KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

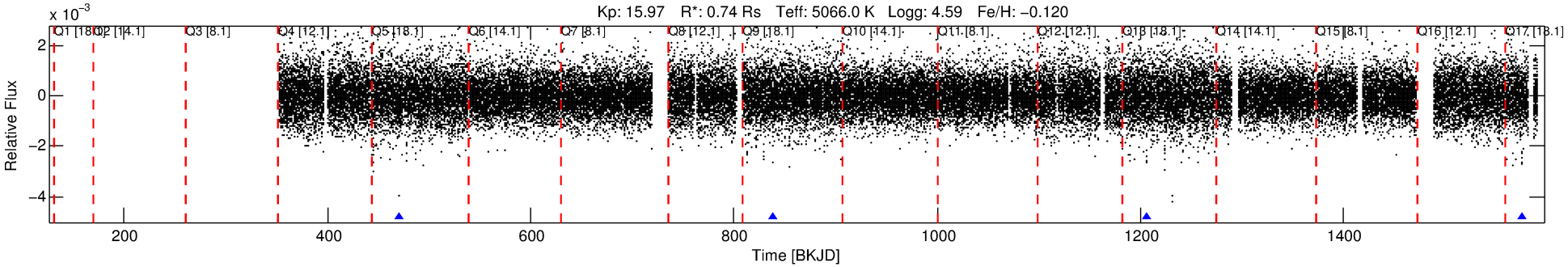
Ephemeris Match Information For 008956706-01

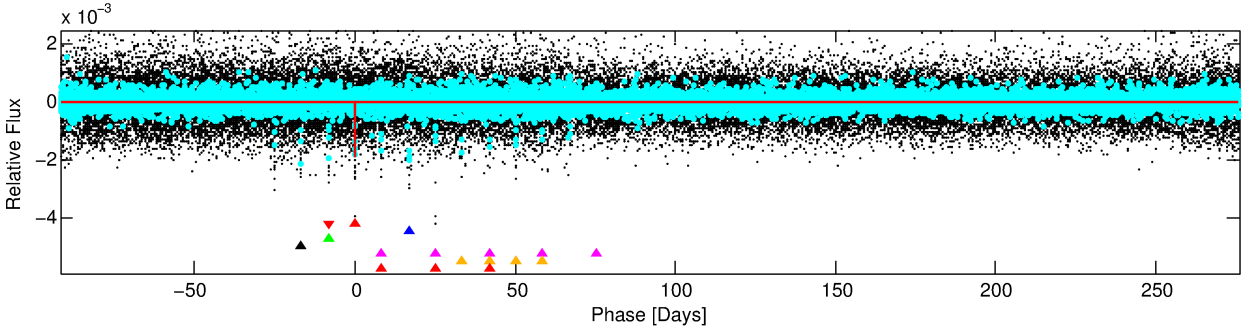
No Significant Match Found

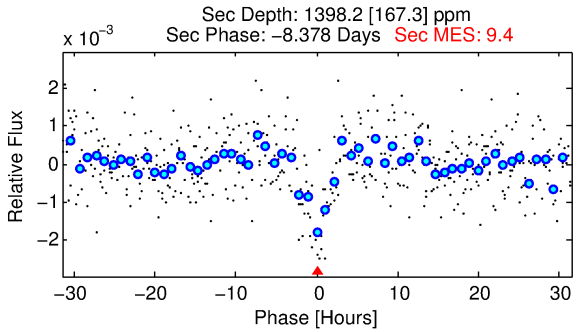
DV One-Page Summary

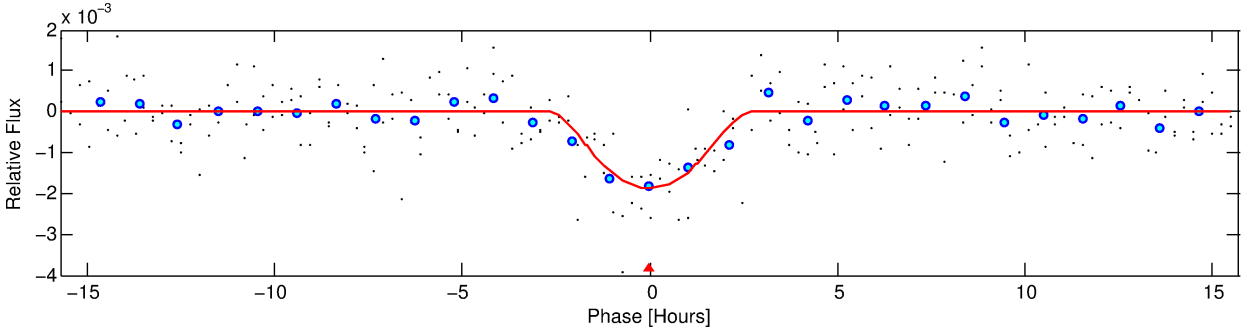
KIC: 8956706 Candidate: 1 of 7 Period: 368.407 d
KOI: K02431 Corr: No Ephemeris Match

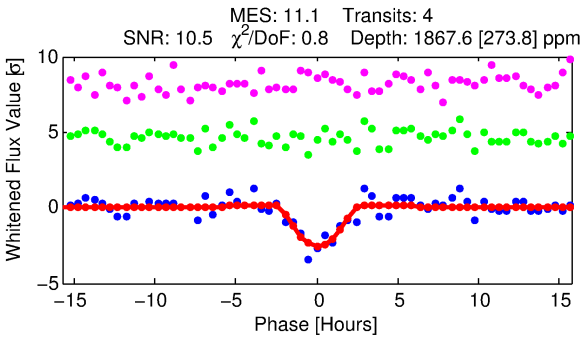
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

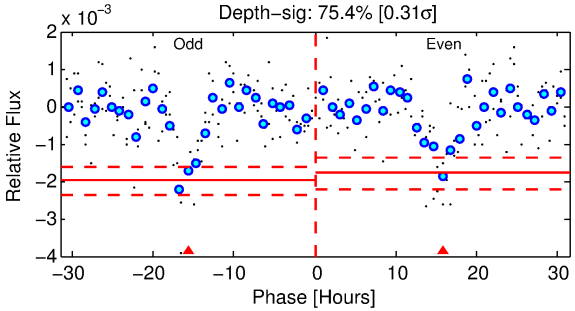












DV Fit Results:

Period = 368.40735 [0.00508] d
Epoch = 469.9824 [0.0097] BKJD
Rp/R* = 0.0613 [0.0866]
a/R* = 228.94 [116.87]
b = 0.97 [0.16]

Seff = 0.38 [0.07]
Teq = 200 [9] K
Rp = 4.95 [7.01] Re
a = 0.9270 [0.0858] AU

Ag = 26959.49 [76255.61] [0.35σ]
Teffp = 3956 [2798] K [1.34σ]

DV Diagnostic Results:

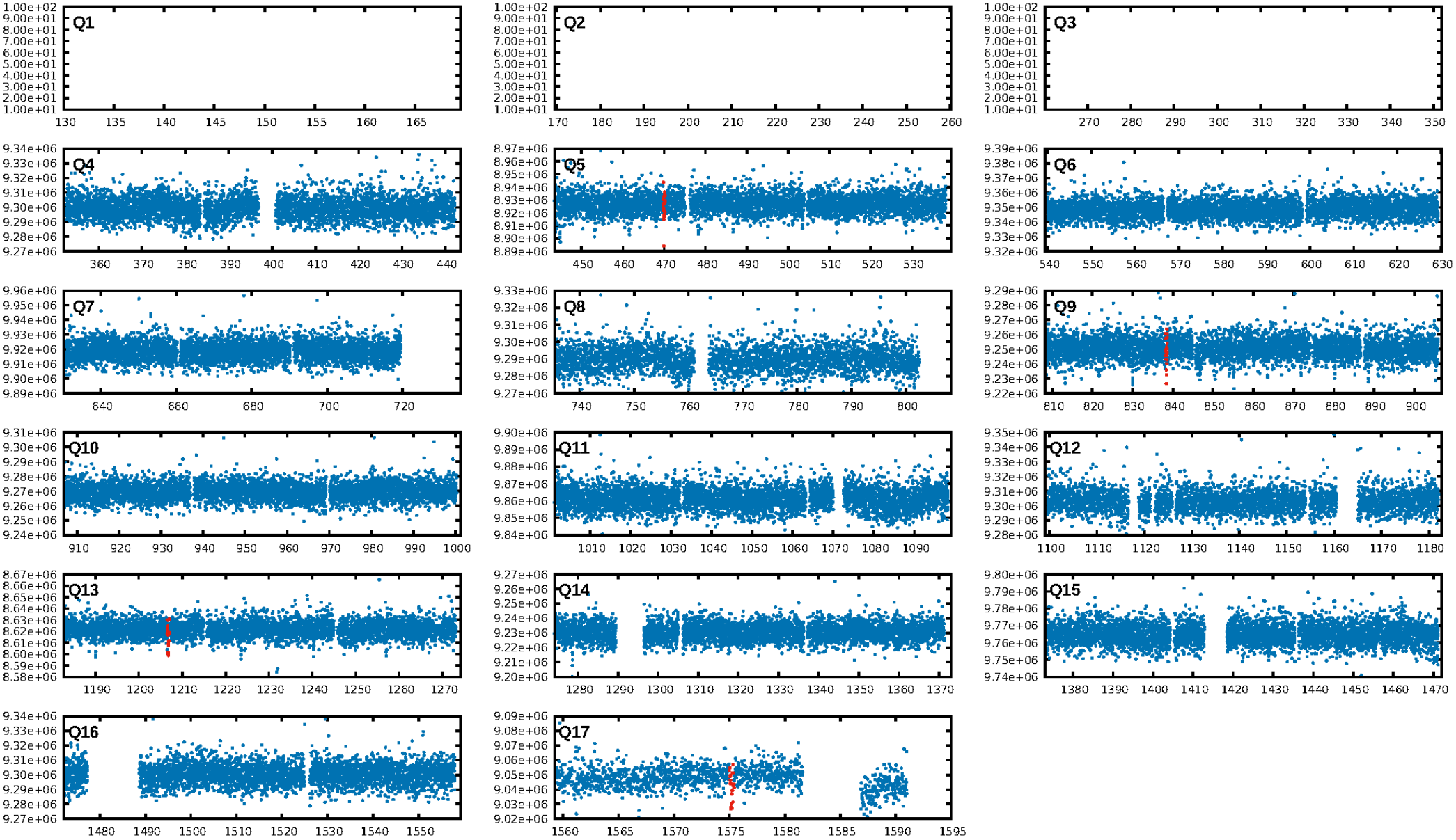
ShortPeriod−sig: 100.0% [61.40σ]
LongPeriod−sig: 2.2% [0.03σ]
ModelChiSquare2−sig: 54.0%
ModelChiSquareGof−sig: 99.5%
Bootstrap−pfa: 1.56e−13
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.4544

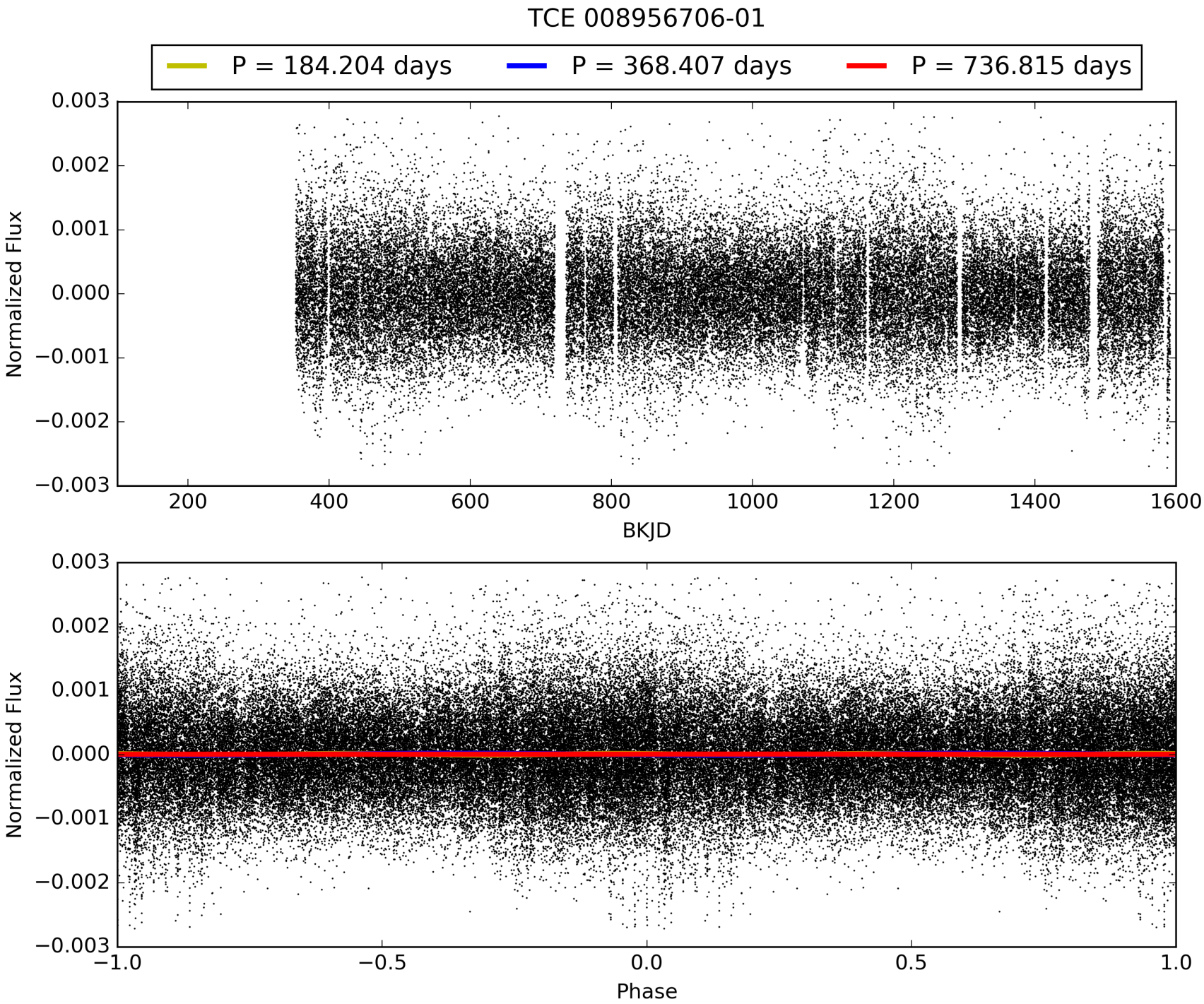
Centroid−sig: 0.0%
Centroid−so: 63.308 arcsec [49.62σ]
OotOffset−rm: N/A
KicOffset−rm: N/A
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 0/0/0/0 [0]
DiffImageQuality−fgm: N/A
DiffImageOverlap−fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 11:06:22 Z

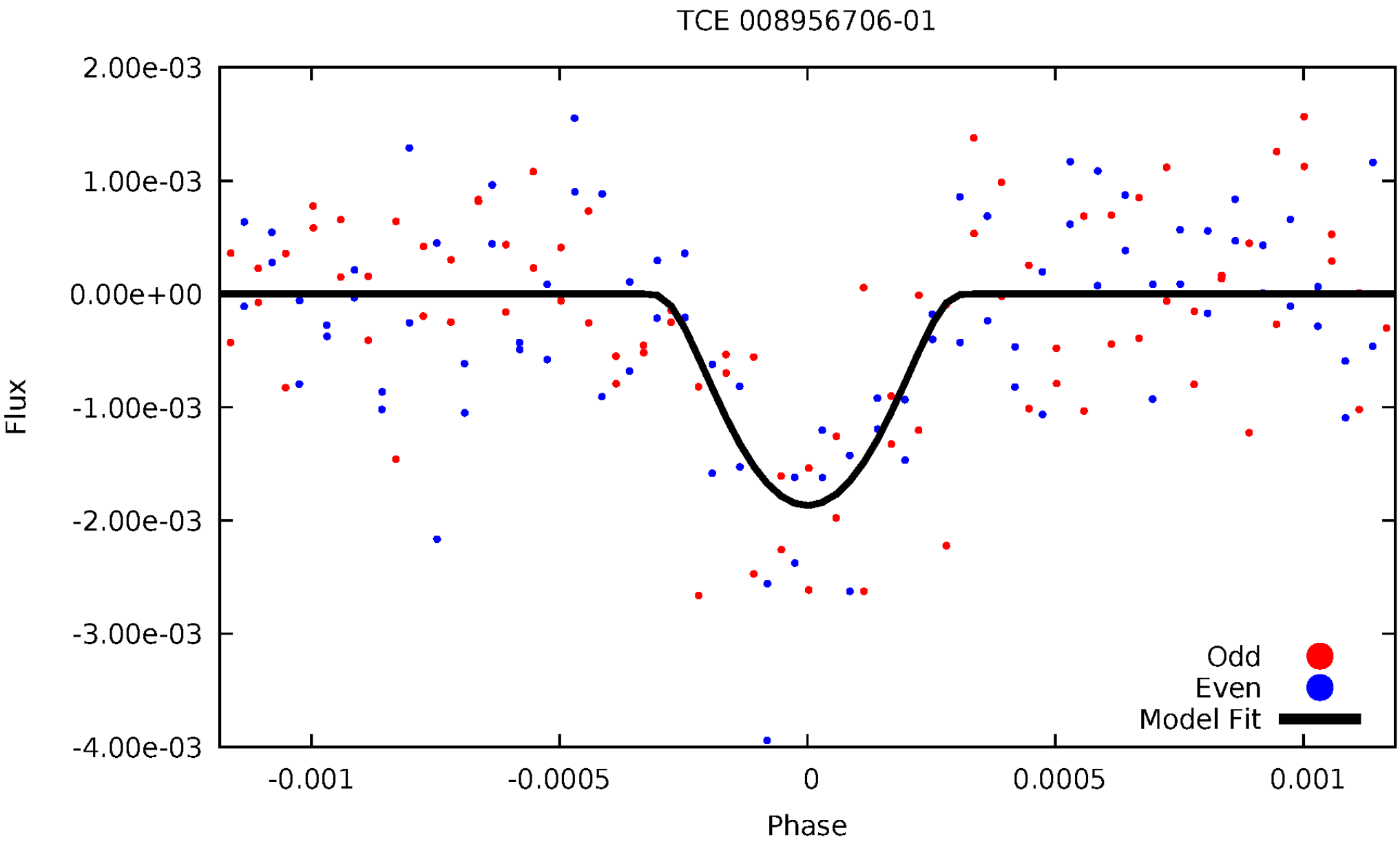
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-01, PDC Light Curves




TCE 008956706-01
P = 184.204 days
P = 368.407 days
P = 736.815 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even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1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
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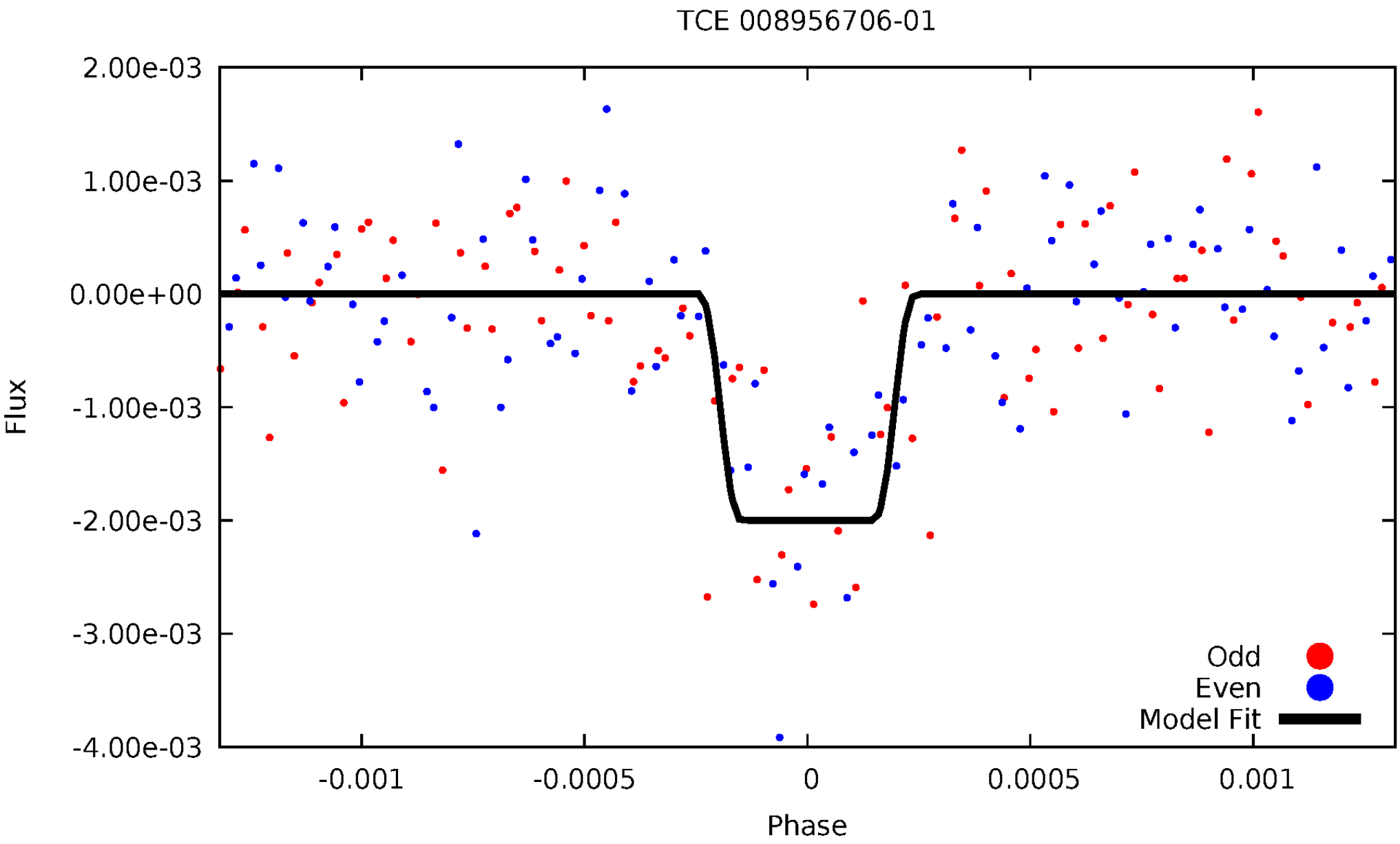
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even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1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
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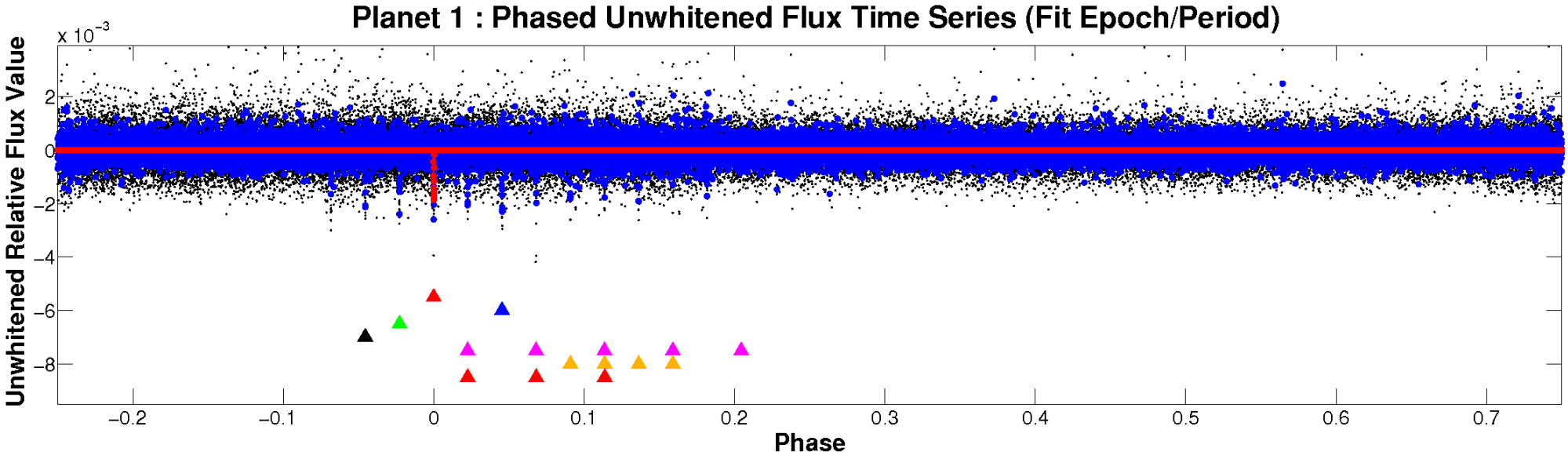
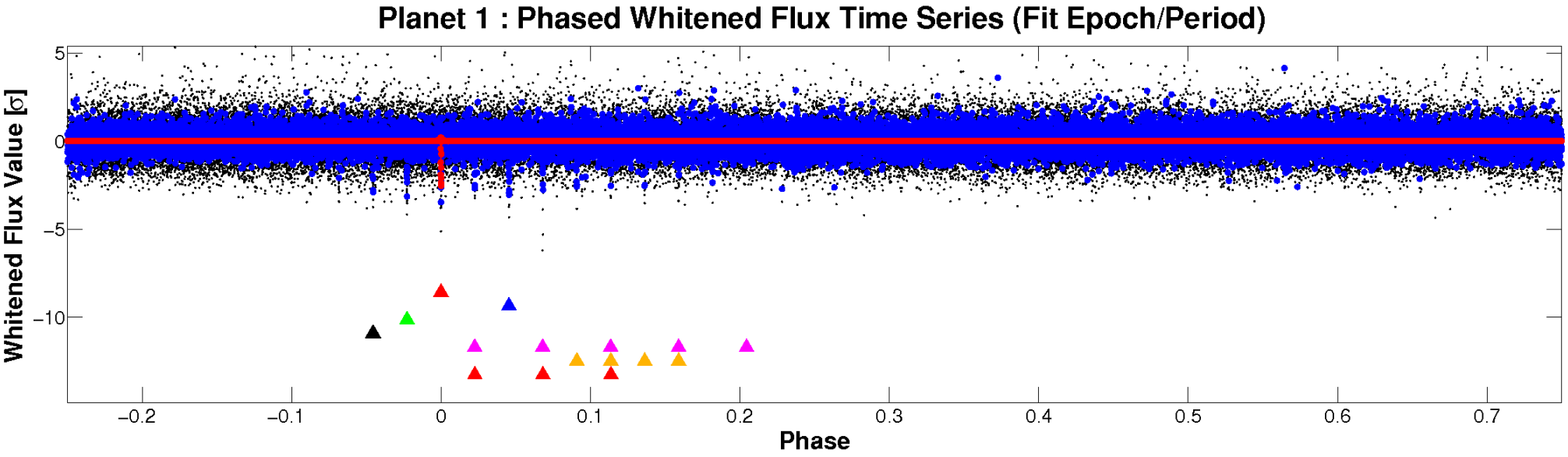
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

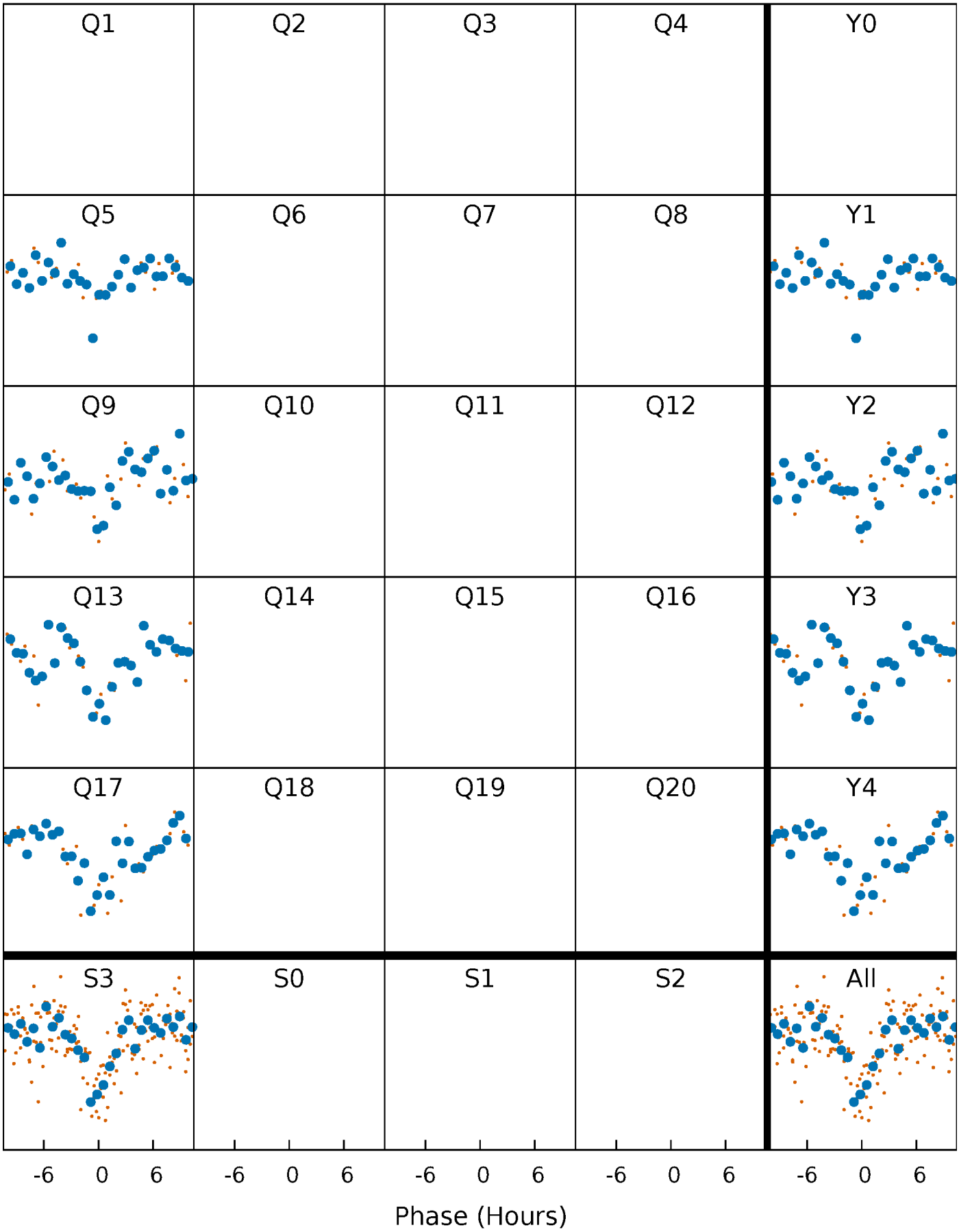
Non-Whitened Vs. Whitened Light Curve





PDC Quarter-Phased Transit Curves

TCE 008956706-01 P=368.407355 Days T_0=469.982419 (BKJD)



DV Quarter-Phased Transit Curves

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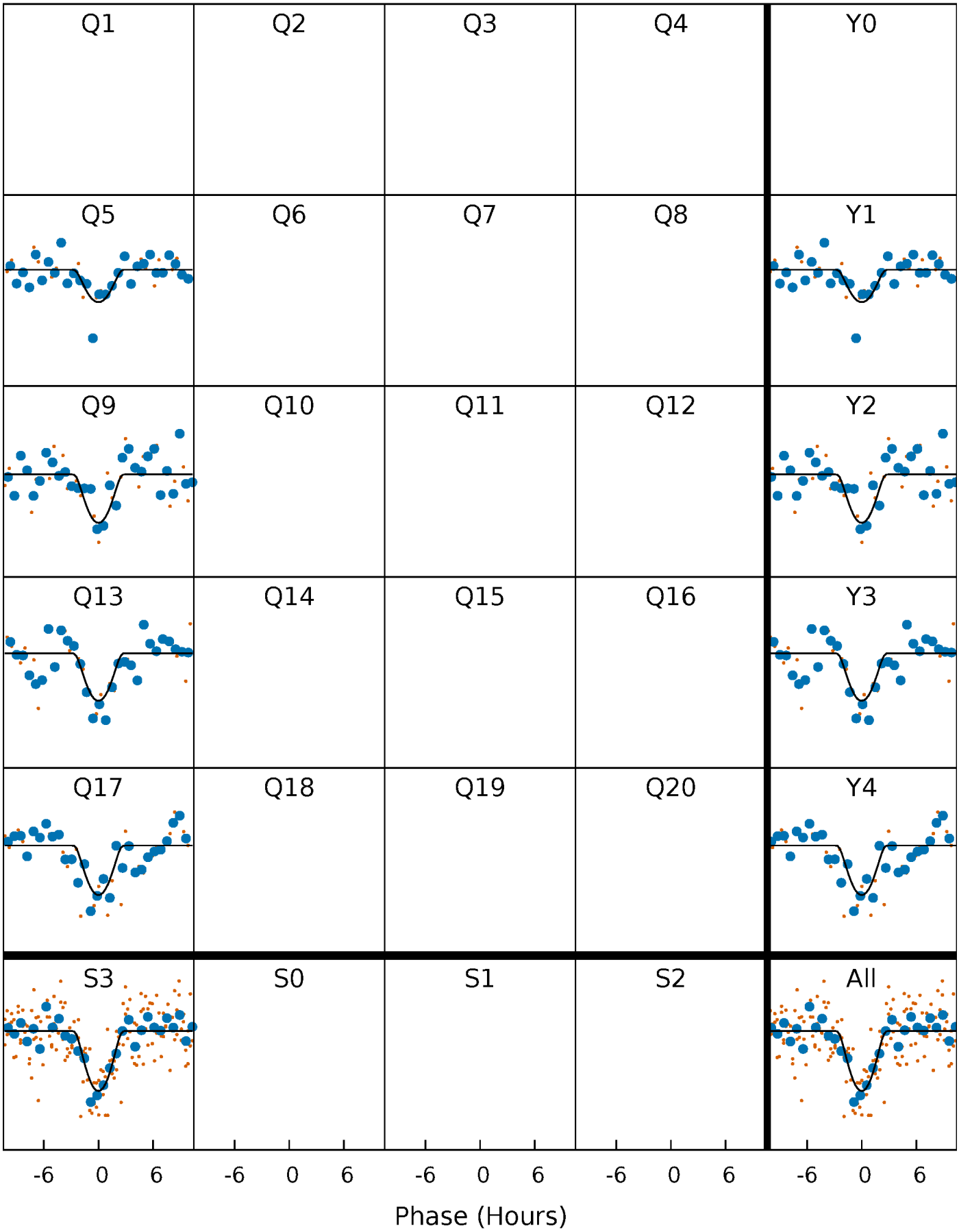
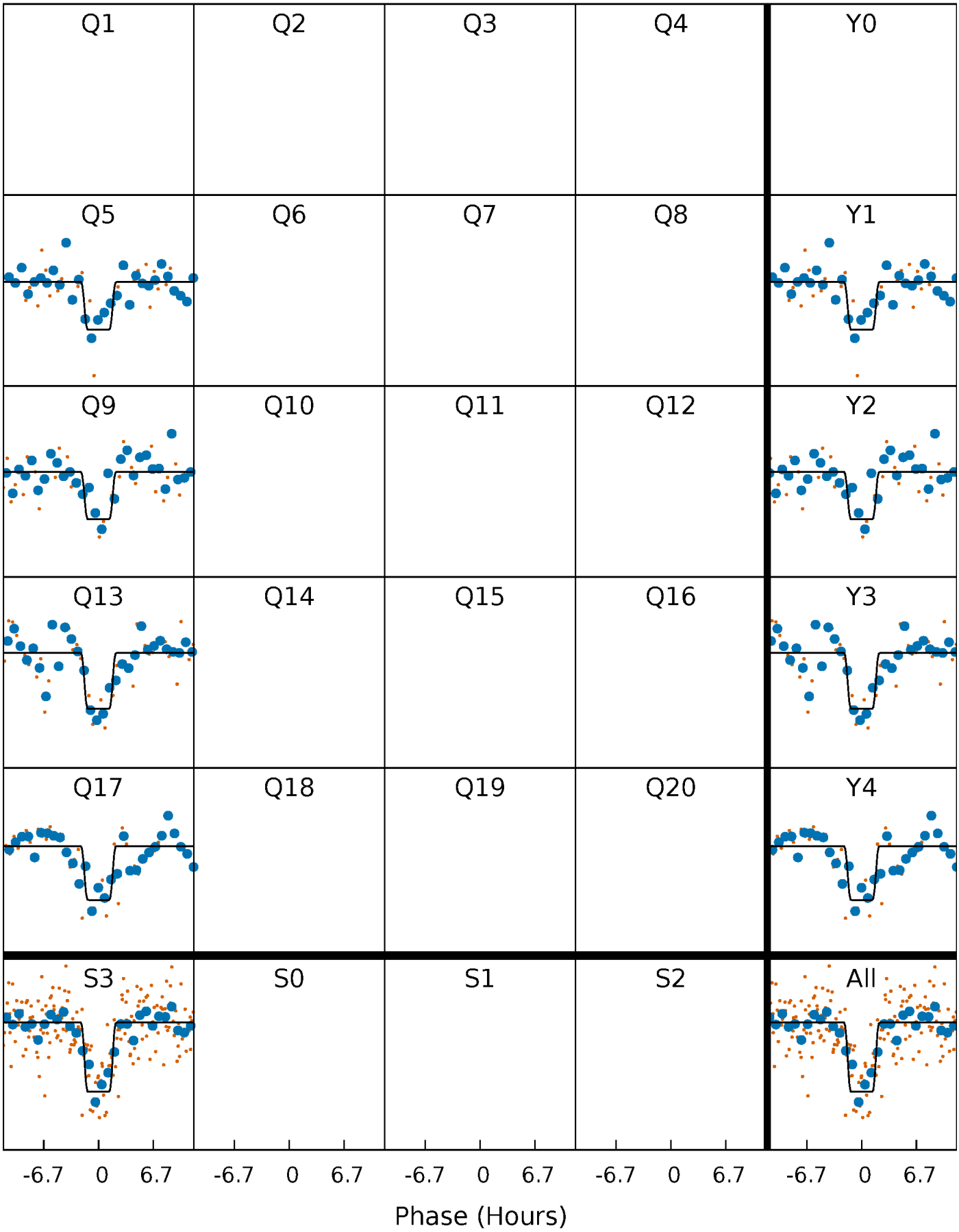


Alt. Detrend Quarter-Phased Transit Curves

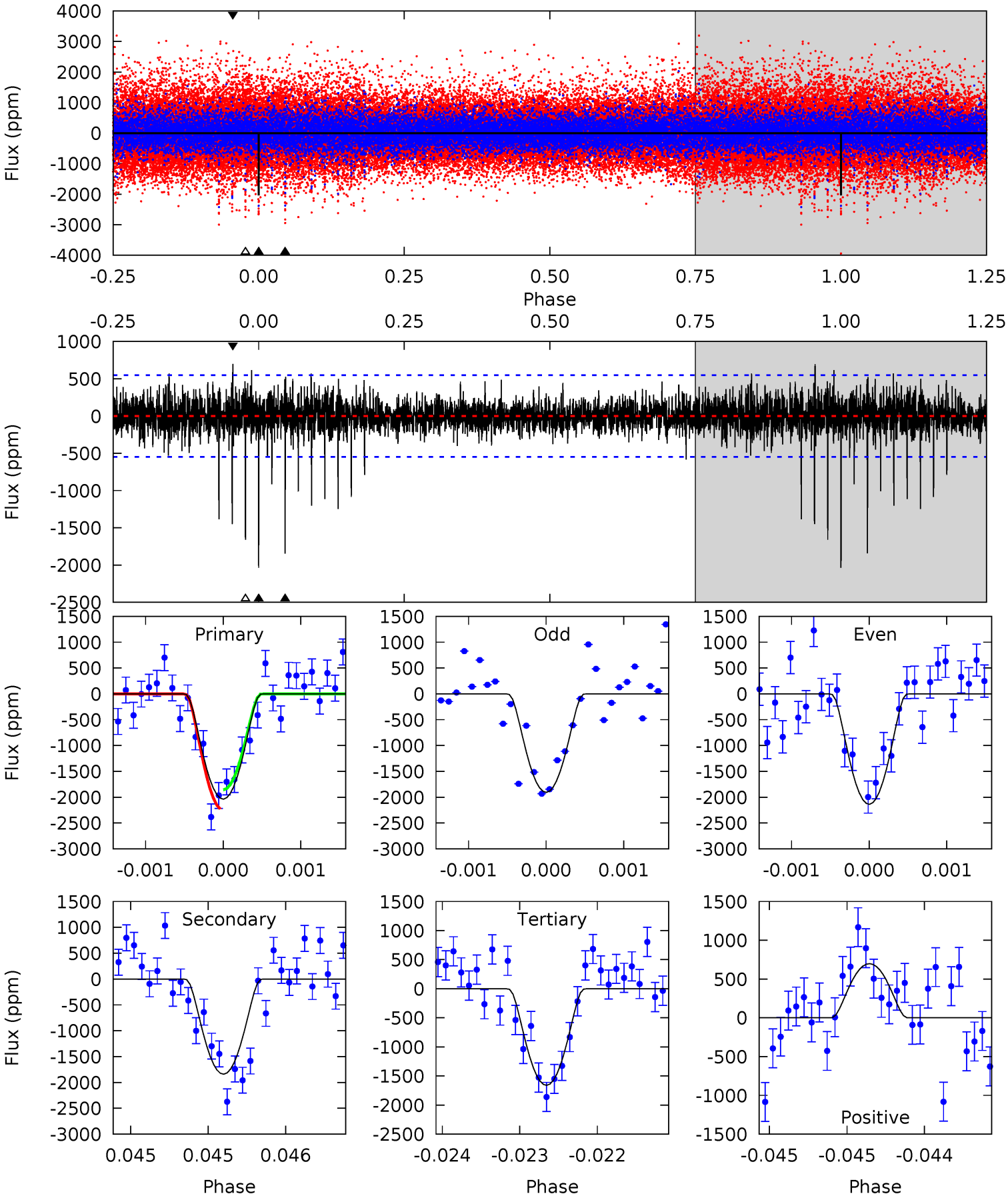
TCE 008956706-01 P=368.410276 Days T_0=469.975442 (BKJD)



DV Model-Shift Uniqueness Test

008956706-01, P = 368.407355 Days, E = 101.575064 Days

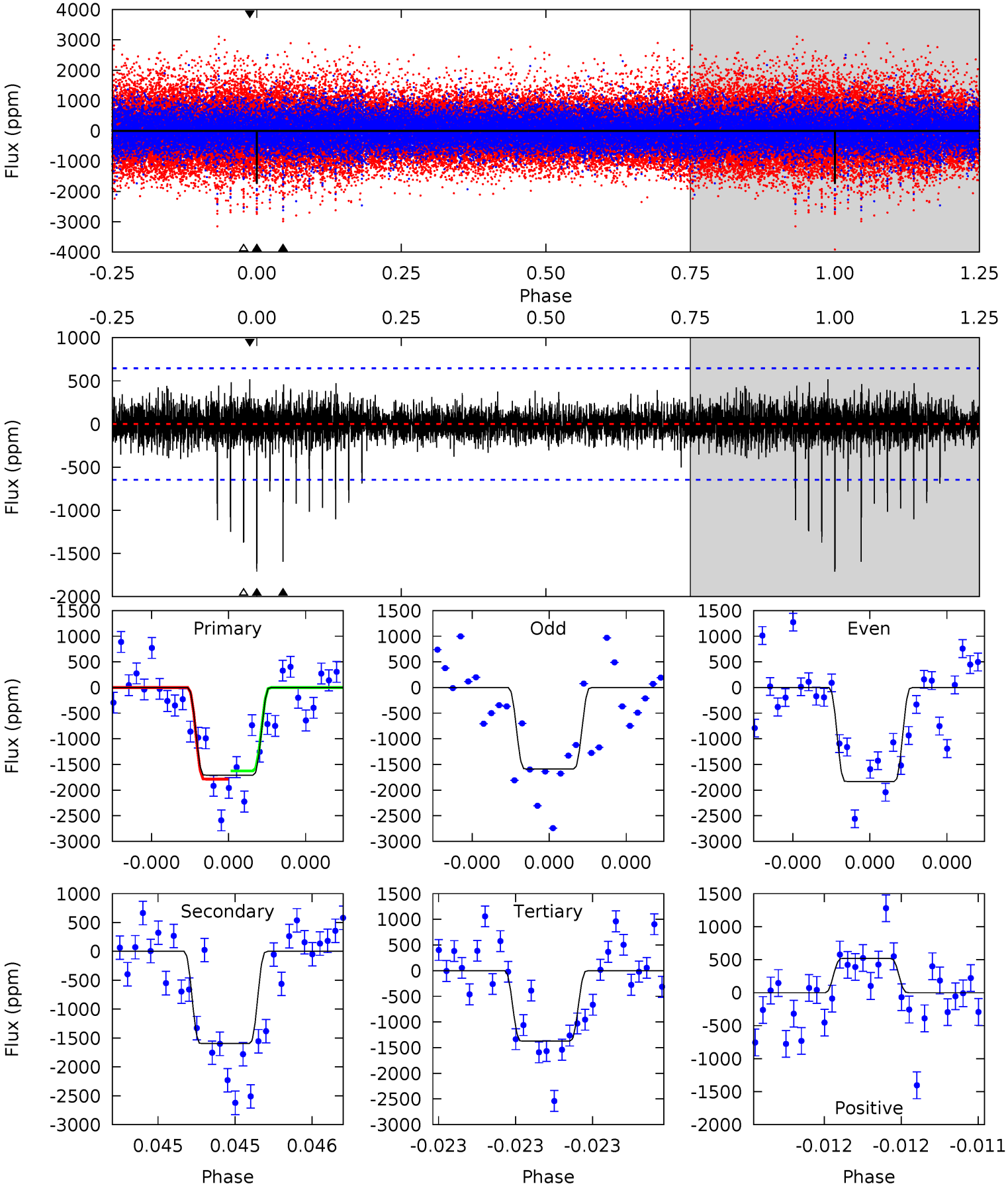
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	18.6	16.7	7.04	5.53	3.42	1.64	3.80	13.5	1.82	11.5	1.16	0.96	0.26	1.86



Alt Model-Shift Uniqueness Test

008956706-01, P = 368.410276 Days, E = 101.565166 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	13.8	11.9	4.48	5.59	3.50	1.17	2.91	10.3	1.93	9.33	1.06	0.98	0.23	0.71



Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-01 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1841±99	$6.80^{+6.29}_{-4.54}$	281^{+11}_{-12}	3916^{+2258}_{-757}	$18536^{+145521}_{-13463}$
Alt.	-1596±116	$6.39^{+5.36}_{-4.40}$	281^{+11}_{-12}	3942^{+2314}_{-725}	$18916^{+166072}_{-13528}$

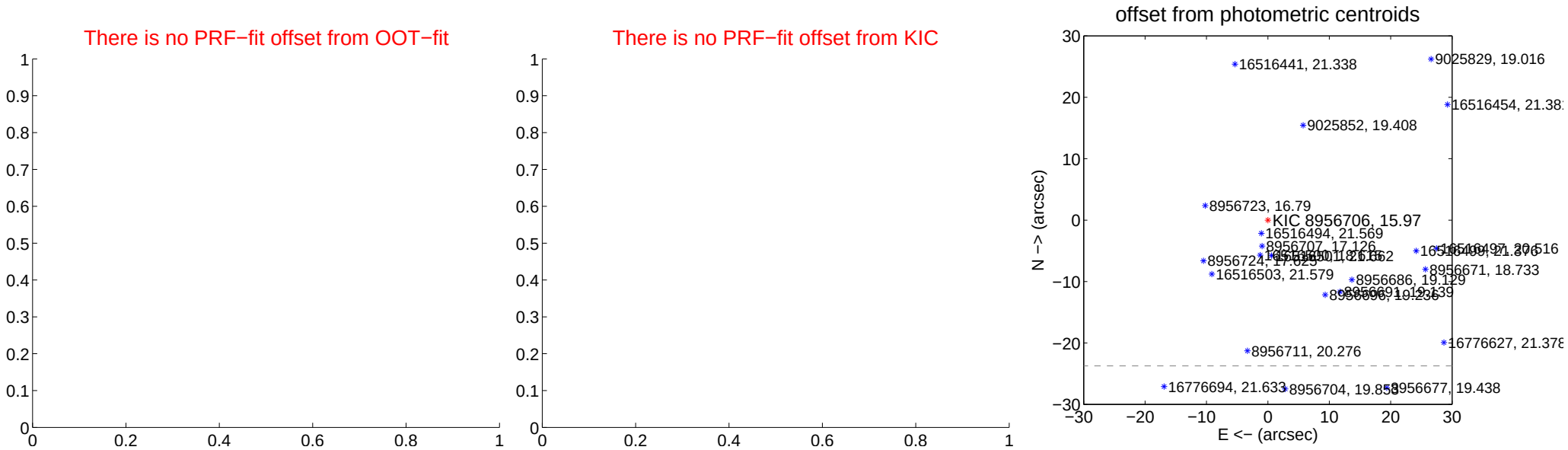
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

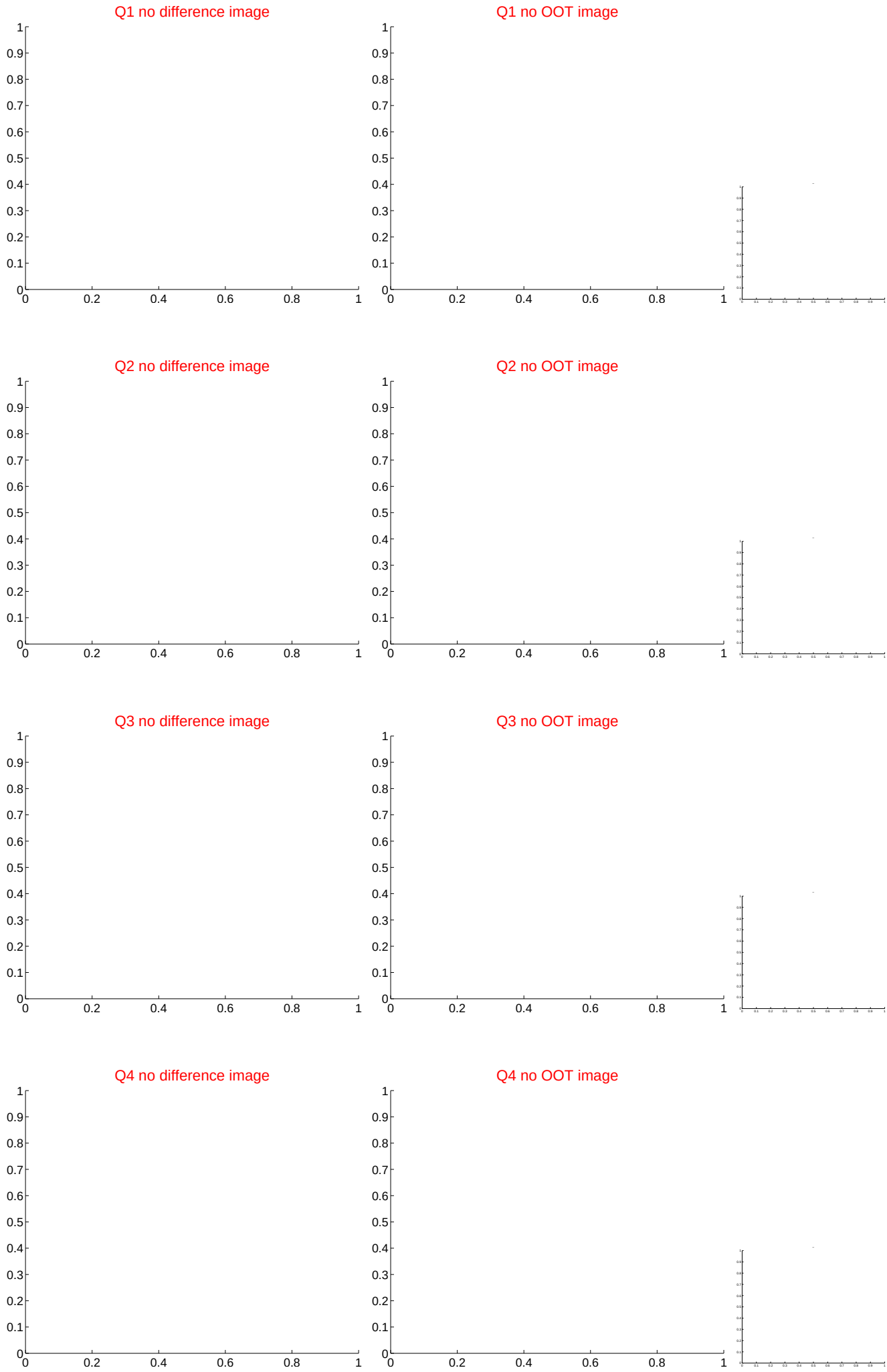
Supplemental centroid analysis for 008956706-01. Kepler magnitude: 15.97. Transit SNR 10.55
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	63.31 ± 1.28	49.62	58.70 ± 1.26	-23.73 ± 1.35

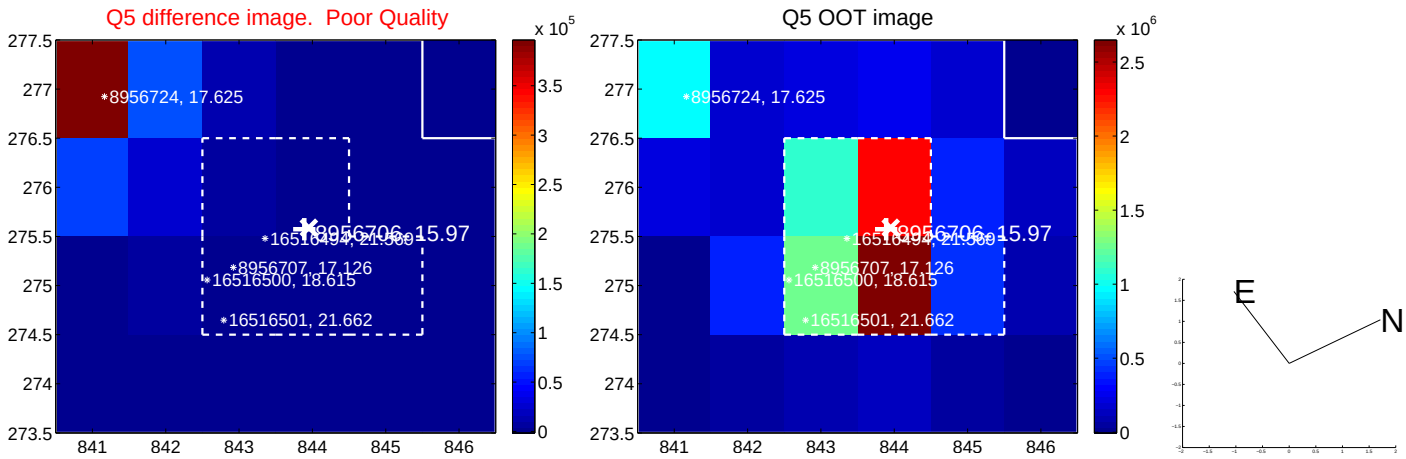


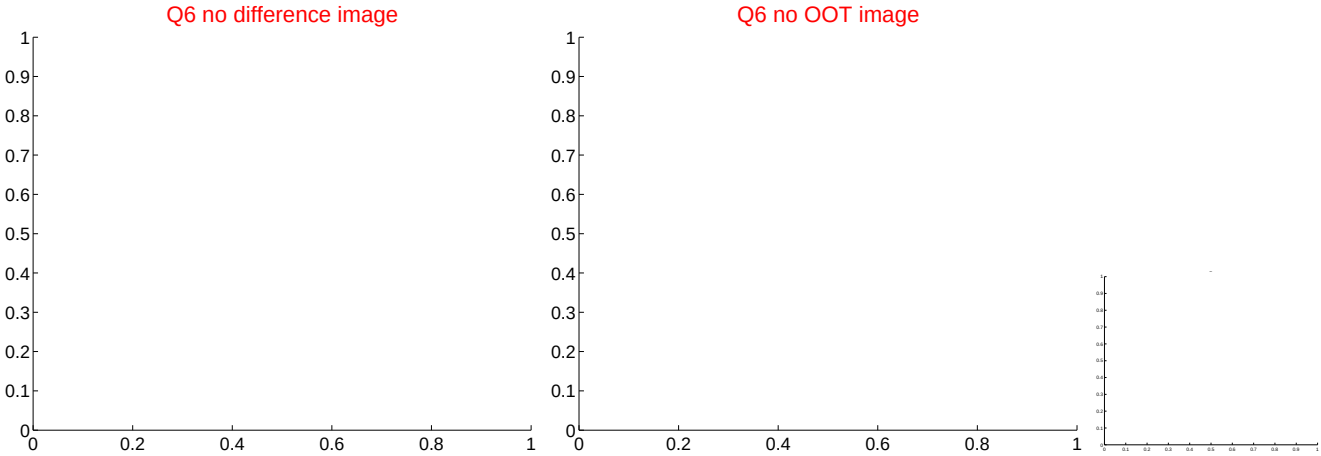
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

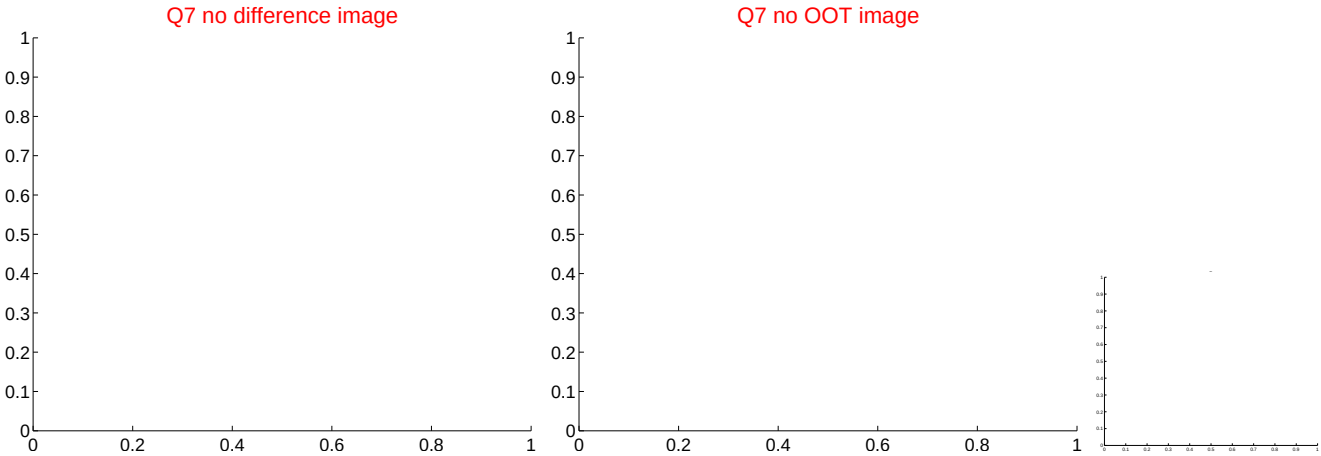
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

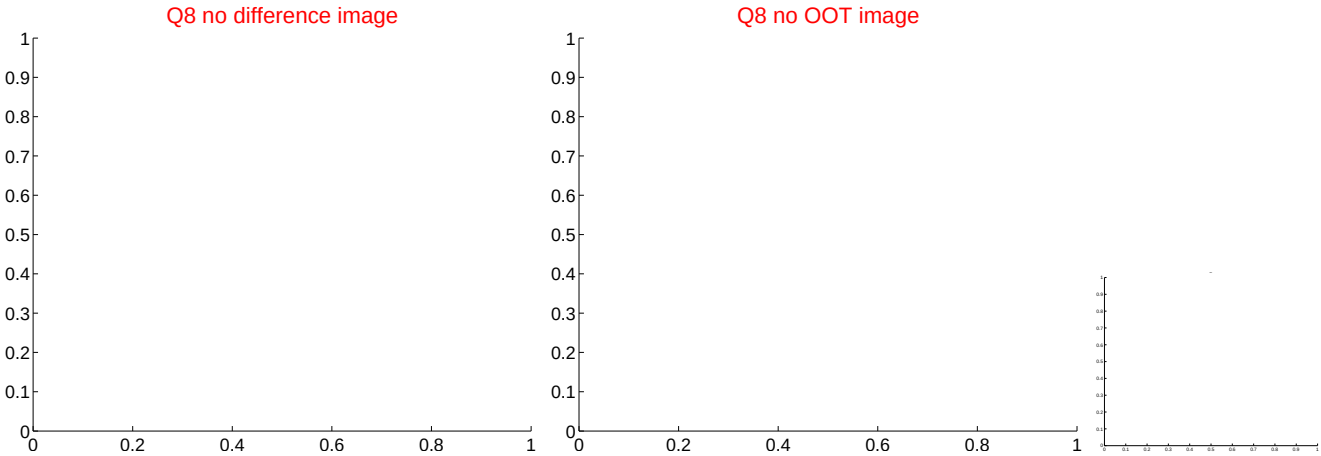


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

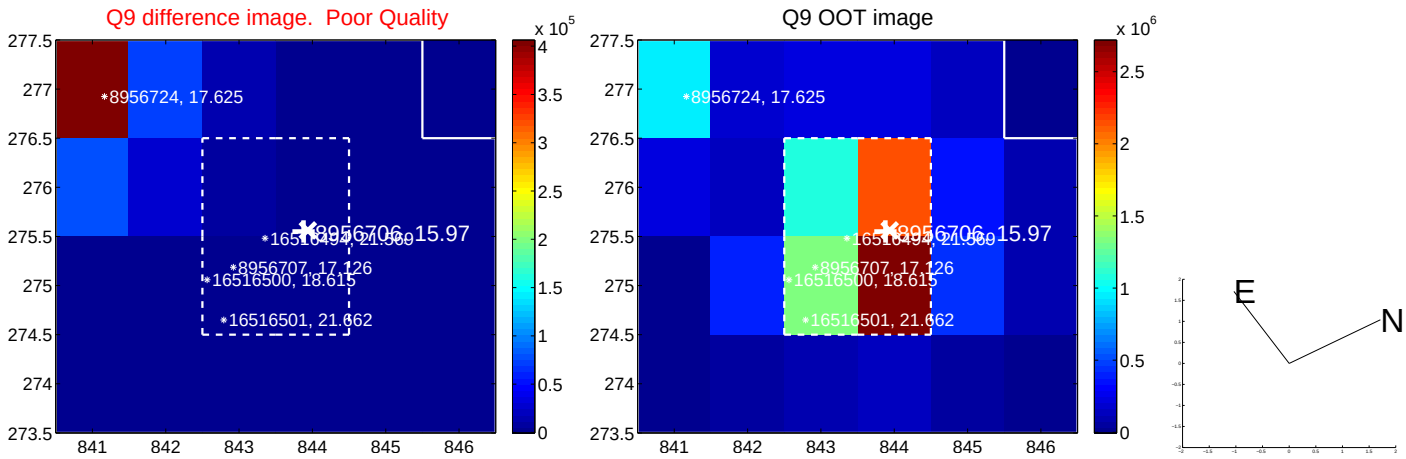


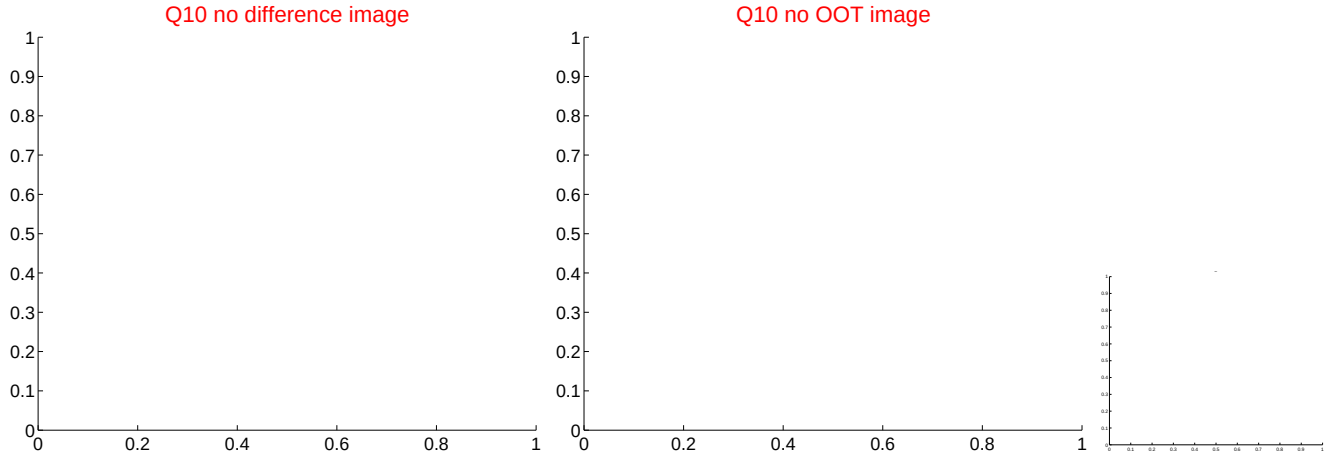


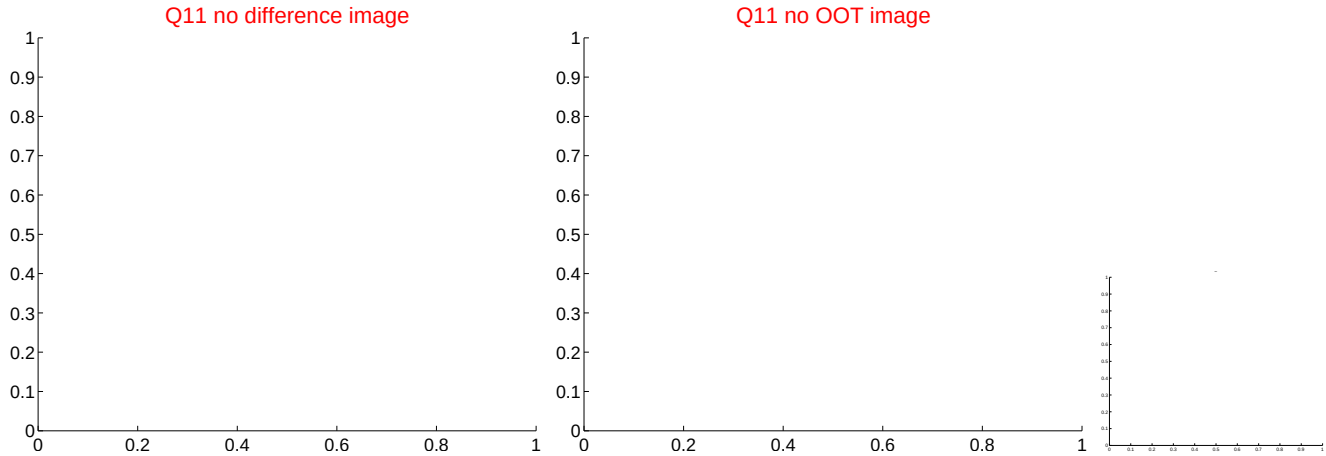


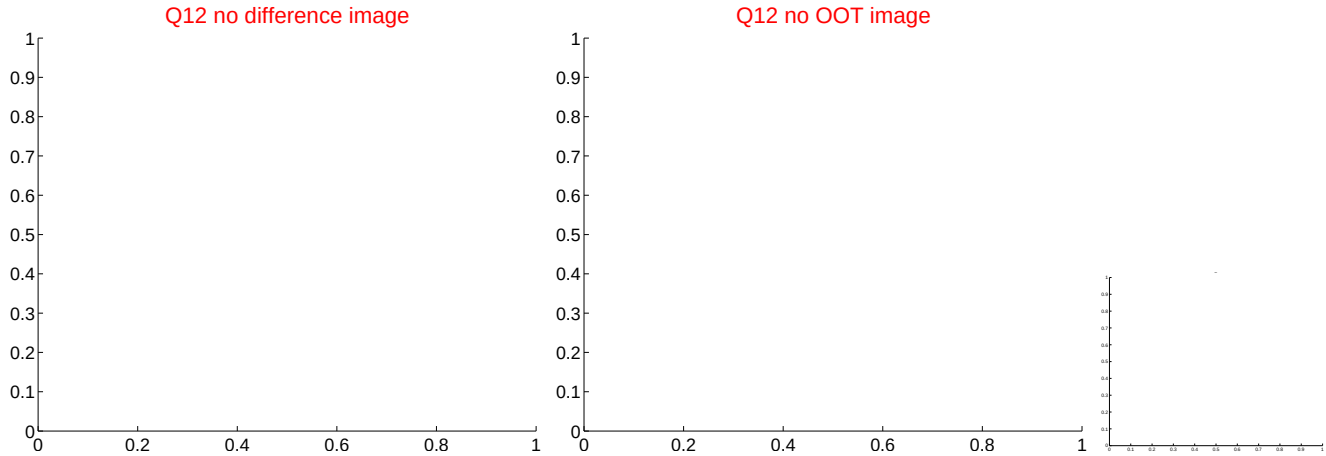


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

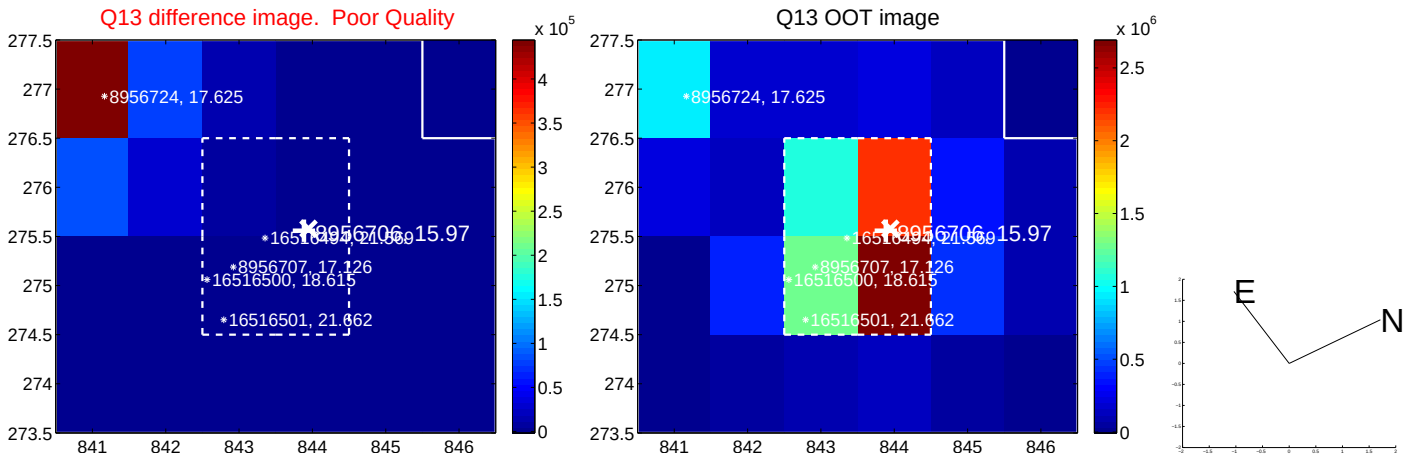


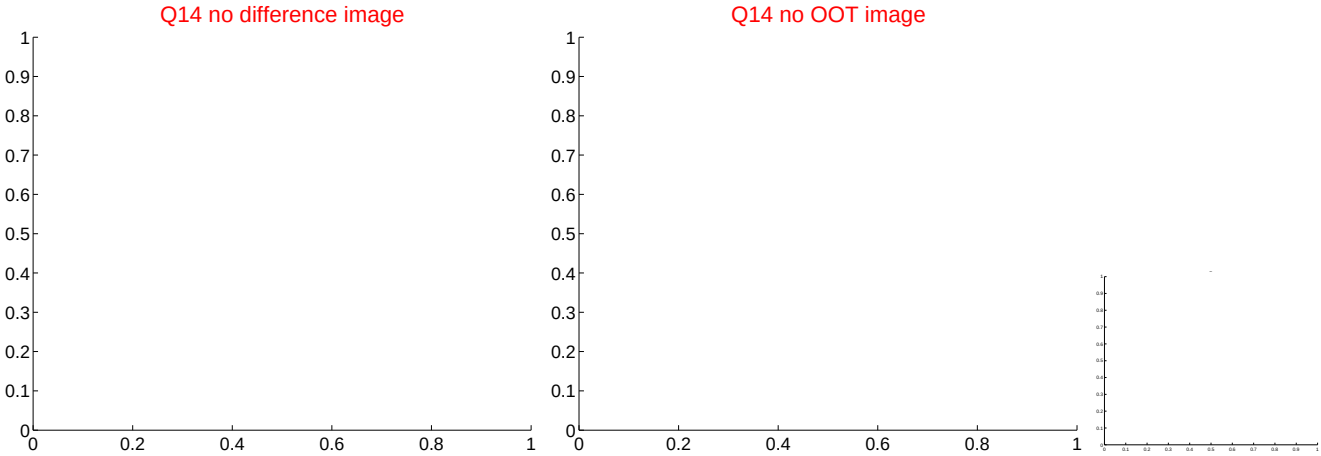


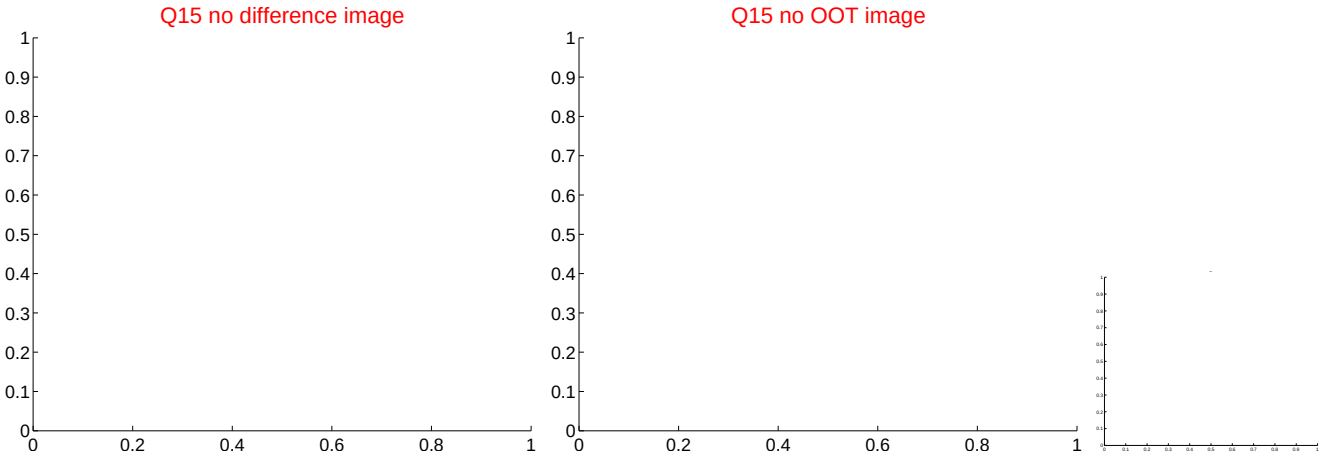


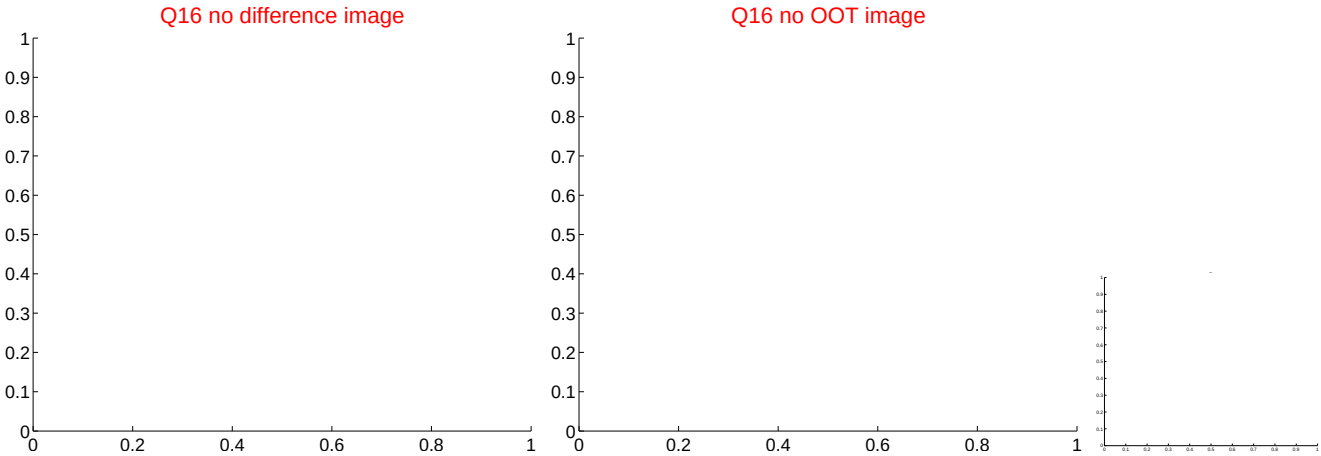


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

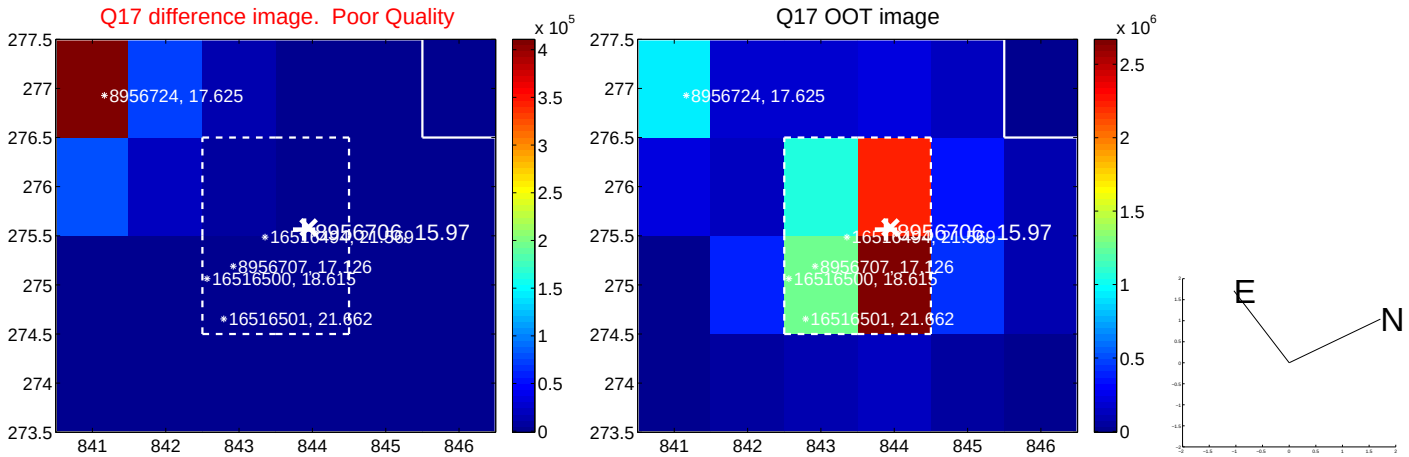


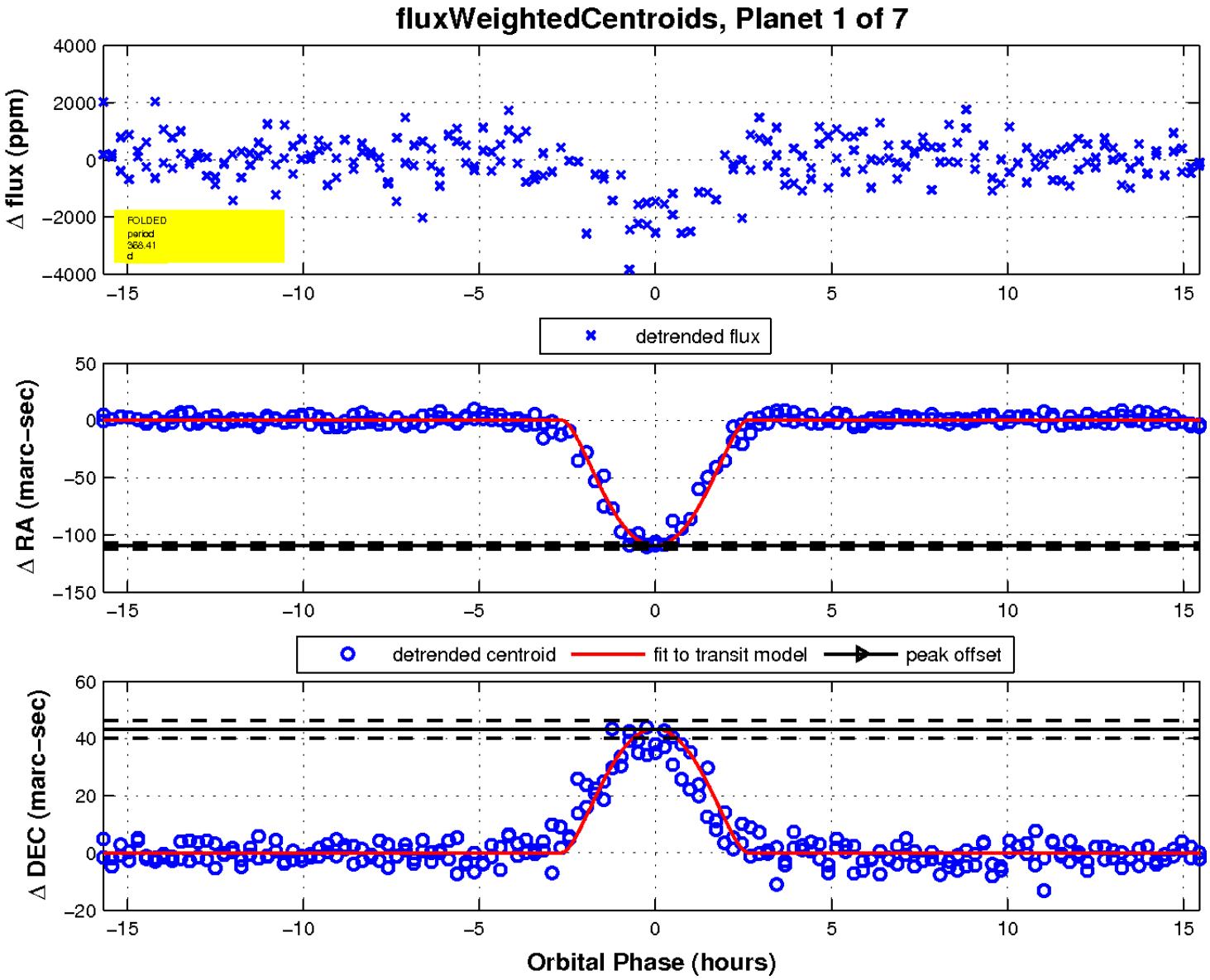




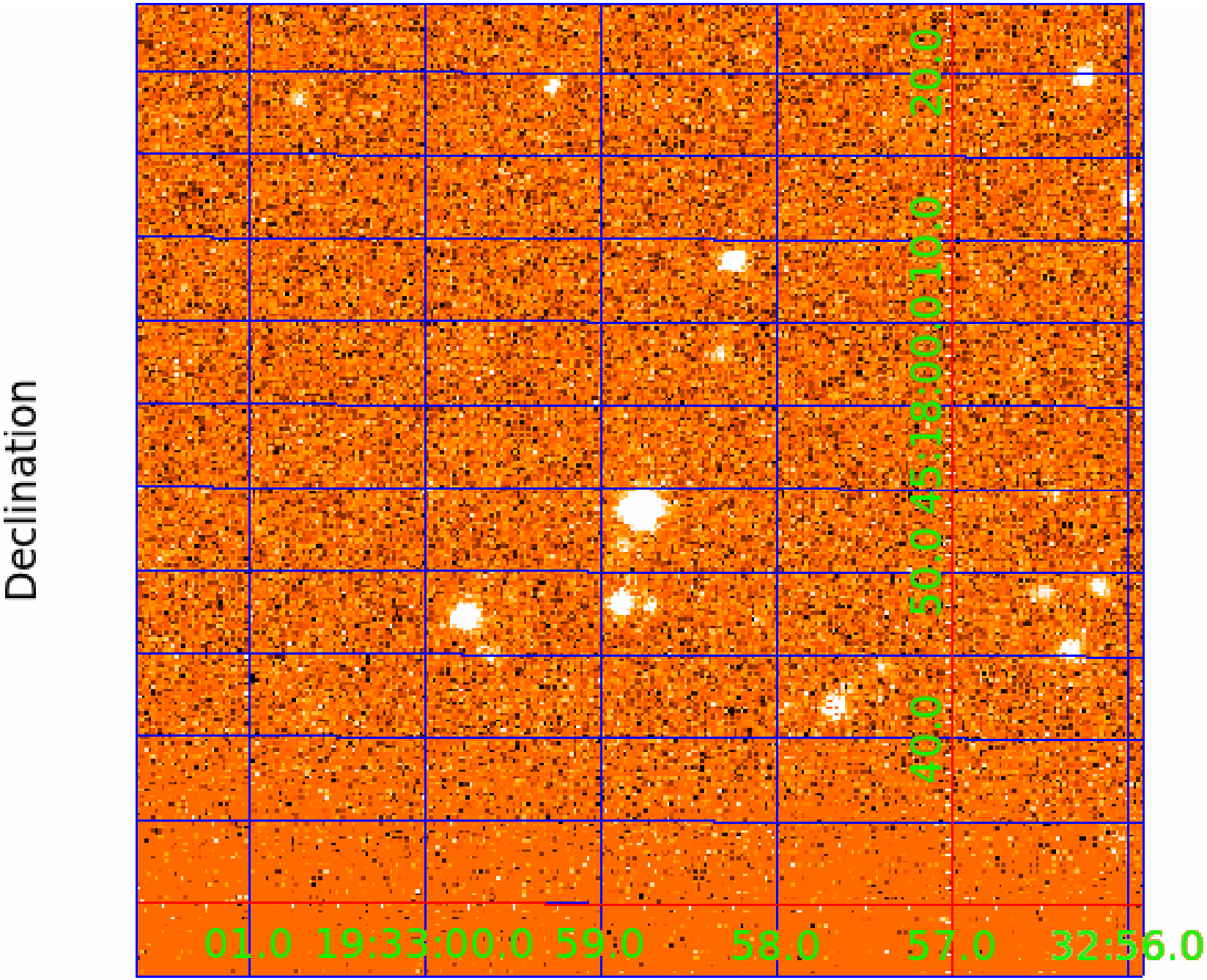


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image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KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

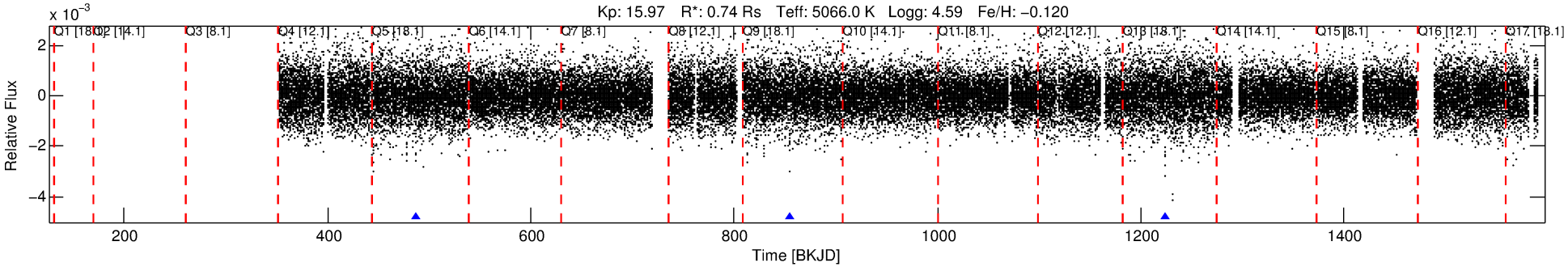
Ephemeris Match Information For 008956706-02

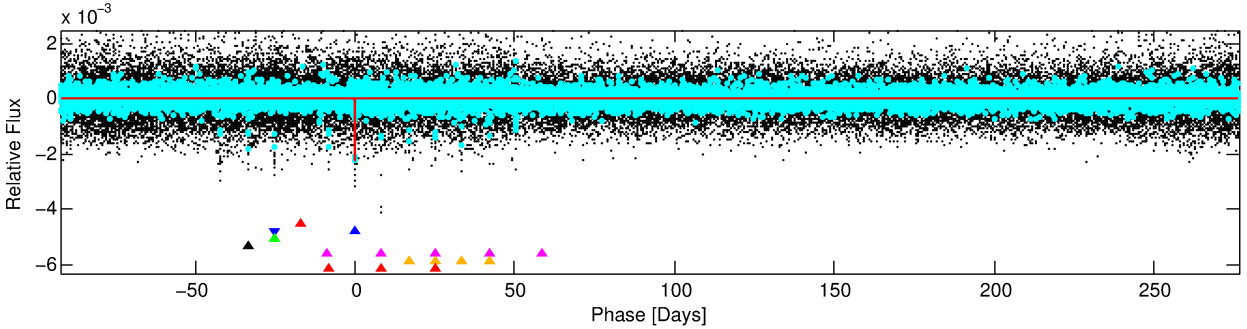
No Significant Match Found

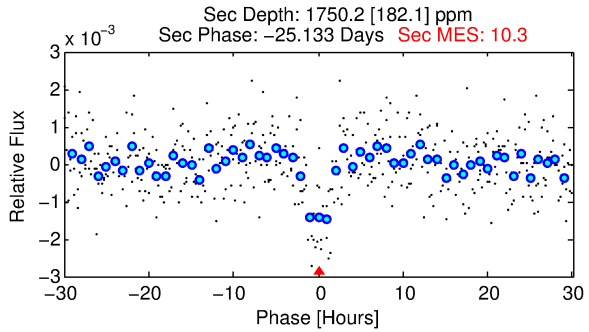
DV One-Page Summary

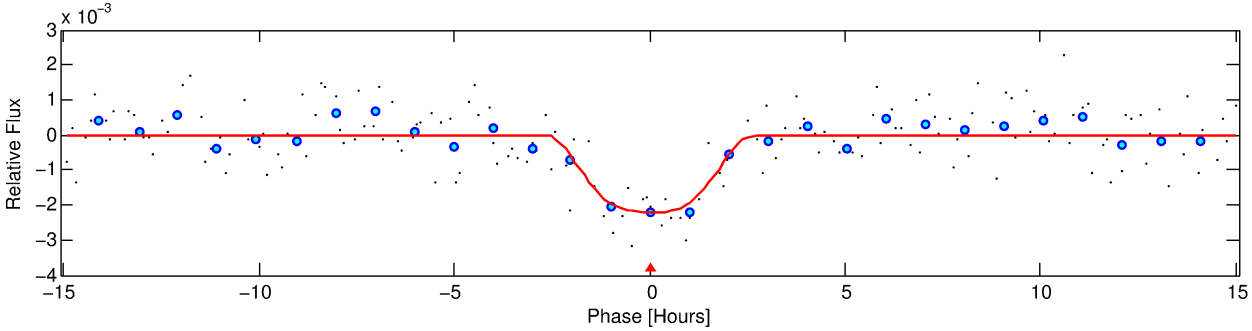
KIC: 8956706 Candidate: 2 of 7 Period: 368.433 d
KOI: K02431 Corr: No Ephemeris Match

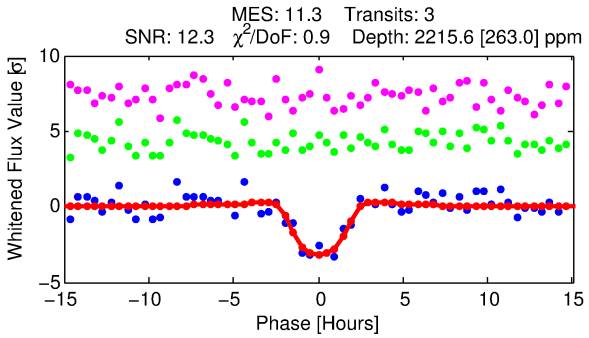
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

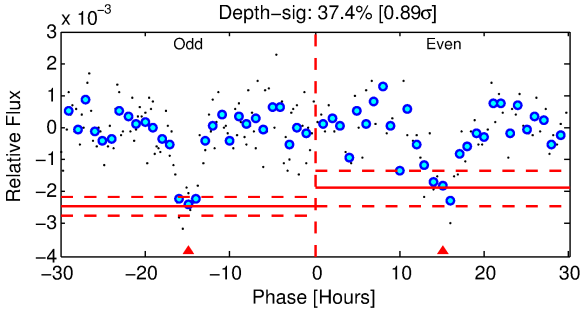


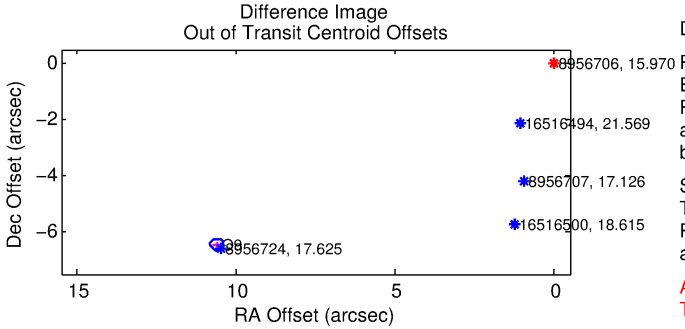












DV Fit Results:

Period = 368.43336 [0.00637] d
Epoch = 486.6959 [0.0088] BKJD
Rp/R* = 0.0551 [0.0065]
a/R* = 276.18 [69.34]
b = 0.93 [0.04]

Seff = 0.38 [0.07]
Teq = 200 [9] K
Rp = 4.45 [0.74] Re
a = 0.9270 [0.0858] AU

Ag = 41787.31 [12005.41] [3.48σ]
Teffp = 4414 [323] K [13.05σ]

DV Diagnostic Results:

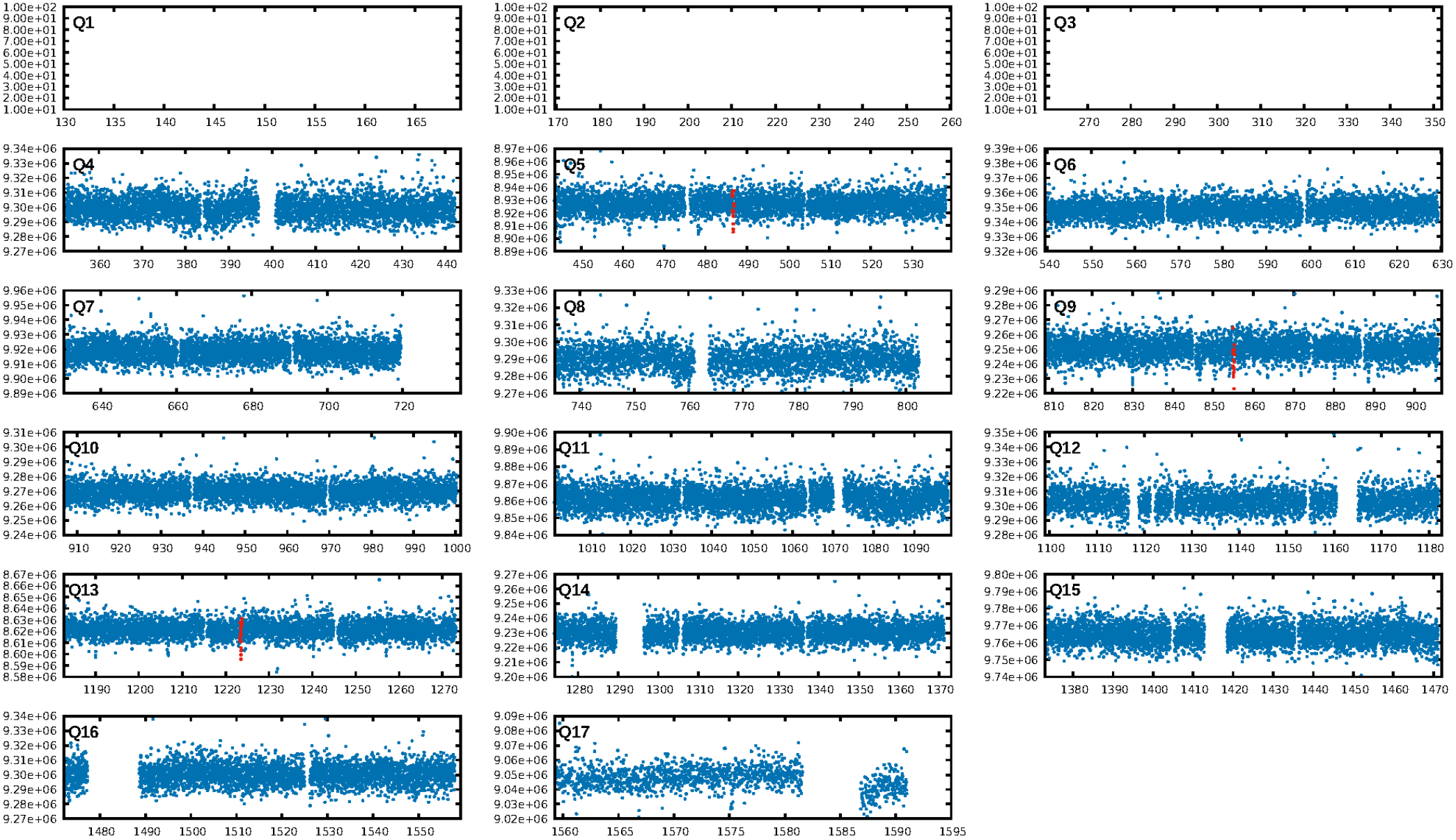
ShortPeriod−sig: 4.2% [0.05σ]
LongPeriod−sig: 4.2% [0.05σ]
ModelChiSquare2−sig: 63.4%
ModelChiSquareGof−sig: 99.1%
Bootstrap−pfa: 5.74e−13
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.4324

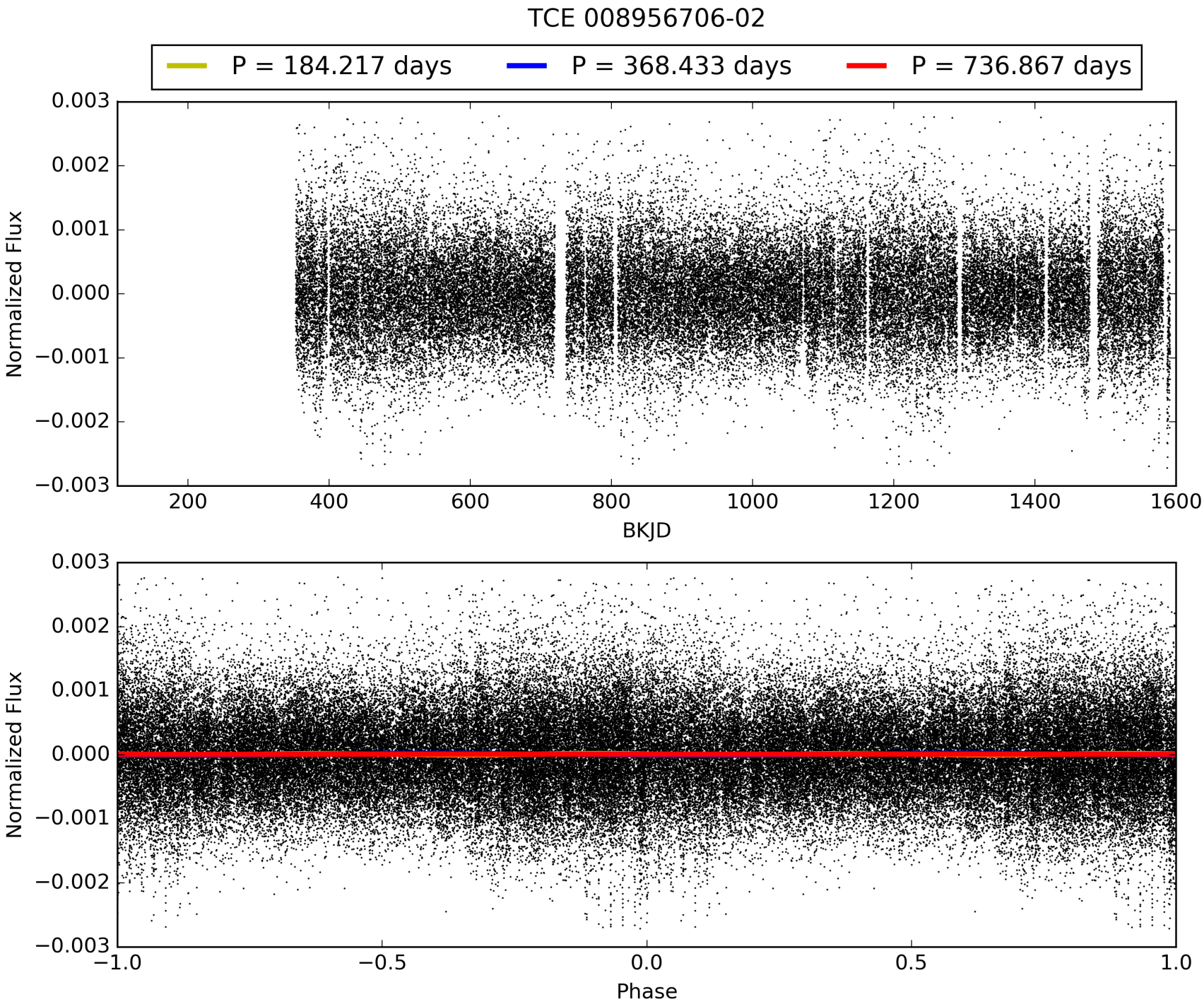
Centroid−sig: 0.0%
Centroid−so: 53.714 arcsec [45.95σ]
OotOffset−rm: 12.418 arcsec [179.13σ]
KicOffset−rm: 12.605 arcsec [181.90σ]
OotOffset−st: 0/0/0/1 [1]
KicOffset−st: 0/0/0/1 [1]
DiffImageQuality−fgm: 1.00 [1/1]
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 11:06:35 Z

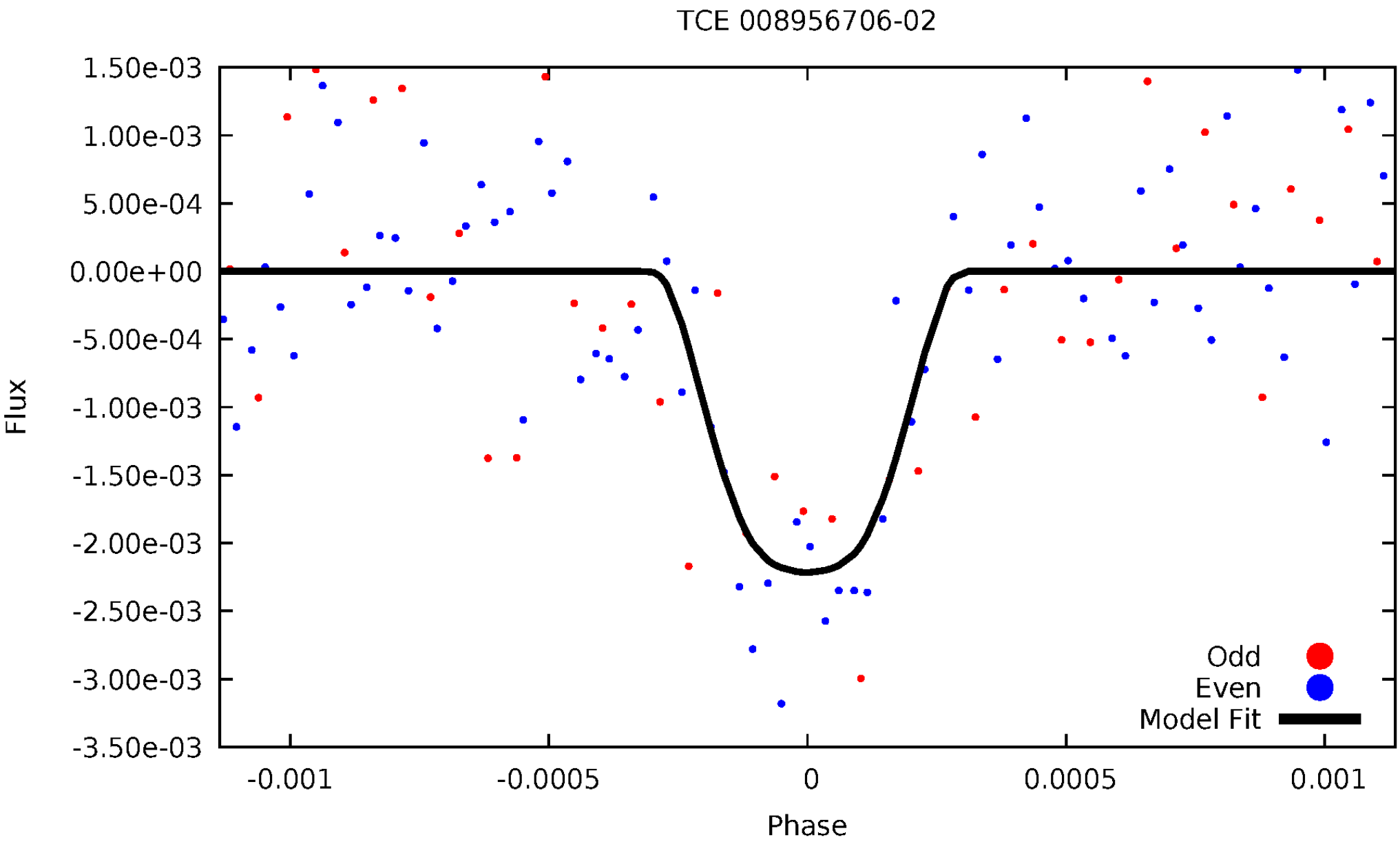
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-02, PDC Light Curves

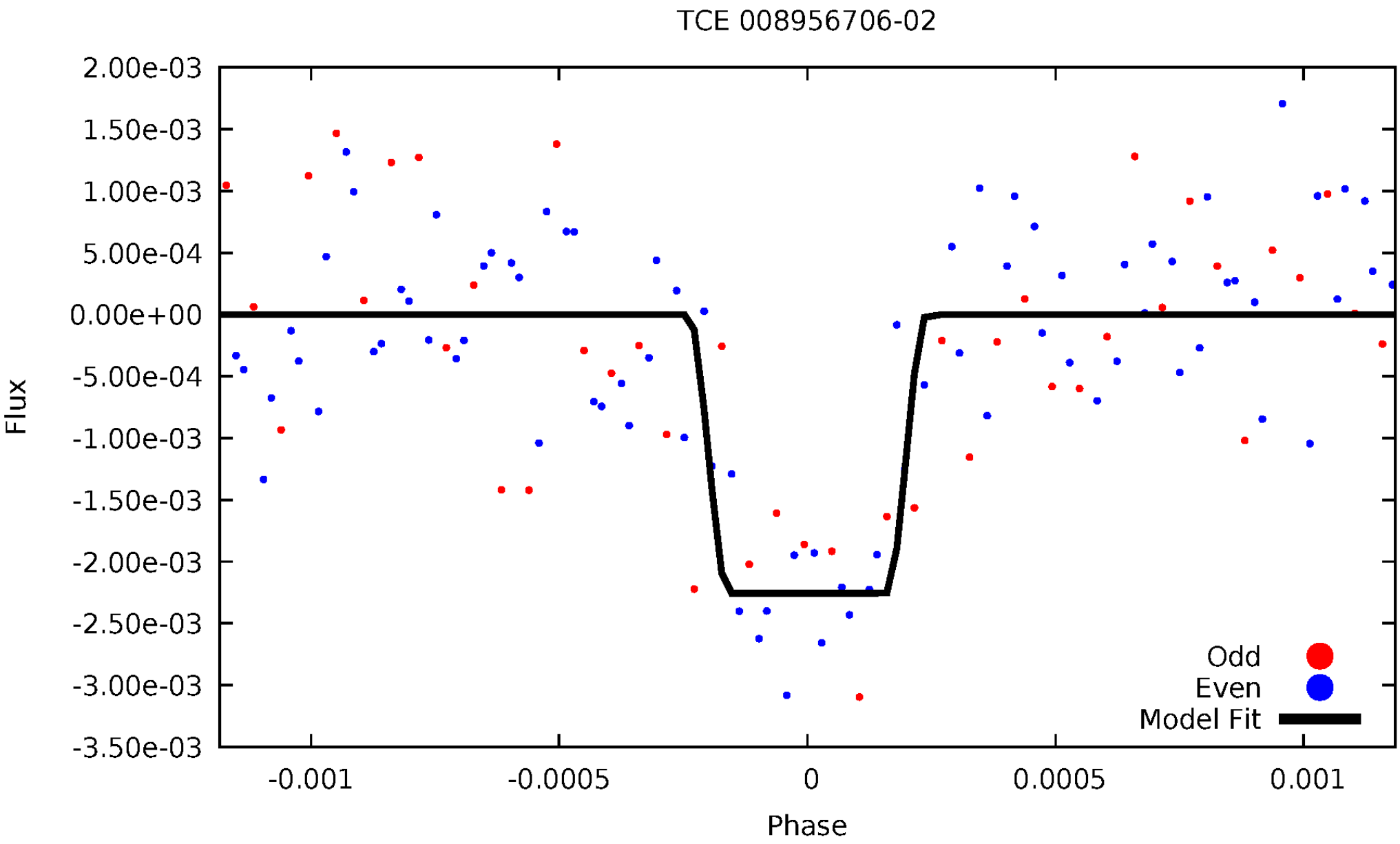



TCE 008956706-02
P = 184.217 days
P = 368.433 days
P = 736.867 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 008956706-02
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
-3.50e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008956706-02
2.00e-03
1.50e-03
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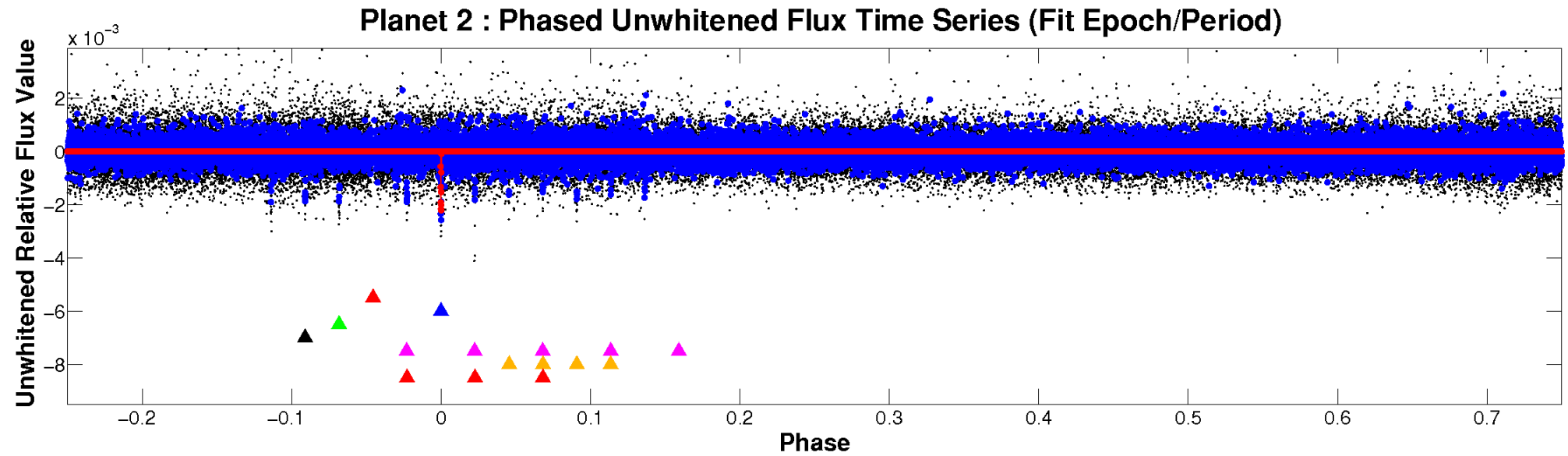
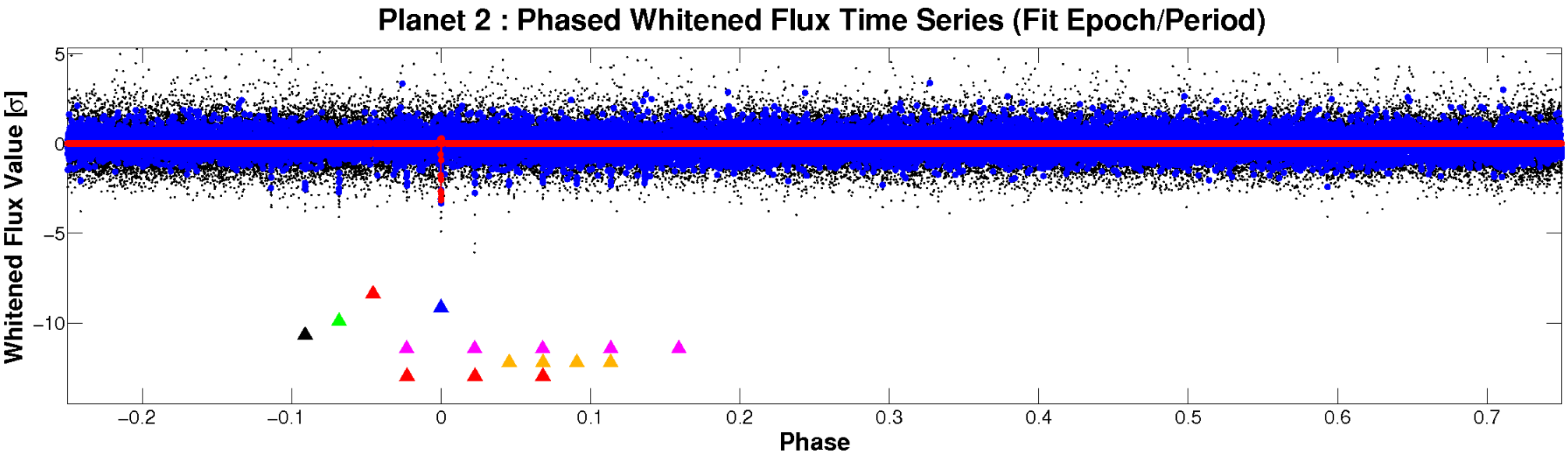
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
-3.50e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

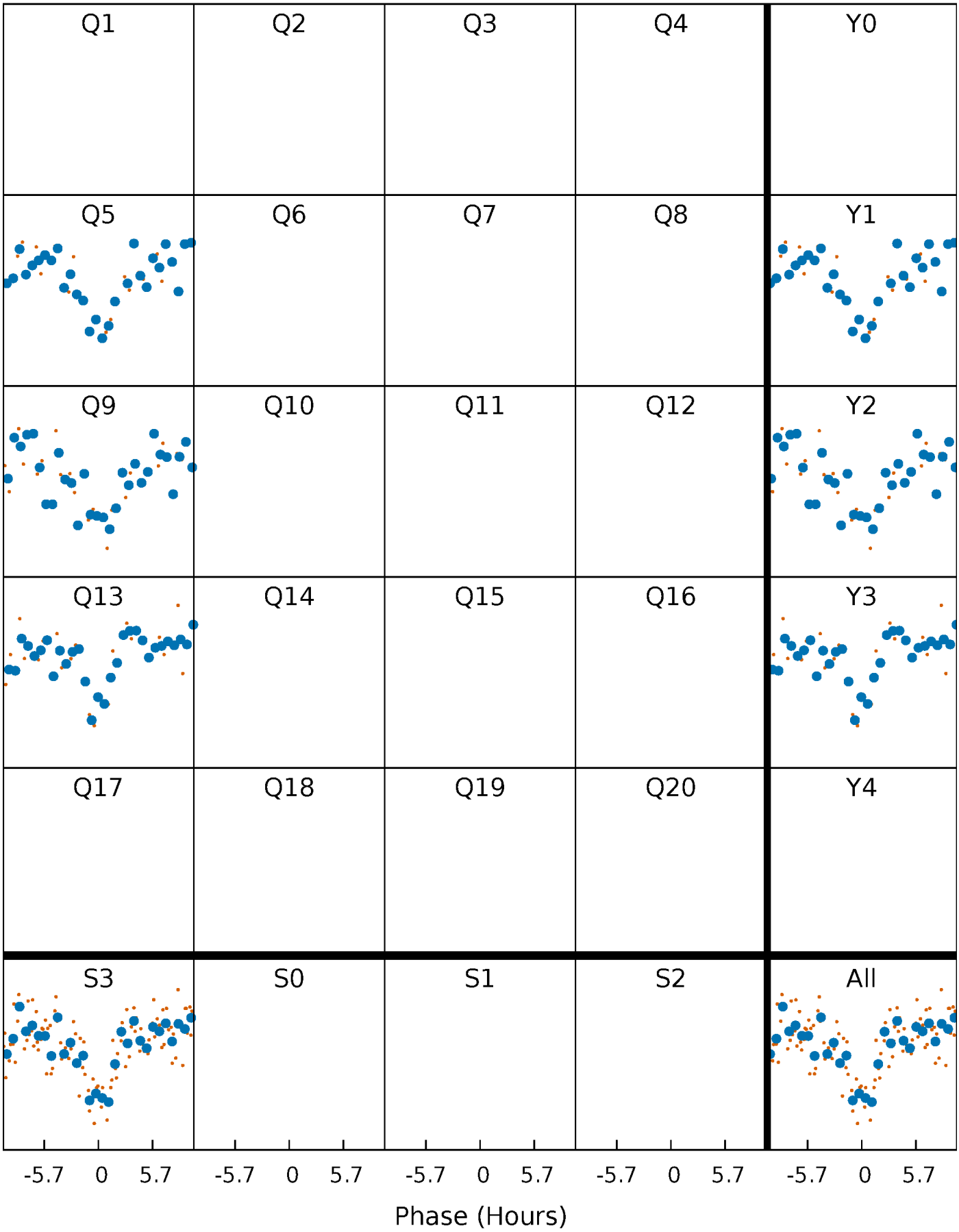
Non-Whitened Vs. Whitened Light Curve





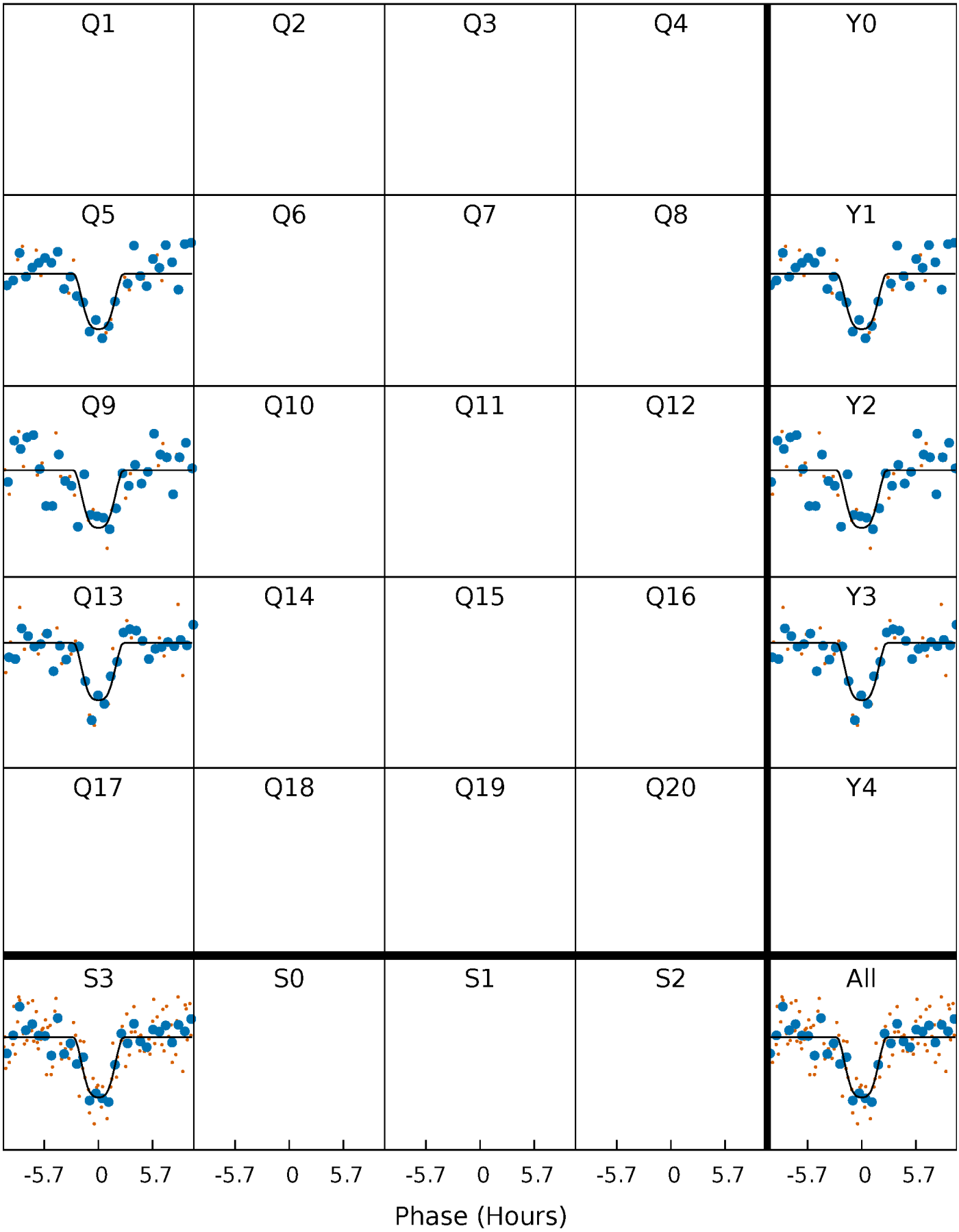
PDC Quarter-Phased Transit Curves

TCE 008956706-02 P=368.433359 Days T_0=486.695920 (BKJD)



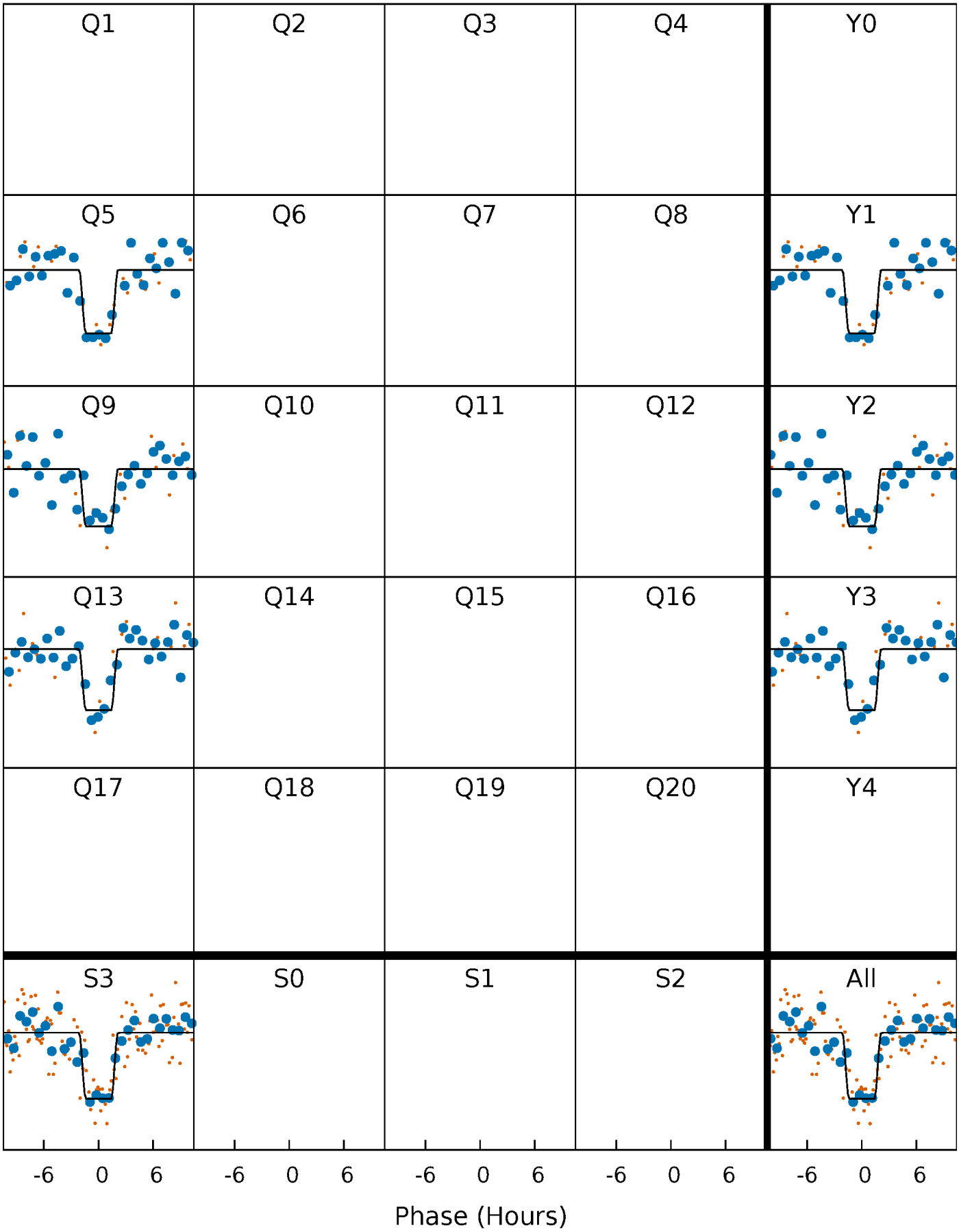
DV Quarter-Phased Transit Curves

TCE 008956706-02 P=368.433359 Days T_0=486.695920 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

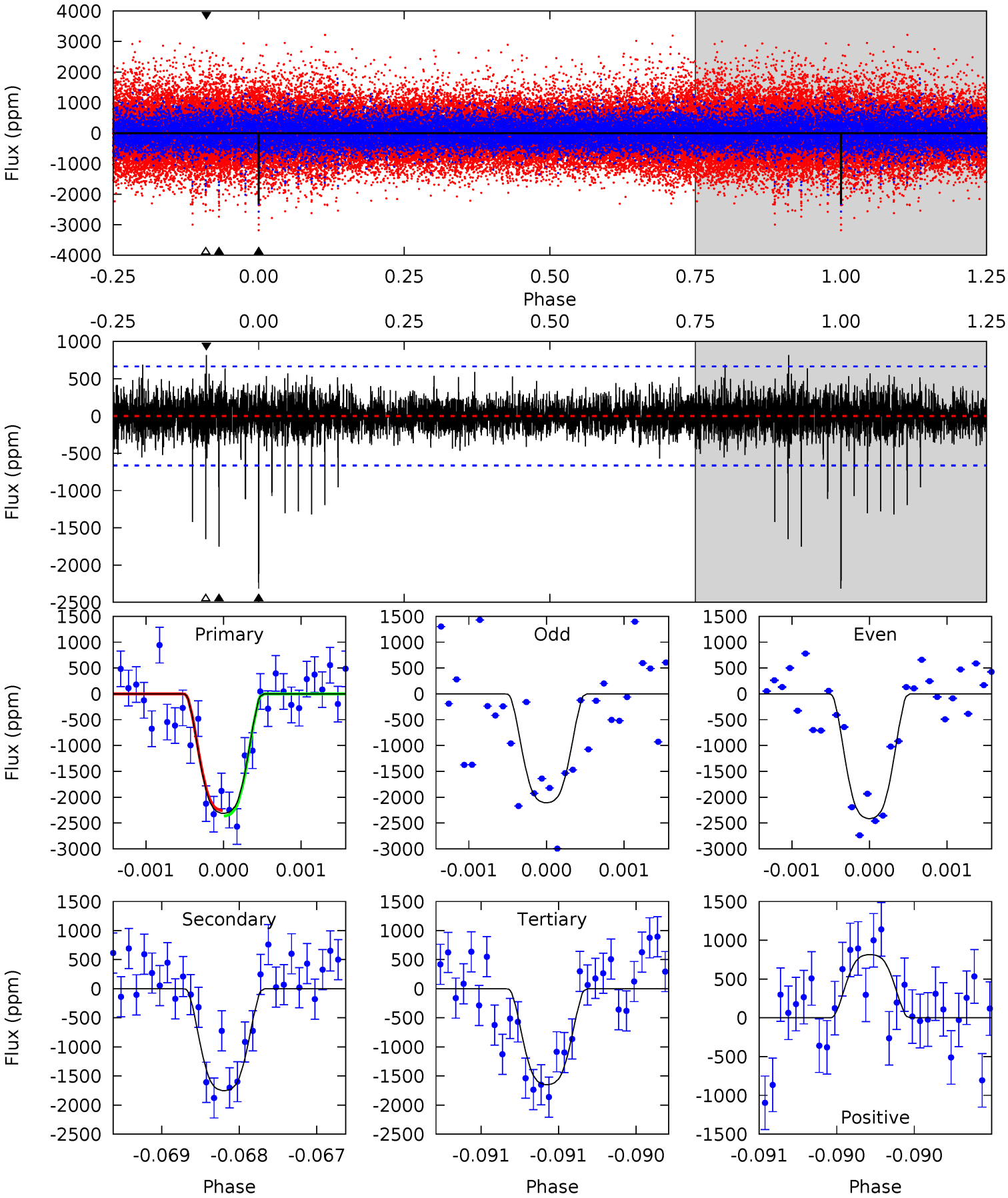
TCE 008956706-02 P=368.430709 Days T_0=486.698037 (BKJD)



DV Model-Shift Uniqueness Test

008956706-02, P = 368.433359 Days, E = 118.262561 Days

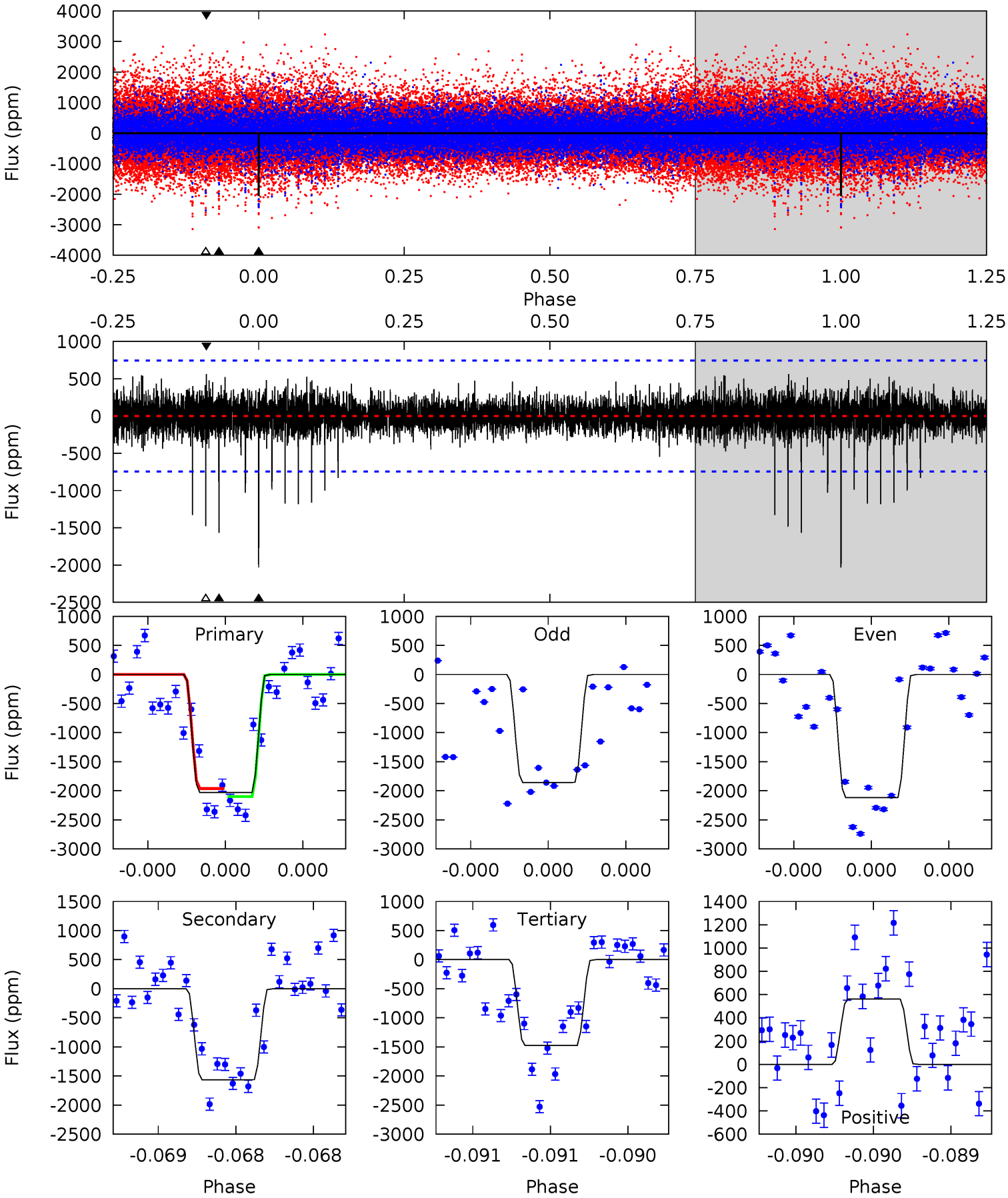
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	14.6	13.8	6.80	5.54	3.43	1.44	5.53	12.5	0.86	7.81	1.21	0.96	0.26	0.44



Alt Model-Shift Uniqueness Test

008956706-02, P = 368.430709 Days, E = 118.267328 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	11.7	11.1	4.22	5.59	3.50	1.12	4.17	11.0	0.67	7.53	0.94	1.03	0.22	0.52



Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-02 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1753±120	$4.53^{+0.56}_{-0.58}$	280^{+13}_{-11}	4518^{+287}_{-237}	39884^{+13735}_{-7904}
Alt.	-1565±133	$3.87^{+0.56}_{-0.56}$	281^{+11}_{-12}	4707^{+325}_{-285}	49632^{+18265}_{-11658}

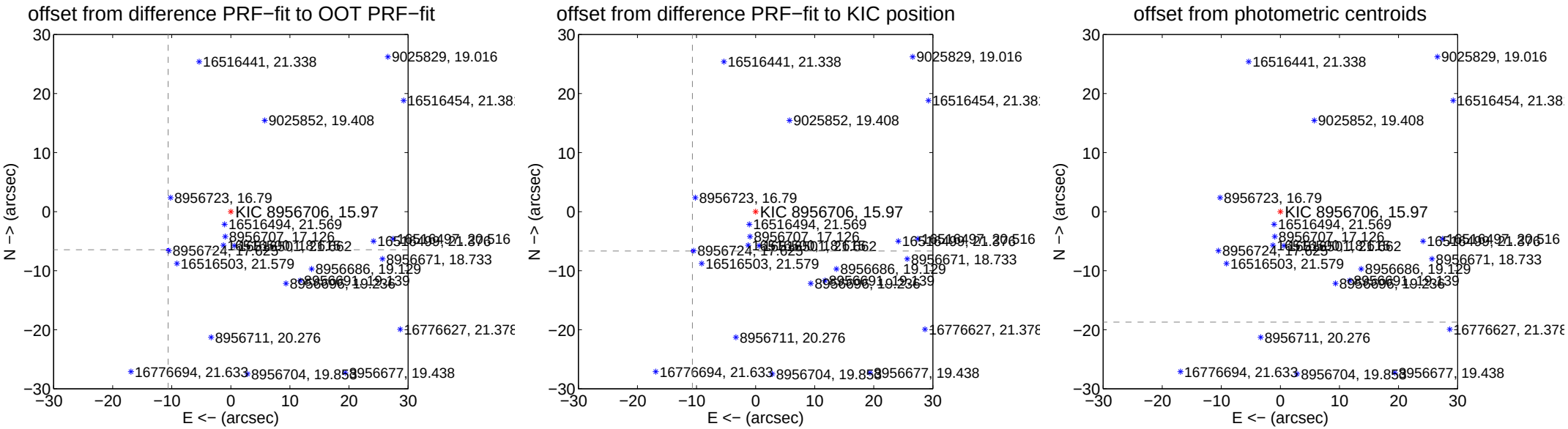
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

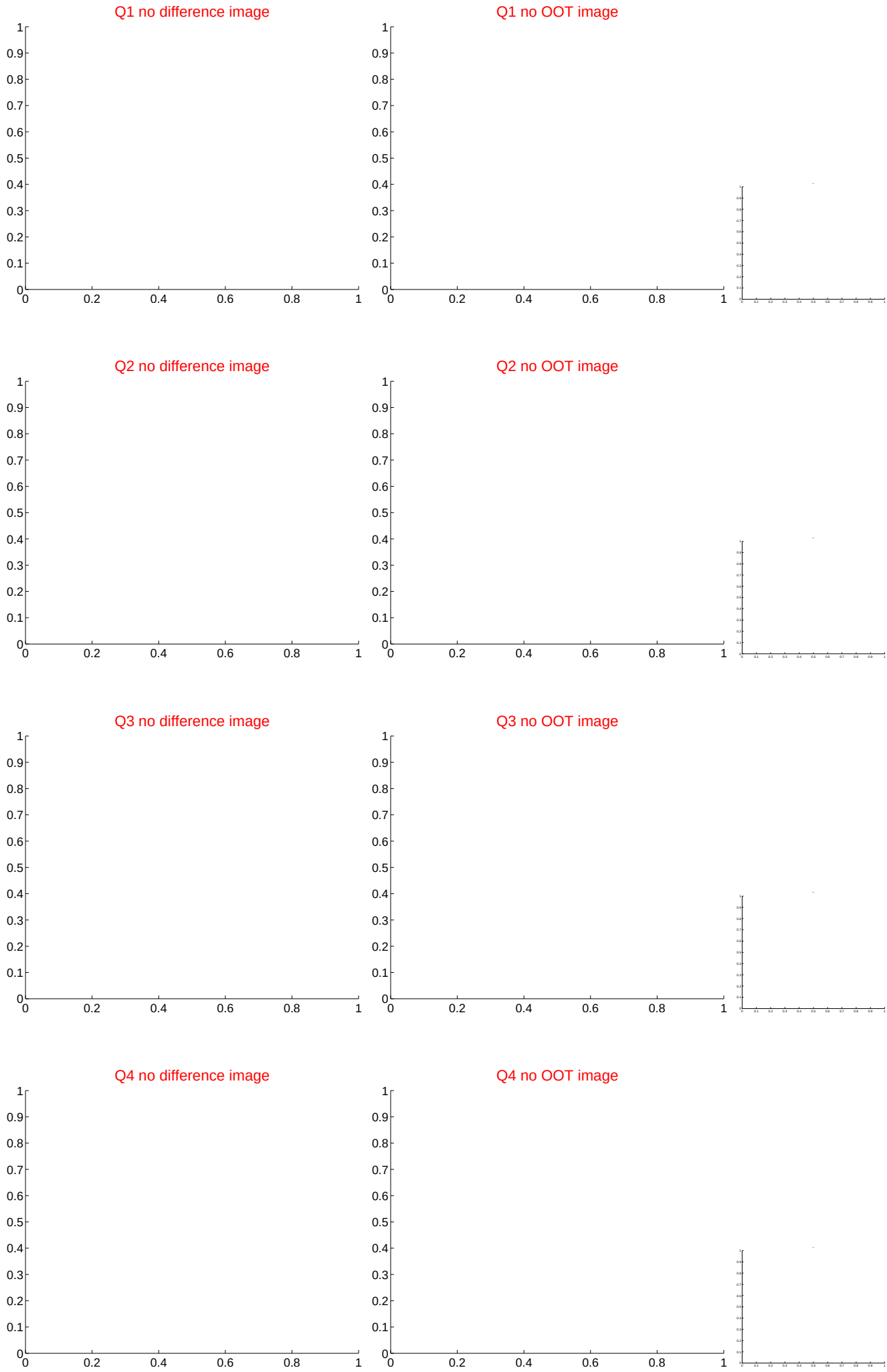
Supplemental centroid analysis for 008956706-02. Kepler magnitude: 15.97. Transit SNR 12.34
There are 1 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.418 ± 0.069	179.13	10.613 ± 0.069	-6.448 ± 0.071
PRF-fit source offset from KIC position	12.605 ± 0.069	181.90	10.696 ± 0.069	-6.669 ± 0.071
photometric centroid source offset	53.72 ± 1.17	45.95	50.36 ± 1.15	-18.71 ± 1.29

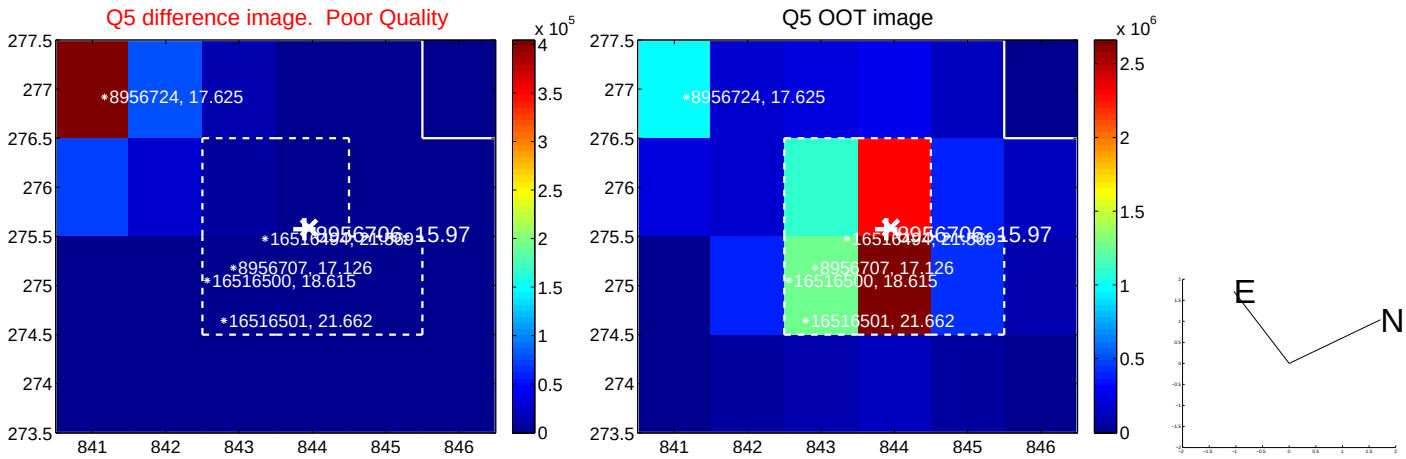


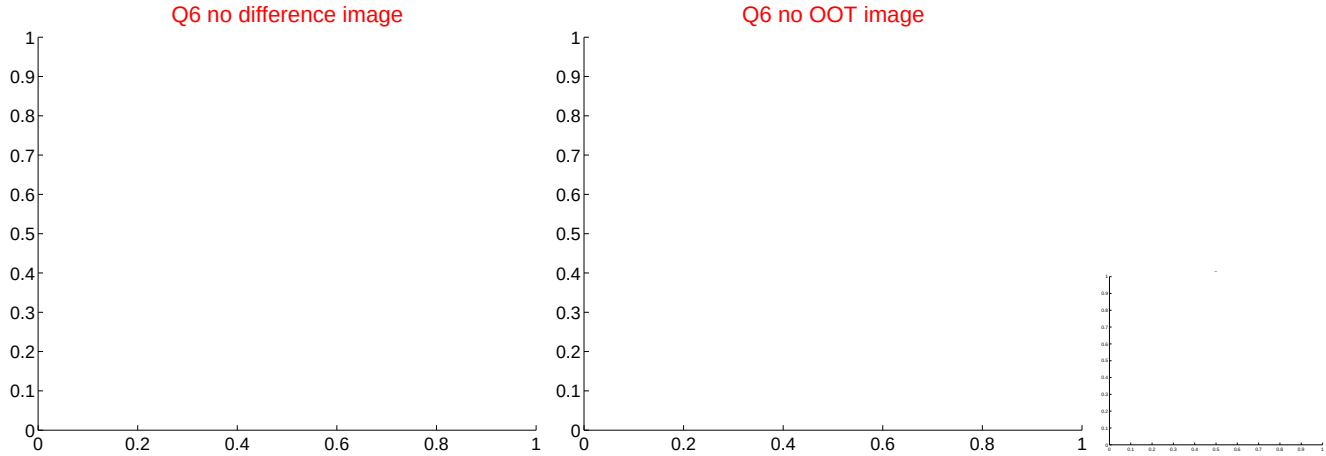
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

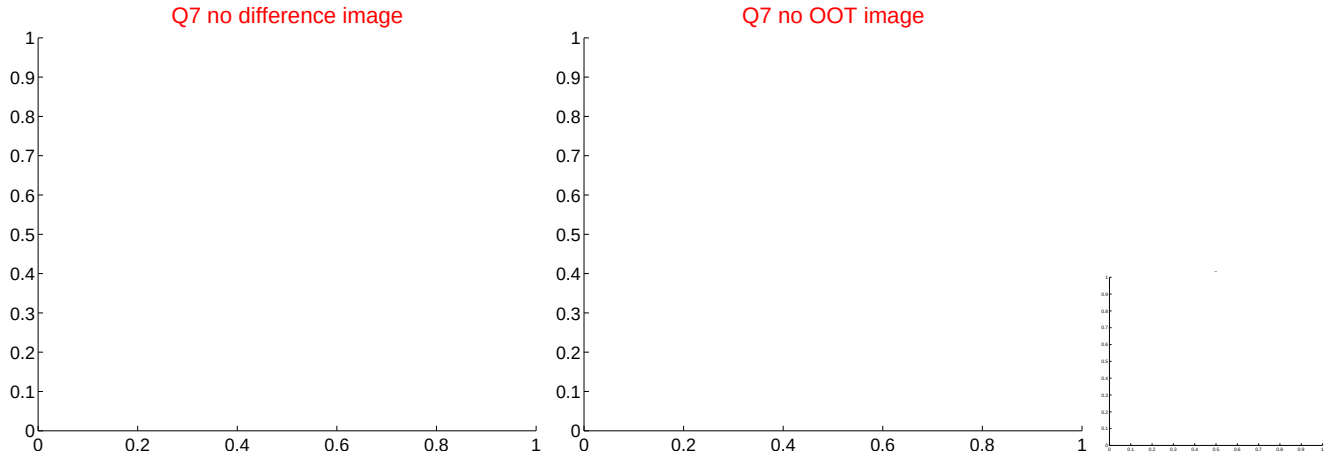
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

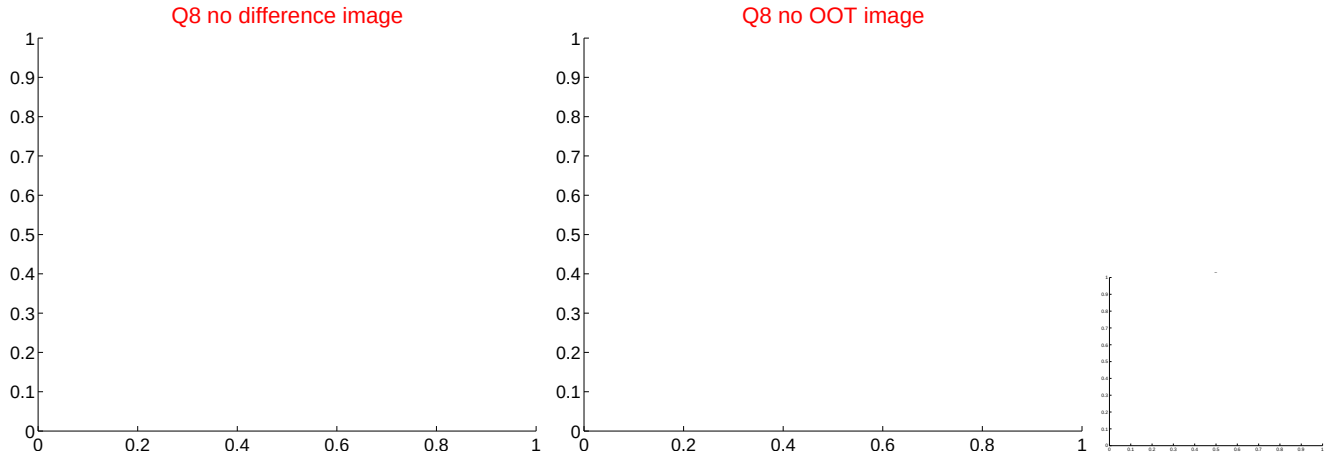


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

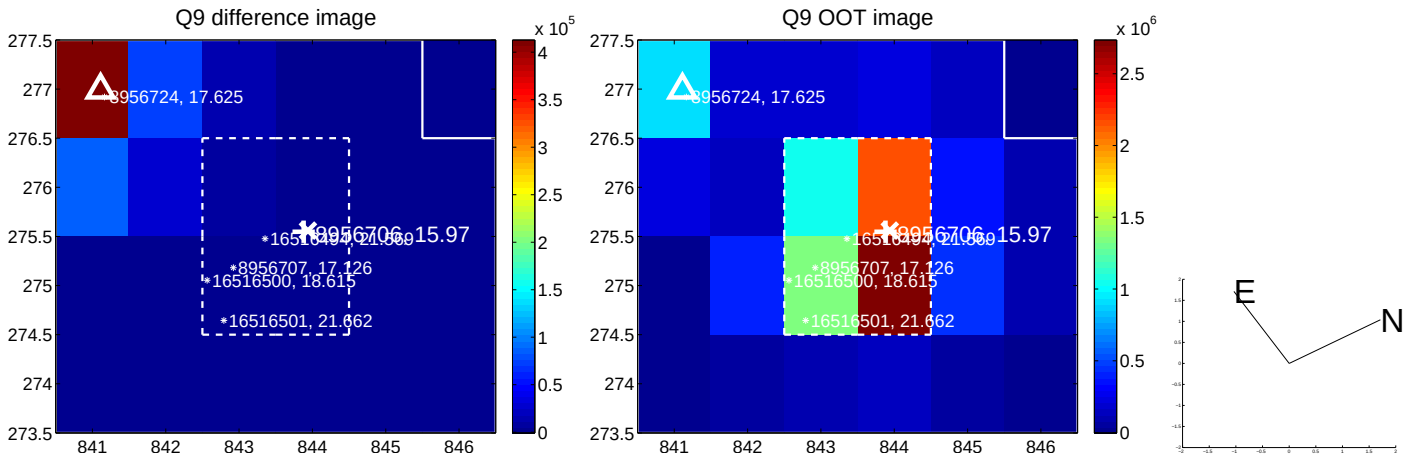


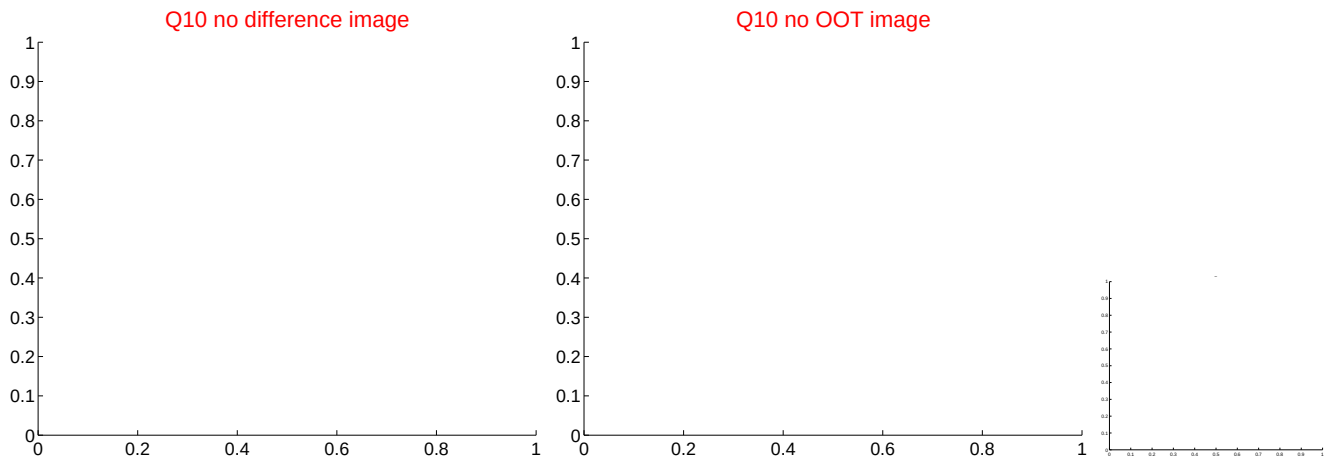


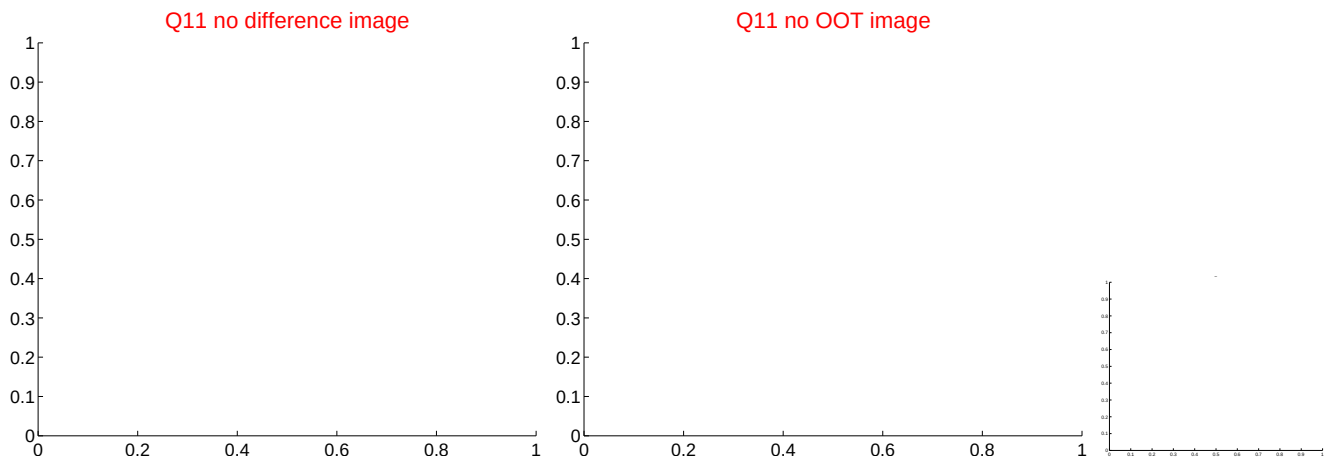


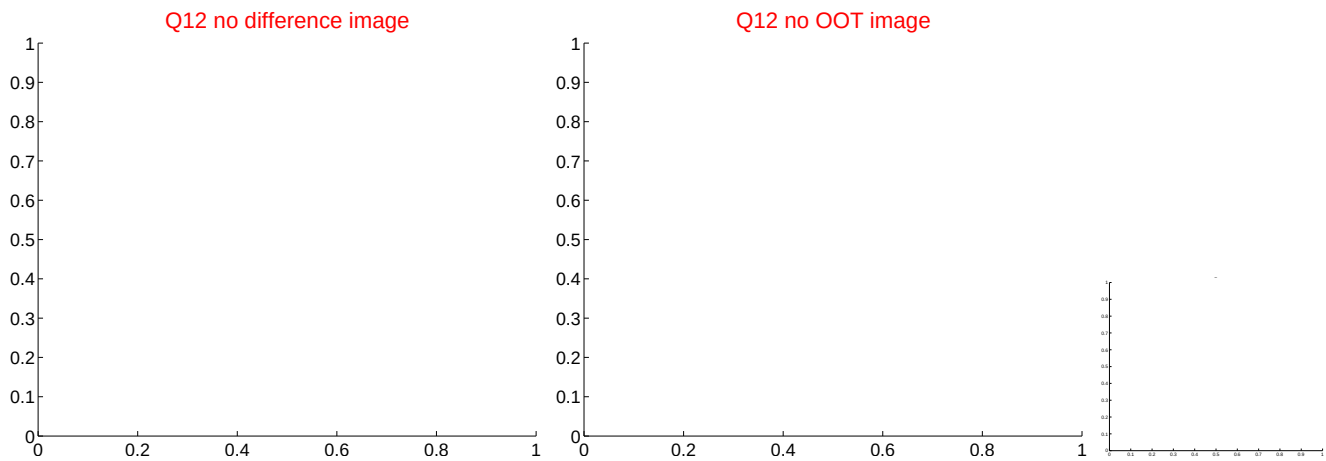


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

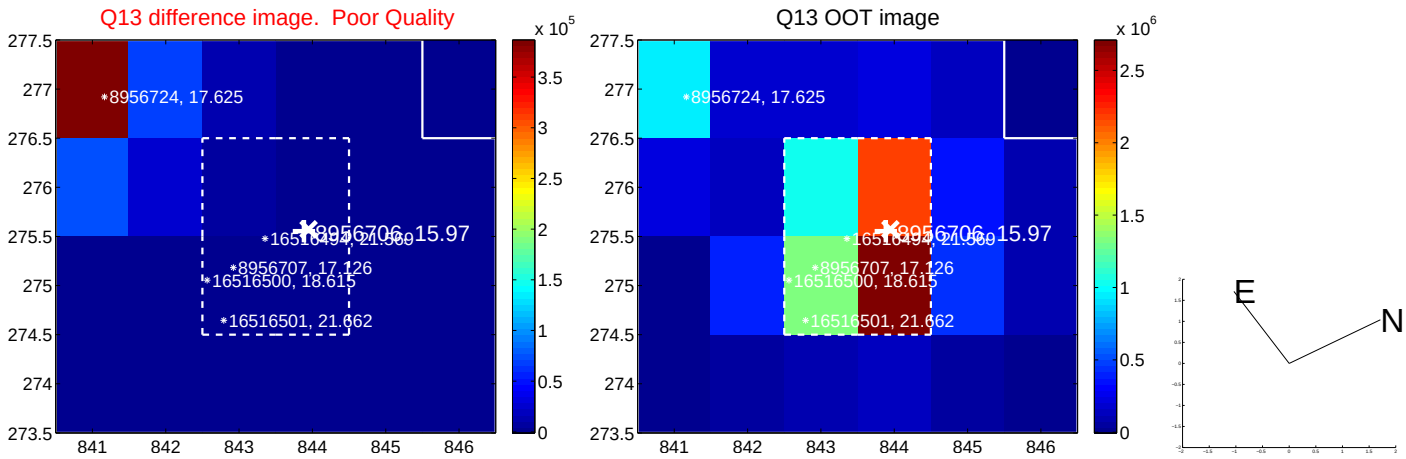


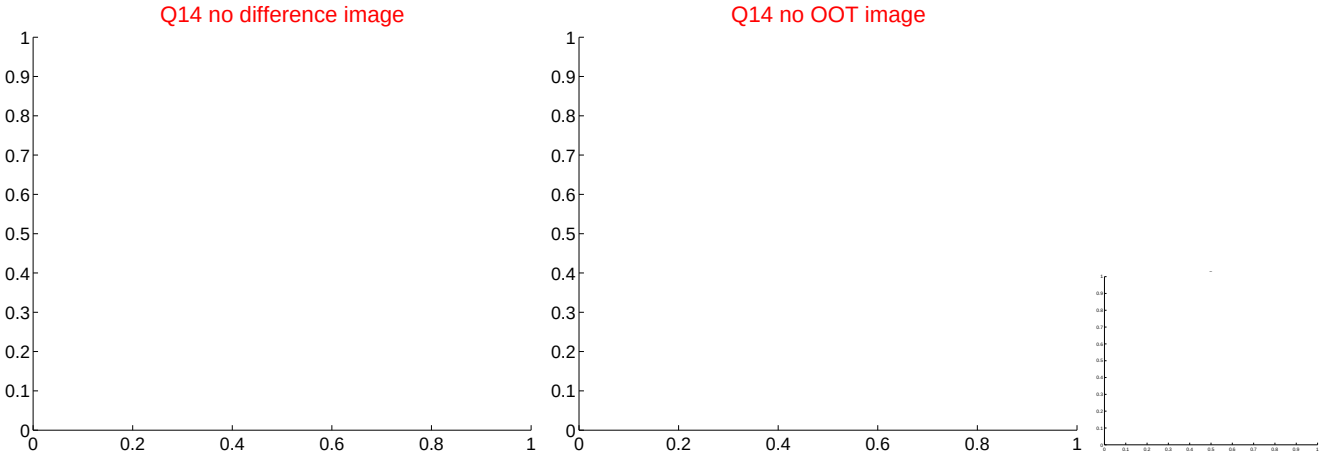


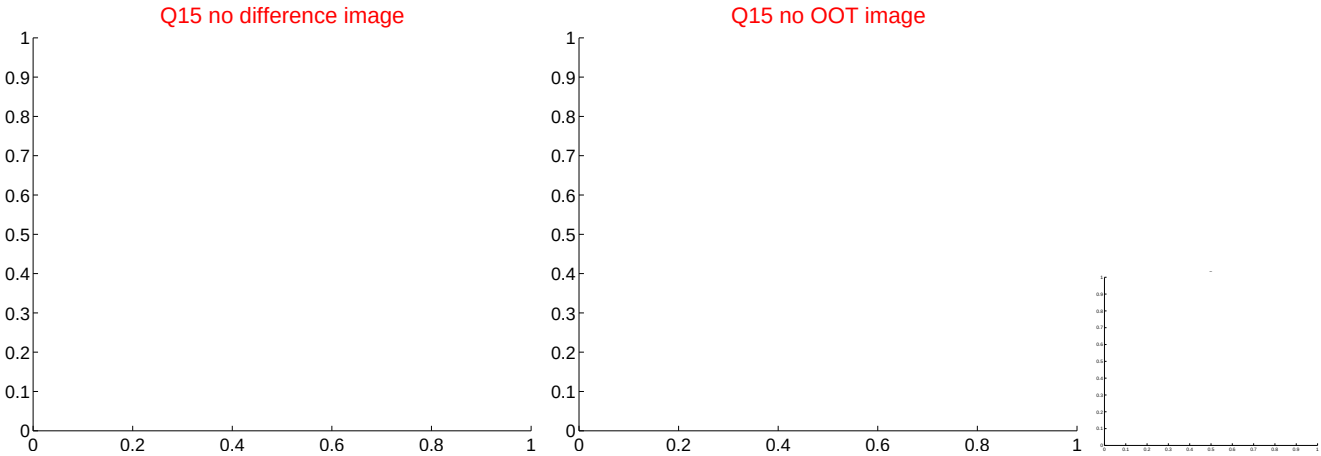


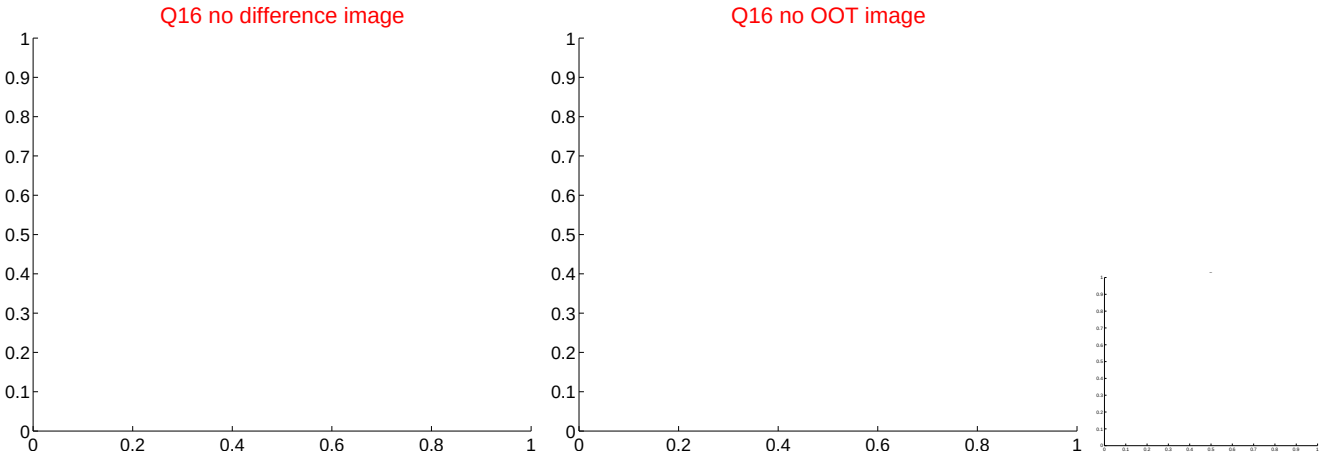


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

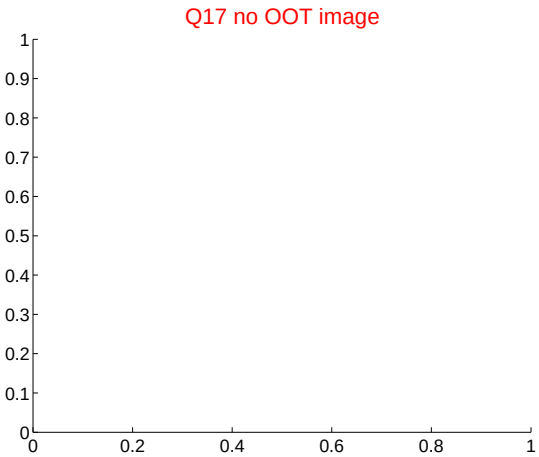


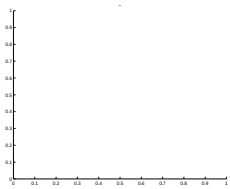


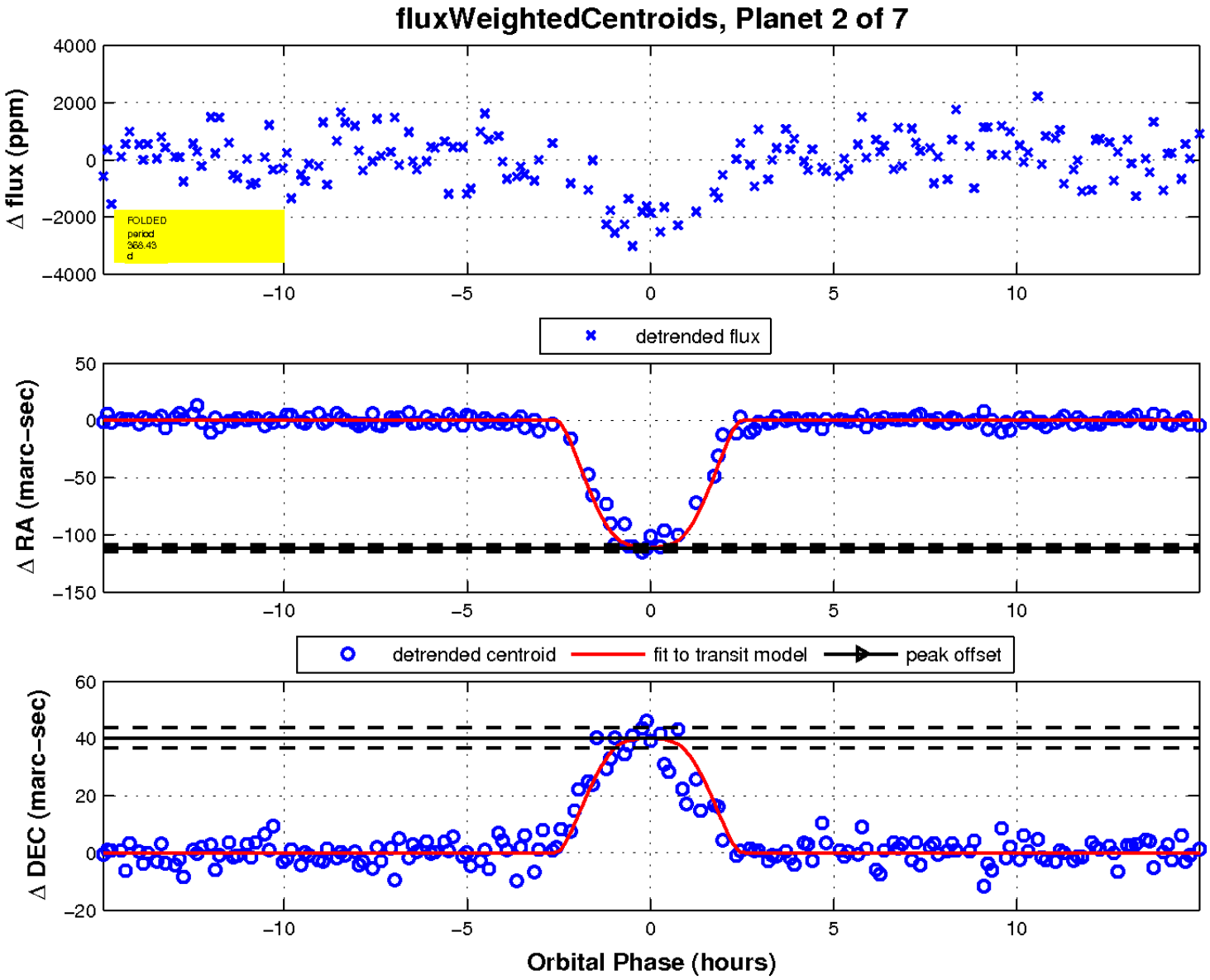




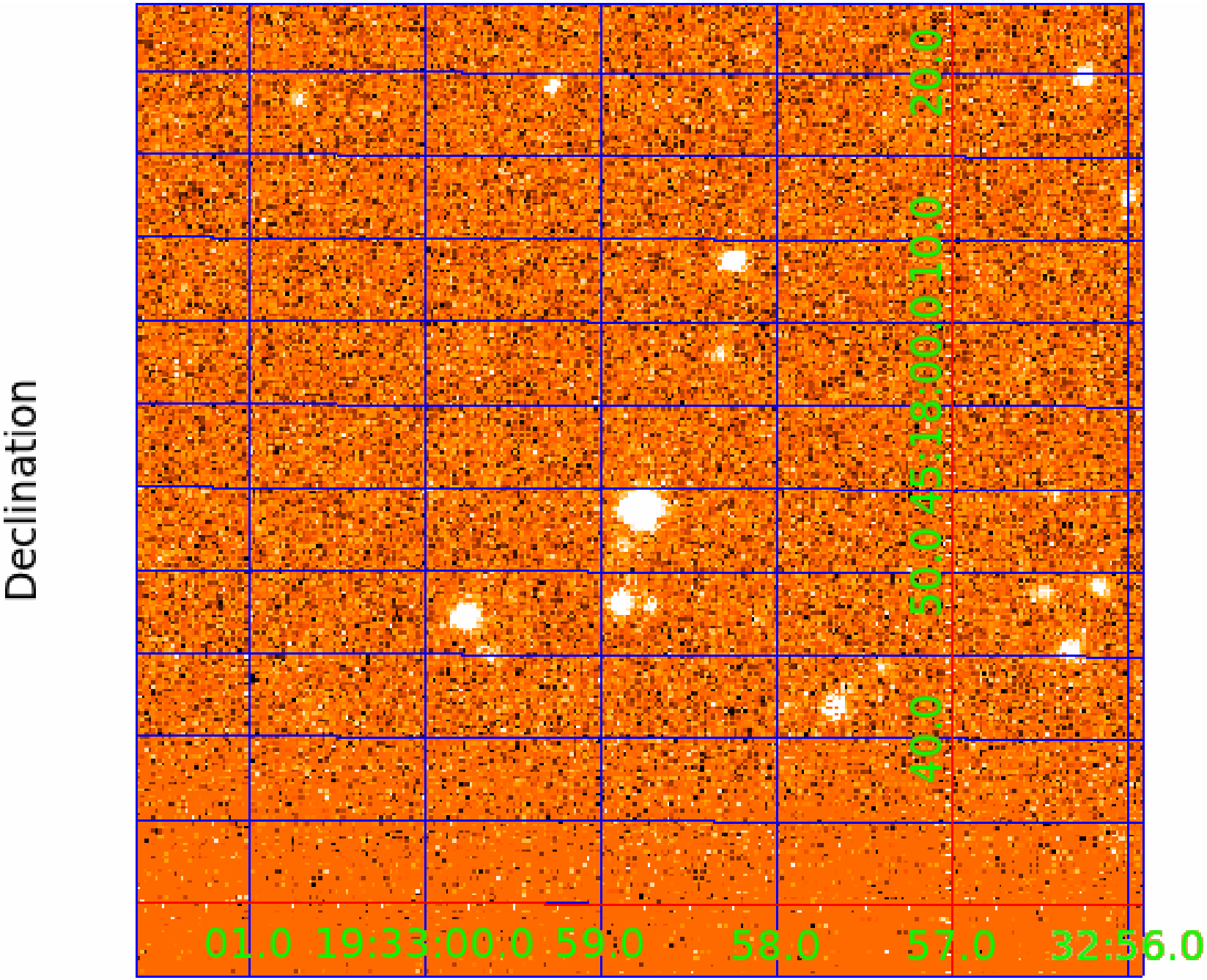
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image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KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

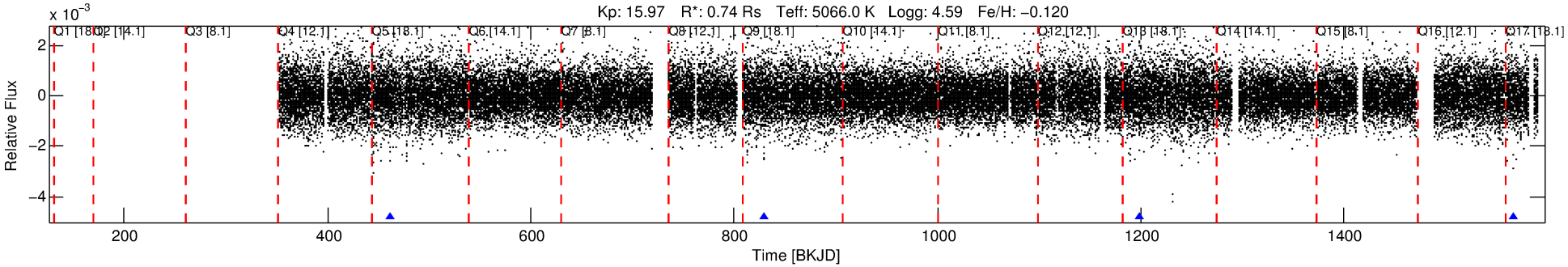
Ephemeris Match Information For 008956706-03

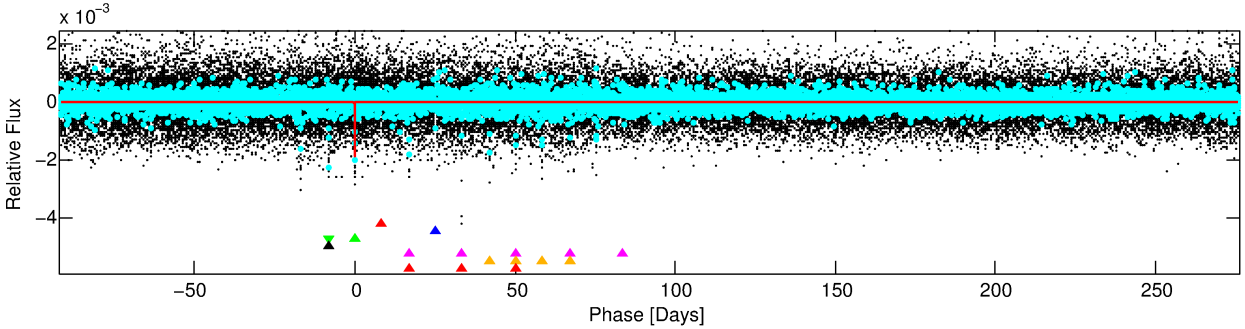
No Significant Match Found

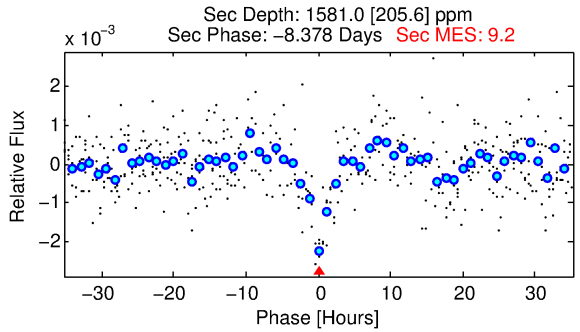
DV One-Page Summary

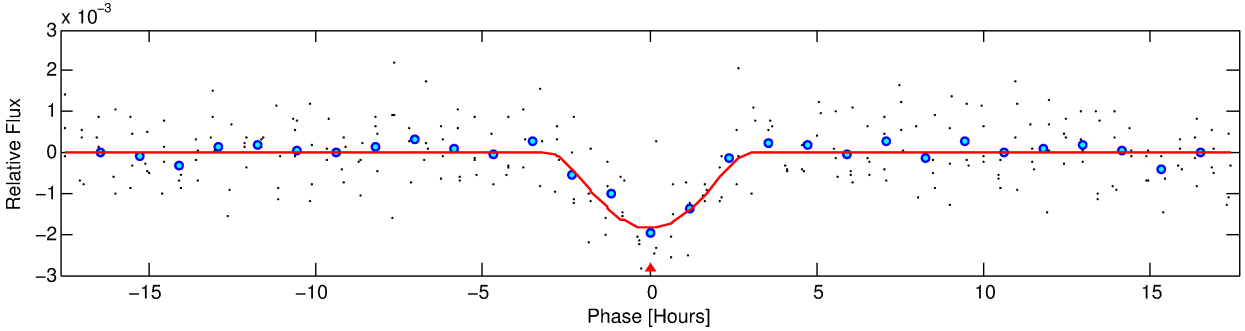
KIC: 8956706 Candidate: 3 of 7 Period: 368.417 d
KOI: K02431 Corr: No Ephemeris Match

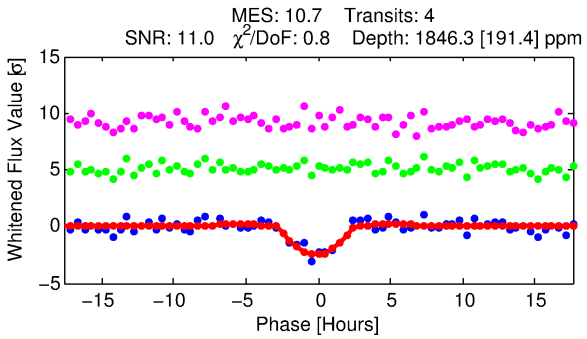
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

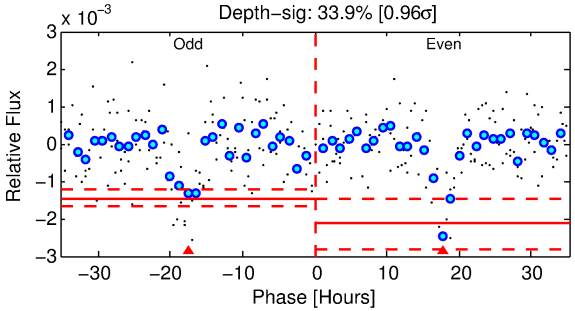


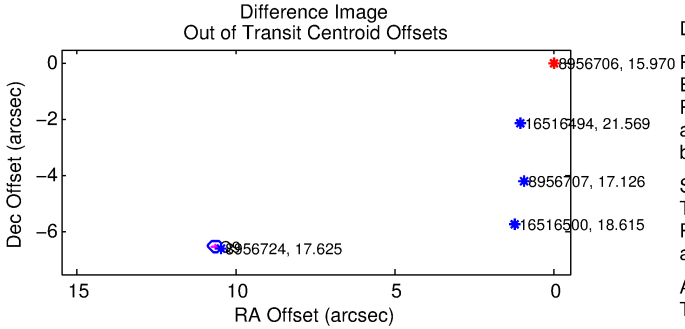












DV Fit Results:

Period = 368.41659 [0.00530] d
Epoch = 461.5893 [0.0104] BKJD
Rp/R* = 0.0675 [0.1615]
a/R* = 198.35 [130.35]
b = 0.98 [0.27]

Seff = 0.38 [0.07]
Teq = 200 [9] K
Rp = 5.45 [13.06] Re
a = 0.9270 [0.0858] AU

Ag = 25152.28 [120429.63] [0.21σ]
Teffp = 3888 [4654] K [0.79σ]

DV Diagnostic Results:

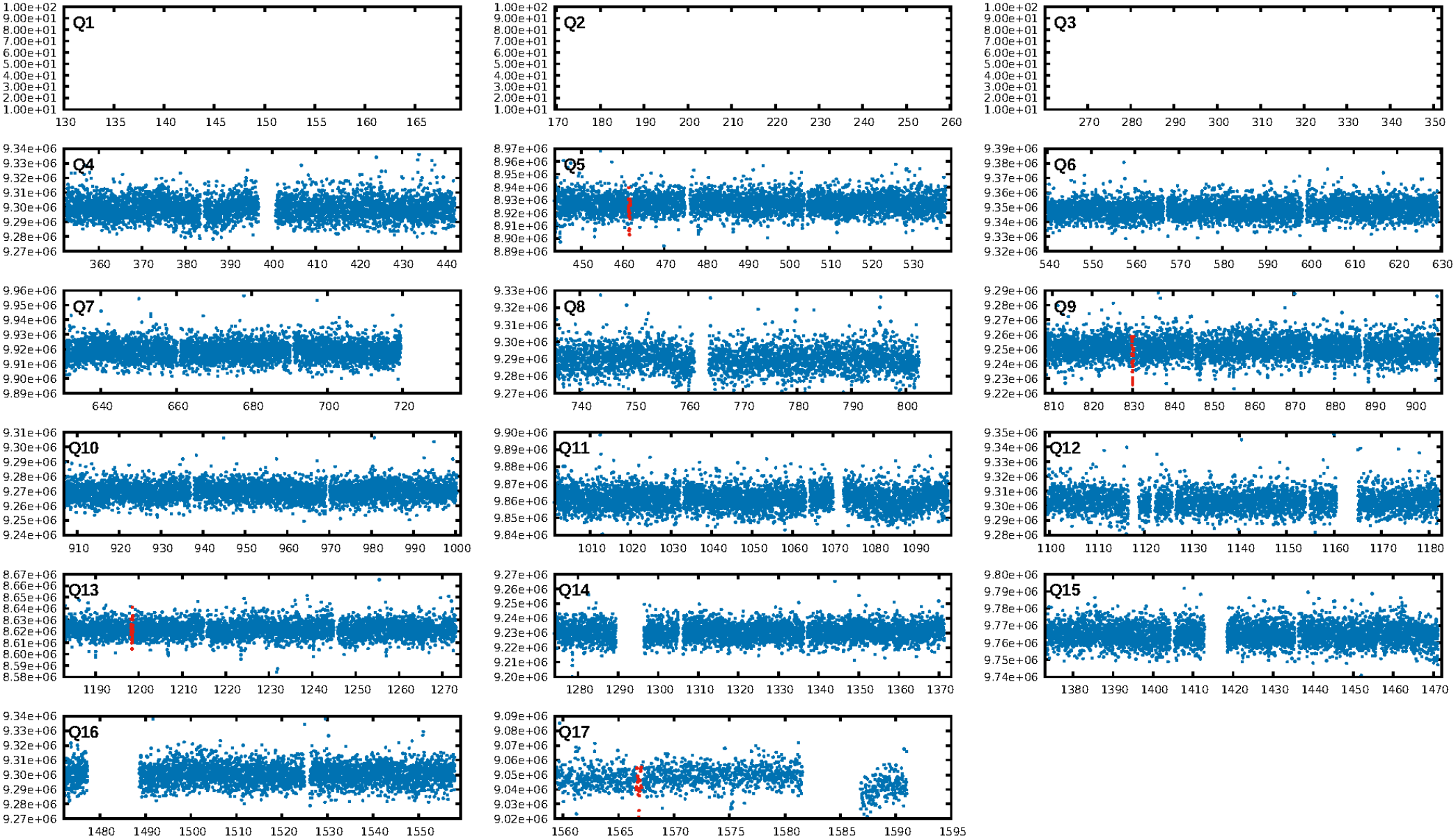
ShortPeriod−sig: 2.2% [0.03σ]
LongPeriod−sig: 4.2% [0.05σ]
ModelChiSquare2−sig: 27.0%
ModelChiSquareGof−sig: 98.9%
Bootstrap−pfa: 1.35e−13
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.5506

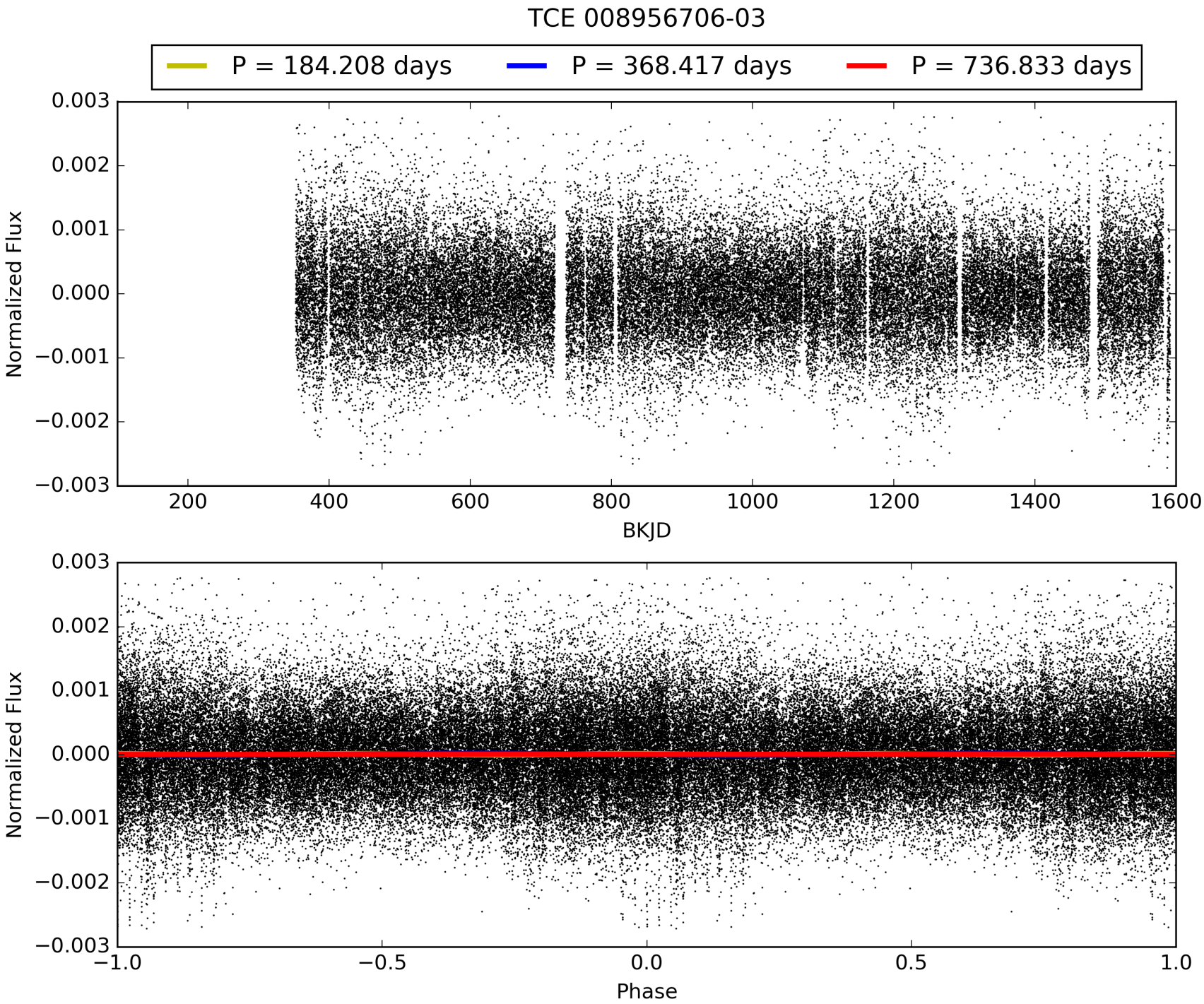
Centroid−sig: 0.0%
Centroid−so: 57.772 arcsec [45.60σ]
OotOffset−rm: 12.502 arcsec [179.22σ]
KicOffset−rm: 12.685 arcsec [181.87σ]
OotOffset−st: 0/0/0/1 [1]
KicOffset−st: 0/0/0/1 [1]
DiffImageQuality−fgm: 1.00 [1/1]
DiffImageOverlap−fno: 1.00 [4/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 11:06:46 Z

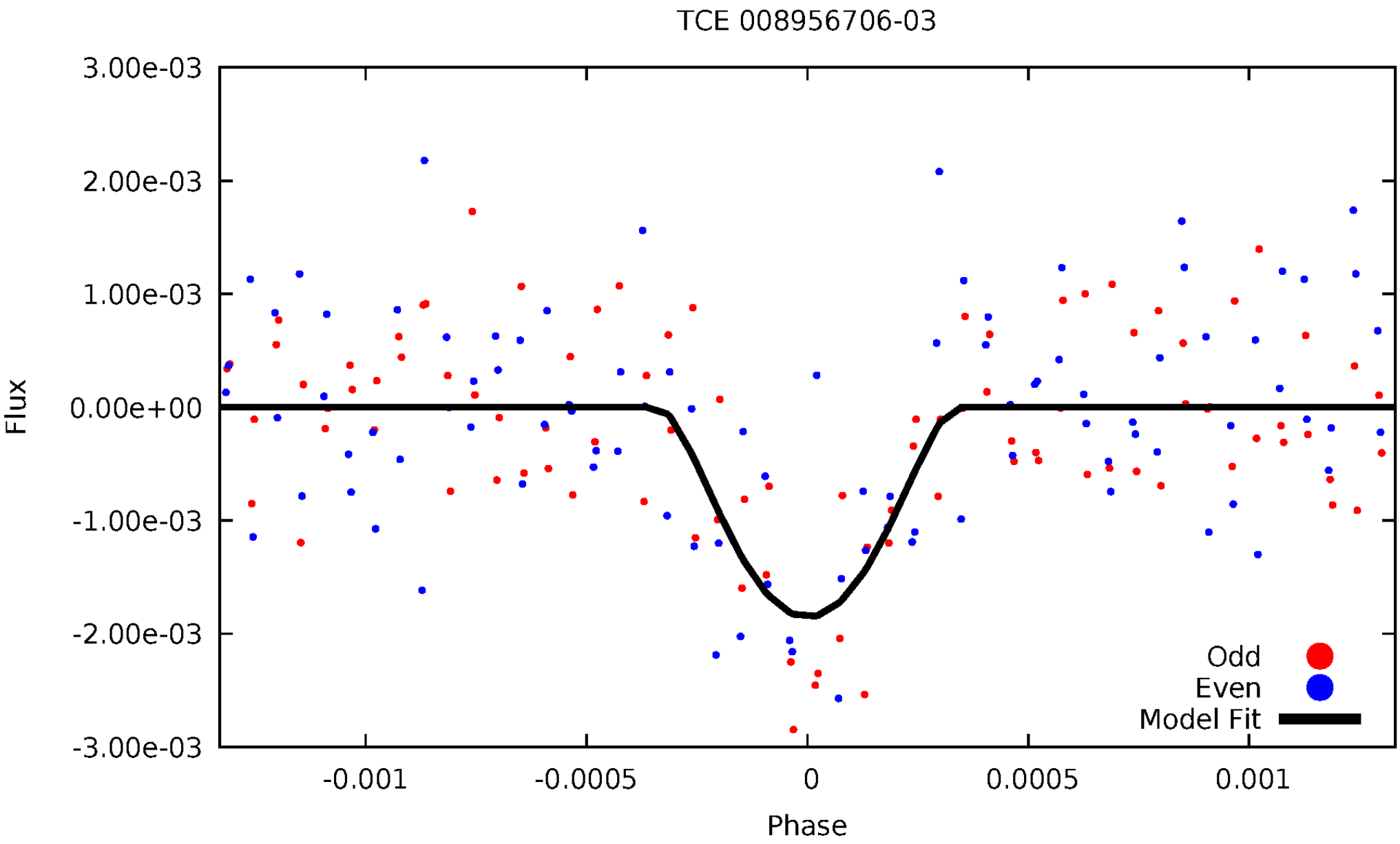
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-03, PDC Light Curves

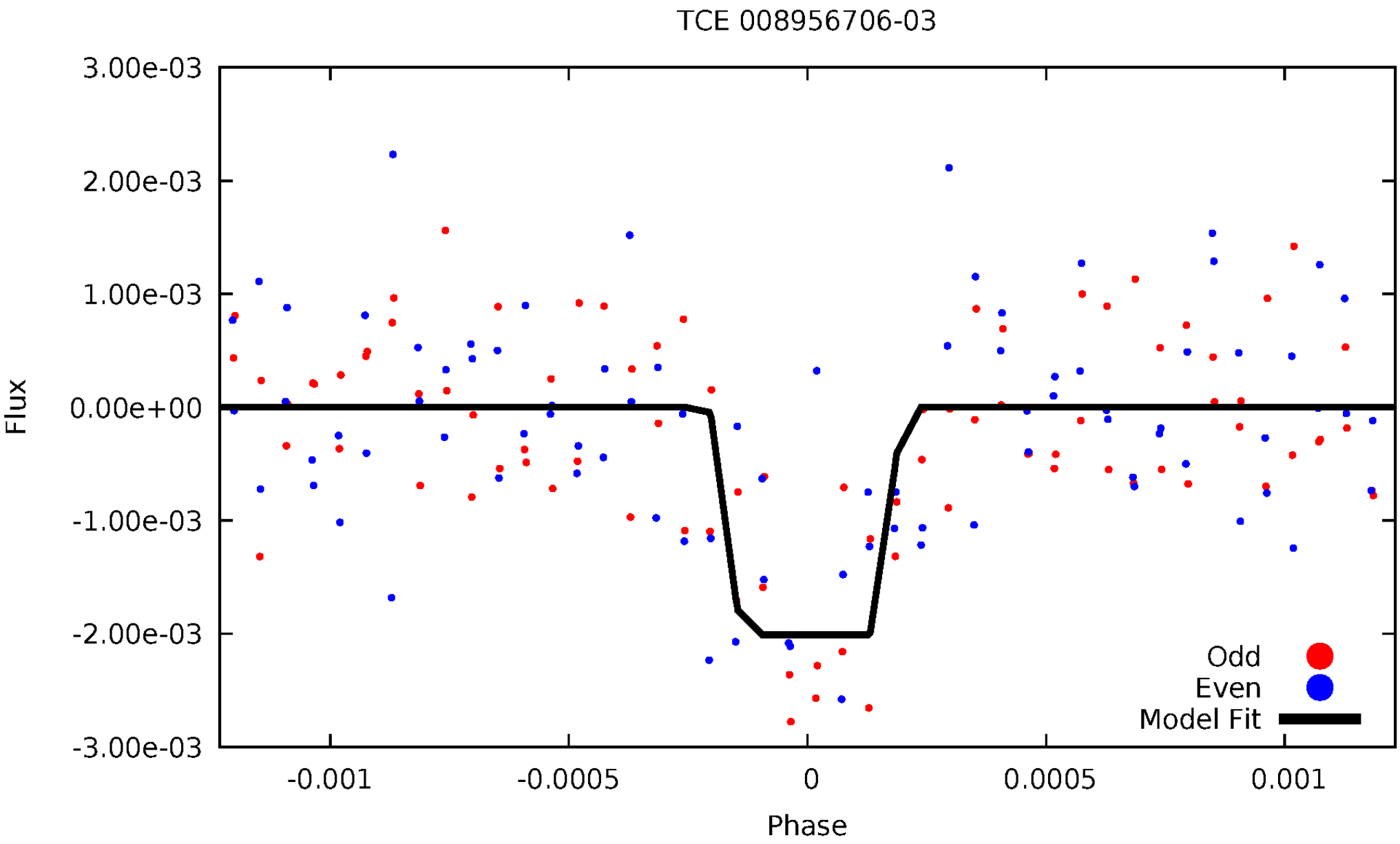



TCE 008956706-03
P = 184.208 days
P = 368.417 days
P = 736.833 days
Normalized Flux
BKJD
Normalized Flux
Phase

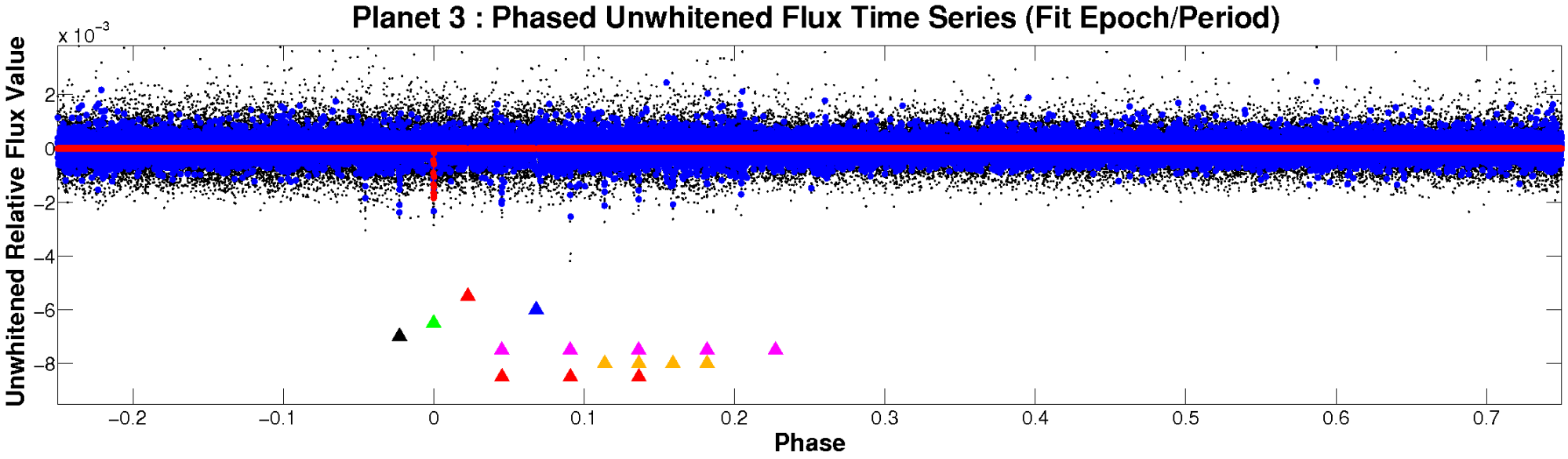
DV Odd/Even

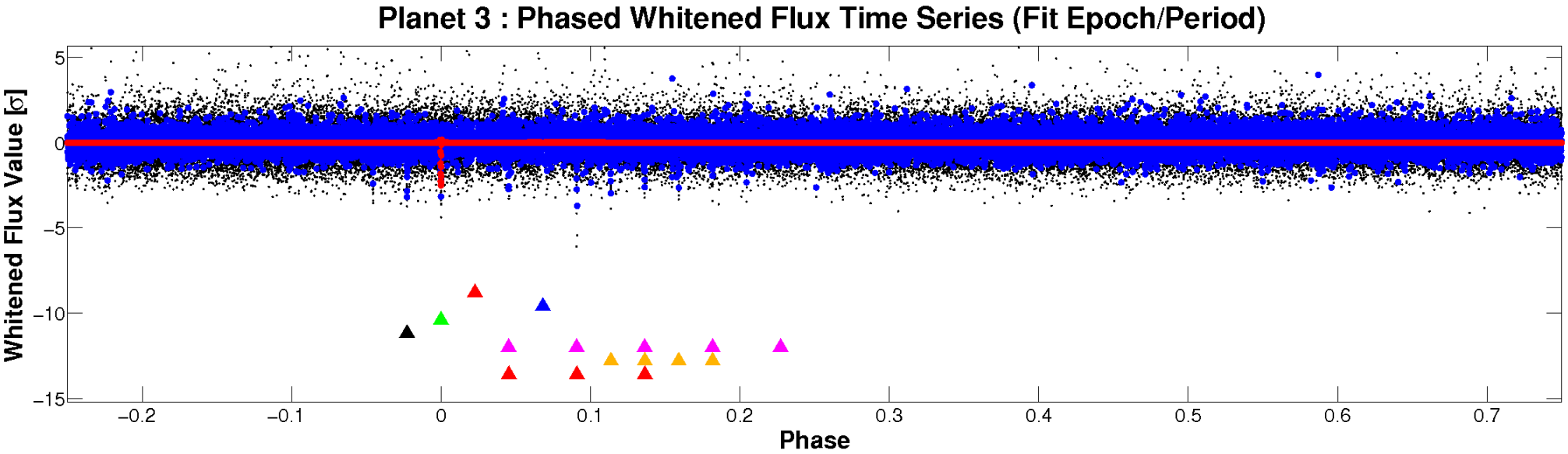

TCE 008956706-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008956706-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

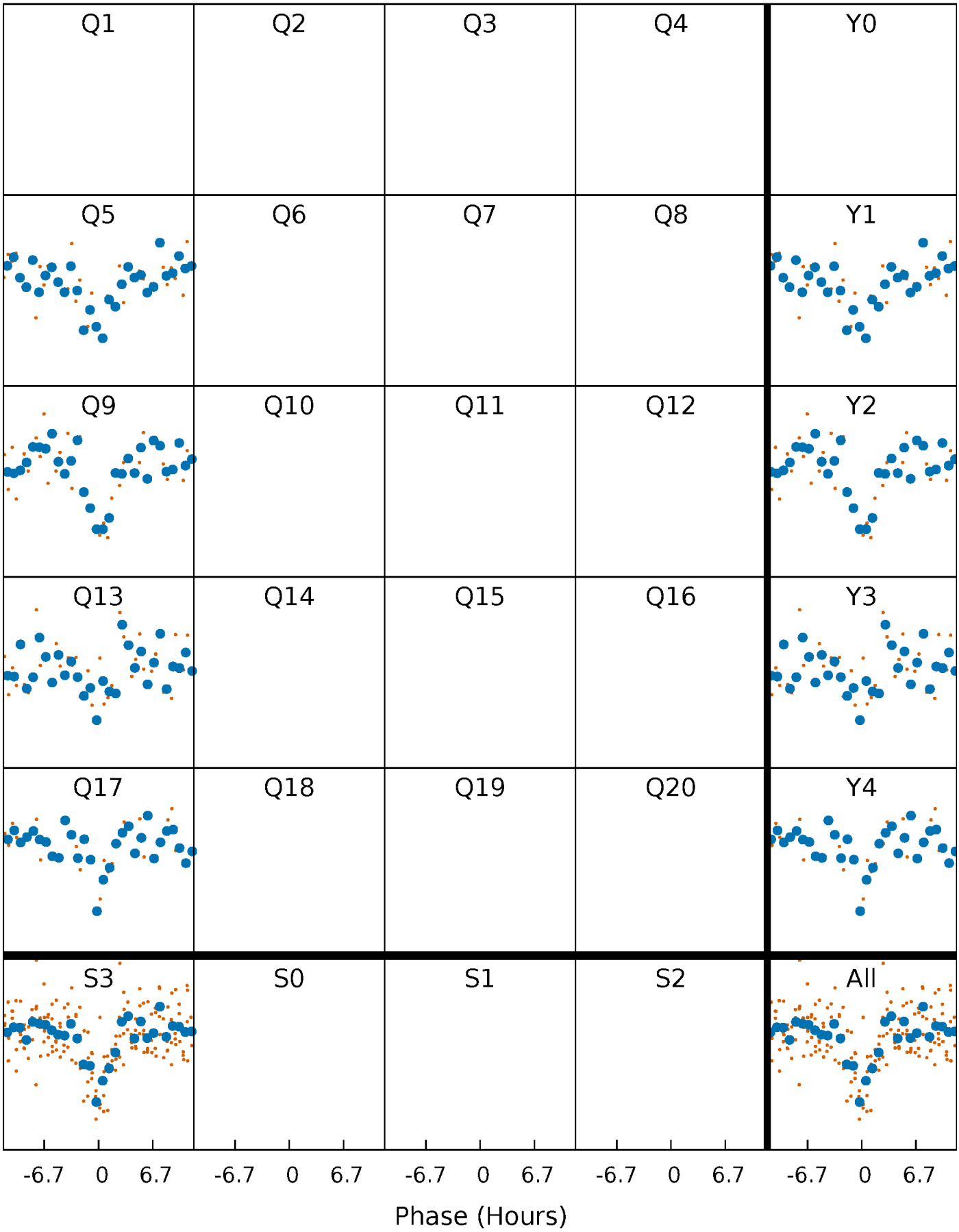
Non-Whitened Vs. Whitened Light Curve





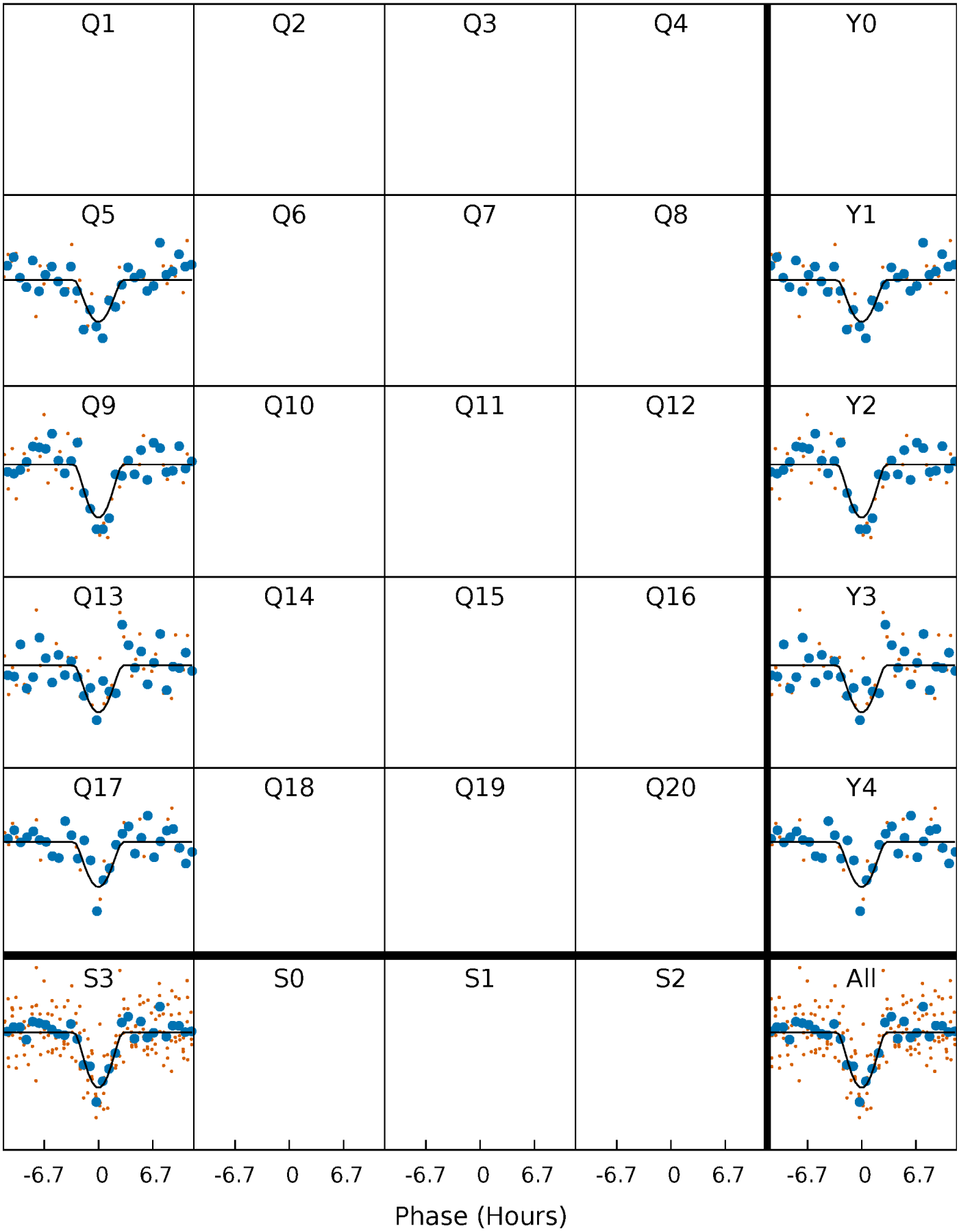
PDC Quarter-Phased Transit Curves

TCE 008956706-03 P=368.416586 Days T_0=461.589334 (BKJD)



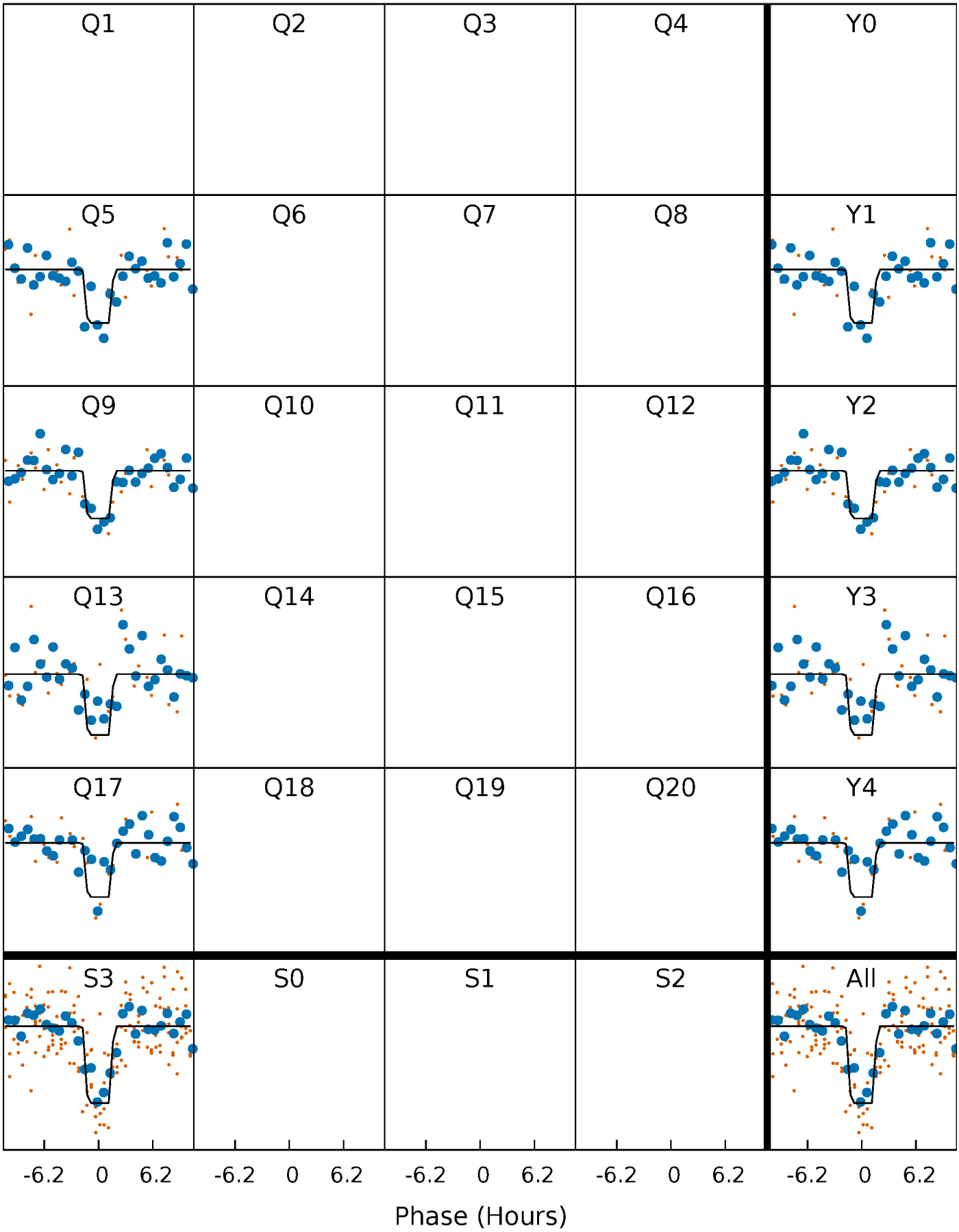
DV Quarter-Phased Transit Curves

TCE 008956706-03 P=368.416586 Days T_0=461.589334 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

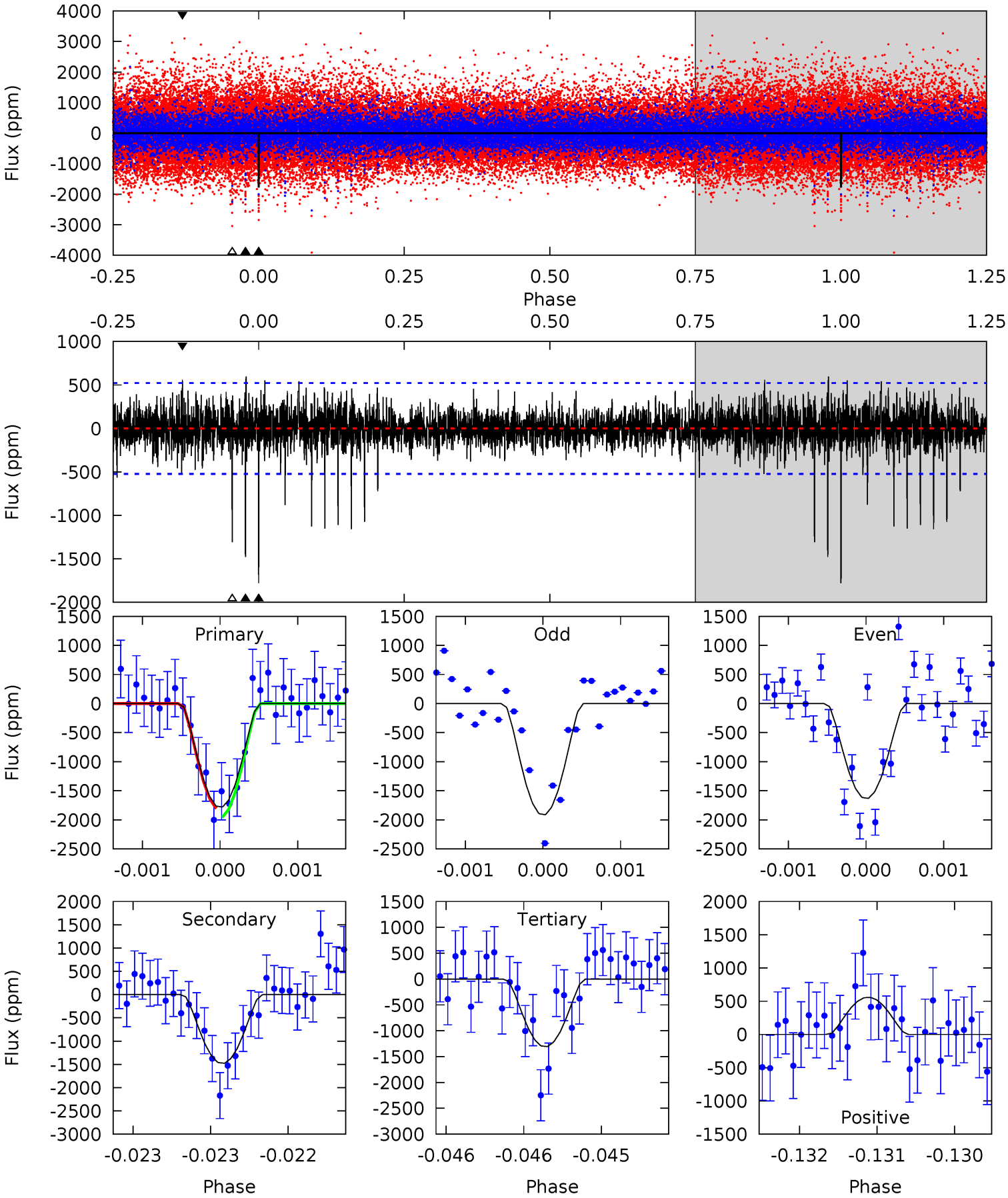
TCE 008956706-03 P=368.417087 Days T_0=461.588946 (BKJD)



DV Model-Shift Uniqueness Test

008956706-03, P = 368.416586 Days, E = 93.172748 Days

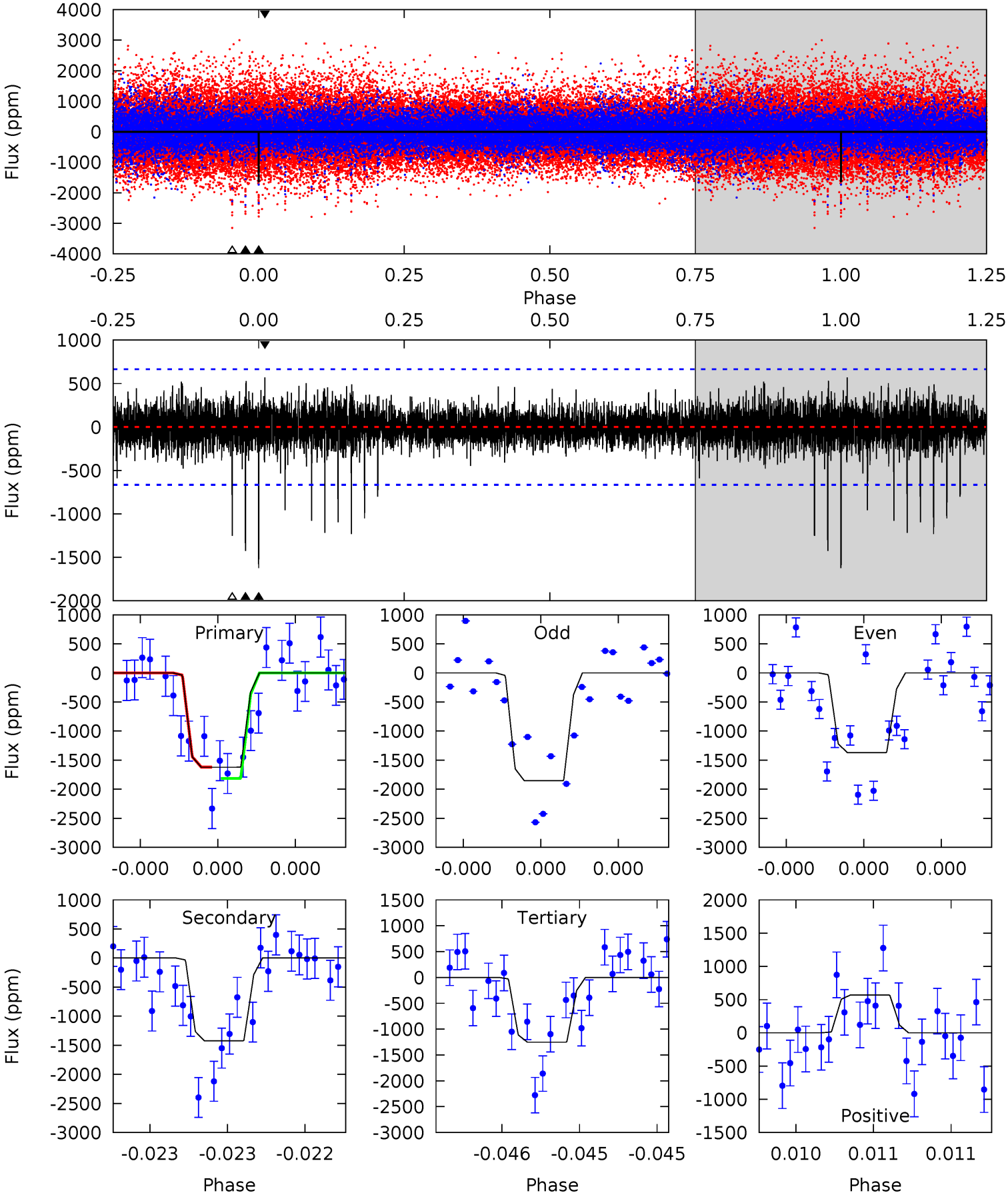
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	15.6	13.8	5.88	5.52	3.40	1.60	5.00	12.9	1.80	9.69	1.49	0.99	0.25	0.78



Alt Model-Shift Uniqueness Test

008956706-03, P = 368.417087 Days, E = 93.171859 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	12.0	10.5	4.78	5.59	3.51	1.20	3.12	8.87	1.44	7.19	2.03	1.04	0.26	0.81



Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-03 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1476±95	$11.34^{+11.03}_{-7.57}$	281^{+12}_{-10}	3240^{+1466}_{-580}	5461^{+42884}_{-4082}
Alt.	-1424±119	$10.41^{+11.32}_{-7.18}$	280^{+12}_{-11}	3262^{+1732}_{-593}	6197^{+59855}_{-4759}

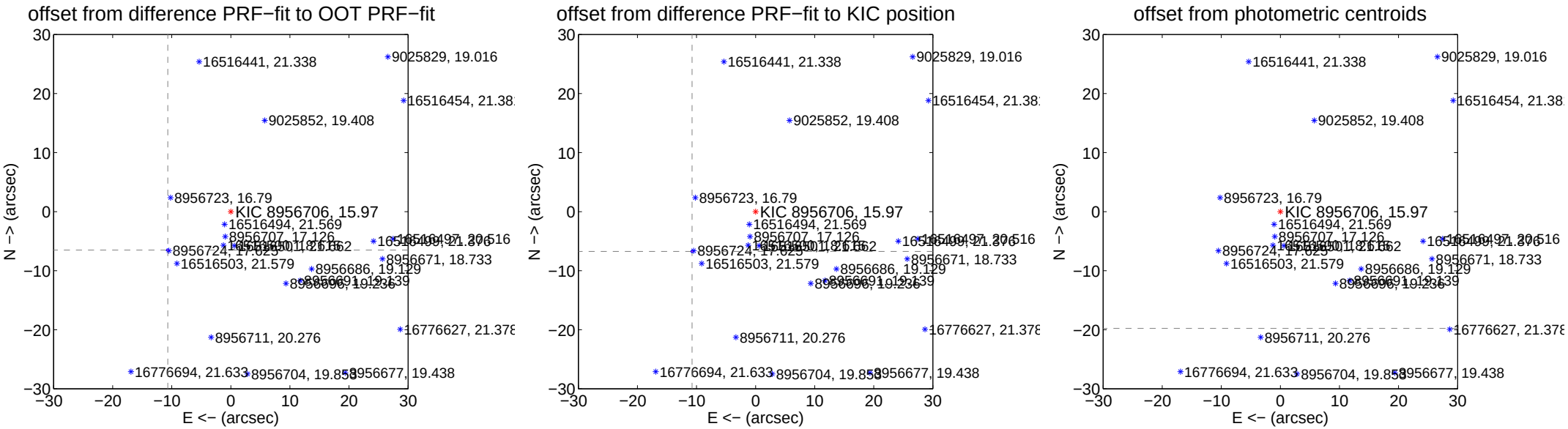
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

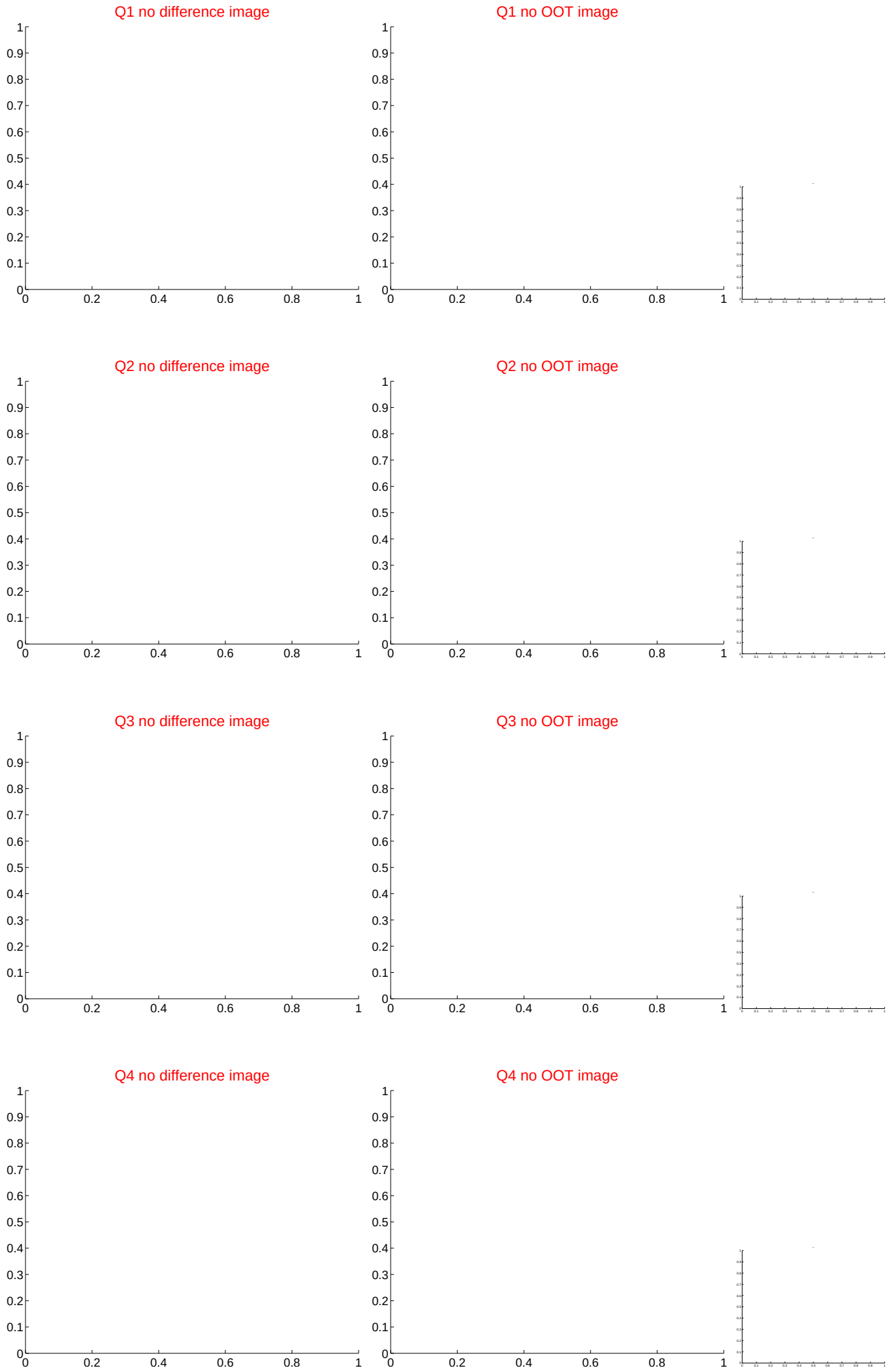
Supplemental centroid analysis for 008956706-03. Kepler magnitude: 15.97. Transit SNR 11.04
There are 1 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.502 ± 0.070	179.22	10.672 ± 0.069	-6.514 ± 0.072
PRF-fit source offset from KIC position	12.685 ± 0.070	181.87	10.751 ± 0.069	-6.732 ± 0.072
photometric centroid source offset	57.78 ± 1.27	45.60	54.29 ± 1.25	-19.77 ± 1.37

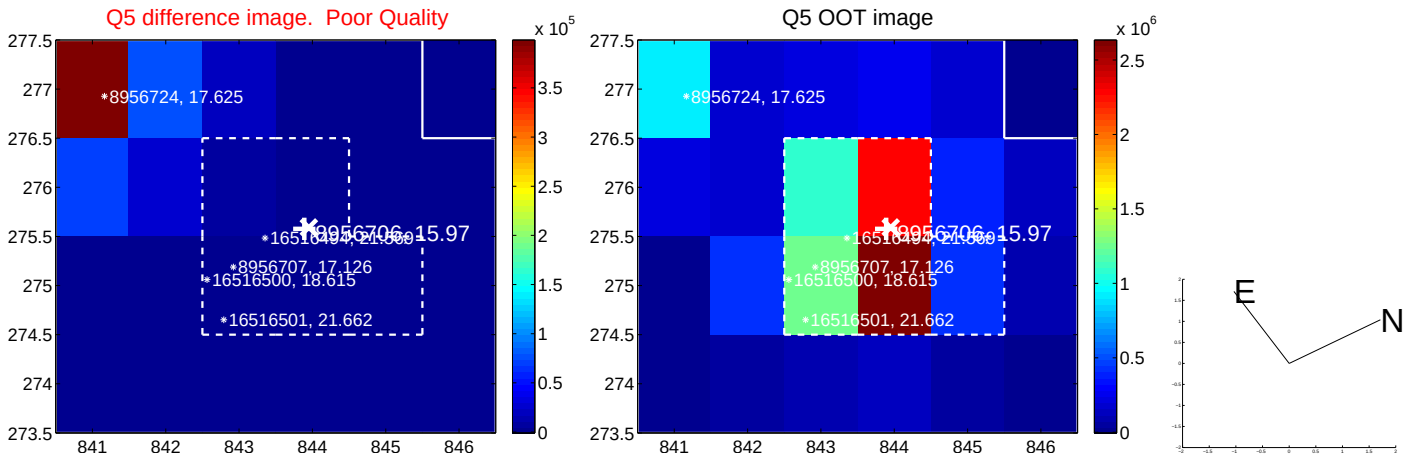


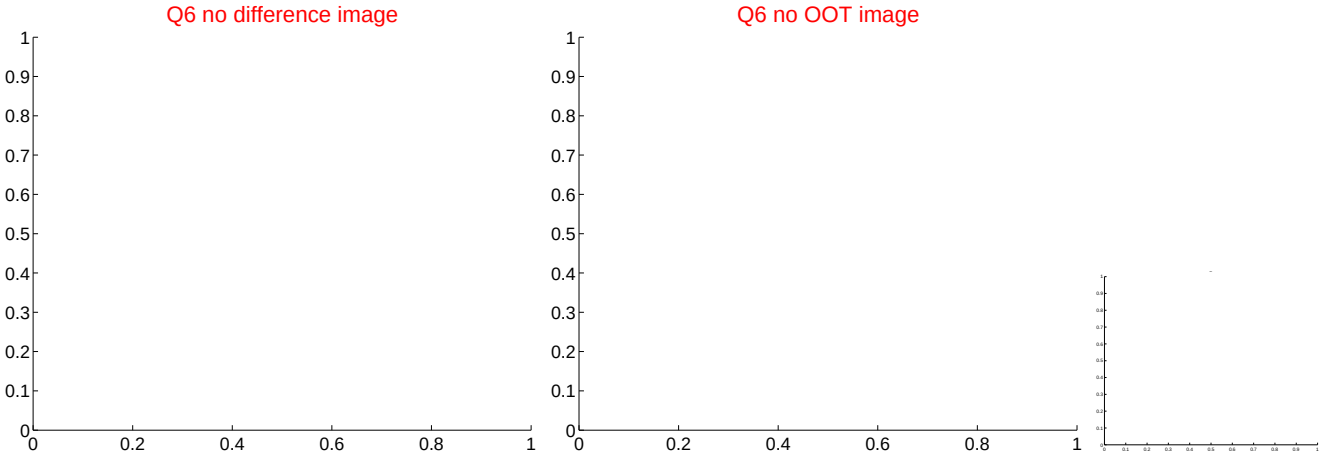
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

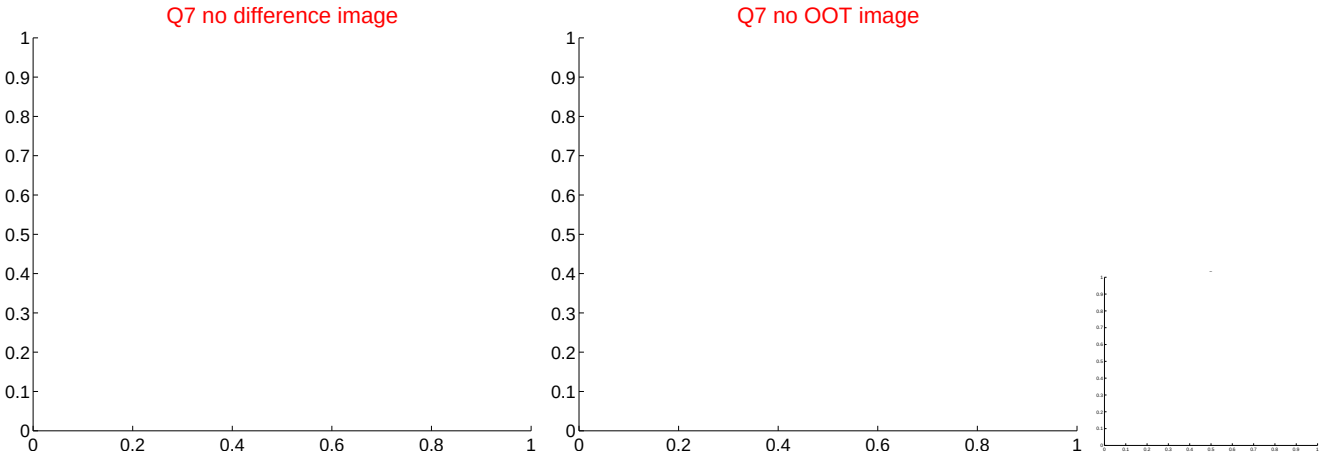
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

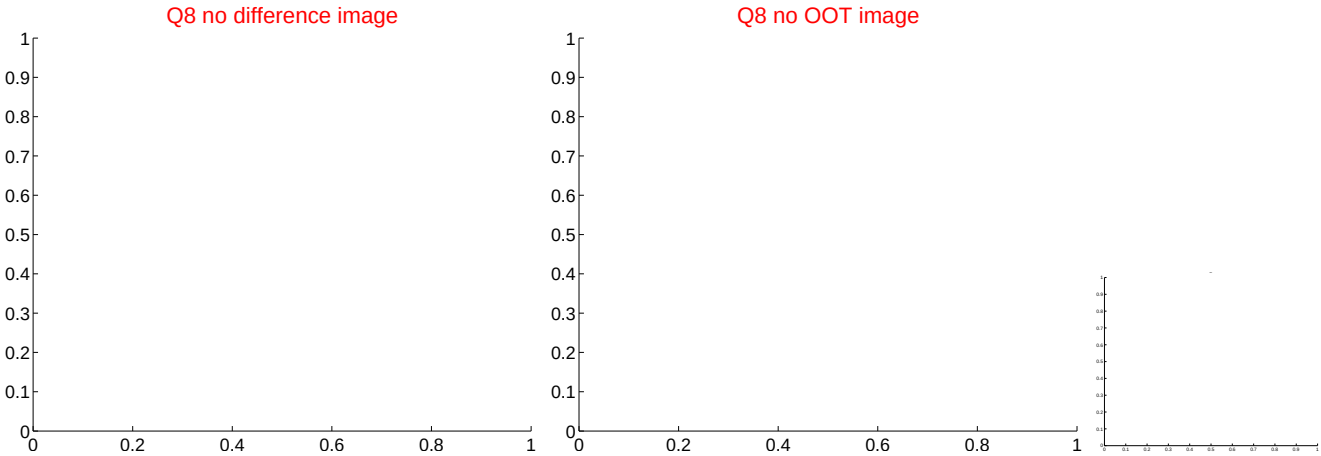


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

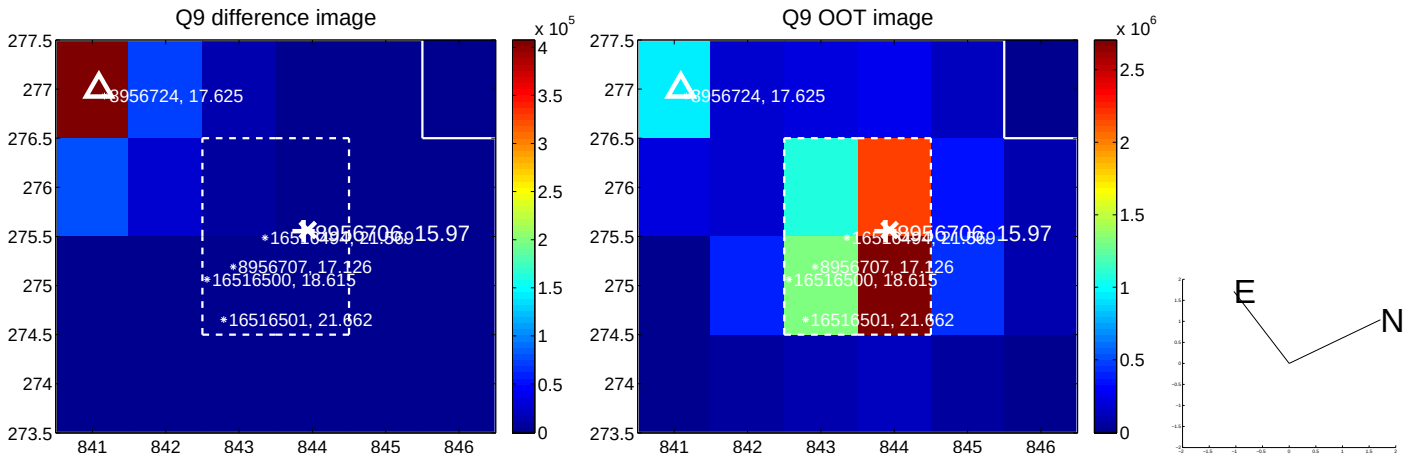


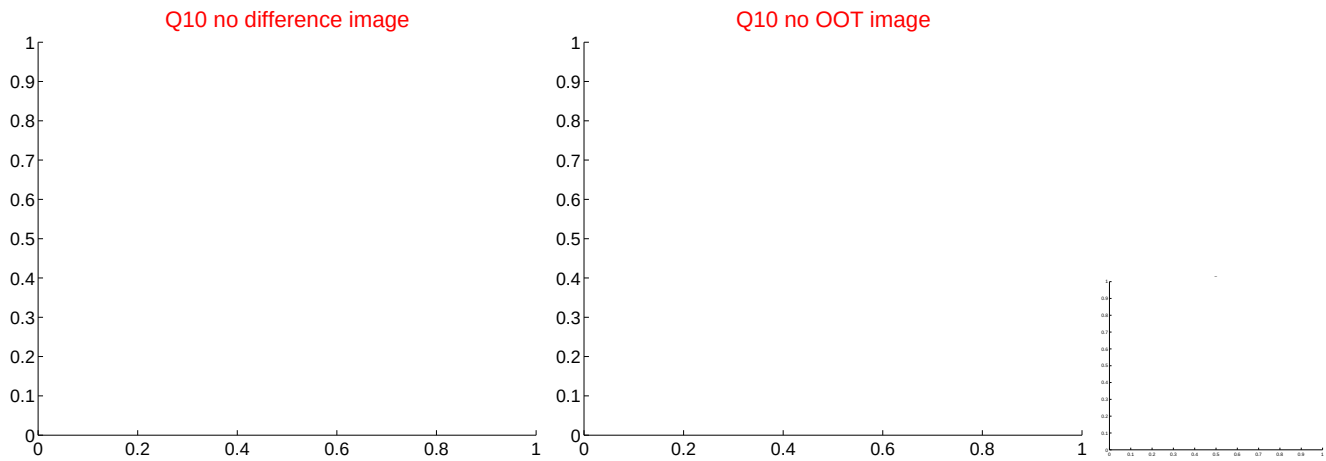


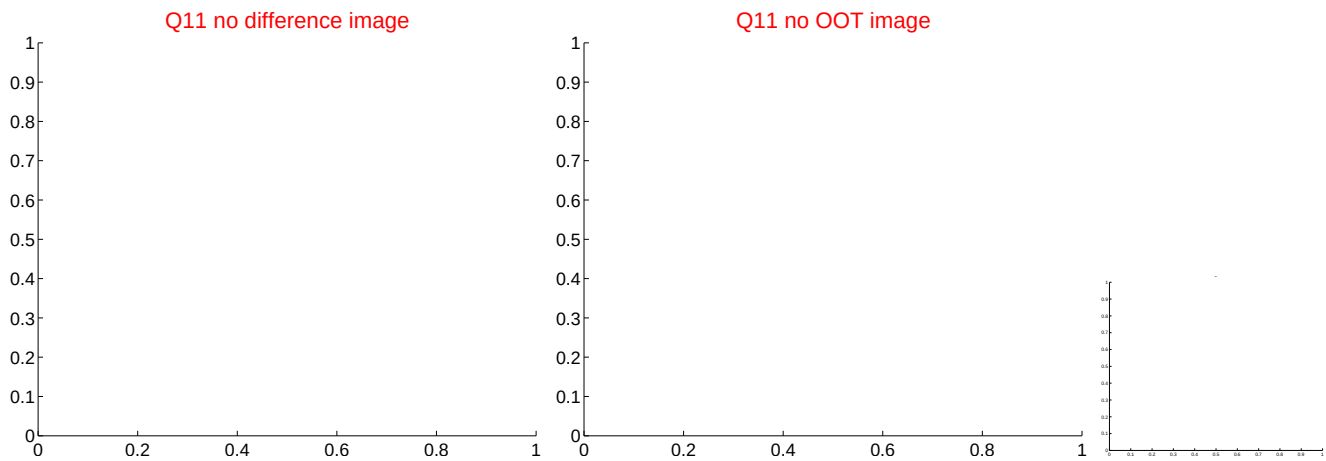


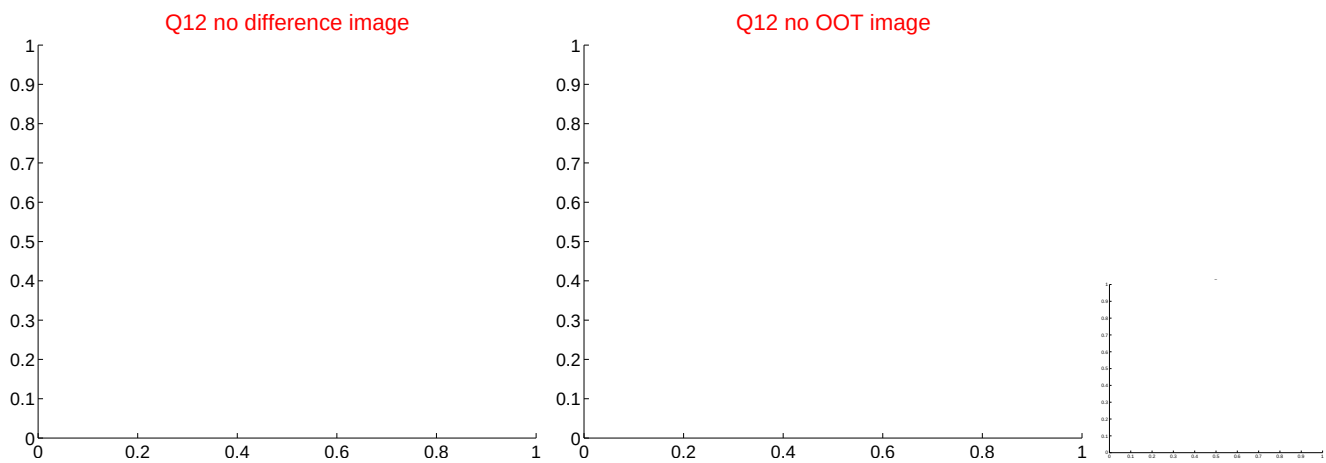


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

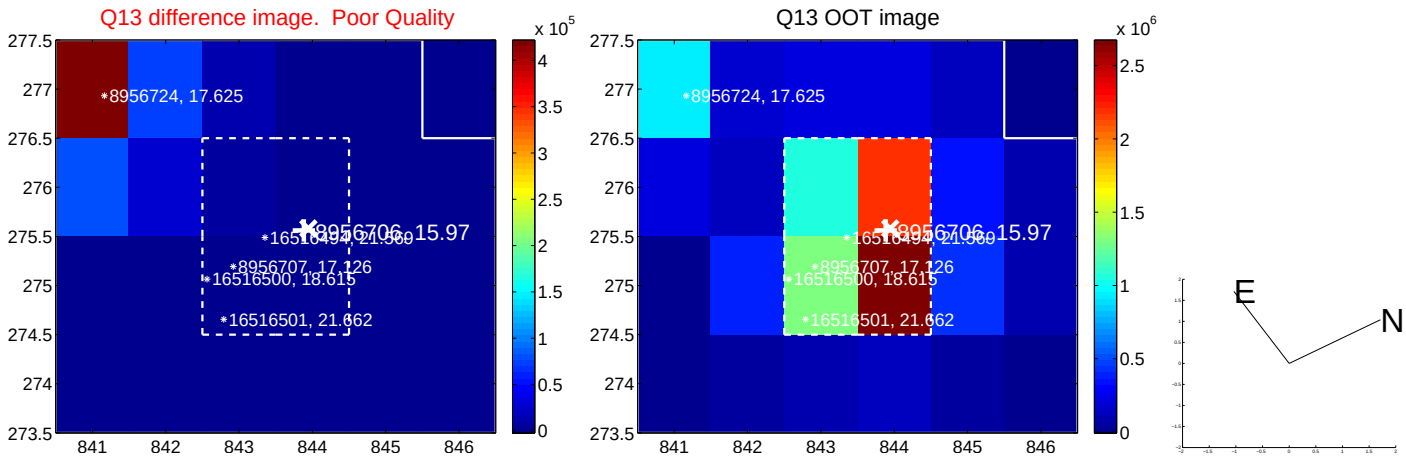


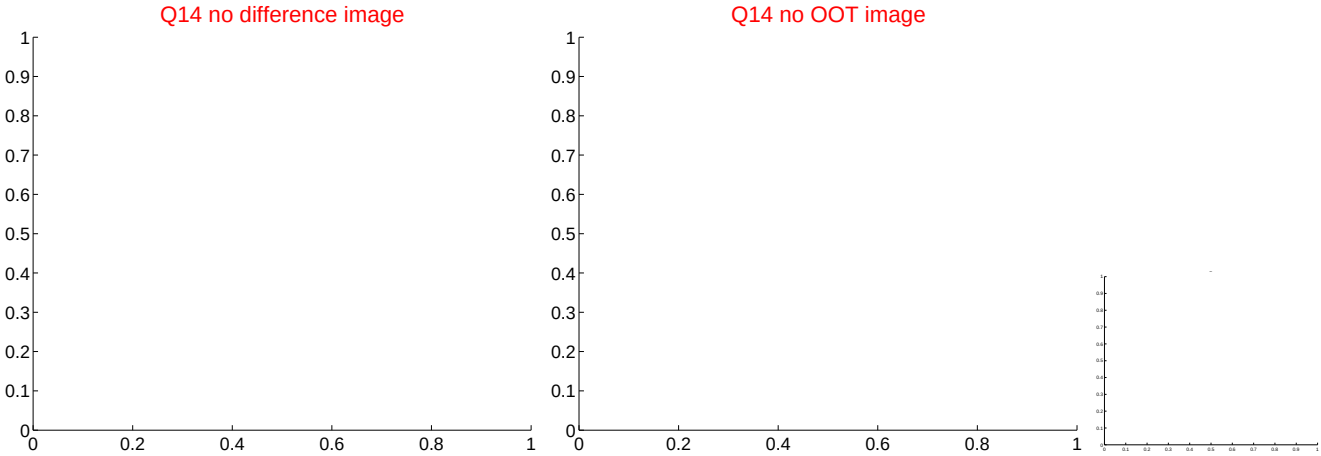


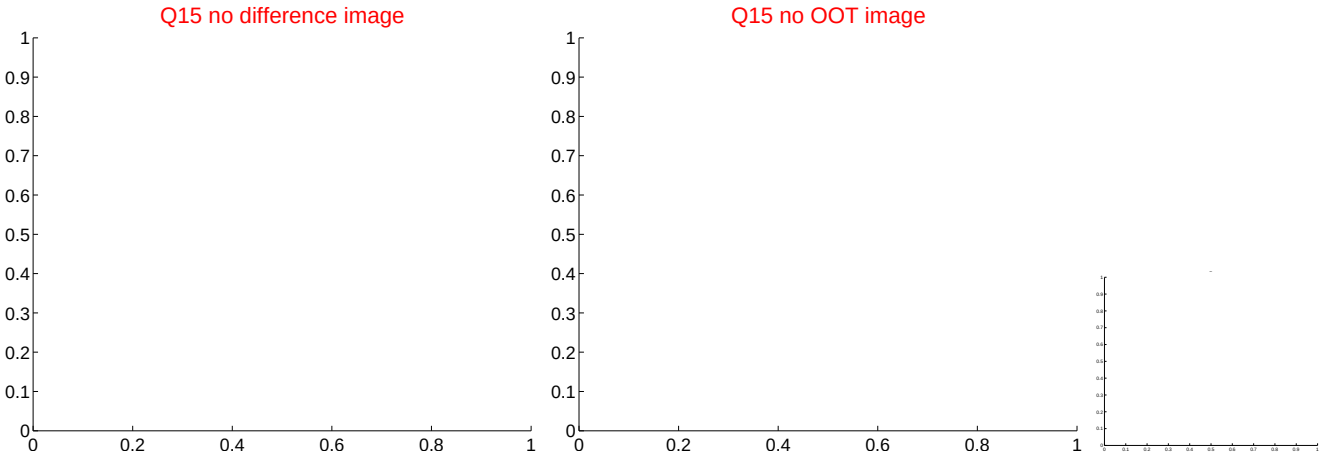


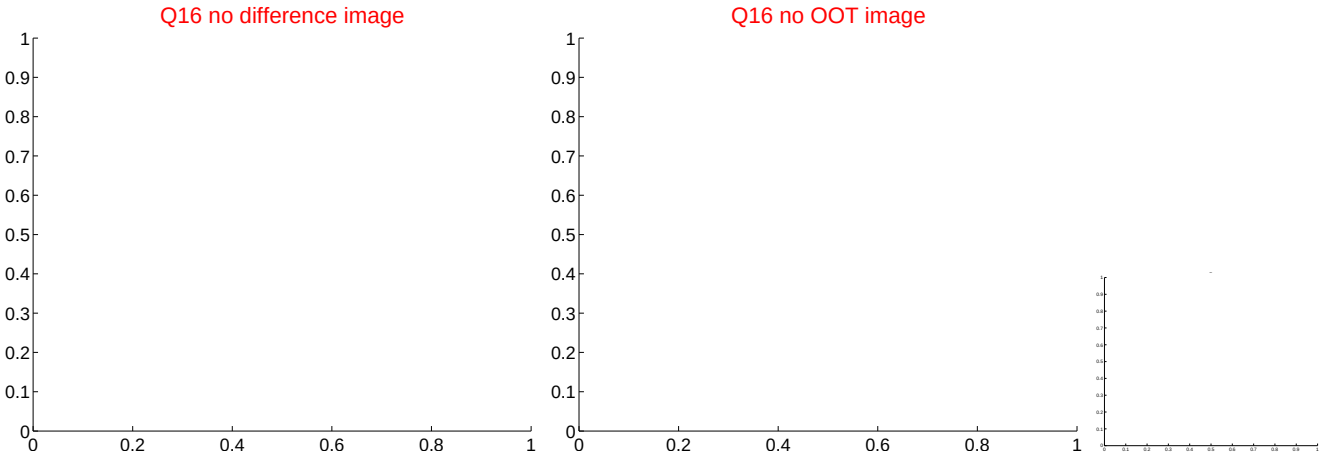


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

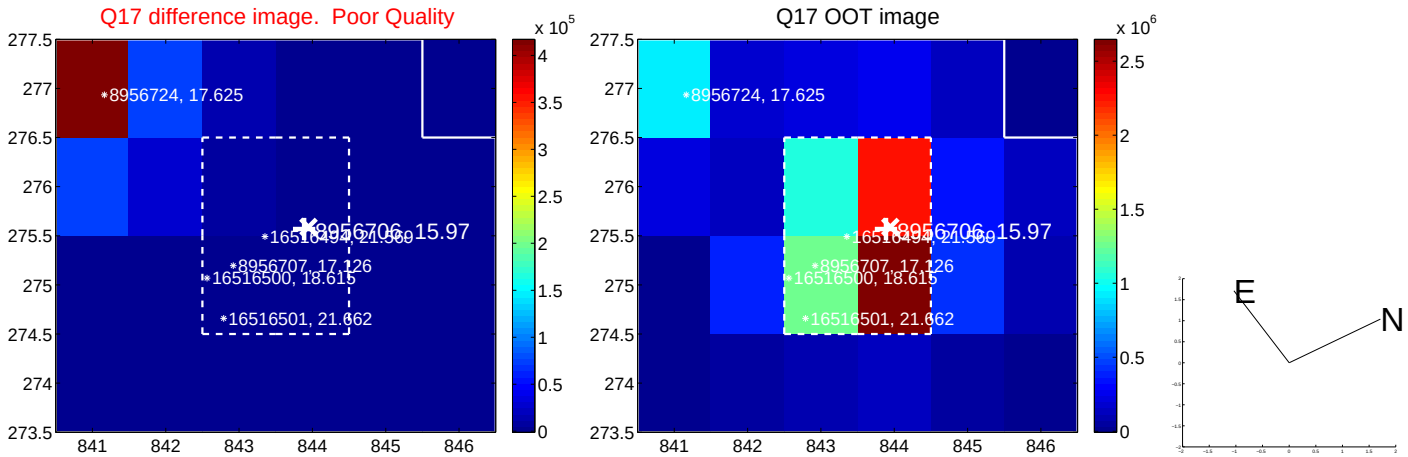


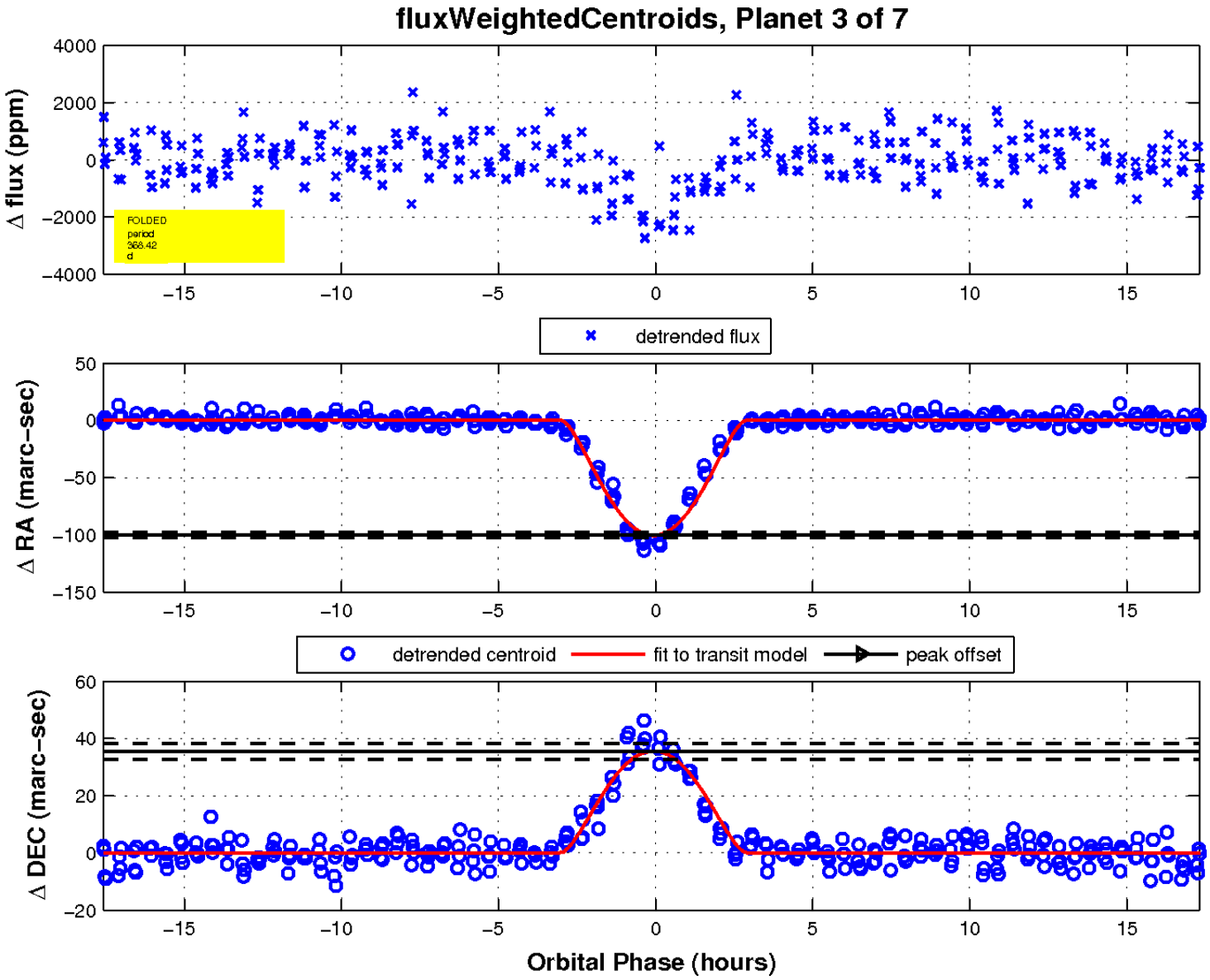




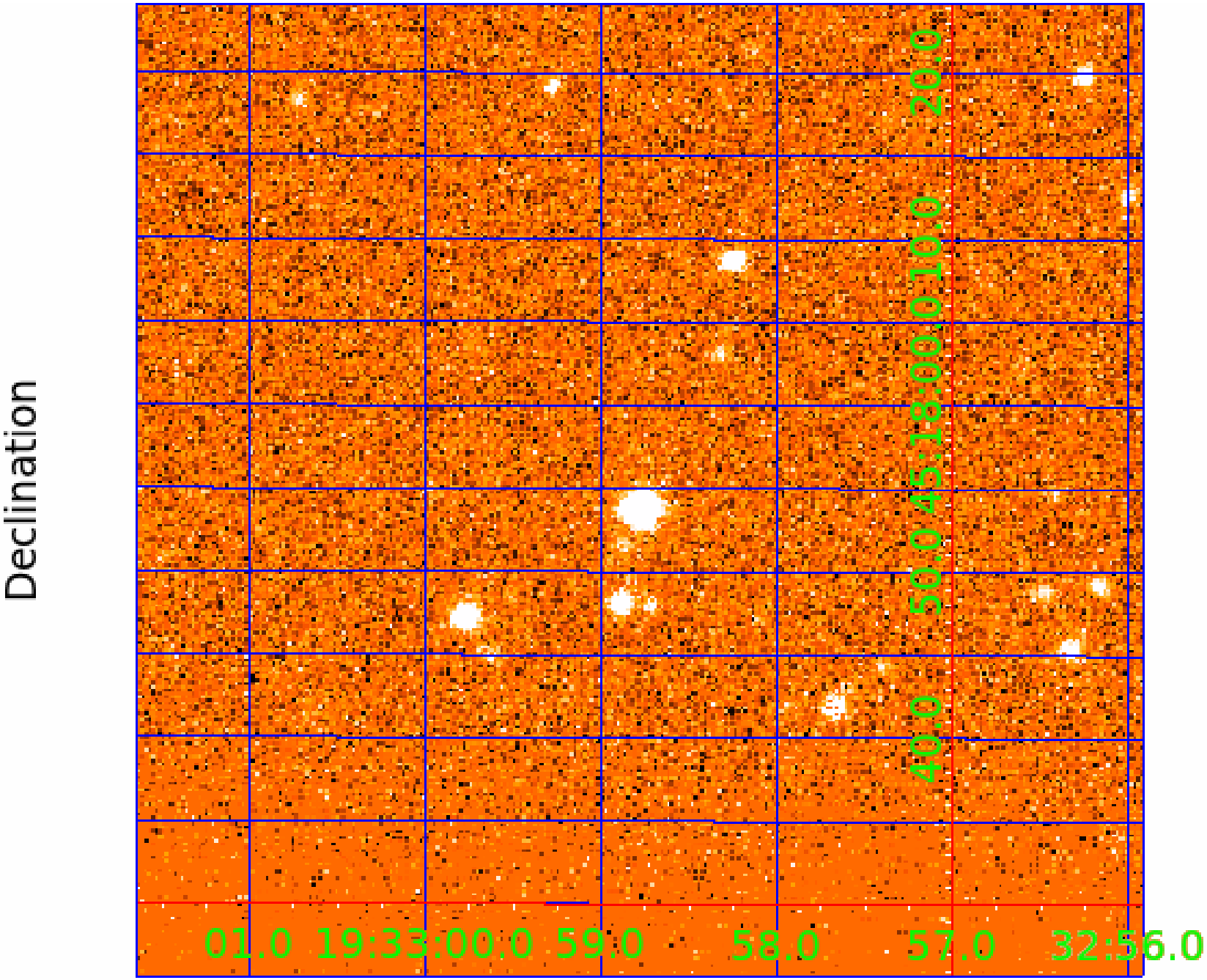


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
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59.0
58.0
57.0
32:56.0

KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

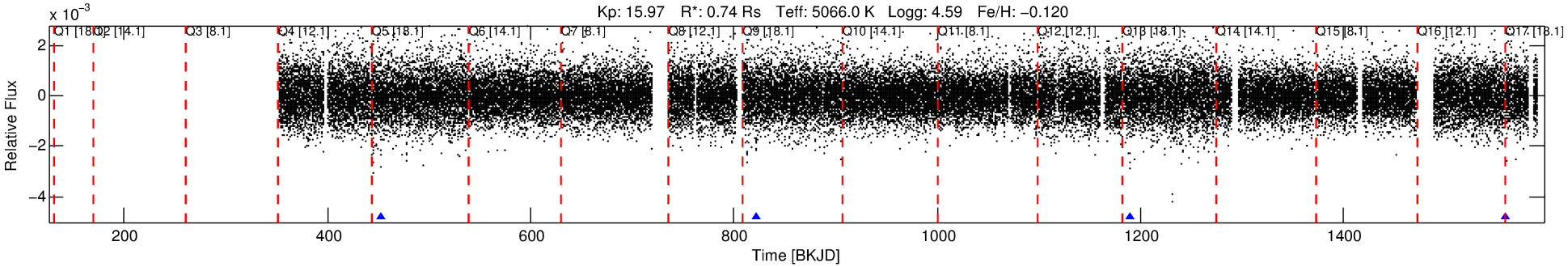
Ephemeris Match Information For 008956706-04

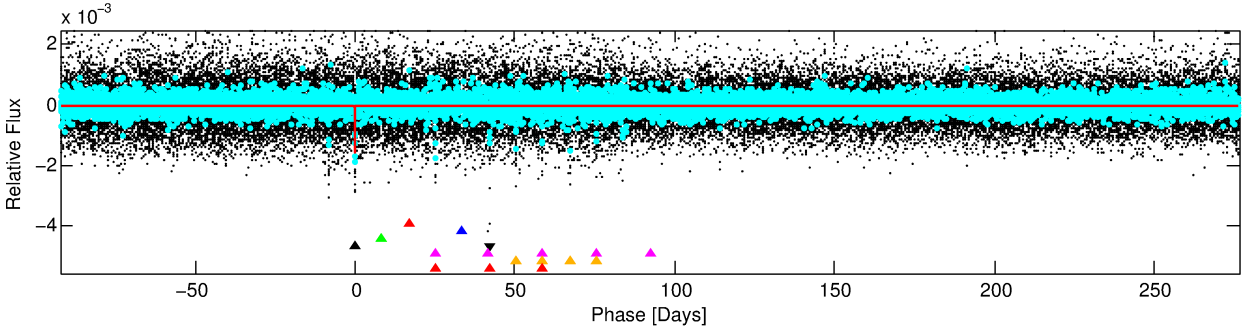
No Significant Match Found

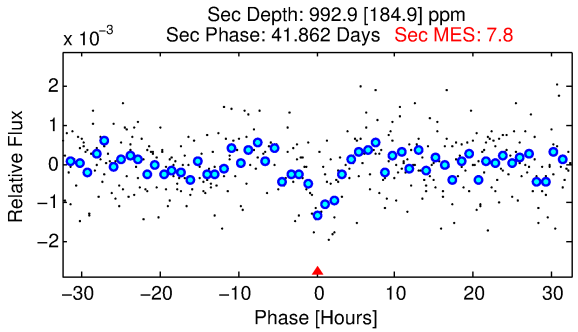
DV One-Page Summary

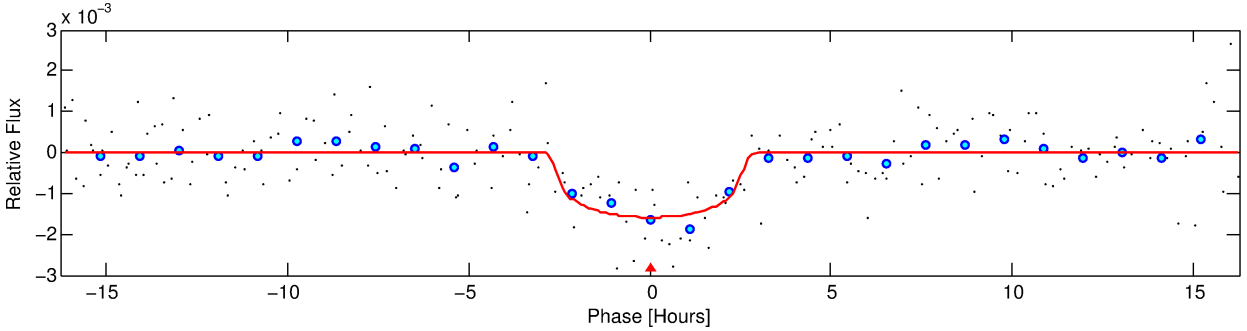
KIC: 8956706 Candidate: 4 of 7 Period: 368.450 d
KOI: K02431 Corr: No Ephemeris Match

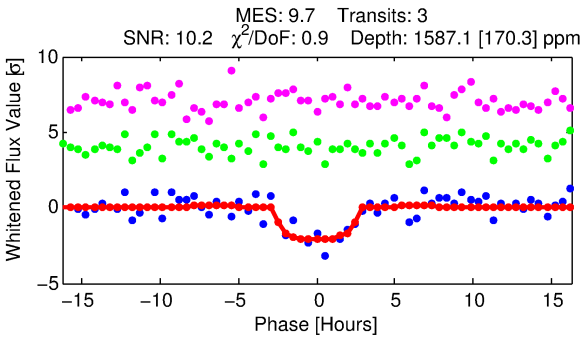
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

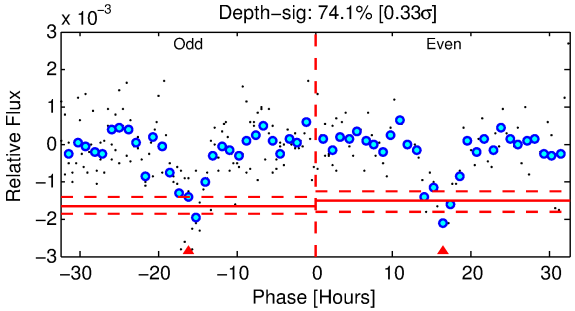












DV Fit Results:

Period = 368.44960 [0.00770] d
Epoch = 453.1706 [0.0106] BKJD
Rp/R* = 0.0370 [0.0388]
a/R* = 465.88 [1709.80]
b = 0.52 [5.22]

Seff = 0.38 [0.07]
Teq = 200 [9] K
Rp = 2.99 [3.15] Re
a = 0.9271 [0.0858] AU

Ag = 52466.73 [110502.19] [0.47σ]
Teffp = 4672 [2461] K [1.82σ]

DV Diagnostic Results:

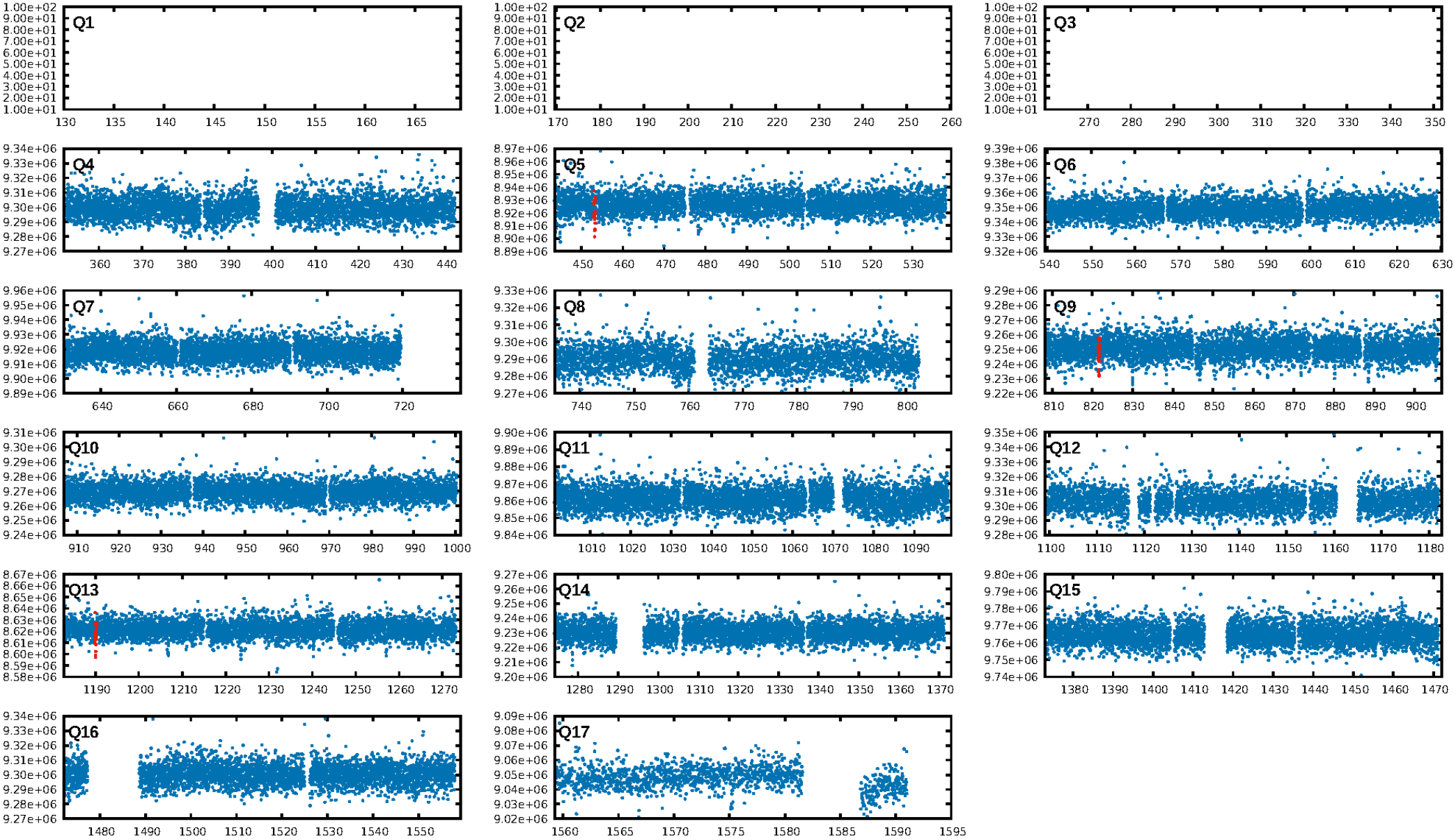
ShortPeriod−sig: 4.2% [0.05σ]
LongPeriod−sig: 100.0% [27.68σ]
ModelChiSquare2−sig: 91.9%
ModelChiSquareGof−sig: 94.8%
Bootstrap−pfa: 8.14e−12
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.5171

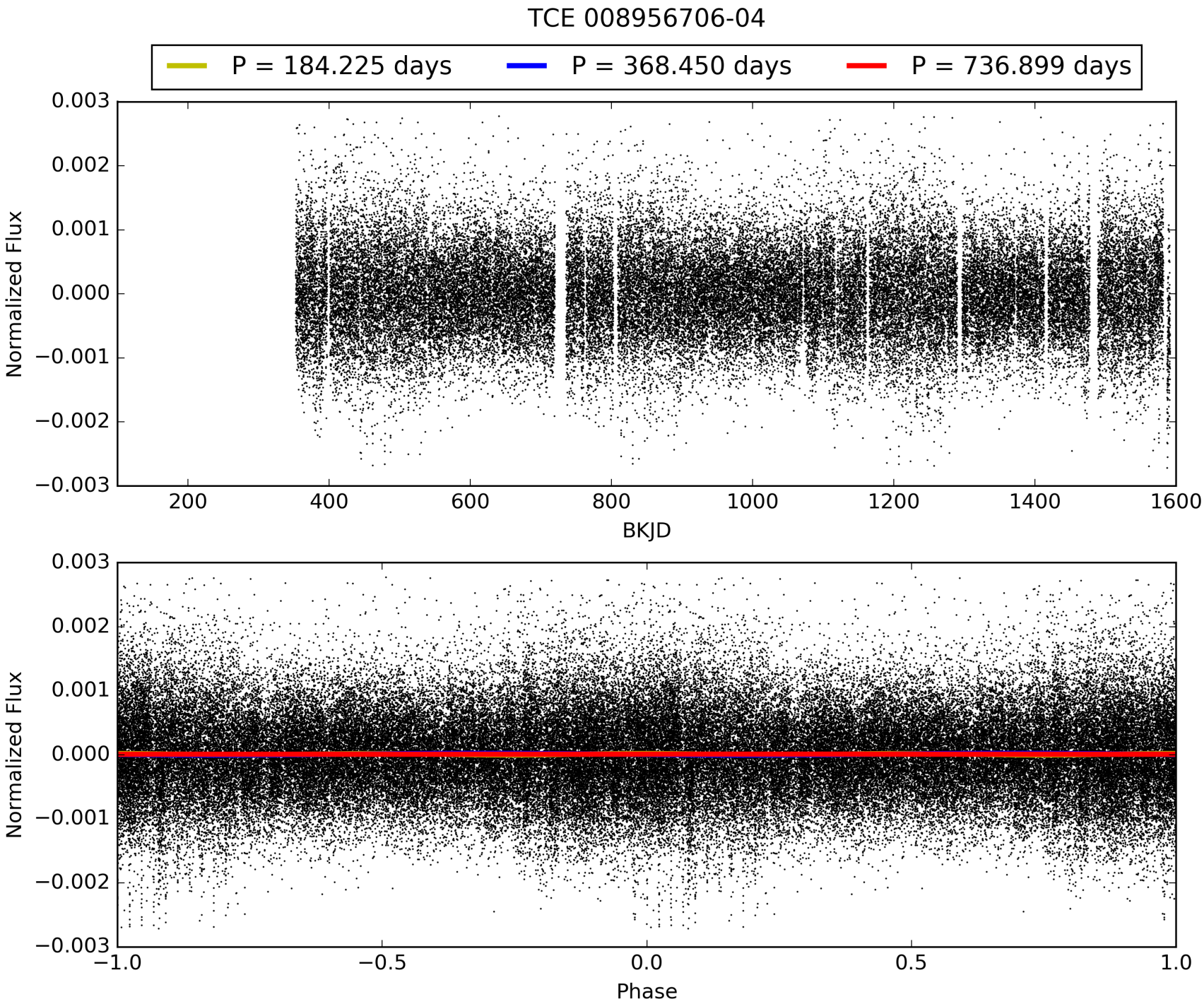
Centroid−sig: 0.0%
Centroid−so: 54.228 arcsec [37.97σ]
OotOffset−rm: N/A
KicOffset−rm: N/A
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 0/0/0/0 [0]
DiffImageQuality−fgm: N/A
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 11:06:57 Z

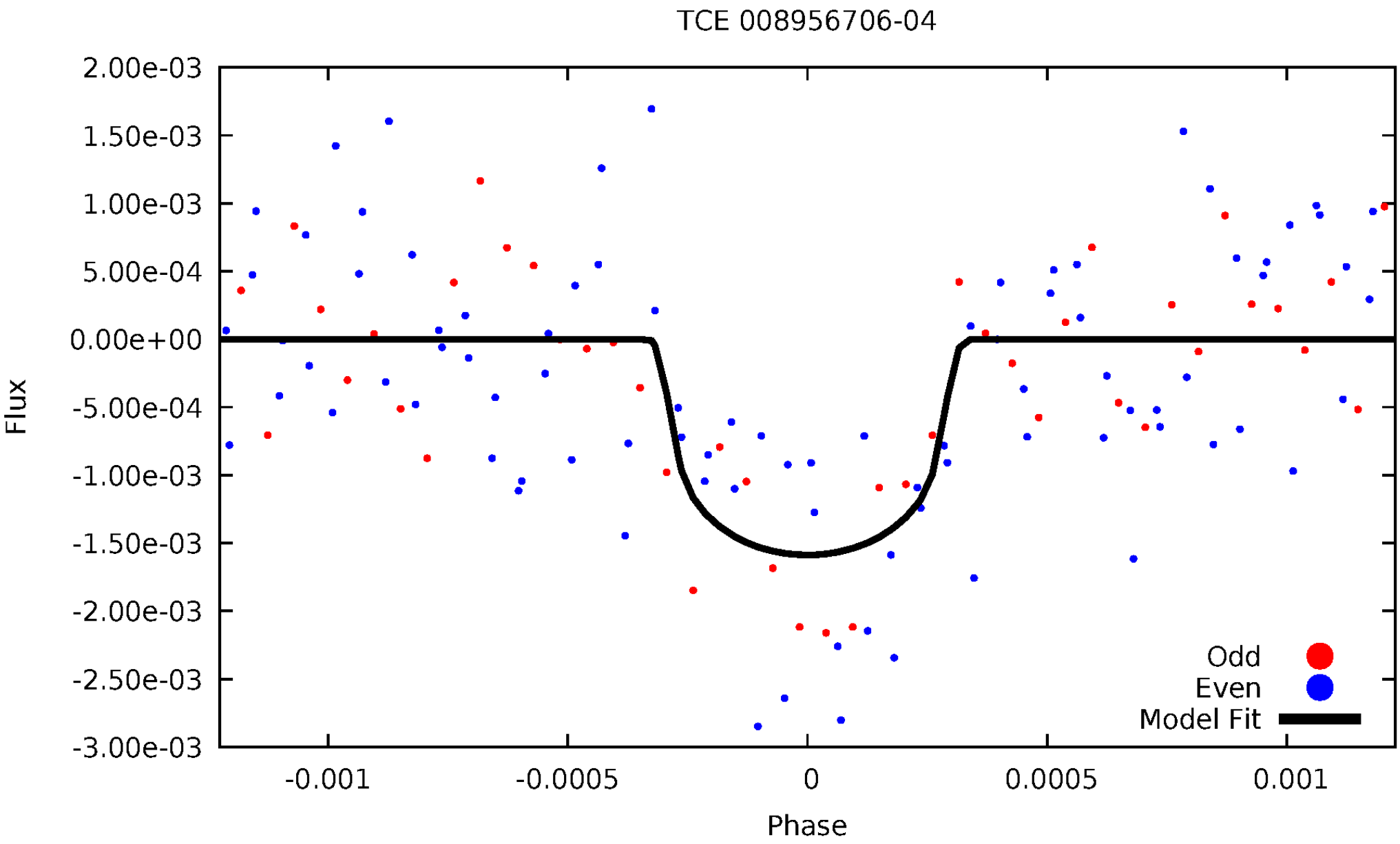
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-04, PDC Light Curves




TCE 008956706-04
P = 184.225 days
P = 368.450 days
P = 736.899 days
Normalized Flux
BKJD
Normalized Flux
Phase

DV Odd/Even


TCE 008956706-04
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1.50e-03
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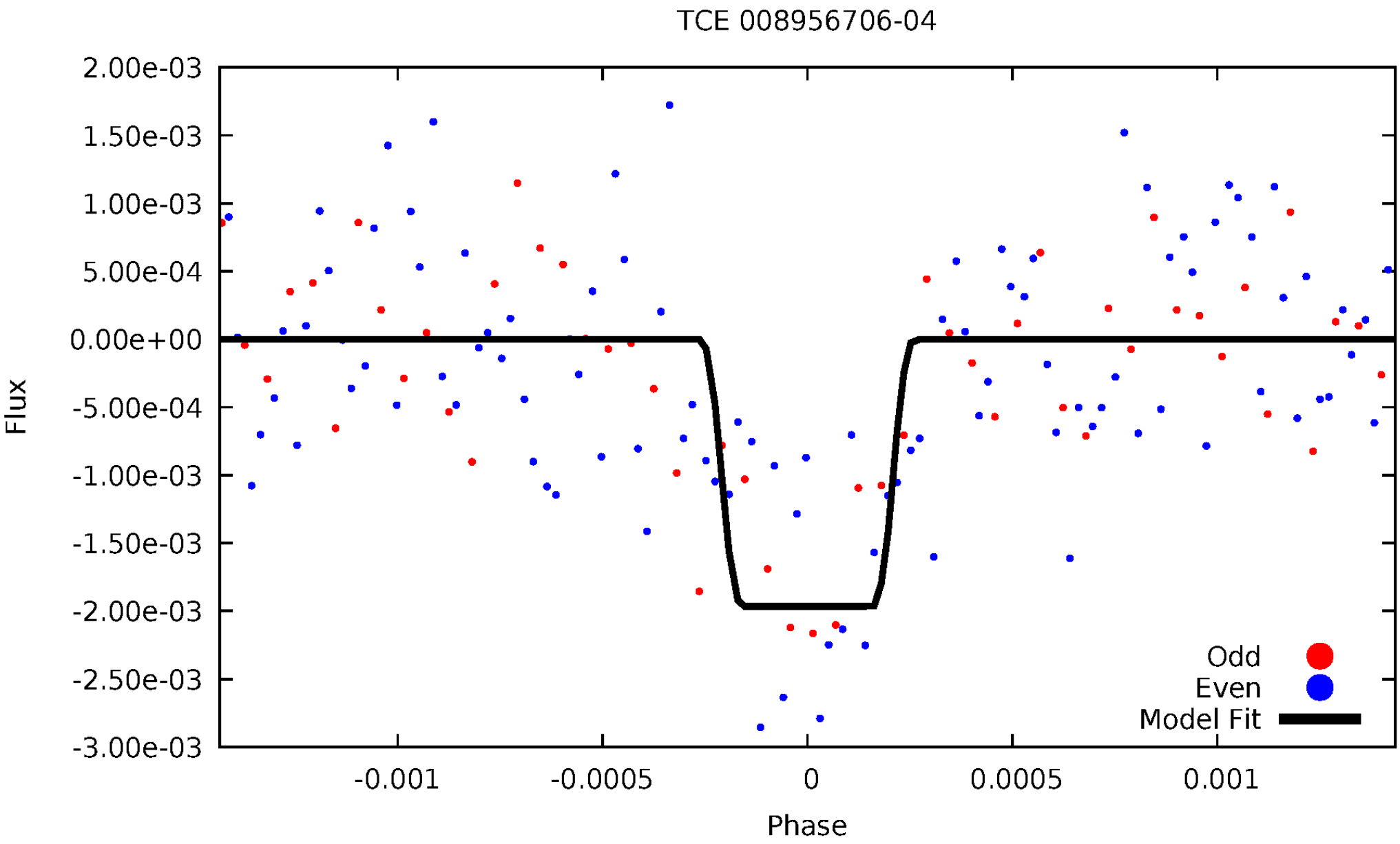
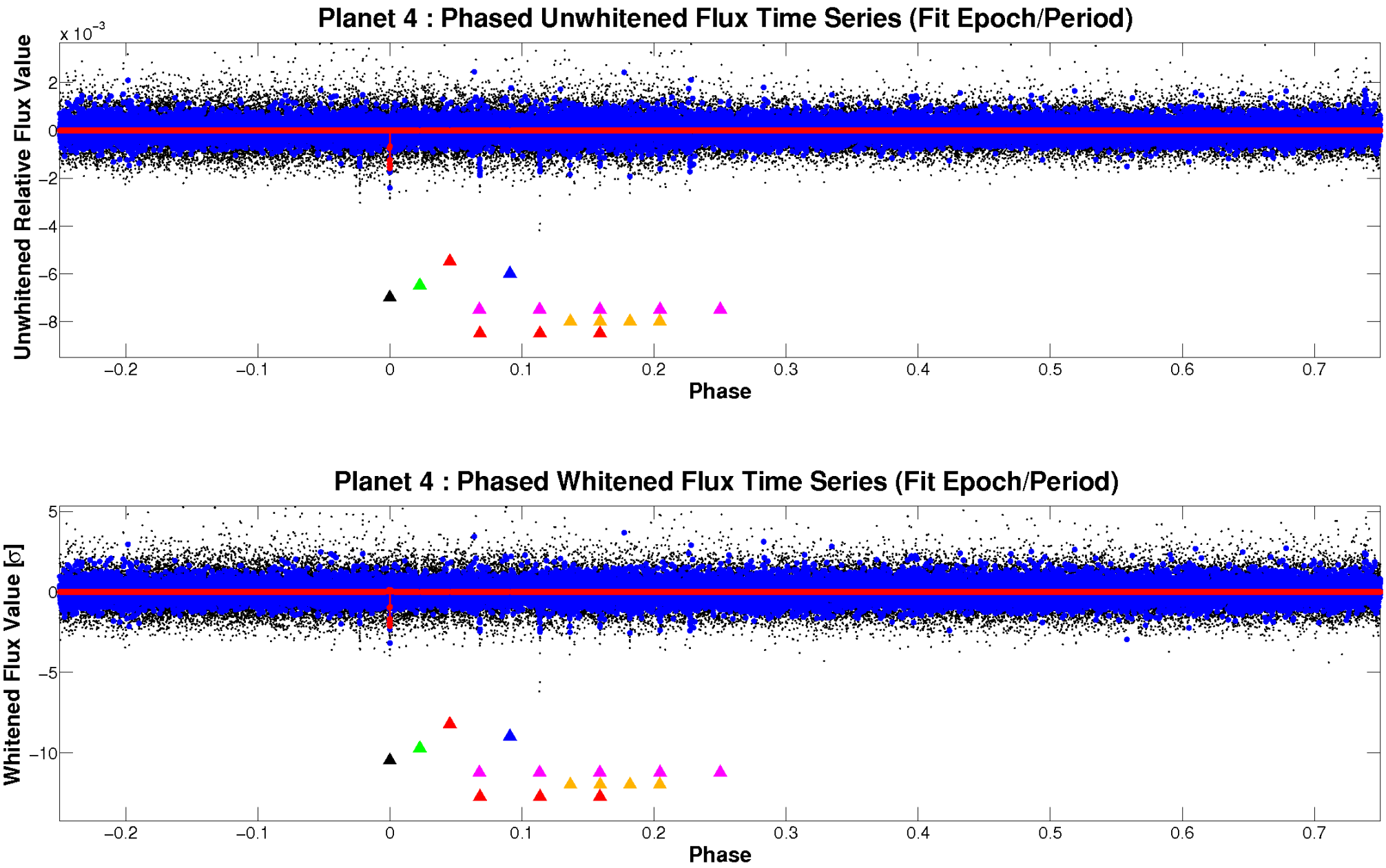
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even

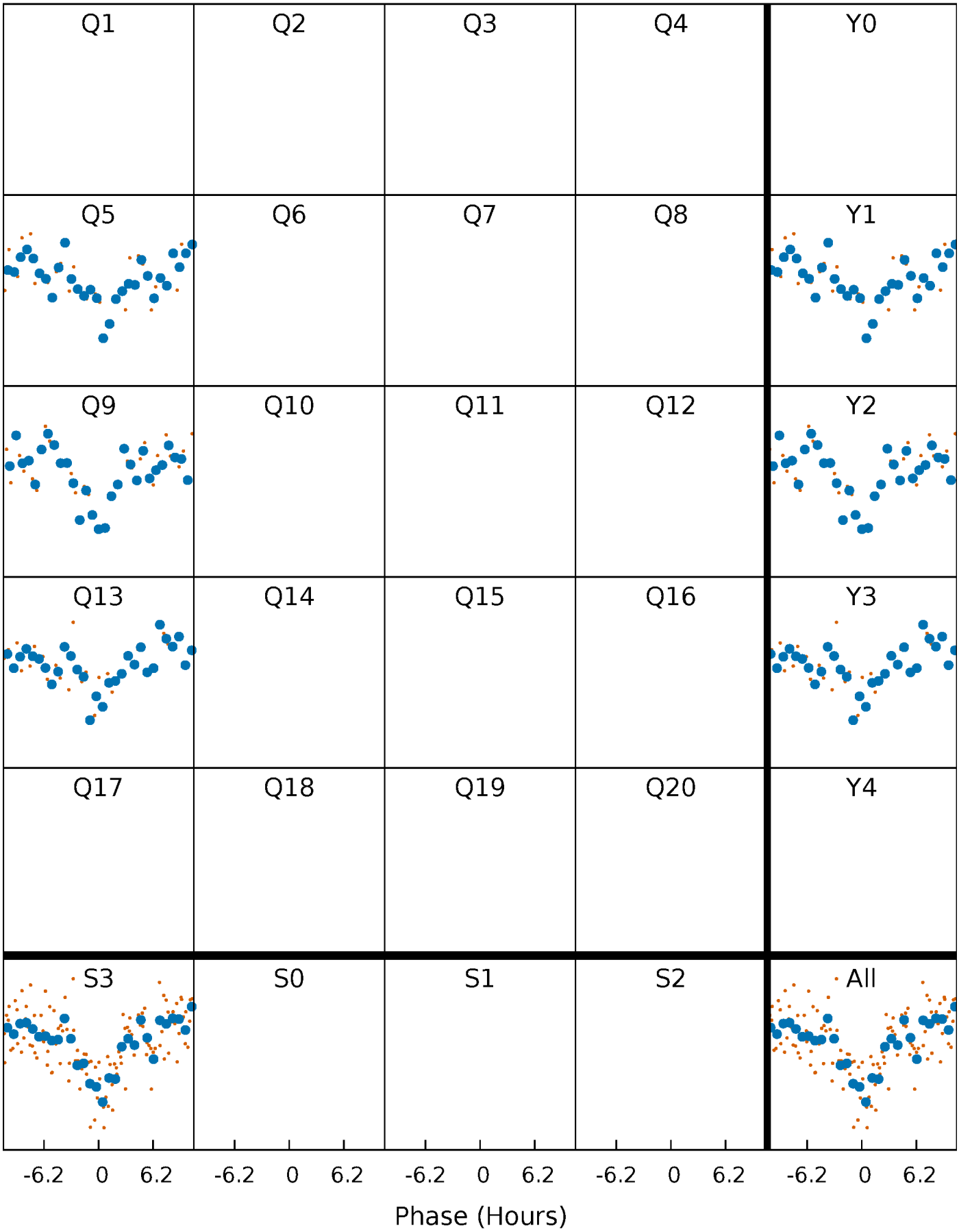

TCE 008956706-04
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

Non-Whitened Vs. Whitened Light Curve



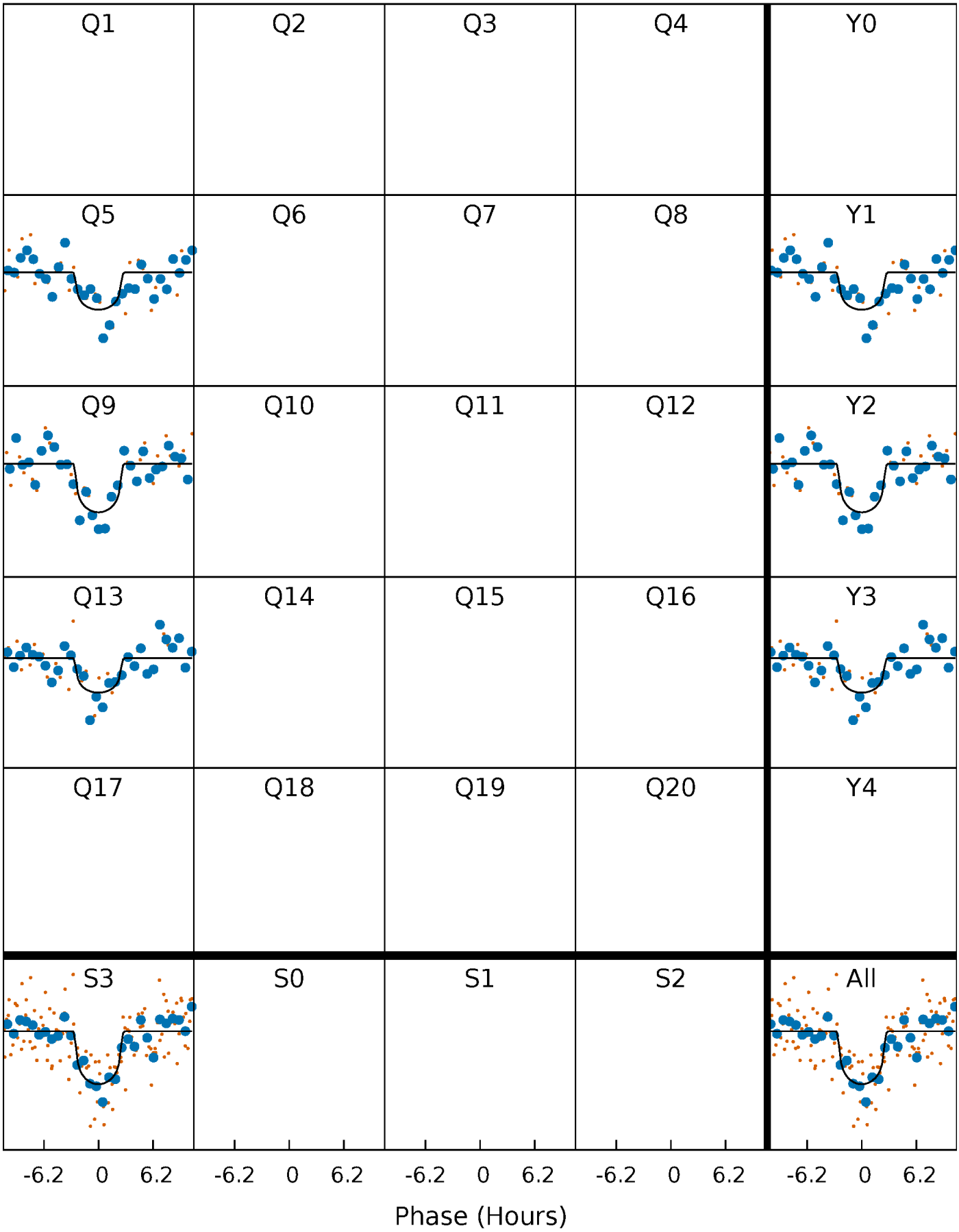
PDC Quarter-Phased Transit Curves

TCE 008956706-04 P=368.449599 Days T_0=453.170592 (BKJD)



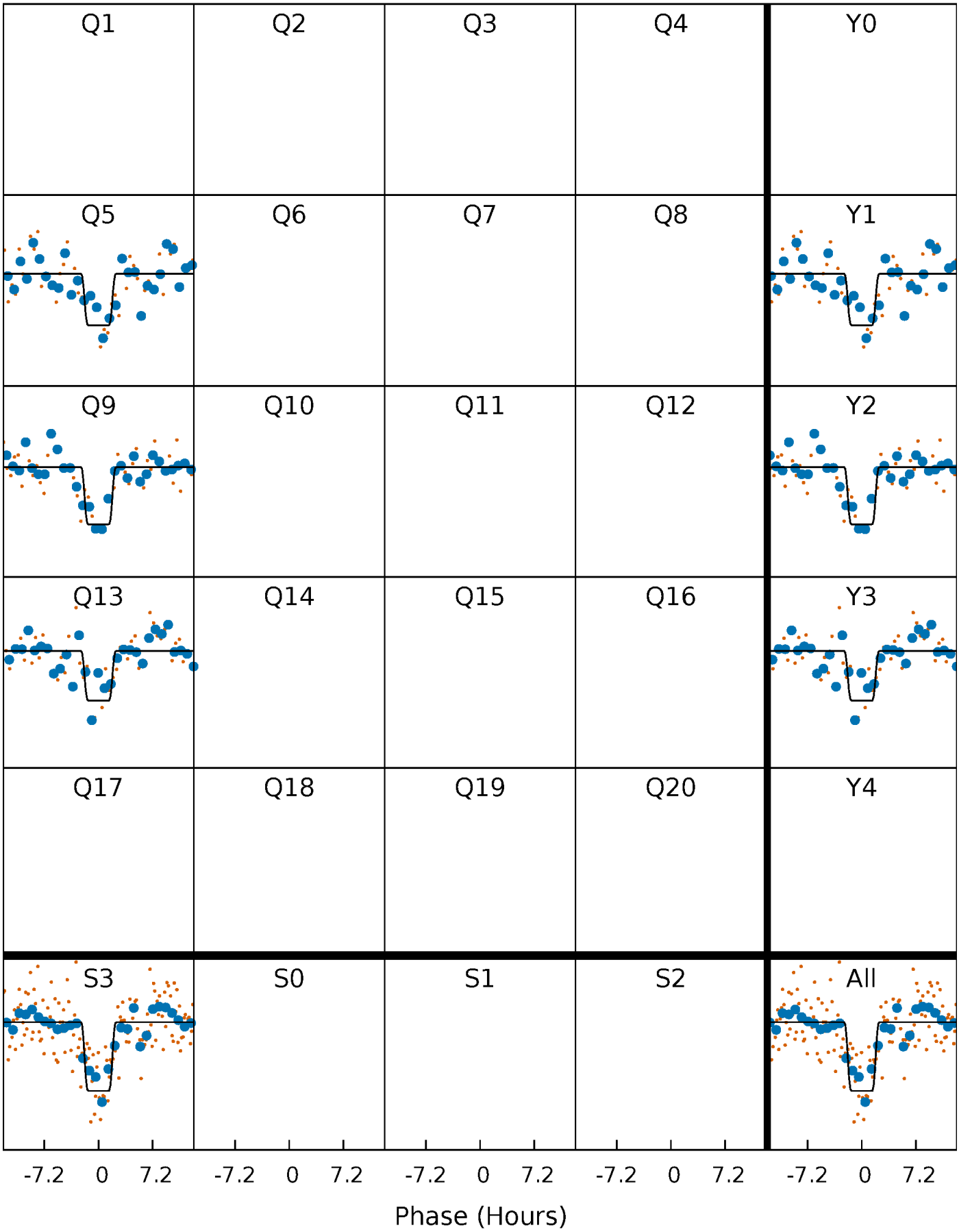
DV Quarter-Phased Transit Curves

TCE 008956706-04 P=368.449599 Days T_0=453.170592 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

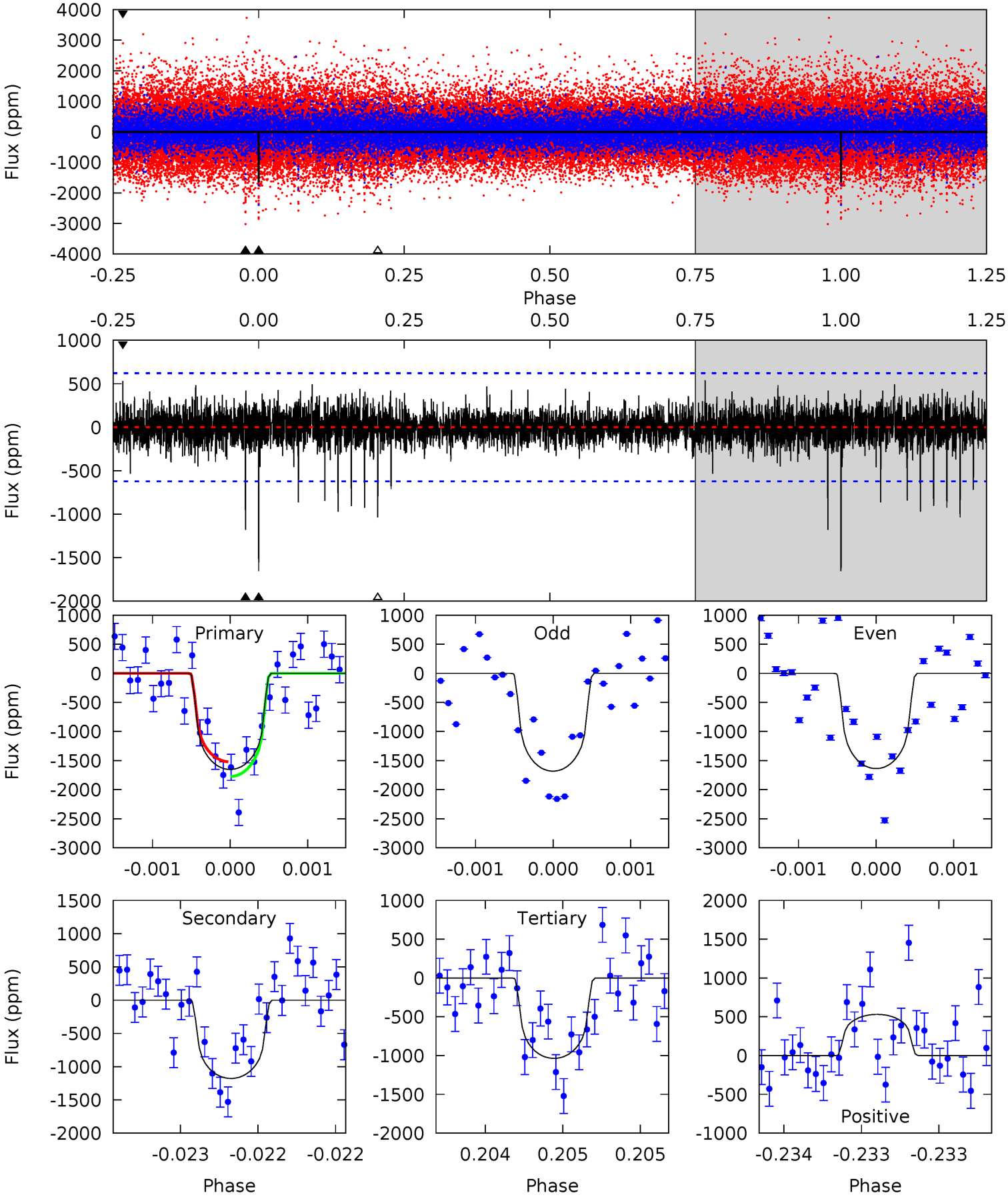
TCE 008956706-04 P=368.444331 Days T_0=453.185216 (BKJD)



DV Model-Shift Uniqueness Test

008956706-04, P = 368.449599 Days, E = 84.720993 Days

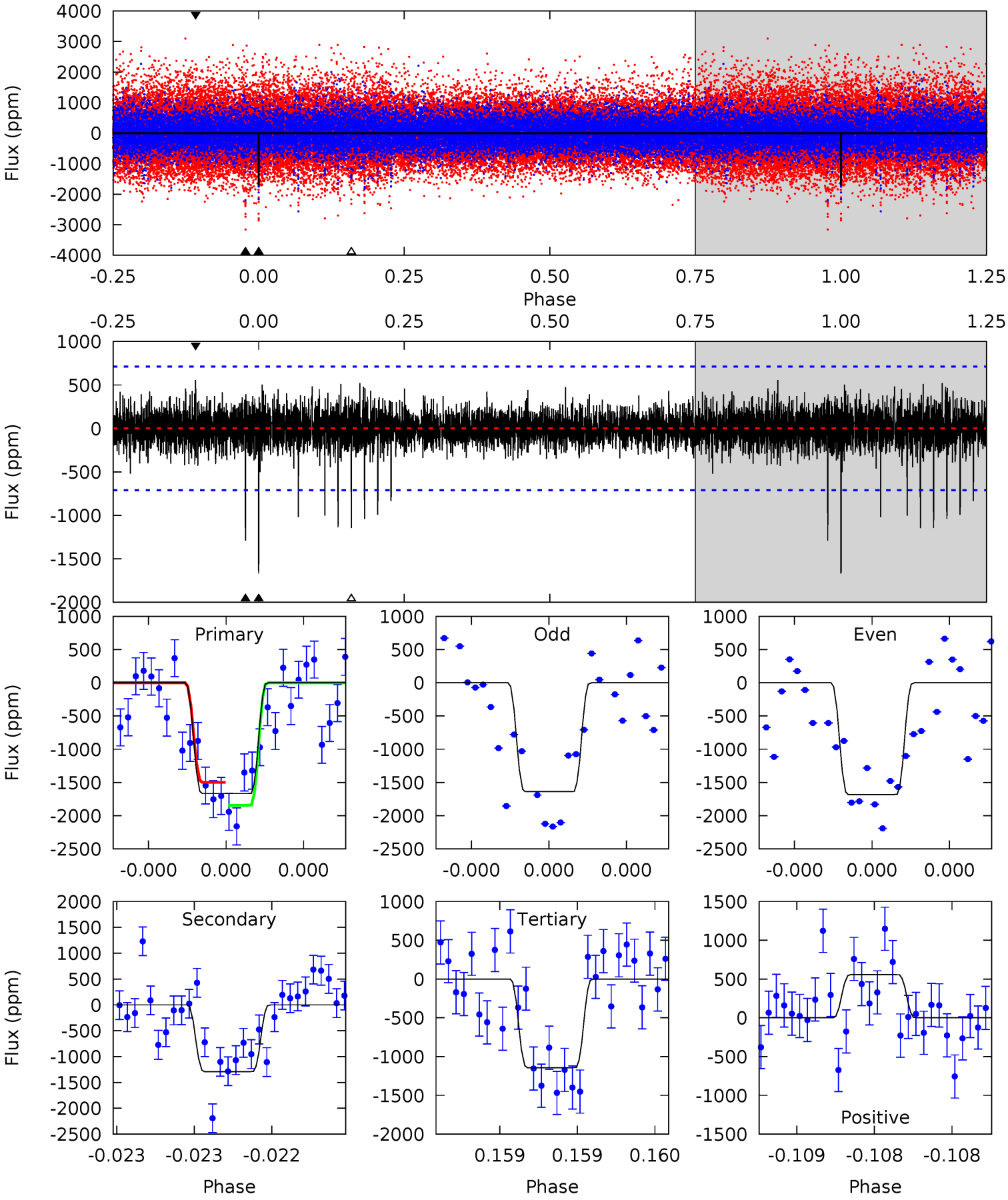
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	10.5	9.22	4.72	5.53	3.41	1.21	5.49	9.98	1.25	5.75	0.19	1.00	0.24	1.13



Alt Model-Shift Uniqueness Test

008956706-04, P = 368.444331 Days, E = 84.740885 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	10.1	8.96	4.36	5.57	3.48	1.11	4.12	8.71	1.15	5.75	0.16	1.00	0.25	1.35



Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-04 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1177±112	$3.84^{+3.03}_{-2.51}$	280^{+12}_{-11}	4477^{+2727}_{-854}	$38222^{+259974}_{-26454}$
Alt.	-1290±127	$4.25^{+2.96}_{-2.63}$	280^{+12}_{-11}	4366^{+2339}_{-749}	$34562^{+197038}_{-22696}$

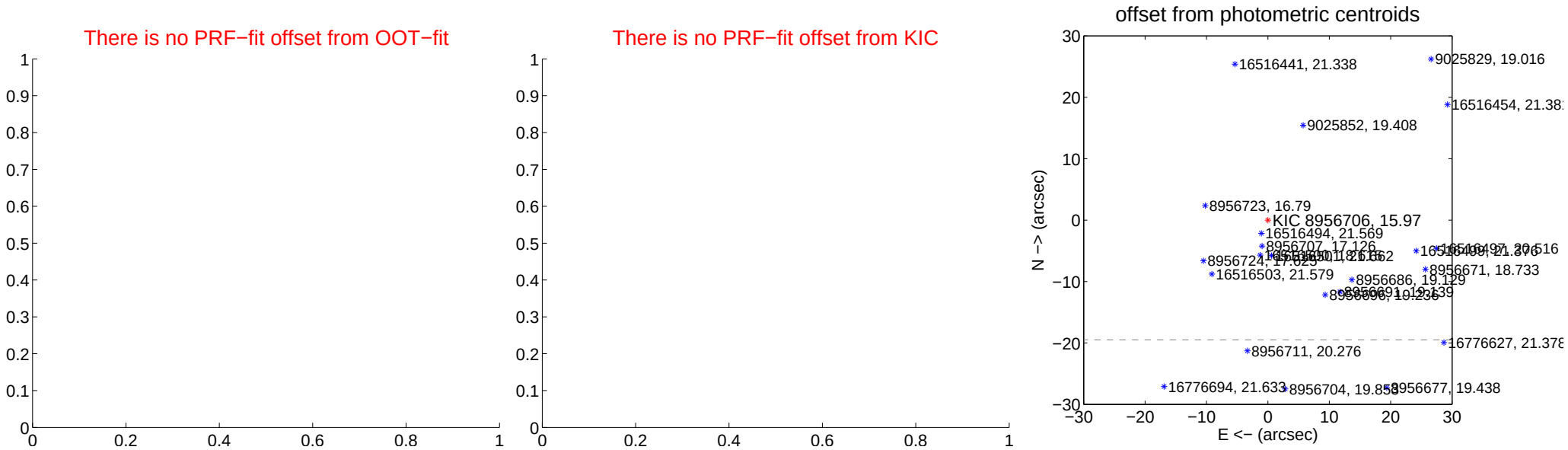
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

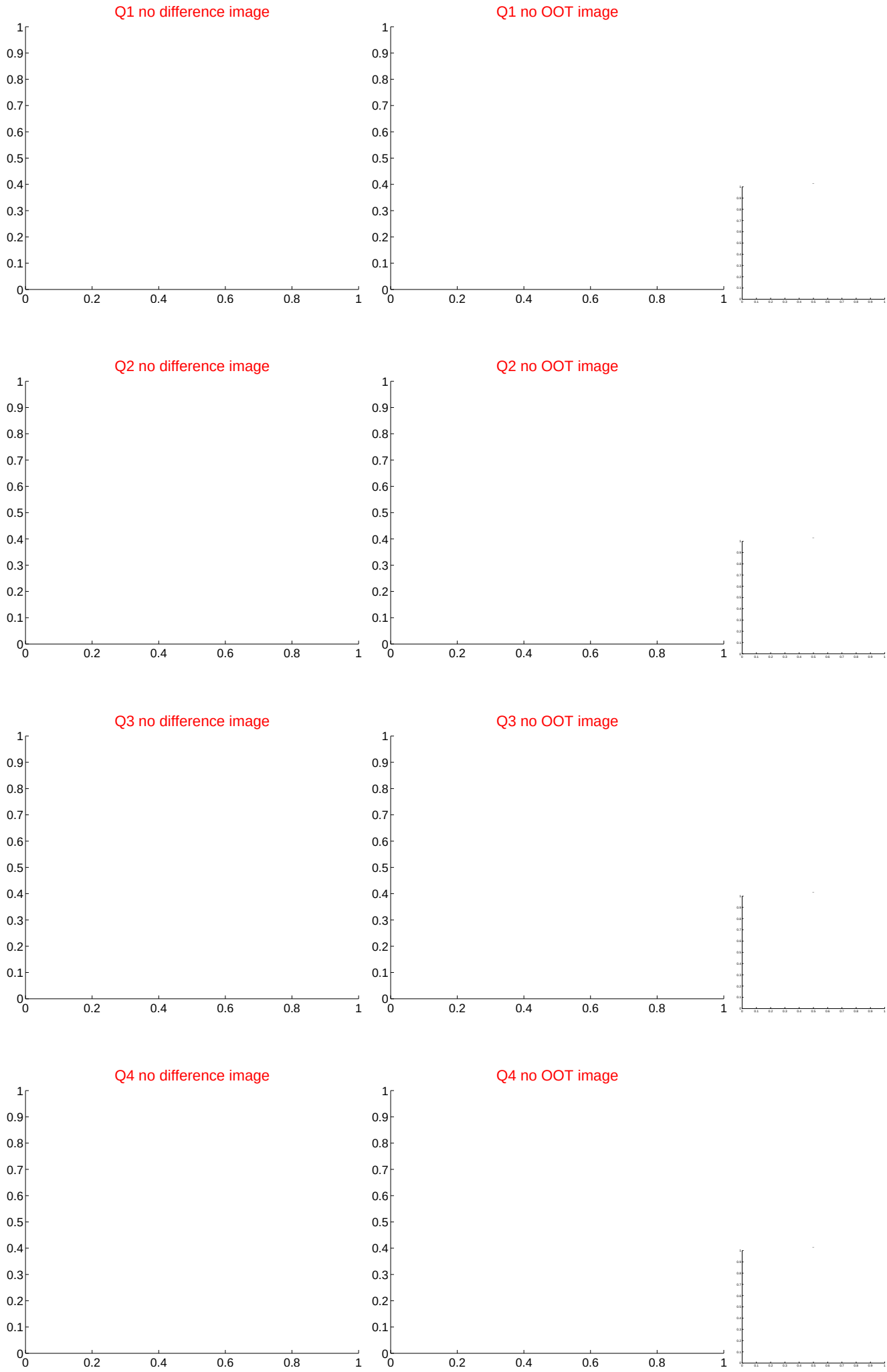
Supplemental centroid analysis for 008956706-04. Kepler magnitude: 15.97. Transit SNR 10.17
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	54.23 ± 1.43	37.97	50.61 ± 1.42	-19.49 ± 1.51

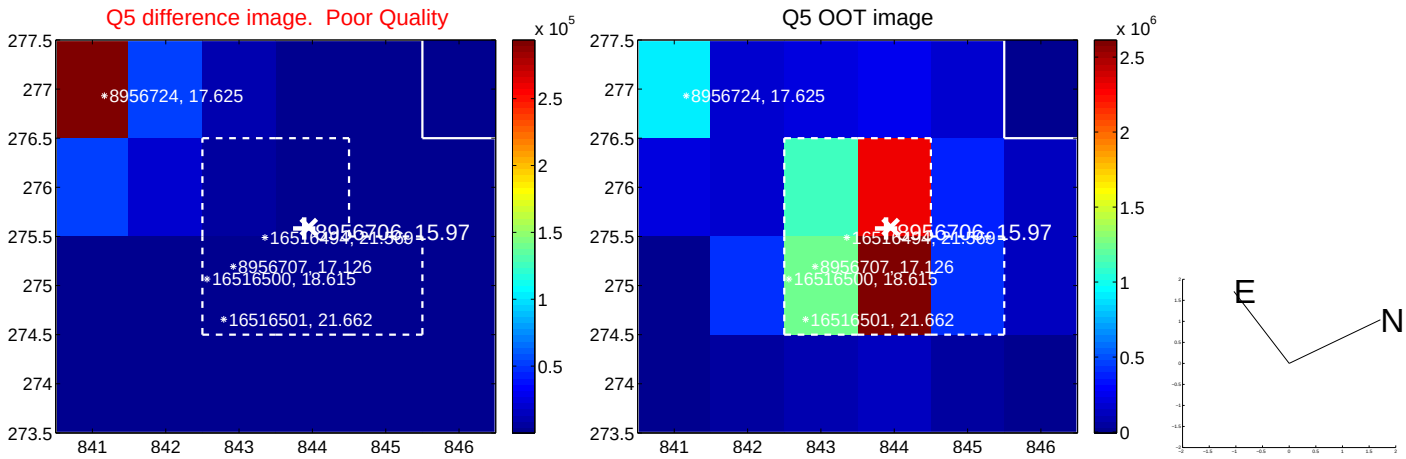


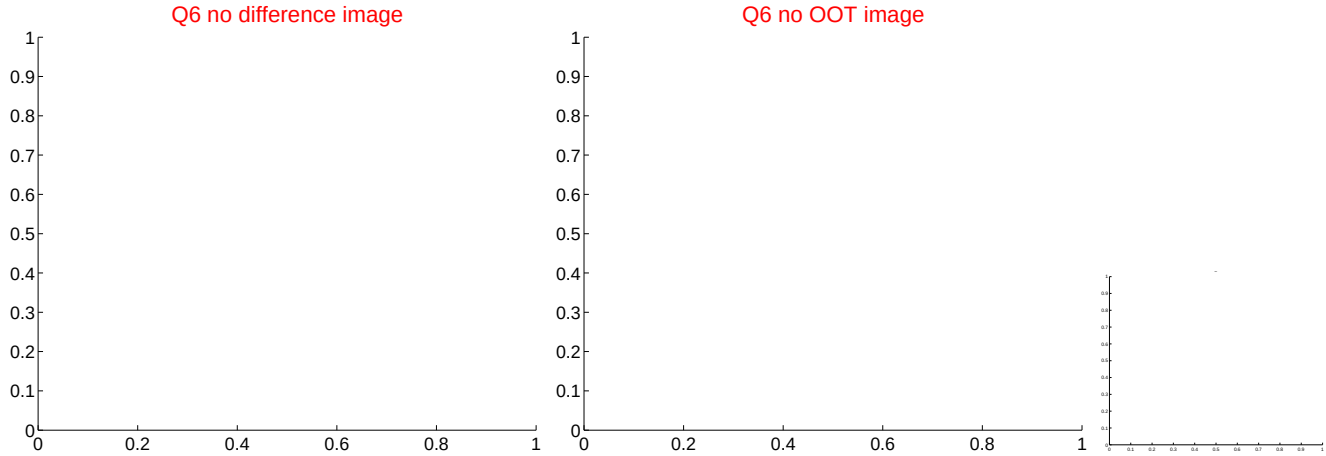
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

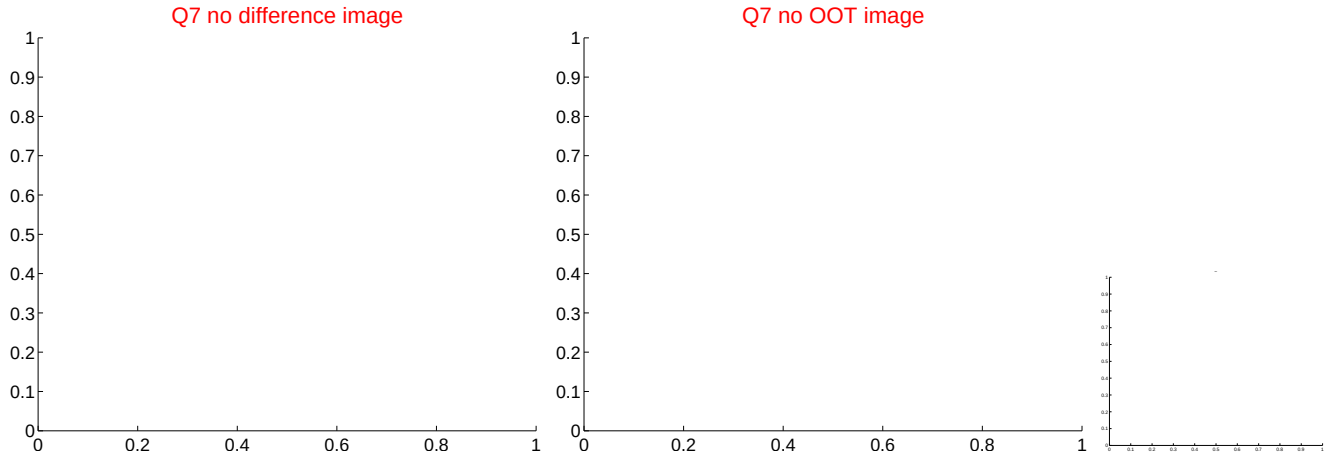
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

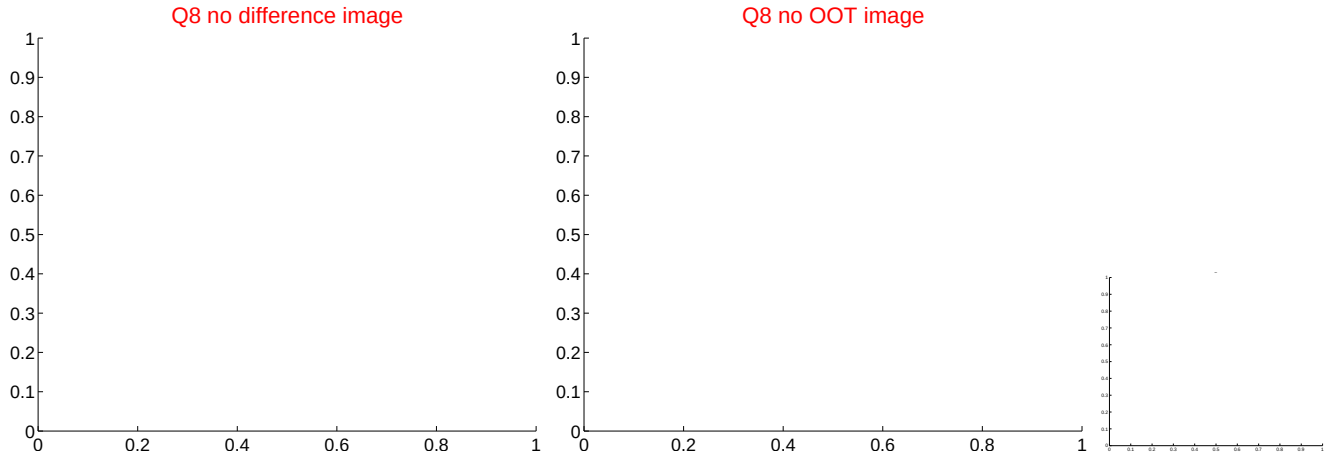


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

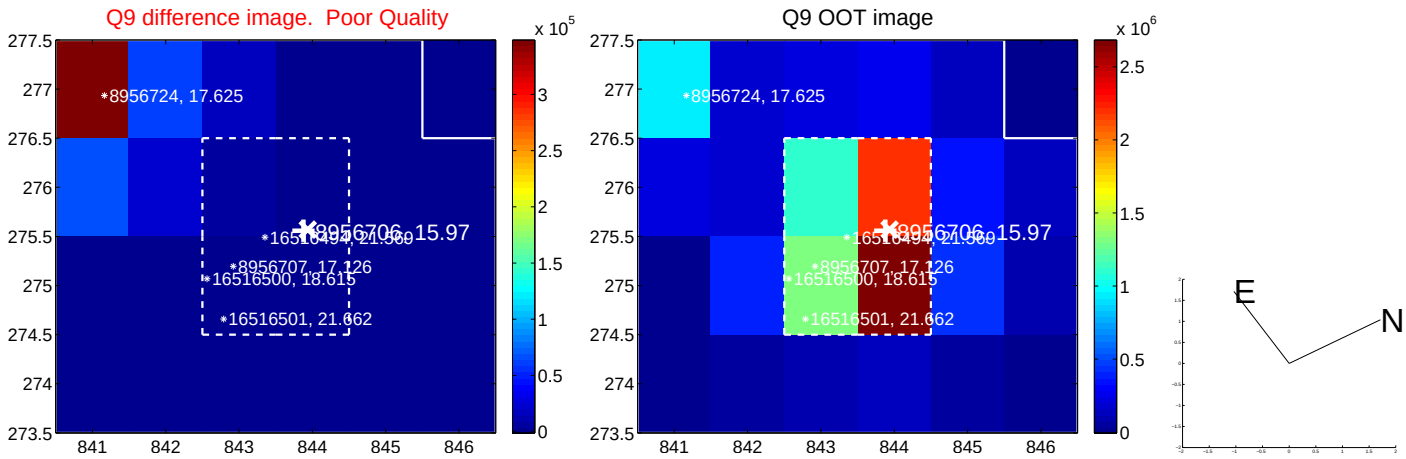


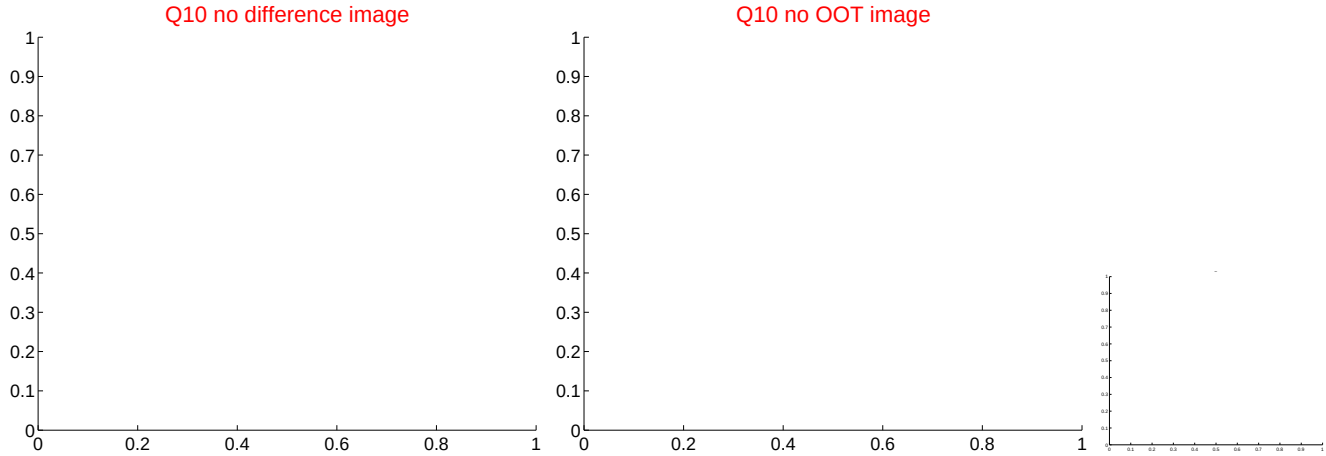


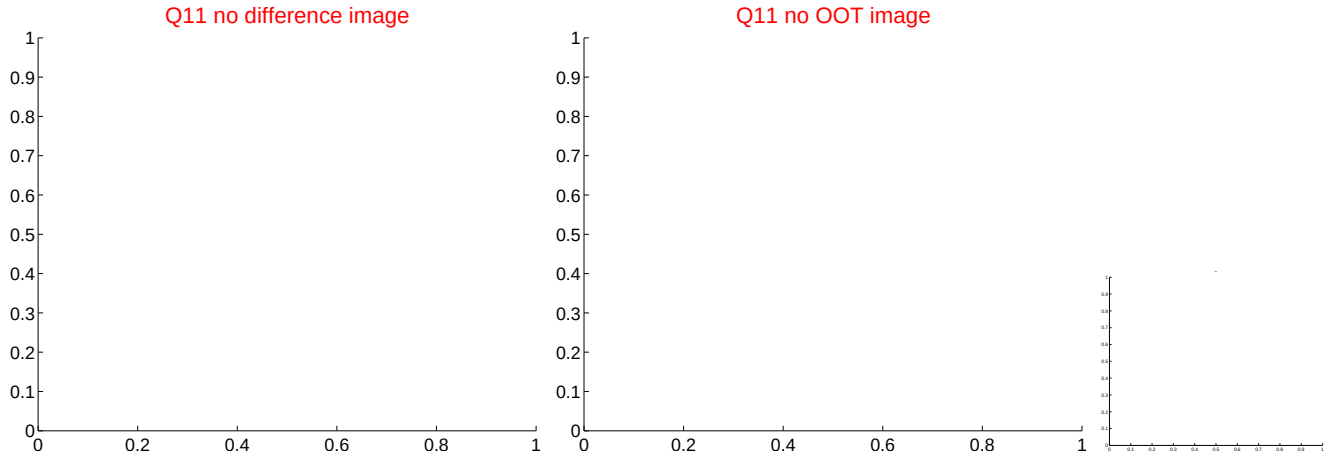


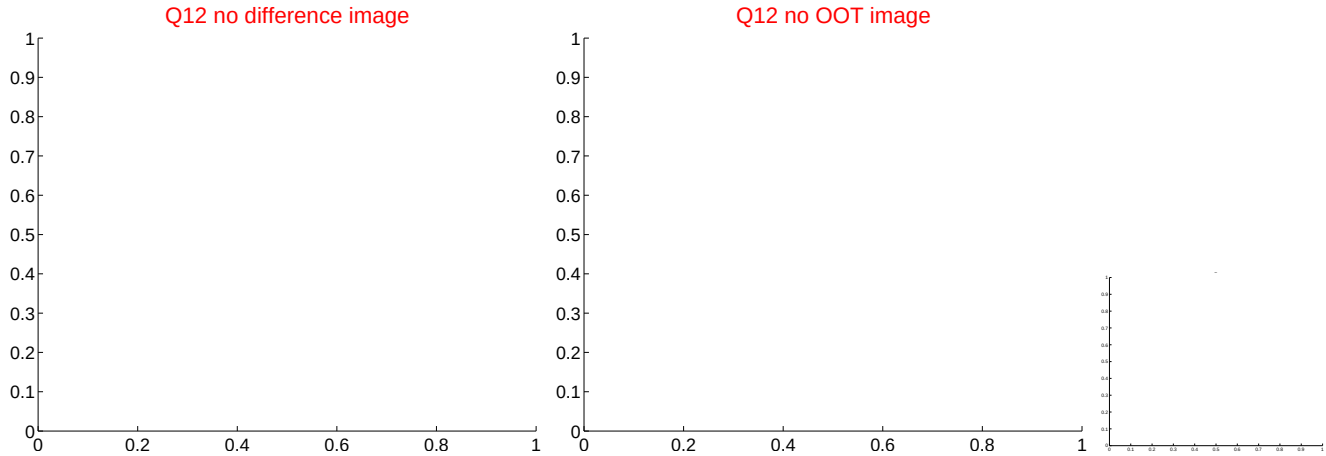


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

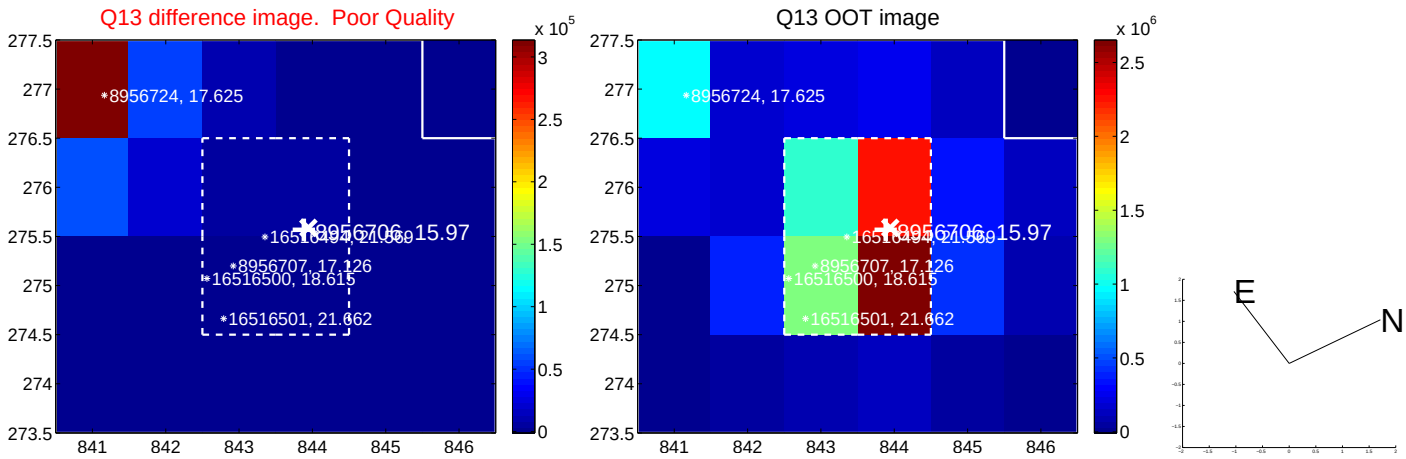


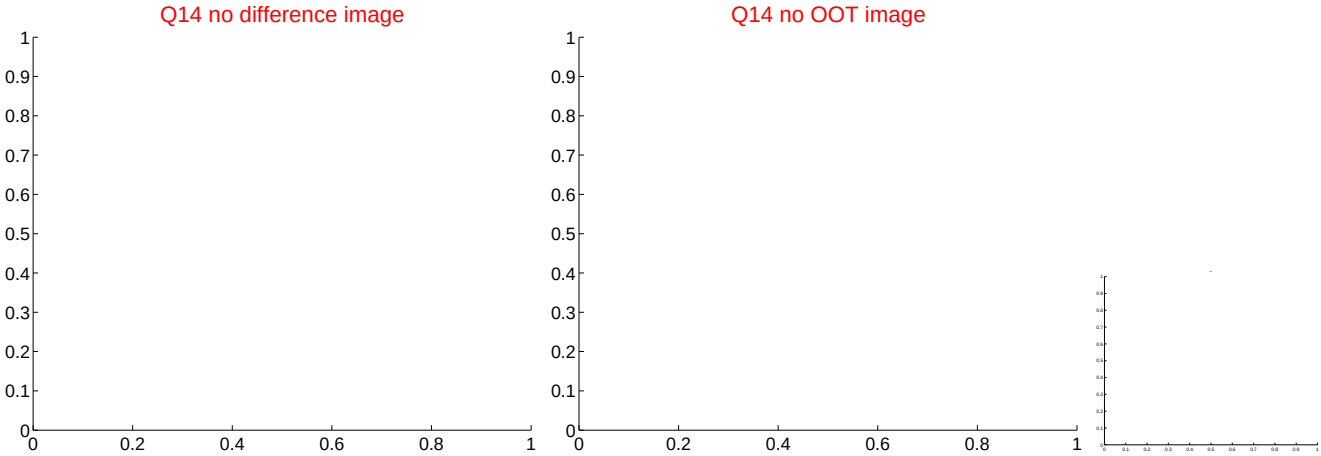


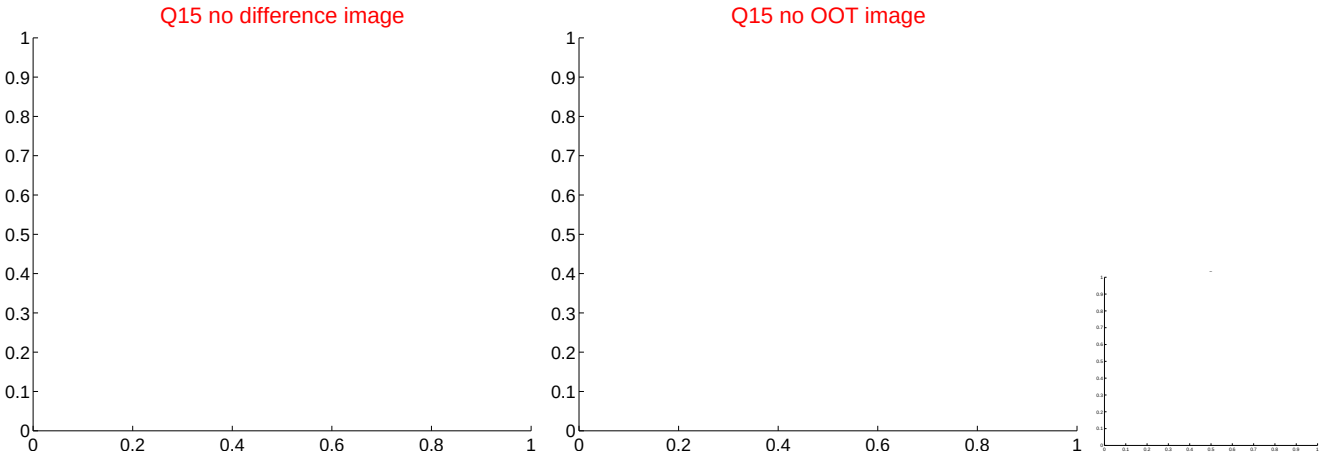


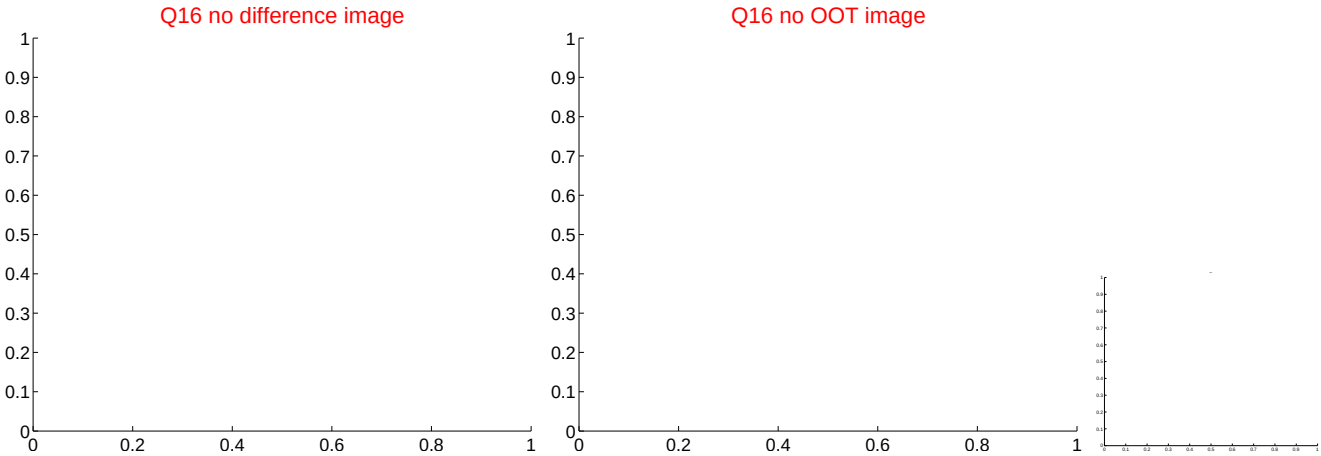


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

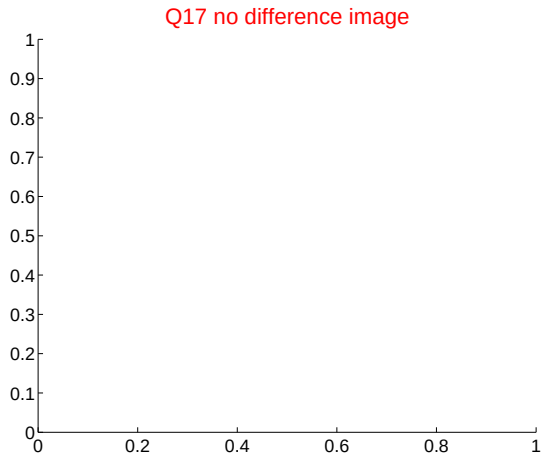


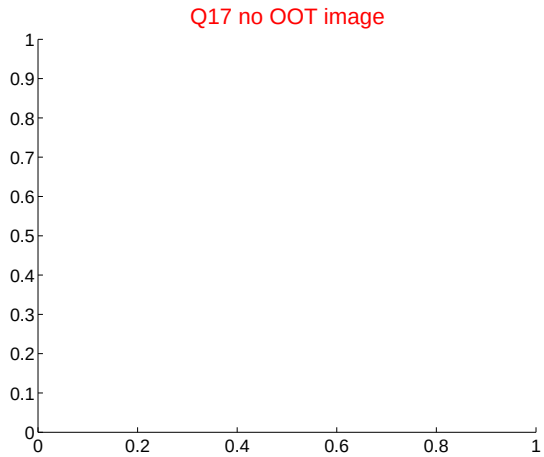


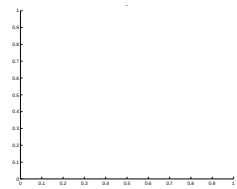


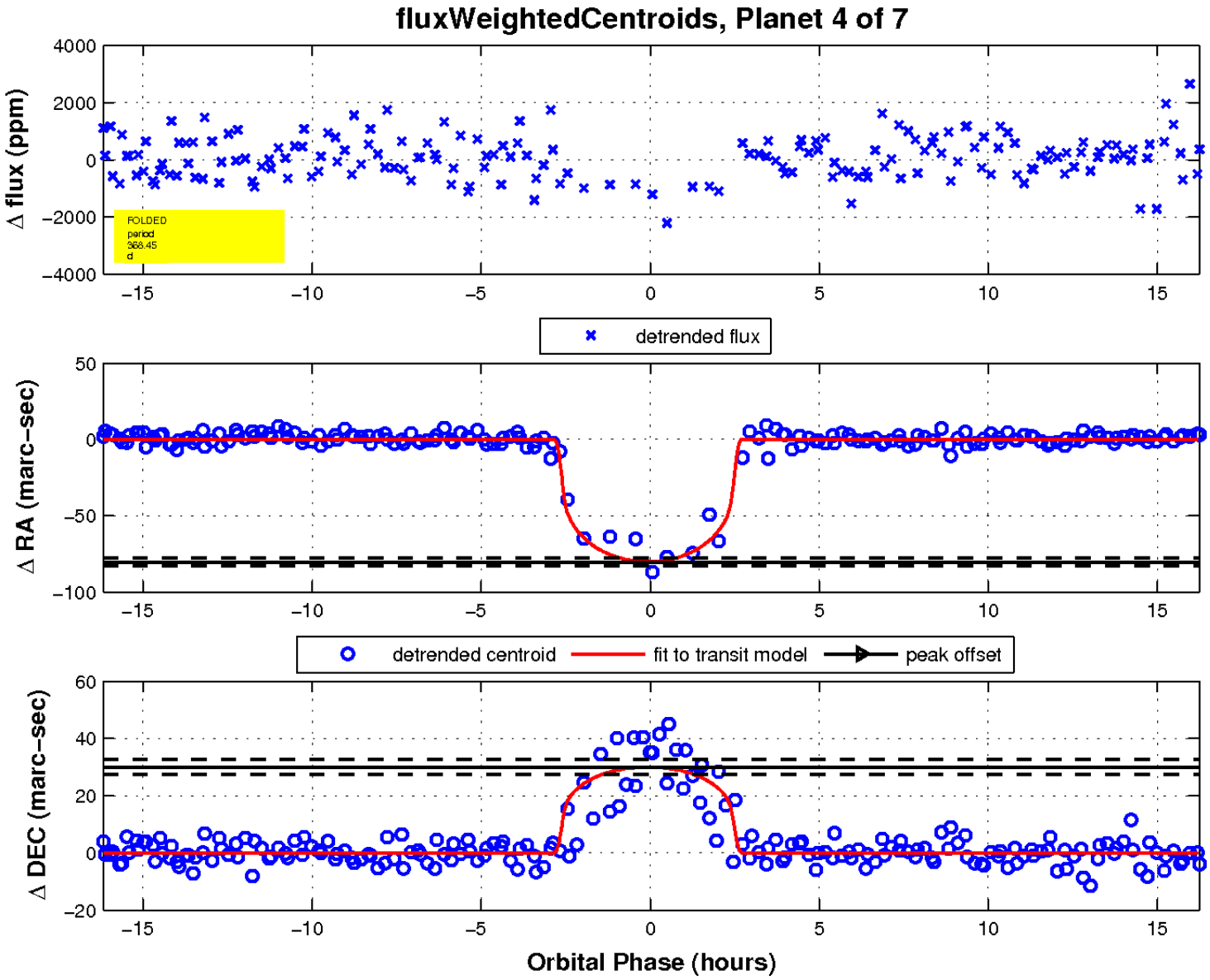


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

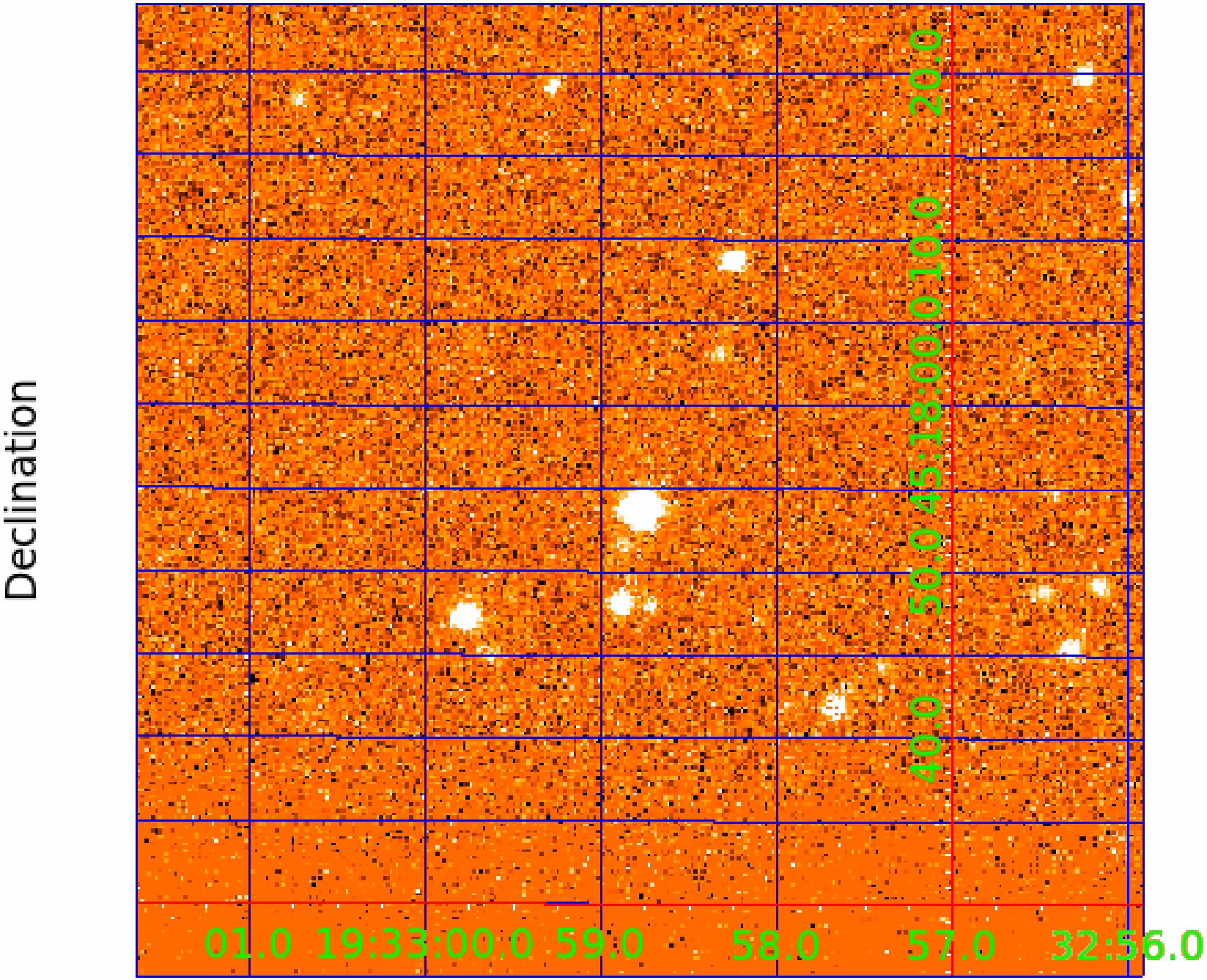








UKIRT Image


Declination
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10.0
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59.0
58.0
57.0
32:56.0

KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

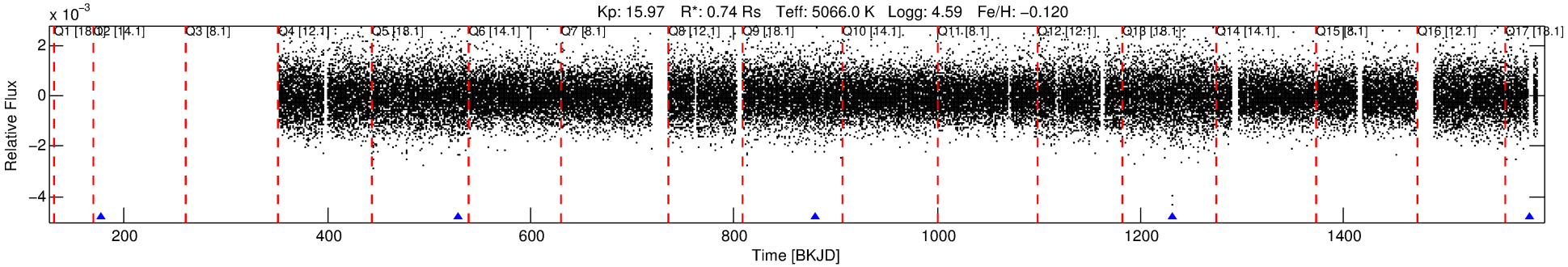
Ephemeris Match Information For 008956706-05

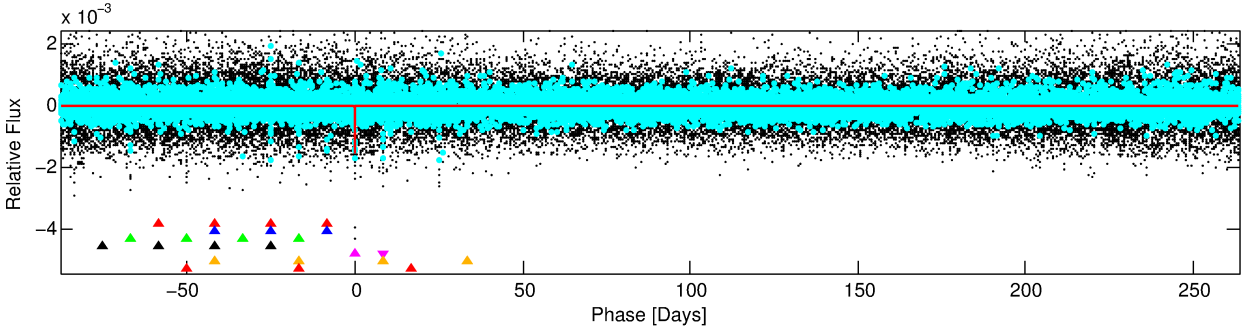
No Significant Match Found

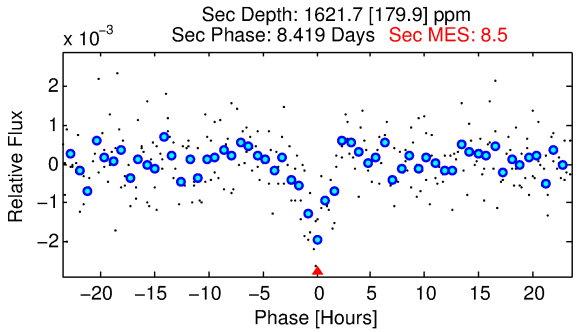
DV One-Page Summary

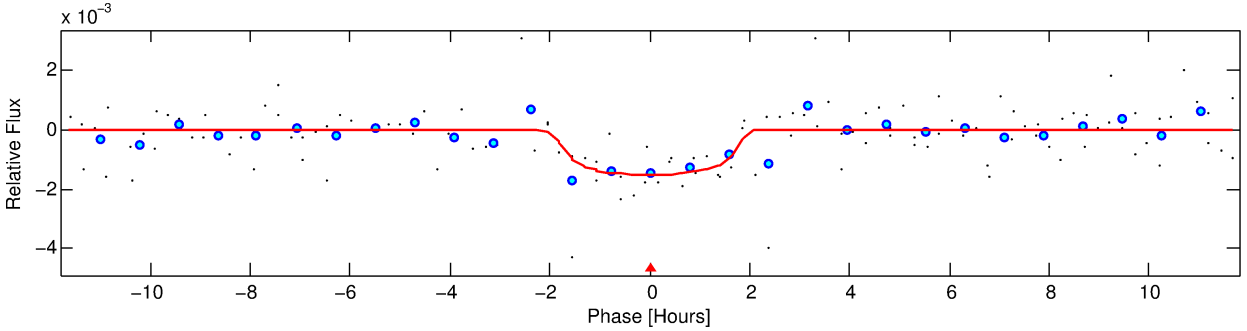
KIC: 8956706 Candidate: 5 of 7 Period: 351.651 d
KOI: K02431 Corr: No Ephemeris Match

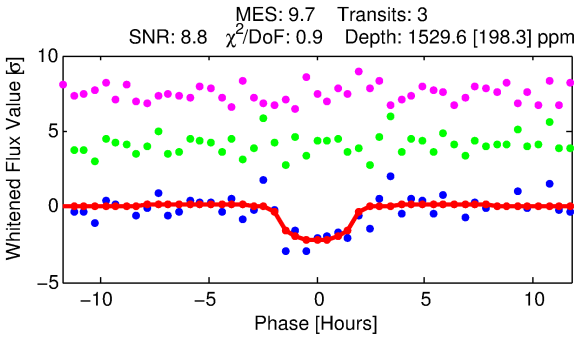
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

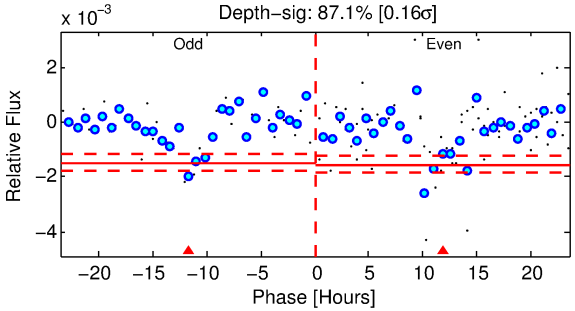












DV Fit Results:

Period = 351.65075 [0.00770] d
Epoch = 176.9117 [0.0164] BKJD
Rp/R* = 0.0393 [0.0338]
a/R* = 480.87 [1492.21]
b = 0.76 [1.73]

Seff = 0.40 [0.08]
Teq = 203 [10] K
Rp = 3.18 [2.76] Re
a = 0.8987 [0.0832] AU

Ag = 71400.95 [123397.52] [0.58σ]
Teffp = 5126 [2216] K [2.22σ]

DV Diagnostic Results:

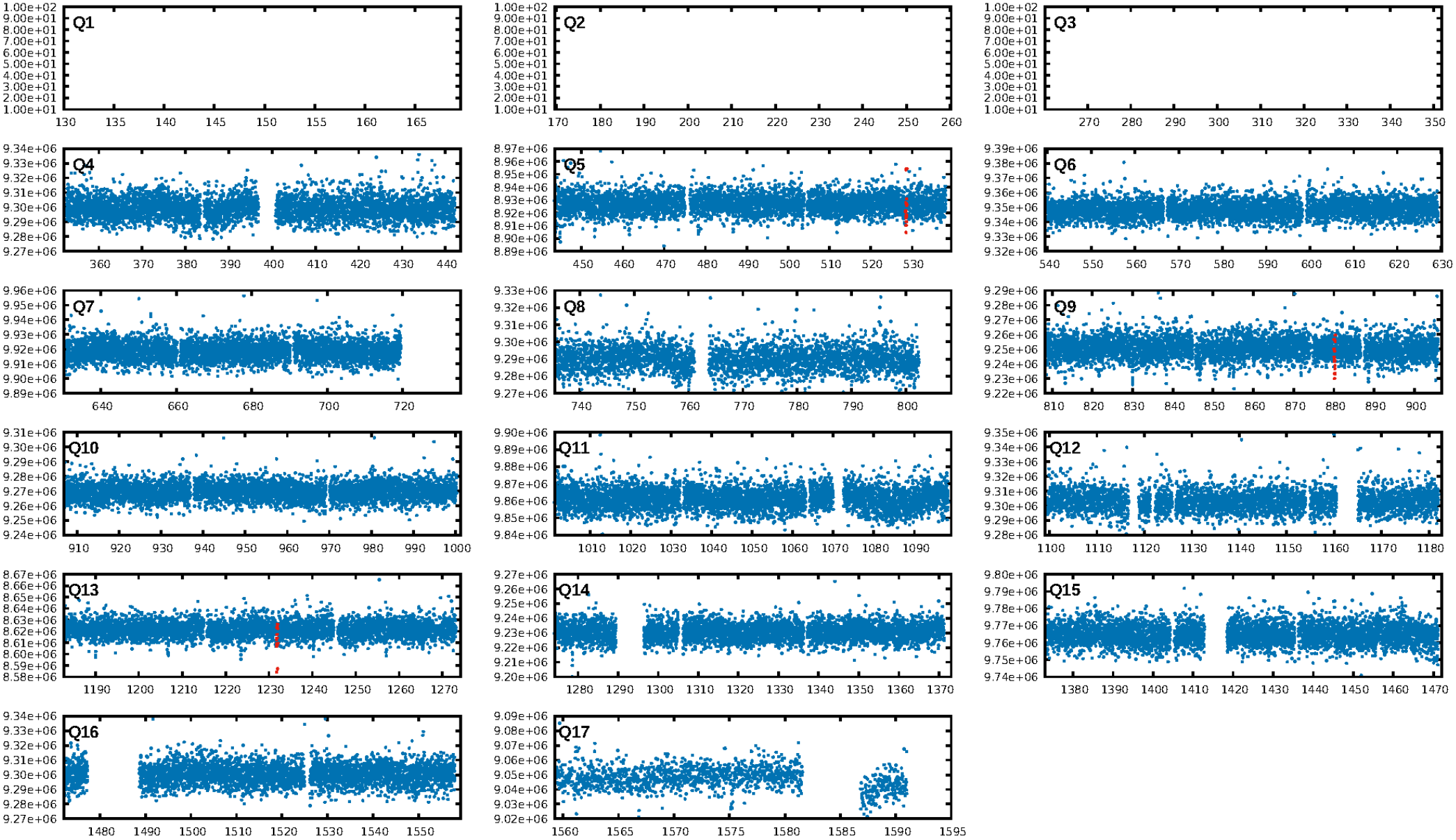
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [61.40σ]
ModelChiSquare2−sig: 87.5%
ModelChiSquareGof−sig: 99.7%
Bootstrap−pfa: 1.30e−12
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.6658

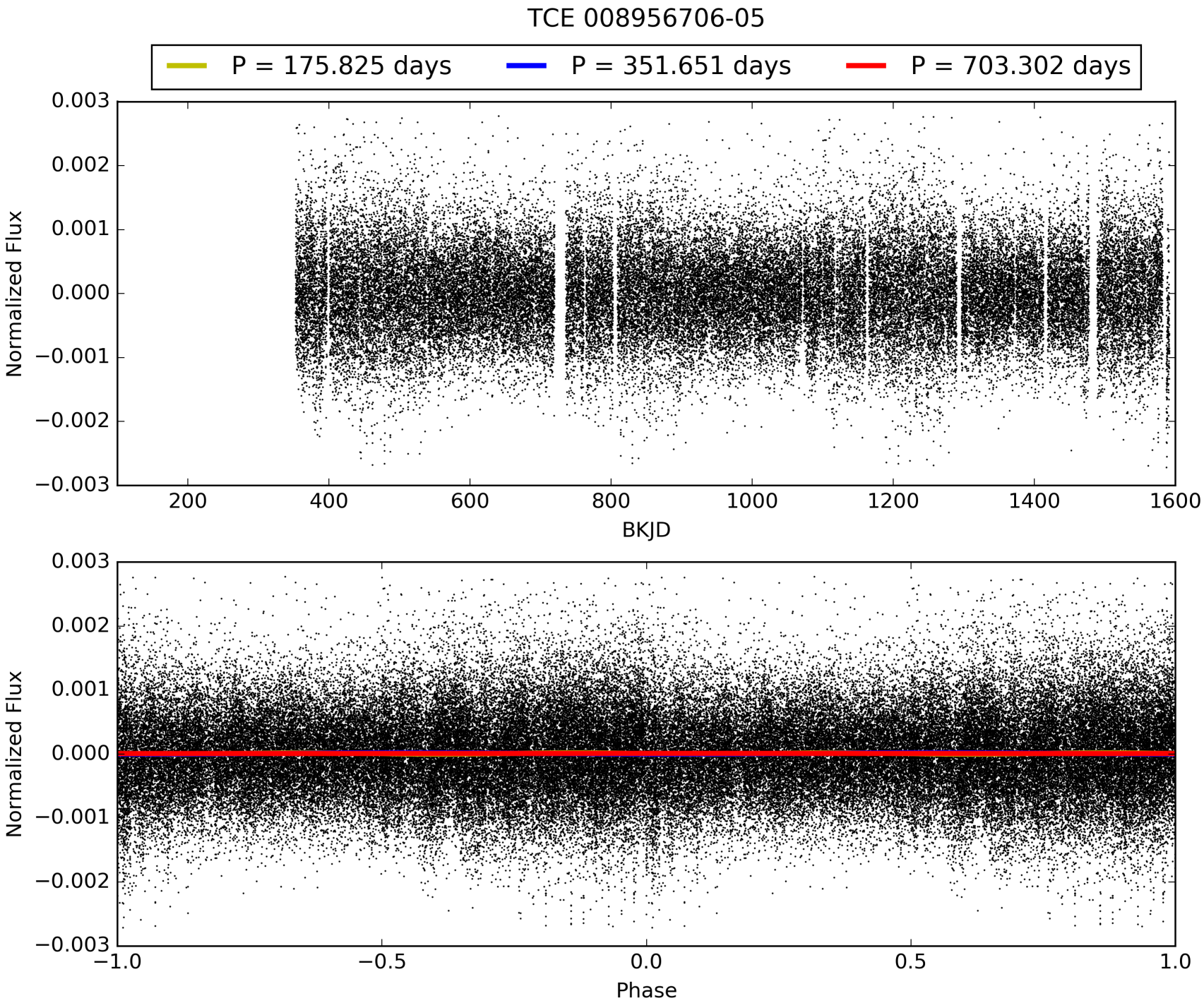
Centroid−sig: 0.0%
Centroid−so: 62.006 arcsec [35.60σ]
OotOffset−rm: N/A
KicOffset−rm: N/A
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 0/0/0/0 [0]
DiffImageQuality−fgm: N/A
DiffImageOverlap−fno: 1.00 [2/2]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 11:07:10 Z

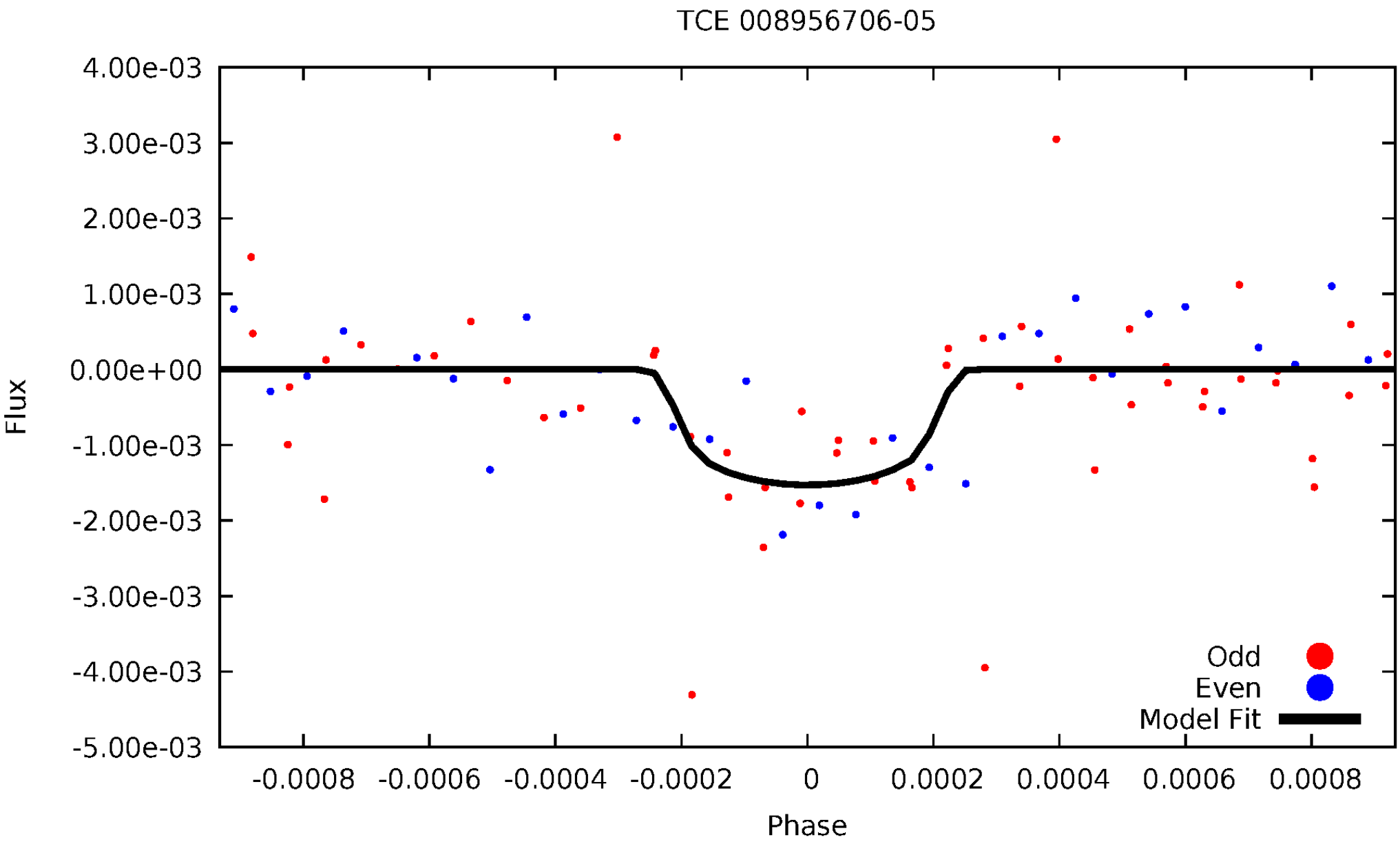
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-05, PDC Light Curves

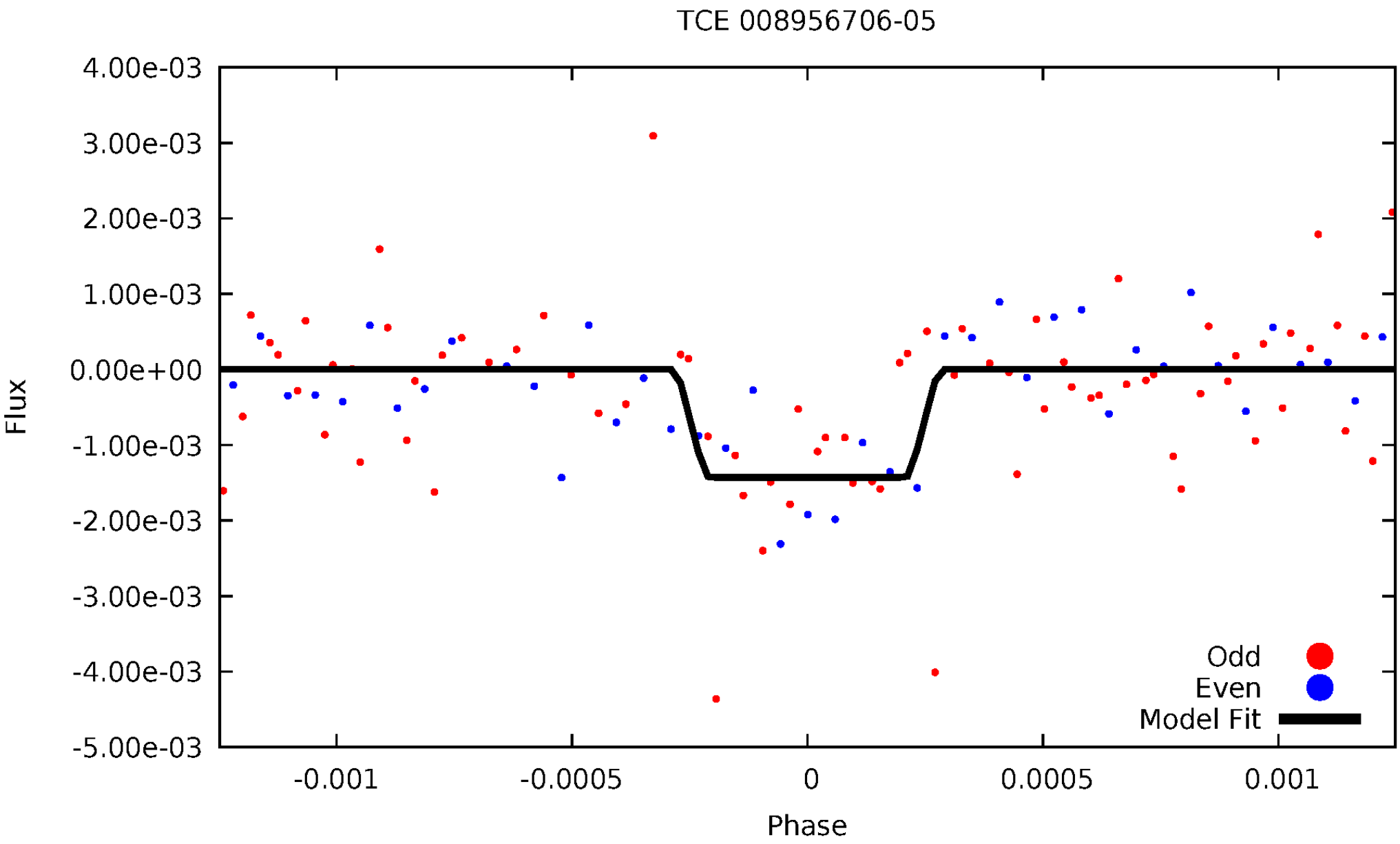



TCE 008956706-05
P = 175.825 days
P = 351.651 days
P = 703.302 days
Normalized Flux
BKJD
Normalized Flux
Phase

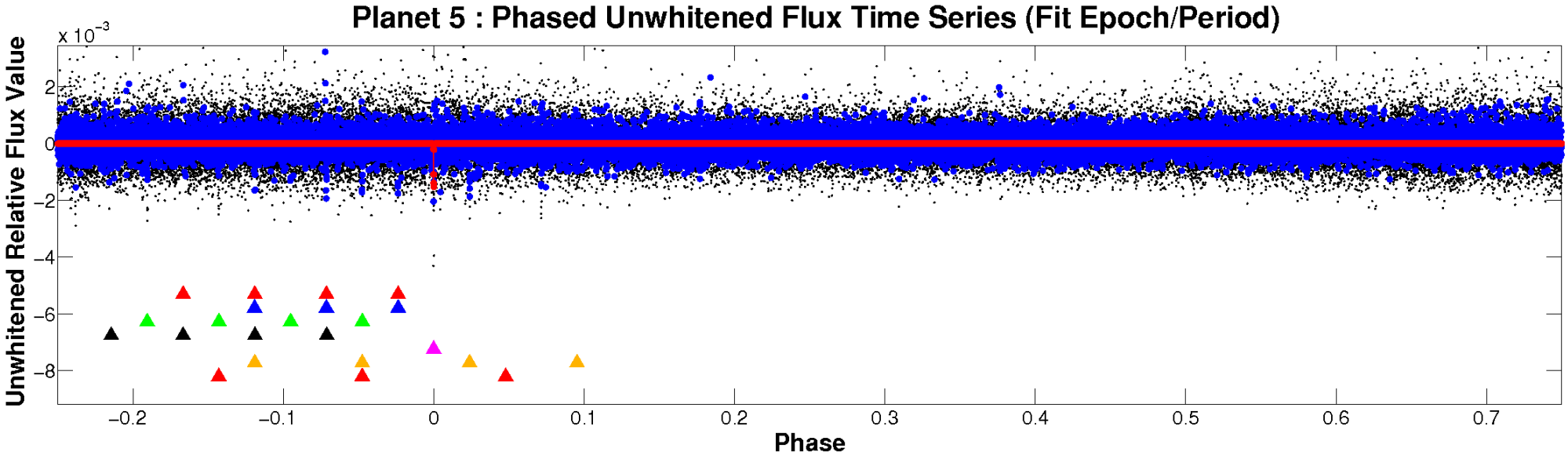
DV Odd/Even

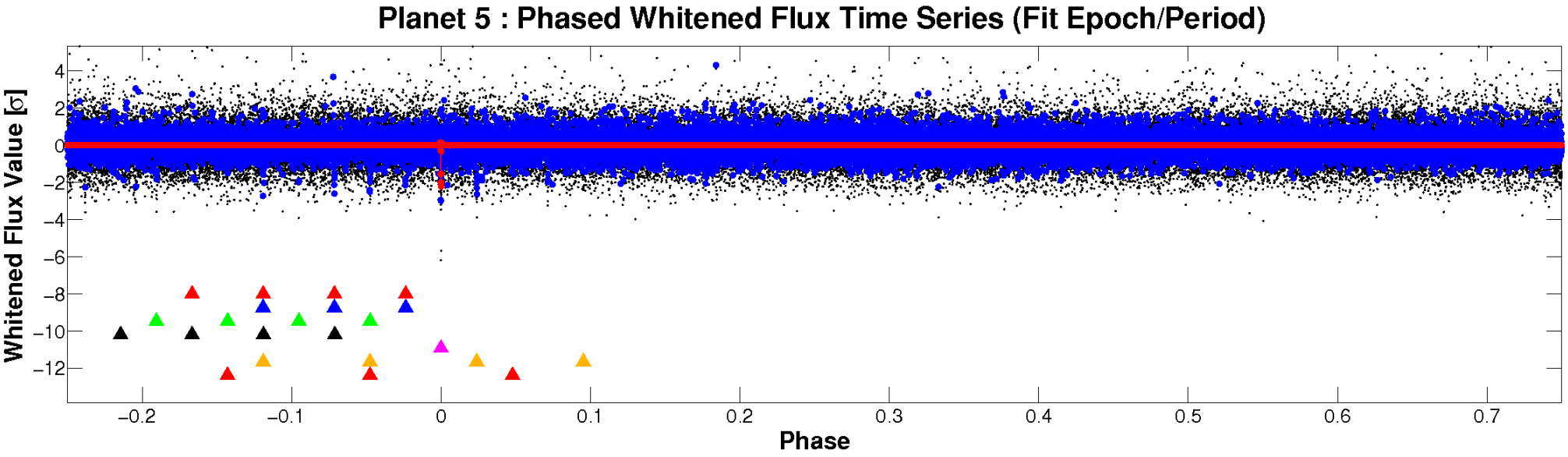

TCE 008956706-05
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
-5.00e-03
Flux
-0.0008
-0.0006
-0.0004
-0.0002
0
0.0002
0.0004
0.0006
0.0008
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008956706-05
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
-5.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

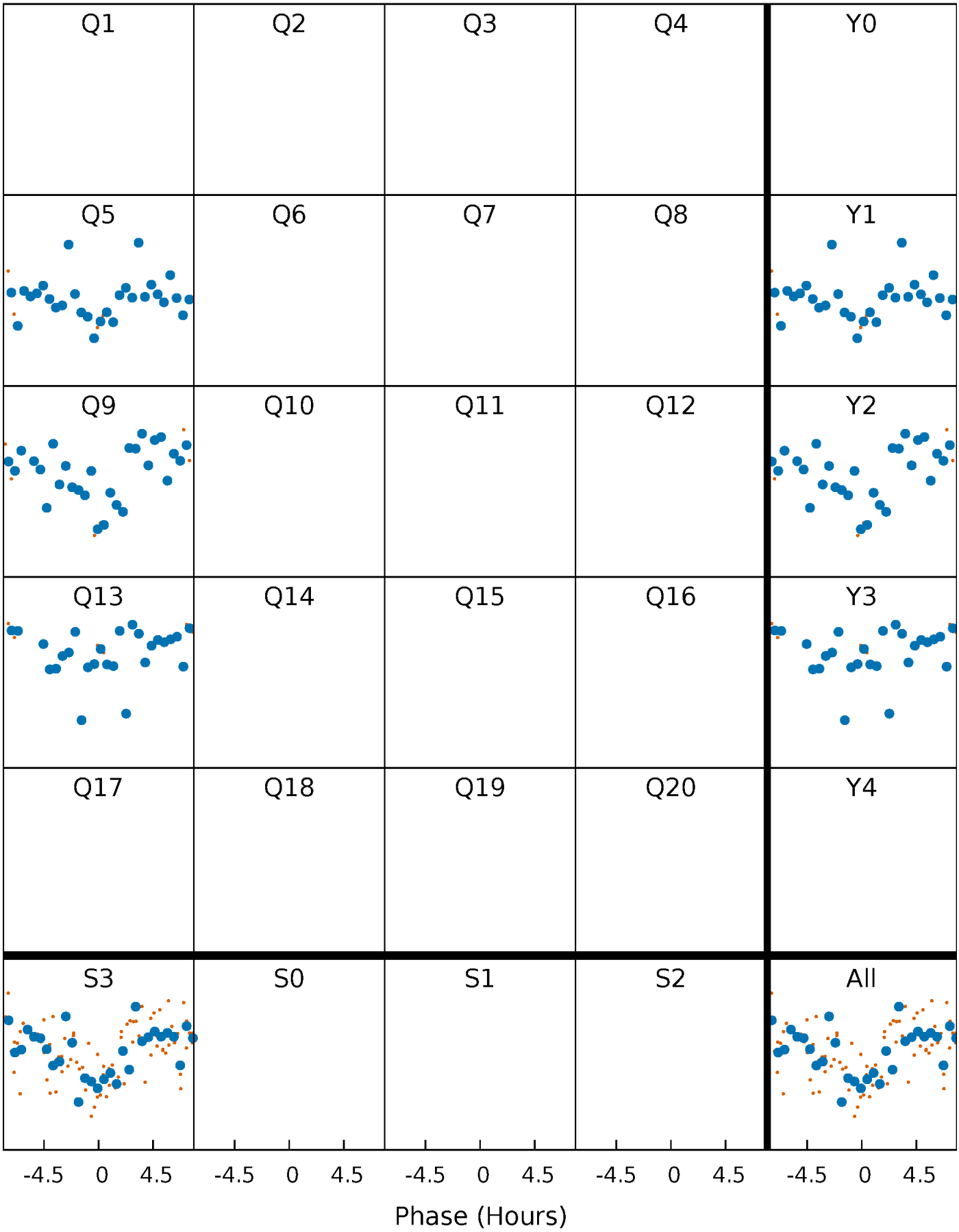
Non-Whitened Vs. Whitened Light Curve





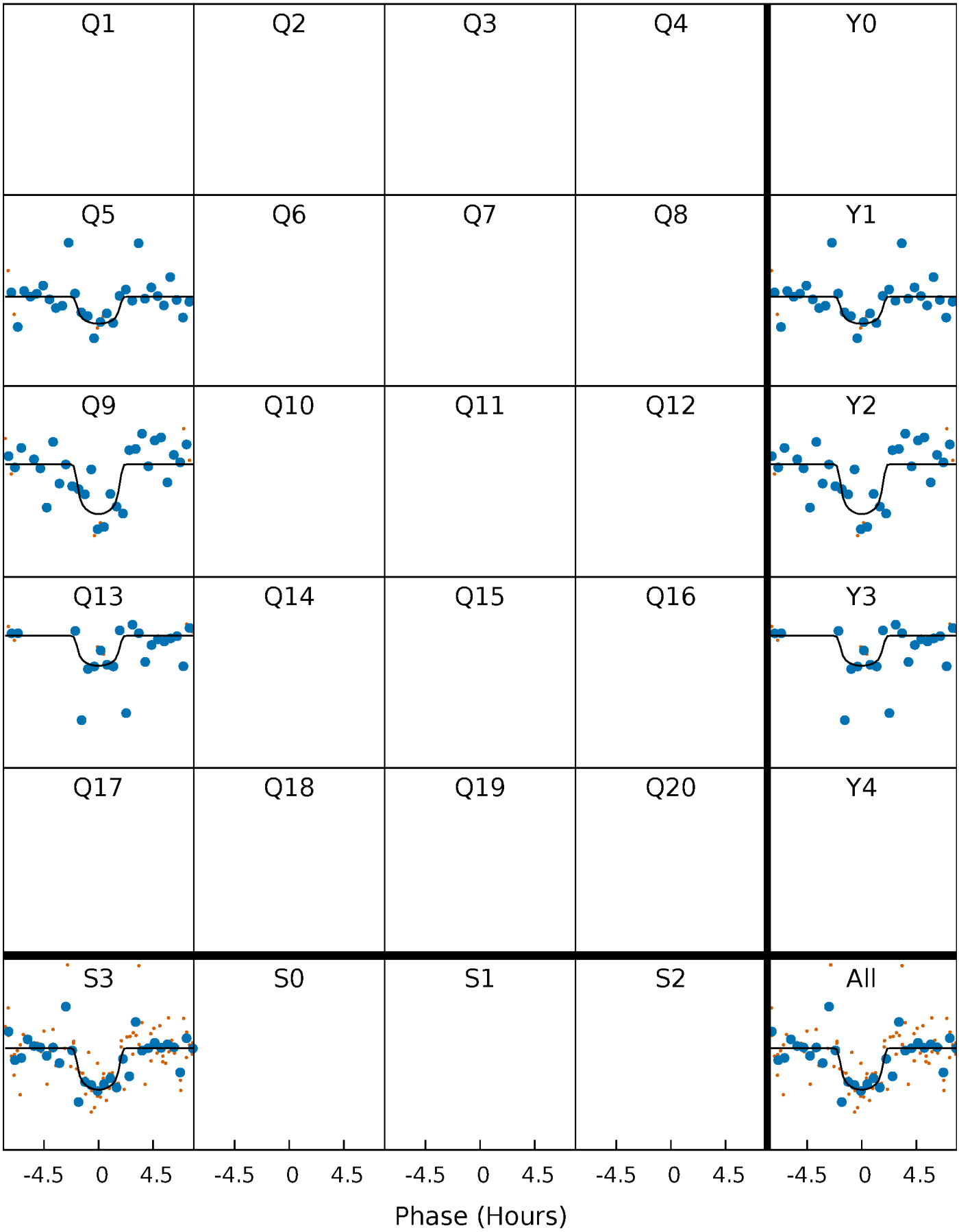
PDC Quarter-Phased Transit Curves

TCE 008956706-05 P=351.650750 Days T_0=176.911716 (BKJD)



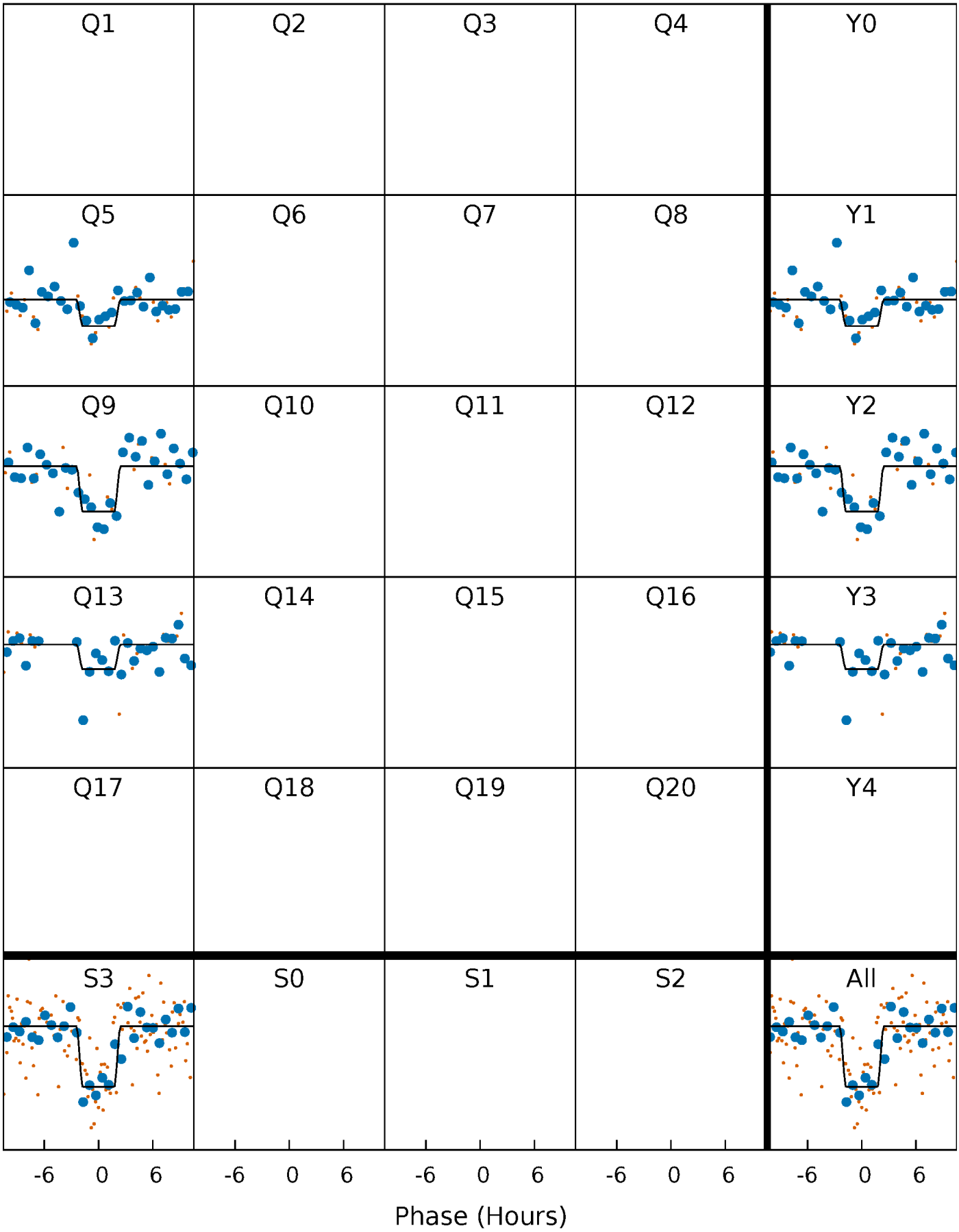
DV Quarter-Phased Transit Curves

TCE 008956706-05 P=351.650750 Days T_0=176.911716 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

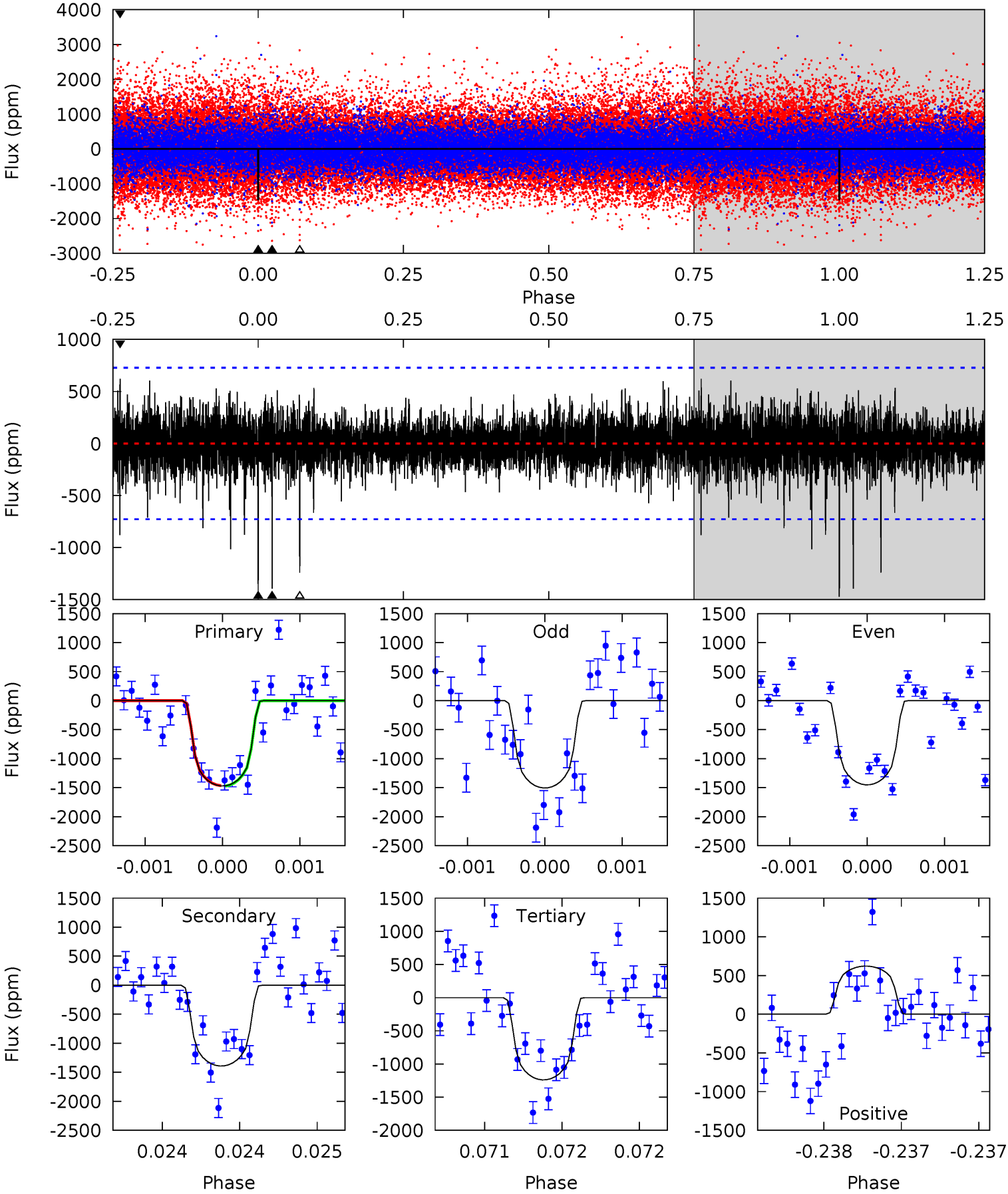
TCE 008956706-05 P=351.648244 Days T_0=176.923103 (BKJD)



DV Model-Shift Uniqueness Test

008956706-05, P = 351.650750 Days, E = 176.911716 Days

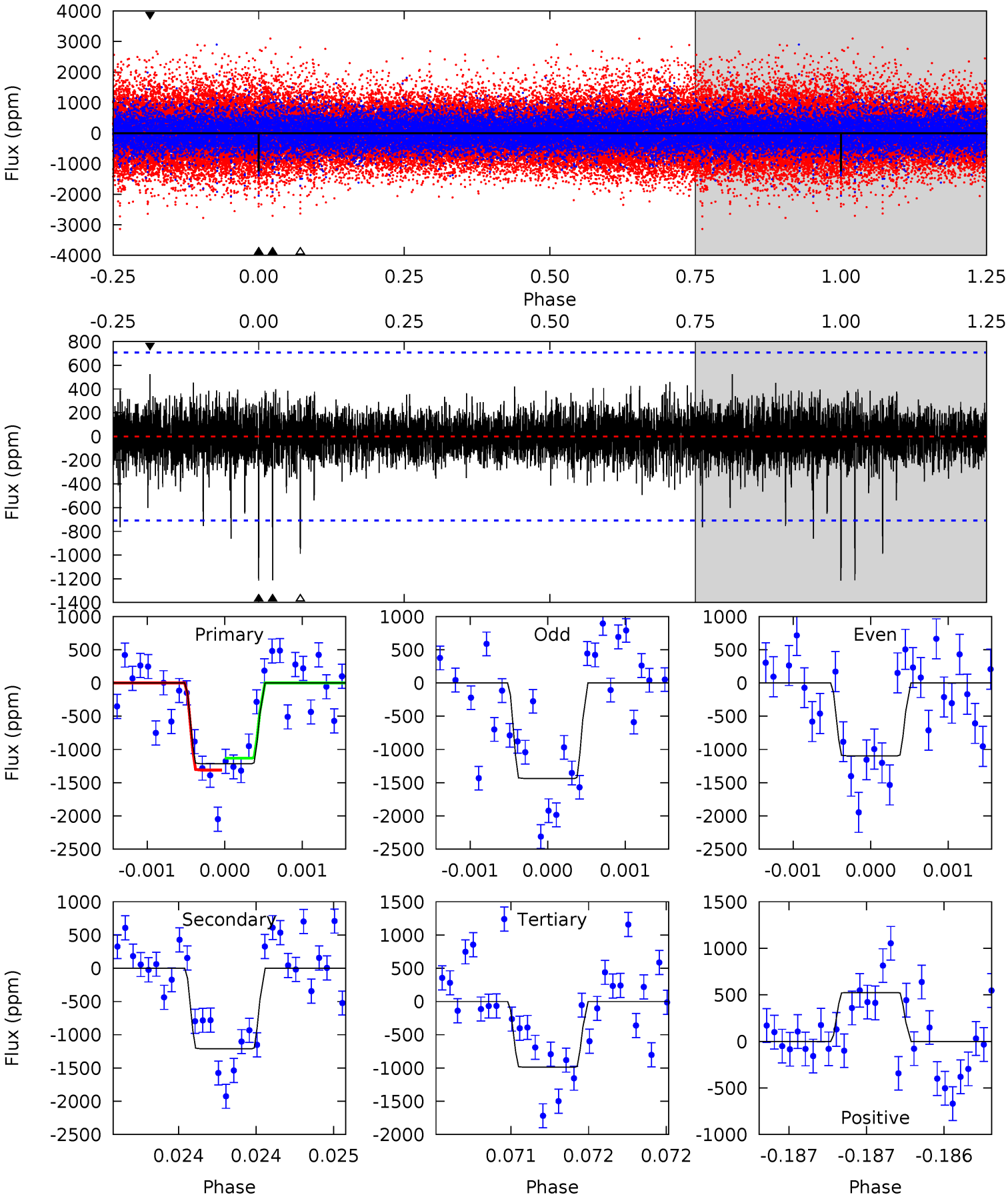
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	10.7	9.49	4.76	5.57	3.47	1.22	1.77	6.50	1.16	5.90	0.21	1.04	0.30	0.03



Alt Model-Shift Uniqueness Test

008956706-05, P = 351.648244 Days, E = 176.923103 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.52	9.49	7.75	4.11	5.55	3.45	1.02	1.77	5.41	1.75	5.39	1.28	0.95	0.30	0.70



Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-05 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1392±131	$3.67^{+2.55}_{-2.22}$	284^{+11}_{-10}	4685^{+2563}_{-838}	$45868^{+246466}_{-30195}$
Alt.	-1211±128	$3.33^{+2.70}_{-1.99}$	285^{+12}_{-11}	4730^{+2521}_{-941}	$47474^{+248533}_{-33045}$

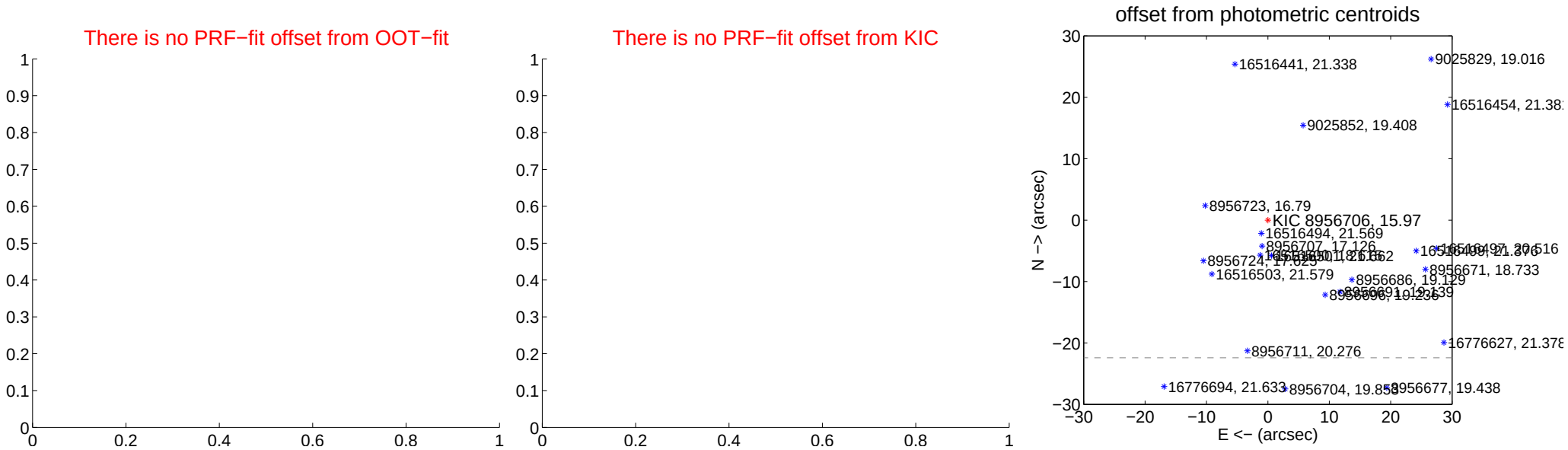
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

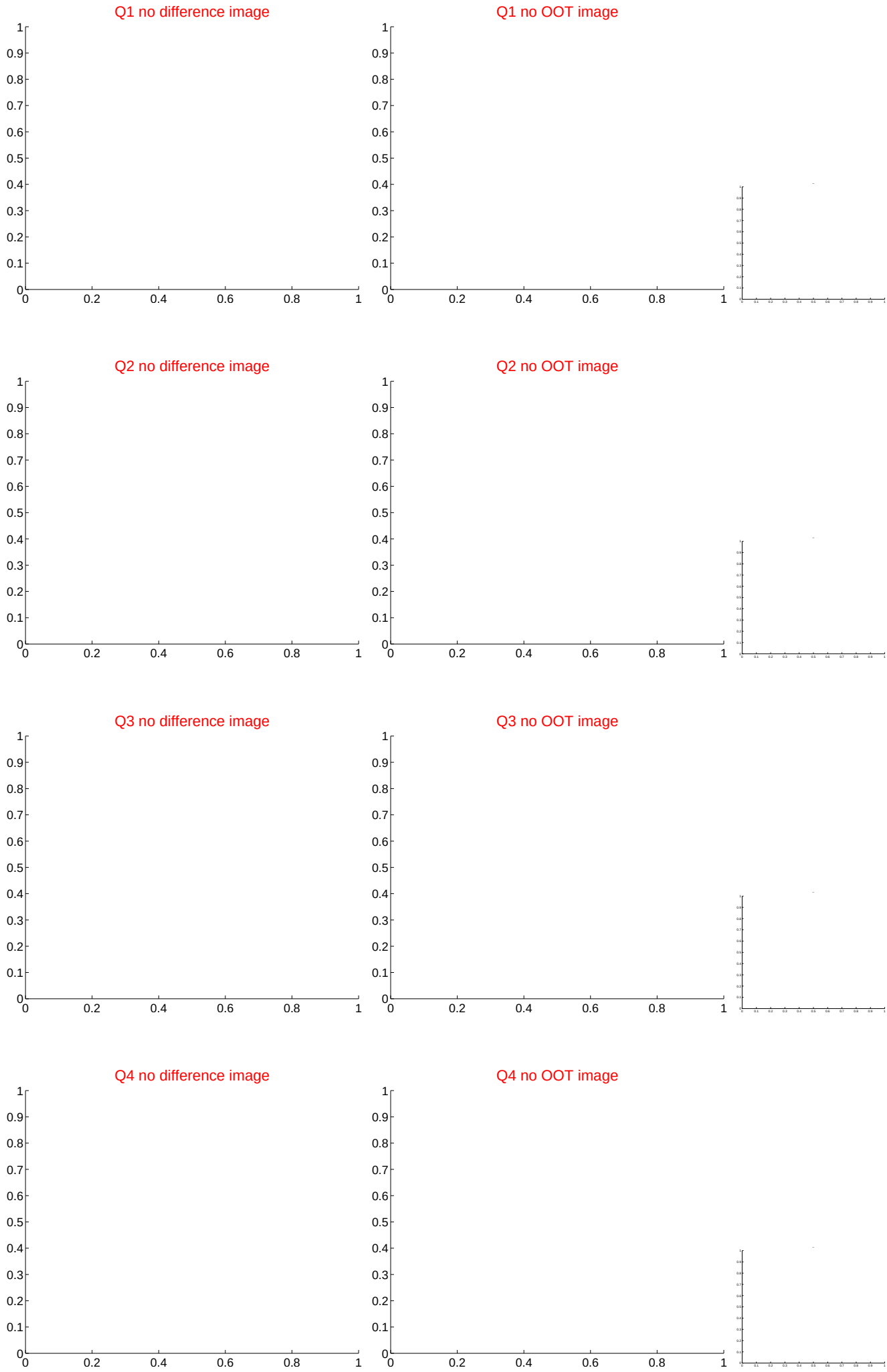
Supplemental centroid analysis for 008956706-05. Kepler magnitude: 15.97. Transit SNR 8.77
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	62.01 ± 1.74	35.60	57.82 ± 1.72	-22.41 ± 1.89

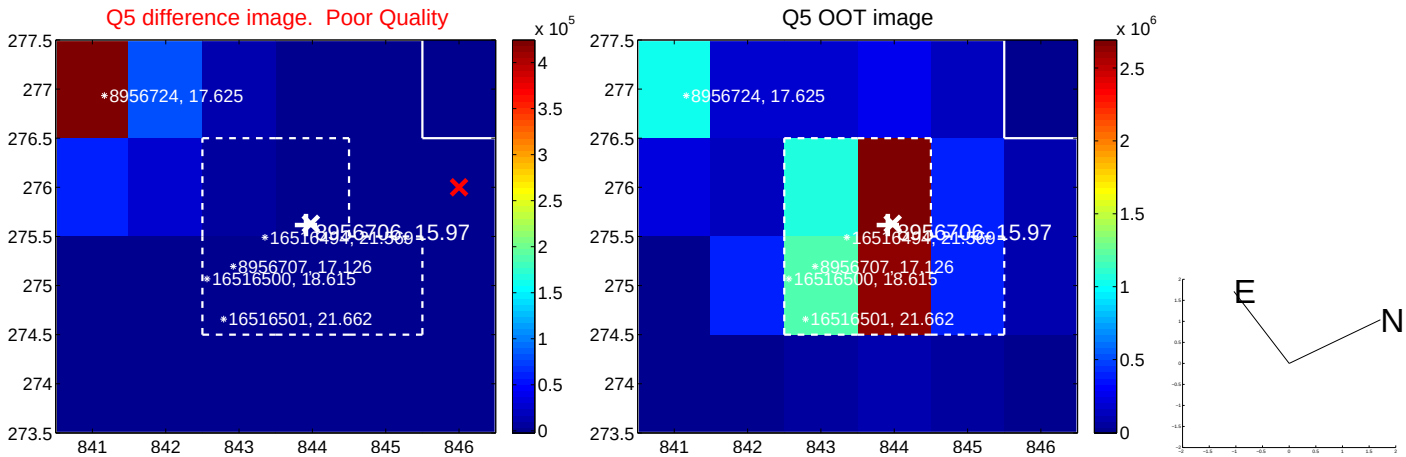


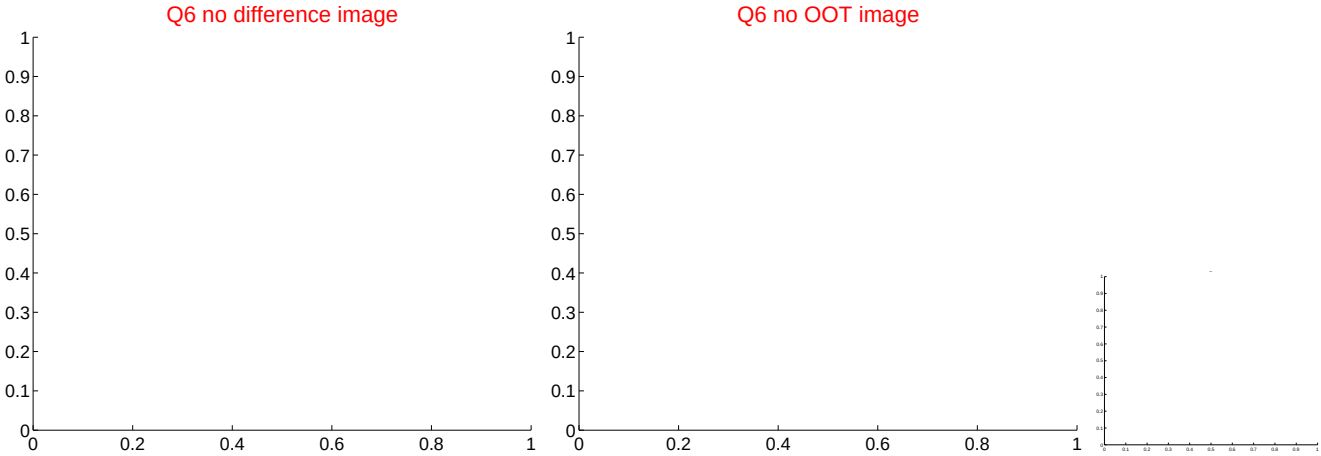
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

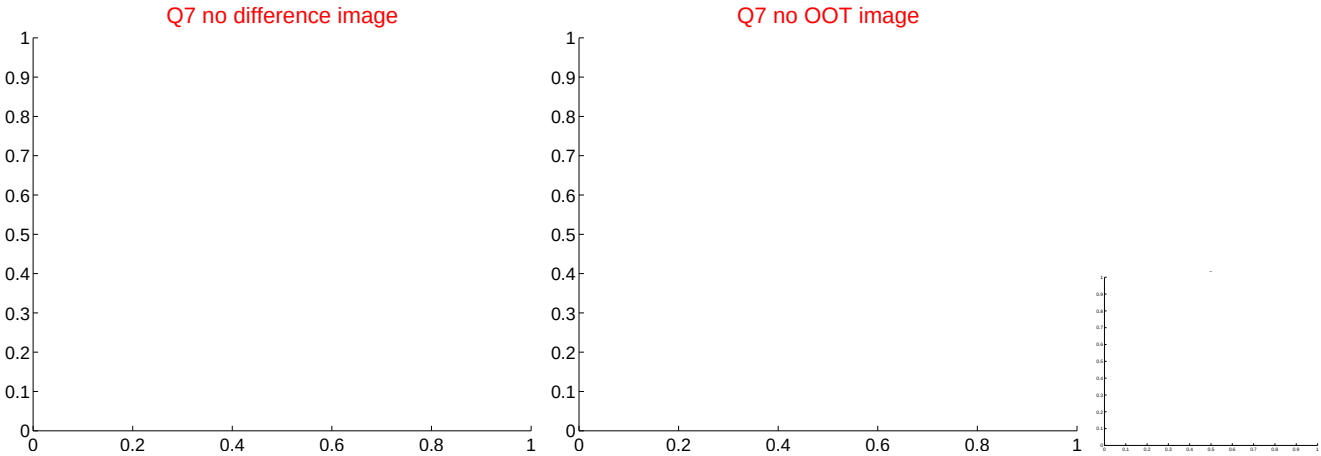
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

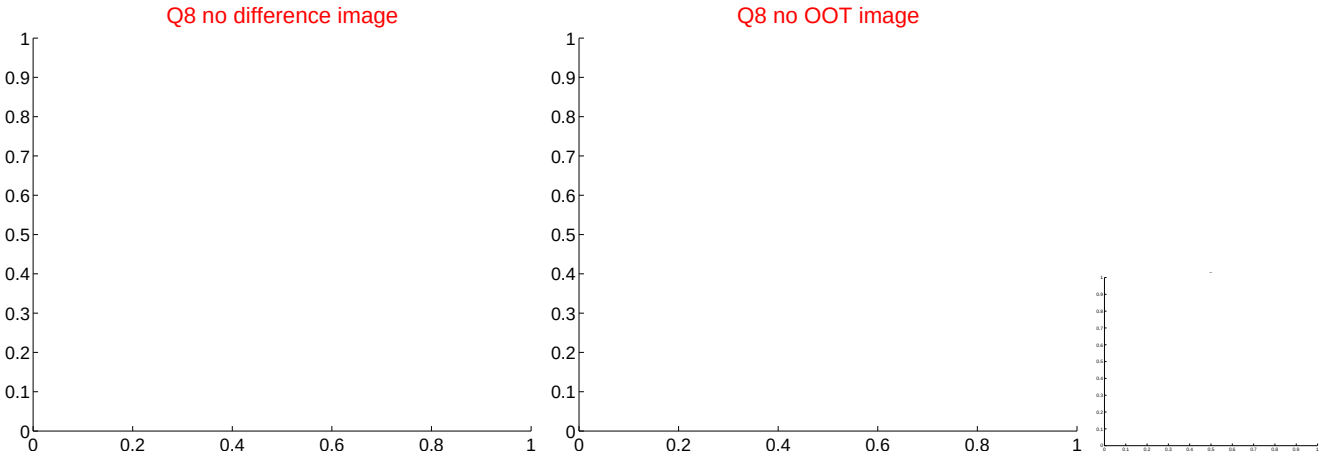


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

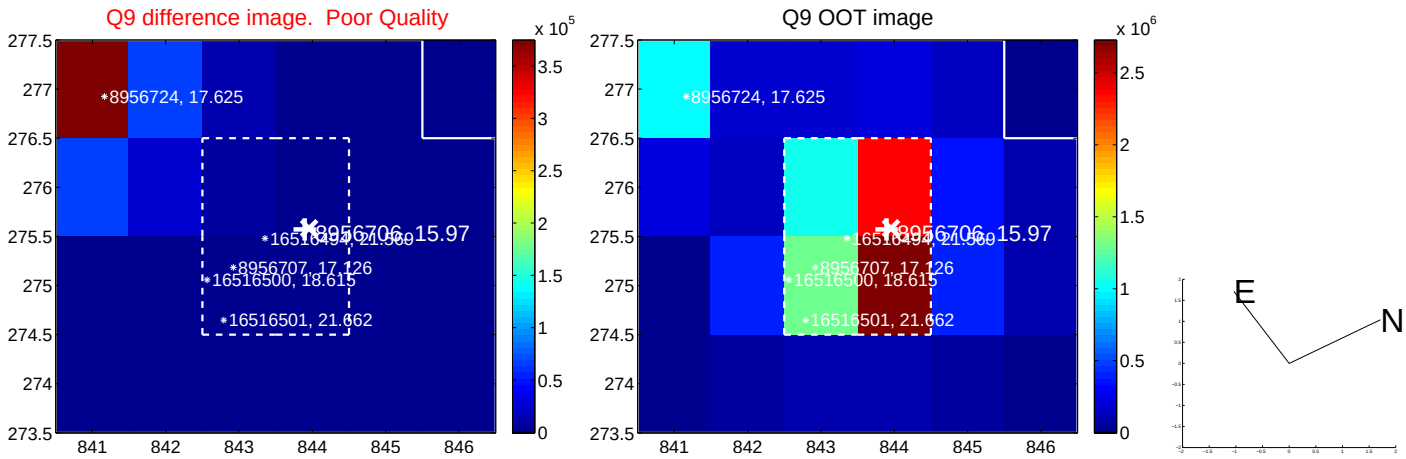


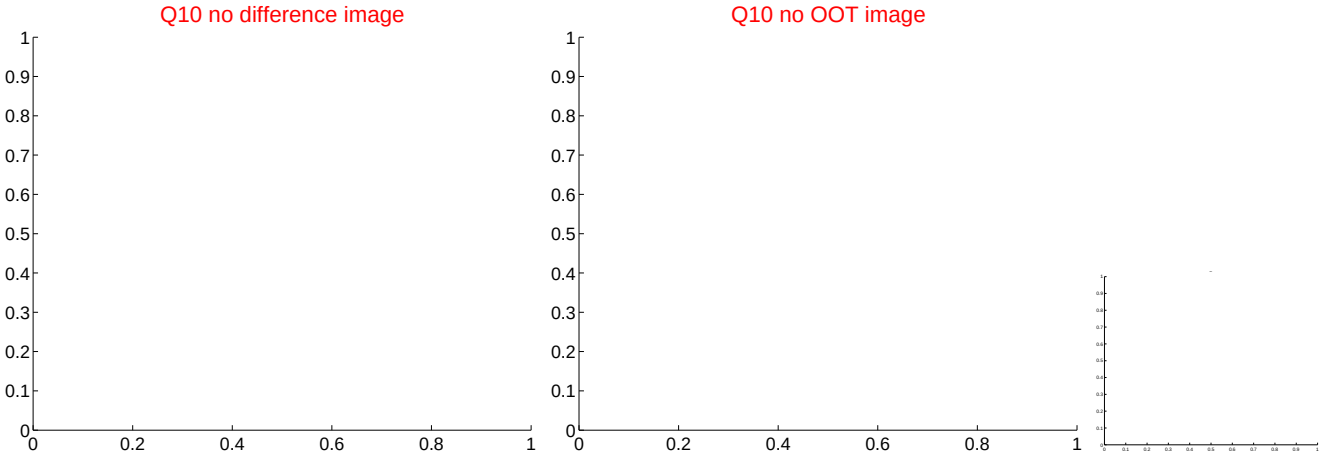


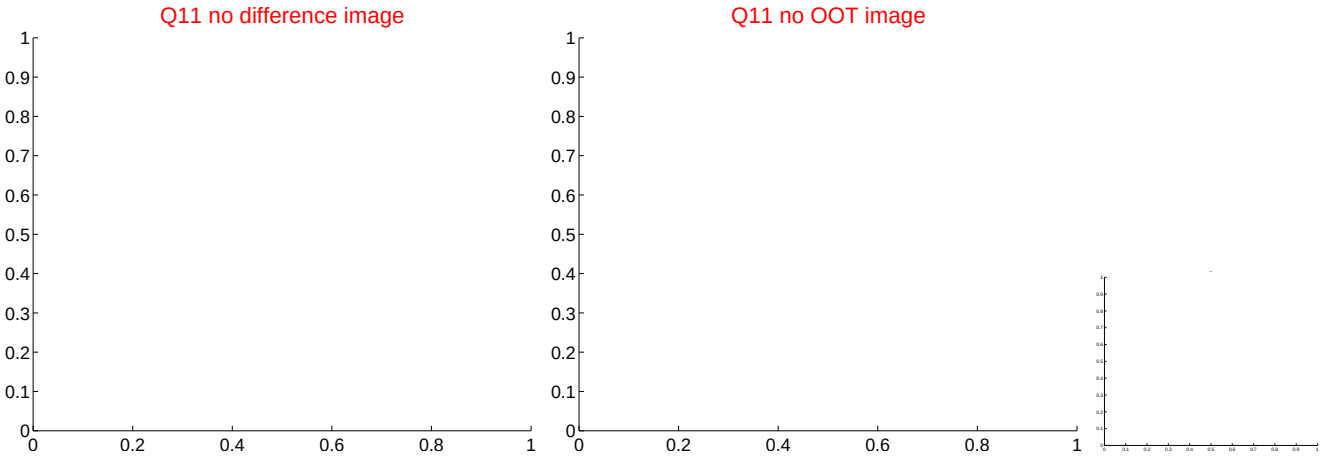


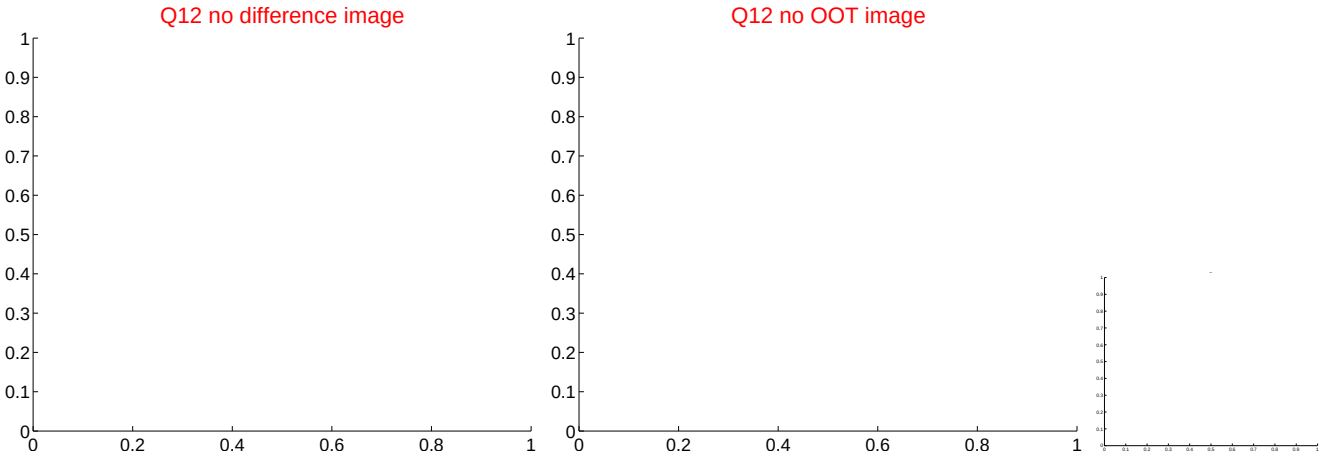


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

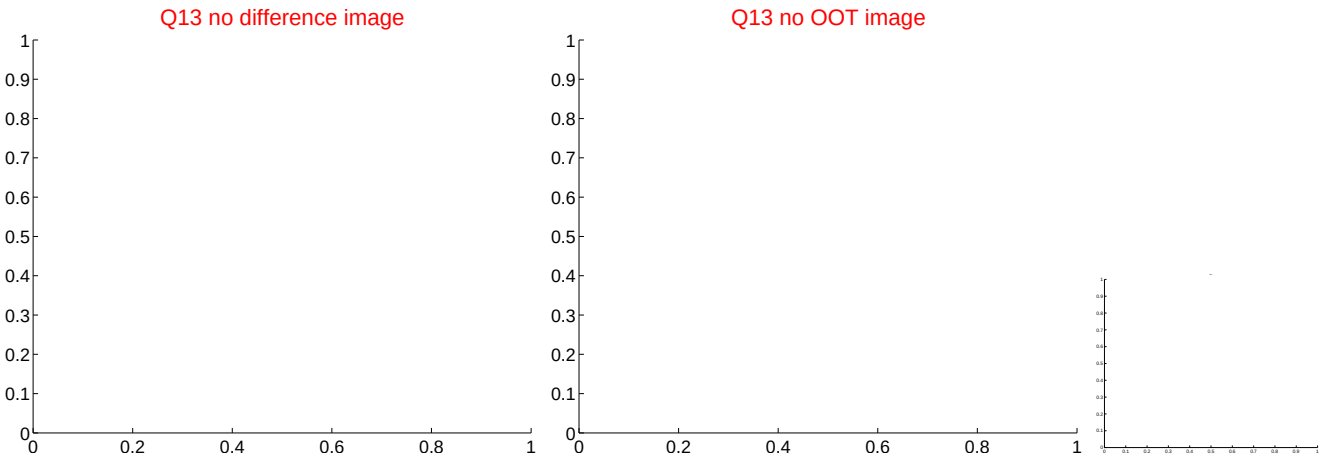


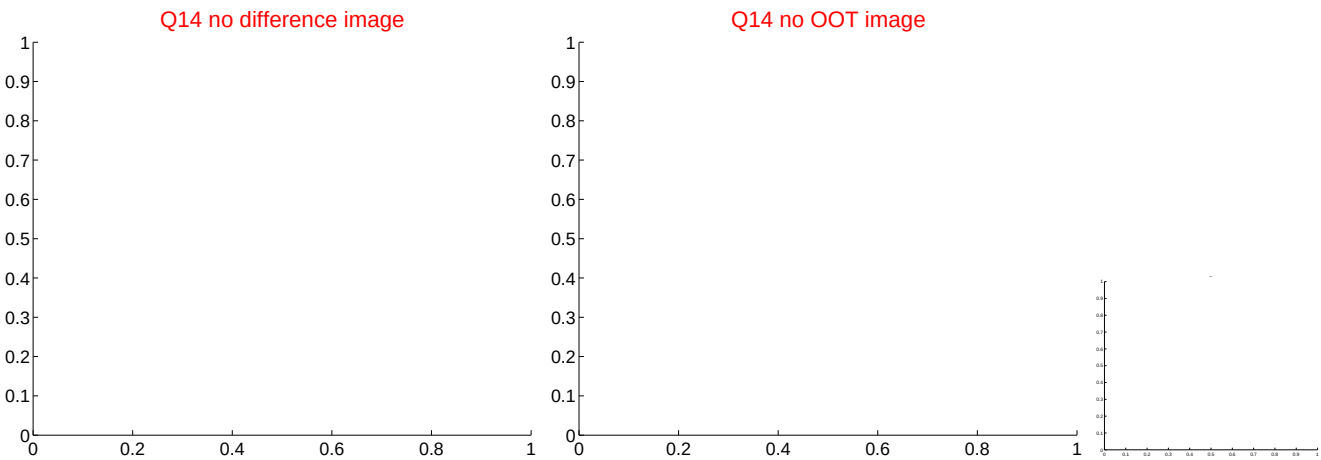


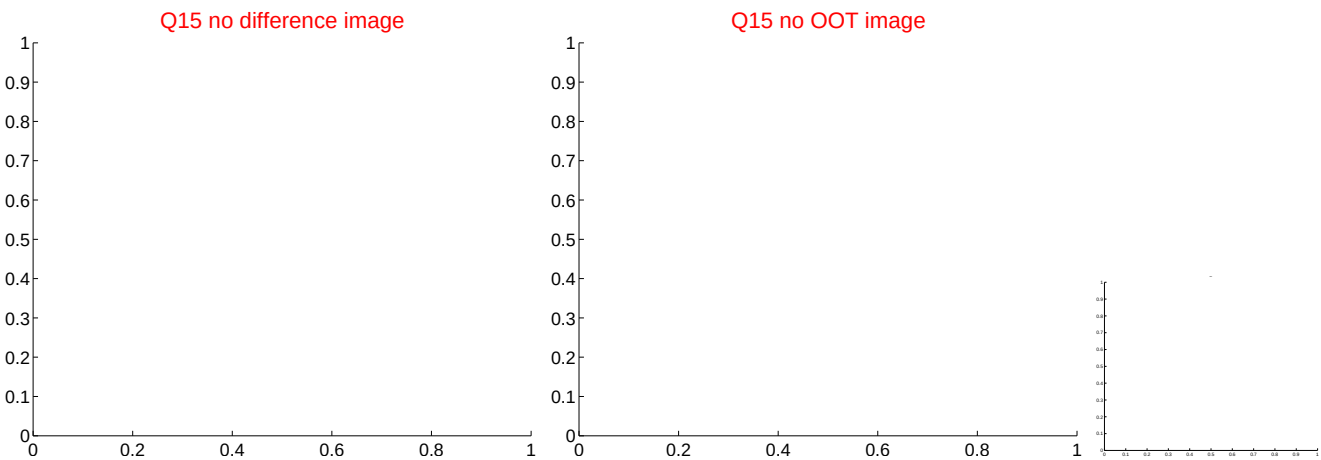


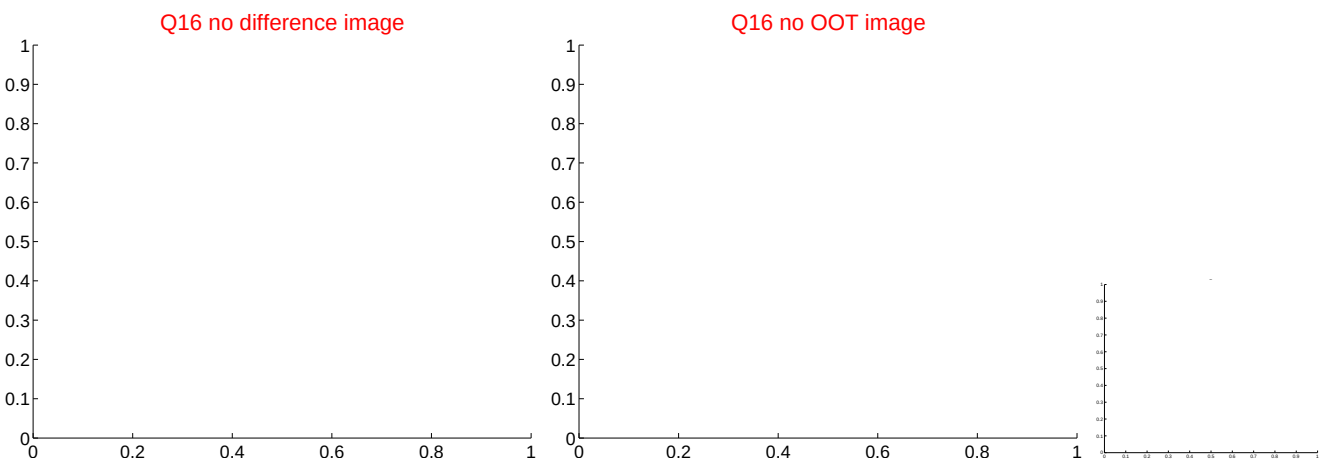


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

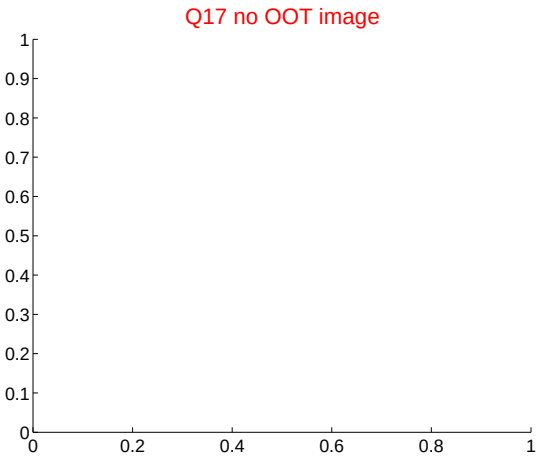


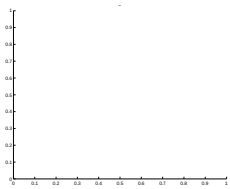


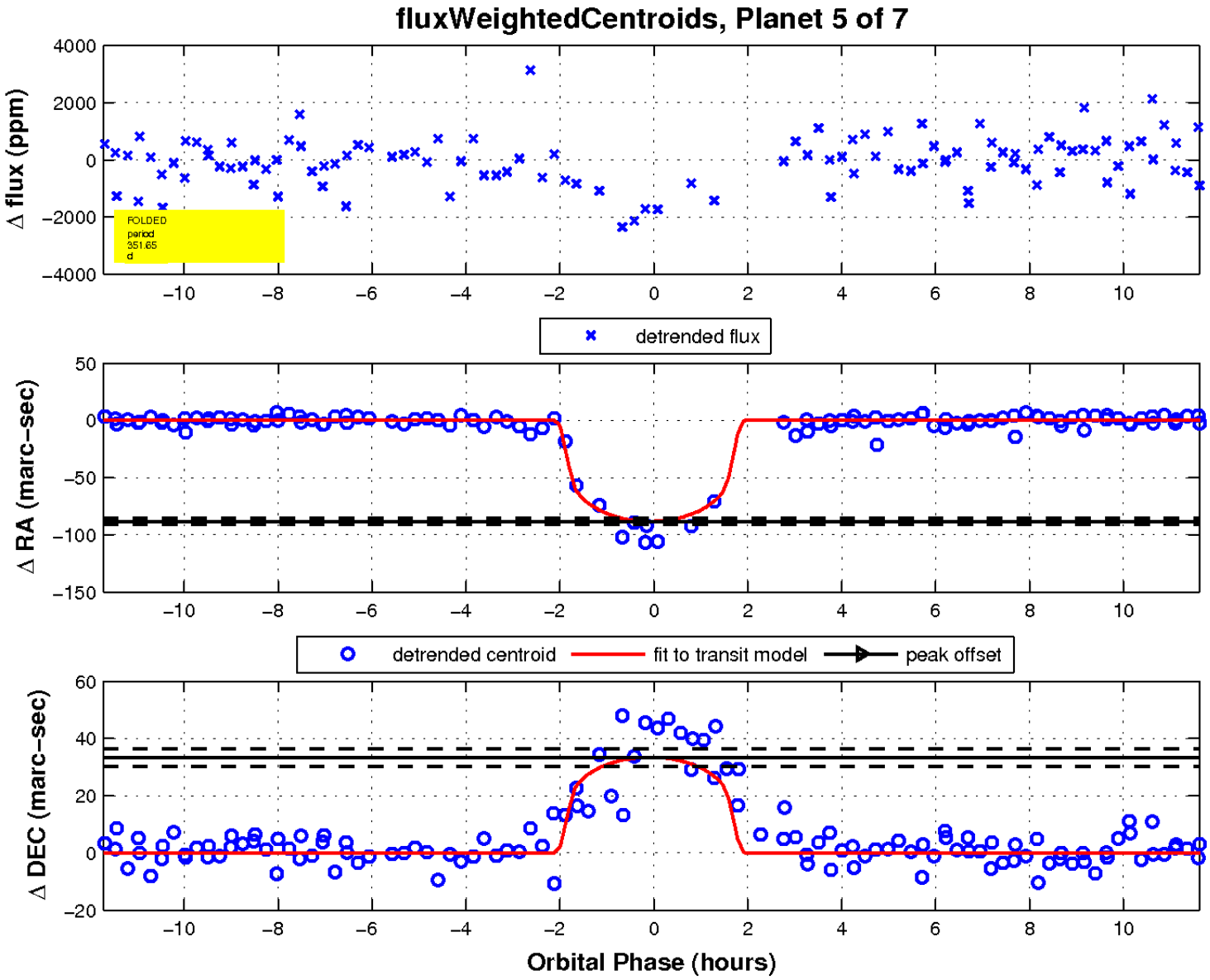




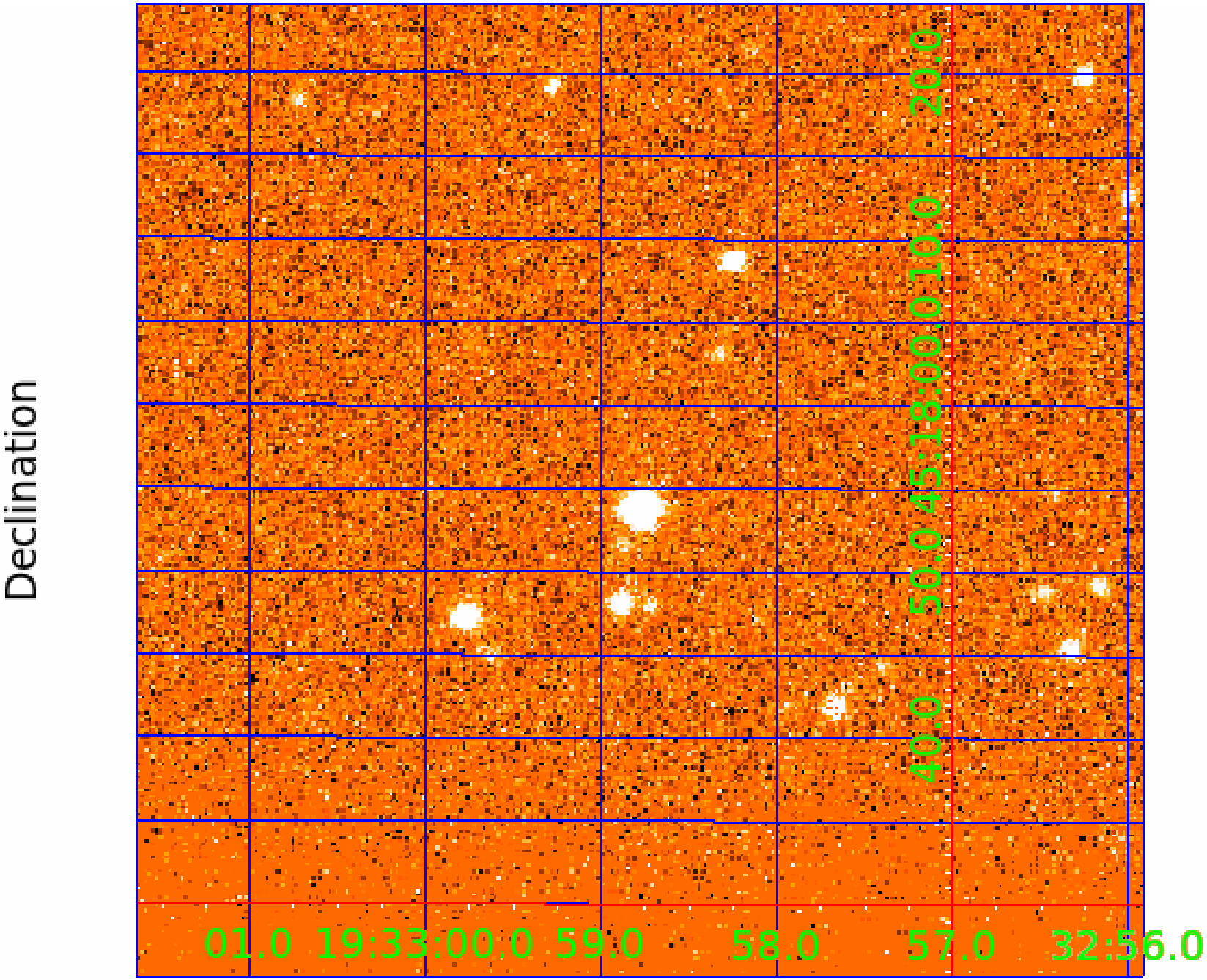
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image


Declination
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32:56.0

KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

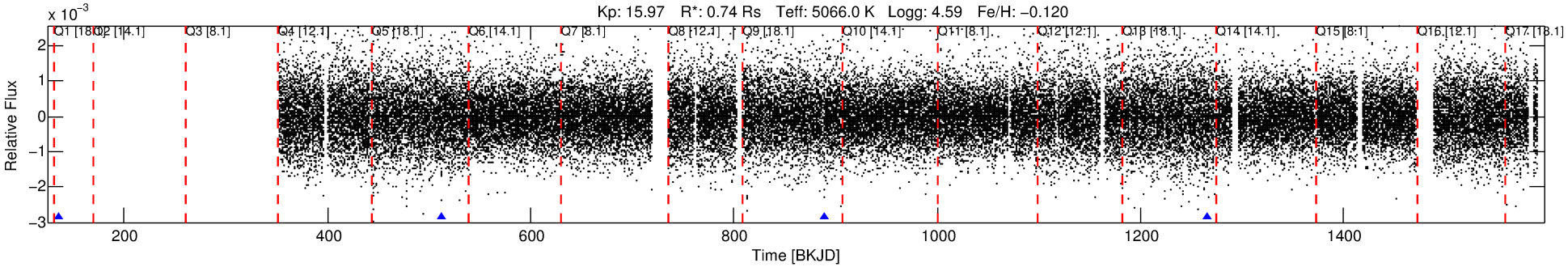
Ephemeris Match Information For 008956706-06

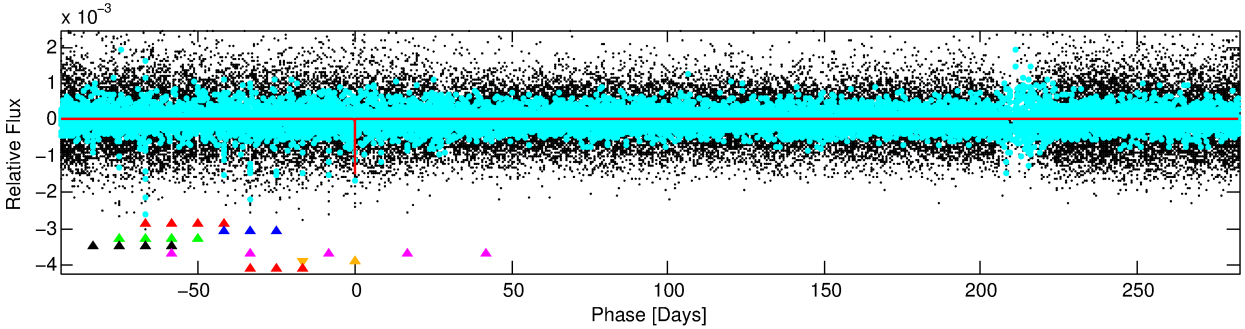
No Significant Match Found

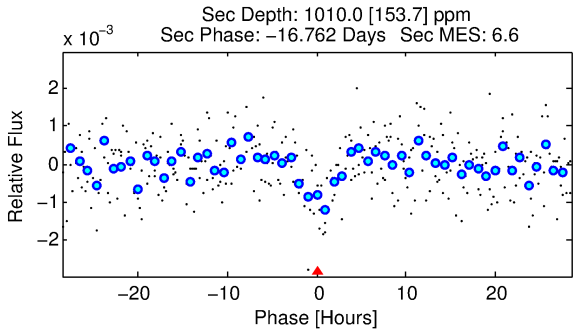
DV One-Page Summary

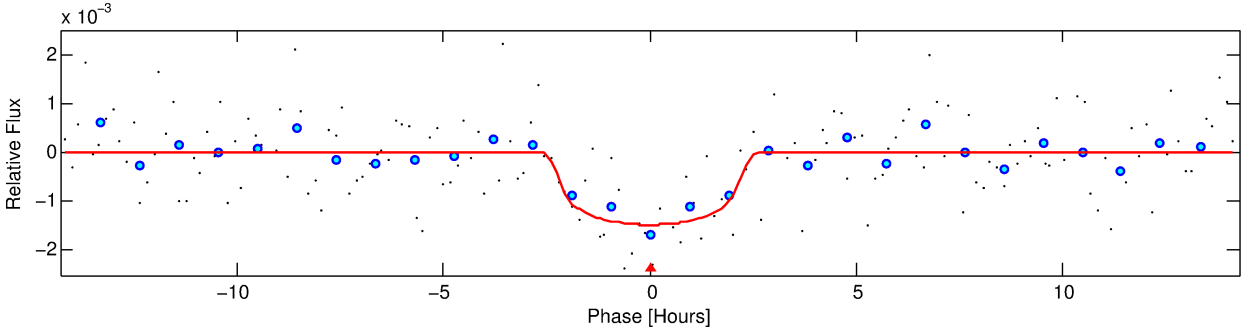
KIC: 8956706 Candidate: 6 of 7 Period: 376.768 d
KOI: K02431 Corr: No Ephemeris Match

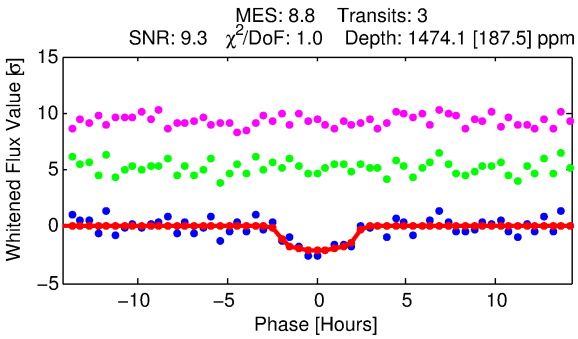
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

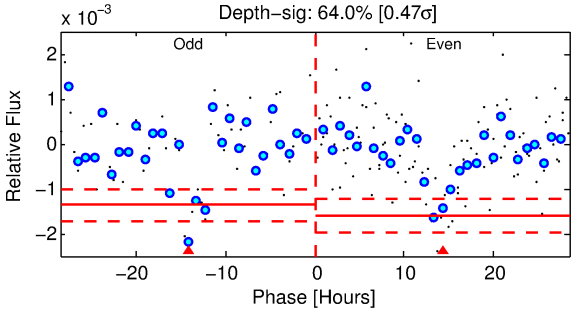












DV Fit Results:

Period = 376.76778 [0.00768] d
Epoch = 135.0799 [0.0169] BKJD
Rp/R* = 0.0359 [0.0656]
a/R* = 533.39 [3441.75]
b = 0.54 [8.50]

Seff = 0.36 [0.07]
Teq = 198 [9] K
Rp = 2.90 [5.31] Re
a = 0.9410 [0.0871] AU

Ag = 58627.25 [214619.06] [0.27σ]
Teffp = 4768 [4364] K [1.05σ]

DV Diagnostic Results:

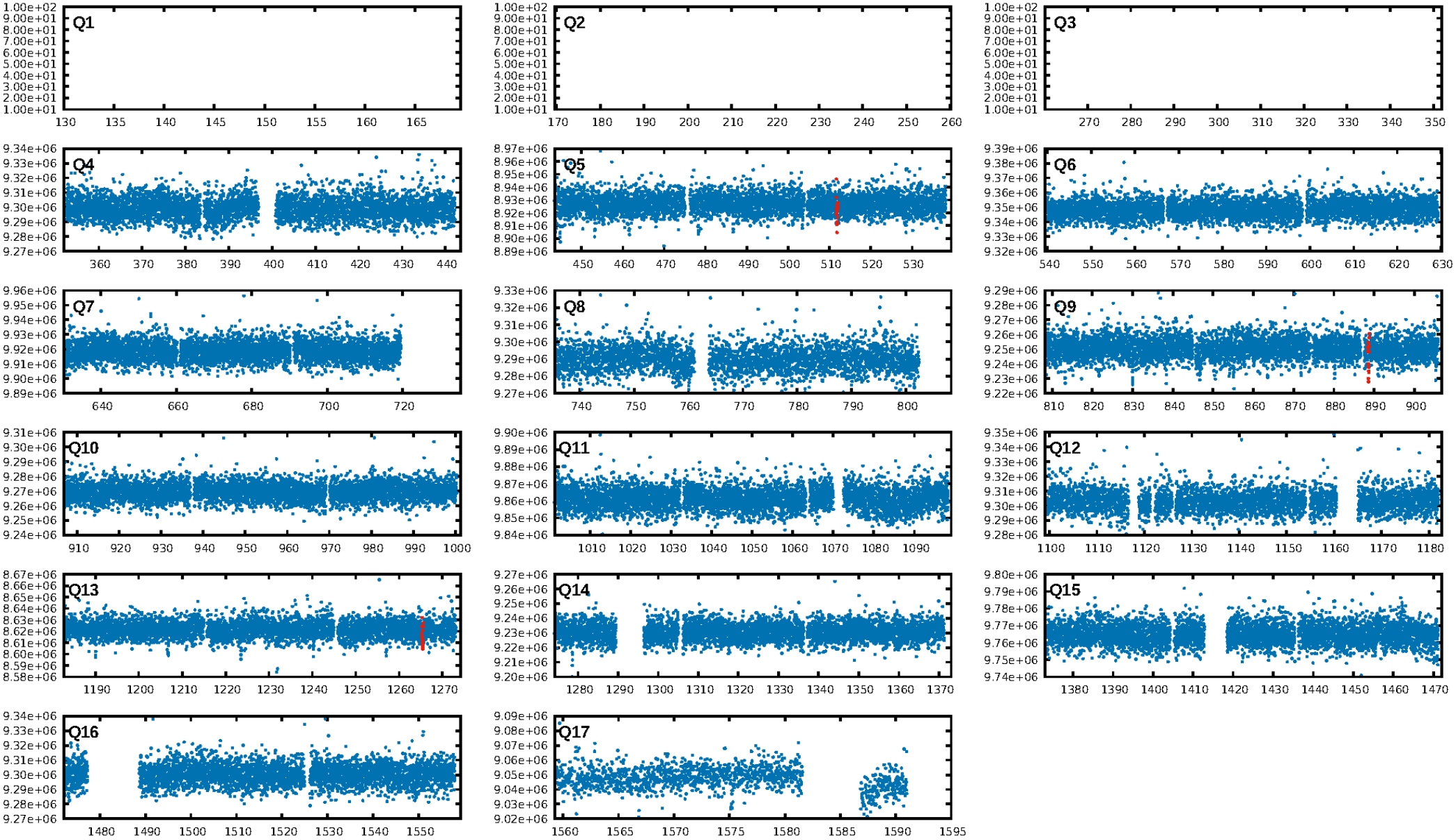
ShortPeriod−sig: 100.0% [27.68σ]
LongPeriod−sig: 100.0% [30.65σ]
ModelChiSquare2−sig: 87.9%
ModelChiSquareGof−sig: 99.4%
Bootstrap−pfa: 2.51e−10
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.5241

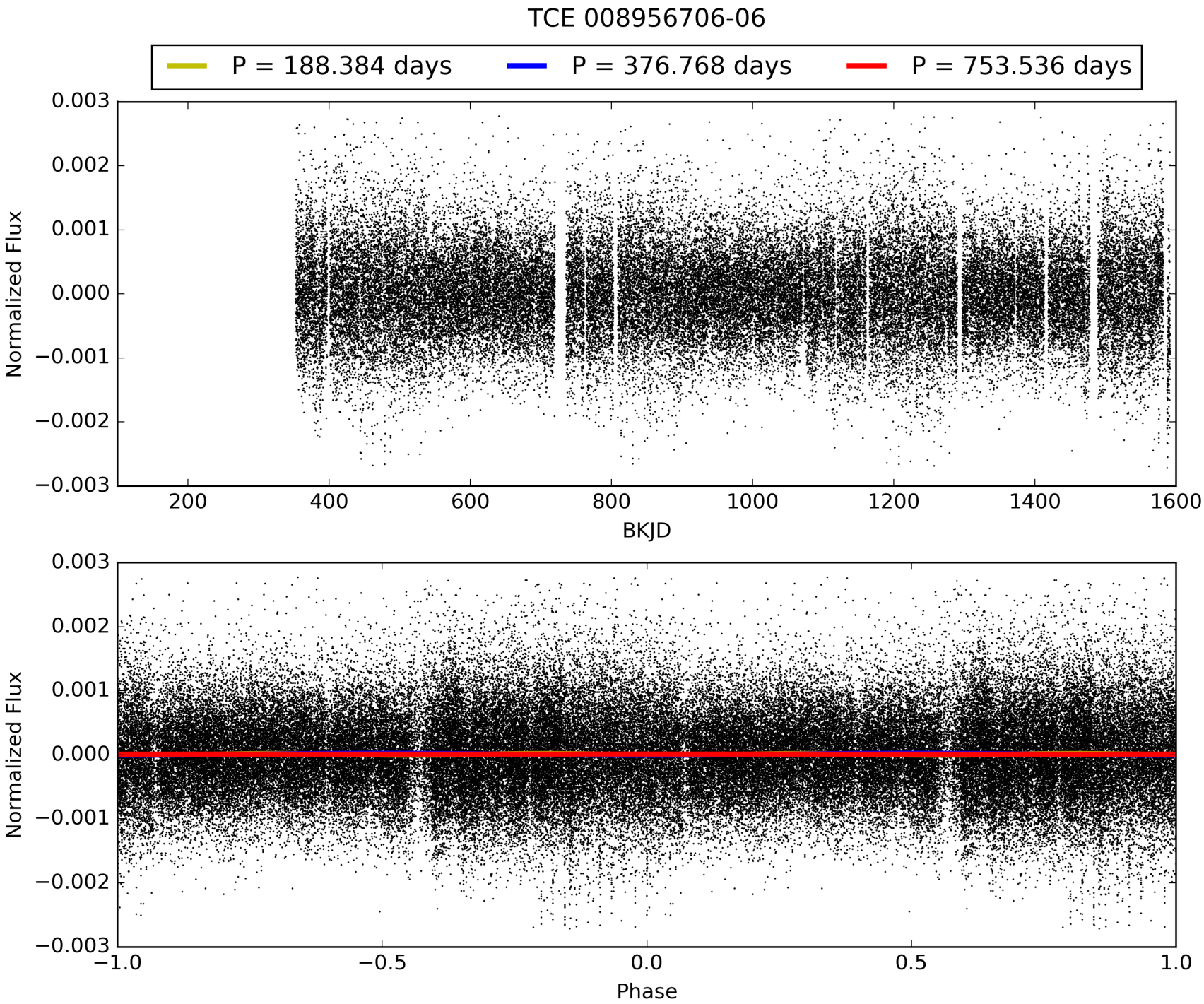
Centroid−sig: 0.0%
Centroid−so: 64.047 arcsec [39.95σ]
OotOffset−rm: N/A
KicOffset−rm: N/A
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 0/0/0/0 [0]
DiffImageQuality−fgm: N/A
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 11:07:23 Z

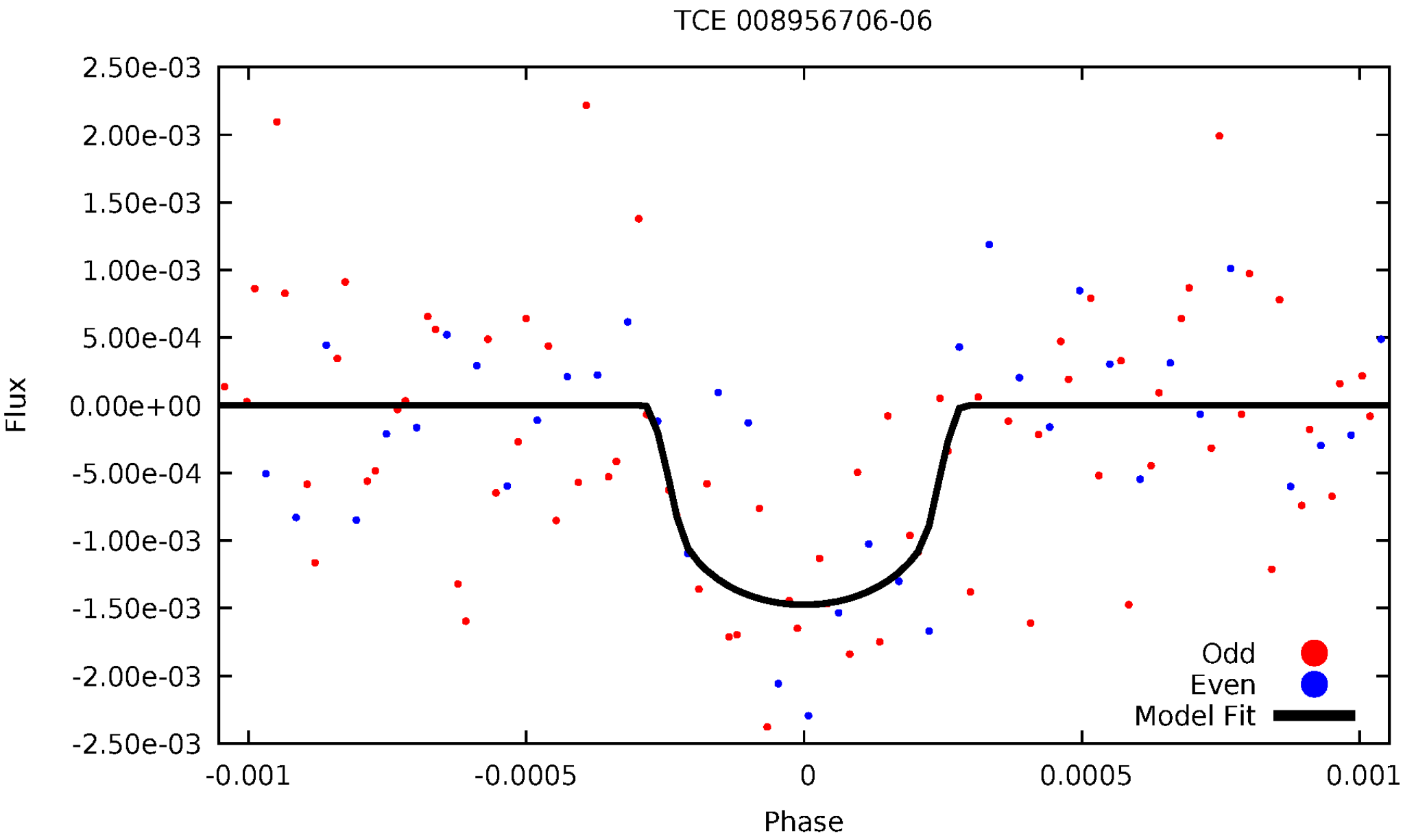
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-06, PDC Light Curves

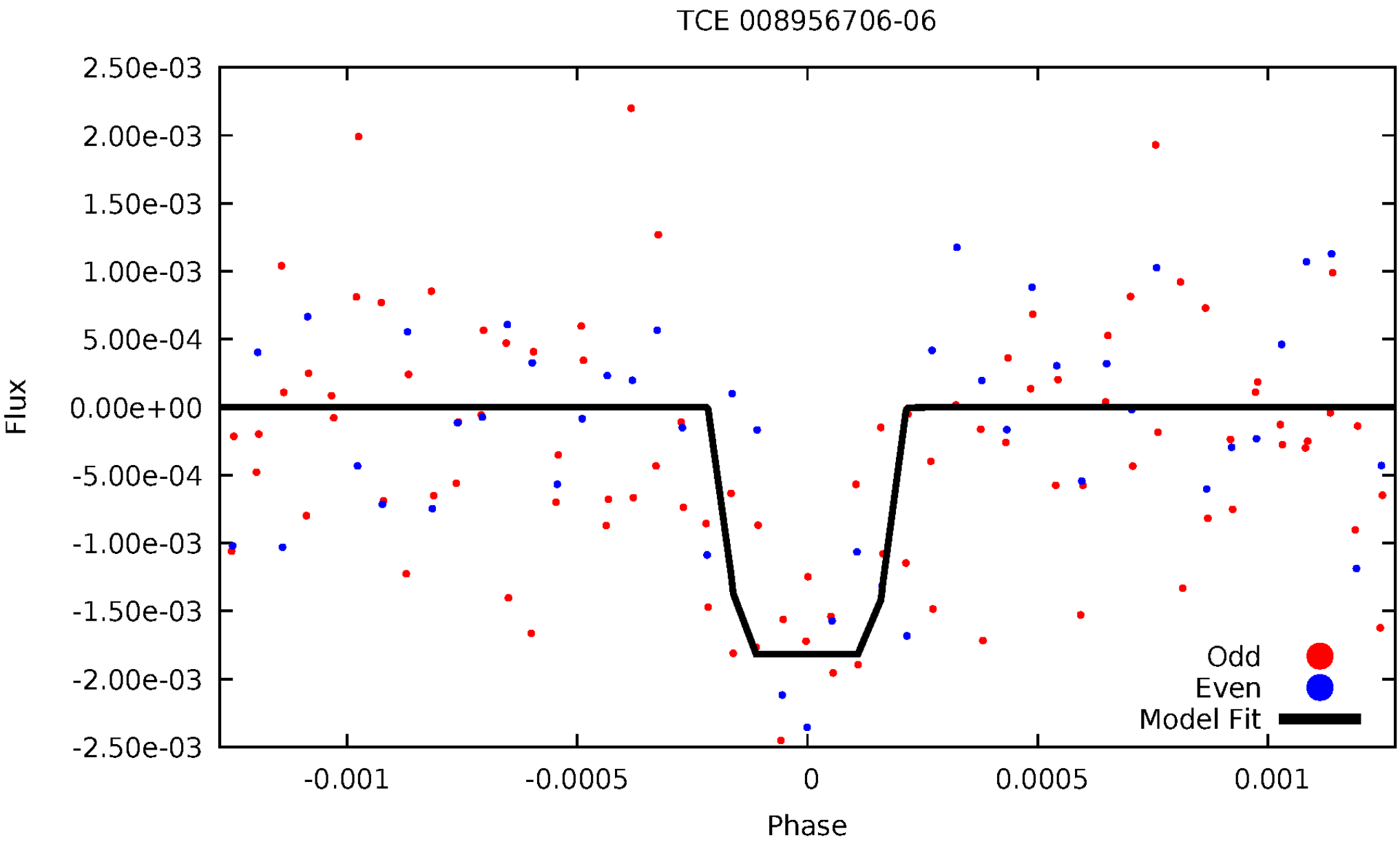



TCE 008956706-06
P = 188.384 days
P = 376.768 days
P = 753.536 days
Normalized Flux
BKJD
Normalized Flux
Phase

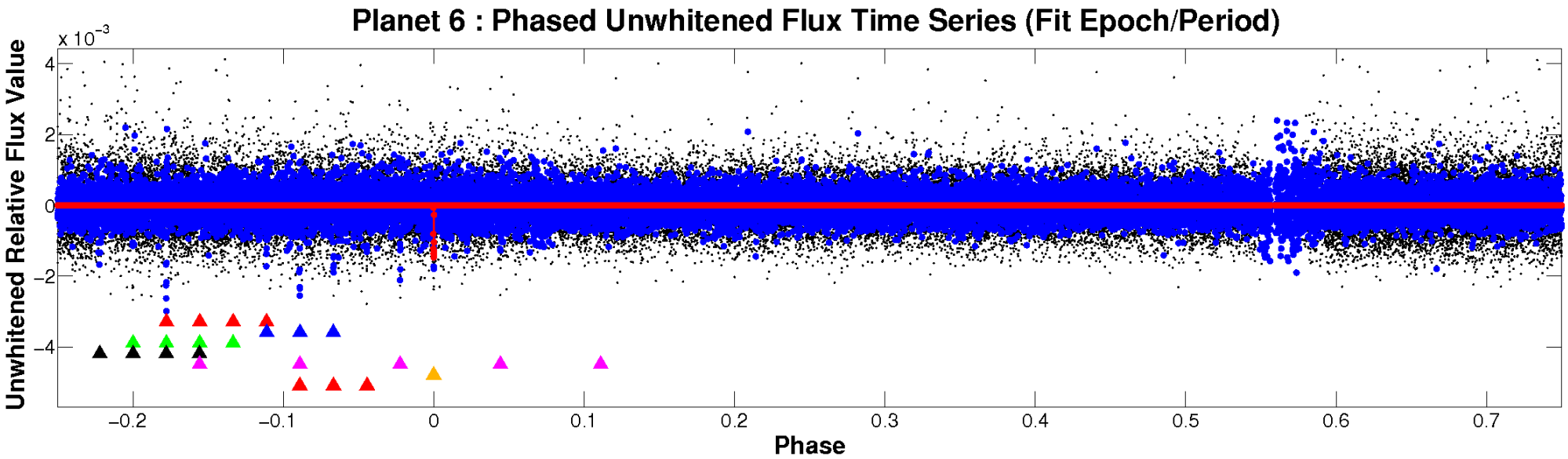
DV Odd/Even

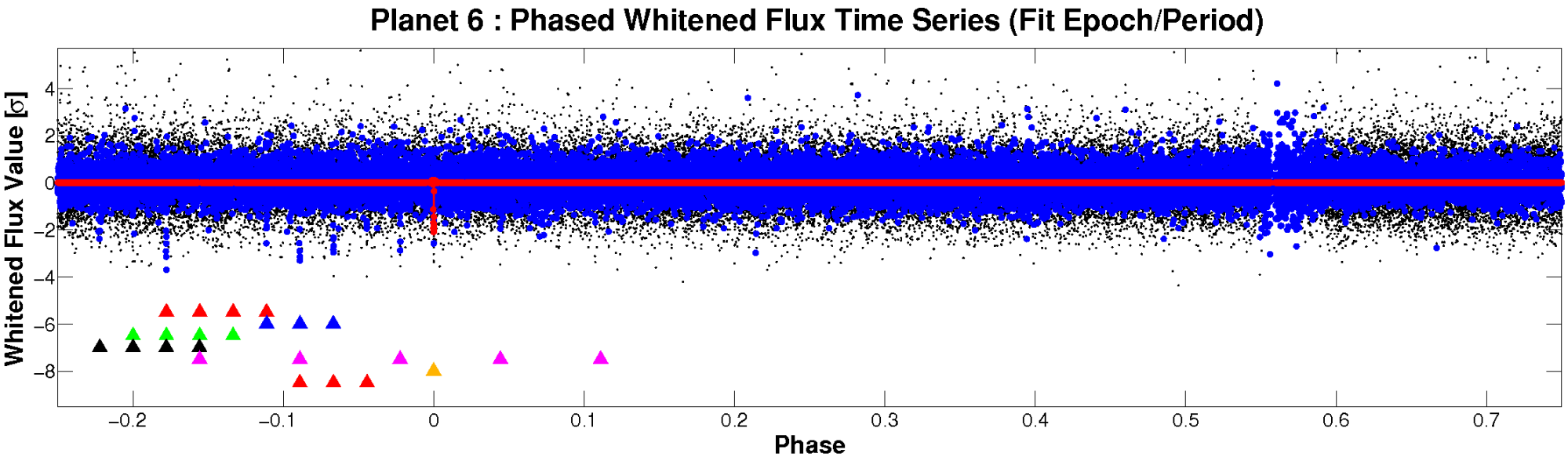

TCE 008956706-06
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008956706-06
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

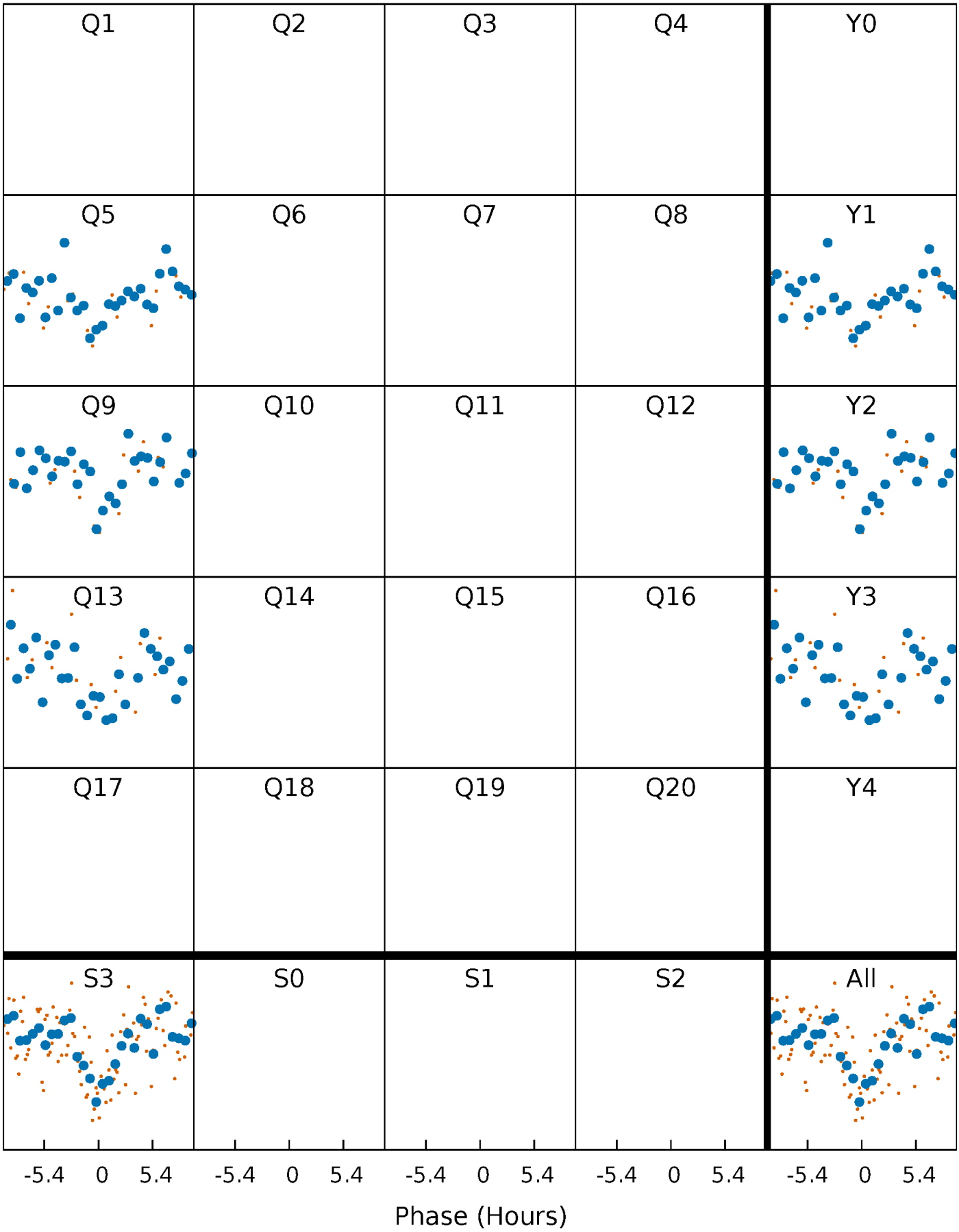
Non-Whitened Vs. Whitened Light Curve





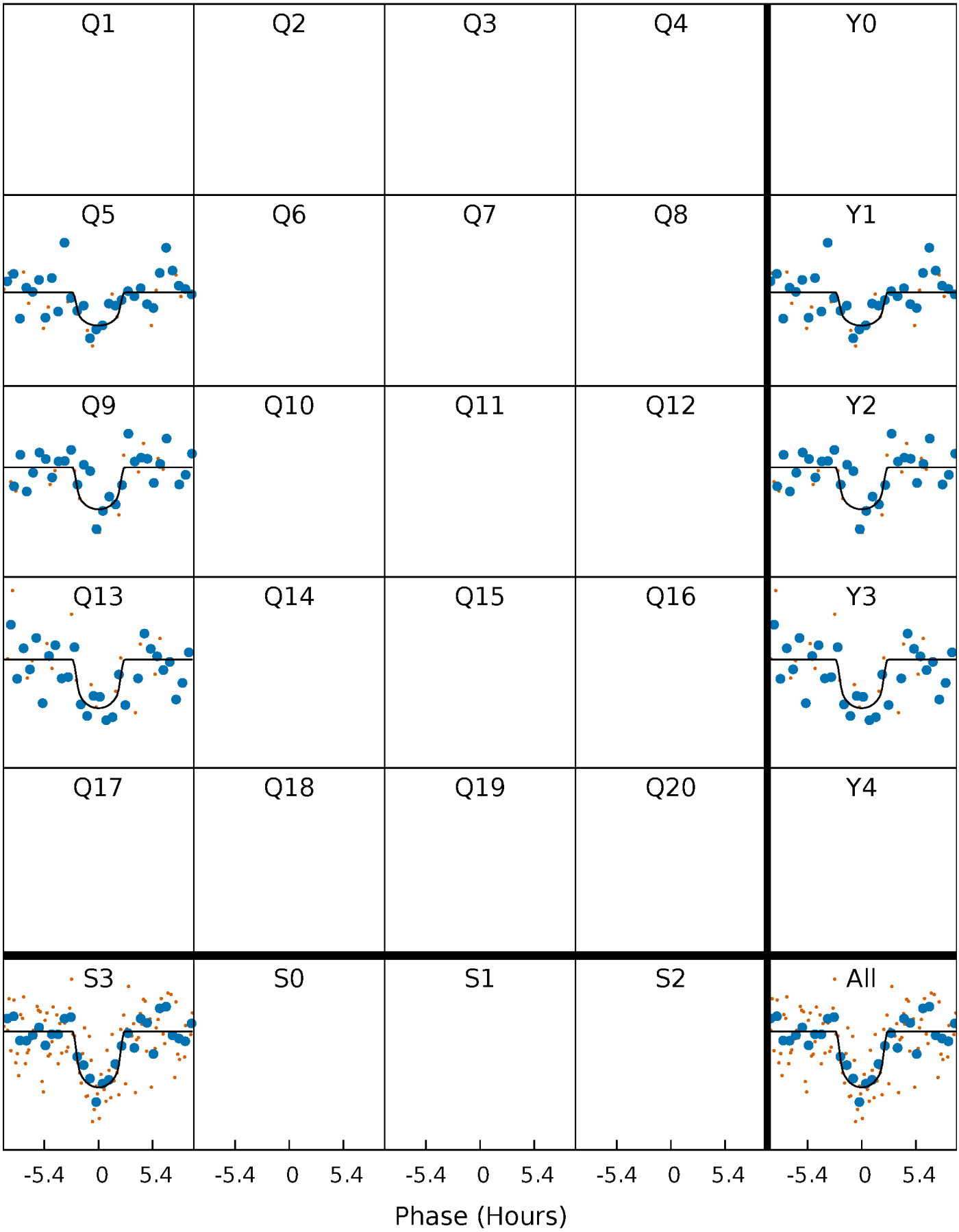
PDC Quarter-Phased Transit Curves

TCE 008956706-06 P=376.767778 Days T_0=135.079867 (BKJD)



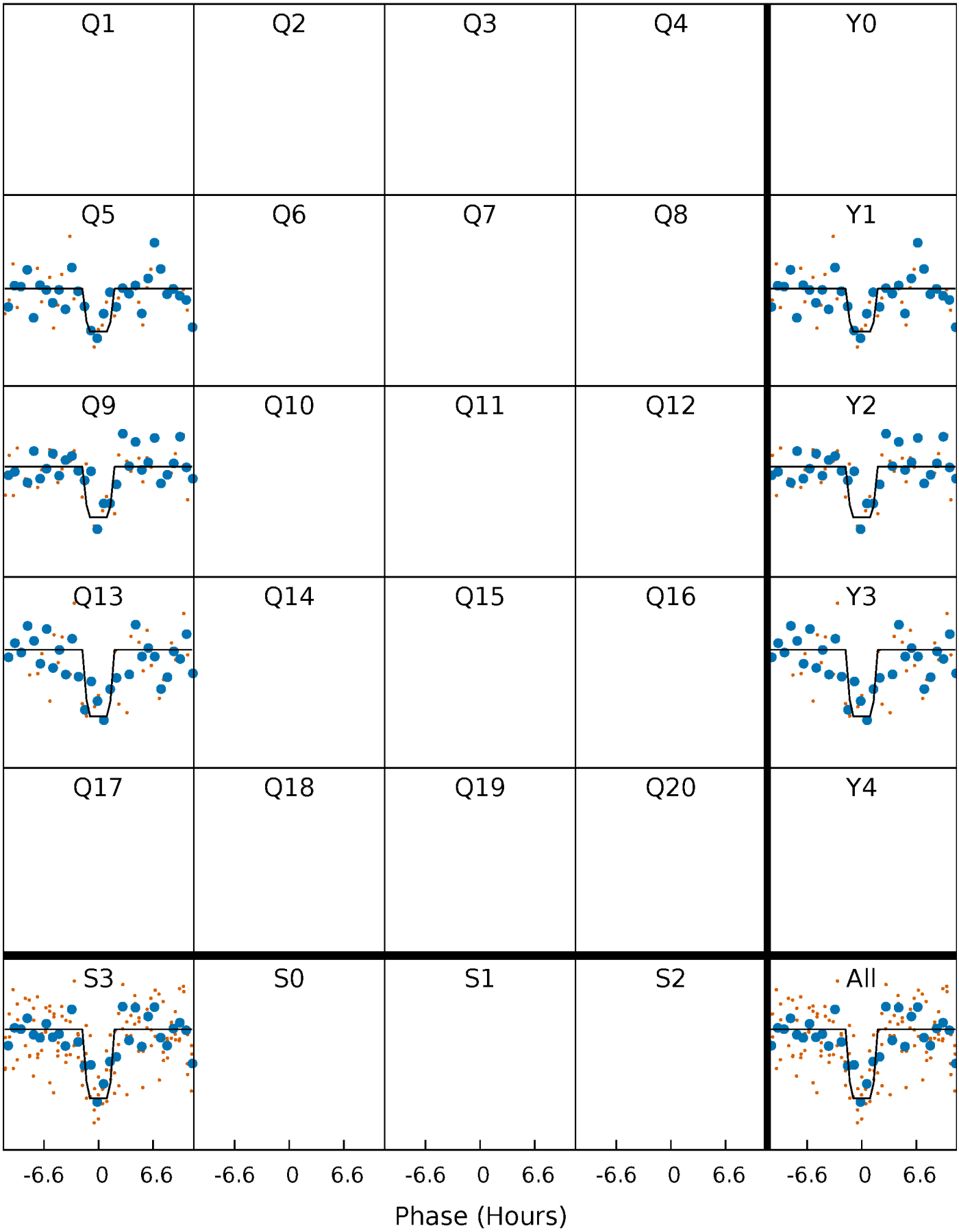
DV Quarter-Phased Transit Curves

TCE 008956706-06 P=376.767778 Days T_0=135.079867 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

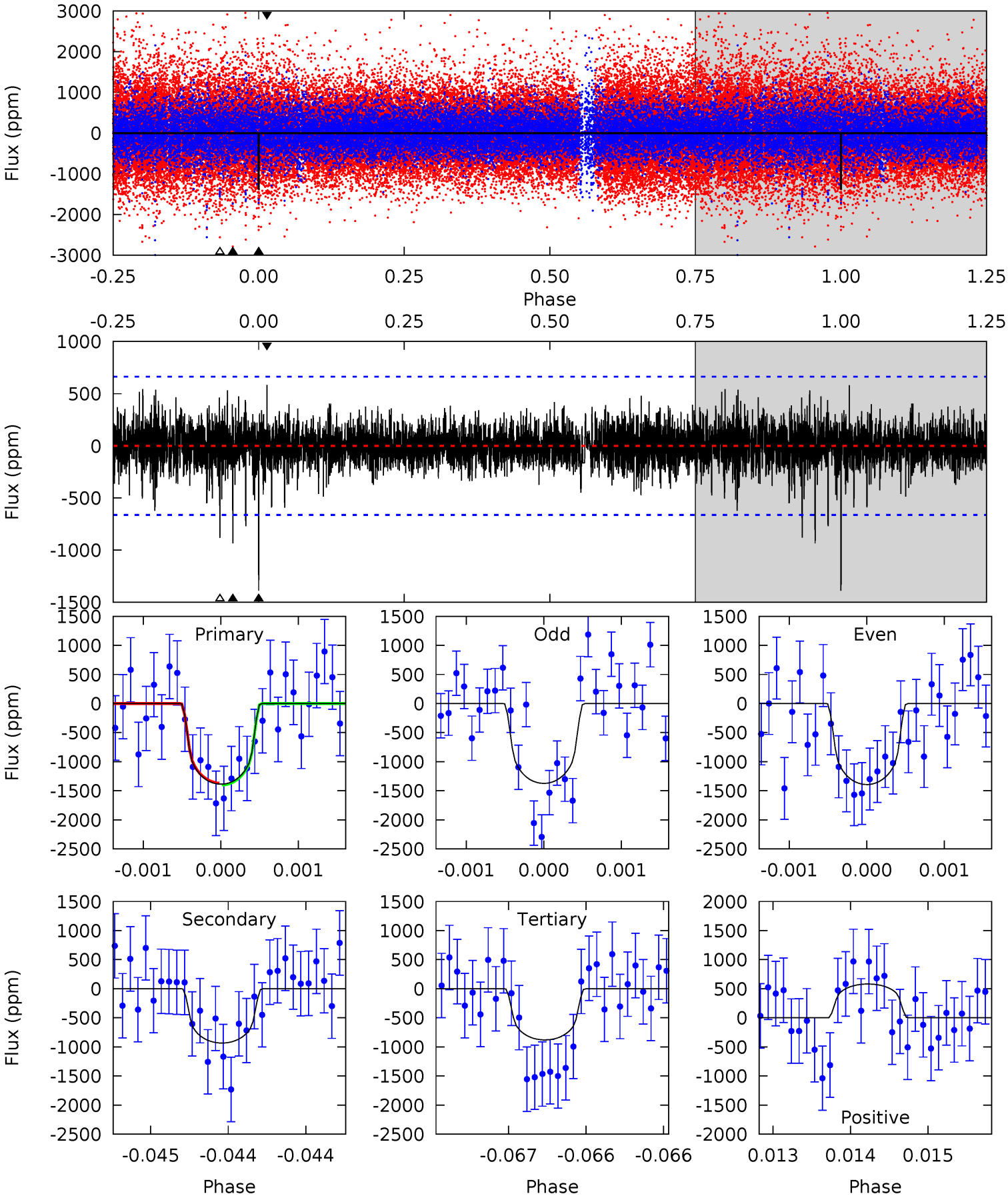
TCE 008956706-06 P=376.774413 Days T_0=135.069913 (BKJD)



DV Model-Shift Uniqueness Test

008956706-06, P = 376.767778 Days, E = 135.079867 Days

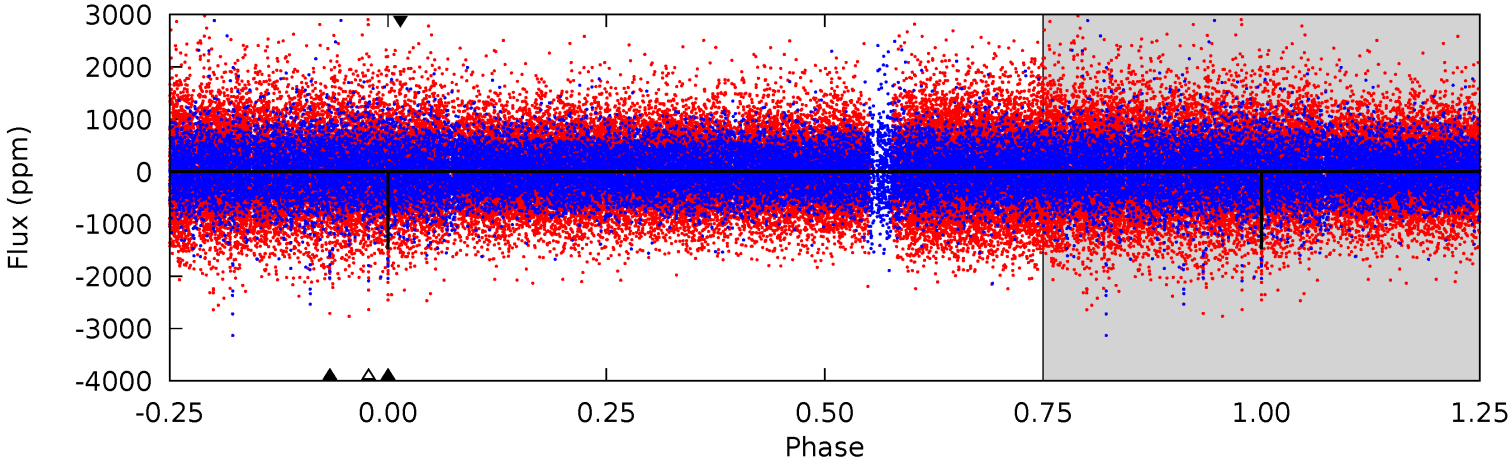
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	7.82	7.37	4.87	5.55	3.45	1.17	4.24	6.75	0.44	2.95	0.08	1.01	0.30	0.14

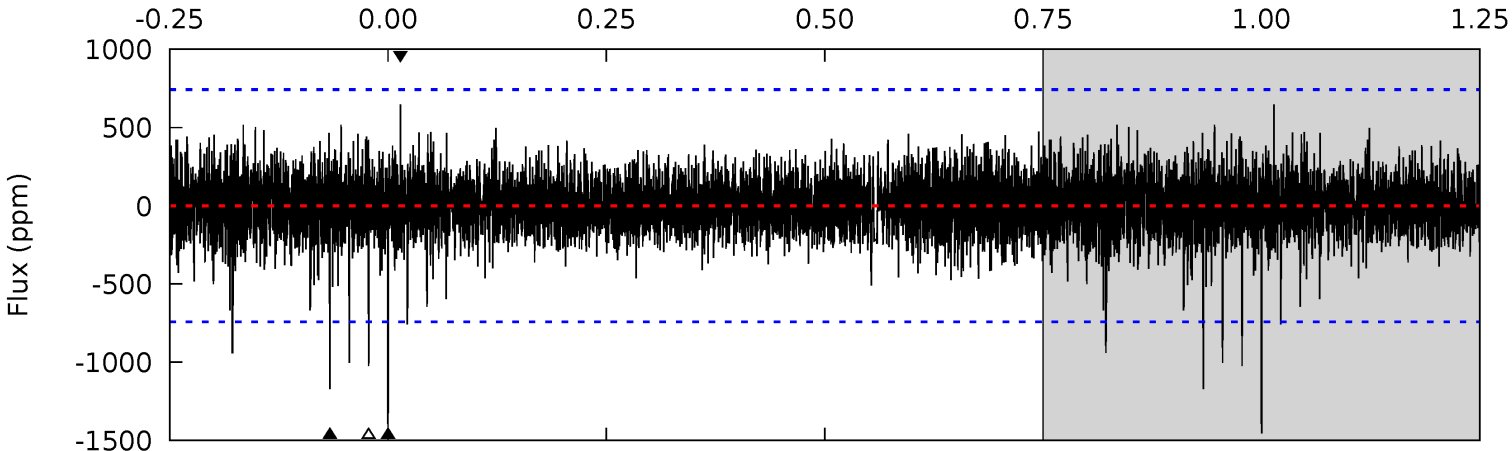


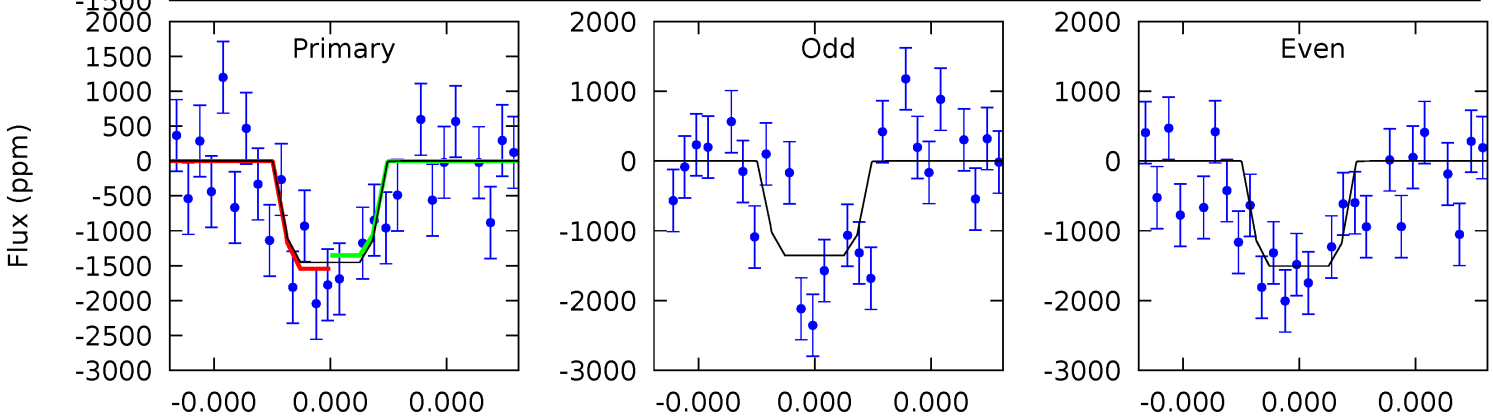
Alt Model-Shift Uniqueness Test

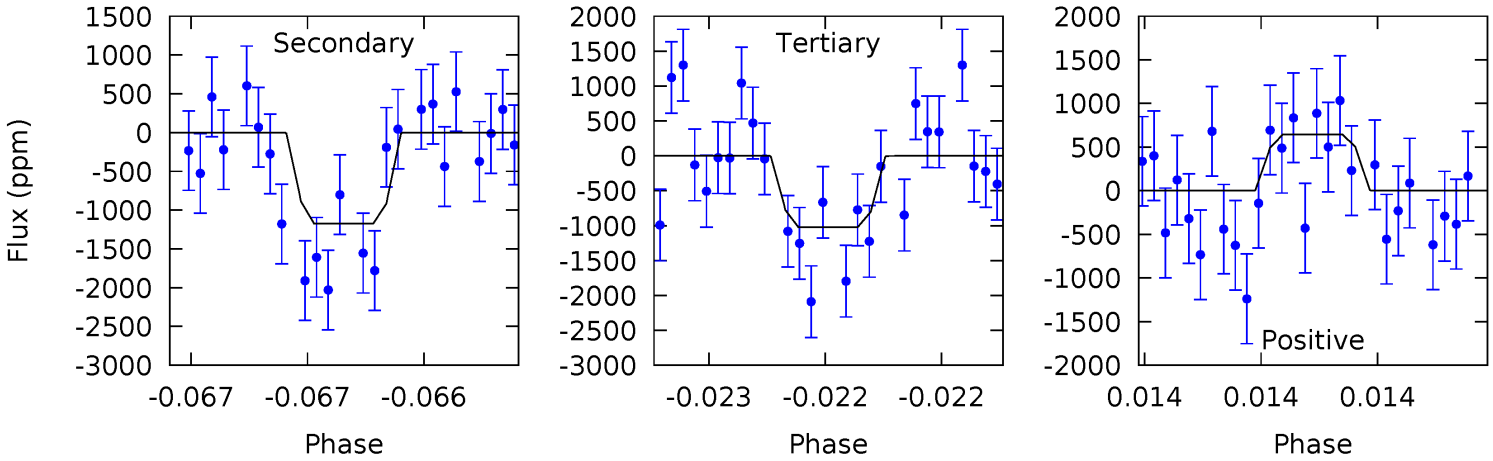
008956706-06, P = 376.774413 Days, E = 135.069913 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	8.84	7.73	4.87	5.60	3.52	1.07	3.24	6.09	1.12	3.97	0.55	1.03	0.31	0.73









Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	$M(M_\odot)$	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-06 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-933±119	$5.17^{+4.01}_{-3.35}$	279^{+11}_{-12}	3842^{+2046}_{-653}	$17147^{+116370}_{-11872}$
Alt.	-1172±133	$5.42^{+4.69}_{-3.71}$	279^{+11}_{-11}	3899^{+2533}_{-704}	$19365^{+175980}_{-14076}$

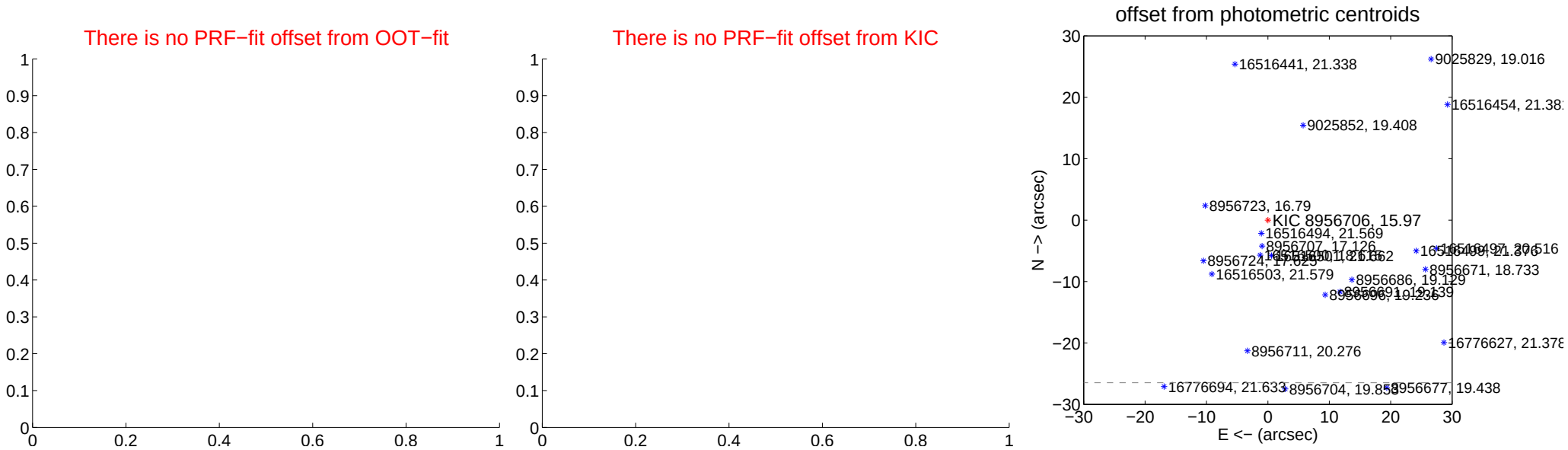
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

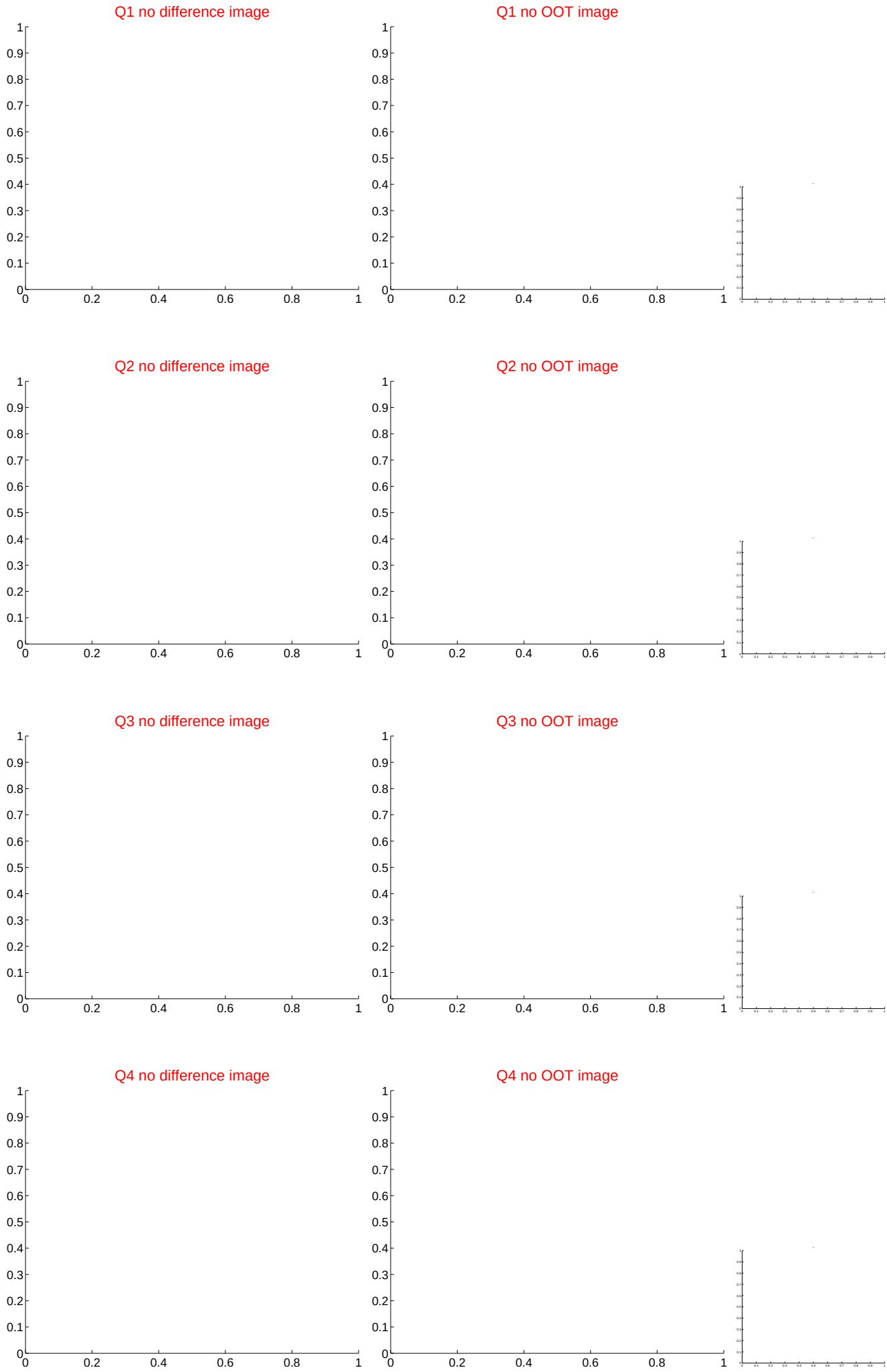
Supplemental centroid analysis for 008956706-06. Kepler magnitude: 15.97. Transit SNR 9.28
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	64.05 ± 1.60	39.95	58.33 ± 1.60	-26.47 ± 1.60

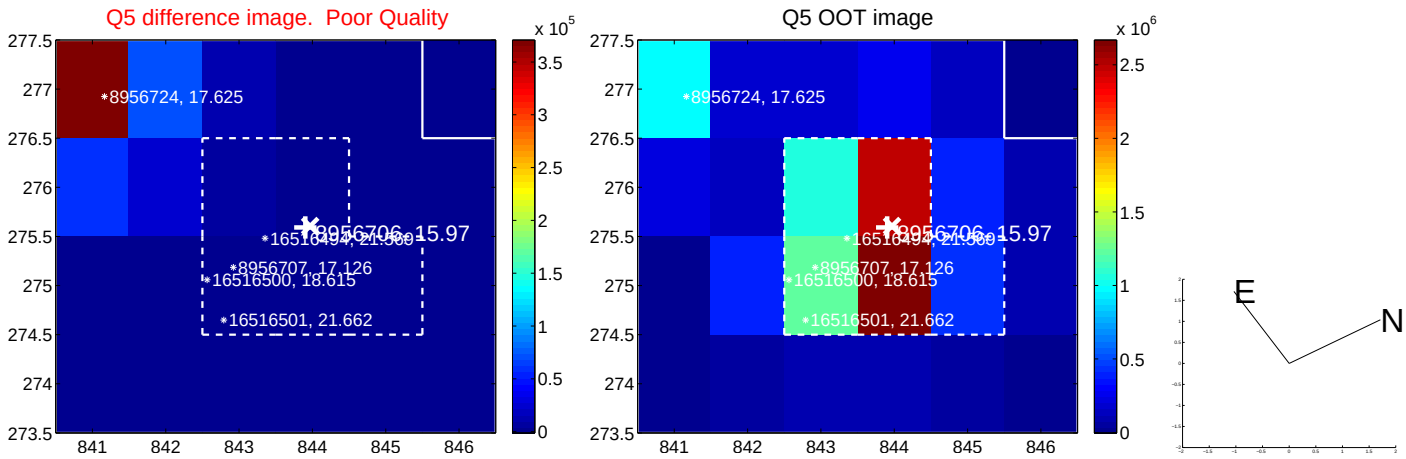


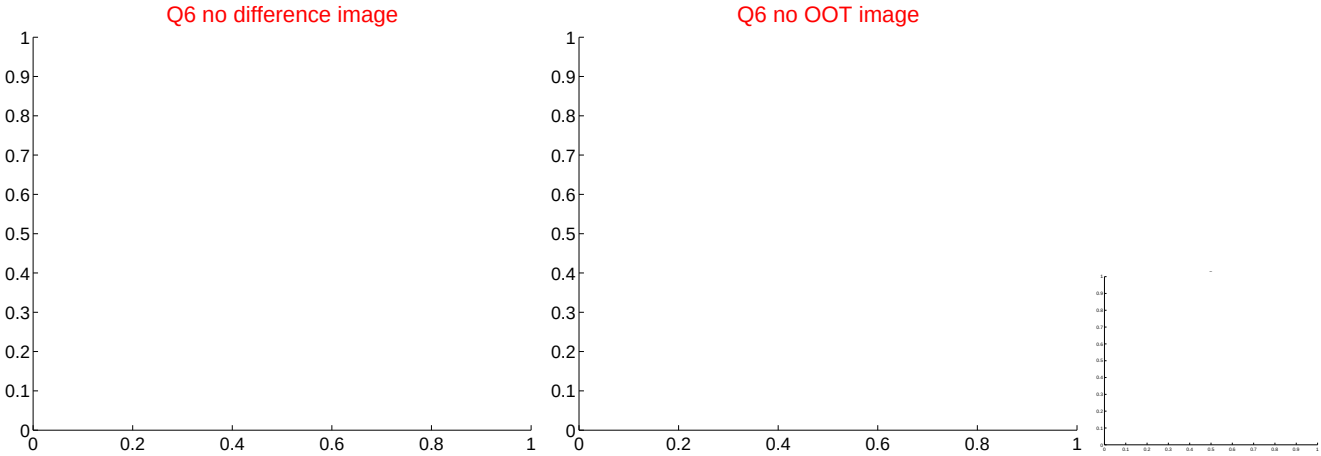
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

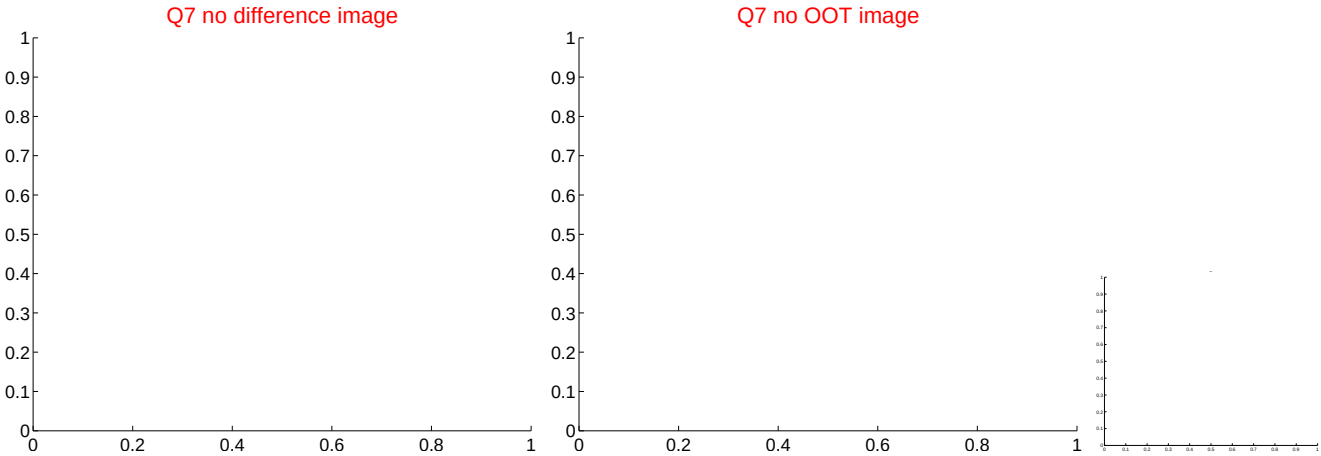
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

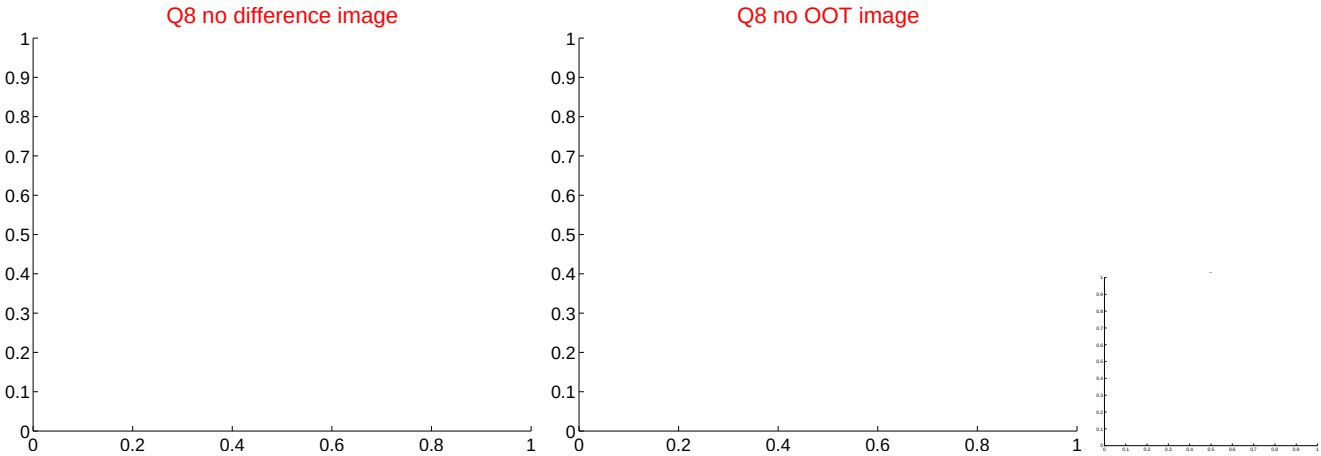


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

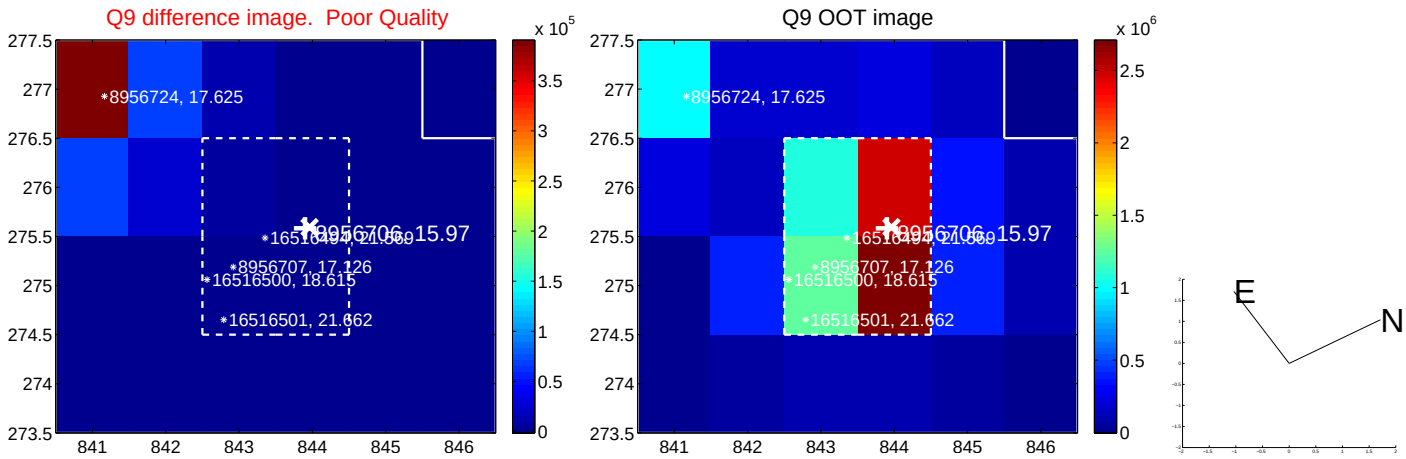


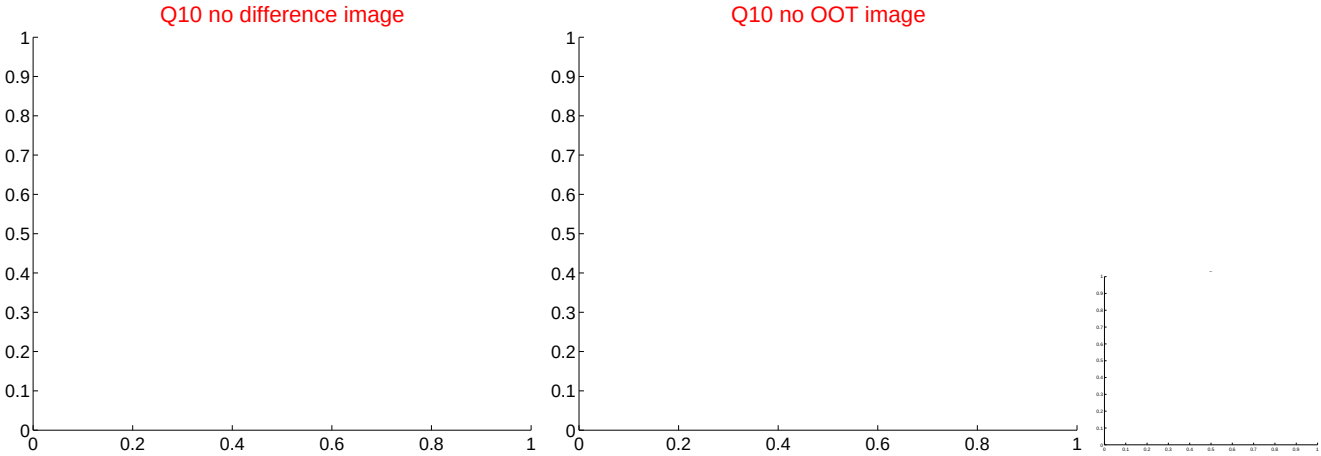


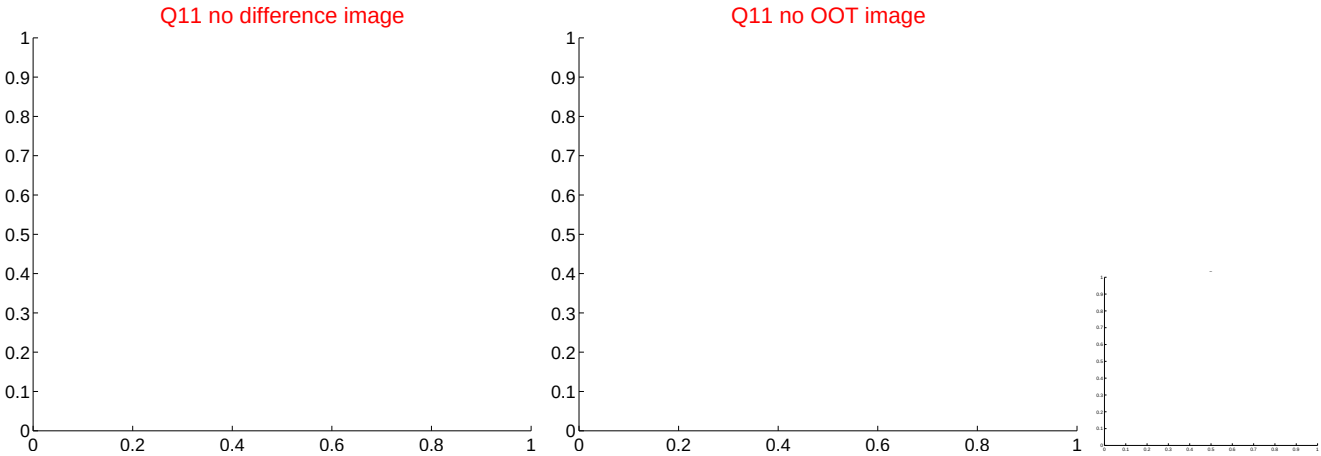


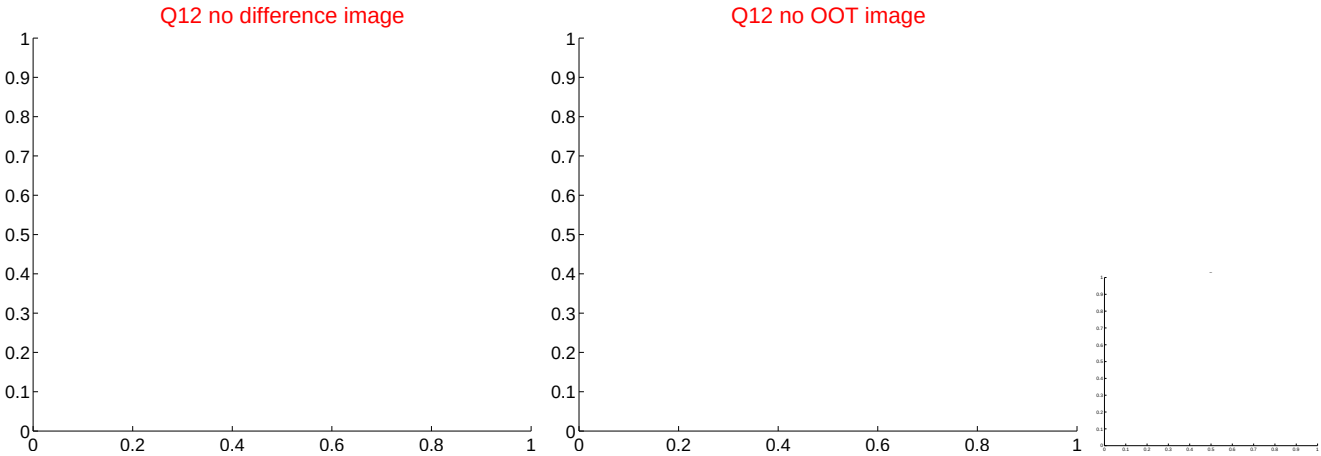


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

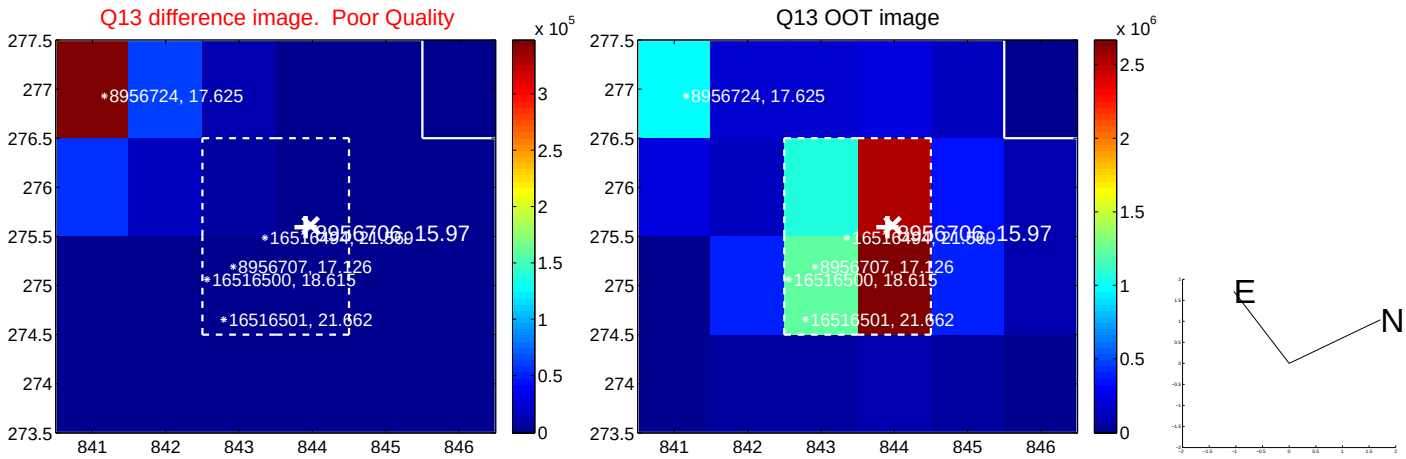


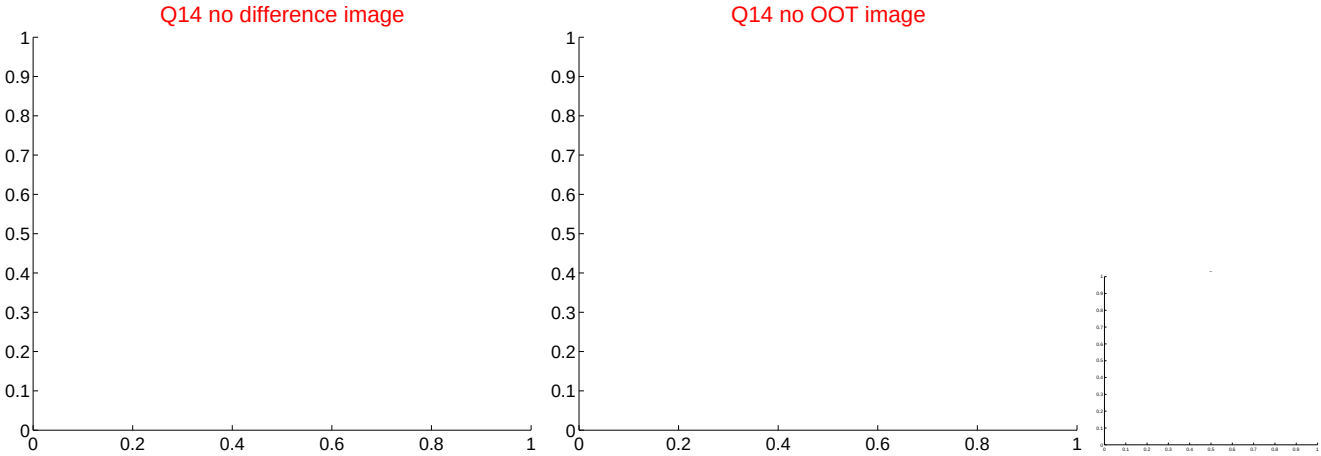


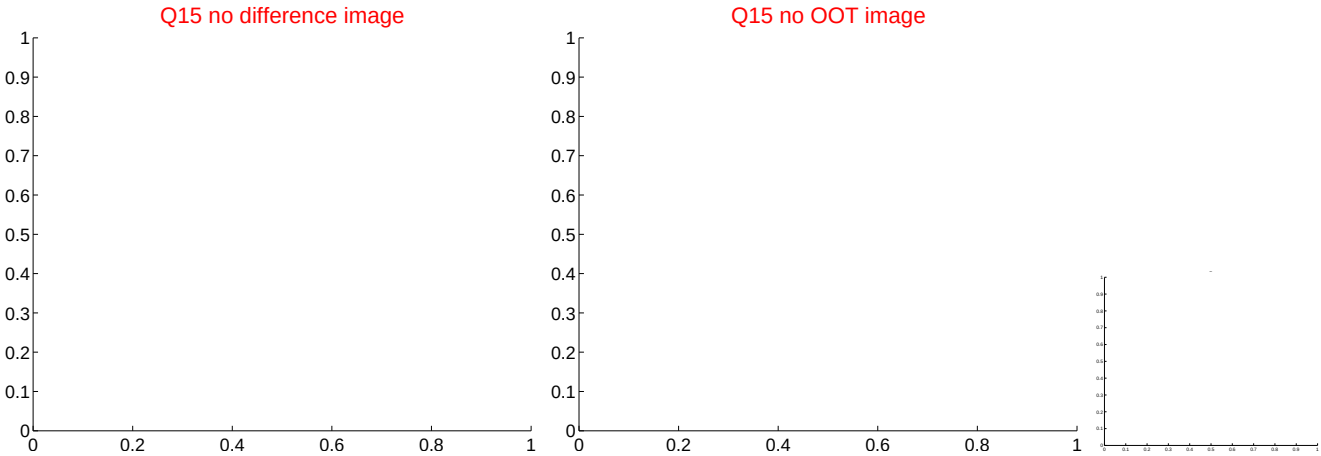


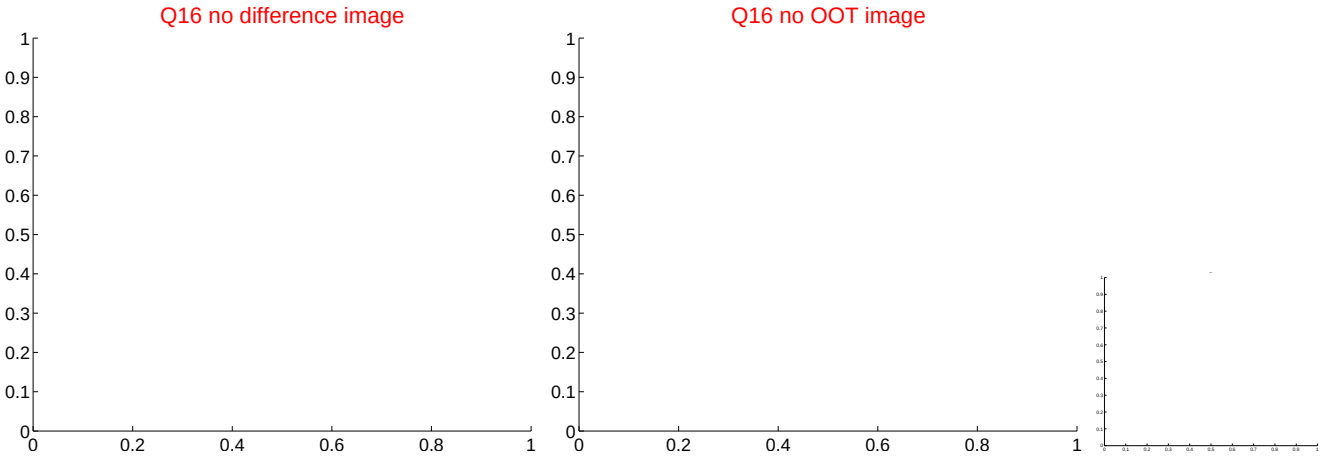


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

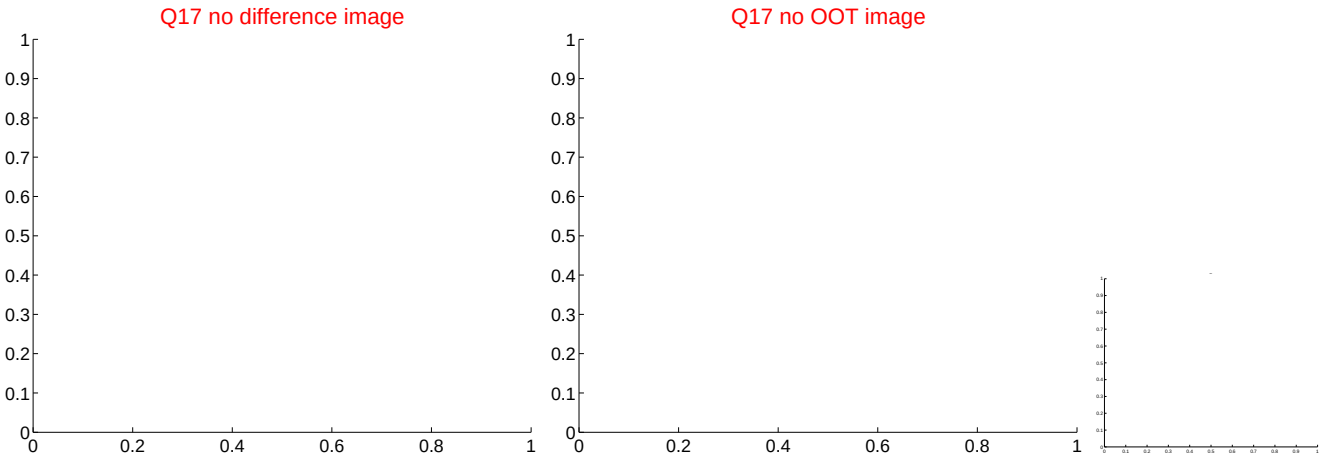


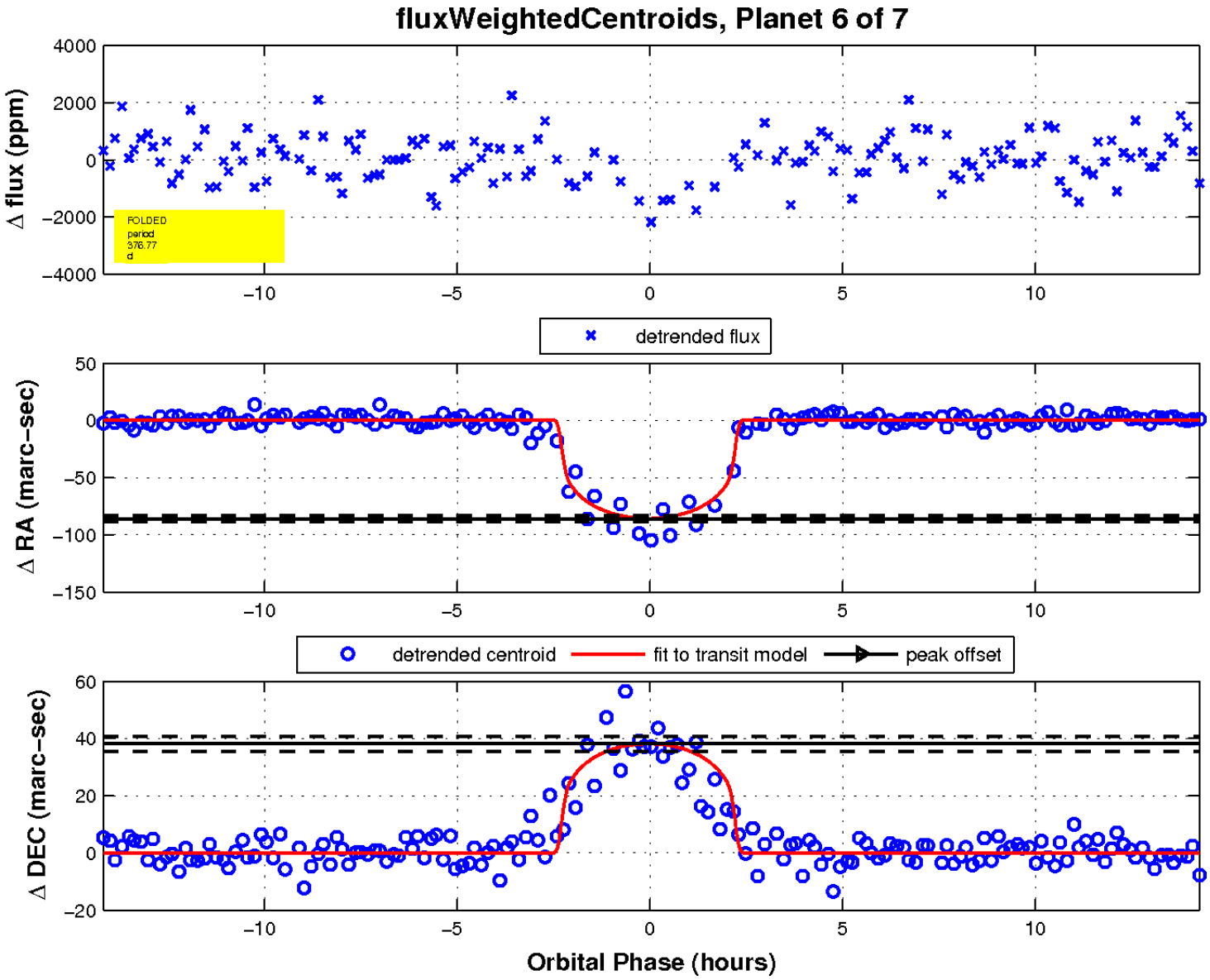




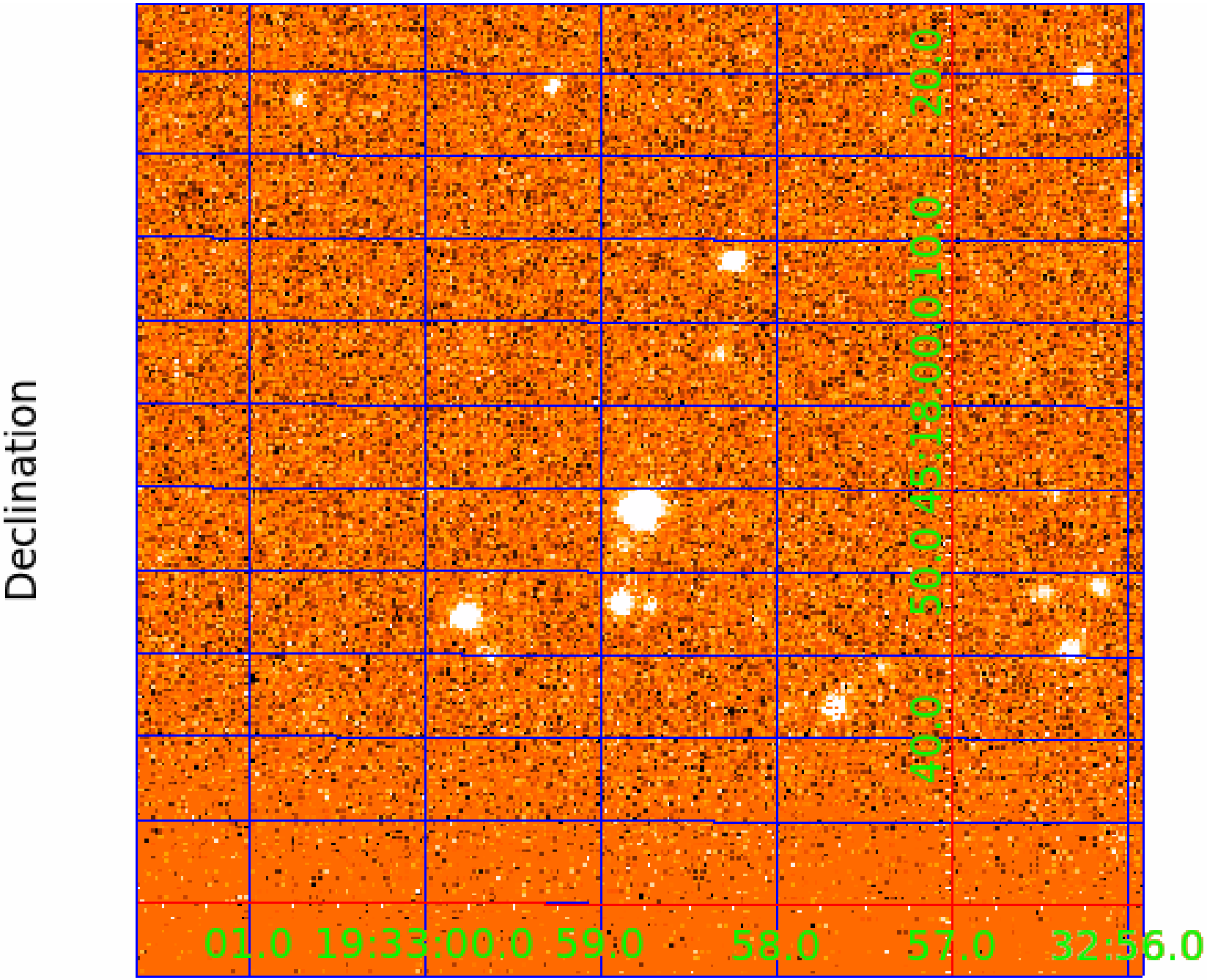


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





UKIRT Image


Declination
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10.0
20.0
01.0
19:33:00.0
59.0
58.0
57.0
32:56.0

KIC 008956706

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 ($S_\oplus$)
008956706-01	OBS	No	368.407355	469.982419	1867.6	5.234	11.1	10.5	0.74	5066	4.95	0.38
008956706-02	OBS	No	368.433359	486.695920	2215.6	5.024	11.3	12.3	0.74	5066	4.45	0.38
008956706-03	OBS	No	368.416586	461.589334	1846.3	5.879	10.7	11.0	0.74	5066	5.45	0.38
008956706-04	OBS	No	368.449599	453.170592	1587.1	5.418	9.7	10.2	0.74	5066	2.99	0.38
008956706-05	OBS	No	351.650750	176.911716	1529.6	3.937	9.7	8.8	0.74	5066	3.18	0.40
008956706-06	OBS	No	376.767778	135.079867	1474.1	4.760	8.8	9.3	0.74	5066	2.90	0.36
008956706-07	OBS	No	385.189050	478.321453	1660.7	4.565	8.3	8.8	0.74	5066	3.66	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008956706-01	OBS	FP	0.00	0	1	1	0	HAS_SEC_TCE—PERIOD_ALIAS_DV—CENT_RESOLVED_OFFSET
008956706-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_FEW_DIFFS
008956706-03	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET
008956706-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008956706-05	OBS	FP	0.02	1	0	0	0	MOD_TER_ALT—CENT_FEW_DIFFS
008956706-06	OBS	PC	0.04	0	0	0	0	PERIOD_ALIAS_ALT—CENT_FEW_DIFFS
008956706-07	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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.

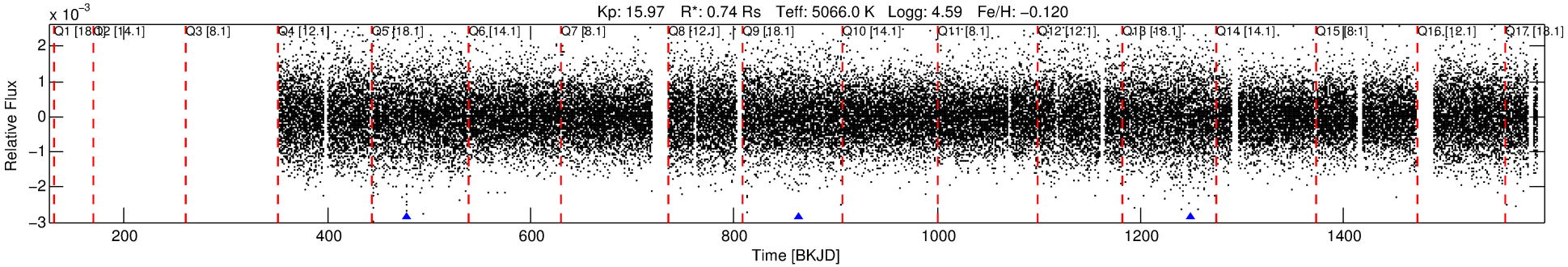
Ephemeris Match Information For 008956706-07

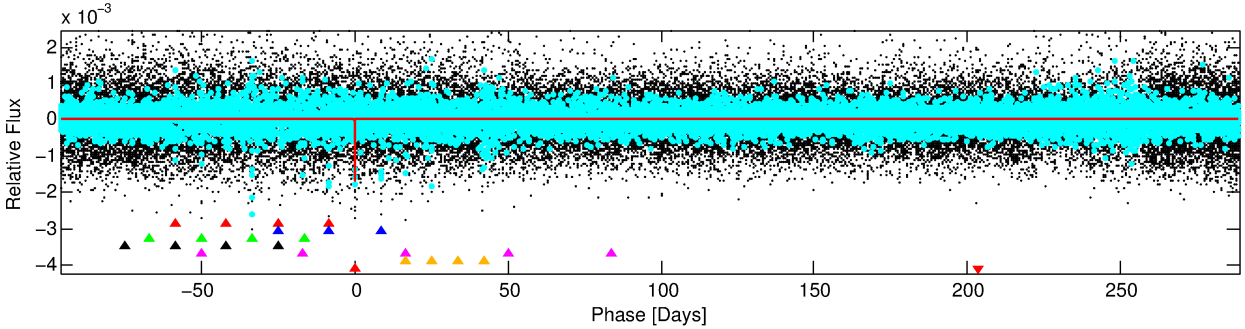
No Significant Match Found

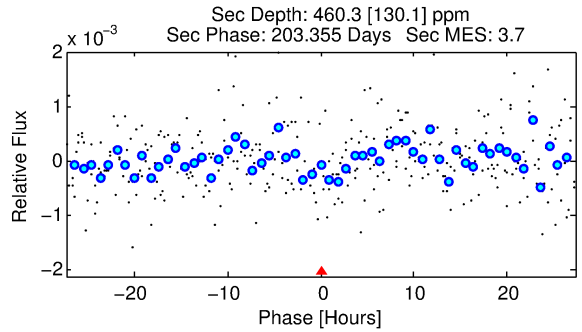
DV One-Page Summary

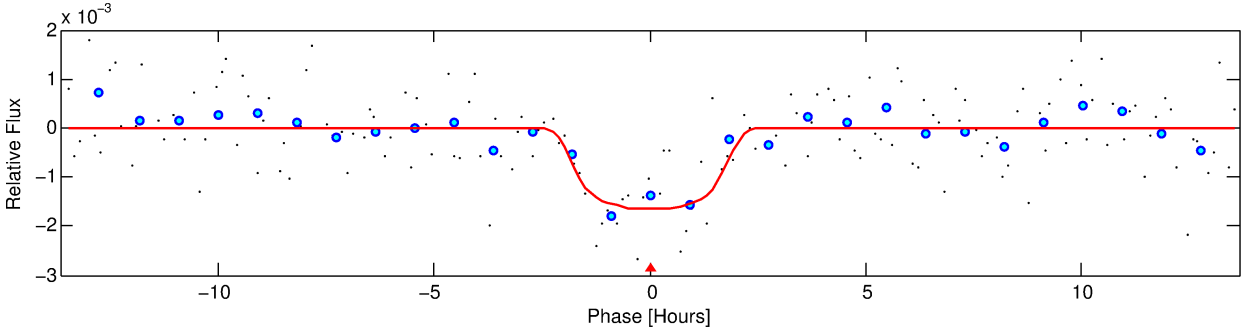
KIC: 8956706 Candidate: 7 of 7 Period: 385.189 d
KOI: K02431 Corr: No Ephemeris Match

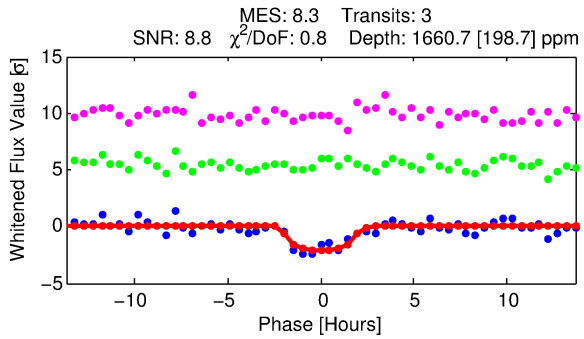
Kp: 15.97 R*: 0.74 Rs Teff: 5066.0 K Logg: 4.59 Fe/H: −0.120

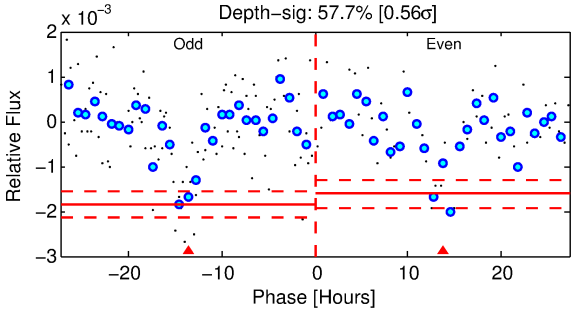












DV Fit Results:

Period = 385.18905 [0.00777] d
Epoch = 478.3215 [0.0101] BKJD
Rp/R* = 0.0454 [0.0071]
a/R* = 343.88 [174.39]
b = 0.90 [0.11]

Seff = 0.35 [0.07]
Teq = 197 [9] K
Rp = 3.66 [0.72] Re
a = 0.9549 [0.0884] AU

Ag = 17212.63 [7605.60] [2.26σ]
Teffp = 3484 [388] K [8.47σ]

DV Diagnostic Results:

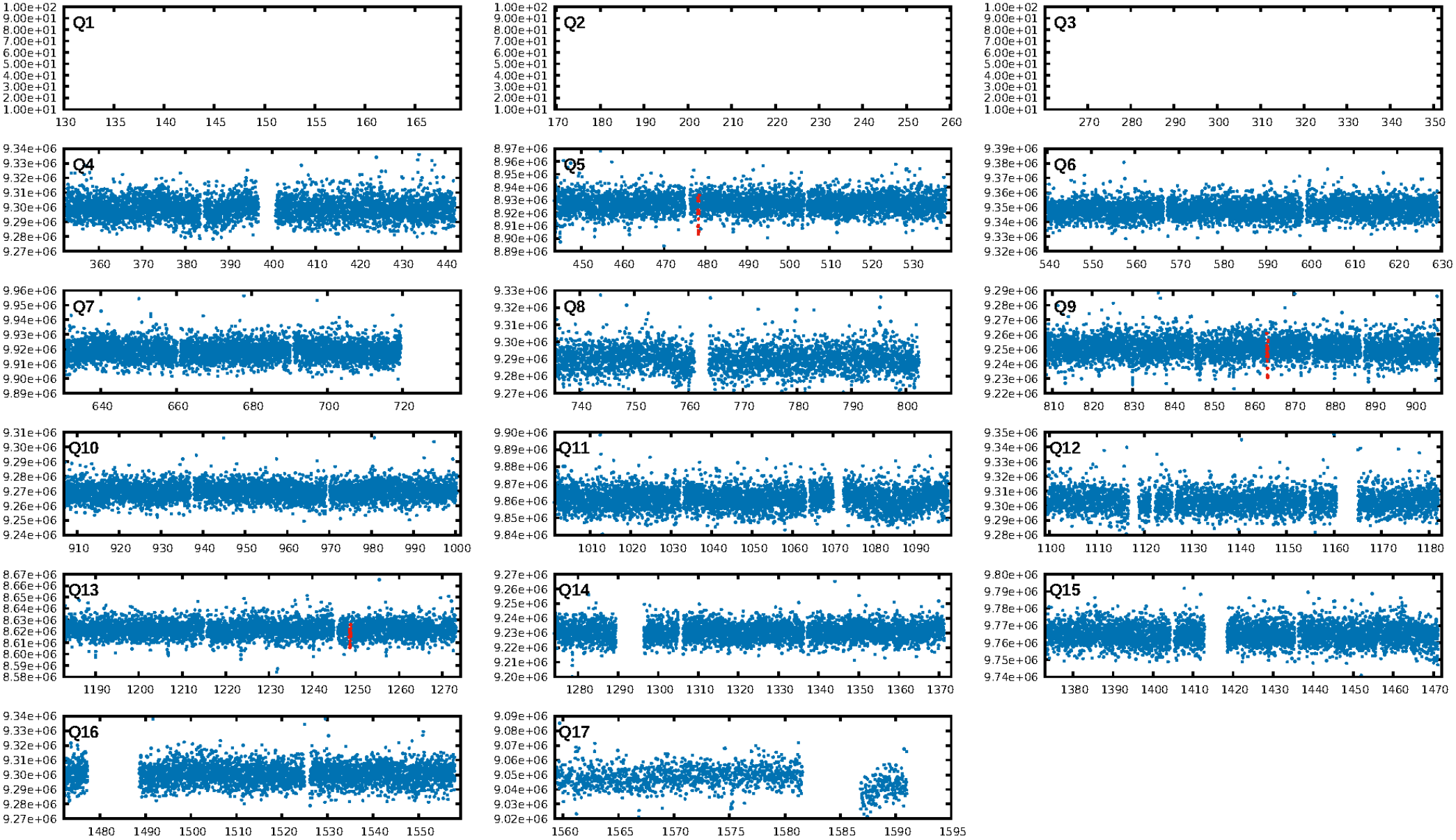
ShortPeriod−sig: 100.0% [30.65σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 52.8%
ModelChiSquareGof−sig: 99.8%
Bootstrap−pfa: 6.09e−09
RollingBand−fgt: 1.00 [3/3]
GhostDiagnostic−chr: −0.5099

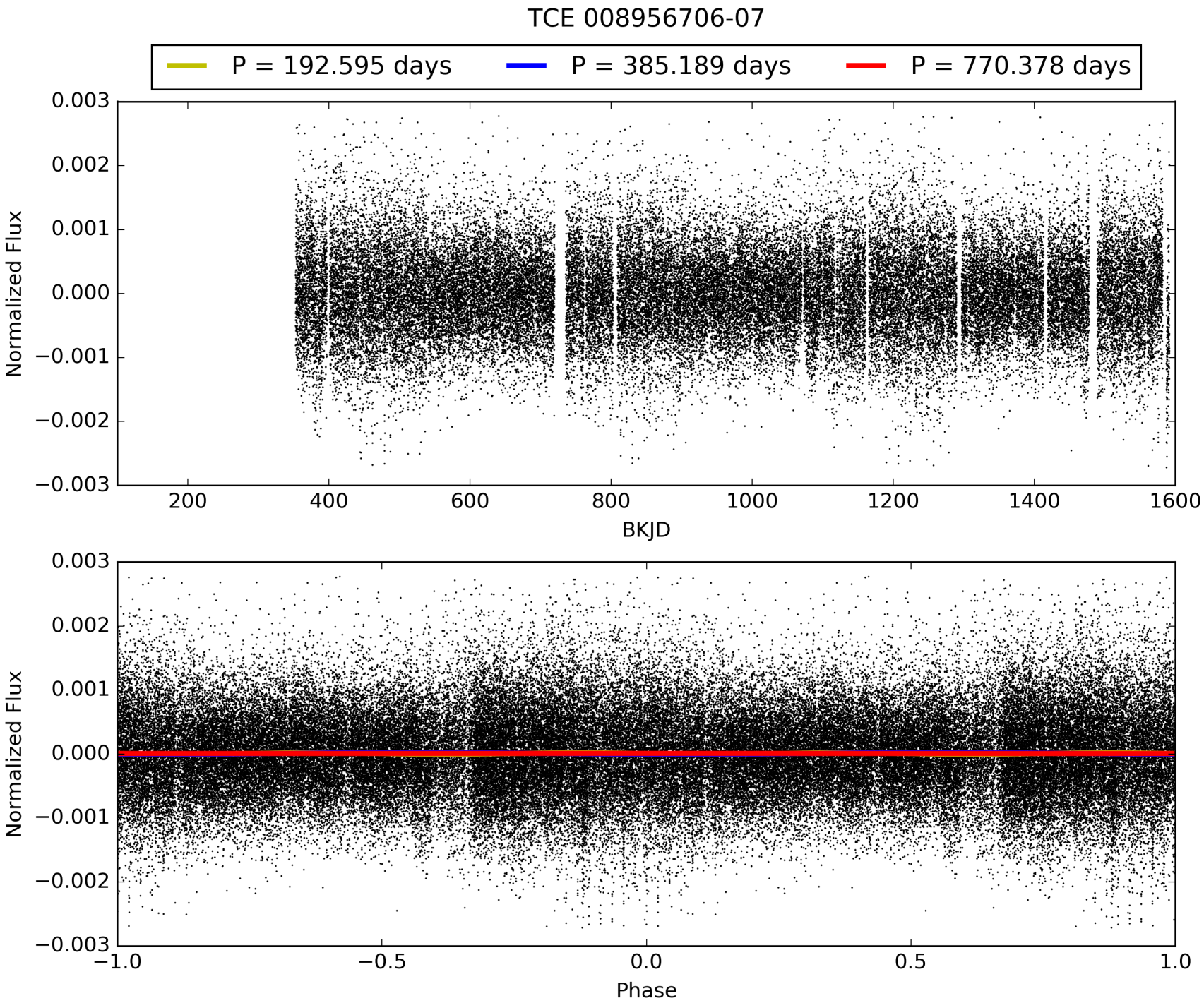
Centroid−sig: 0.0%
Centroid−so: 60.908 arcsec [38.97σ]
OotOffset−rm: N/A
KicOffset−rm: N/A
OotOffset−st: 0/0/0/0 [0]
KicOffset−st: 0/0/0/0 [0]
DiffImageQuality−fgm: N/A
DiffImageOverlap−fno: 1.00 [3/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 −− Date Generated: 01−Feb−2016 11:07:36 Z

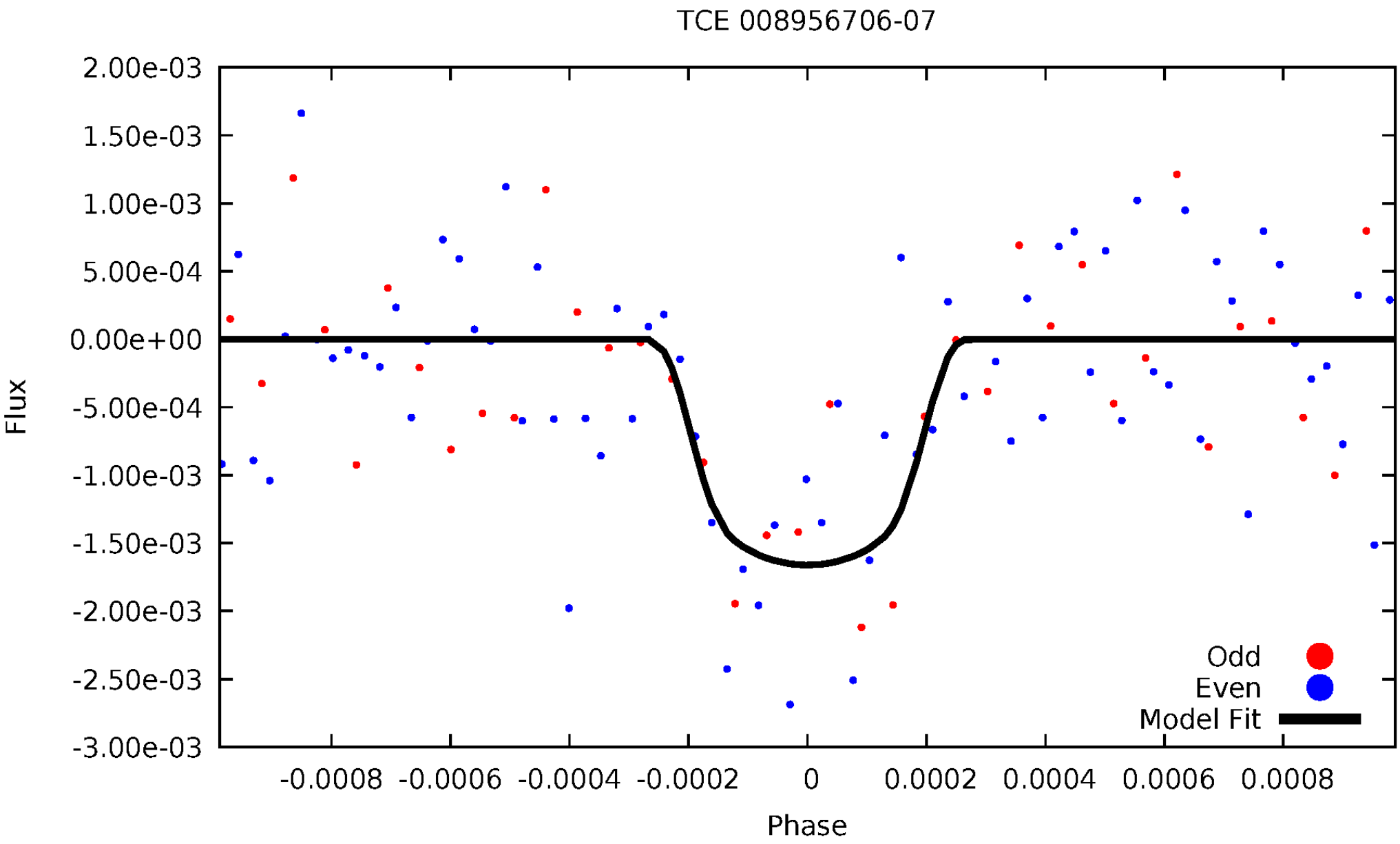
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008956706-07, PDC Light Curves

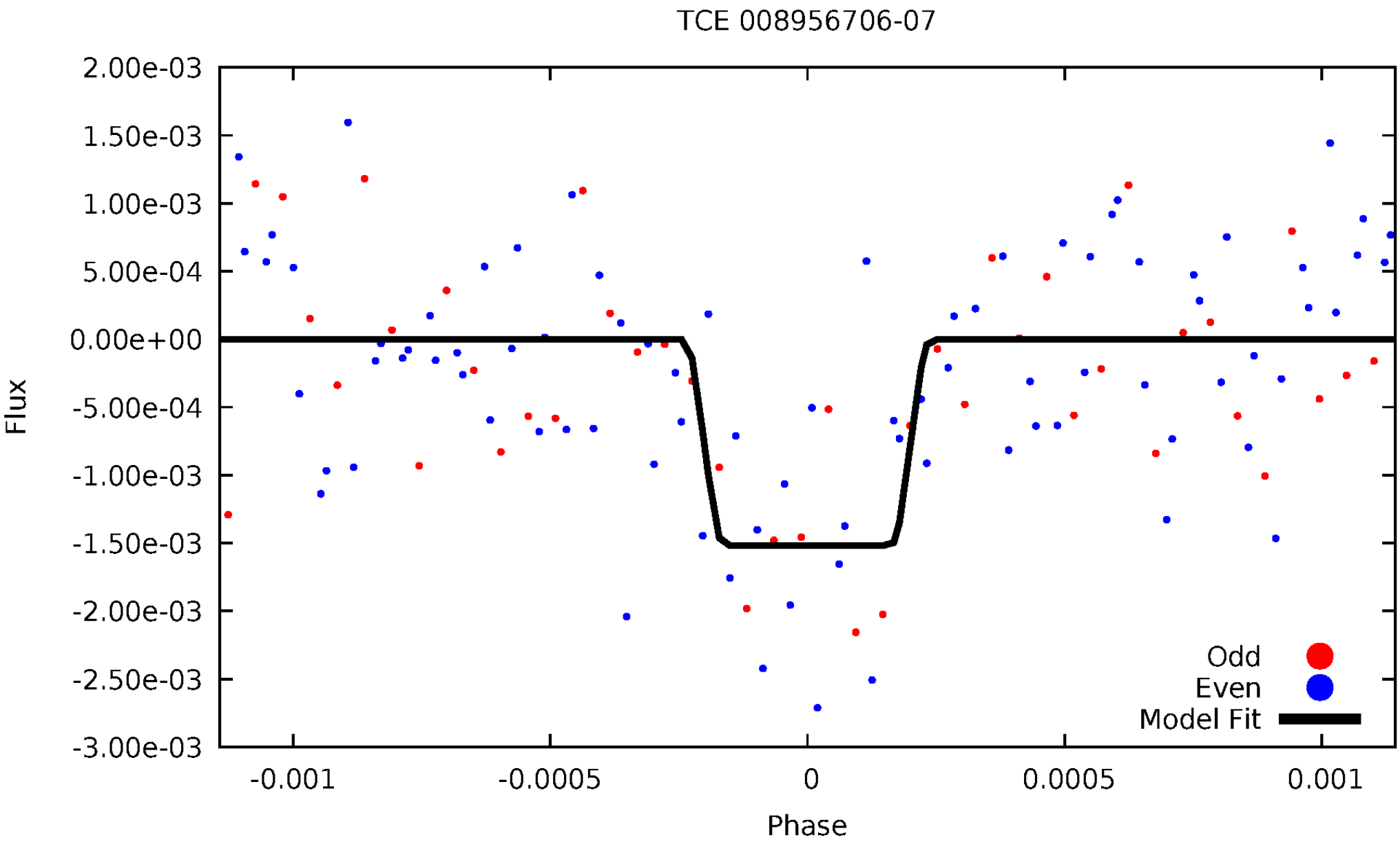



TCE 008956706-07
P = 192.595 days
P = 385.189 days
P = 770.378 days
Normalized Flux
BKJD
Phase

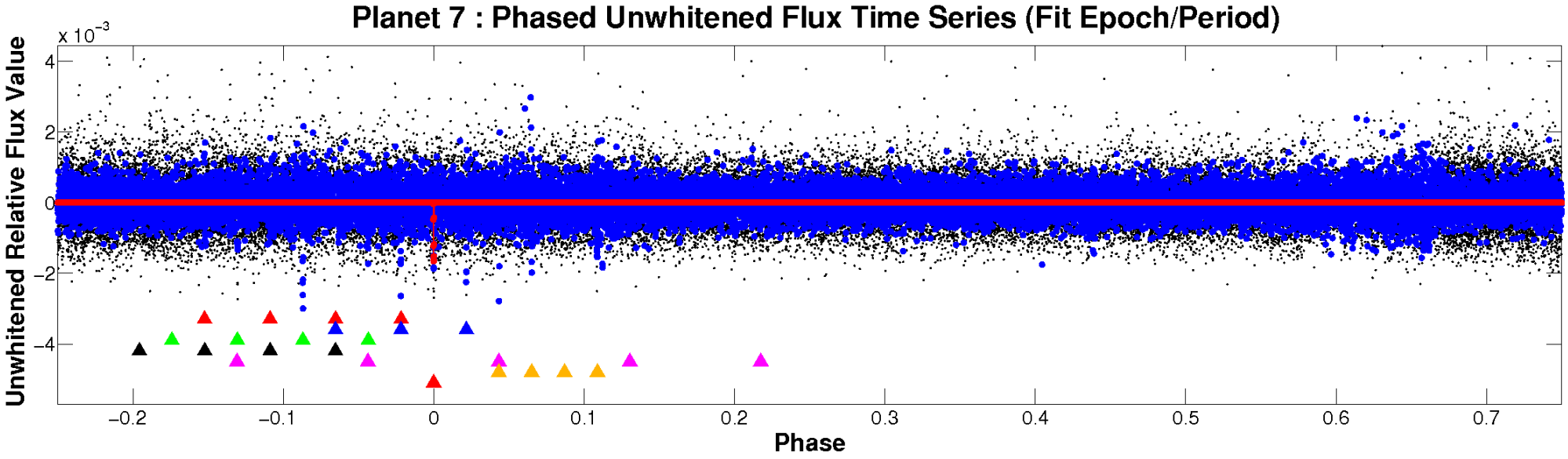
DV Odd/Even

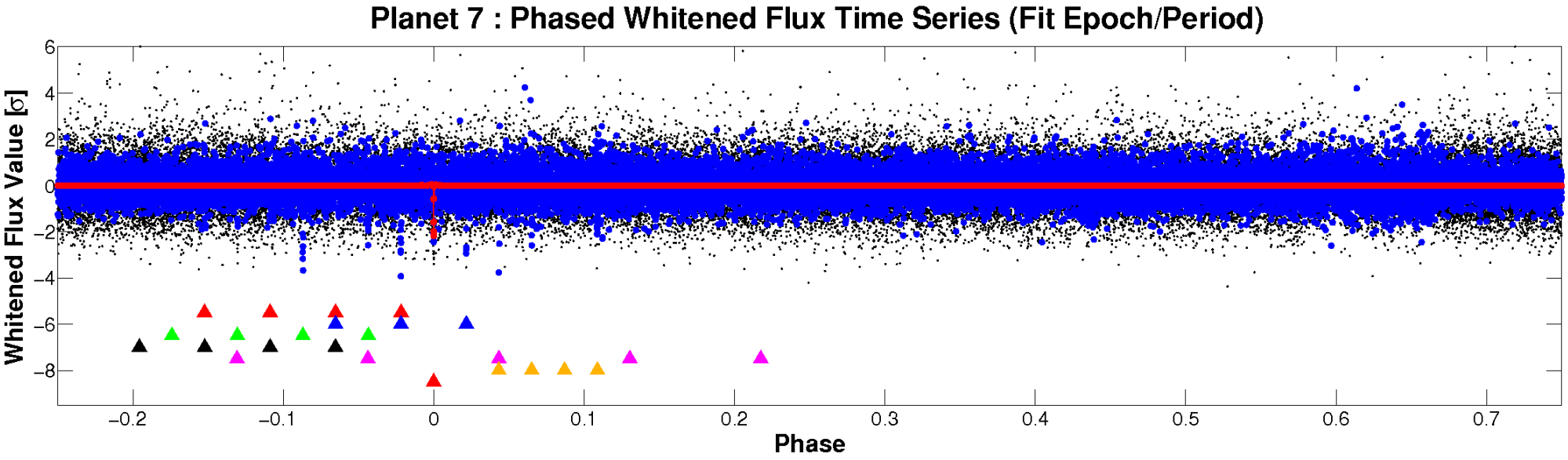

TCE 008956706-07
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.0008
-0.0006
-0.0004
-0.0002
0
0.0002
0.0004
0.0006
0.0008
Phase
Odd
Even
Model Fit

ALT Odd/Even


TCE 008956706-07
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
-3.00e-03
Flux
-0.001
-0.0005
0
0.0005
0.001
Phase
Odd
Even
Model Fit

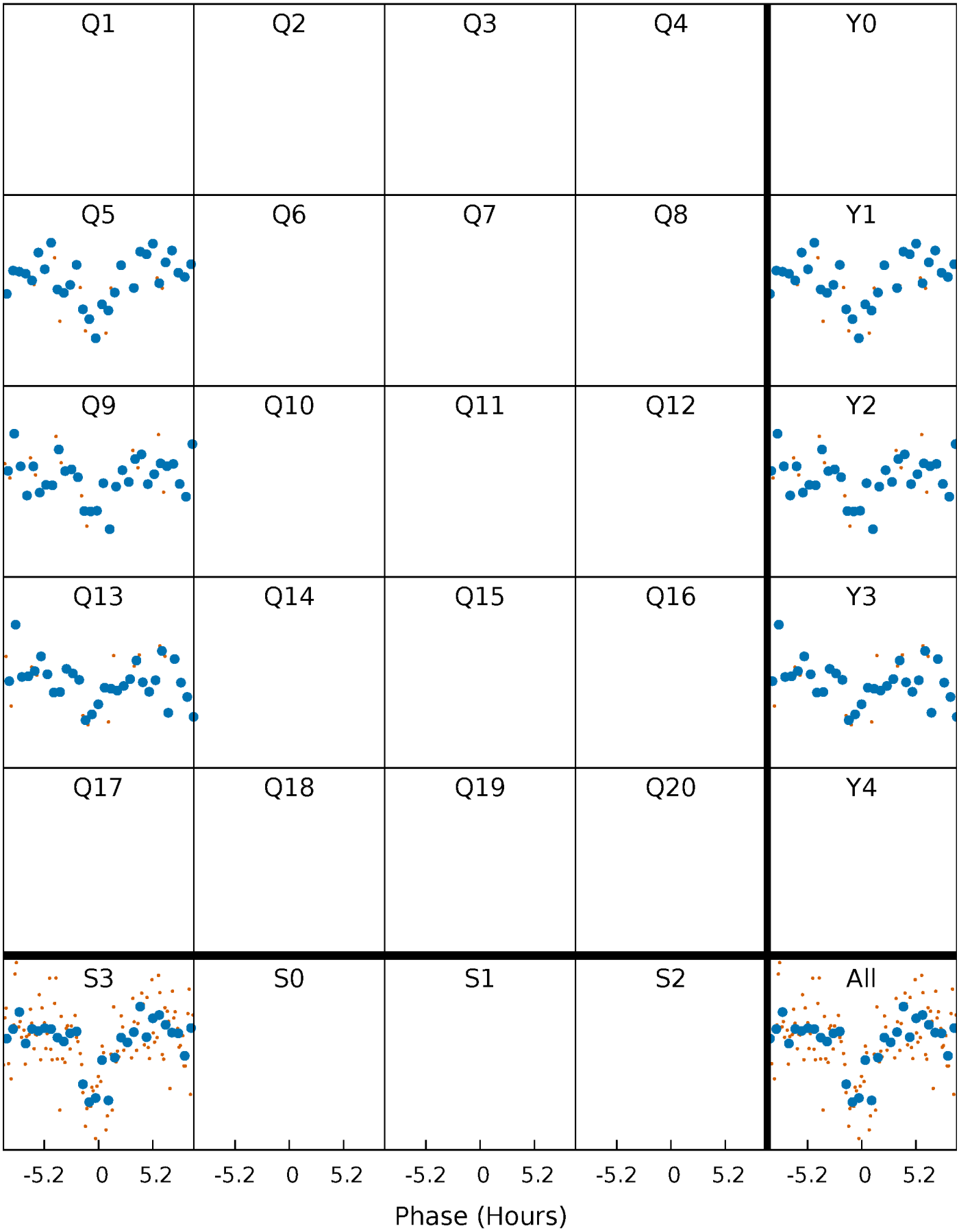
Non-Whitened Vs. Whitened Light Curve





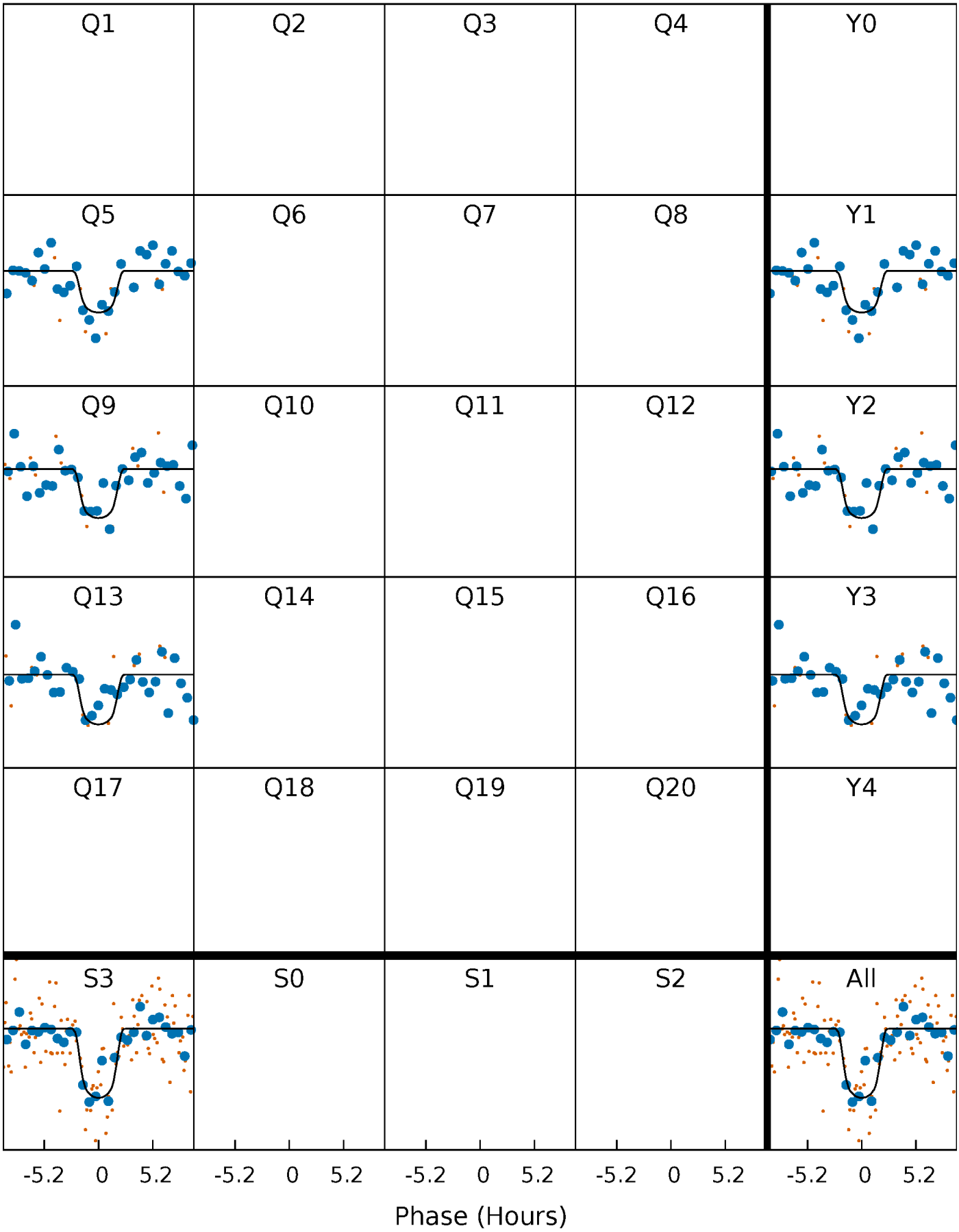
PDC Quarter-Phased Transit Curves

TCE 008956706-07 P=385.189050 Days T_0=478.321453 (BKJD)



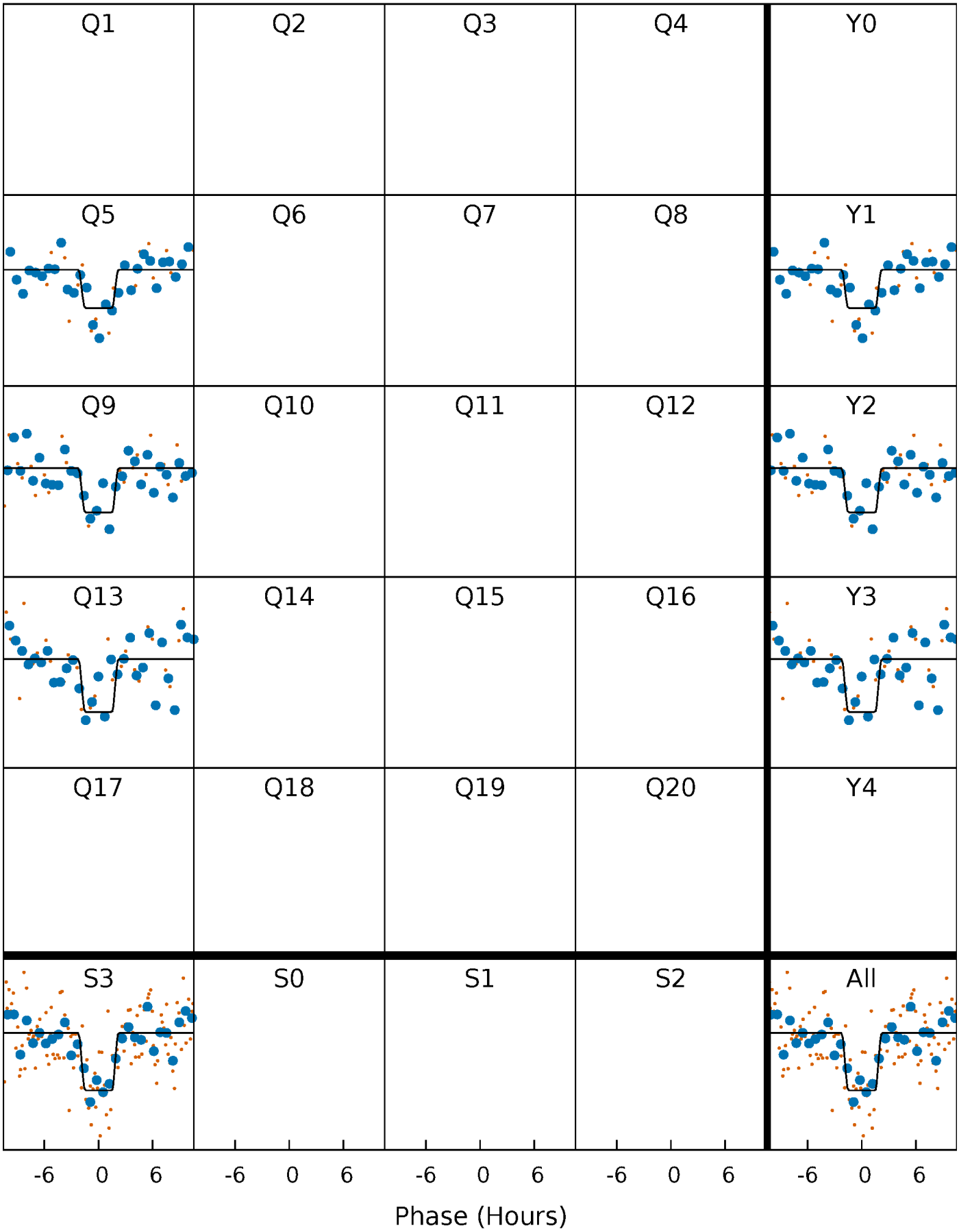
DV Quarter-Phased Transit Curves

TCE 008956706-07 P=385.189050 Days T_0=478.321453 (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

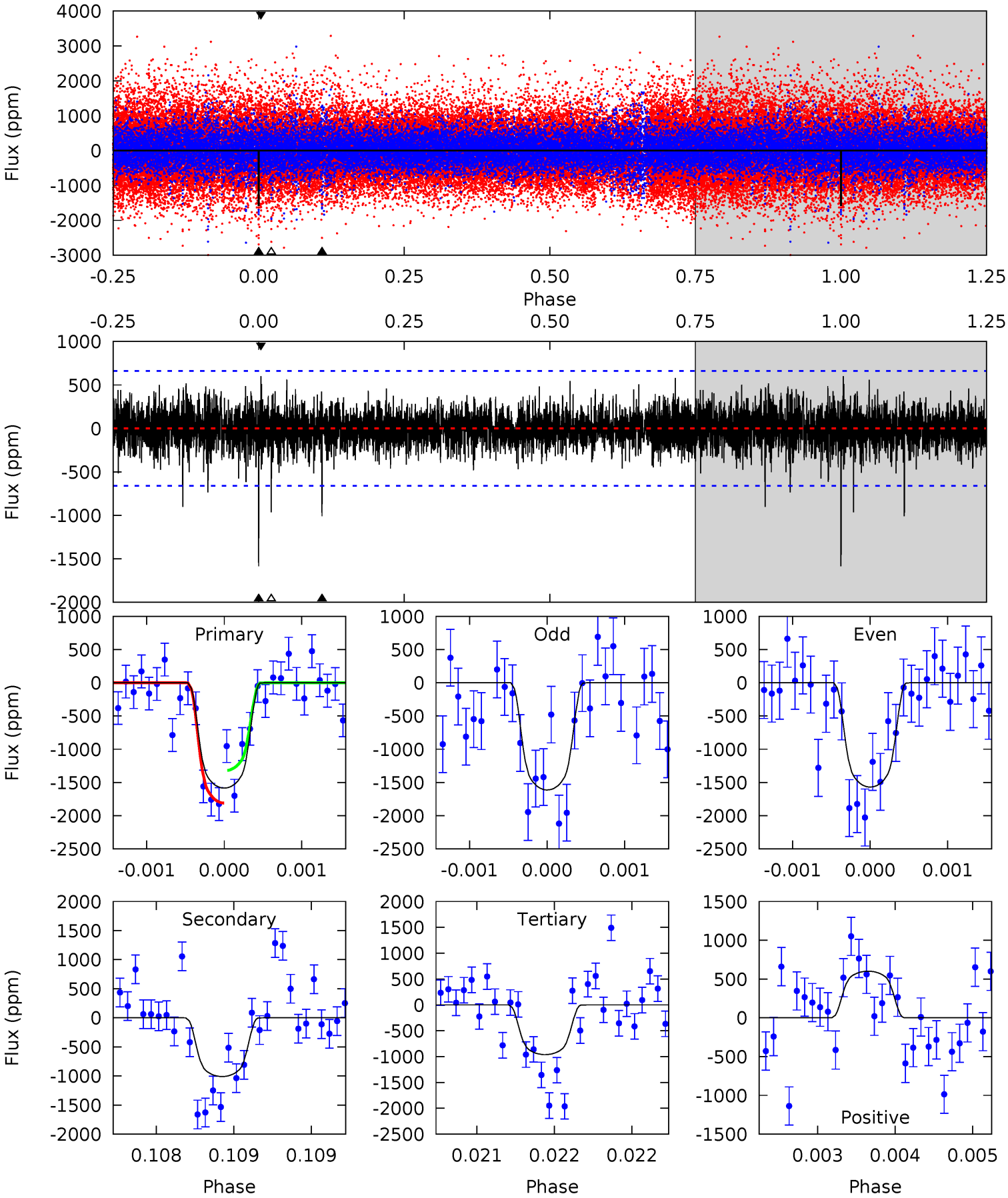
TCE 008956706-07 P=385.206662 Days T_0=478.302626 (BKJD)



DV Model-Shift Uniqueness Test

008956706-07, P = 385.189050 Days, E = 93.132403 Days

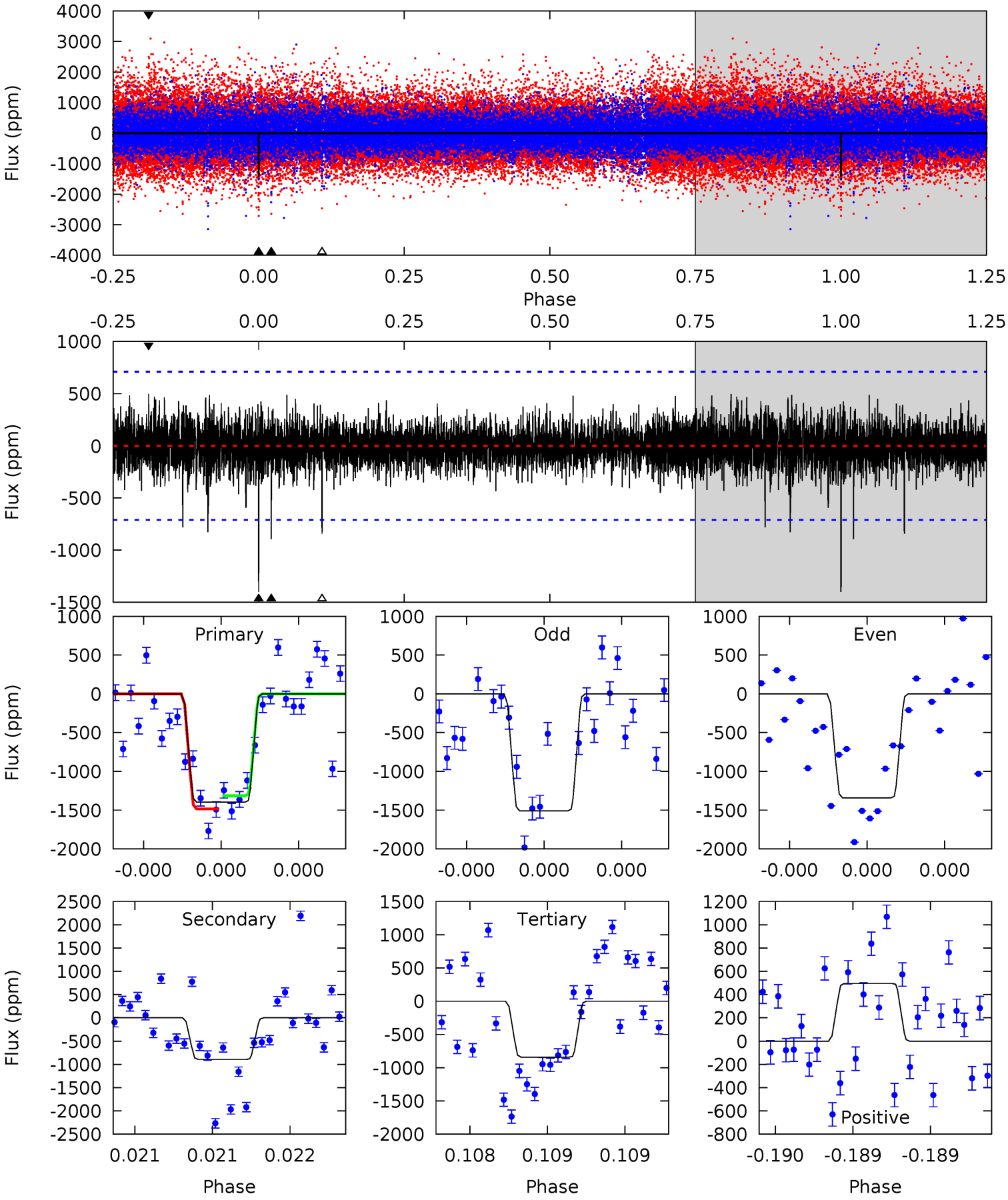
Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	8.47	8.07	5.05	5.55	3.45	1.28	5.23	8.26	0.40	3.43	0.17	0.98	0.27	2.07



Alt Model-Shift Uniqueness Test

008956706-07, P = 385.206662 Days, E = 93.095964 Days

Pri	Sec	Ter	Pos	FA_1	FA_2	F_{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	7.03	6.62	3.90	5.58	3.49	1.06	4.37	7.09	0.41	3.13	0.62	0.93	0.26	0.67



Stellar Parameters For KIC 008956706

	$T_{\rm eff}(K)$	$\log(g)$	[Fe/H]	R ($R_\odot$)	M($M_\odot$)	$p_\star$ (g·cm^{-3})
	5066^{+176}_{-176}	$4.593^{+0.039}_{-0.066}$	$-0.120^{+0.300}_{-0.300}$	$0.740^{+0.086}_{-0.065}$	$0.782^{+0.079}_{-0.071}$	$2.724^{+0.550}_{-0.657}$
	+3%/-3%	+1%/-1%	+250%/-250%	+12%/-9%	+10%/-9%	+20%/-24%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008956706-07 / KOI

Detrend	Depth (ppm)	R_p ($R_\oplus$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1009±119	$3.68^{+0.65}_{-0.61}$	277^{+11}_{-12}	4390^{+373}_{-271}	36973^{+15911}_{-10901}
Alt.	-894±127	$3.15^{+0.63}_{-0.58}$	277^{+12}_{-11}	4572^{+417}_{-365}	44844^{+22680}_{-14593}

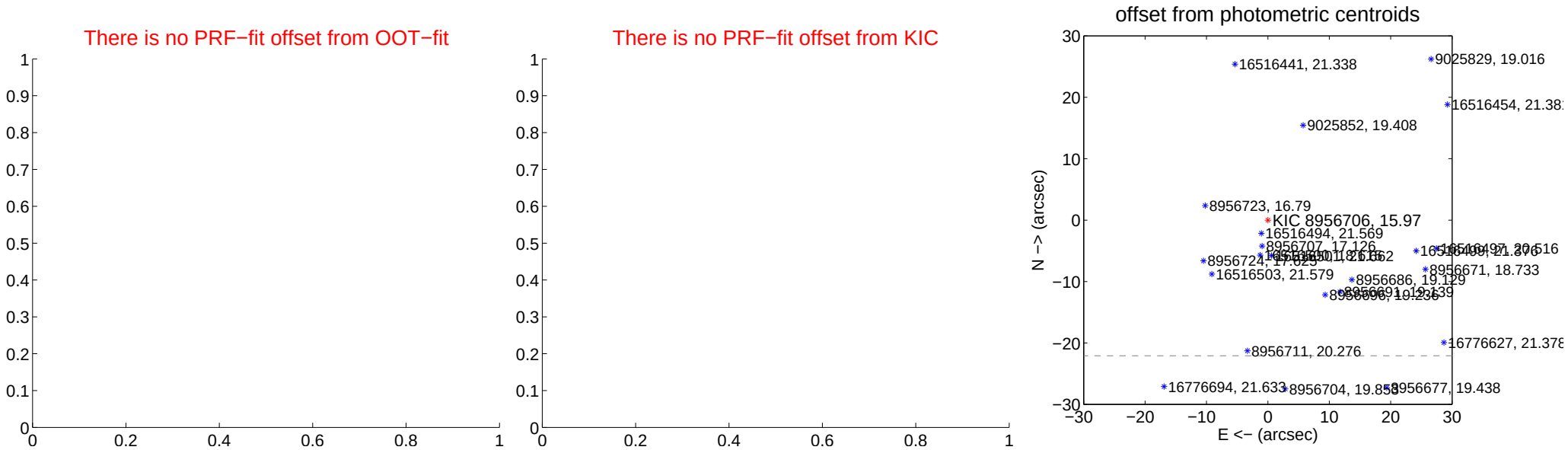
T_{max} = Theoretical Maximum Planetary Temperature
T_{obs} = Observed Planetary Temperature (Assuming A=0.3)
A_{obs} = Observed Albedo (Assuming T=0)

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

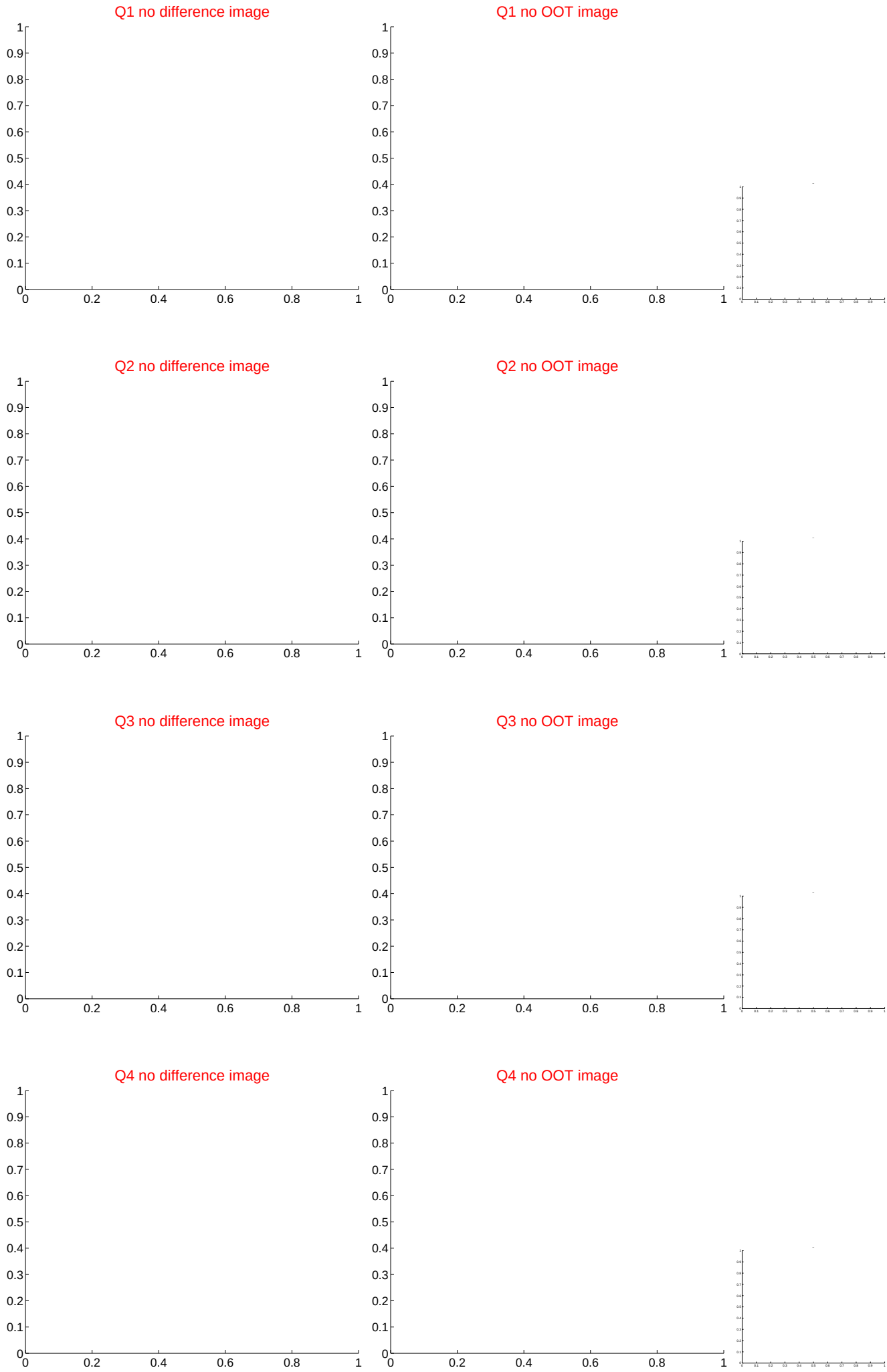
Supplemental centroid analysis for 008956706-07. Kepler magnitude: 15.97. Transit SNR 8.76
There are 0 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	60.91 ± 1.56	38.97	56.77 ± 1.55	-22.08 ± 1.64

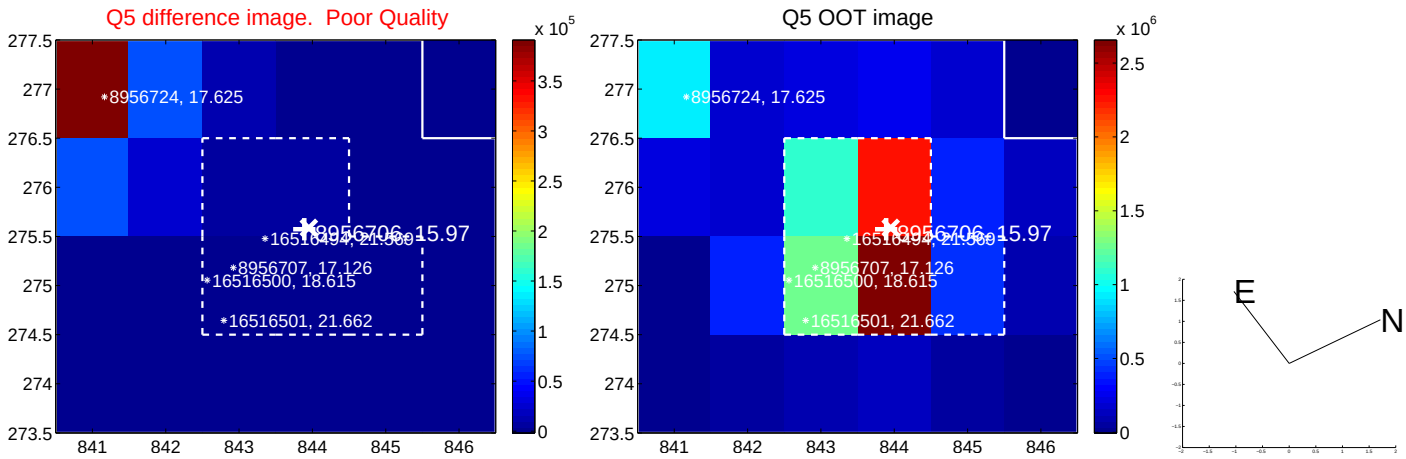


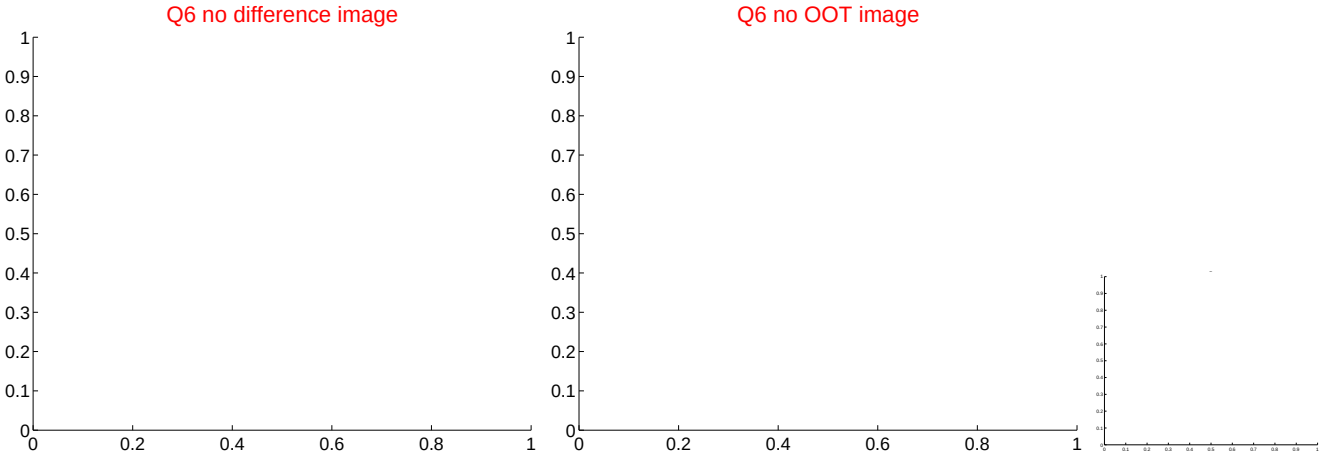
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red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

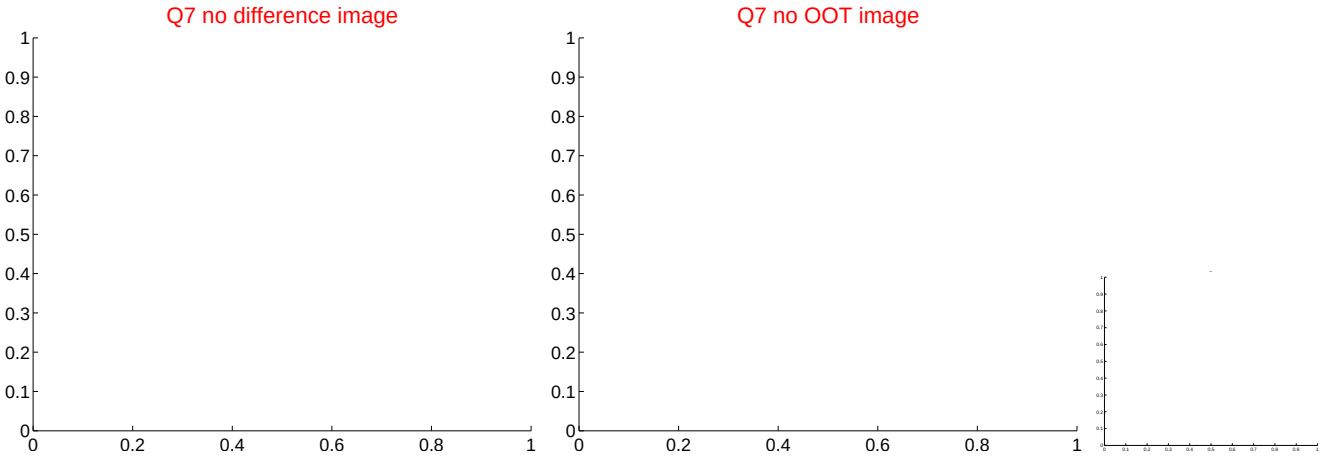
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

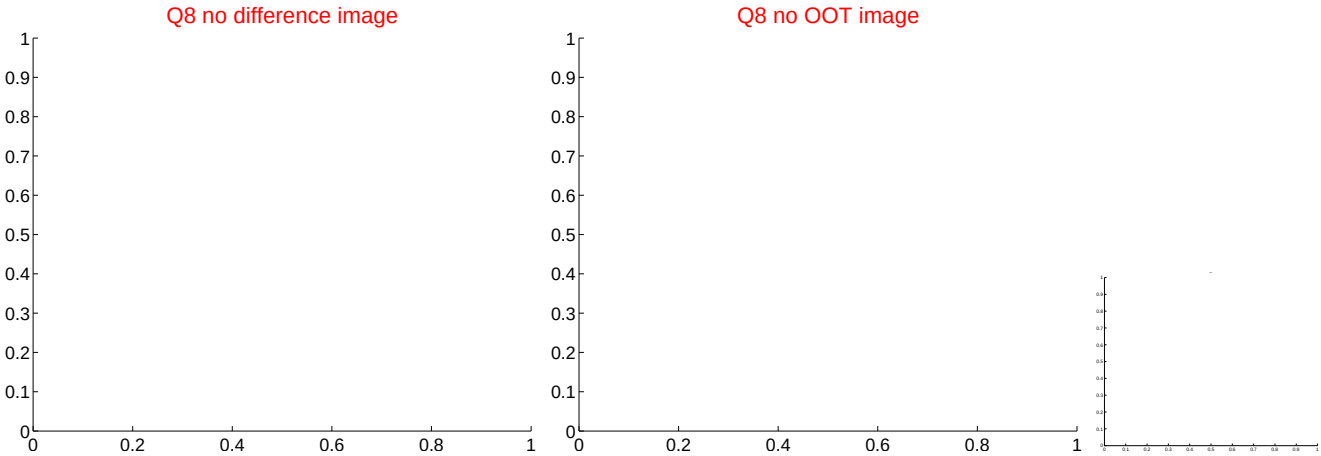


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.









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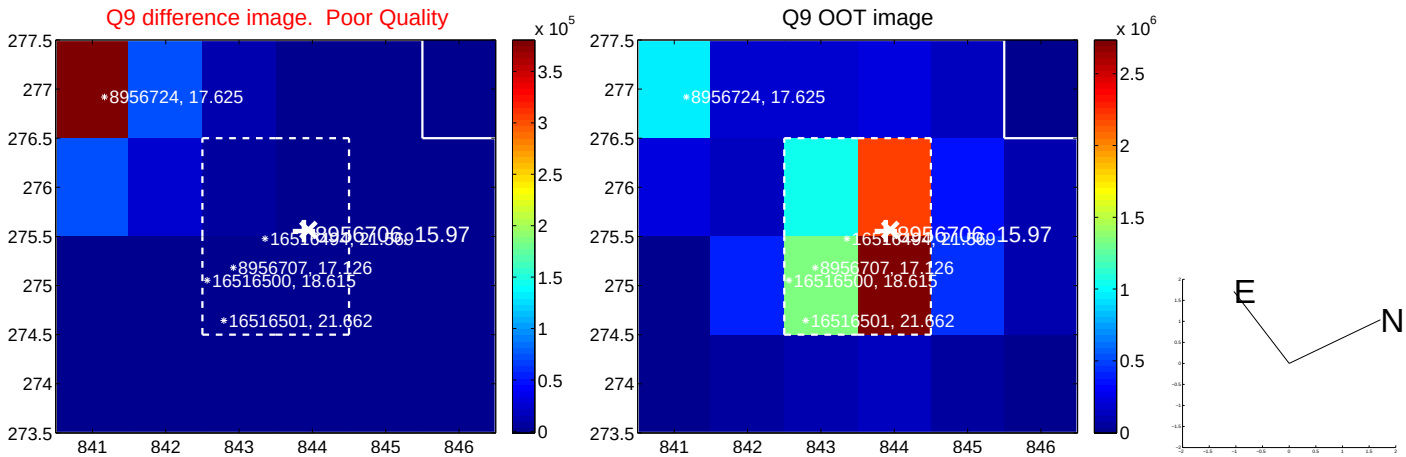

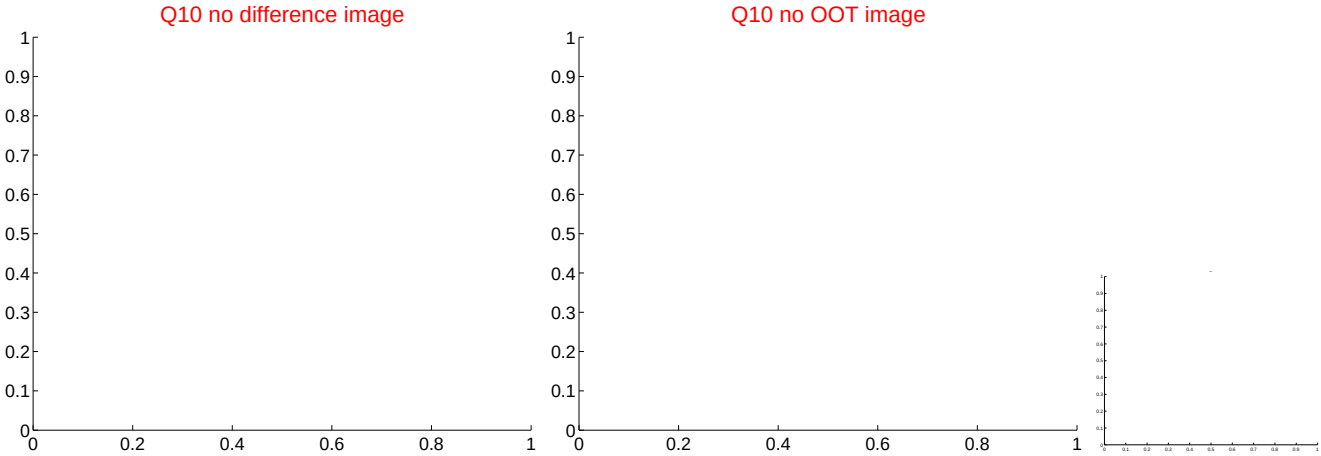

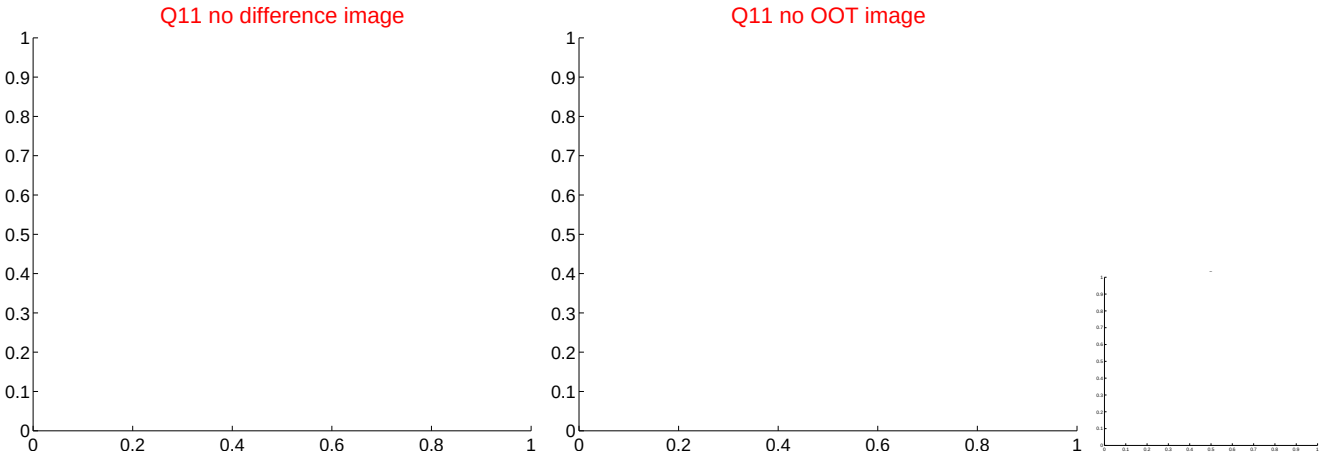

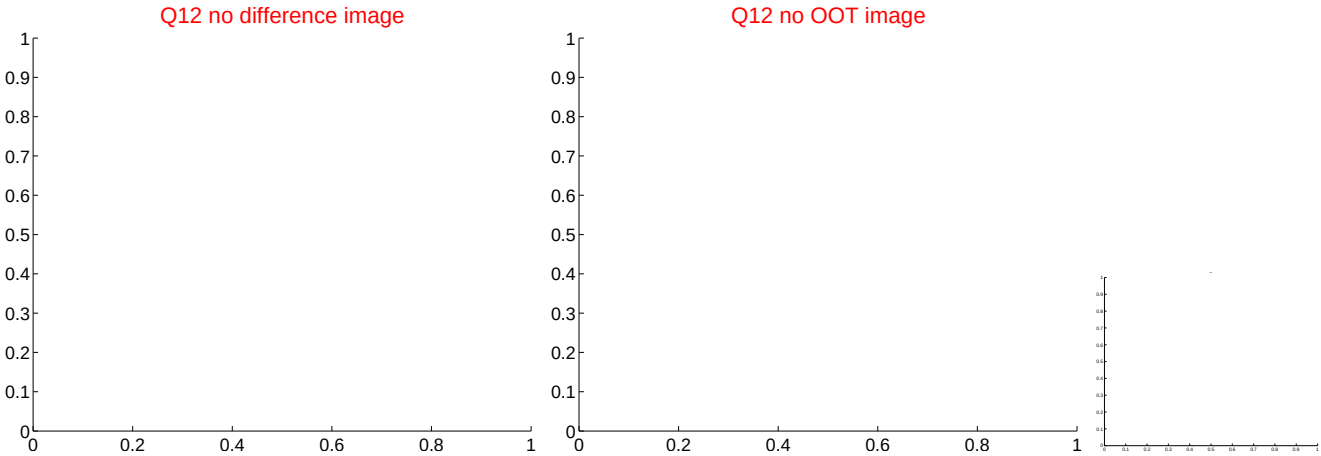

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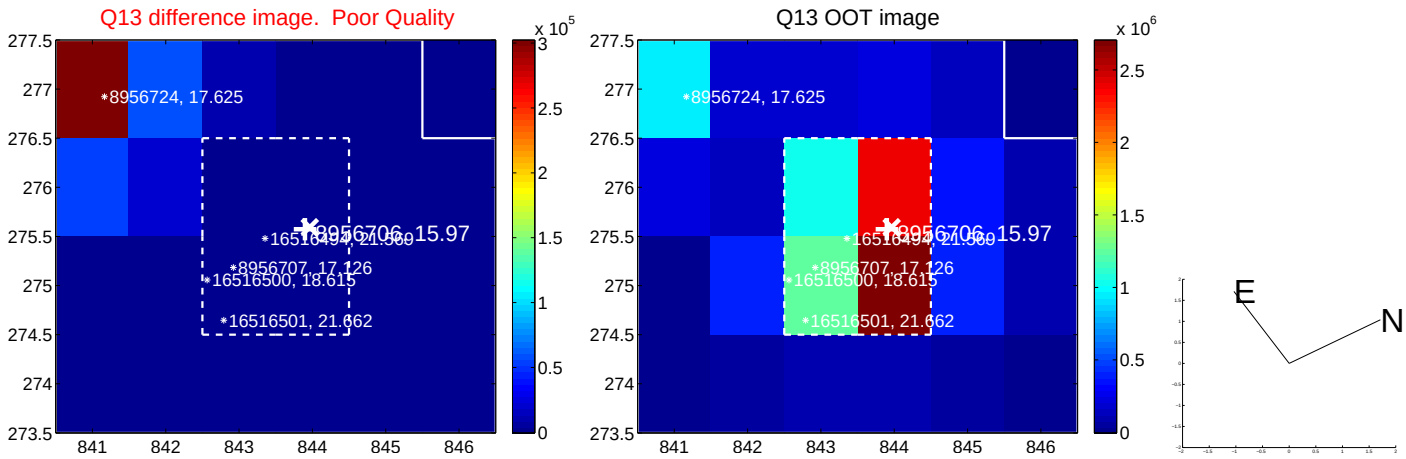
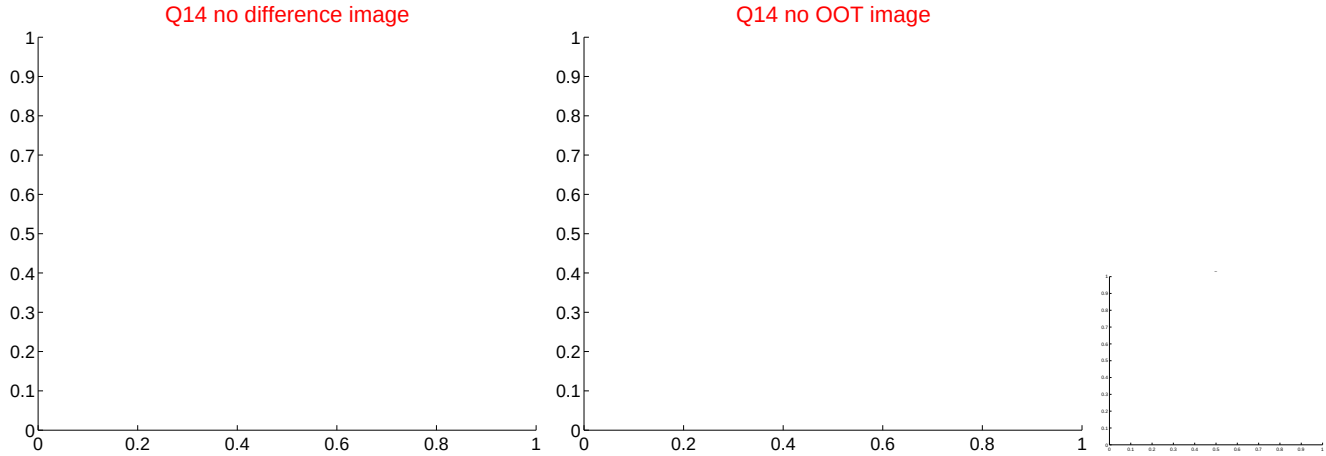
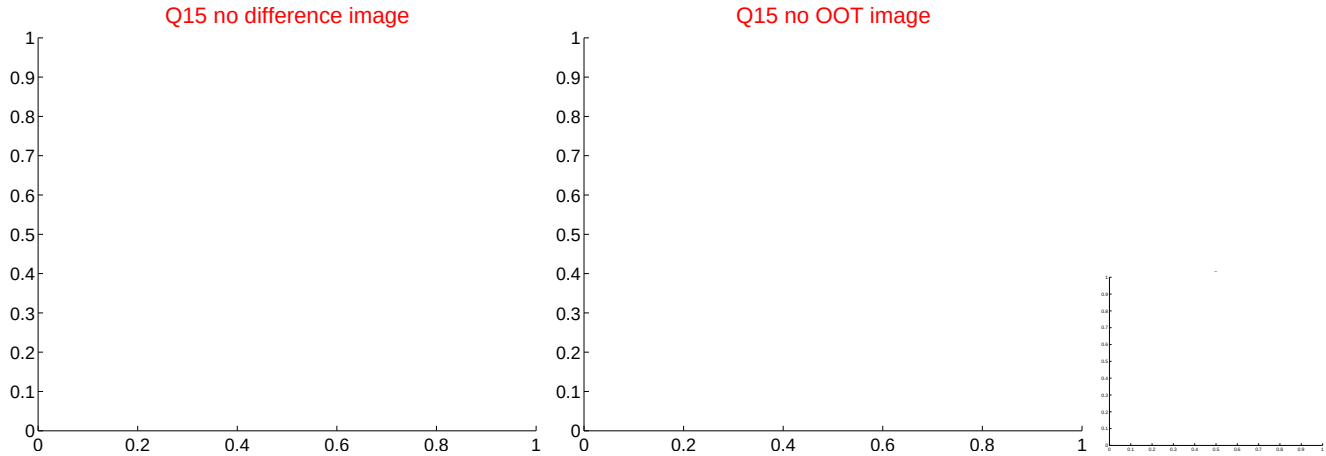
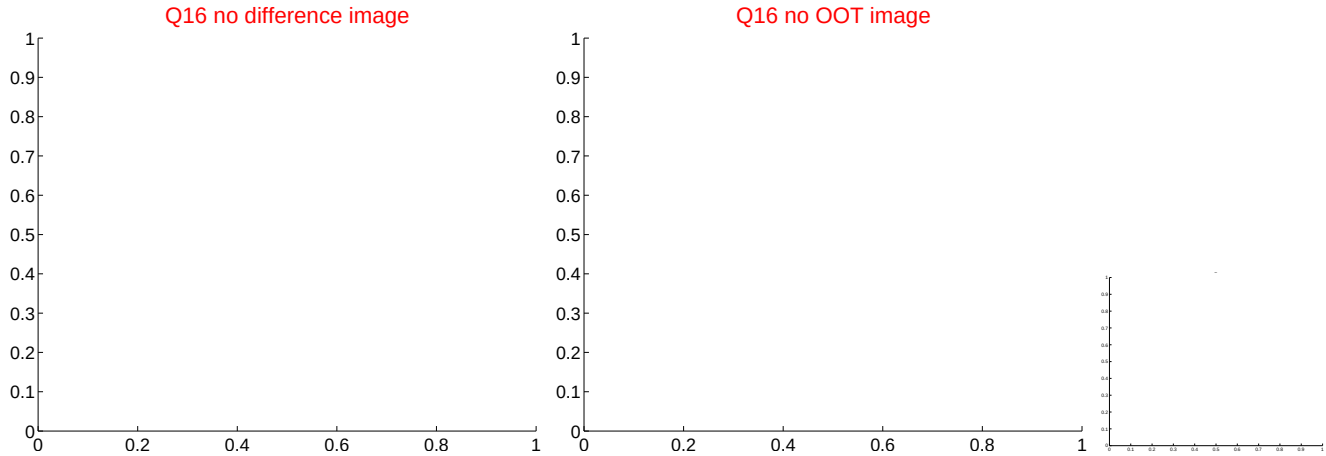
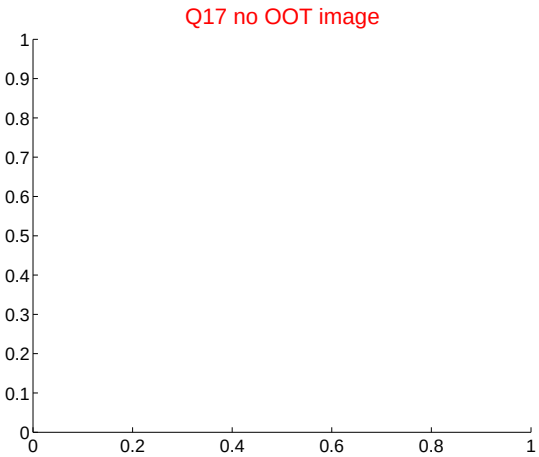


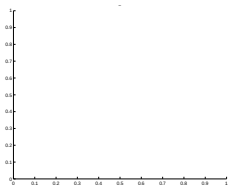


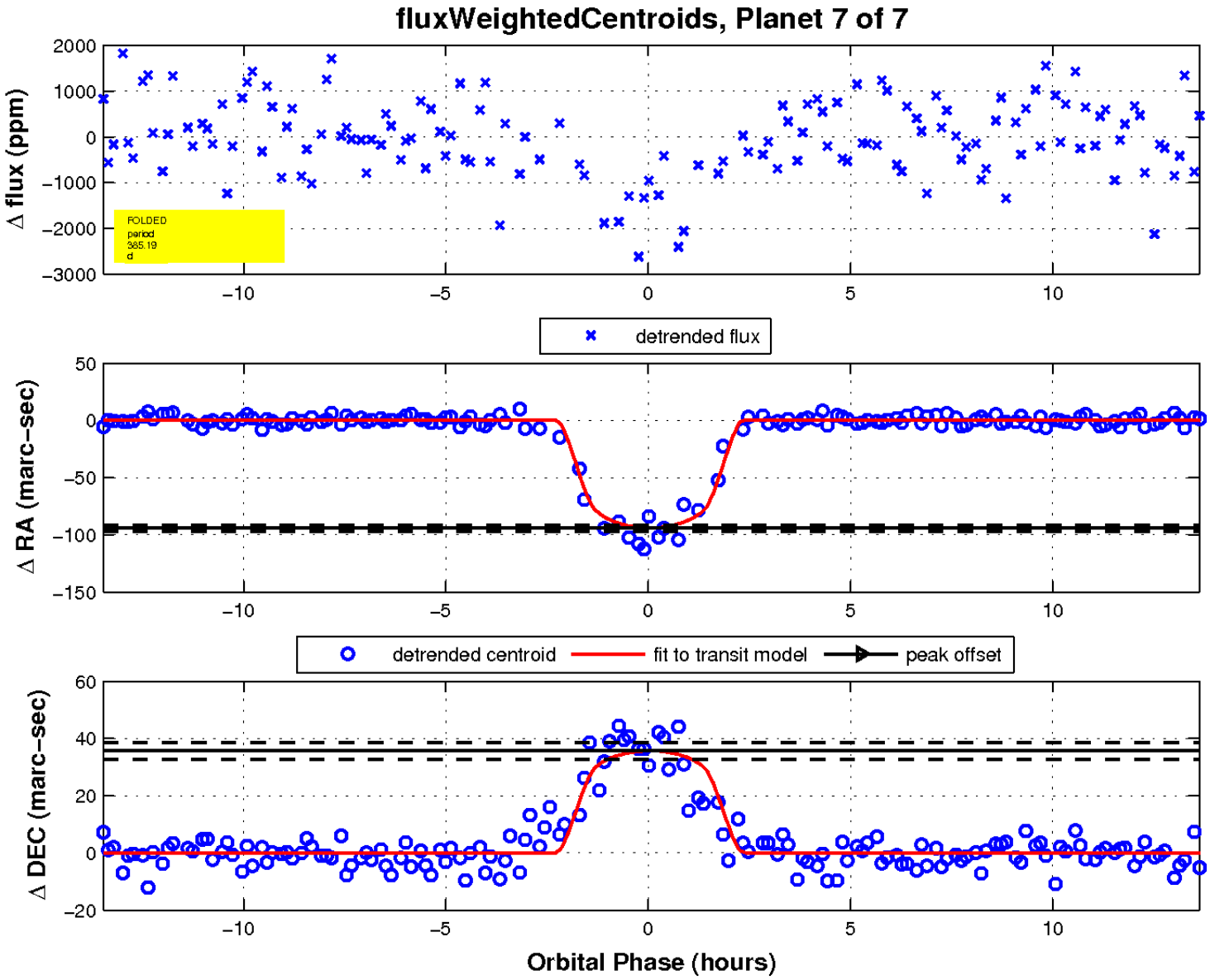




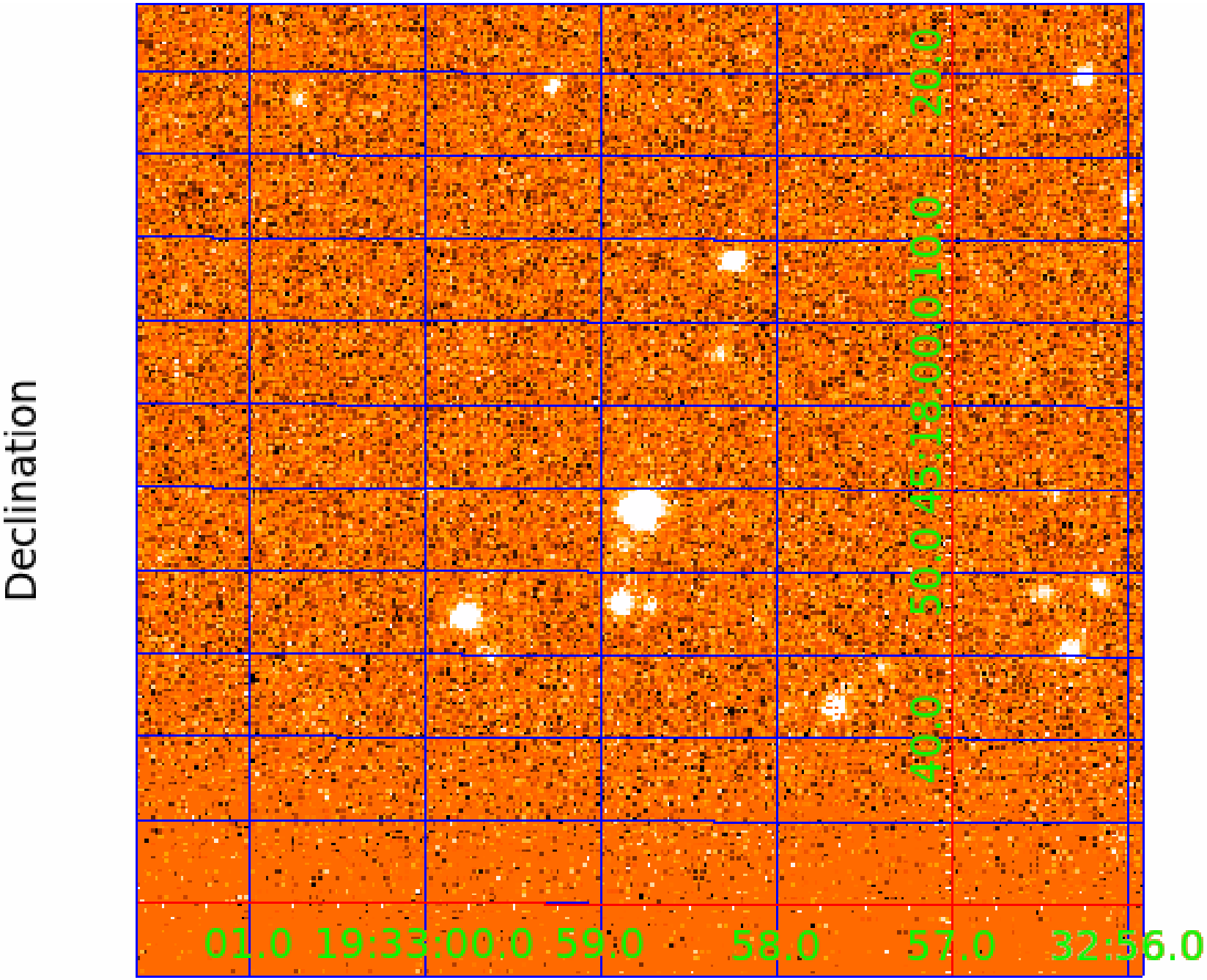
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.







UKIRT Image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