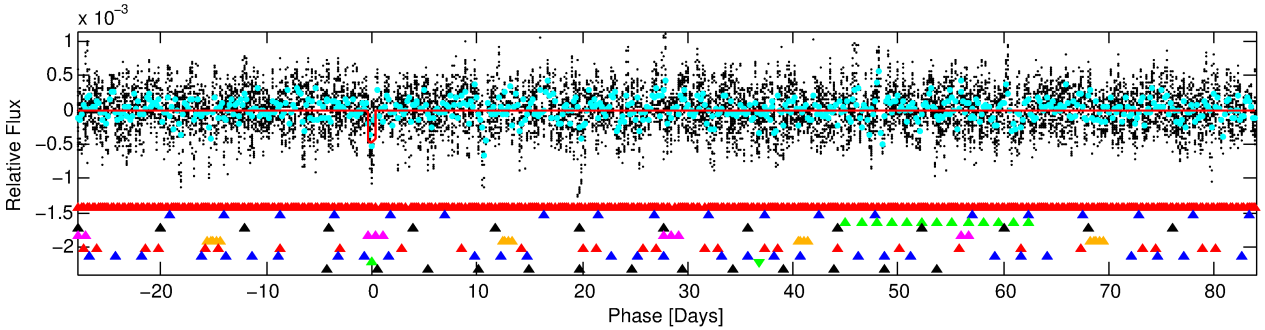
Ephemeris Match Information For 009027876-09

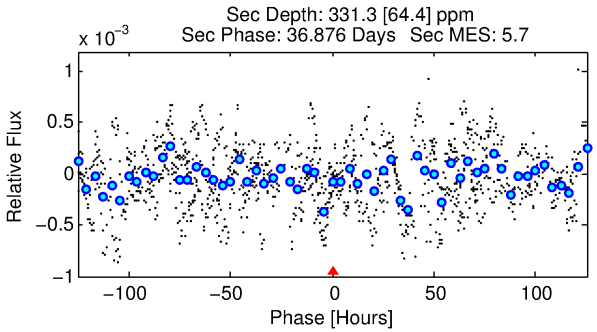
No Significant Match Found

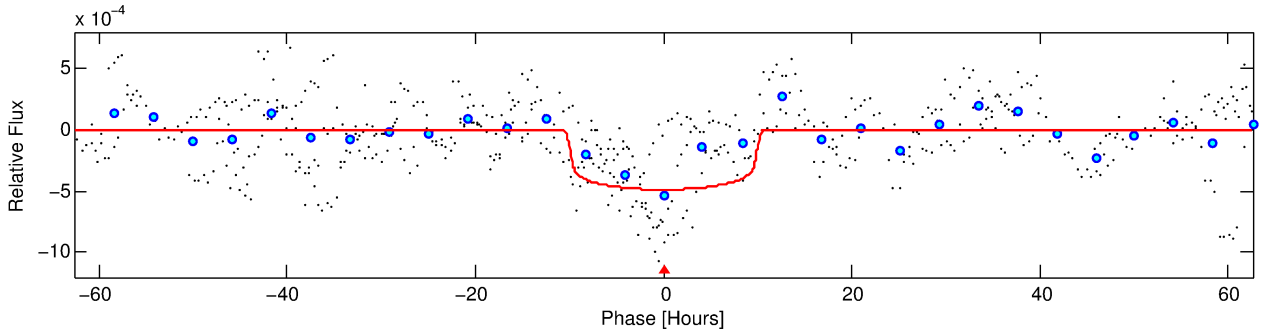
DV One-Page Summary

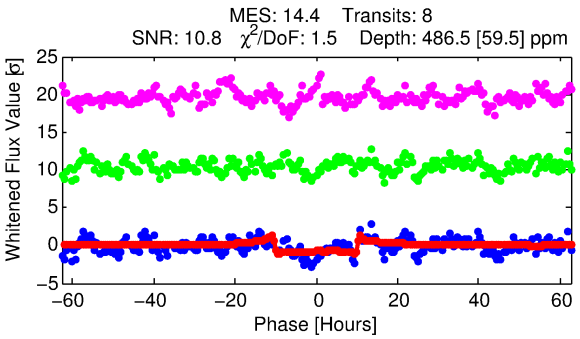
KIC: 9027876 Candidate: 9 of 10 Period: 111.980 d

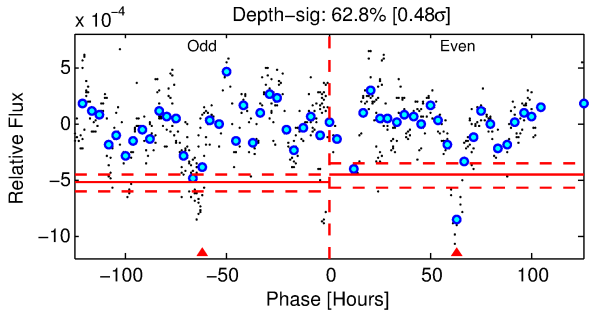


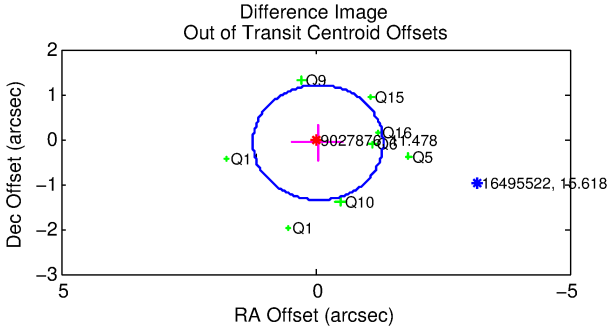












DV Fit Results:

Period = 111.98007 [0.00167] d
Epoch = 159.2119 [0.0114] BKJD
Rp/R* = 0.0217 [0.0021]
a/R* = 29.77 [11.08]
b = 0.72 [0.25]

Seff = 134.08 [92.51]
Teq = 868 [150] K
Rp = 11.40 [4.89] Re
a = 0.5706 [0.2383] AU

Ag = 456.35 [334.70] [1.36σ]
Teffp = 6201 [453] K [11.17σ]

DV Diagnostic Results:

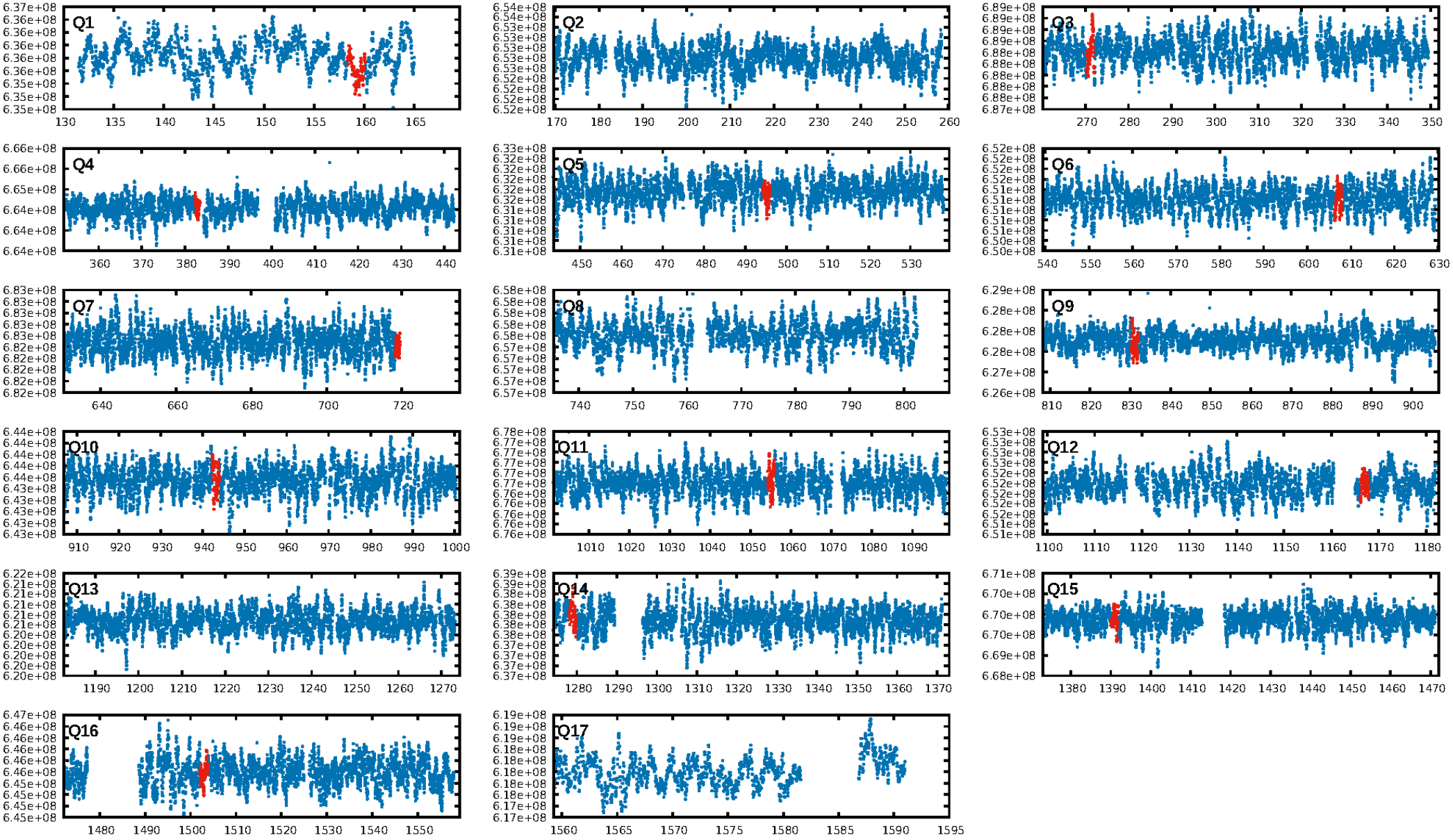
ShortPeriod−sig: 100.0% [5.02σ]
LongPeriod−sig: 88.0% [1.55σ]
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [7/7]
GhostDiagnostic−chr: −1.287

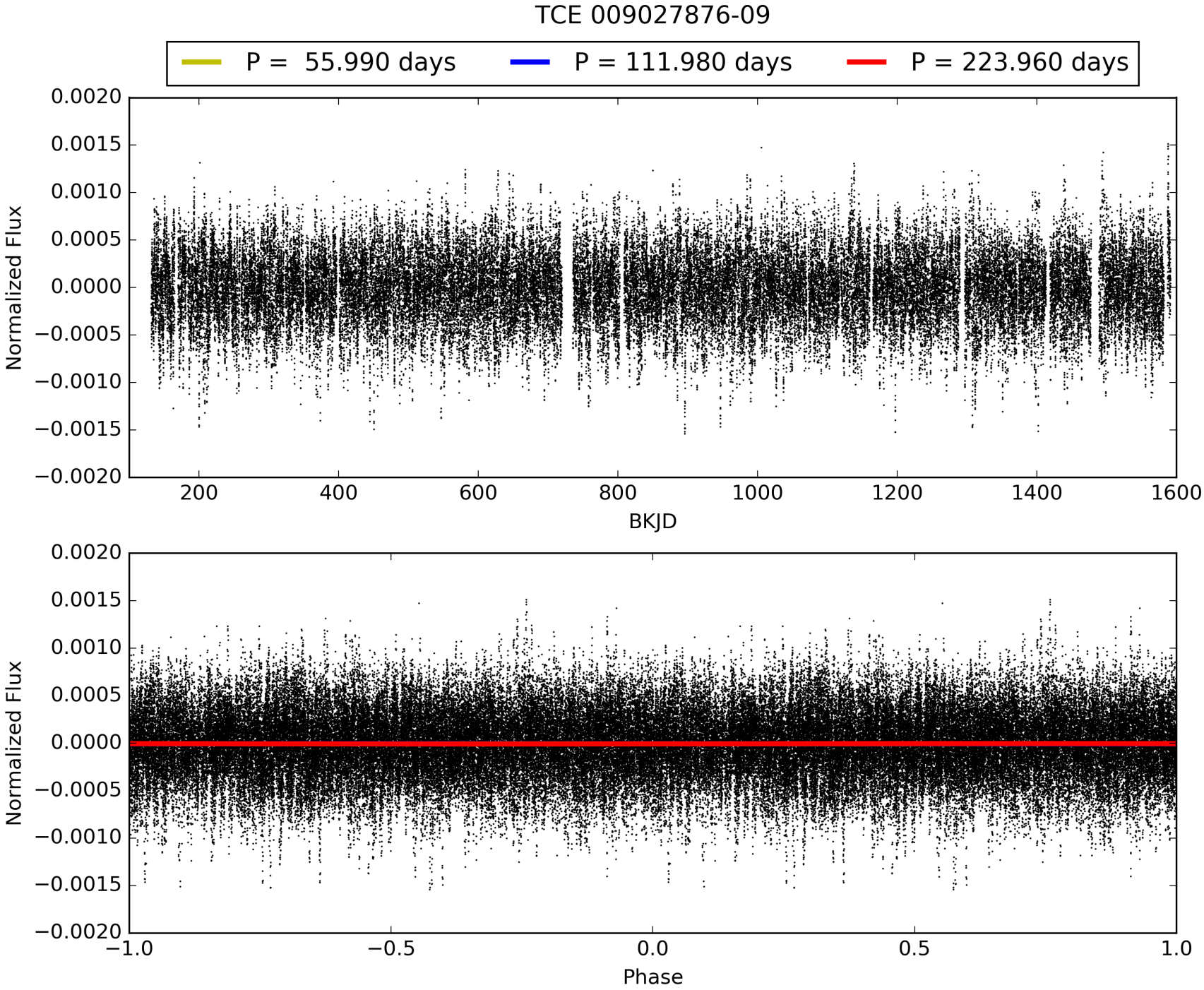
Centroid−sig: 64.6%
Centroid−so: 0.041 arcsec [0.39σ]
OotOffset−rm: 0.090 arcsec [0.21σ]
KicOffset−rm: 0.203 arcsec [0.46σ]
OotOffset−st: 2/2/1/3 [8]
KicOffset−st: 2/2/1/3 [8]
DiffImageQuality−fgm: 0.75 [6/8]
DiffImageOverlap−fno: 0.00 [0/8]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:30 Z

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

TCE 009027876-09, PDC Light Curves

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P = 55.990 days
P = 111.980 days
P = 223.960 days
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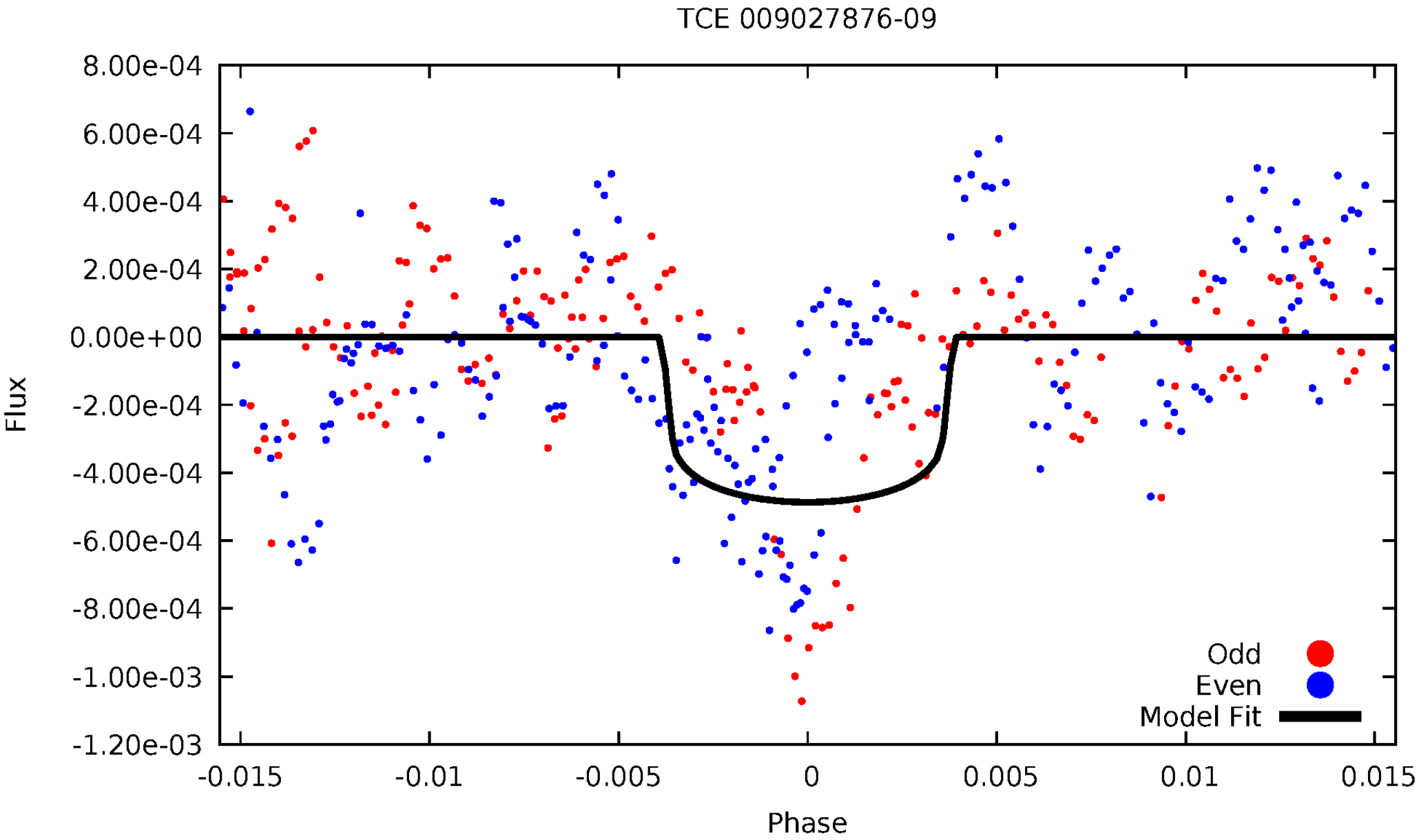
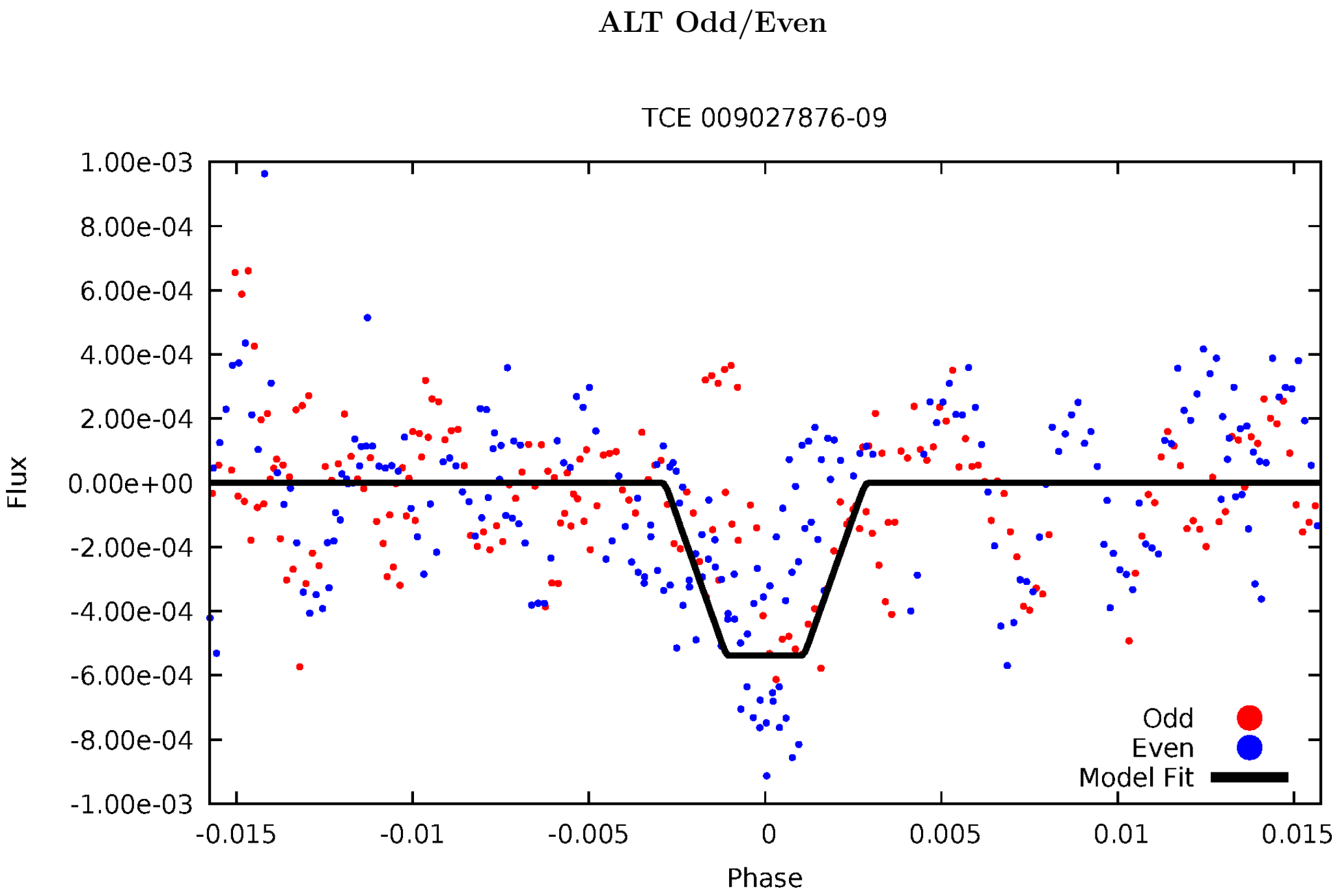
0.0015
0.0010
0.0005
0.0000
−0.0005
−0.0010
−0.0015
−0.0020
200
400
600
800
1000
1200
1400
1600
BKJD
Normalized Flux
−1.0
−0.5
0.0
0.5
1.0
Phase

DV Odd/Even


TCE 009027876-09
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
Flux
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
Phase
Odd
Even
Model Fit


ALT Odd/Even
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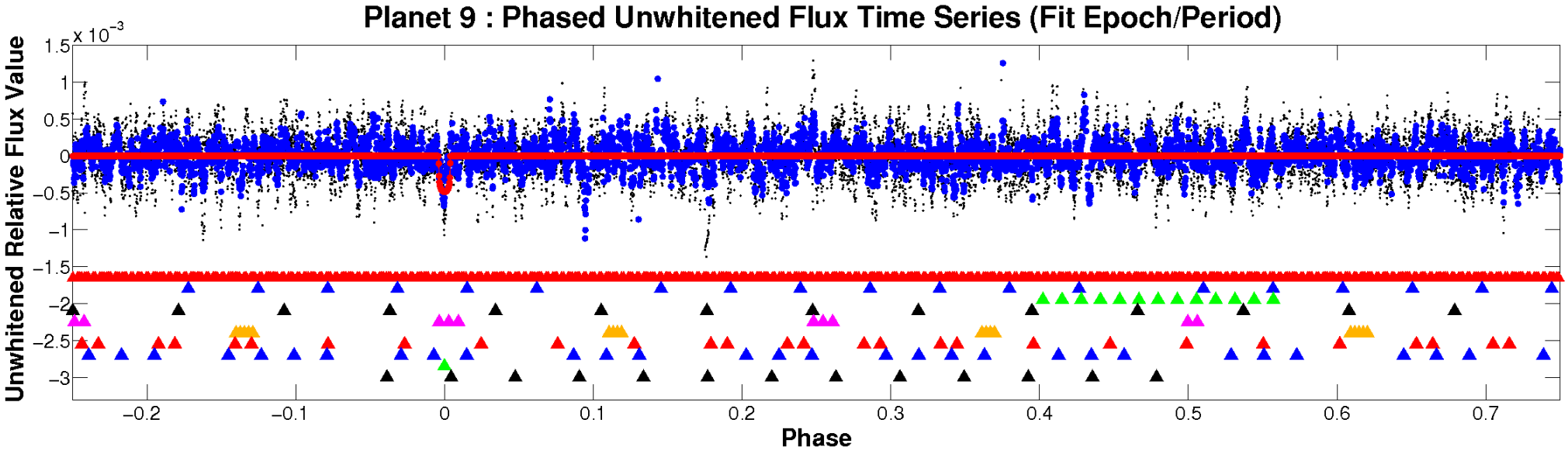
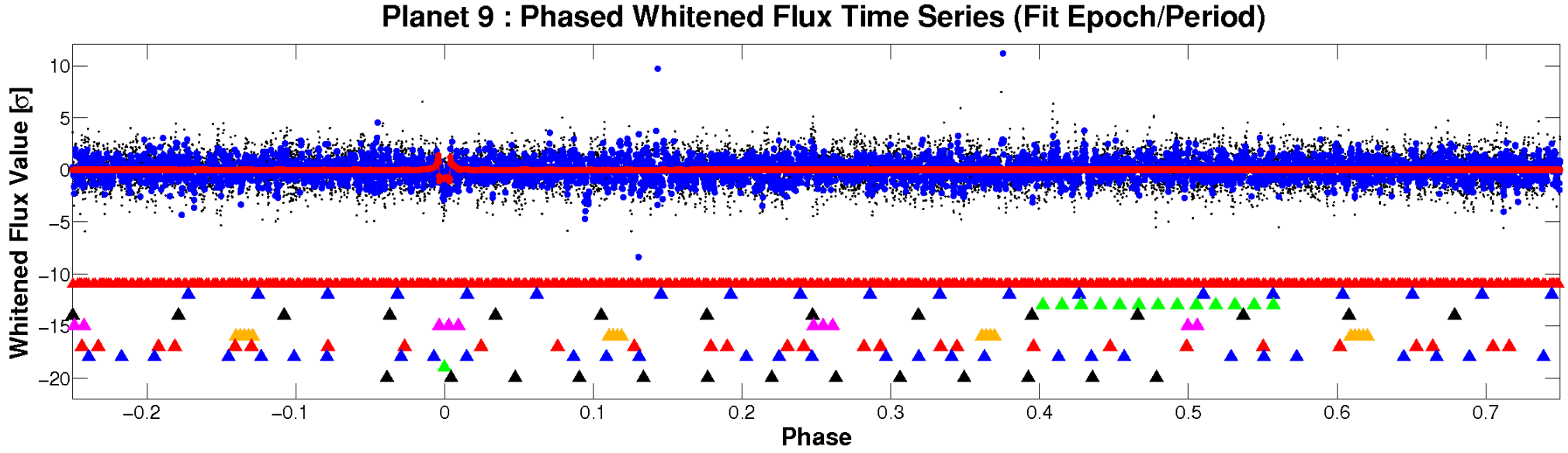
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
Flux
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
Phase
Odd
Even
Model Fit

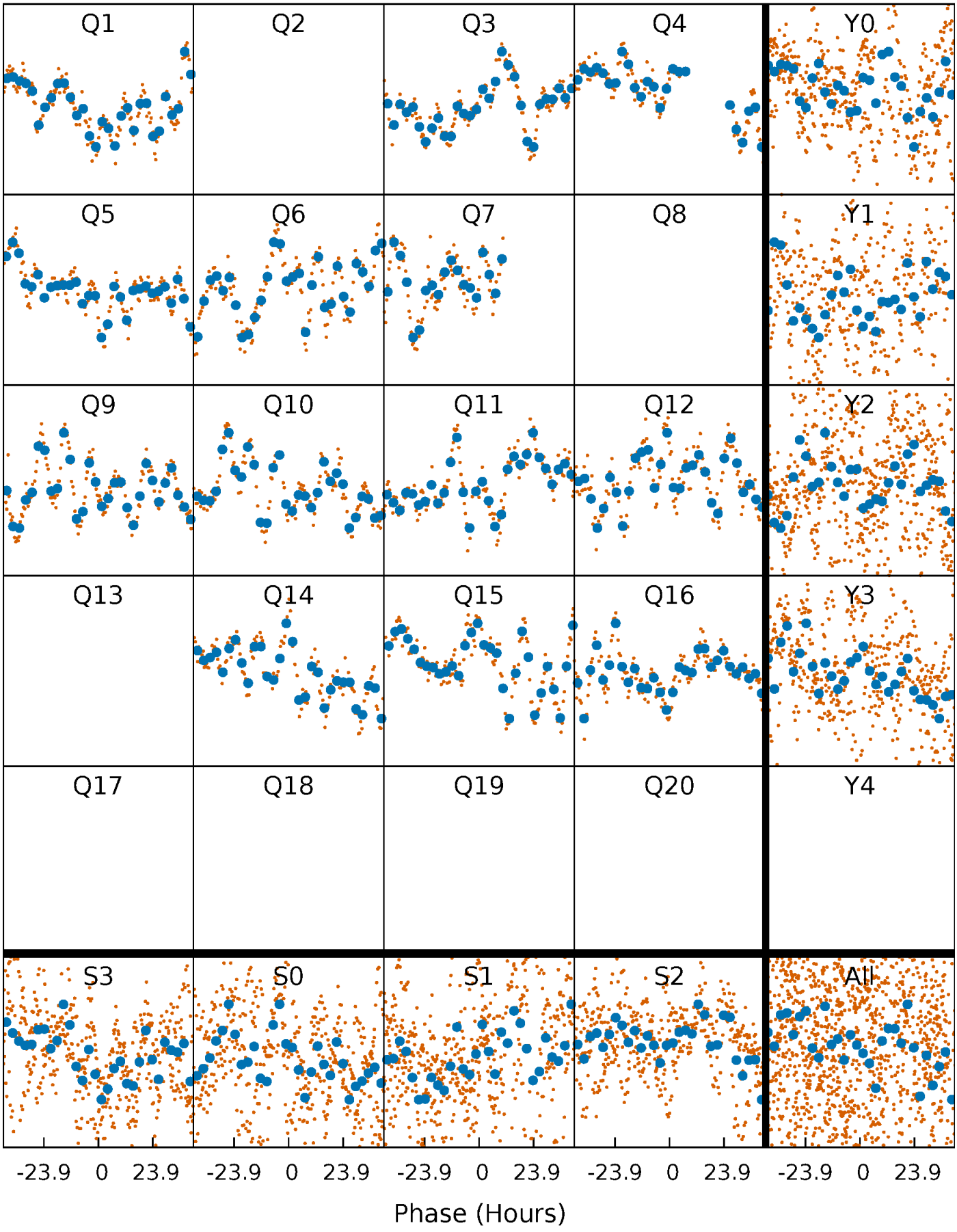
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 009027876-09 P=111.980070 Days T_0=159.211857 (BKJD)



DV Quarter-Phased Transit Curves

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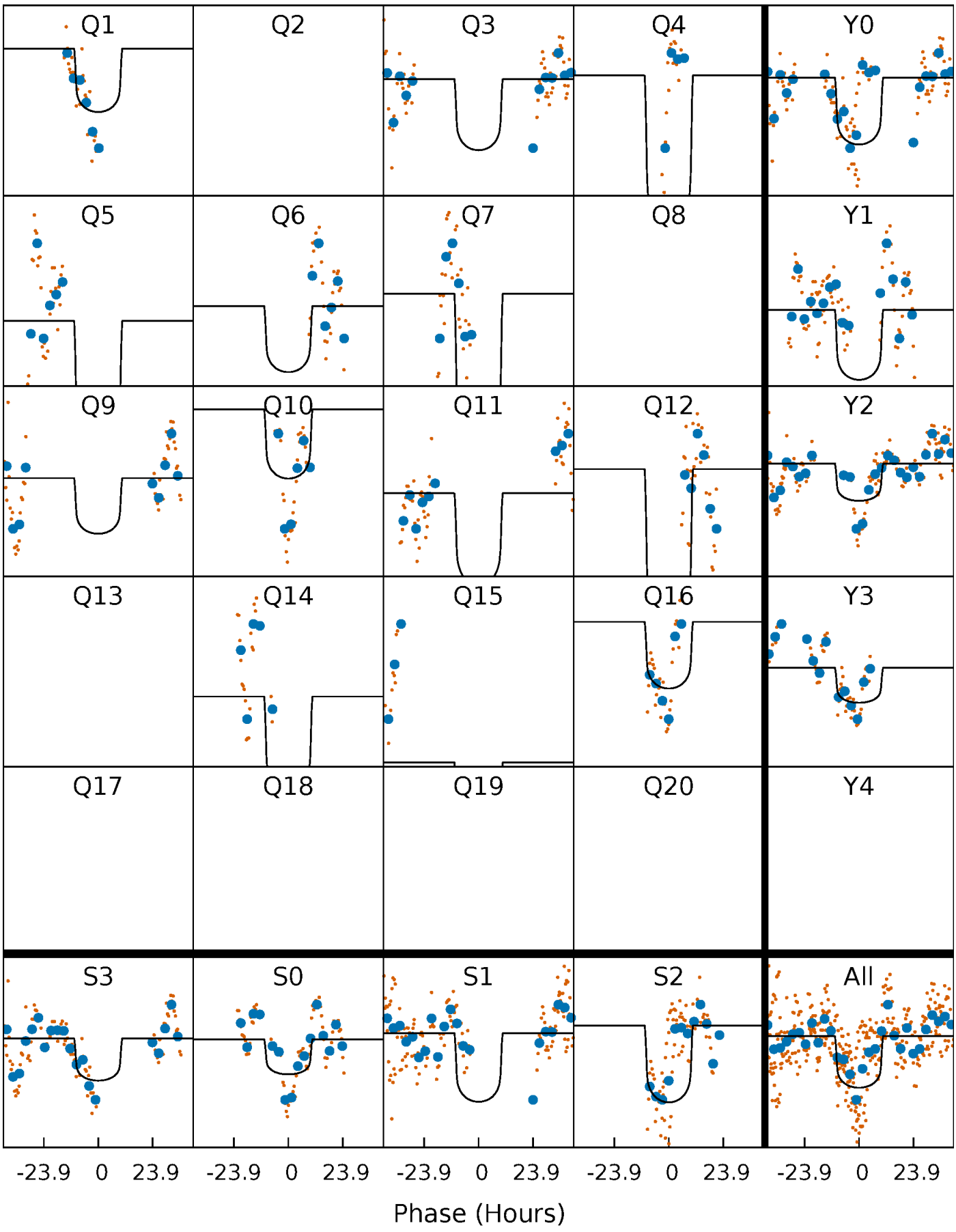
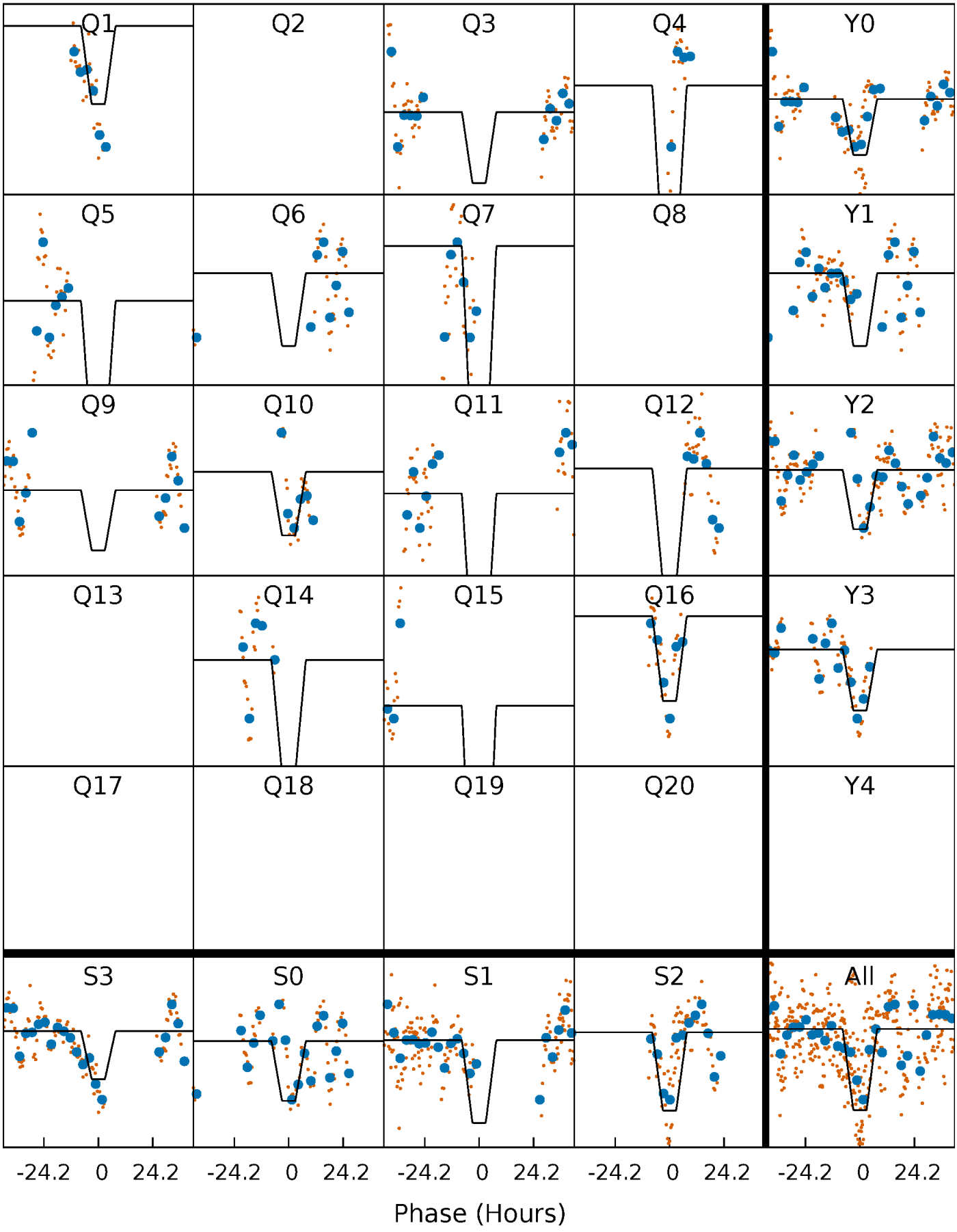


Alt. Detrend Quarter-Phased Transit Curves

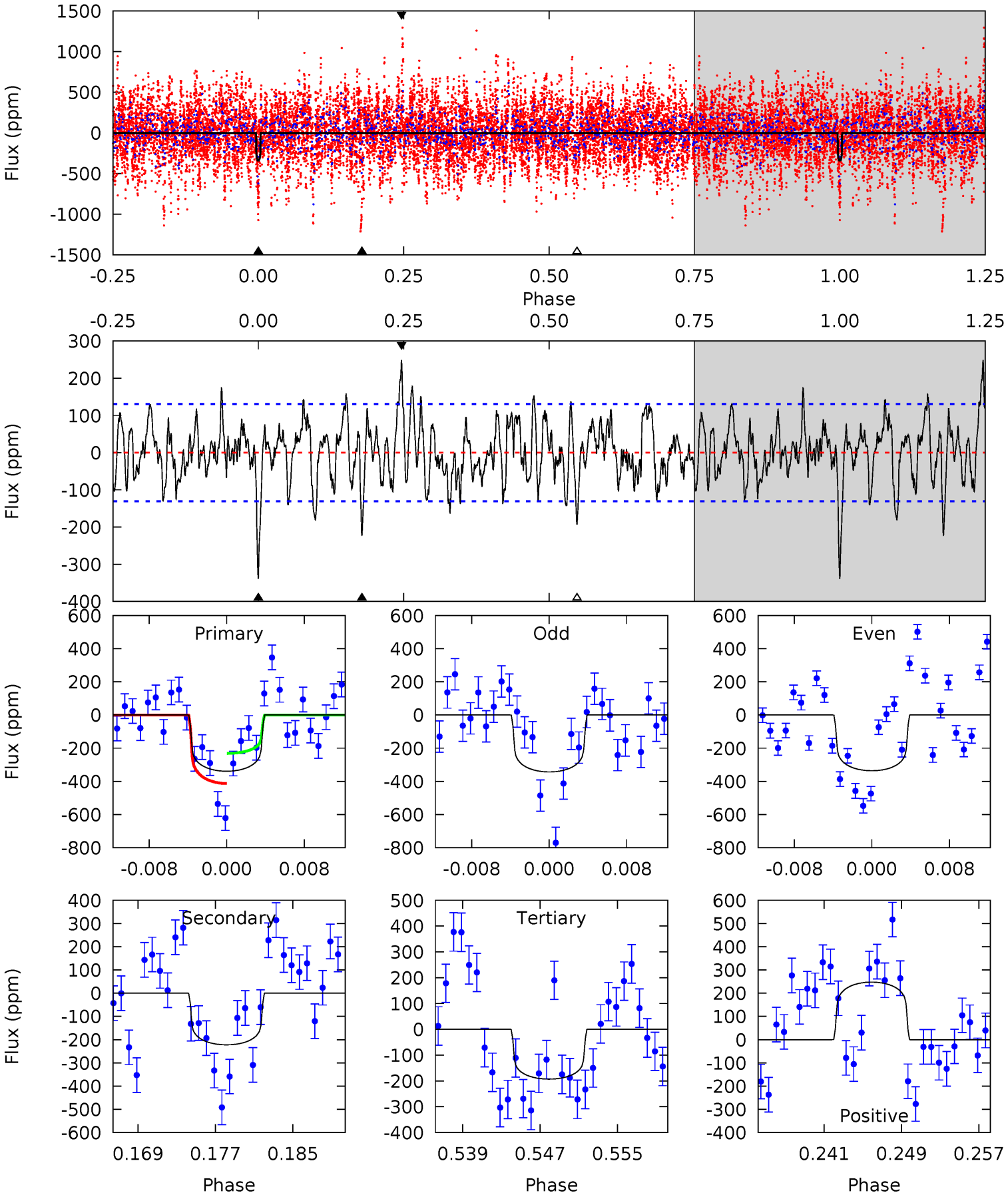
TCE 009027876-09 P=111.989531 Days T_0=159.093758 (BKJD)



DV Model-Shift Uniqueness Test

009027876-09, P = 111.980070 Days, E = 47.231787 Days

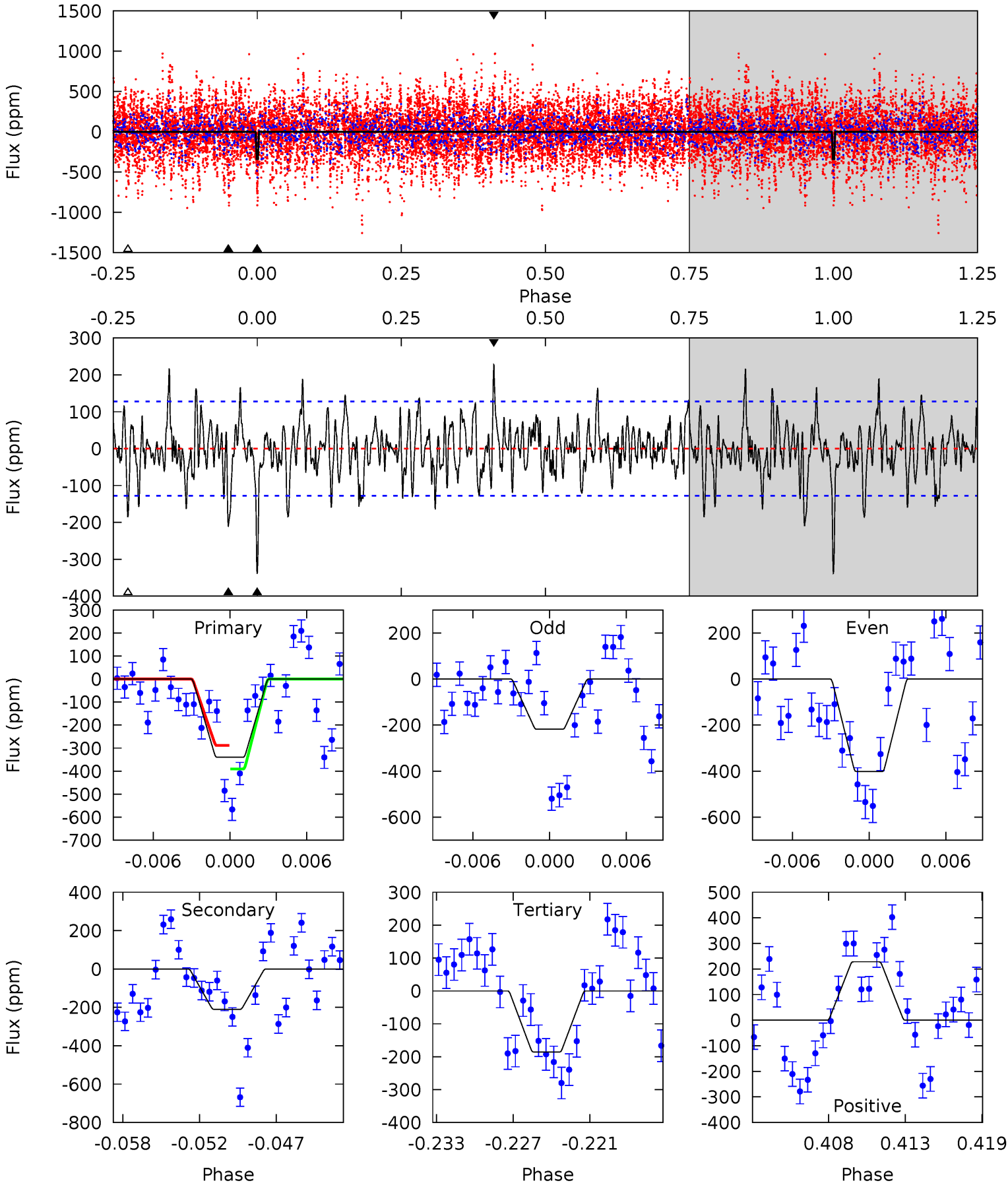
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	8.64	7.49	9.62	5.07	2.65	2.64	5.68	3.55	1.14	-0.98	0.14	1.85	0.42	3.44



Alt Model-Shift Uniqueness Test

009027876-09, P = 111.989531 Days, E = 47.104227 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	8.43	7.45	9.16	5.13	2.76	2.45	6.18	4.47	0.98	-0.73	3.57	1.30	0.40	2.05



Stellar Parameters For KIC 009027876

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-09 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-222±26	$10.54^{+1.79}_{-2.26}$	1173^{+63}_{-116}	5604^{+327}_{-302}	361^{+207}_{-102}
Alt.	-210±25	$11.23^{+1.73}_{-2.36}$	1177^{+65}_{-124}	5392^{+297}_{-264}	299^{+168}_{-73}

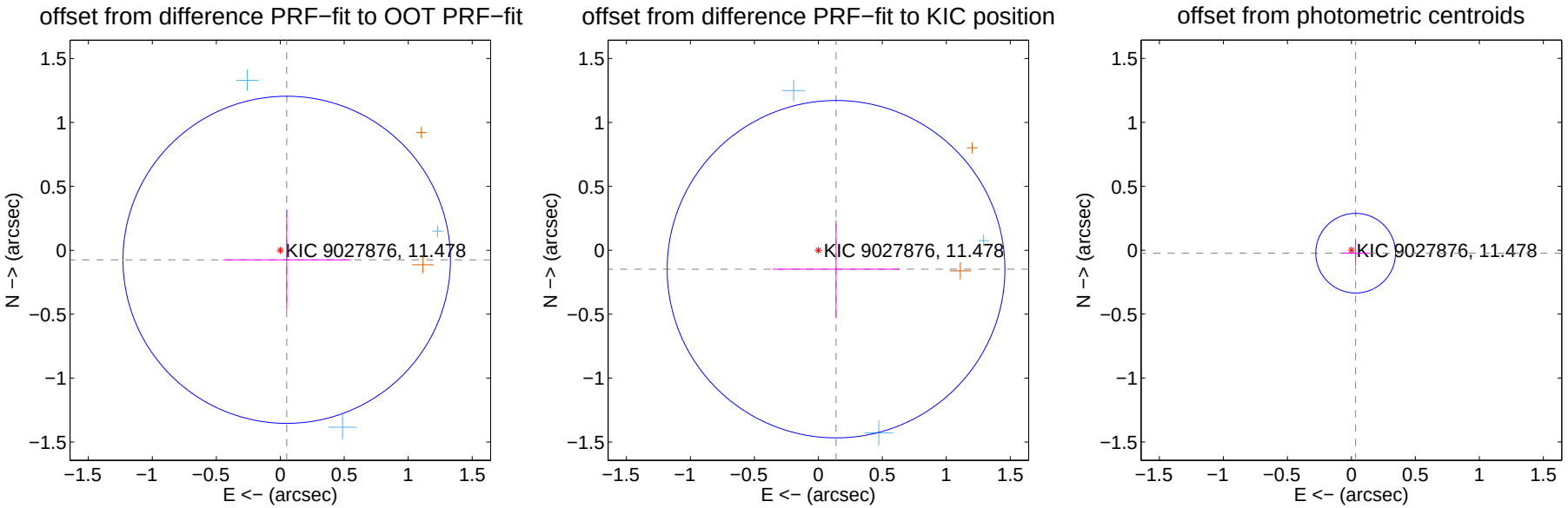
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

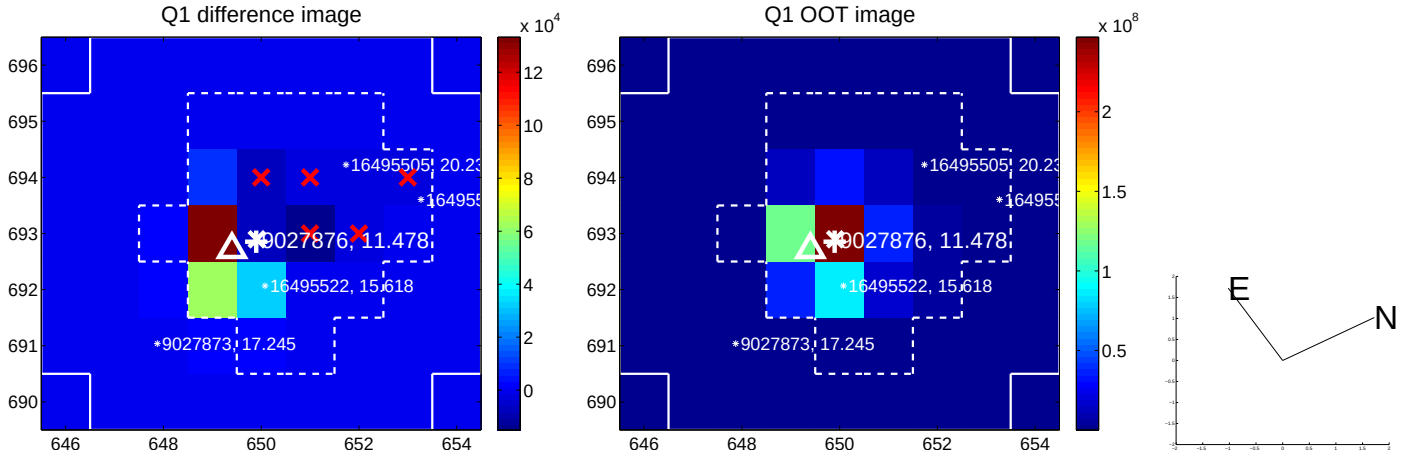
Supplemental centroid analysis for 009027876-09. Kepler magnitude: 11.48. Transit SNR 10.77
There are 6 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

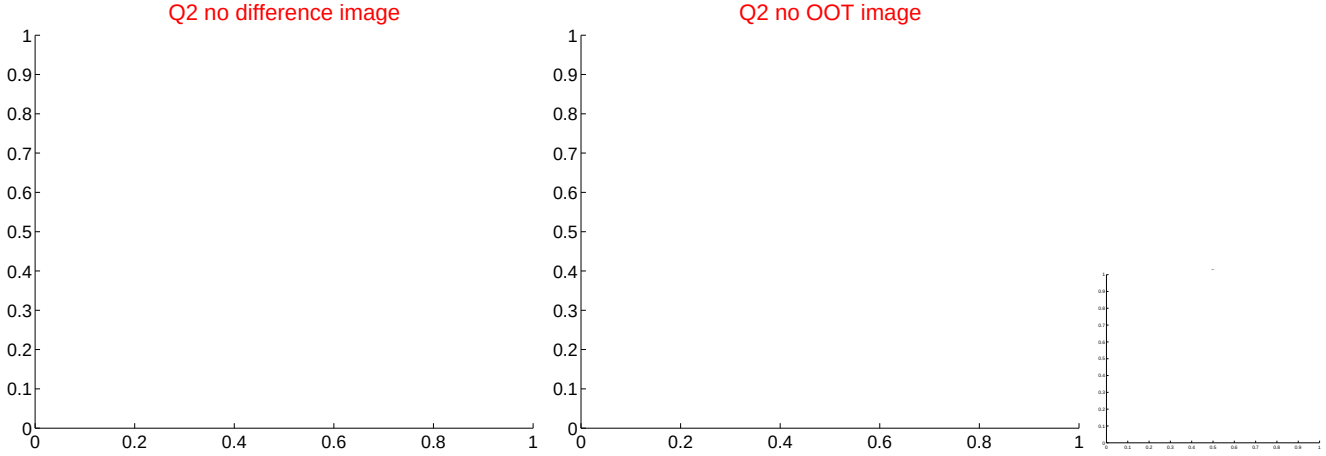
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.090 ± 0.426	0.21	-0.050 ± 0.497	-0.075 ± 0.390
PRF-fit source offset from KIC position	0.203 ± 0.440	0.46	-0.138 ± 0.497	-0.148 ± 0.383
photometric centroid source offset	0.04 ± 0.10	0.39	-0.03 ± 0.11	-0.02 ± 0.10

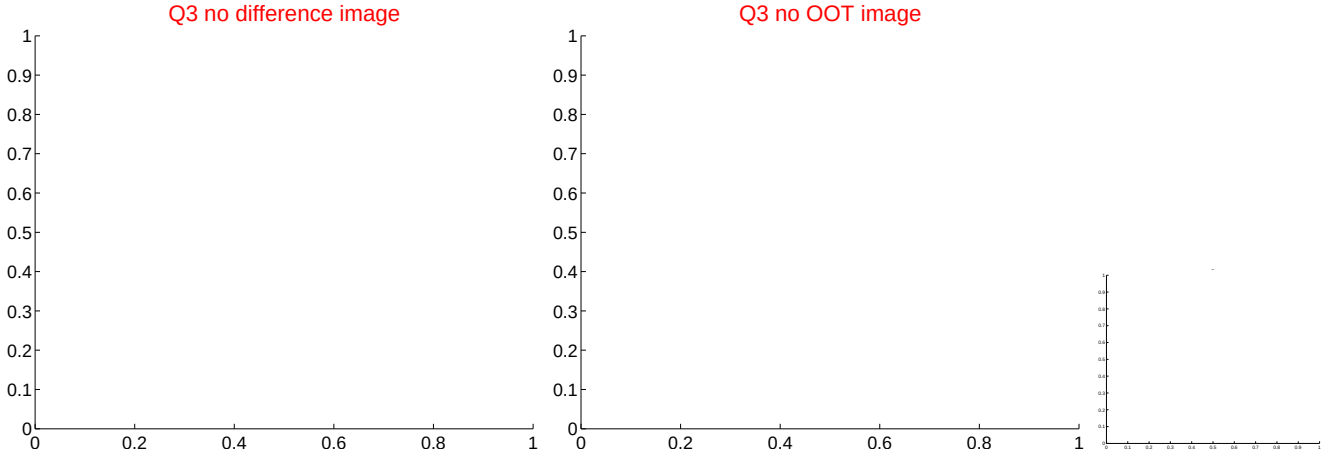


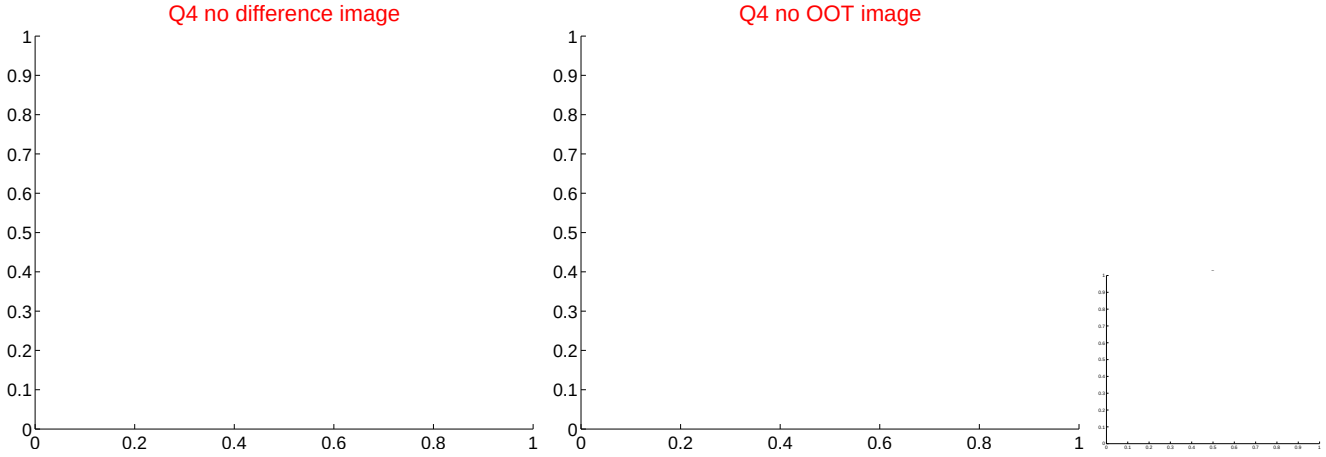
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

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

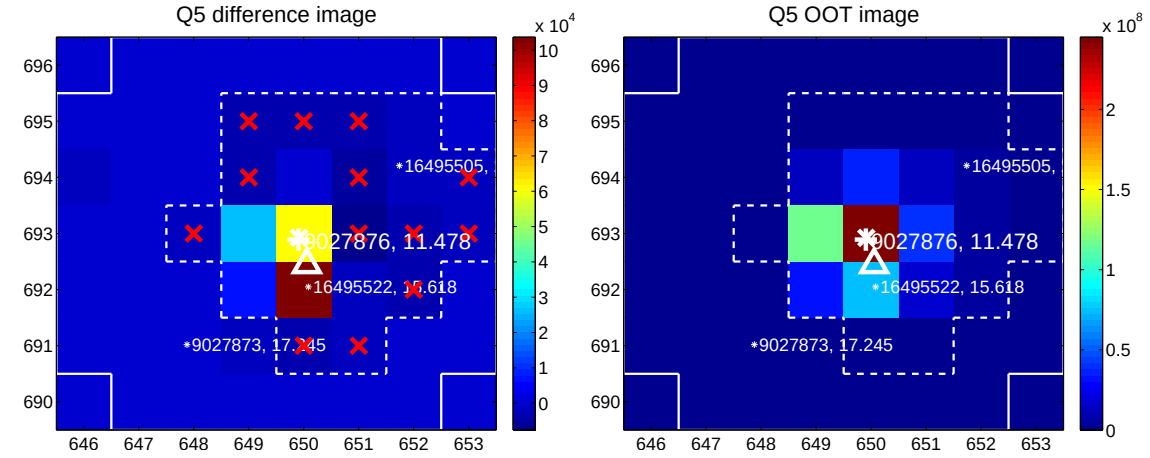


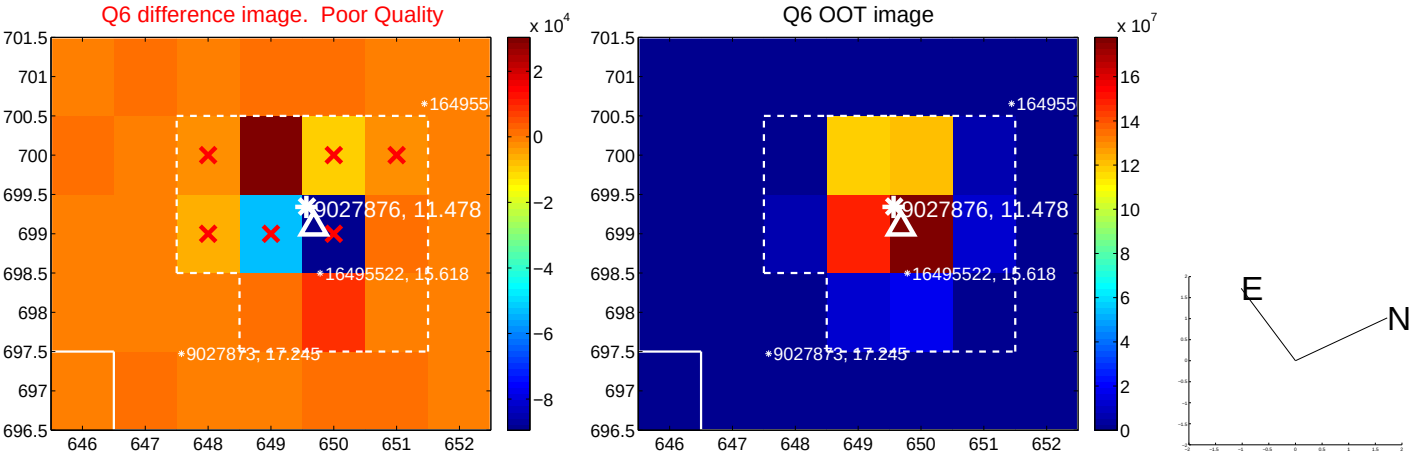


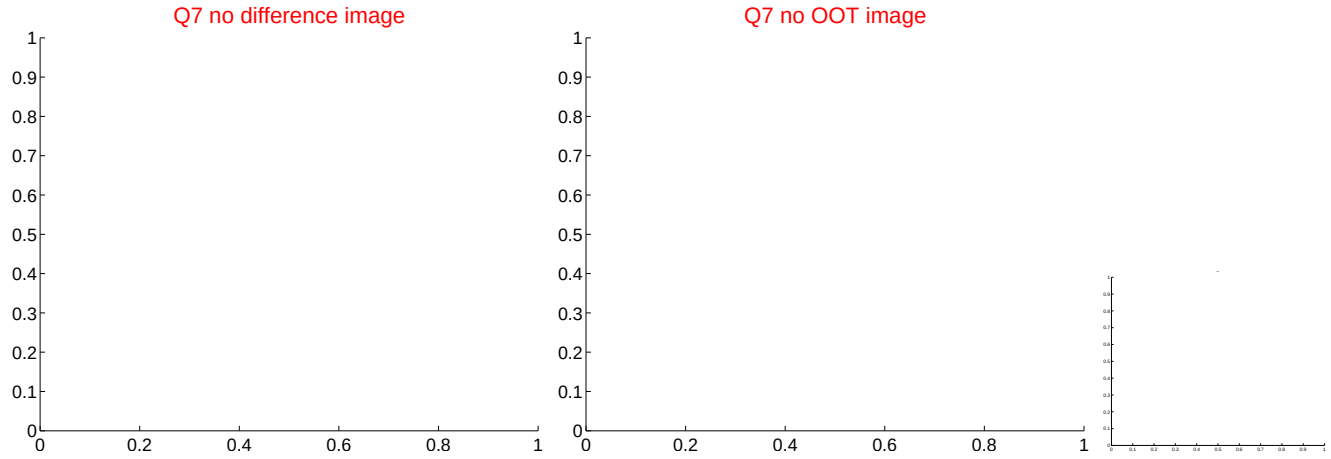


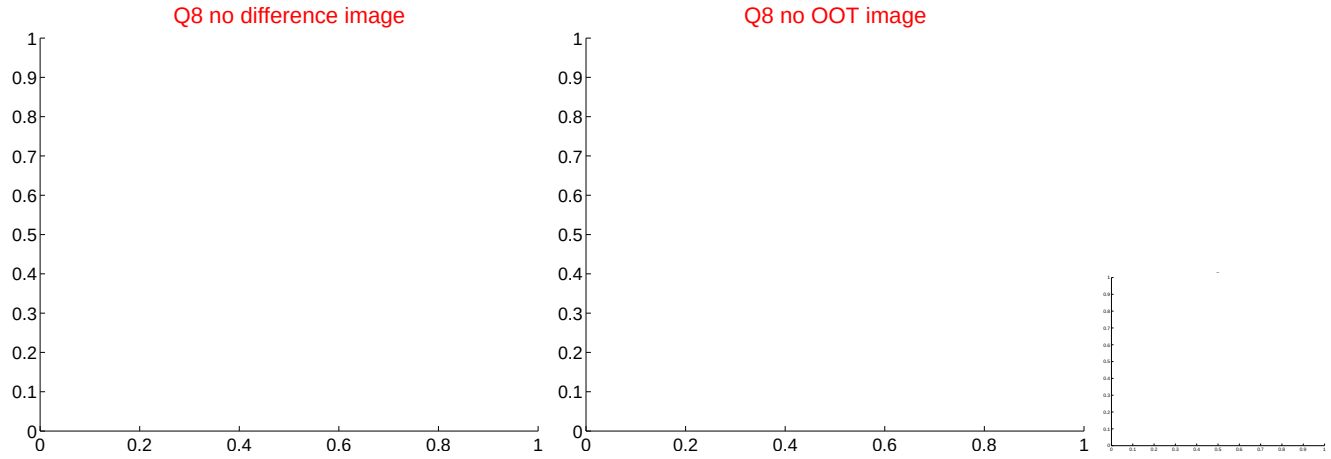


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

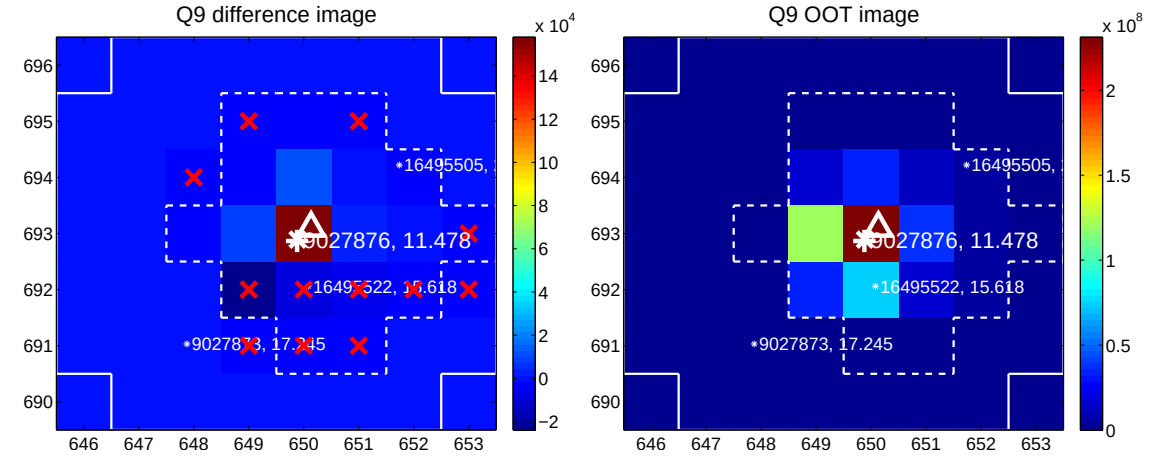


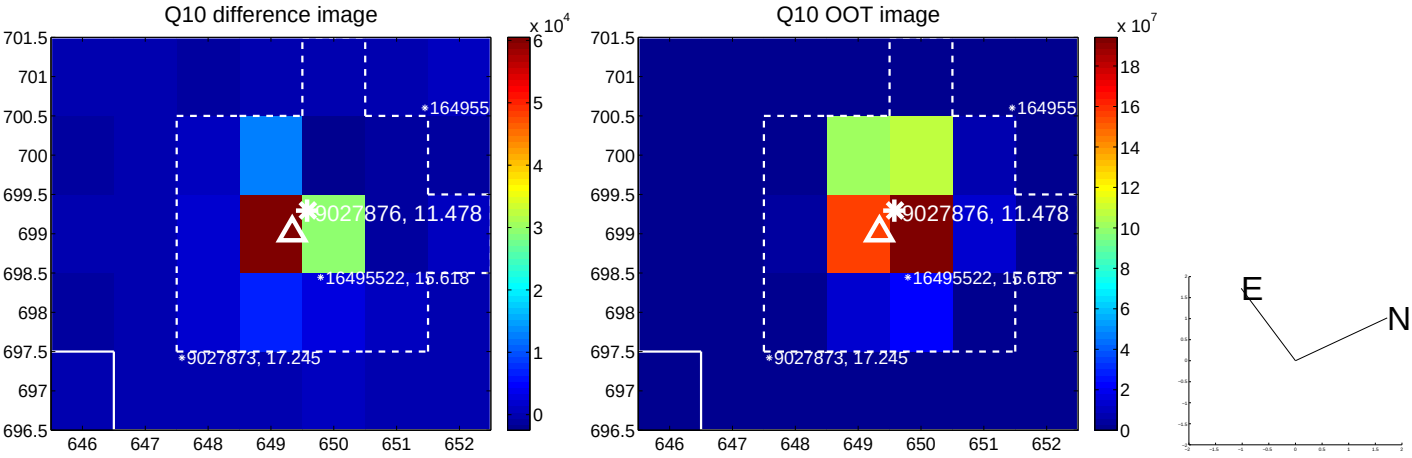


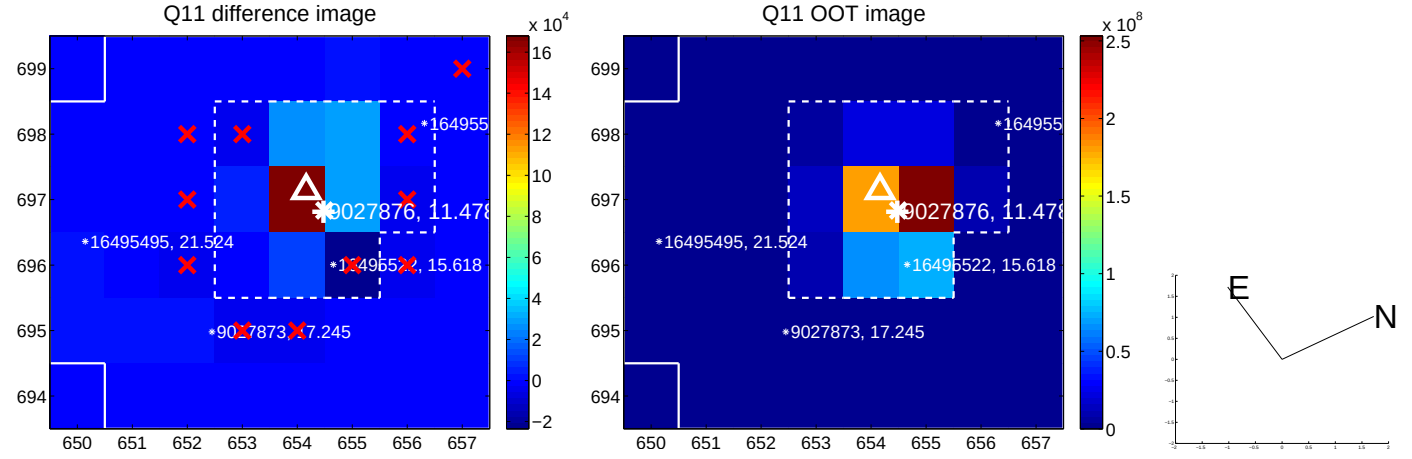


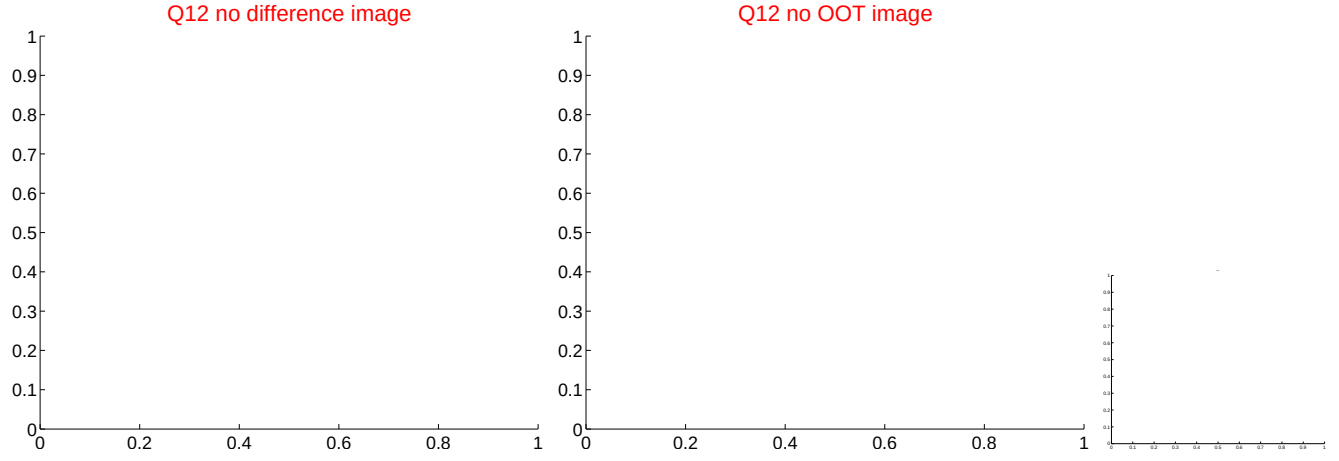


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

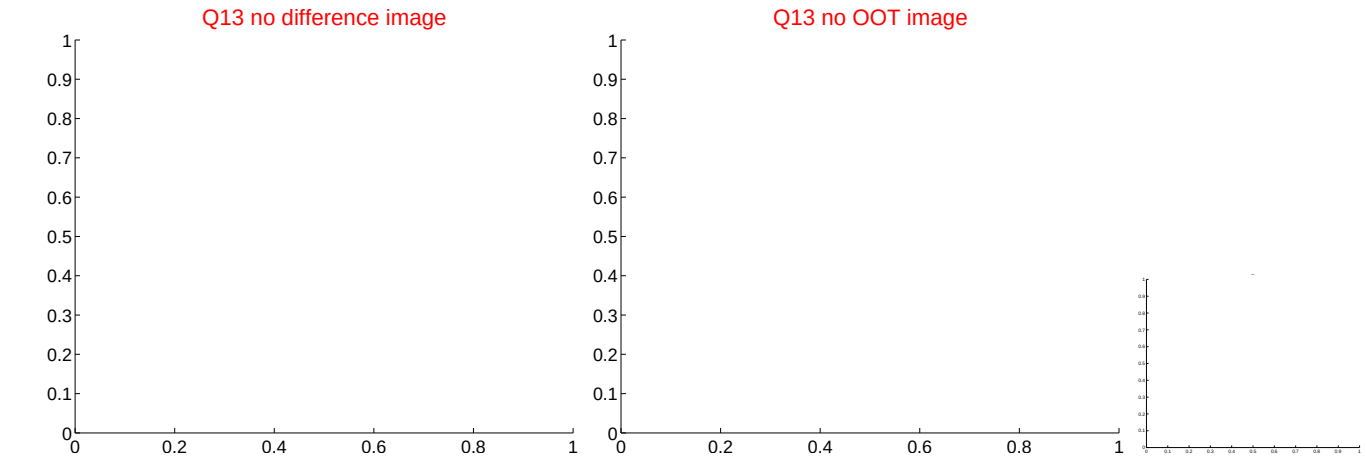


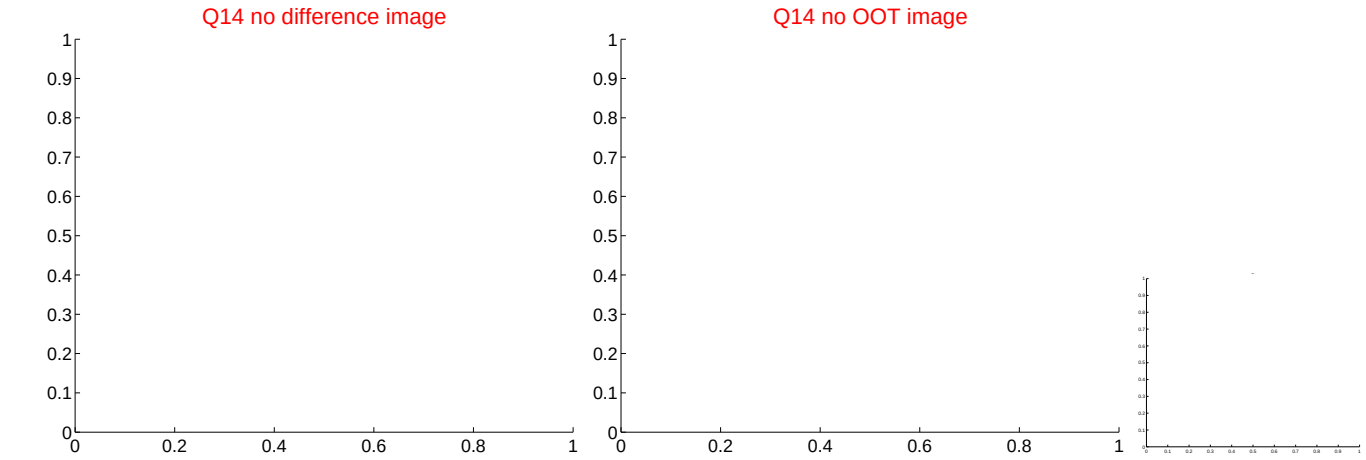


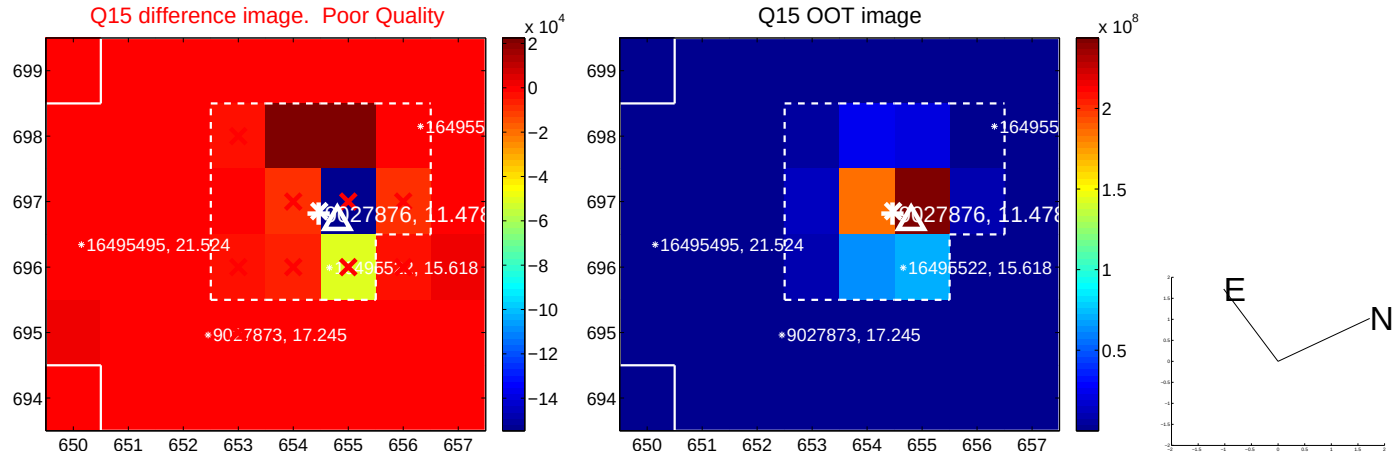


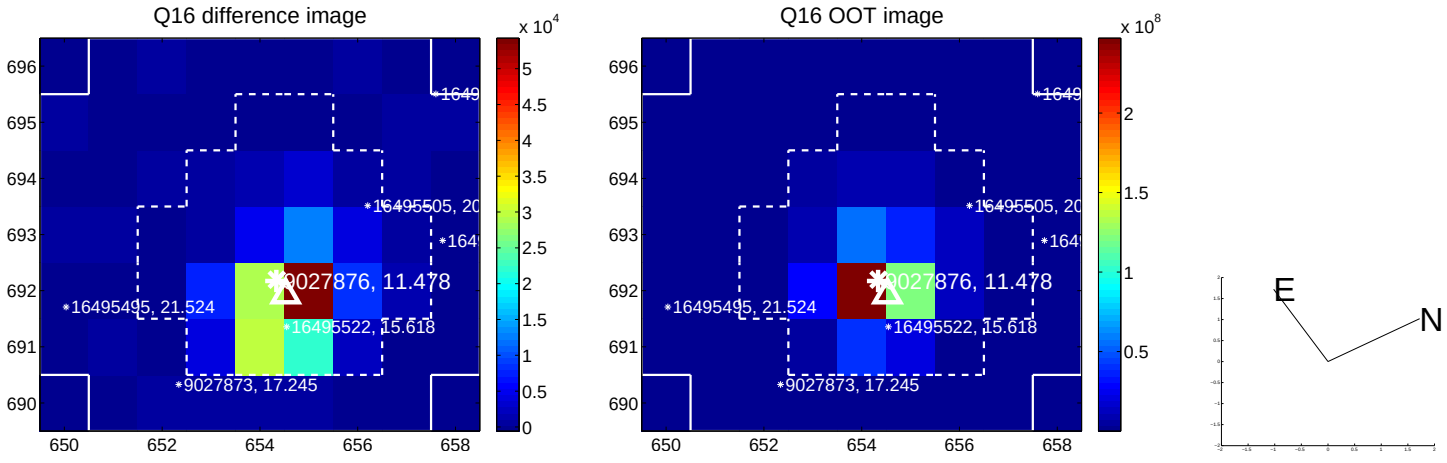


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

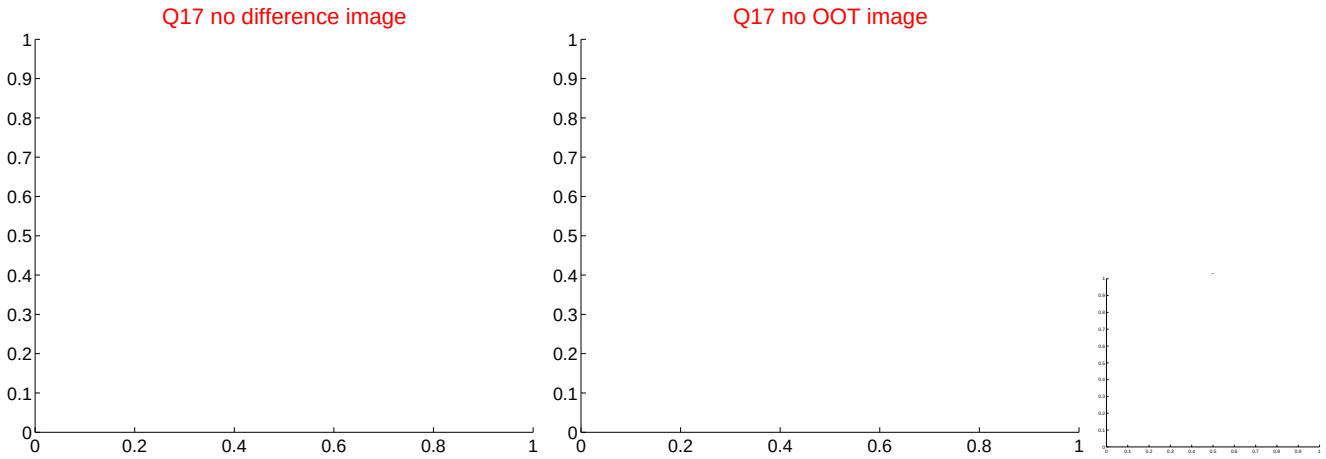


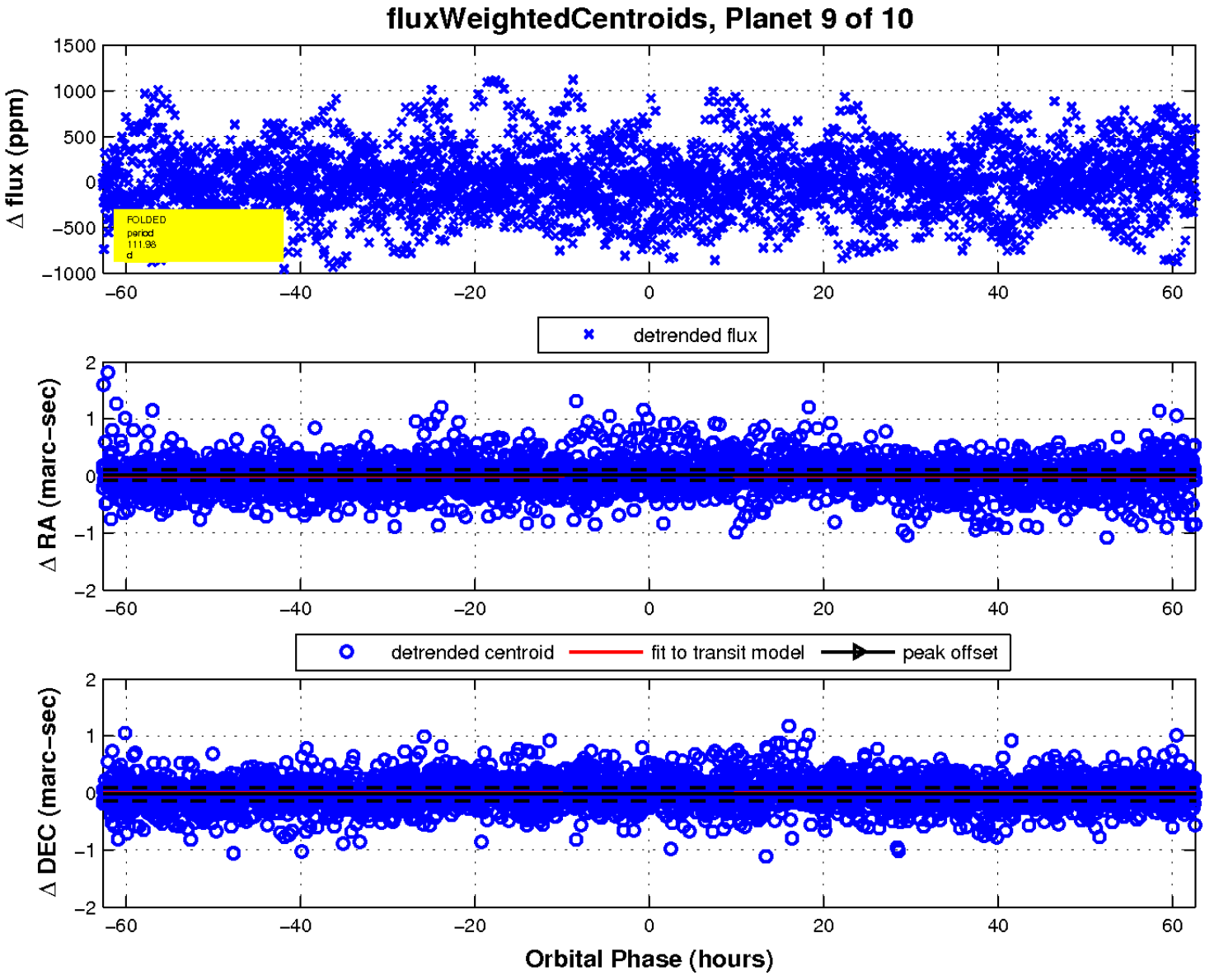




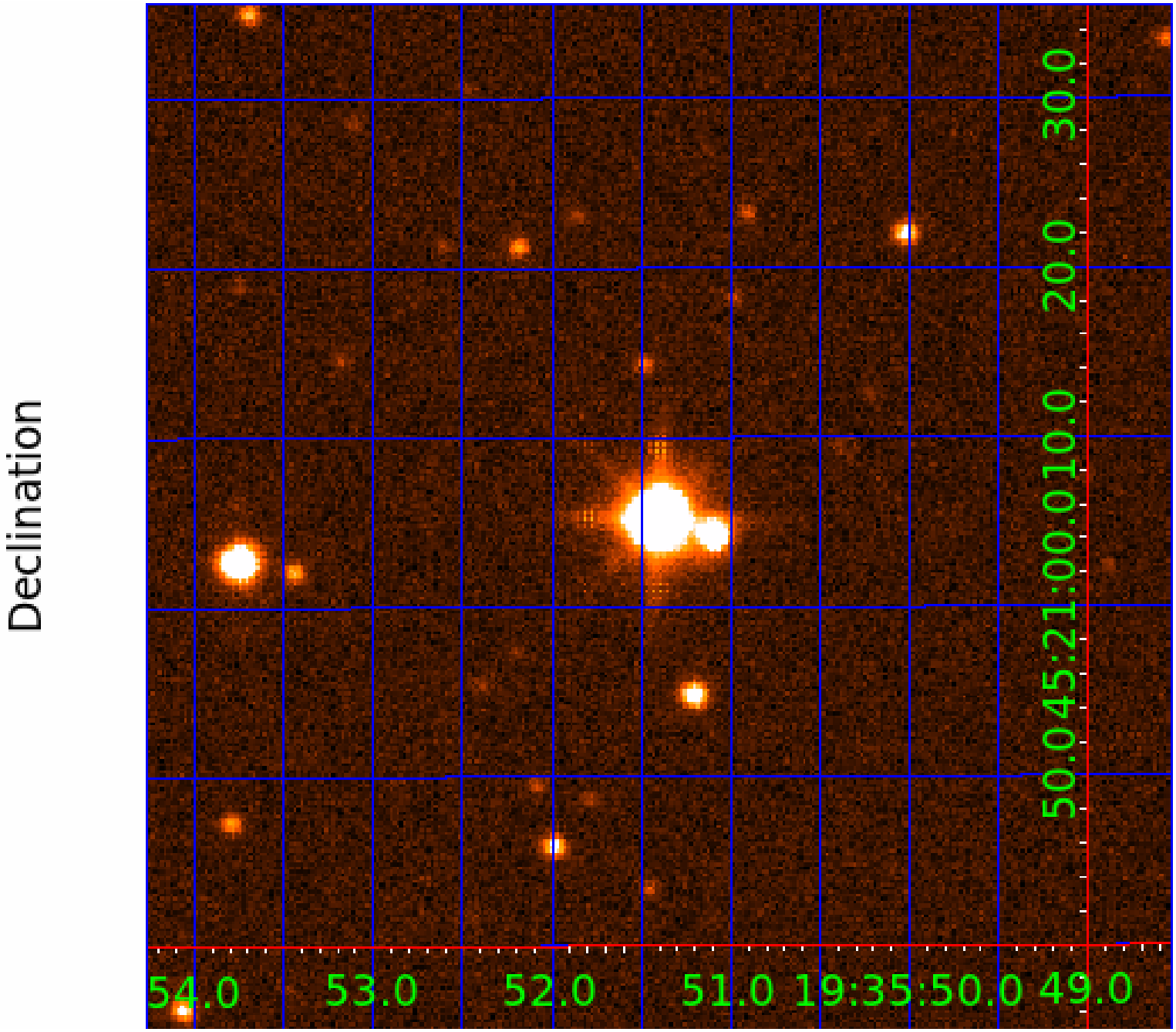


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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KIC 009027876

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 ($S_\oplus$)
009027876-01	OBS	No	2.841382	131.898545	47.3	17.435	10.4	9.2	4.81	6777	3.72	17982.94
009027876-02	OBS	No	76.401973	175.511943	894.2	9.740	18.1	16.0	4.81	6777	26.81	223.23
009027876-03	OBS	No	113.426204	204.254991	984.8	7.862	16.2	16.9	4.81	6777	28.26	131.81
009027876-04	OBS	No	104.024264	194.880208	926.8	7.245	15.0	15.5	4.81	6777	27.47	147.93
009027876-06	OBS	No	83.906371	144.782399	771.3	9.764	14.7	16.8	4.81	6777	25.18	197.02
009027876-07	OBS	No	53.108036	143.449485	578.9	6.746	13.7	13.7	4.81	6777	22.00	362.54
009027876-08	OBS	No	49.494373	150.364786	576.9	8.571	13.5	13.9	4.81	6777	21.96	398.25
009027876-09	OBS	No	111.980070	159.211857	486.5	20.890	14.4	10.8	4.81	6777	11.40	134.09
009027876-10	OBS	No	107.152482	212.814689	612.0	9.758	12.9	12.1	4.81	6777	19.64	142.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027876-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
009027876-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
009027876-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009027876-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

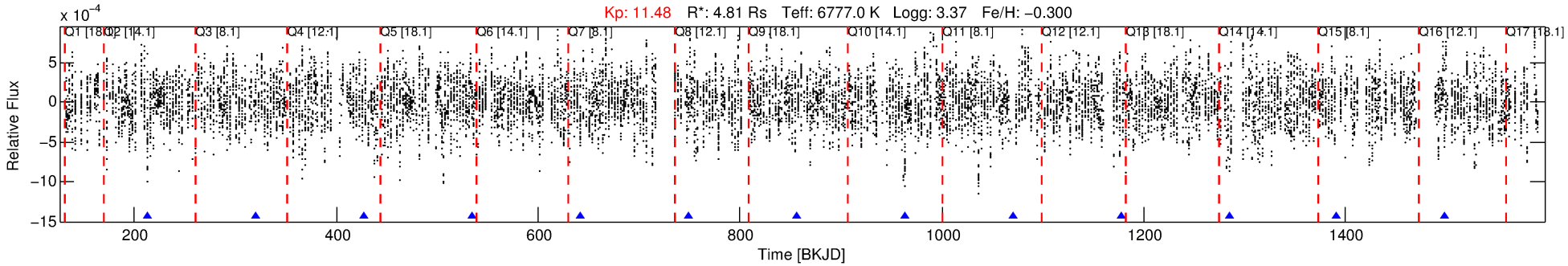
Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

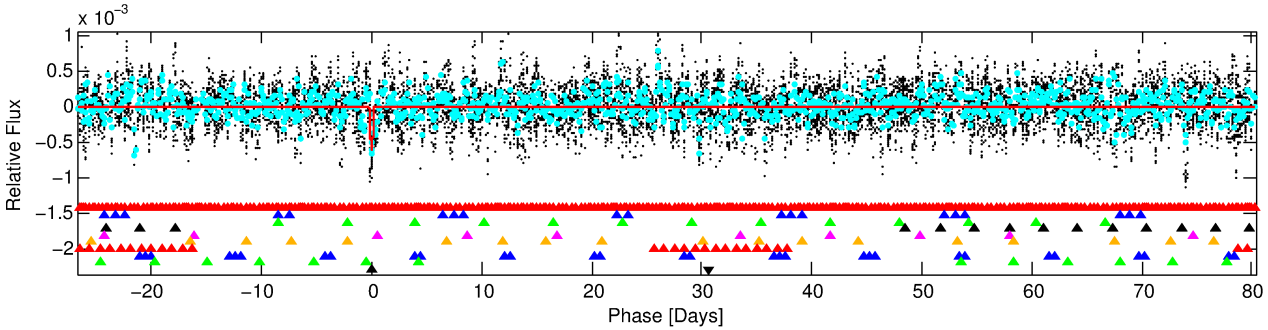
Ephemeris Match Information For 009027876-10

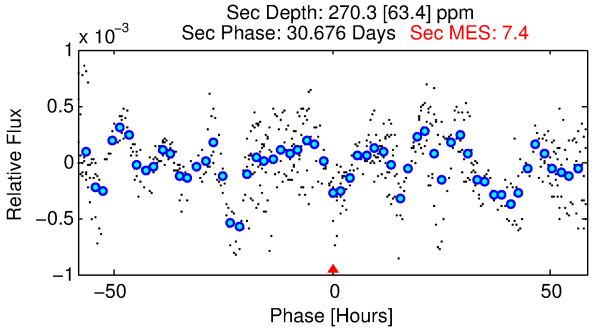
No Significant Match Found

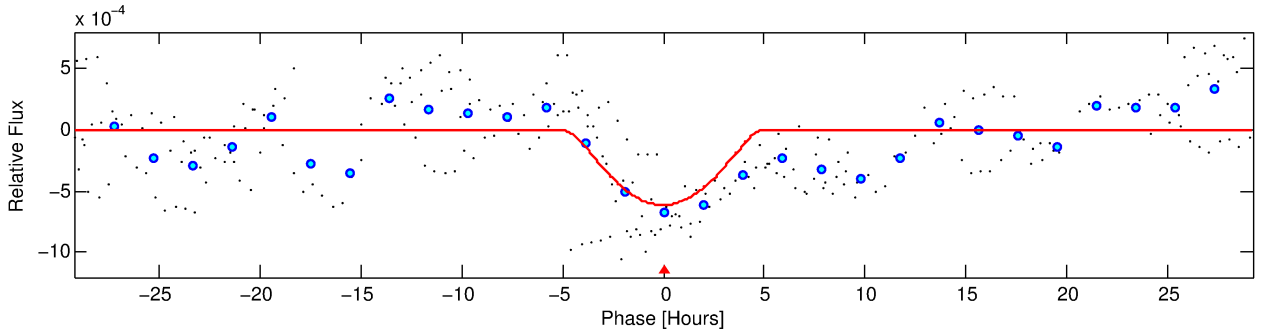
DV One-Page Summary

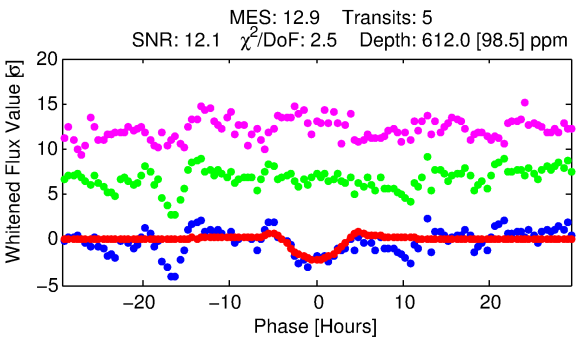
KIC: 9027876 Candidate: 10 of 10 Period: 107.152 d

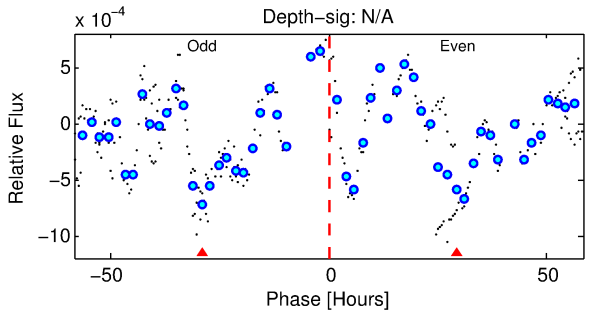


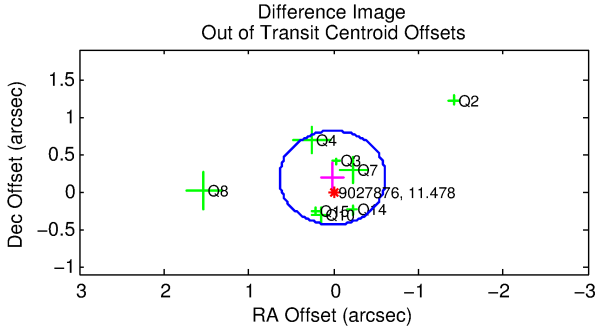












DV Fit Results:

Period = 107.15248 [0.00356] d
Epoch = 212.8147 [0.0173] BKJD
Rp/R* = 0.0374 [0.0544]
a/R* = 25.74 [11.83]
b = 0.99 [0.09]

Seff = 142.20 [98.11]
Teq = 881 [152] K
Rp = 19.64 [29.69] Re
a = 0.5541 [0.2314] AU

Ag = 118.37 [354.44] [0.33σ]
Teffp = 4491 [3276] K [1.10σ]

DV Diagnostic Results:

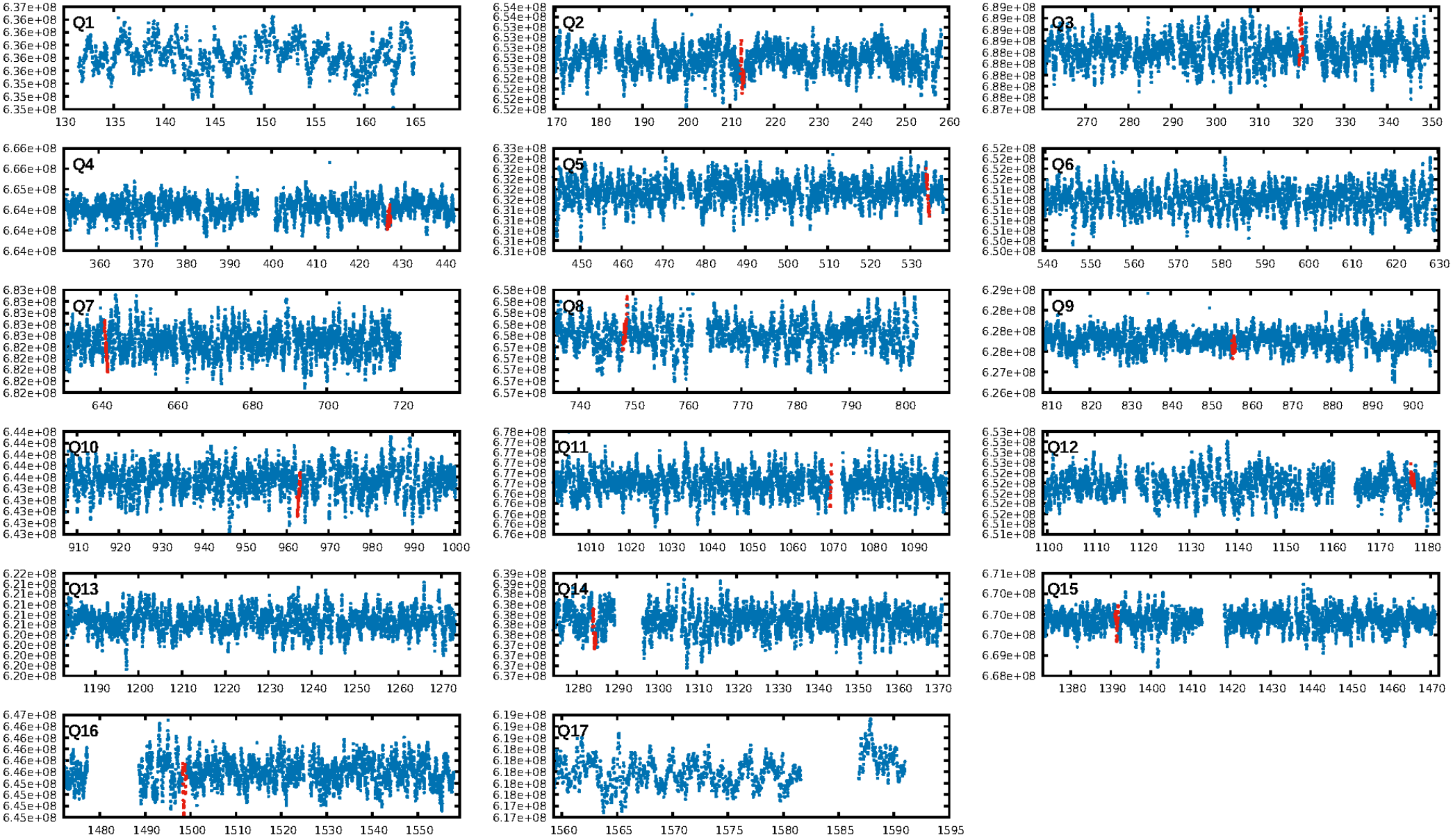
ShortPeriod−sig: 100.0% [6.18σ]
LongPeriod−sig: 100.0% [5.02σ]
ModelChiSquare2−sig: 1.2%
ModelChiSquareGof−sig: 72.9%
Bootstrap−pfa: N/A
RollingBand−fgt: 1.00 [5/5]
GhostDiagnostic−chr: −2.032

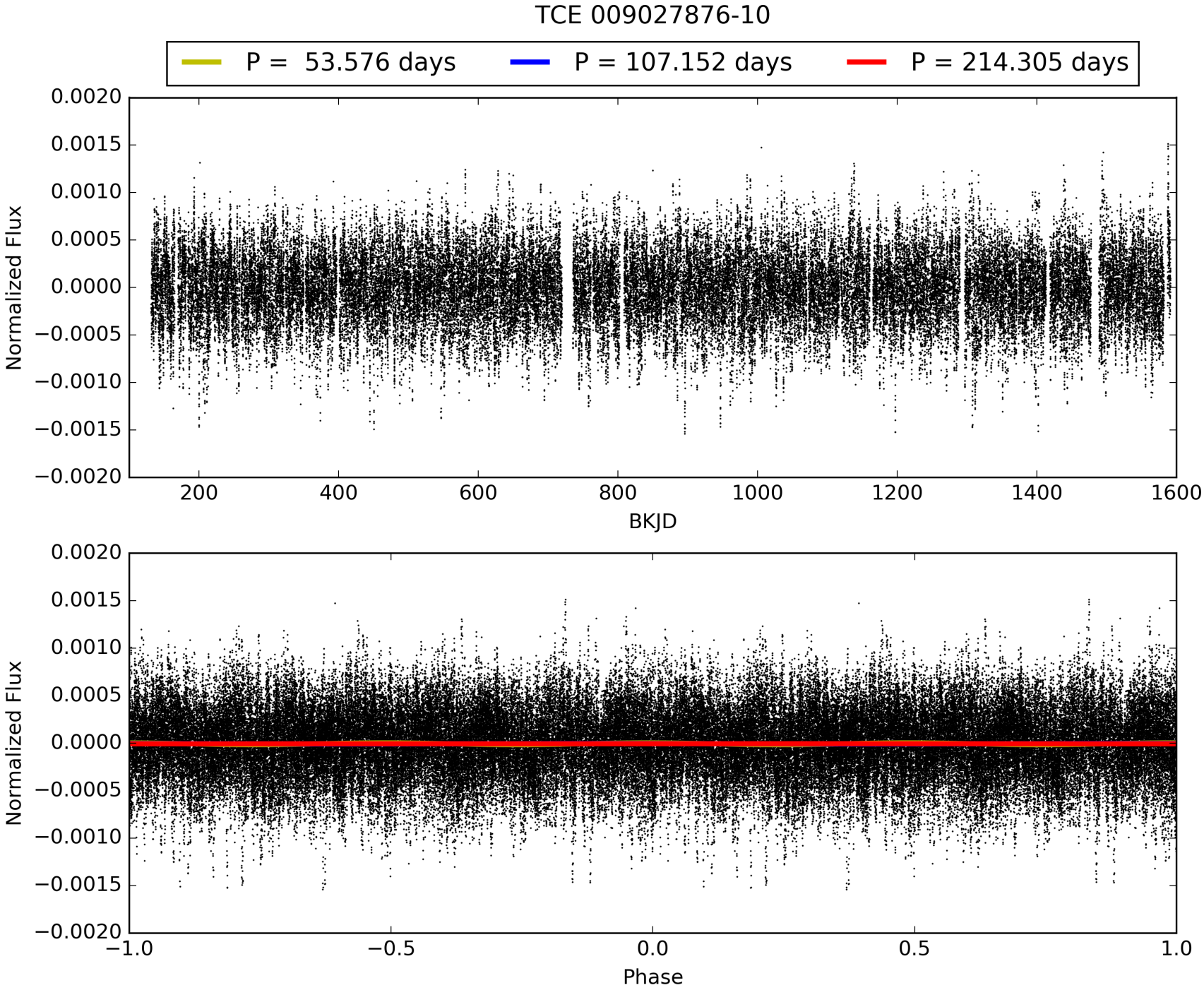
Centroid−sig: 28.0%
Centroid−so: 0.044 arcsec [0.35σ]
OotOffset−rm: 0.185 arcsec [0.88σ]
KicOffset−rm: 0.132 arcsec [0.56σ]
OotOffset−st: 3/3/2/0 [8]
KicOffset−st: 3/3/2/0 [8]
DiffImageQuality−fgm: 0.88 [7/8]
DiffImageOverlap−fno: 0.40 [4/10]

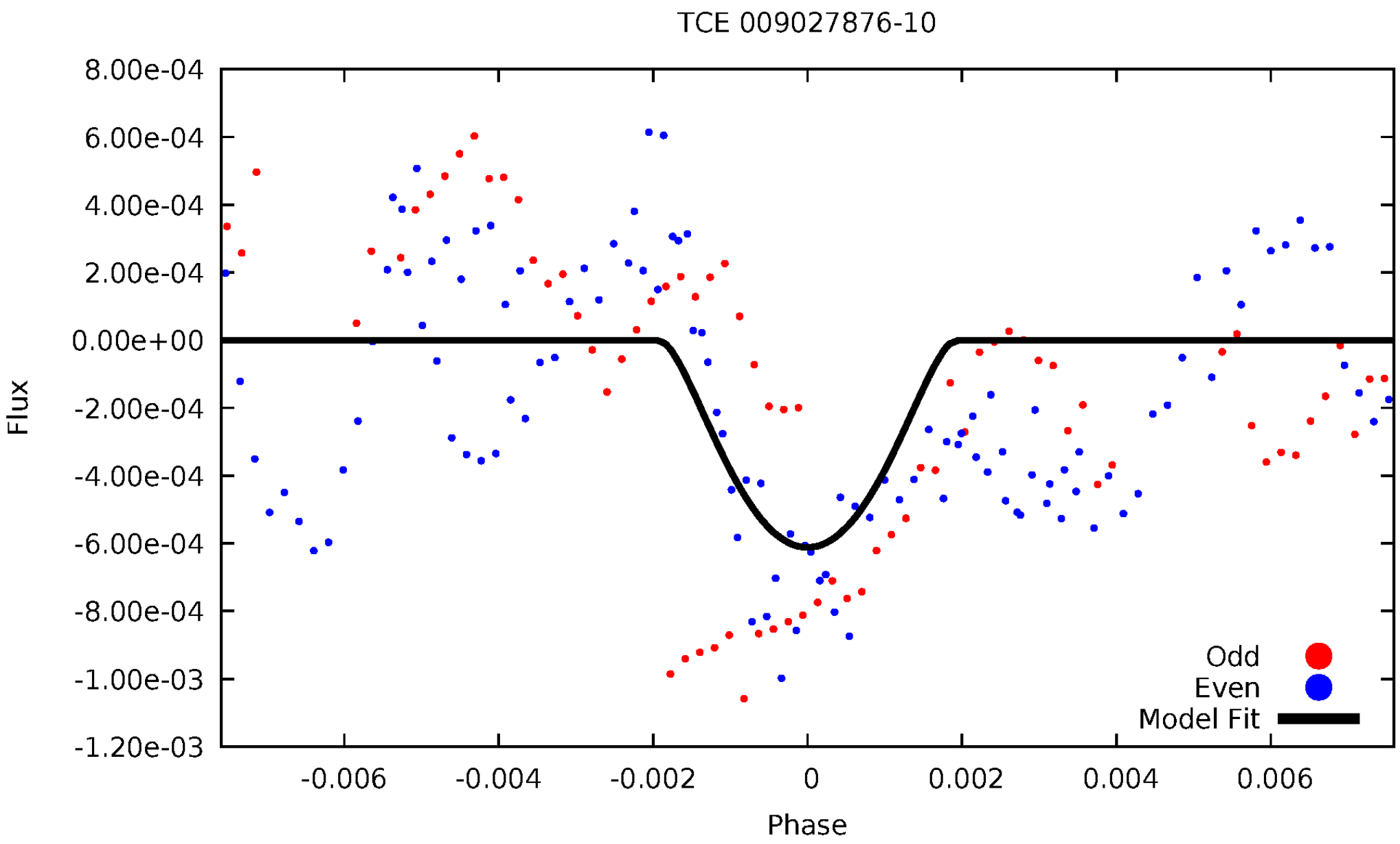
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 02−Feb−2016 00:59:33 Z

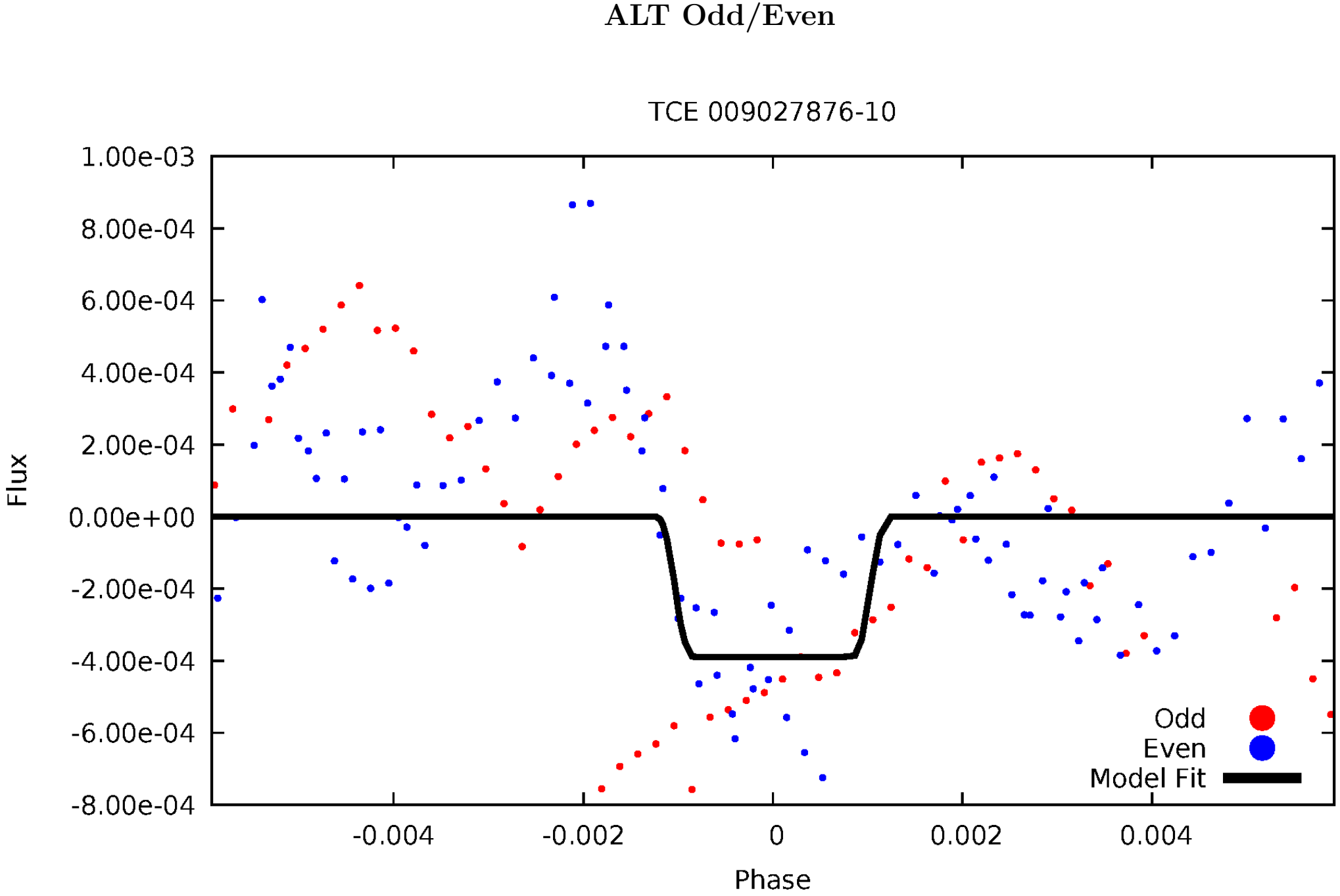
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009027876-10, PDC Light Curves

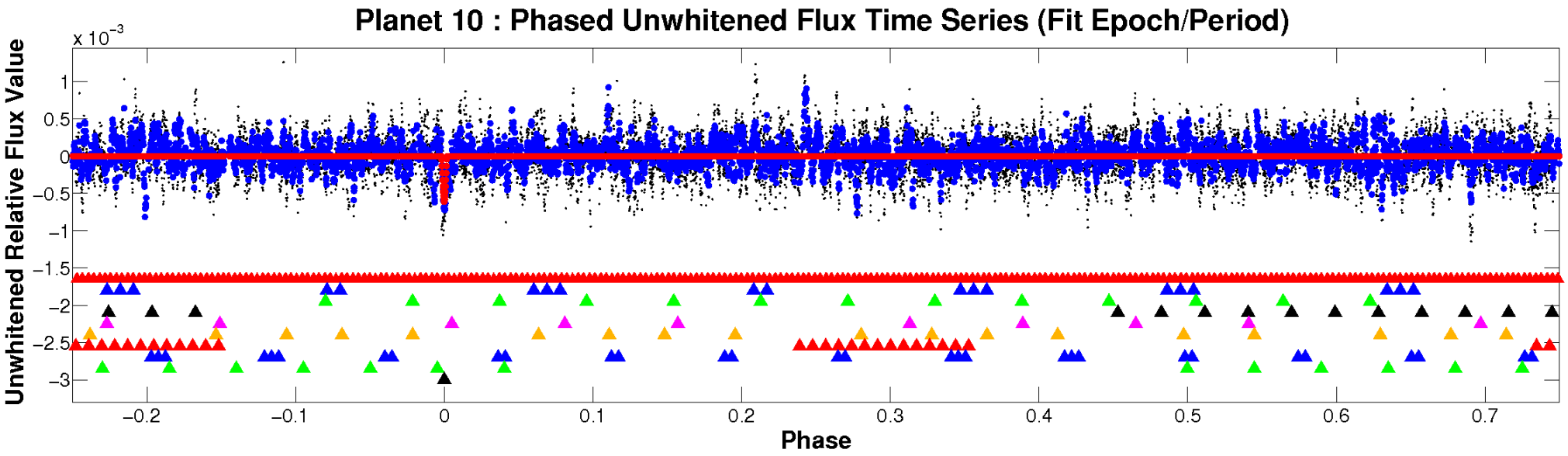


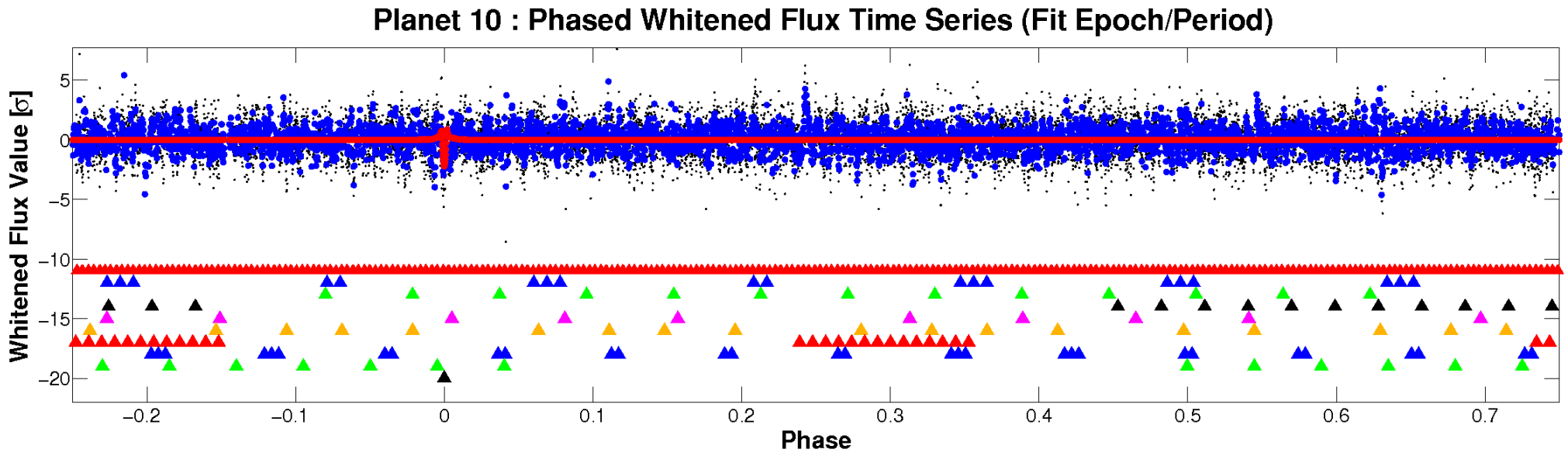

TCE 009027876-10
P = 53.576 days
P = 107.152 days
P = 214.305 days
Normalized Flux
BKJD
Normalized Flux
Phase


DV Odd/Even
TCE 009027876-10
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
-1.00e-03
-1.20e-03
Flux
-0.006
-0.004
-0.002
0
0.002
0.004
0.006
Phase
Odd
Even
Model Fit


ALT Odd/Even
TCE 009027876-10
1.00e-03
8.00e-04
6.00e-04
4.00e-04
2.00e-04
0.00e+00
-2.00e-04
-4.00e-04
-6.00e-04
-8.00e-04
Flux
-0.004
-0.002
0
0.002
0.004
Phase
Odd
Even
Model Fit

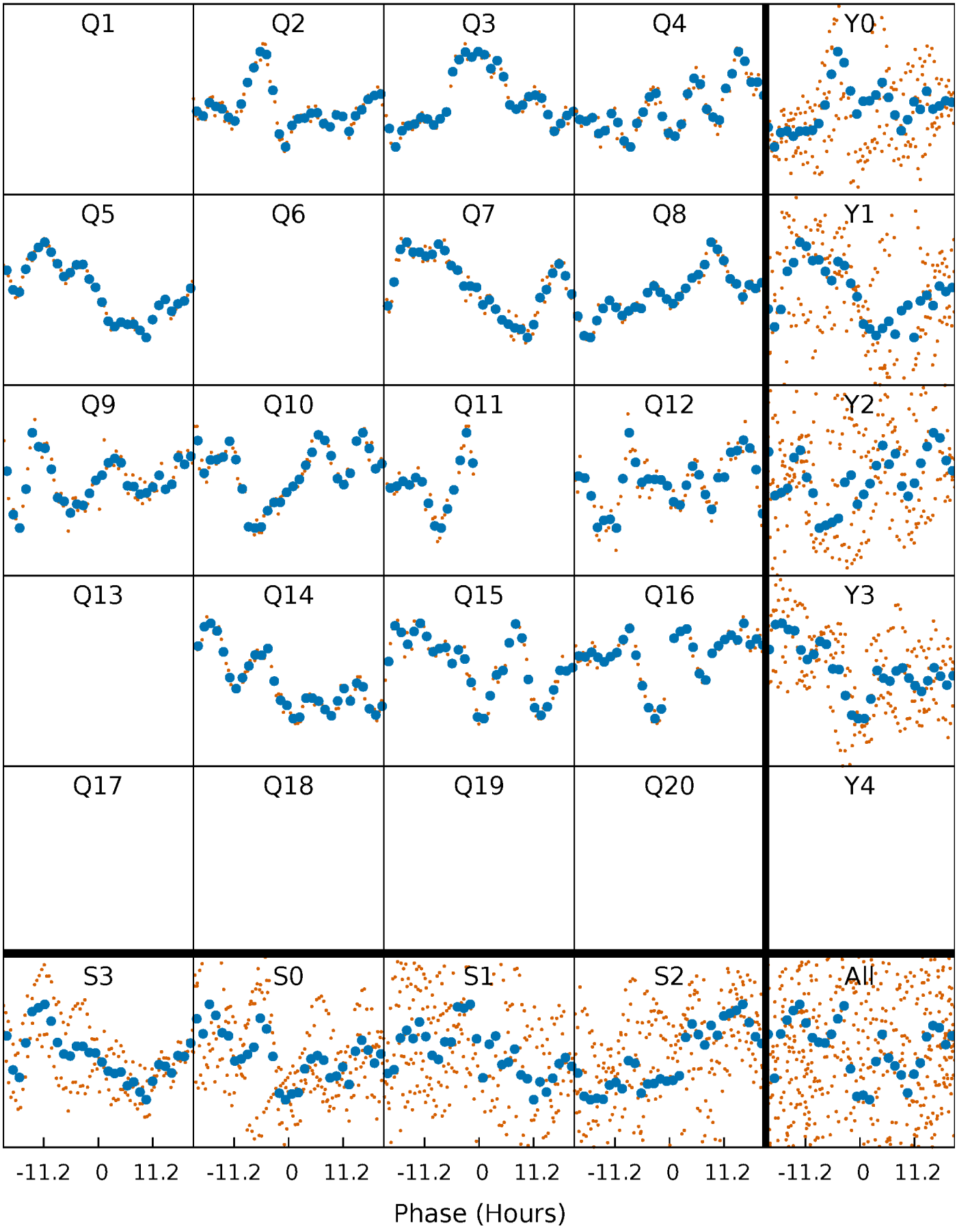
Non-Whitened Vs. Whitened Light Curve





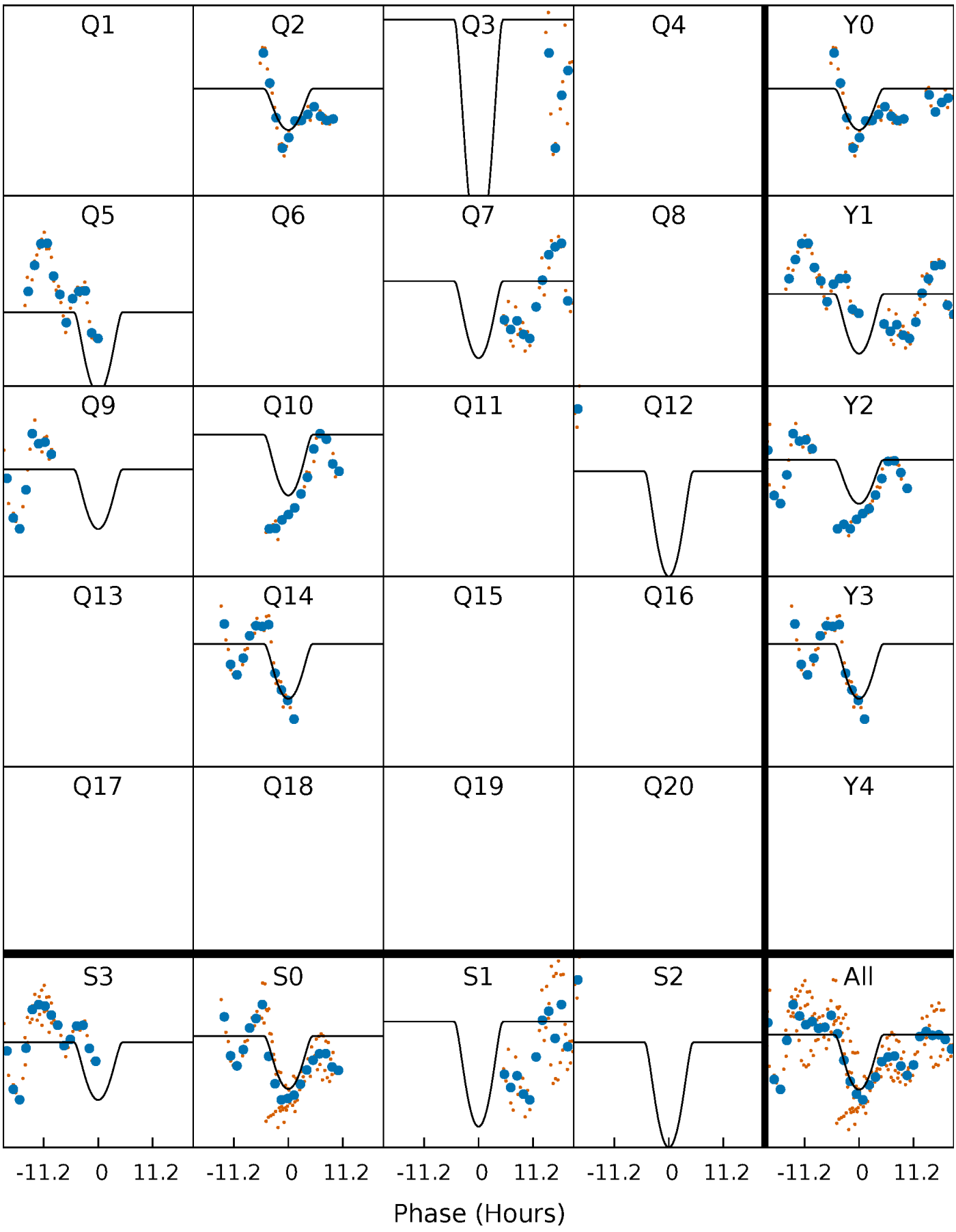
PDC Quarter-Phased Transit Curves

TCE 009027876-10 P=107.152482 Days T_0=212.814689 (BKJD)



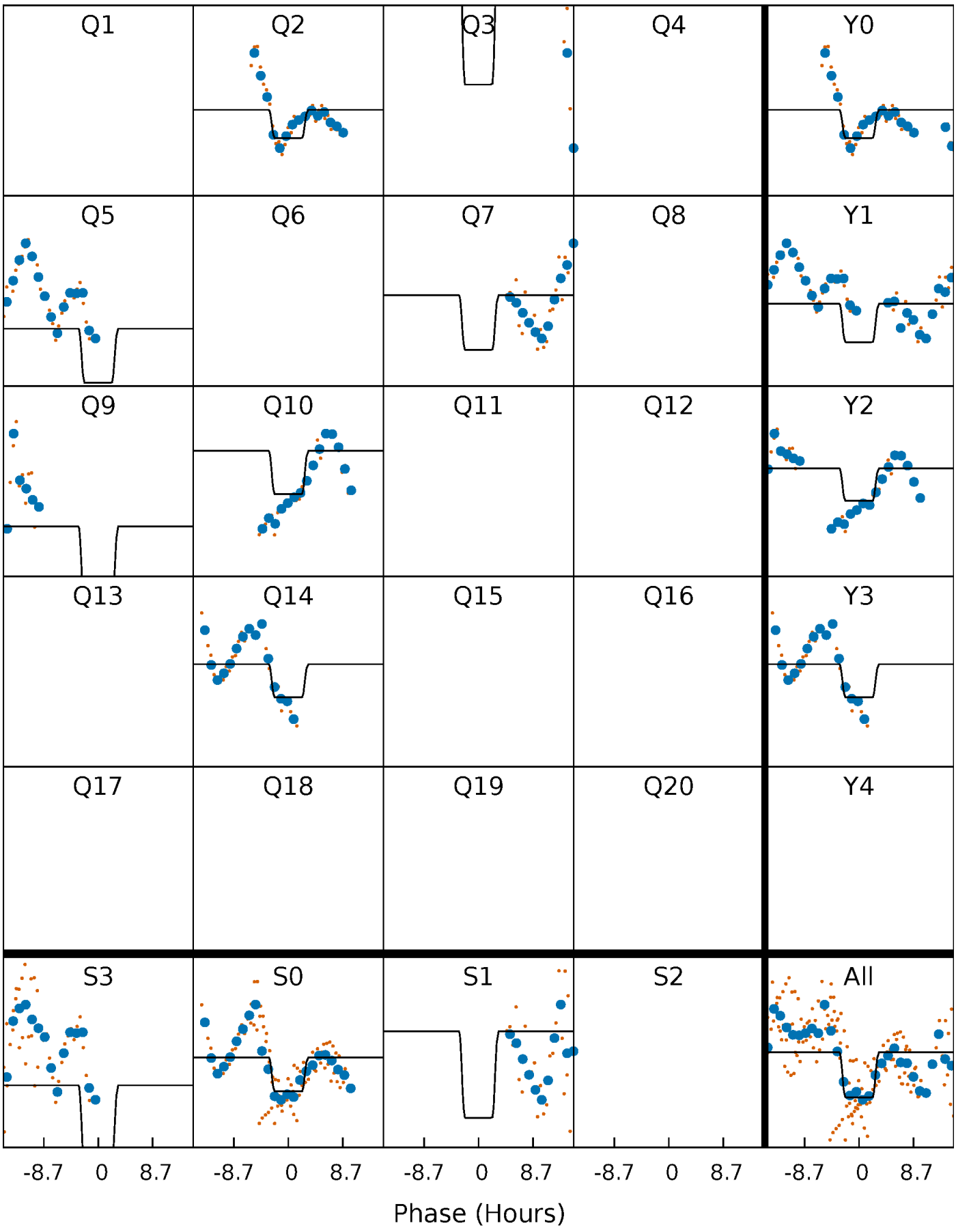
DV Quarter-Phased Transit Curves

TCE 009027876-10 P=107.152482 Days T_0=212.814689 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

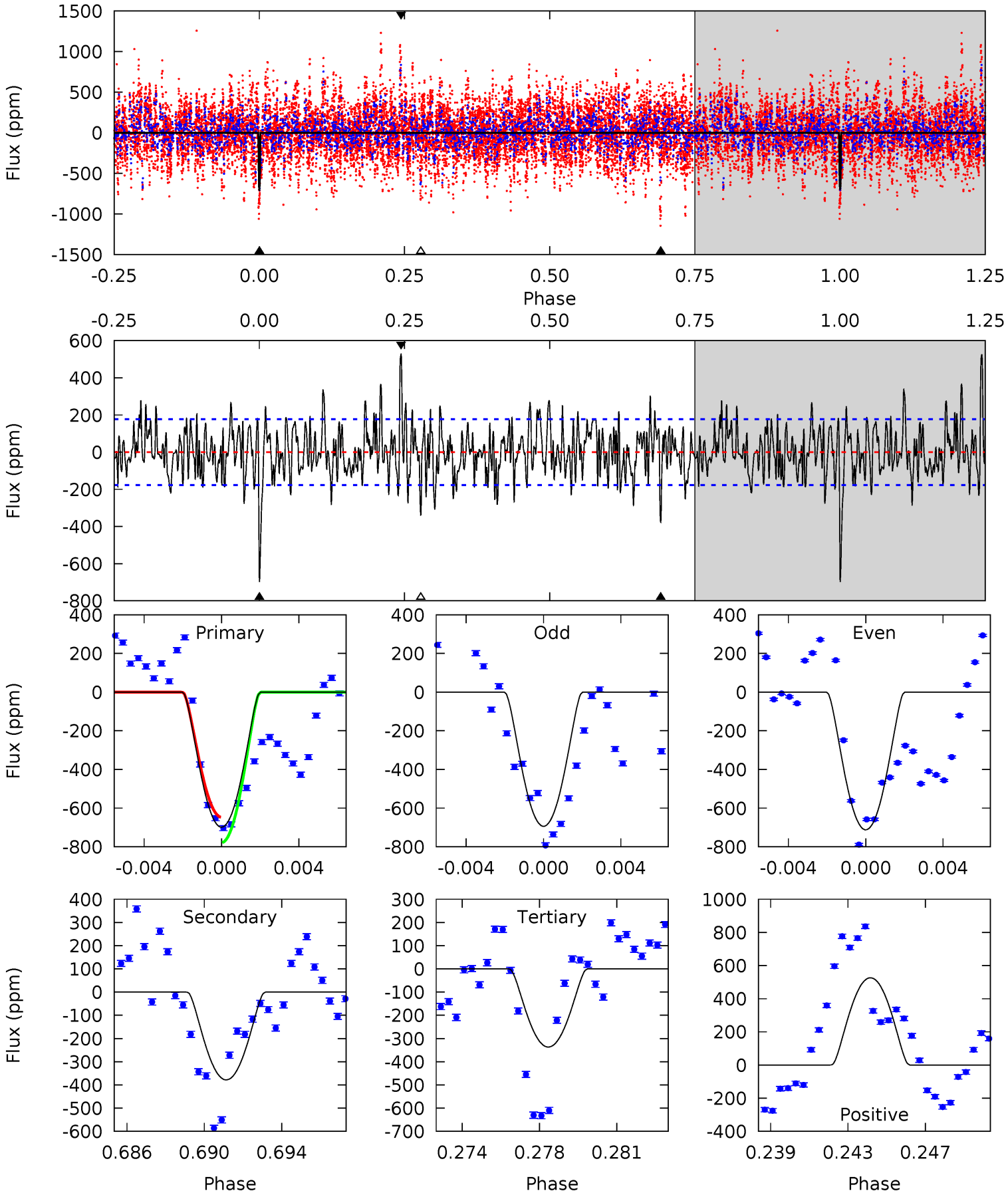
TCE 009027876-10 P=107.151992 Days T_0=212.821337 (BKJD)



DV Model-Shift Uniqueness Test

009027876-10, P = 107.152482 Days, E = 105.662207 Days

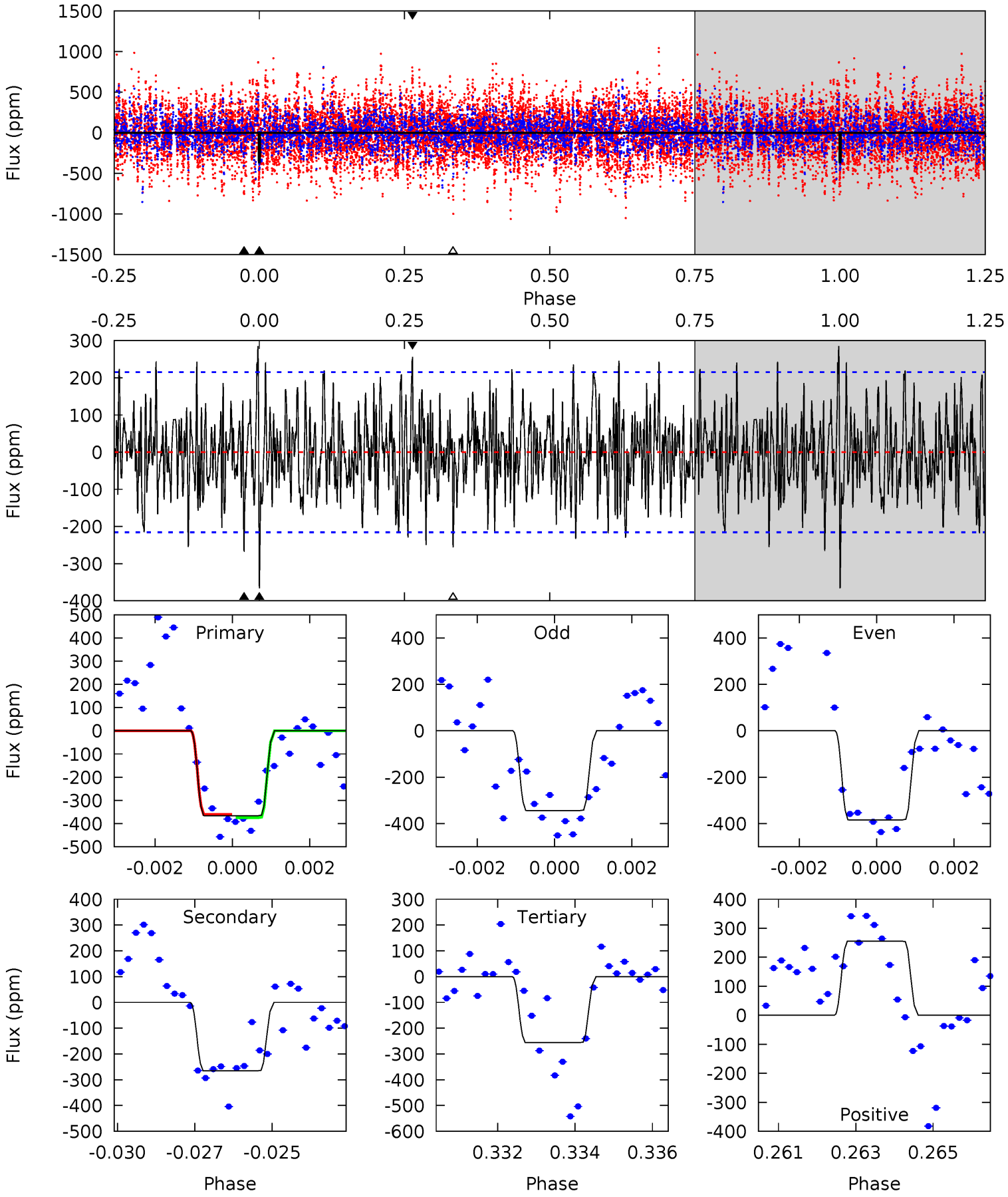
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	11.1	9.88	15.4	5.21	2.89	3.41	10.6	5.05	1.21	-4.34	0.27	0.88	0.43	1.88



Alt Model-Shift Uniqueness Test

009027876-10, P = 107.151992 Days, E = 105.669345 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.01	6.53	6.30	6.29	5.30	3.05	2.16	2.71	2.72	0.23	0.24	0.51	0.82	0.44	0.17



Stellar Parameters For KIC 009027876

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	6777^{+184}_{-184}	$3.370^{+0.405}_{-0.045}$	$-0.300^{+0.350}_{-0.300}$	$4.806^{+0.355}_{-2.010}$	$1.975^{+0.132}_{-0.421}$	$0.025^{+0.089}_{-0.004}$
	+3%/-3%	+12%/-1%	+117%/-100%	+7%/-42%	+7%/-21%	+353%/-15%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009027876-10 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-378±34	$25.27^{+22.37}_{-16.49}$	1198^{+59}_{-126}	4282^{+2536}_{-844}	99^{+736}_{-72}
Alt.	-266±41	$21.42^{+23.25}_{-14.78}$	1195^{+64}_{-127}	4279^{+2985}_{-940}	99^{+854}_{-77}

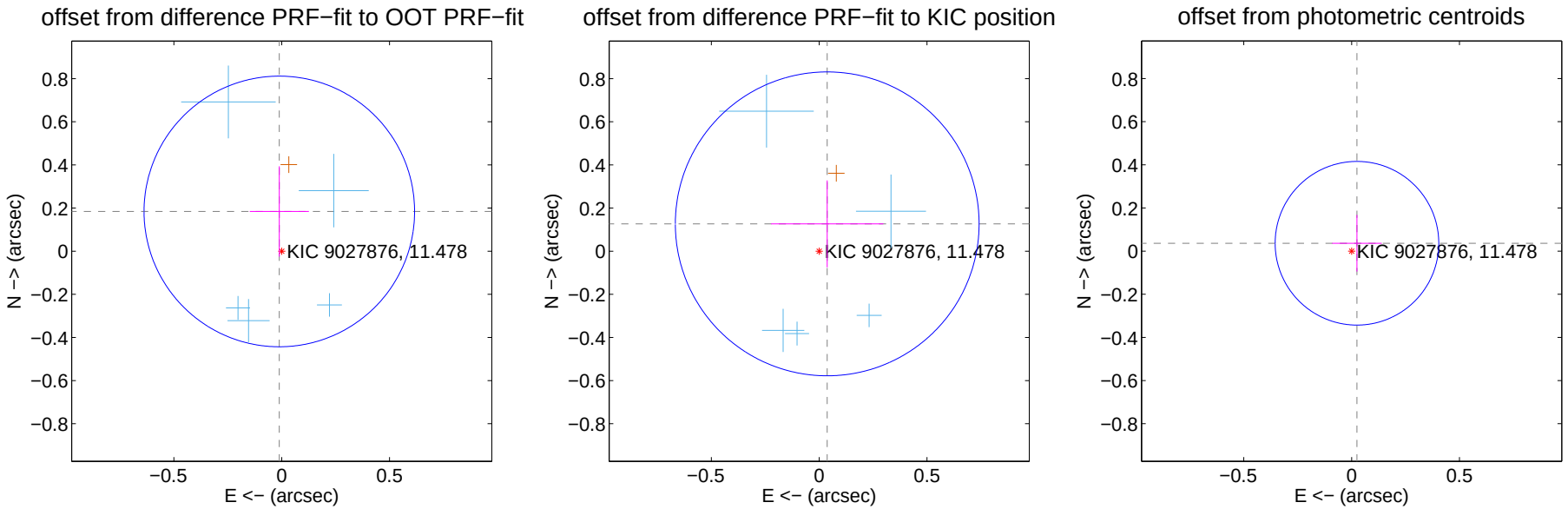
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

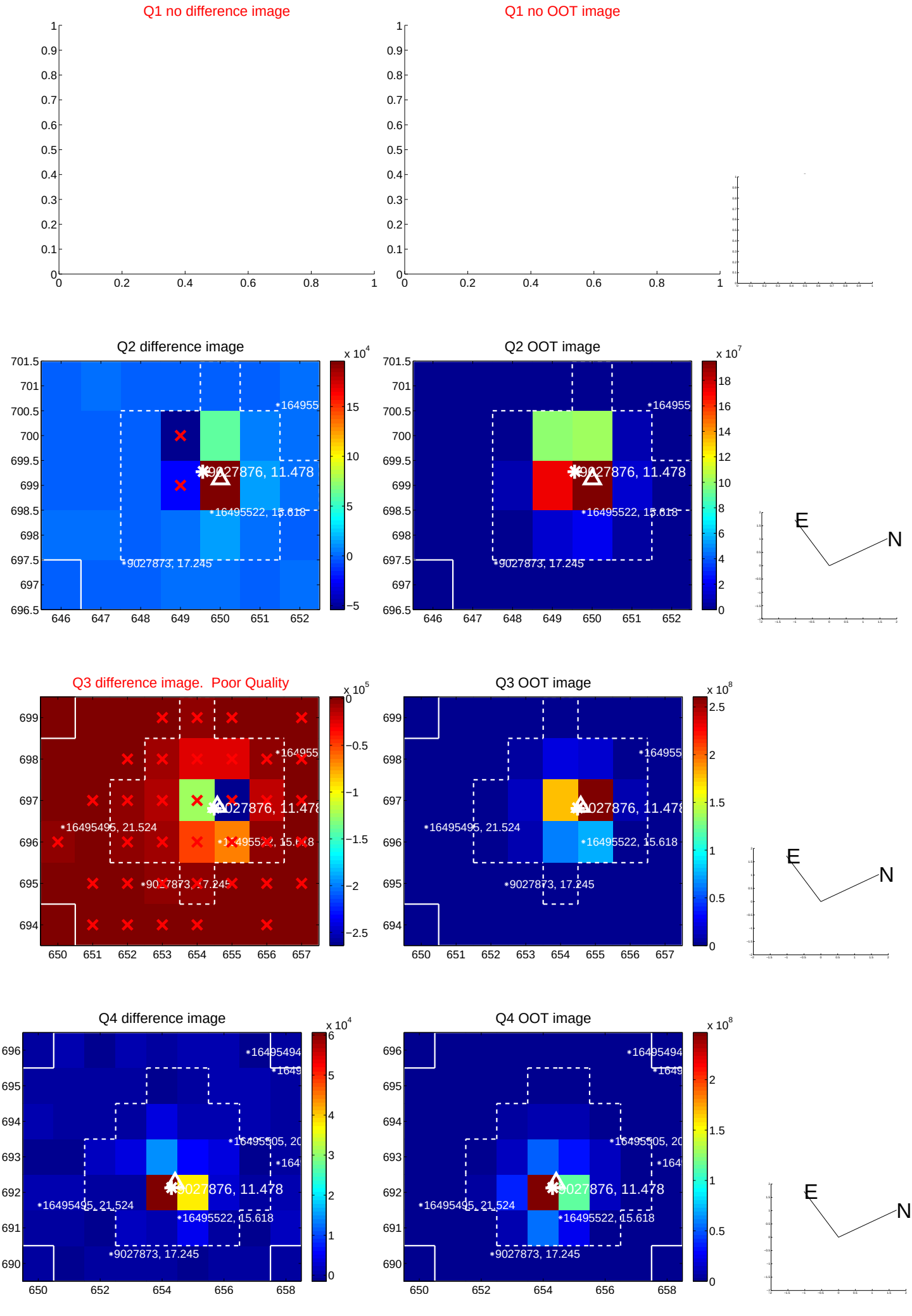
Supplemental centroid analysis for 009027876-10. Kepler magnitude: 11.48. Transit SNR 12.10
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.185 ± 0.209	0.88	0.011 ± 0.137	0.184 ± 0.209
PRF-fit source offset from KIC position	0.132 ± 0.235	0.56	-0.037 ± 0.260	0.127 ± 0.201
photometric centroid source offset	0.04 ± 0.13	0.35	-0.02 ± 0.12	0.04 ± 0.13

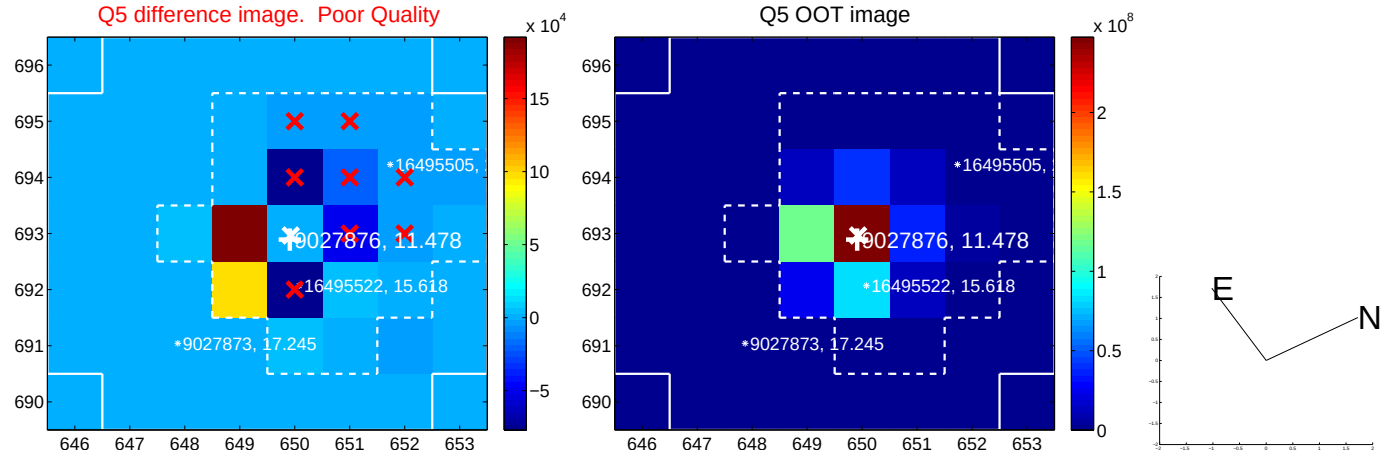


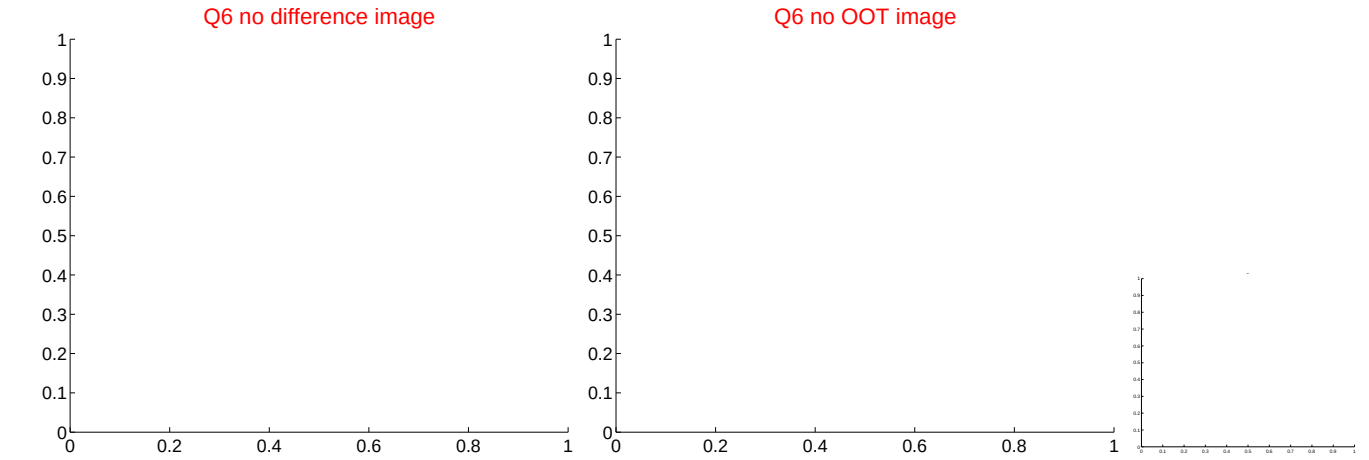
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

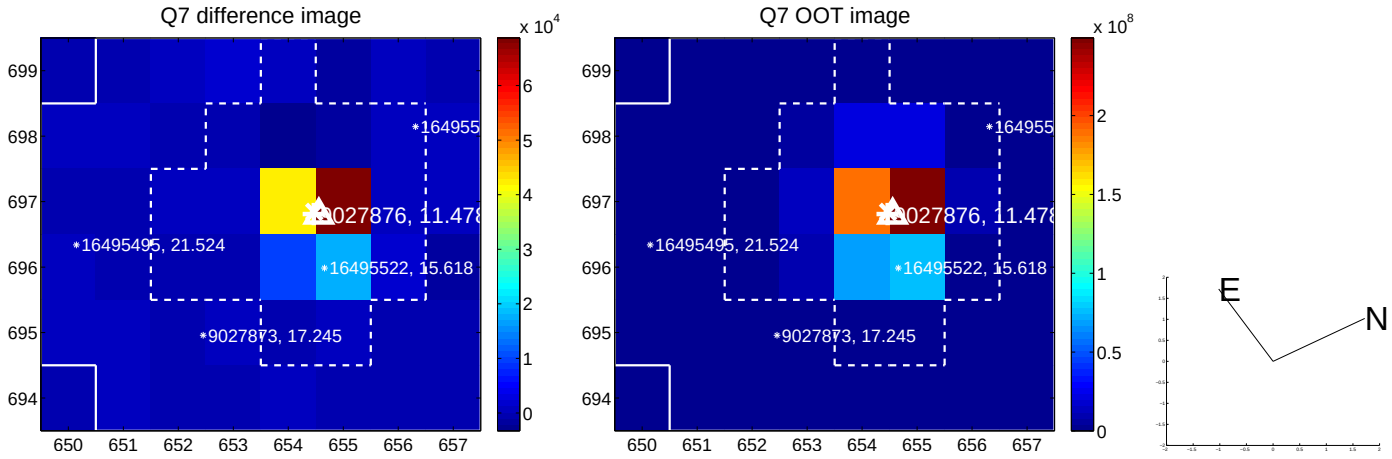
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

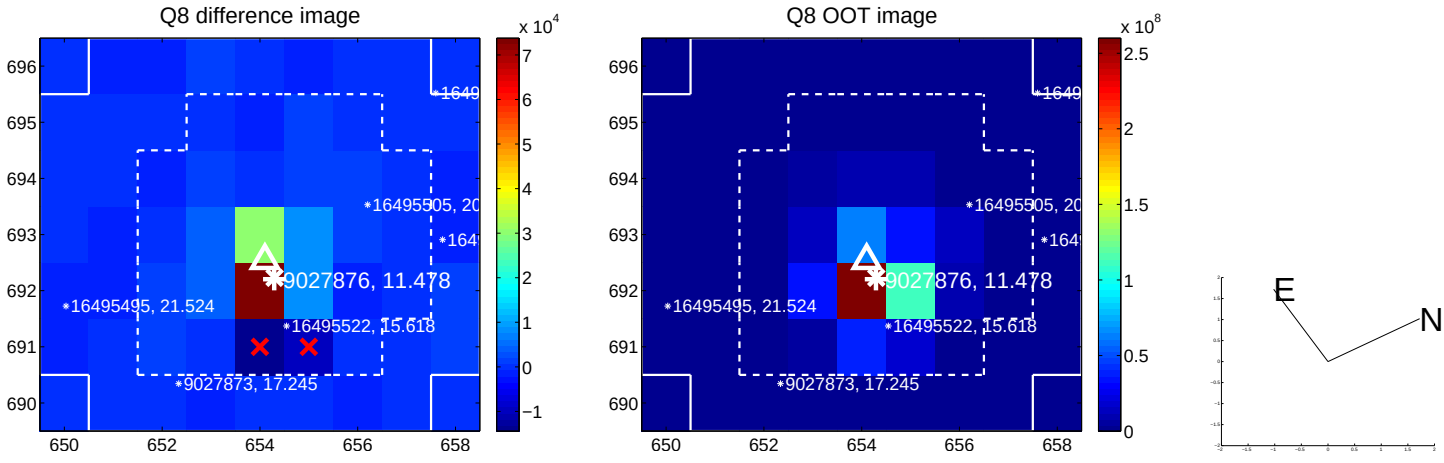


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

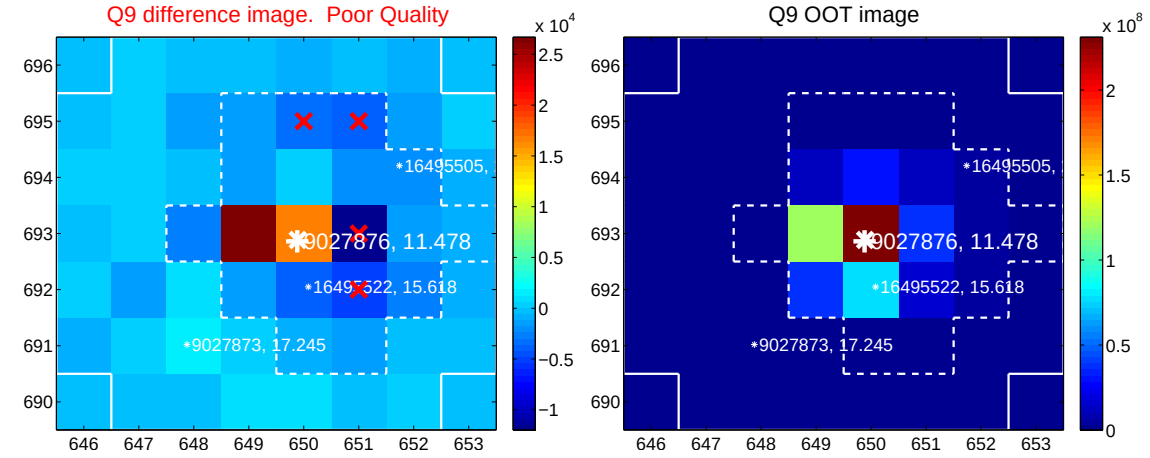


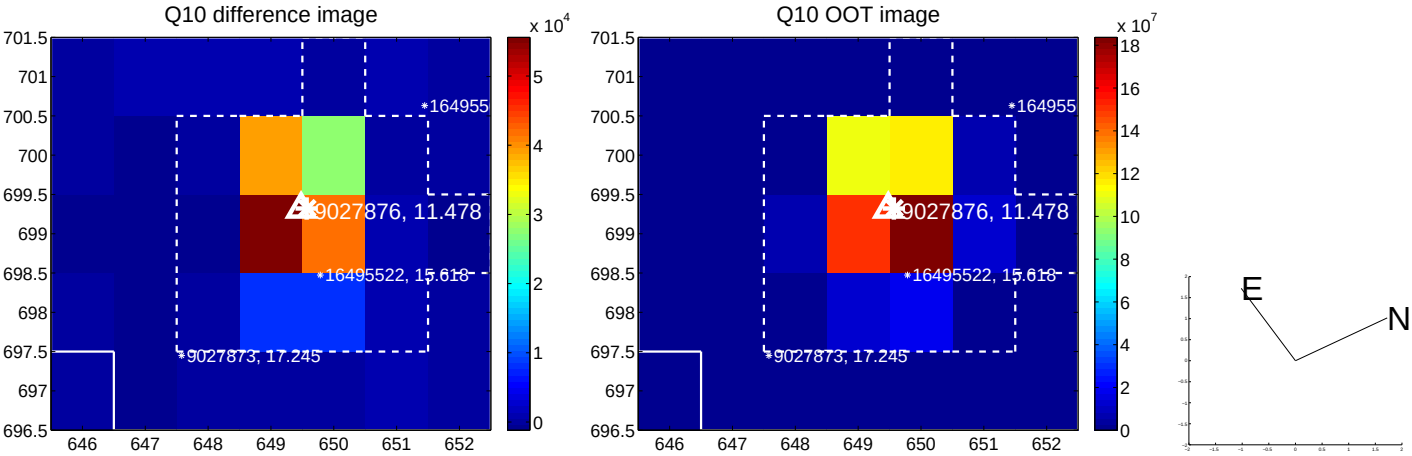


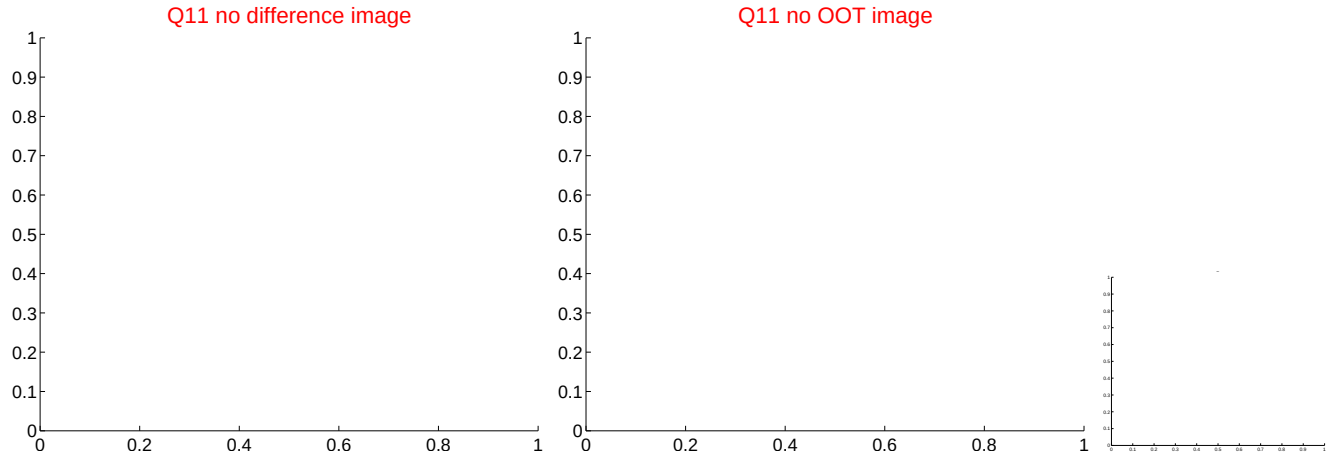


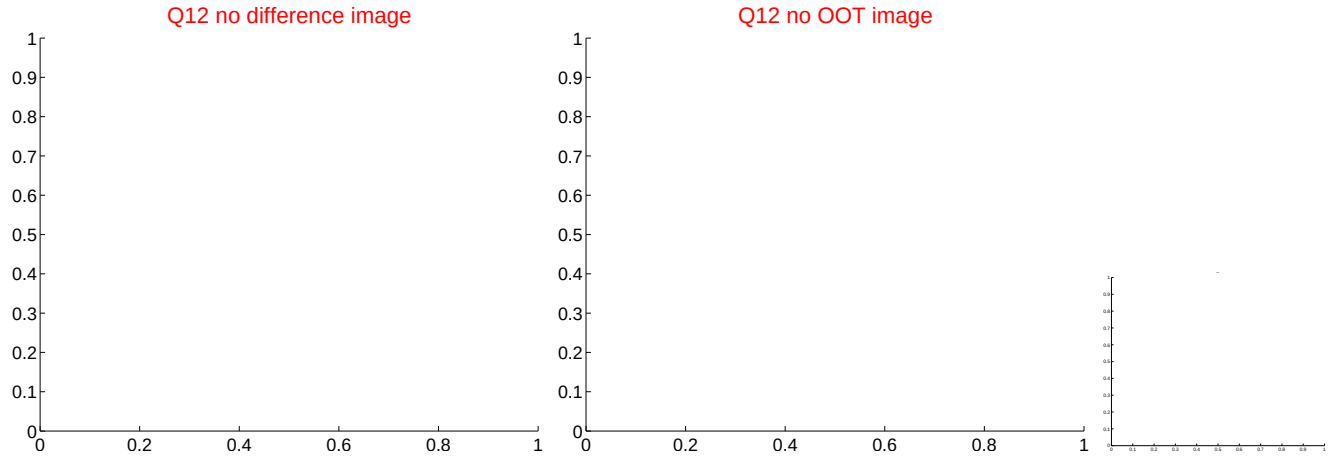


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

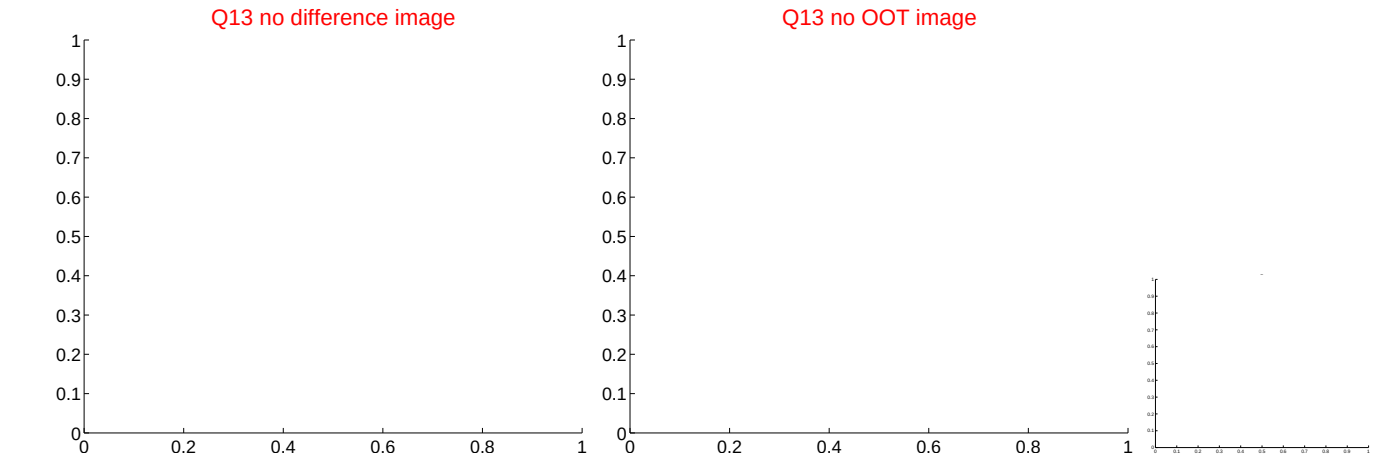


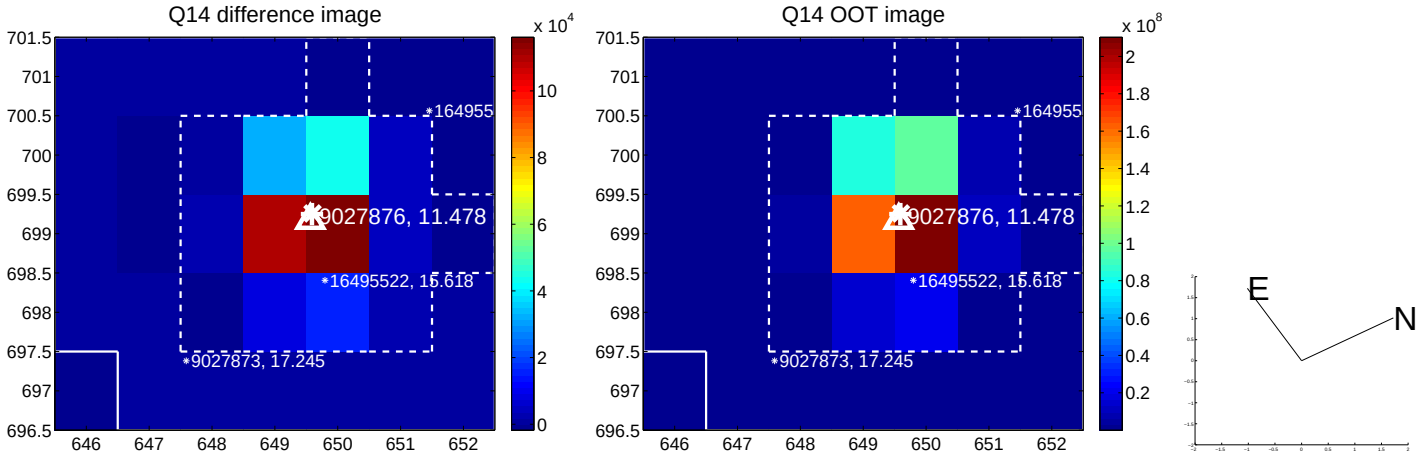


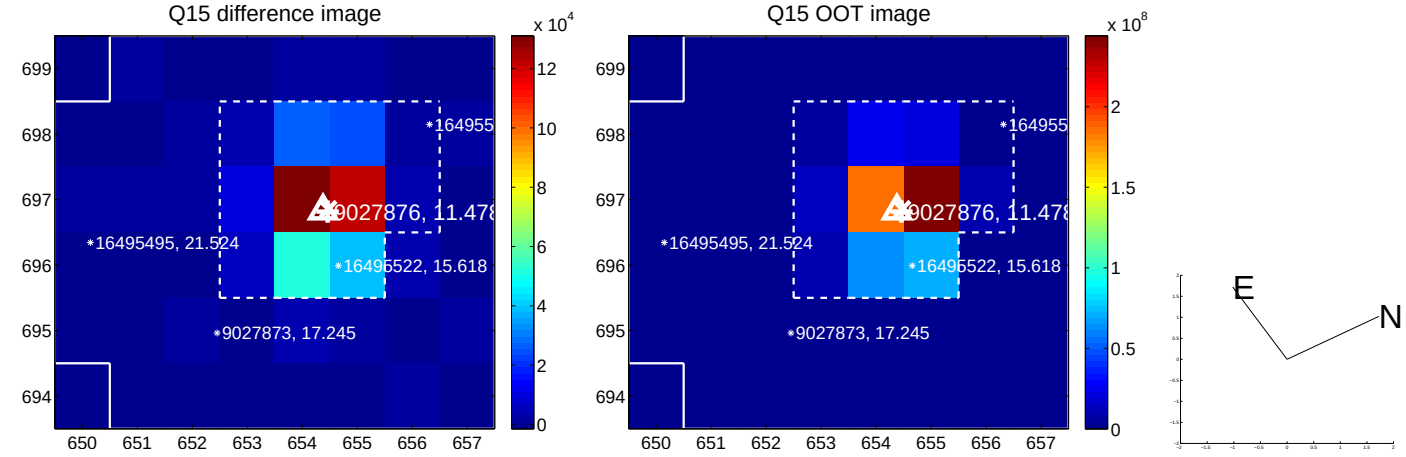


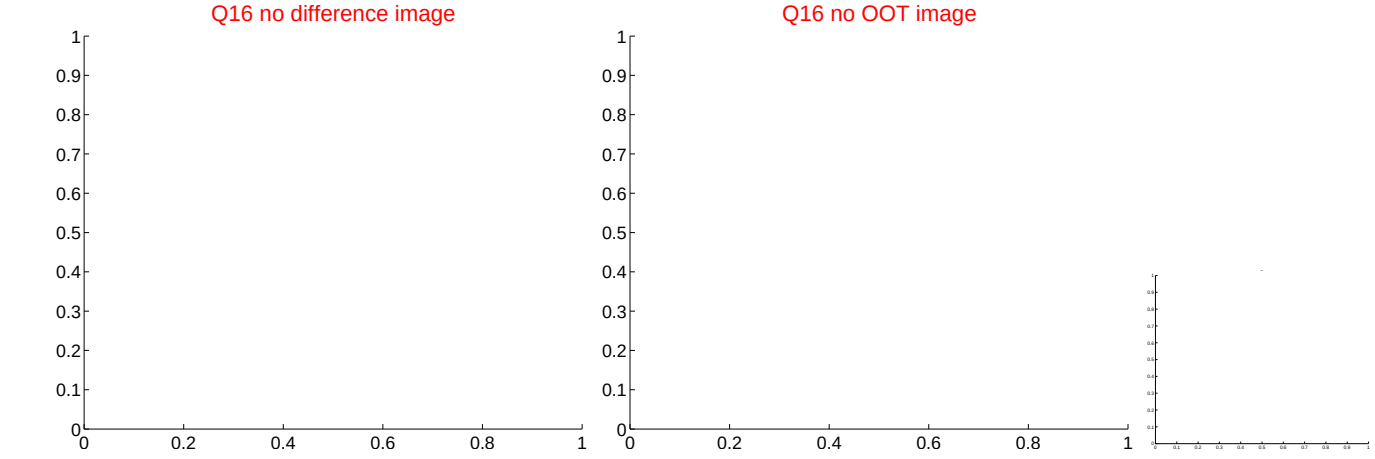


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

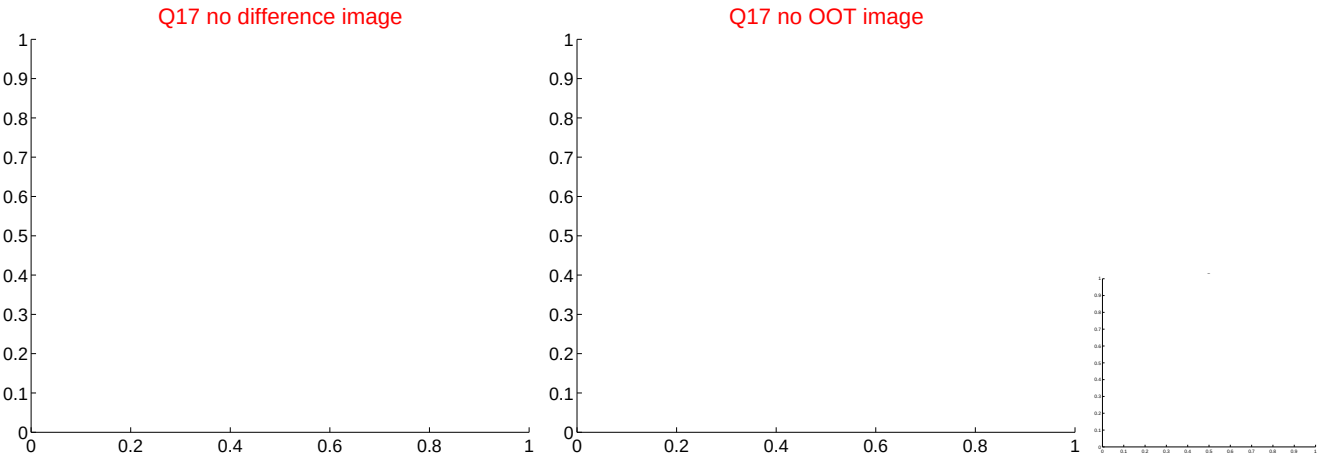


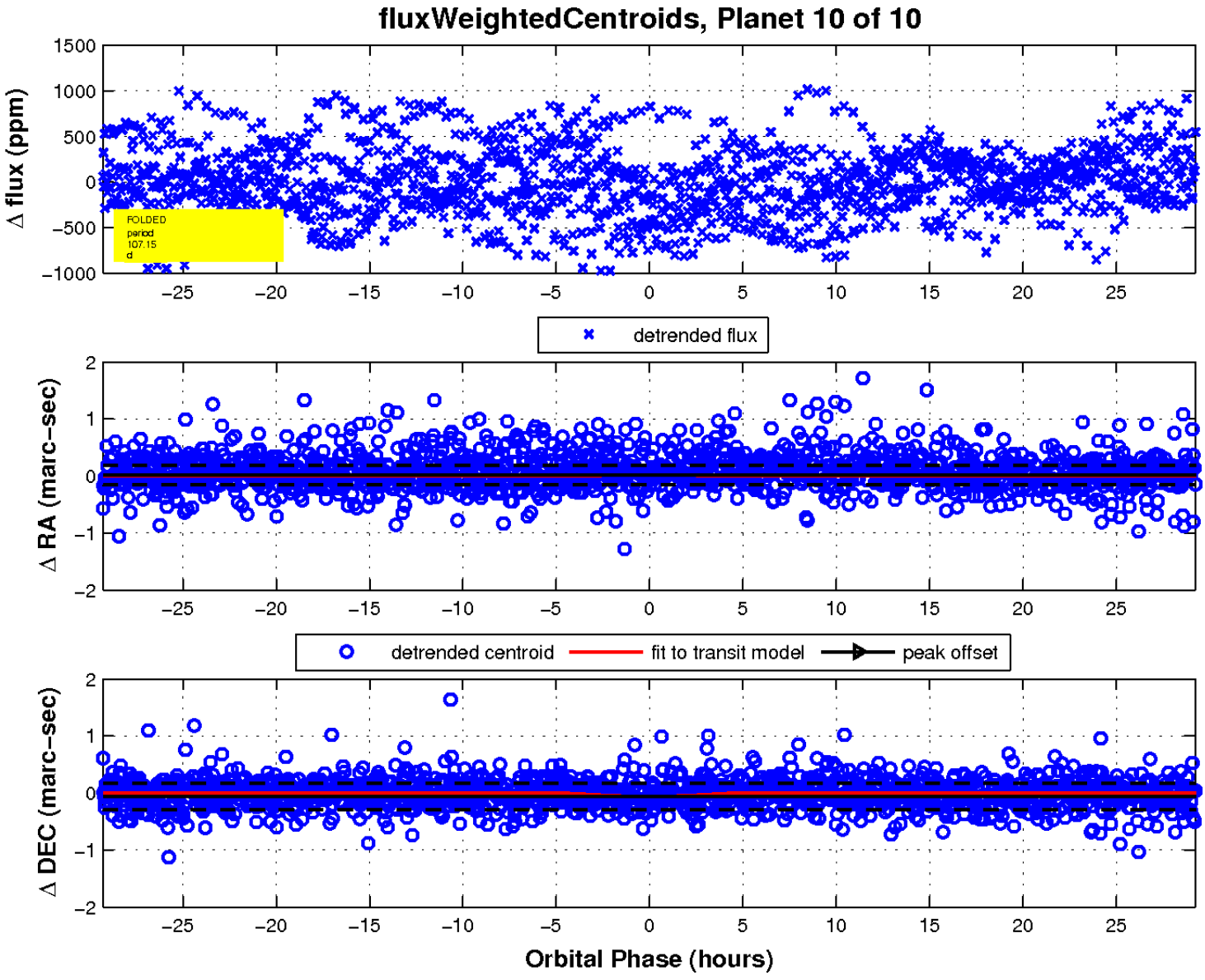




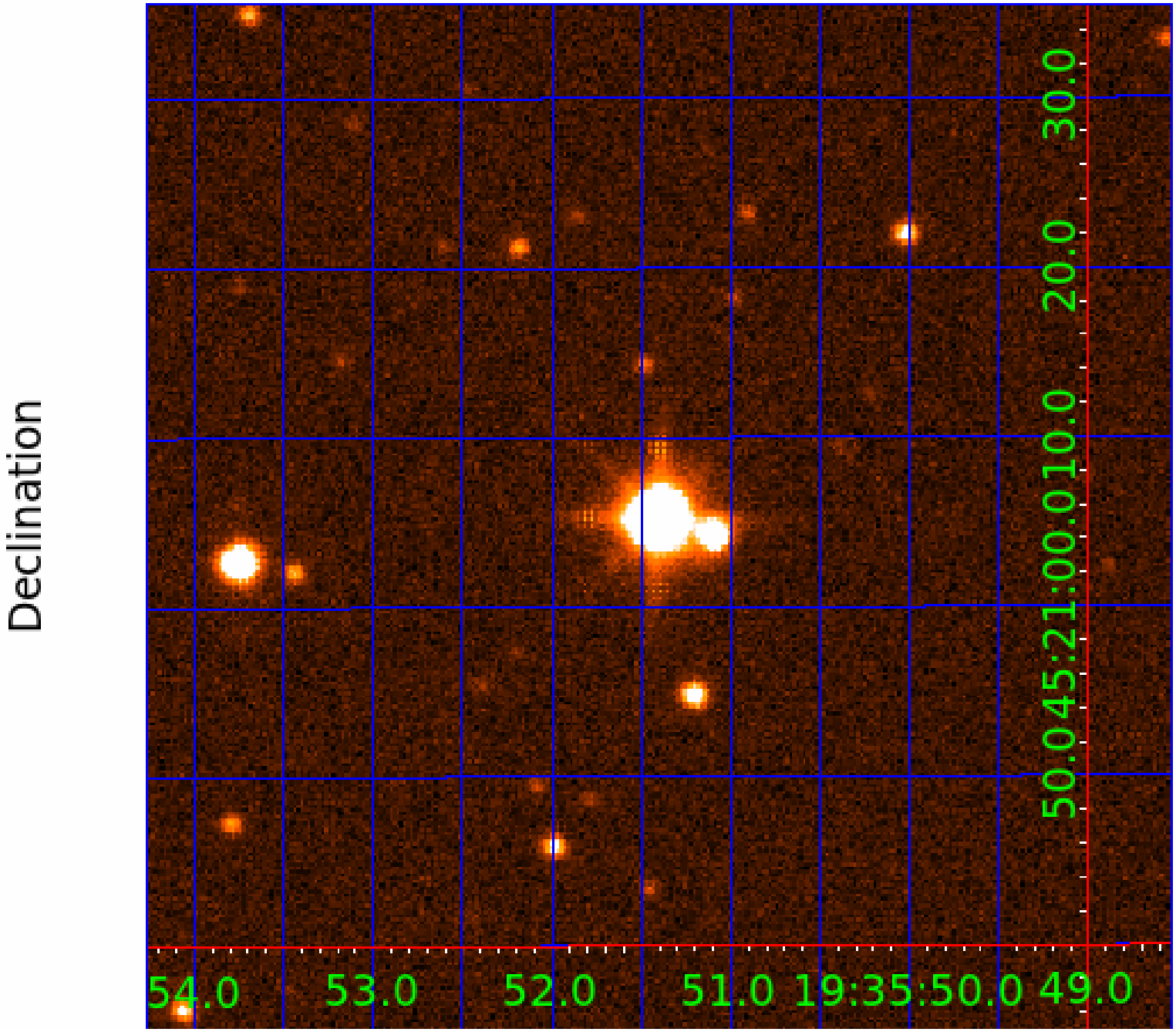


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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