

KIC 009895857

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})
009895857-01	OBS	No	0.865659	131.725008	12.6	5.809	10.4	9.2	2.04	8163	0.73	34259.09
009895857-03	OBS	No	50.760069	172.748590	374.3	1.045	8.3	8.1	2.04	8163	4.65	150.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895857-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009895857-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

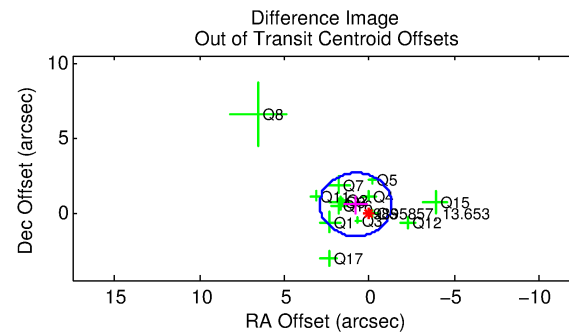
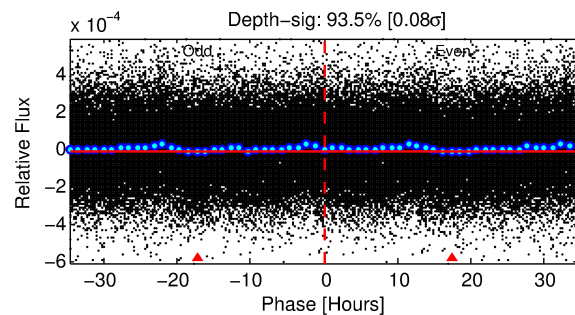
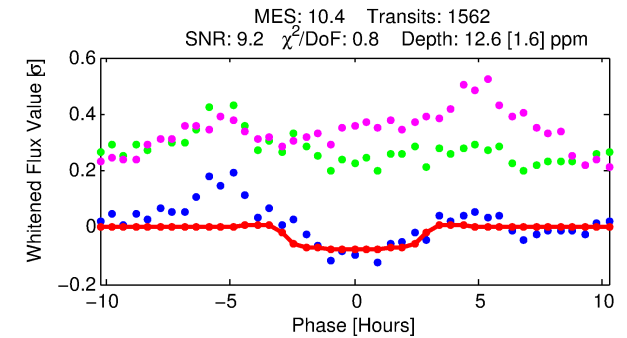
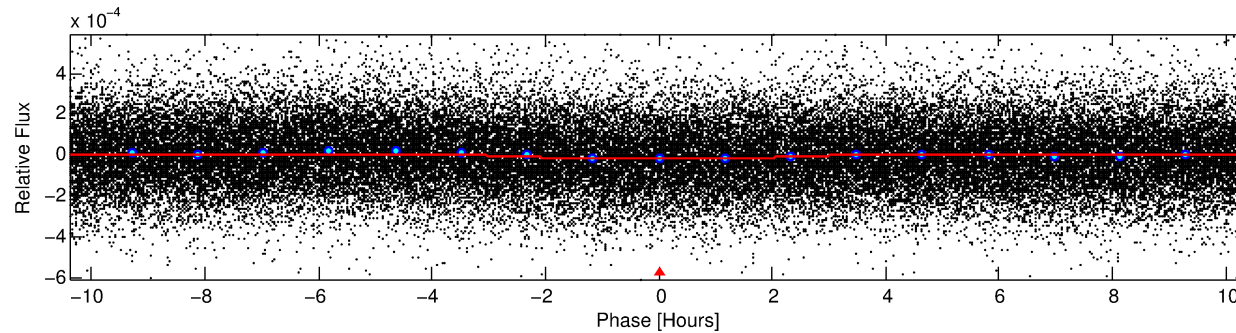
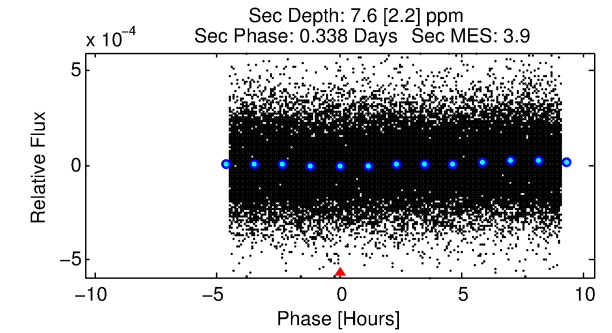
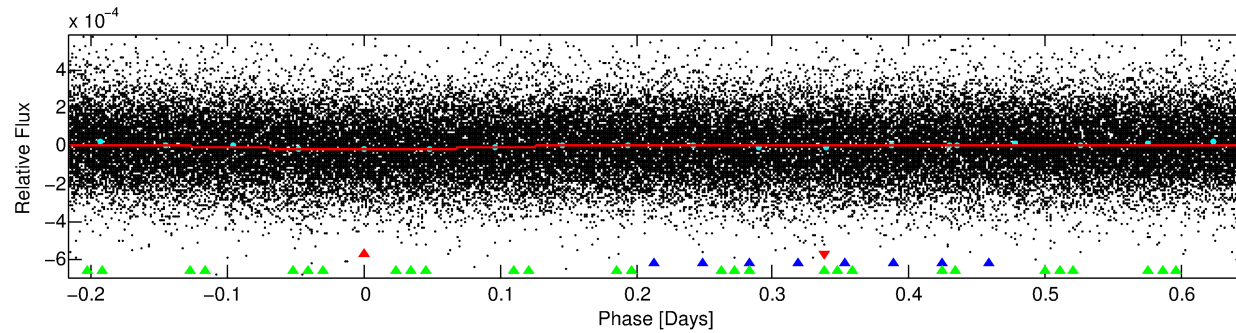
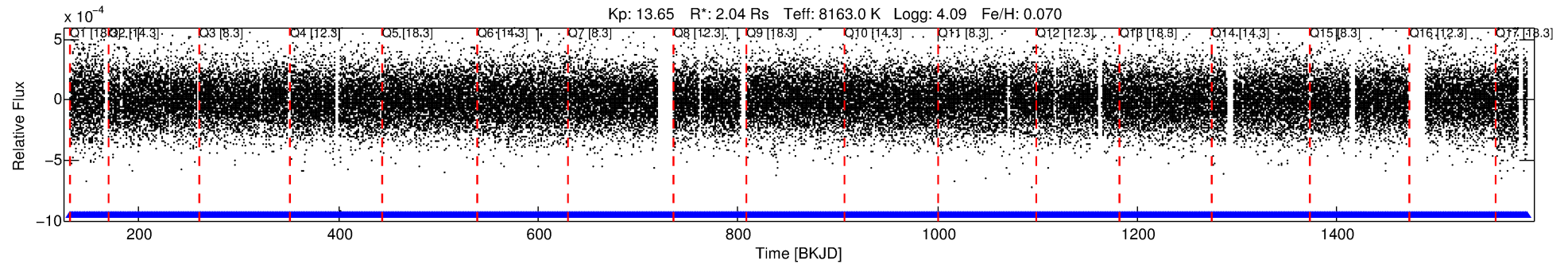
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009895857-01

No Significant Match Found

DV One-Page Summary

KIC: 9895857 Candidate: 1 of 3 Period: 0.866 d



DV Fit Results:

Period = 0.86566 [0.00001] d
Epoch = 131.7250 [0.0067] BKJD
Rp/R* = 0.0033 [0.0048]
a/R* = 1.30 [4.58]
b = 0.09 [93.51]
Seff = 34259.09 [11761.47]
Teff = 3469 [298] K
Rp = 0.73 [1.08] Re
a = 0.0220 [0.0044] AU
Ag = 3.77 [11.09] [0.25σ]
Teffp = 7473 [5481] K [0.73σ]

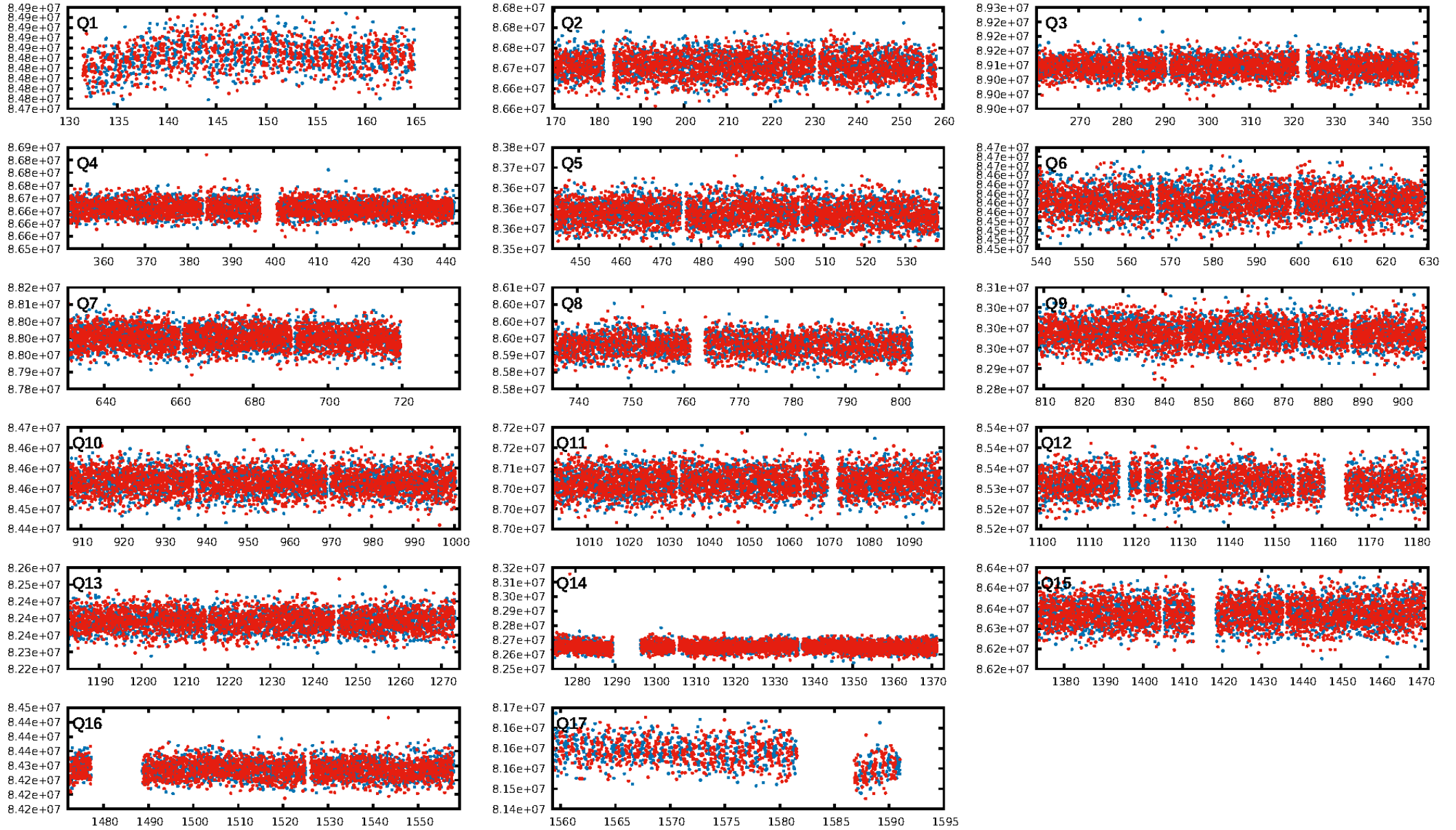
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [202.87σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.53e-16
RollingBand-fgt: 1.00 [1491/1491]
GhostDiagnostic-chr: 5.204
Centroid-sig: 25.9%
Centroid-so: 1.325 arcsec [1.03σ]
OotOffset-rm: 0.954 arcsec [1.35σ]
KicOffset-rm: 0.929 arcsec [1.12σ]
OotOffset-st: 2/4/4/4 [14]
KicOffset-st: 2/4/4/4 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [17/17]

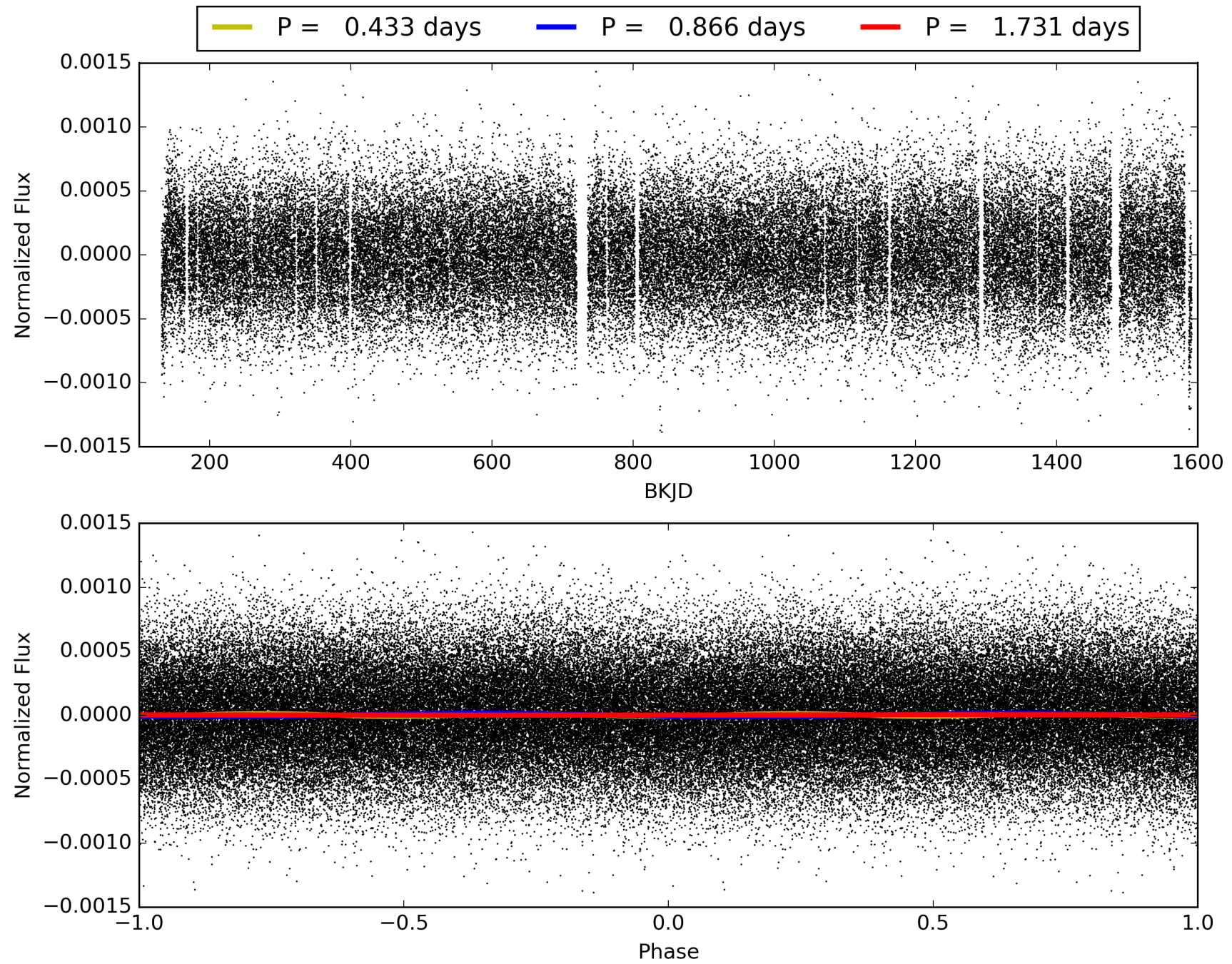
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009895857-01, PDC Light Curves

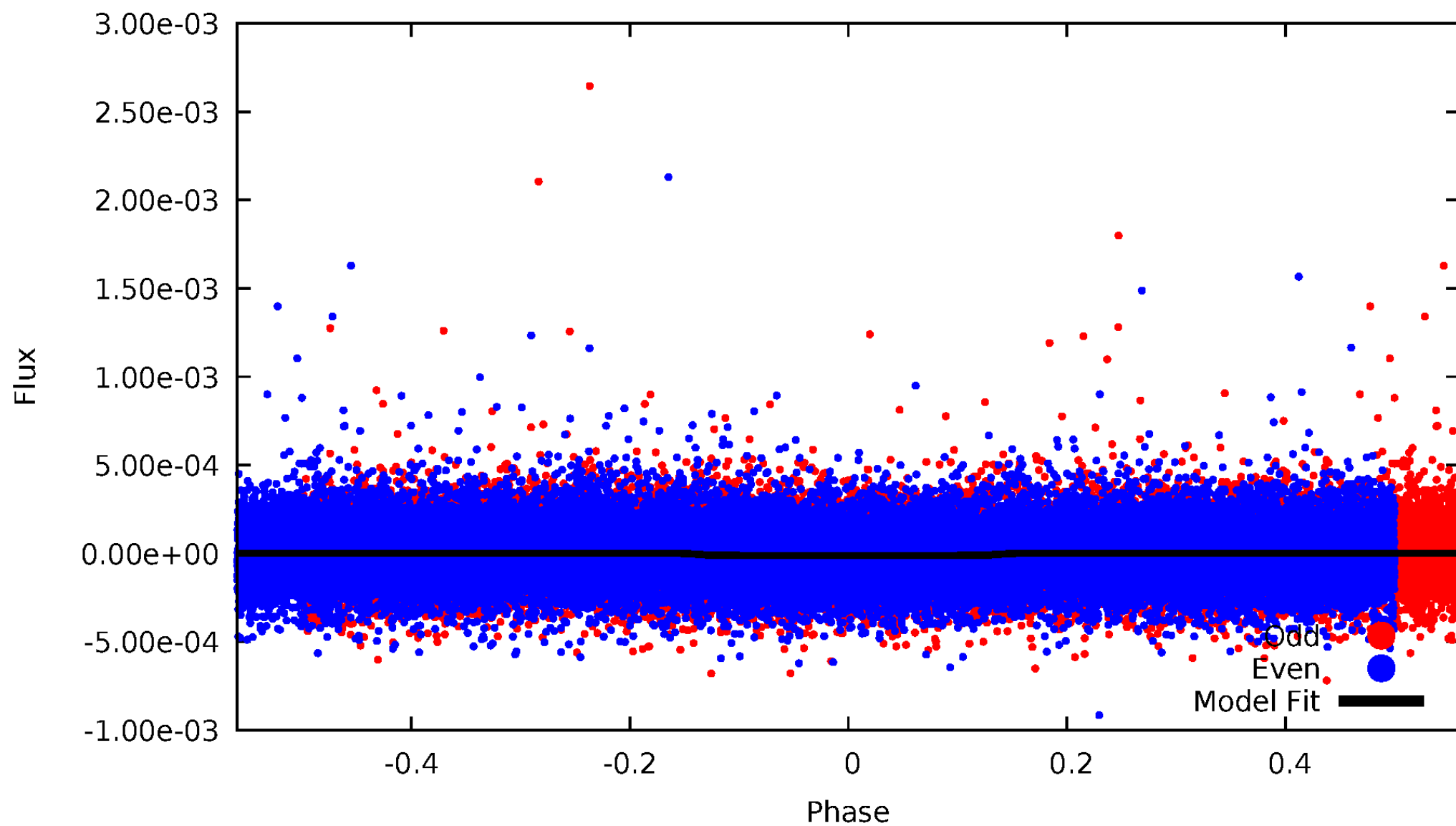


TCE 009895857-01



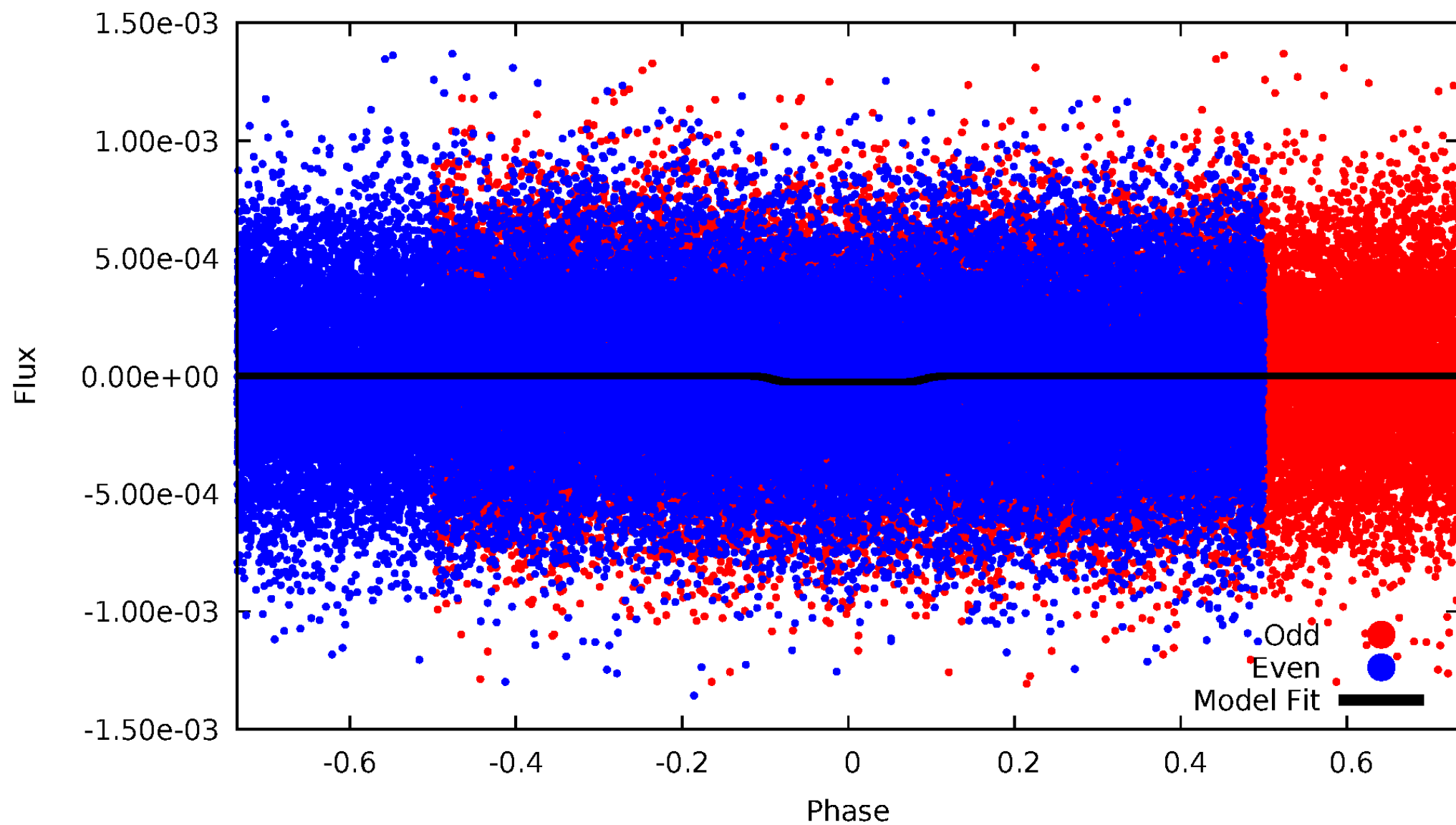
DV Odd/Even

TCE 009895857-01

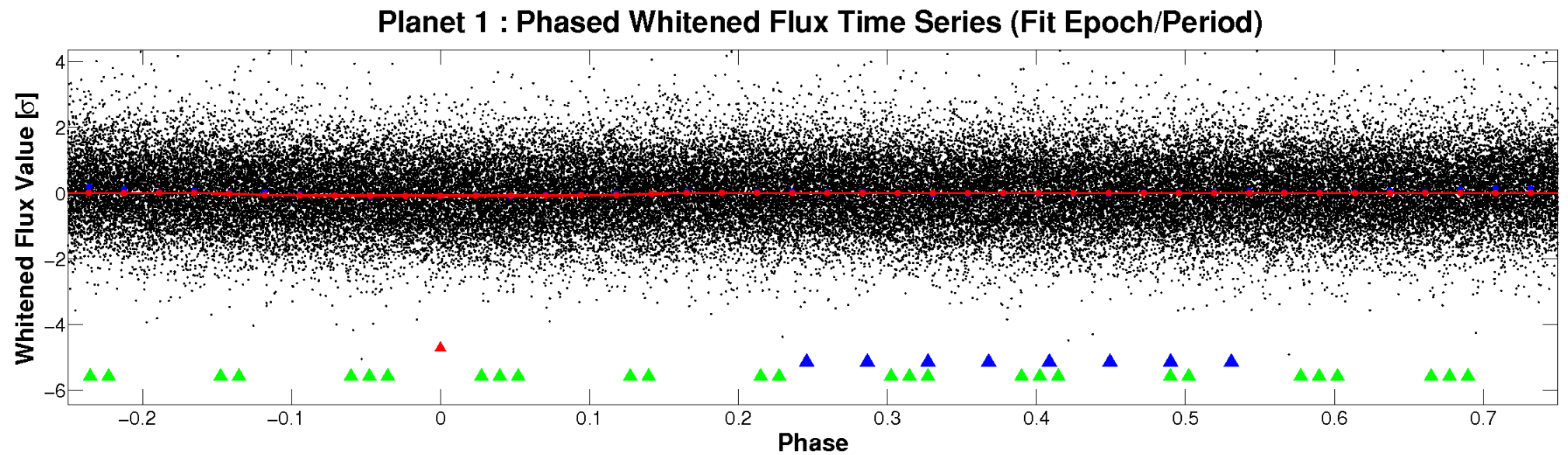
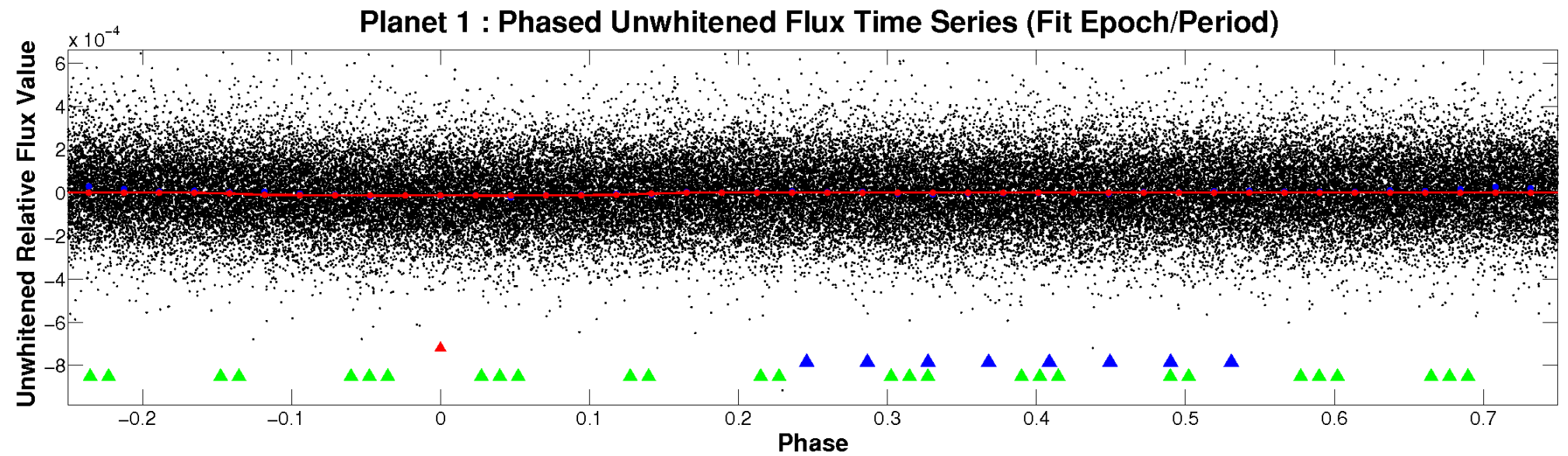


ALT Odd/Even

TCE 009895857-01

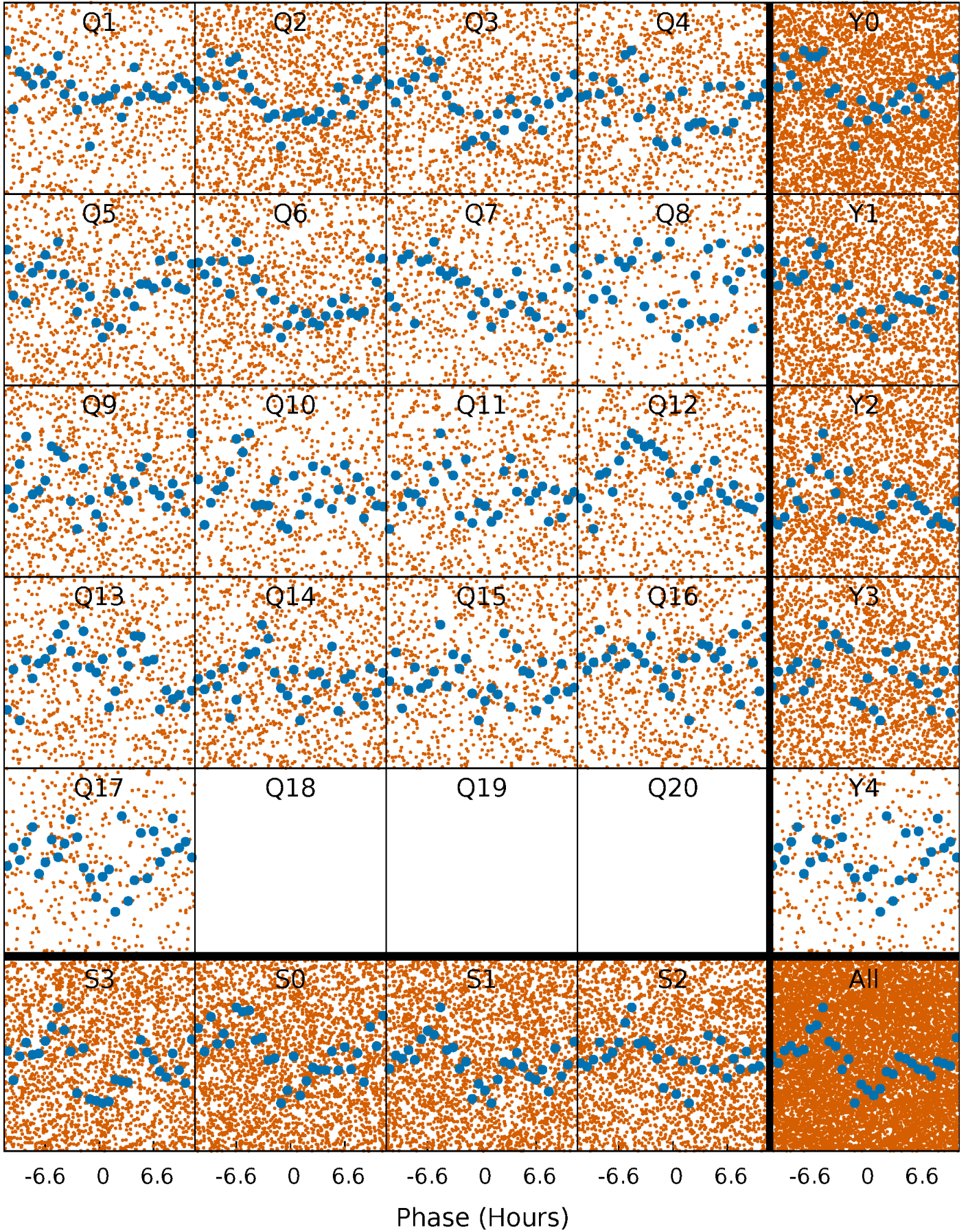


Non-Whitened Vs. Whitened Light Curve



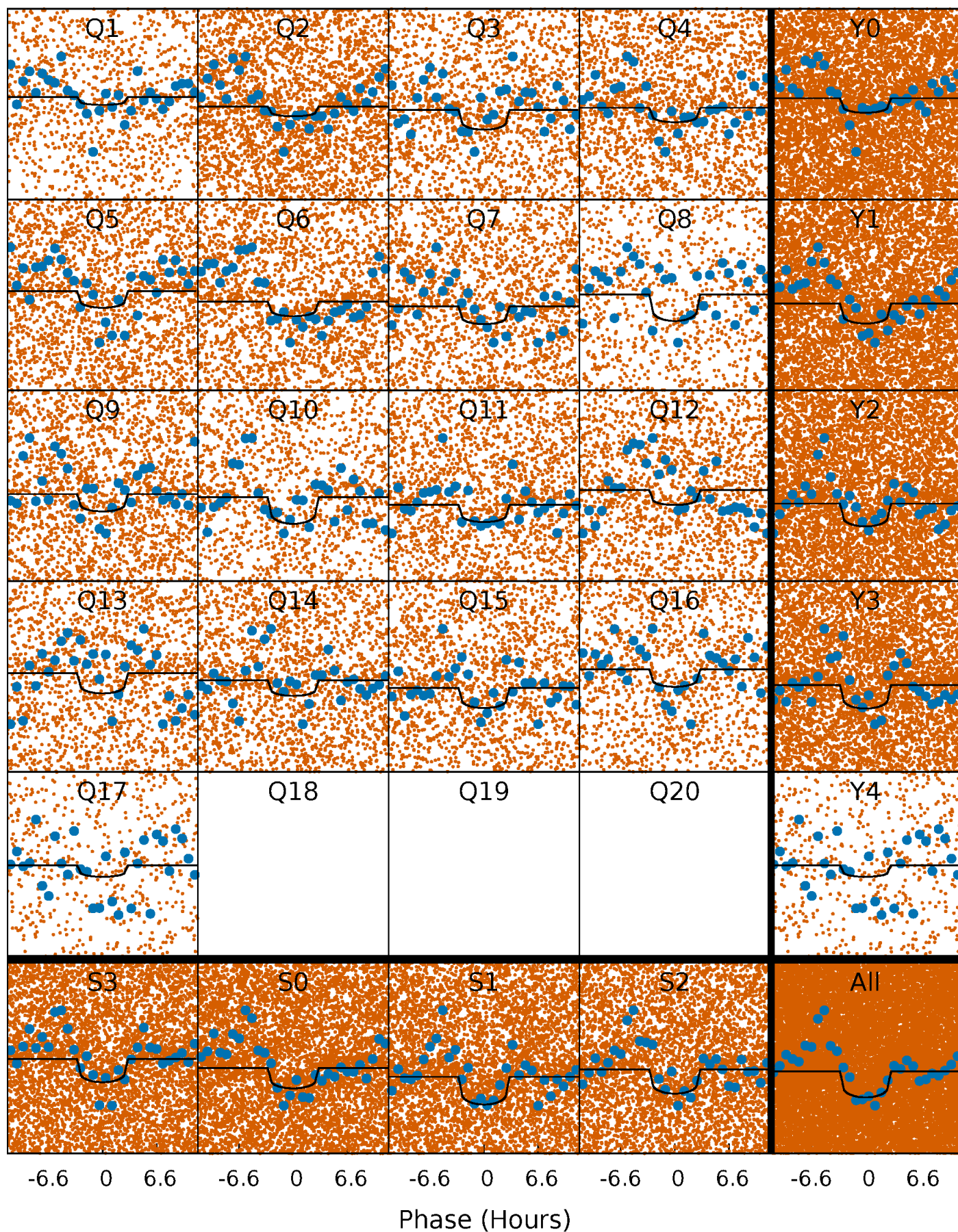
PDC Quarter-Phased Transit Curves

TCE 009895857-01 P= 0.865659 Days $T_0=131.725008$ (BKJD)



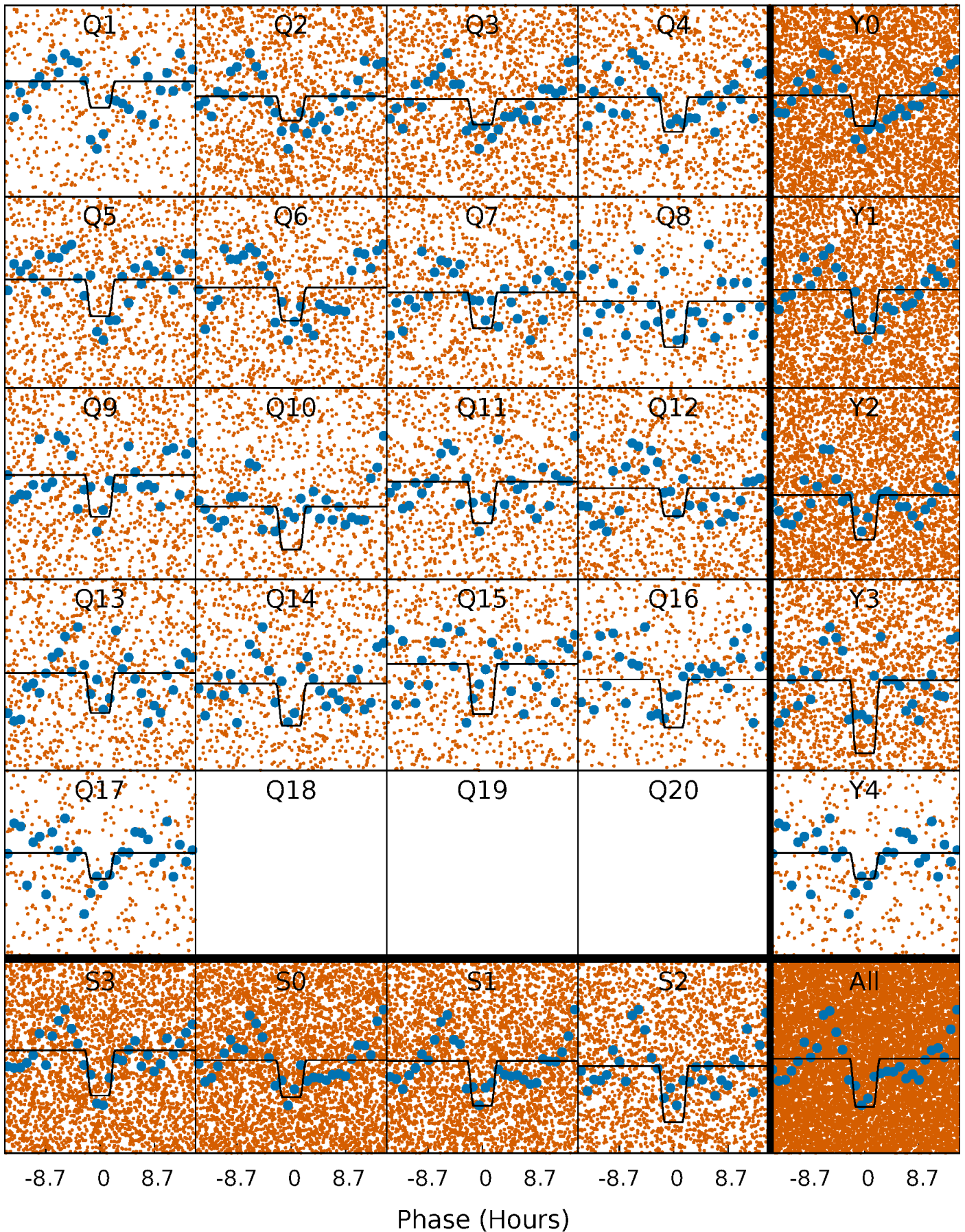
DV Quarter-Phased Transit Curves

TCE 009895857-01 P= 0.865659 Days $T_0=131.725008$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

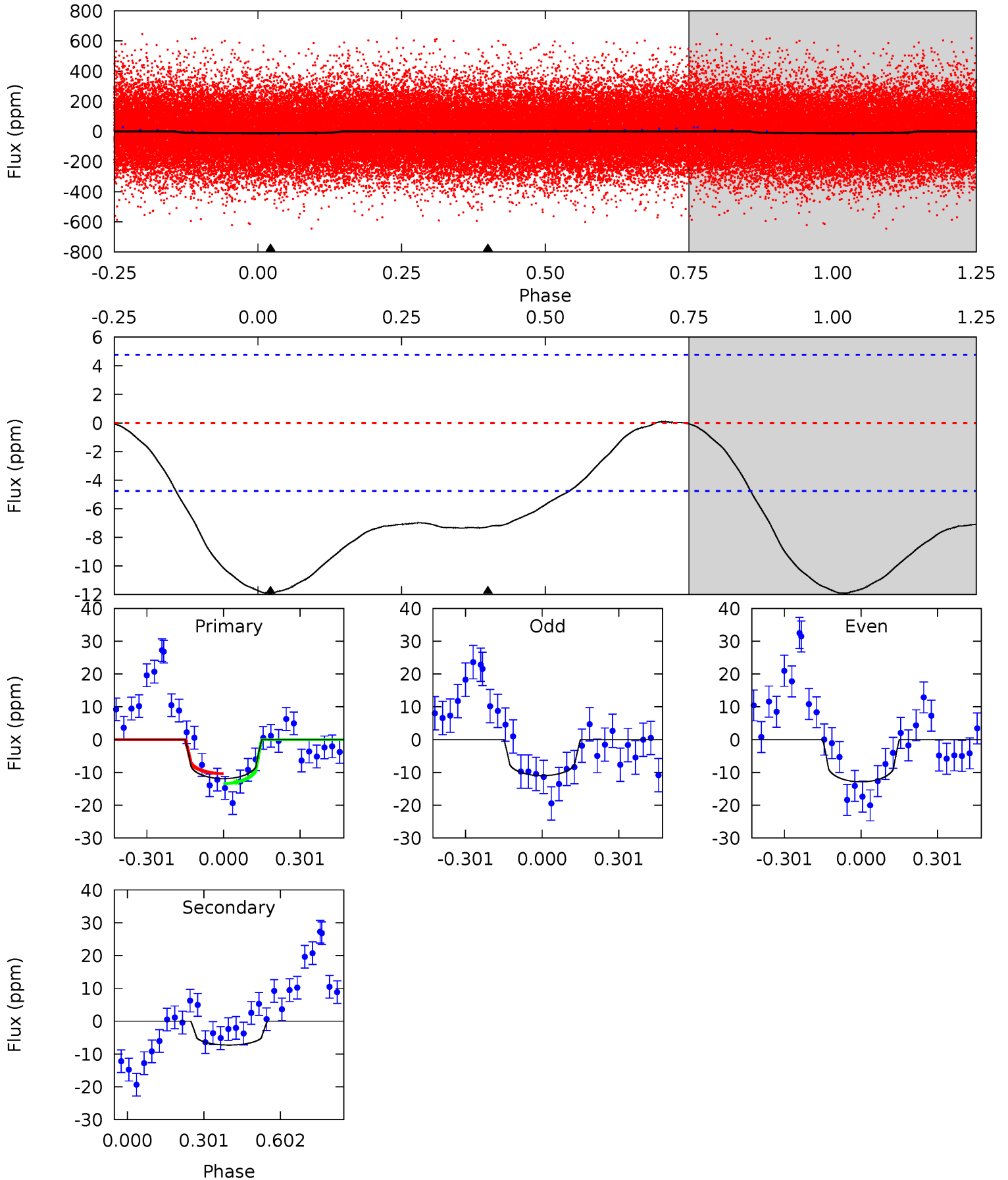
TCE 009895857-01 P= 0.865728 Days $T_0=131.687792$ (BKJD)



DV Model-Shift Uniqueness Test

009895857-01, P = 0.865659 Days, E = 130.859349 Days

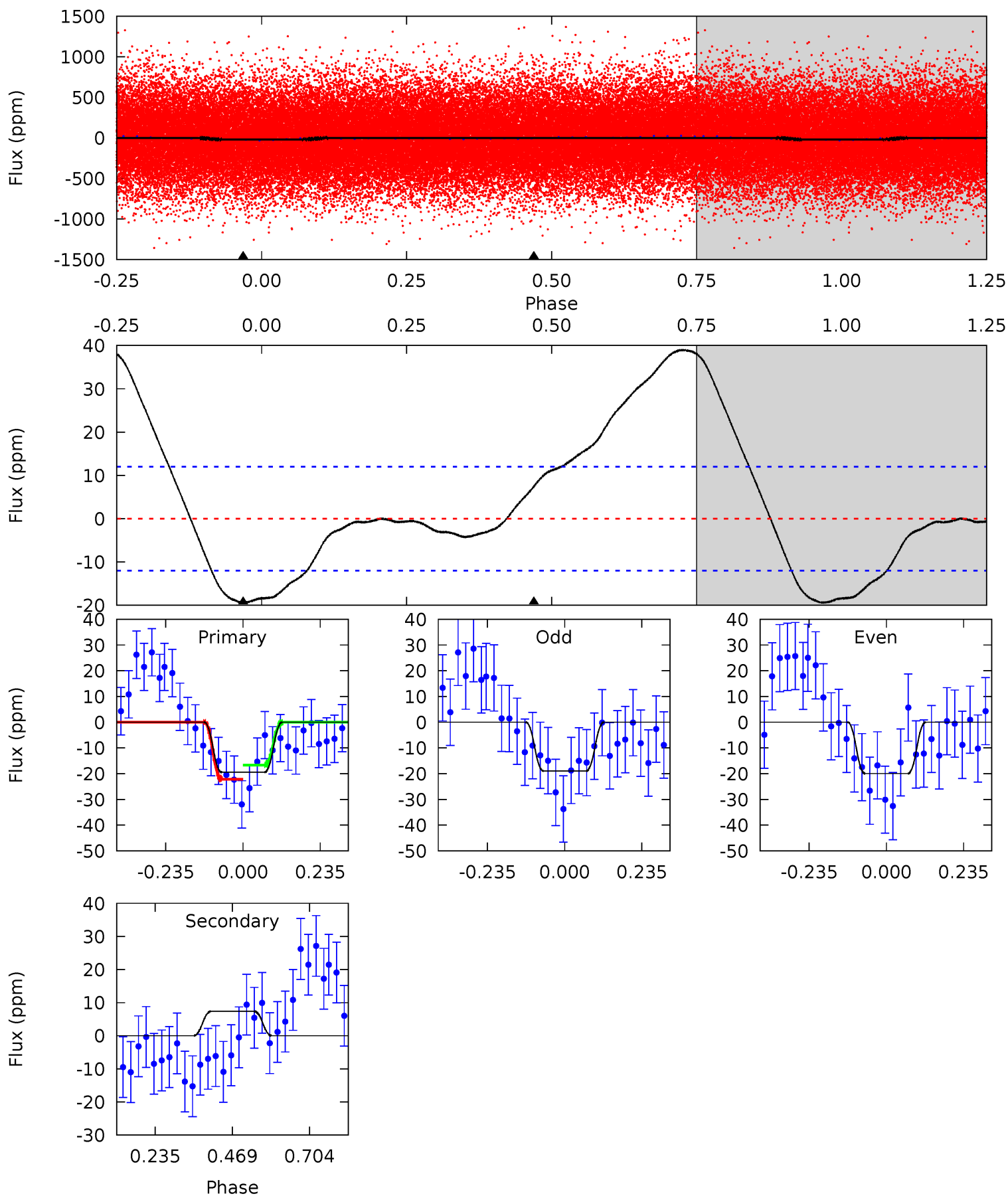
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	6.61	0	0	4.33	1.03	0.13	10.8	10.8	6.61	6.61	0.86	1.05	0.01	1.39



Alt Model-Shift Uniqueness Test

009895857-01, P = 0.865728 Days, E = 130.822064 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.09	-2.69	0	0	4.38	1.19	7.07	7.09	7.09	-2.69	-2.69	0.19	1.05	0.67	1.01



Stellar Parameters For KIC 009895857

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8163^{+226}_{-368}	$4.095^{+0.130}_{-0.159}$	$0.070^{+0.300}_{-0.400}$	$2.039^{+0.491}_{-0.446}$	$1.885^{+0.274}_{-0.335}$	$0.313^{+0.226}_{-0.141}$
	+3%/-5%	+3%/-4%	+429%/-571%	+24%/-22%	+15%/-18%	+72%/-45%
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 009895857-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 1	$1.02^{+0.97}_{-0.67}$	4854^{+314}_{-312}	5727^{+5981}_{-1914}	$1.736^{+13.032}_{-1.265}$
Alt.	7 ± 3	$1.32^{+1.03}_{-0.78}$	4849^{+348}_{-312}	-5618^{+862}_{-3301}	$-1.001^{+0.706}_{-5.636}$

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 $A_{obs} \gg 1.0$

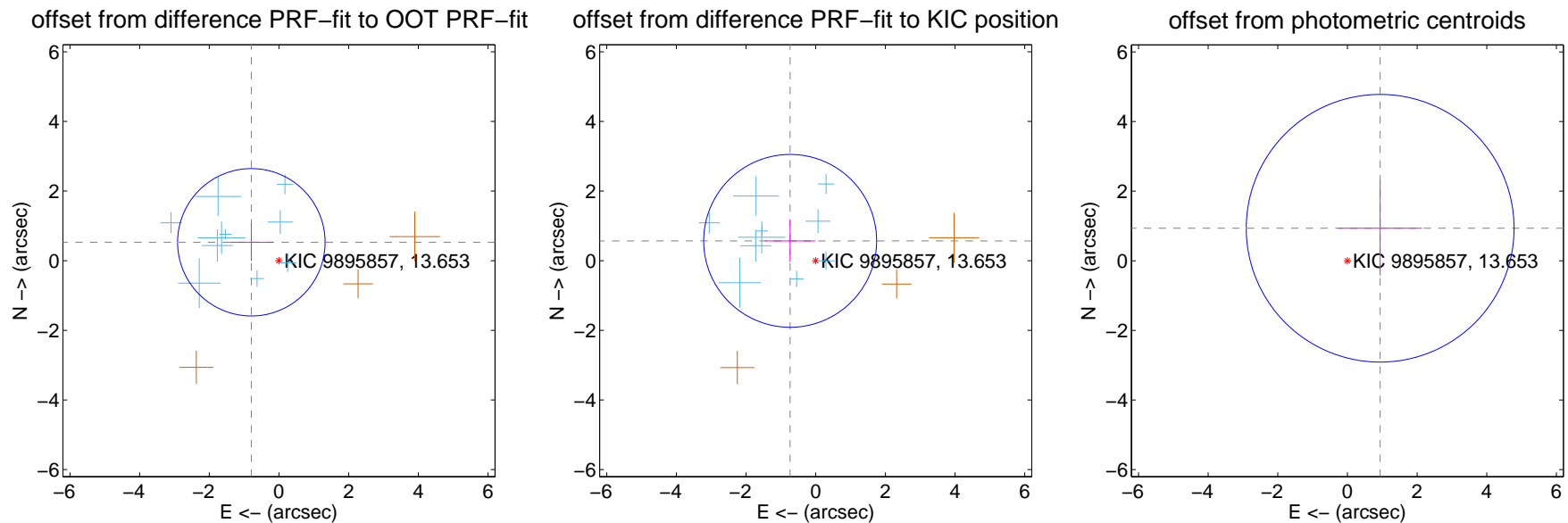
DV Centroid Data

Supplemental centroid analysis for 009895857-01. Kepler magnitude: 13.65. Transit SNR 9.20

There are 10 quarters with good PRF difference image offsets

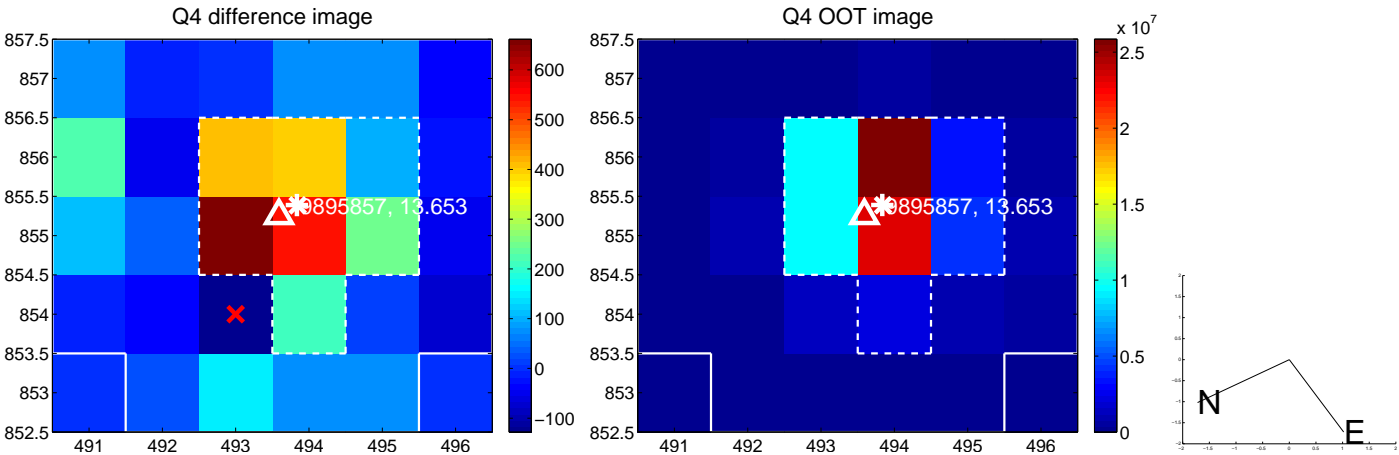
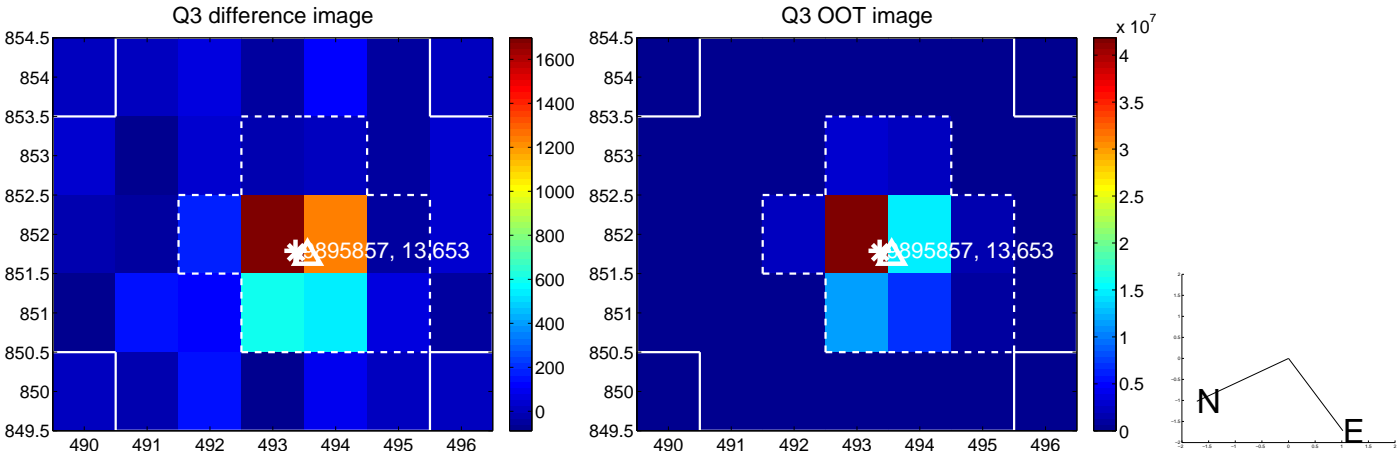
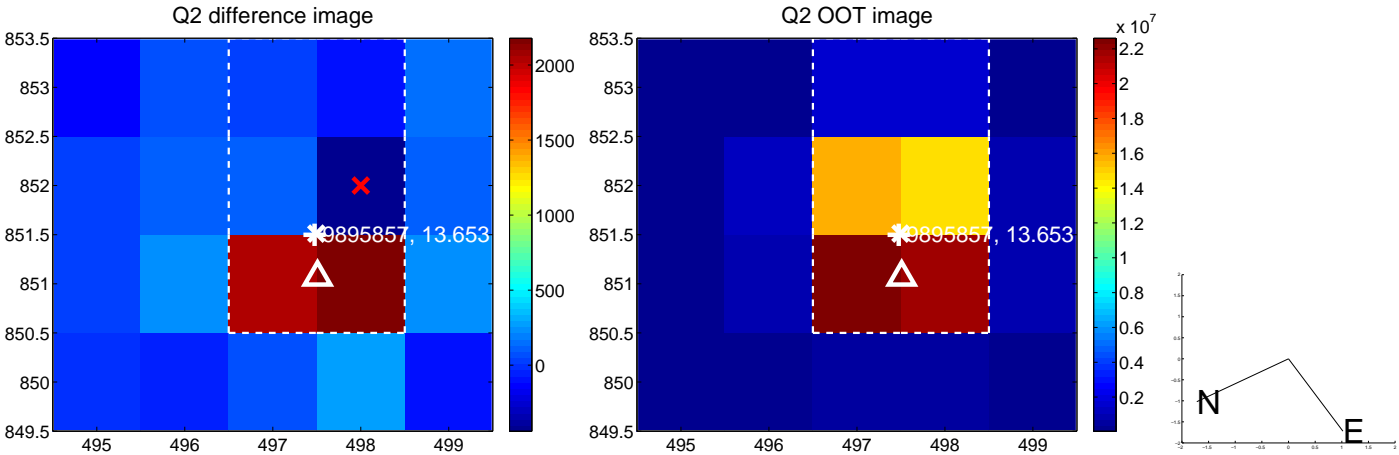
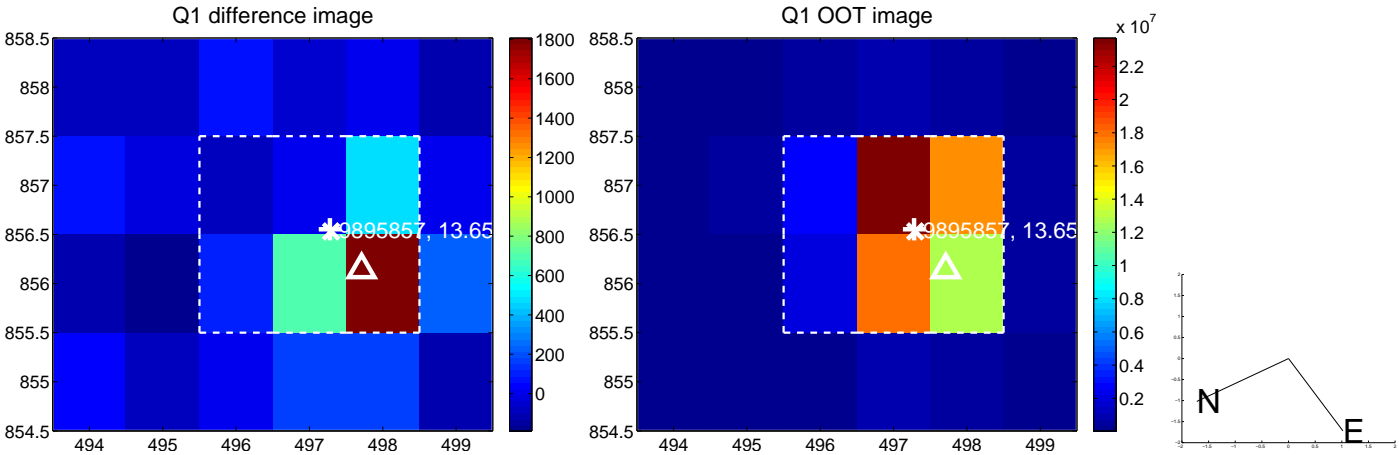
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.954 ± 0.706	1.35	0.794 ± 0.621	0.529 ± 0.537
PRF-fit source offset from KIC position	0.929 ± 0.828	1.12	0.734 ± 0.720	0.570 ± 0.605
photometric centroid source offset	1.32 ± 1.28	1.03	-0.94 ± 1.20	0.93 ± 1.36

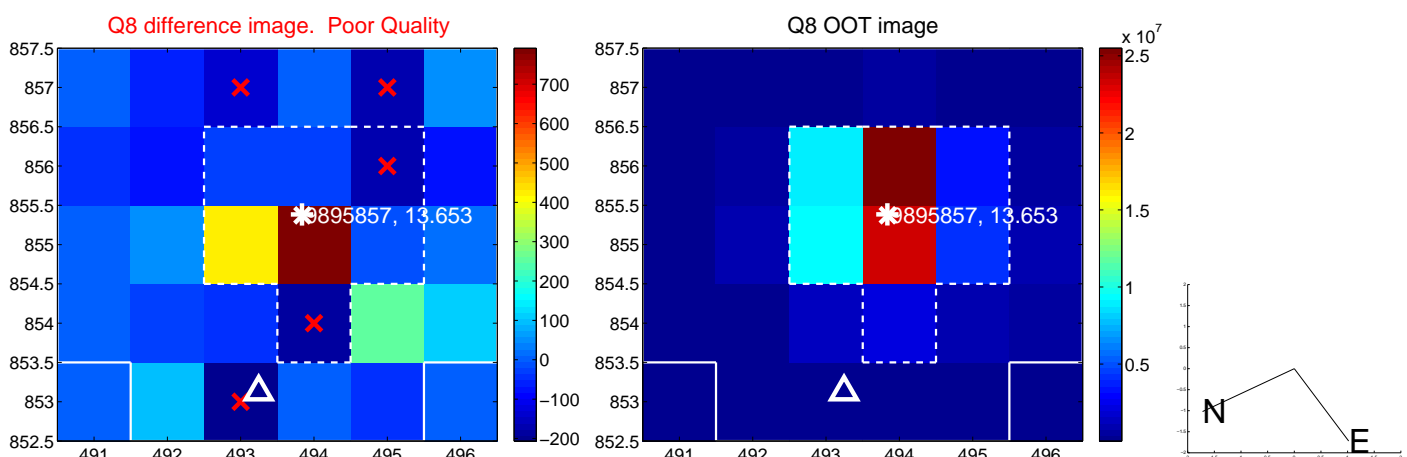
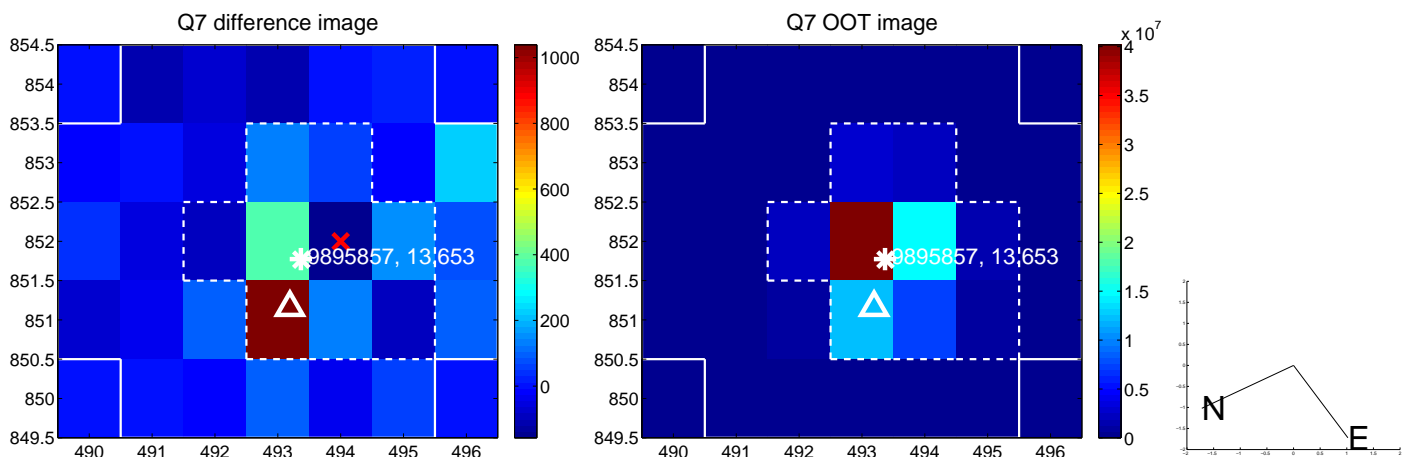
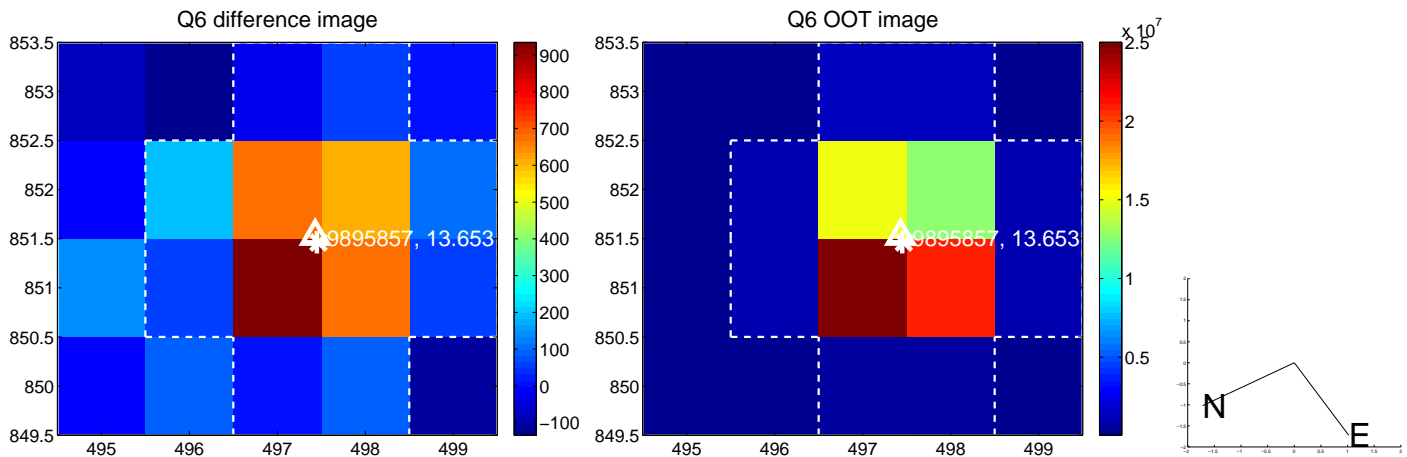
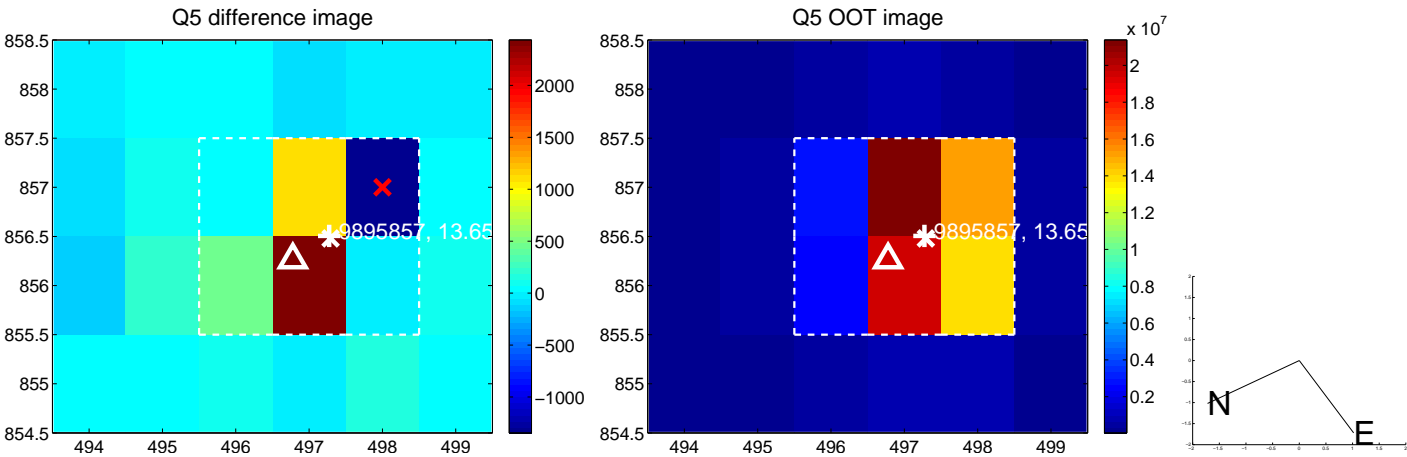


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

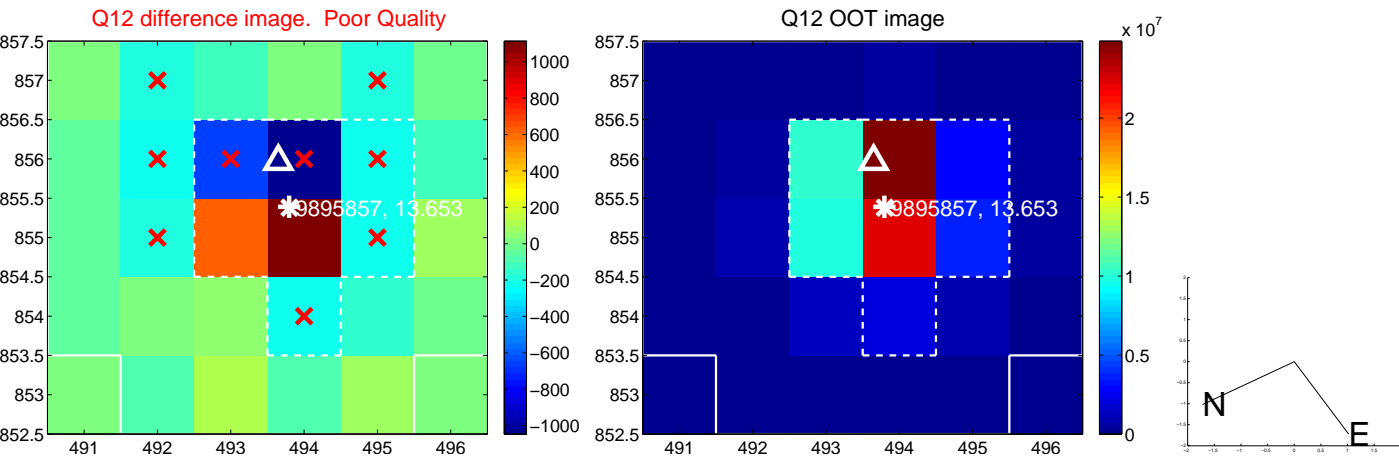
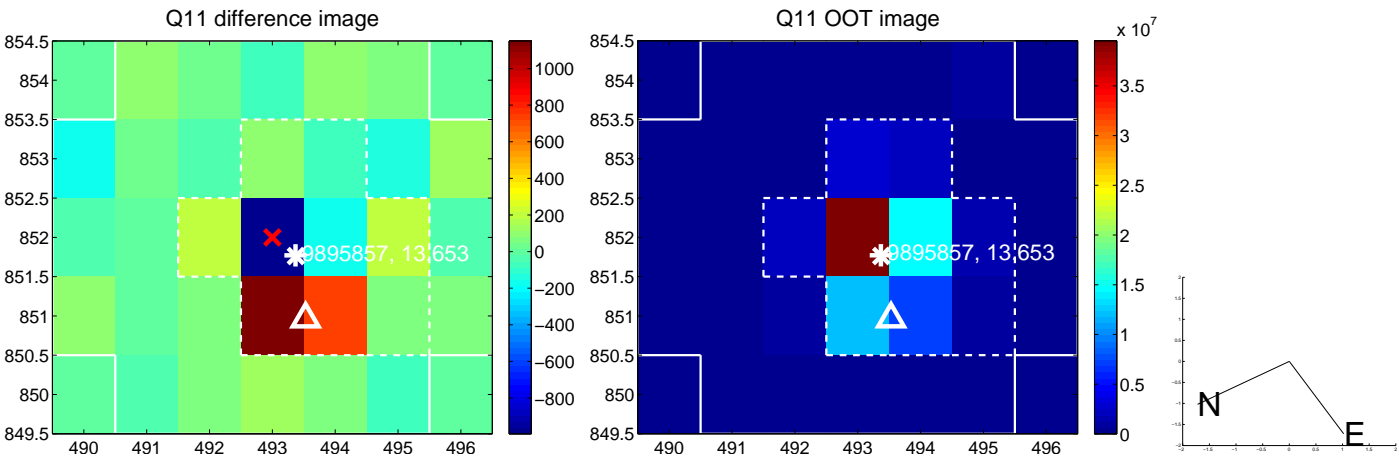
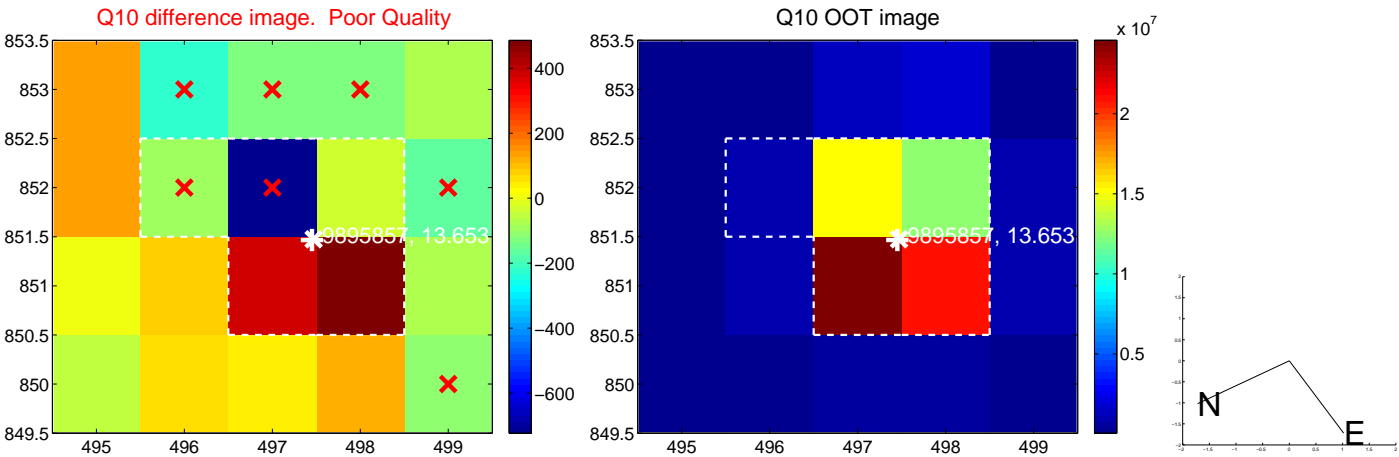
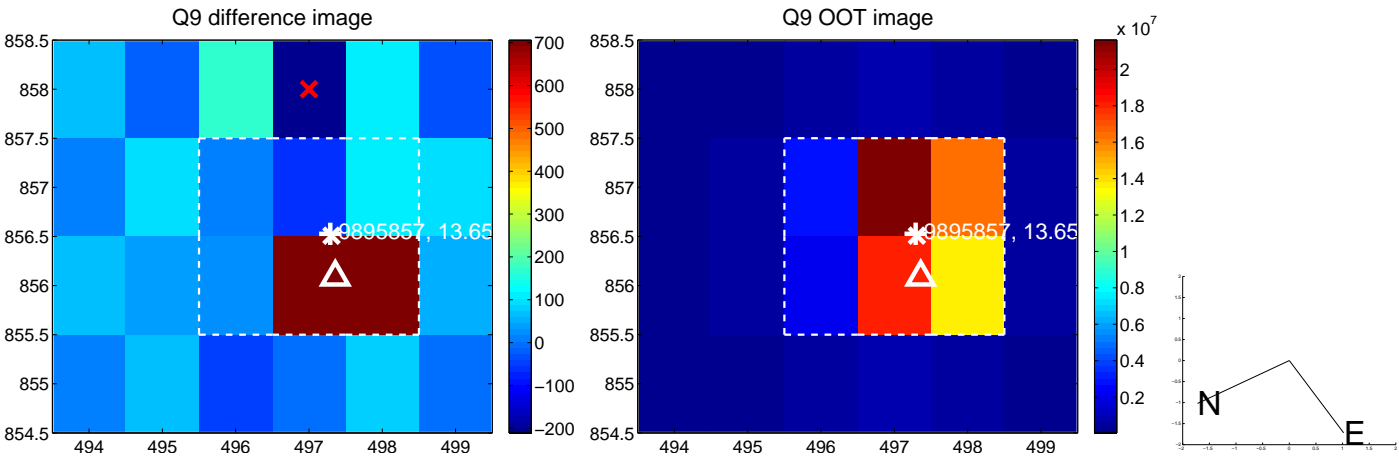
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



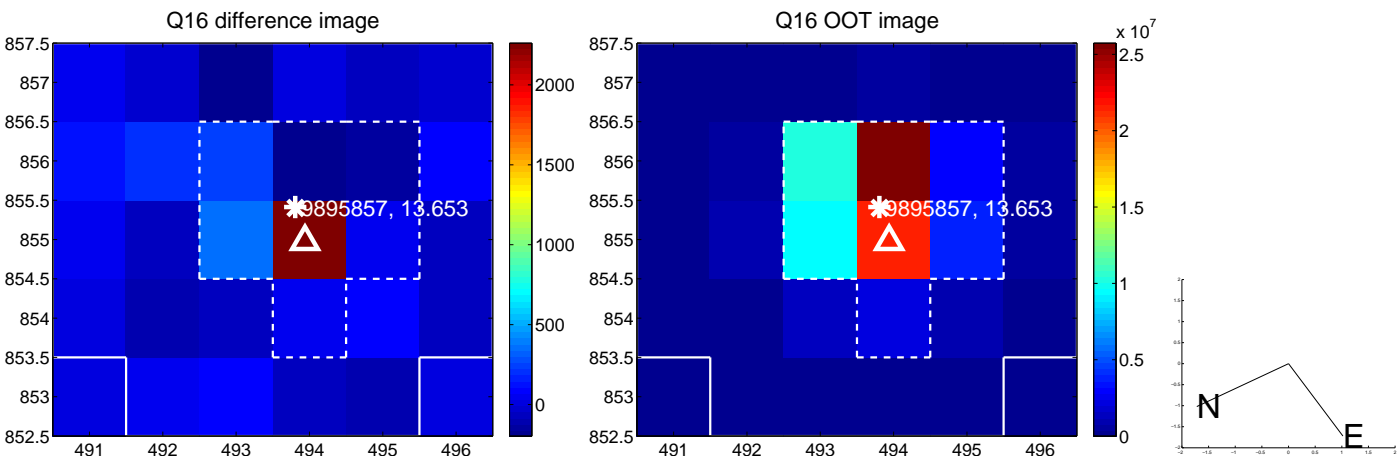
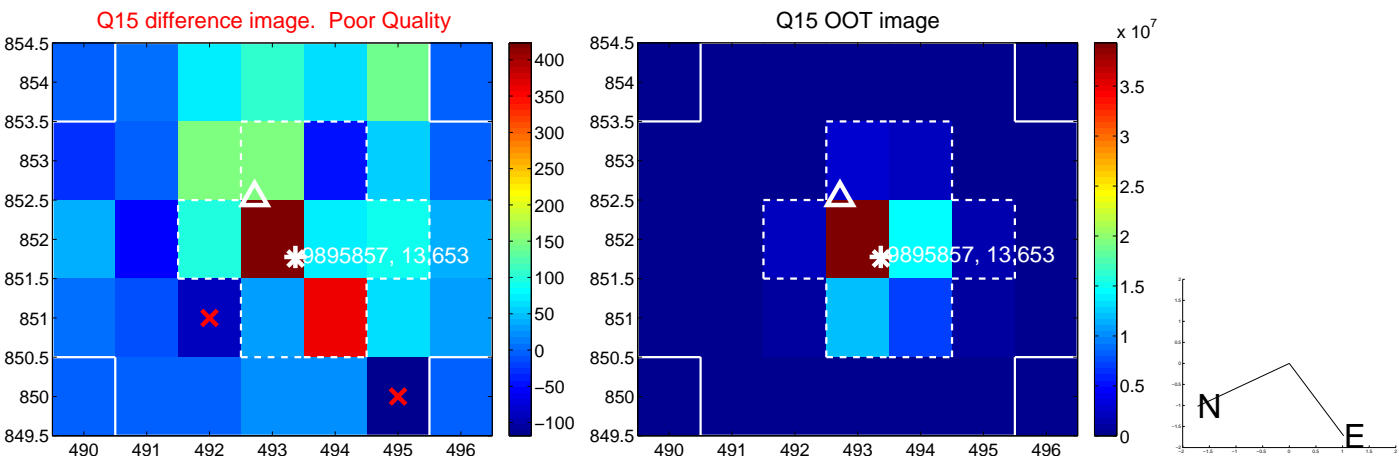
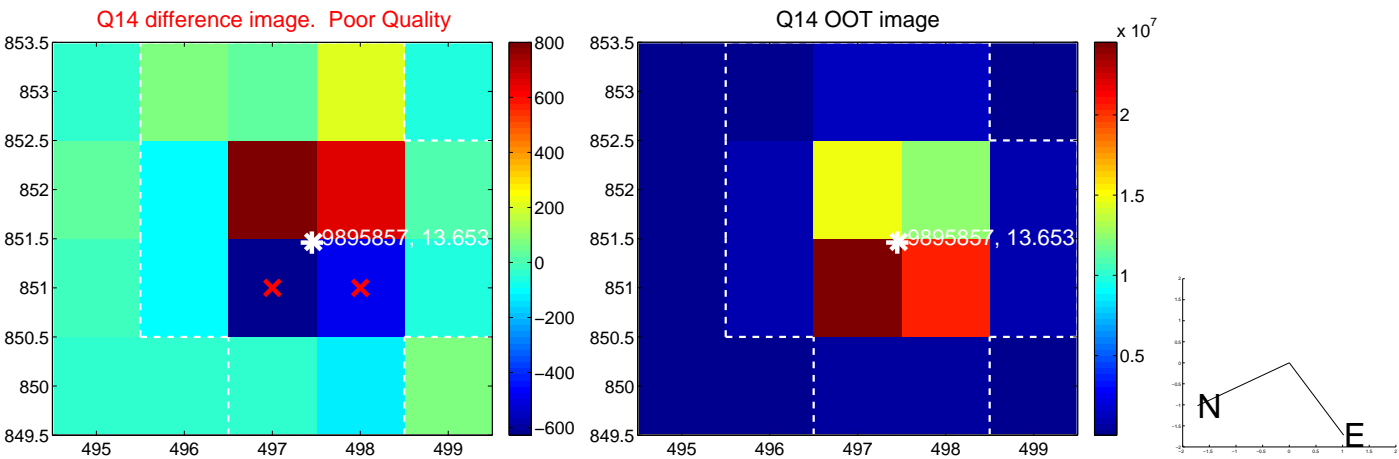
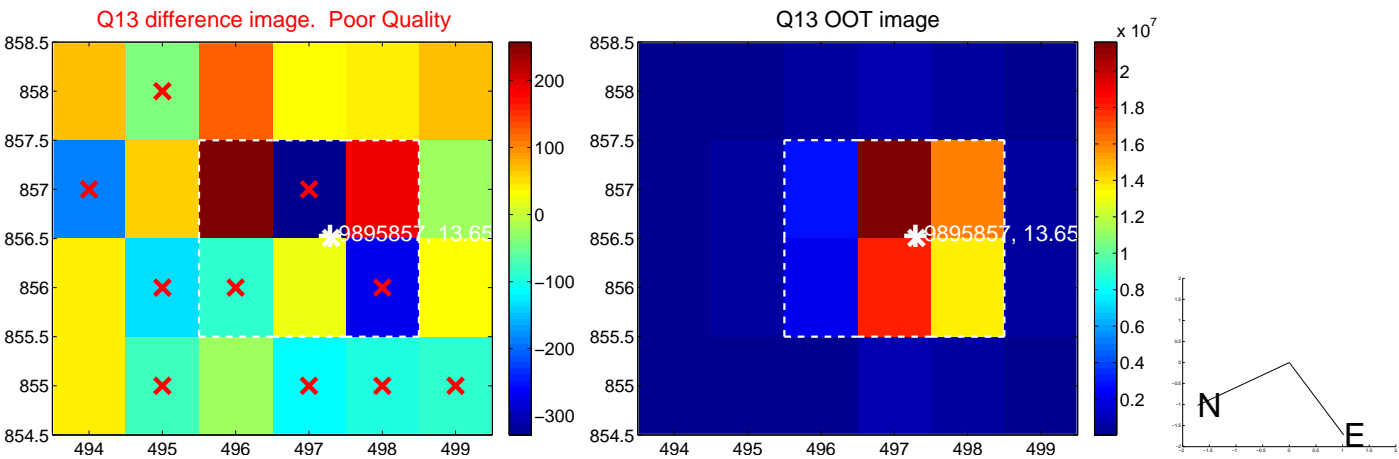
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



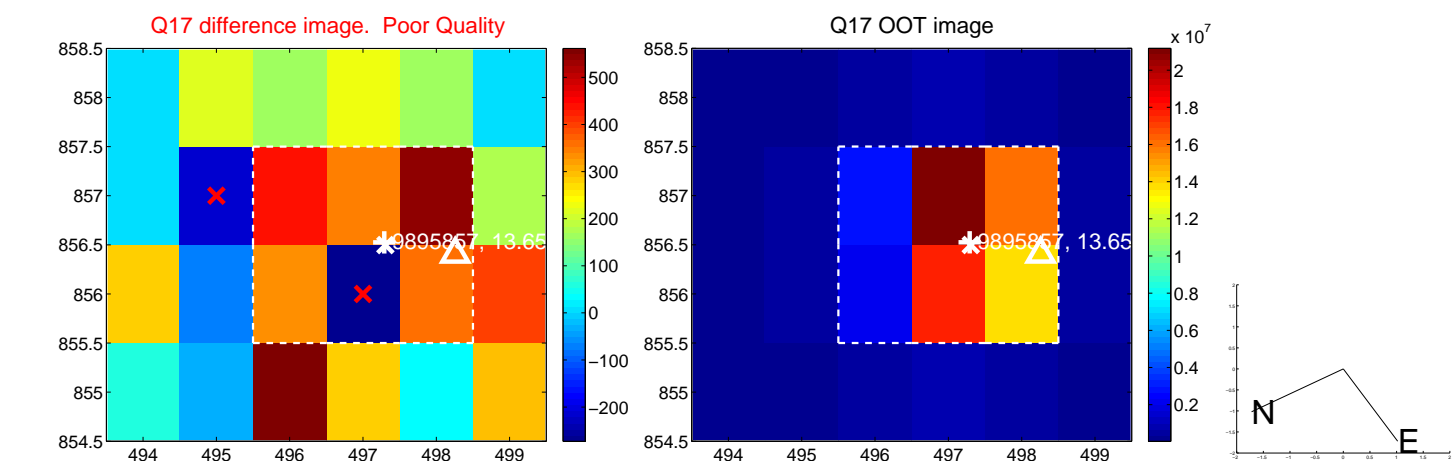
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



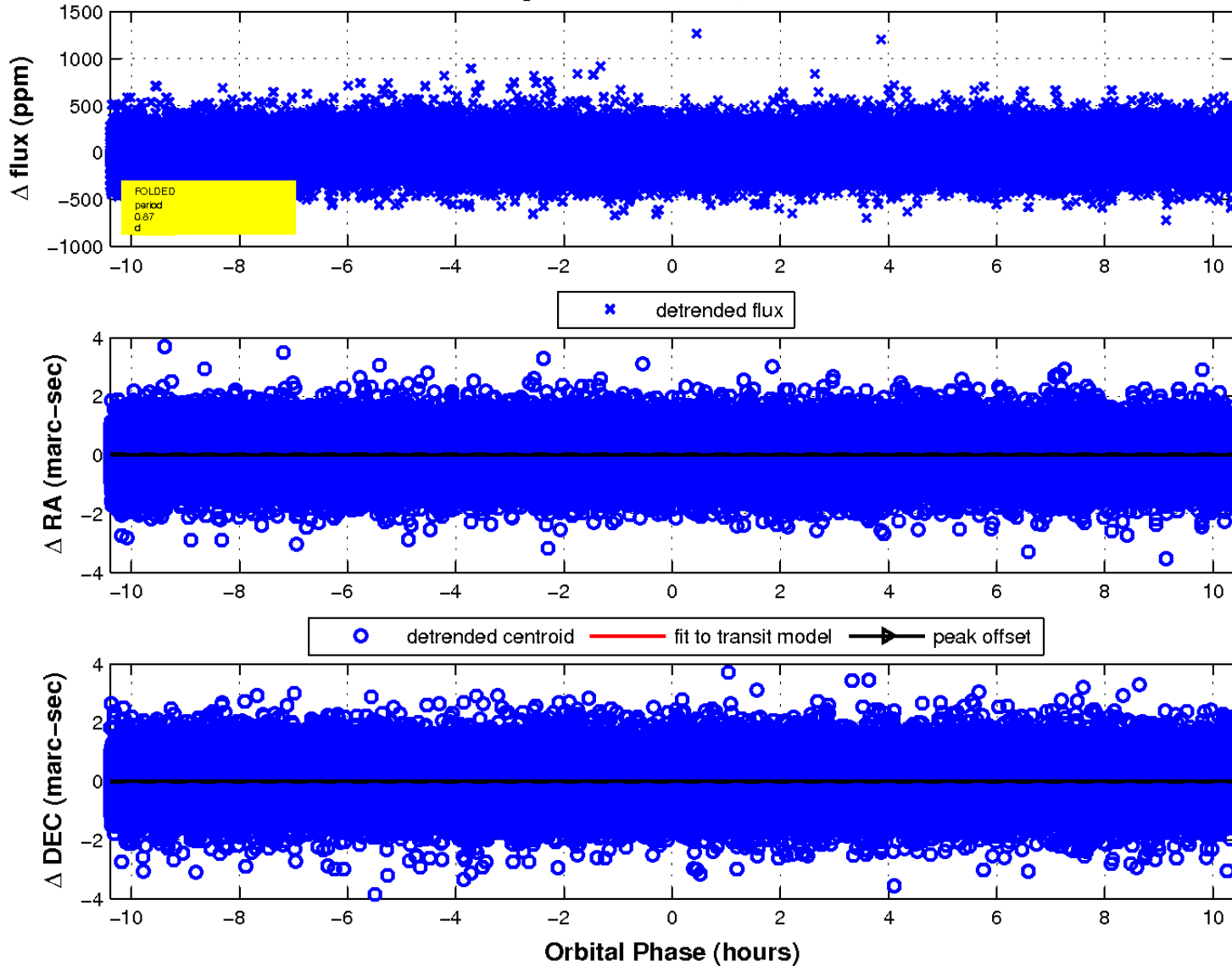
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

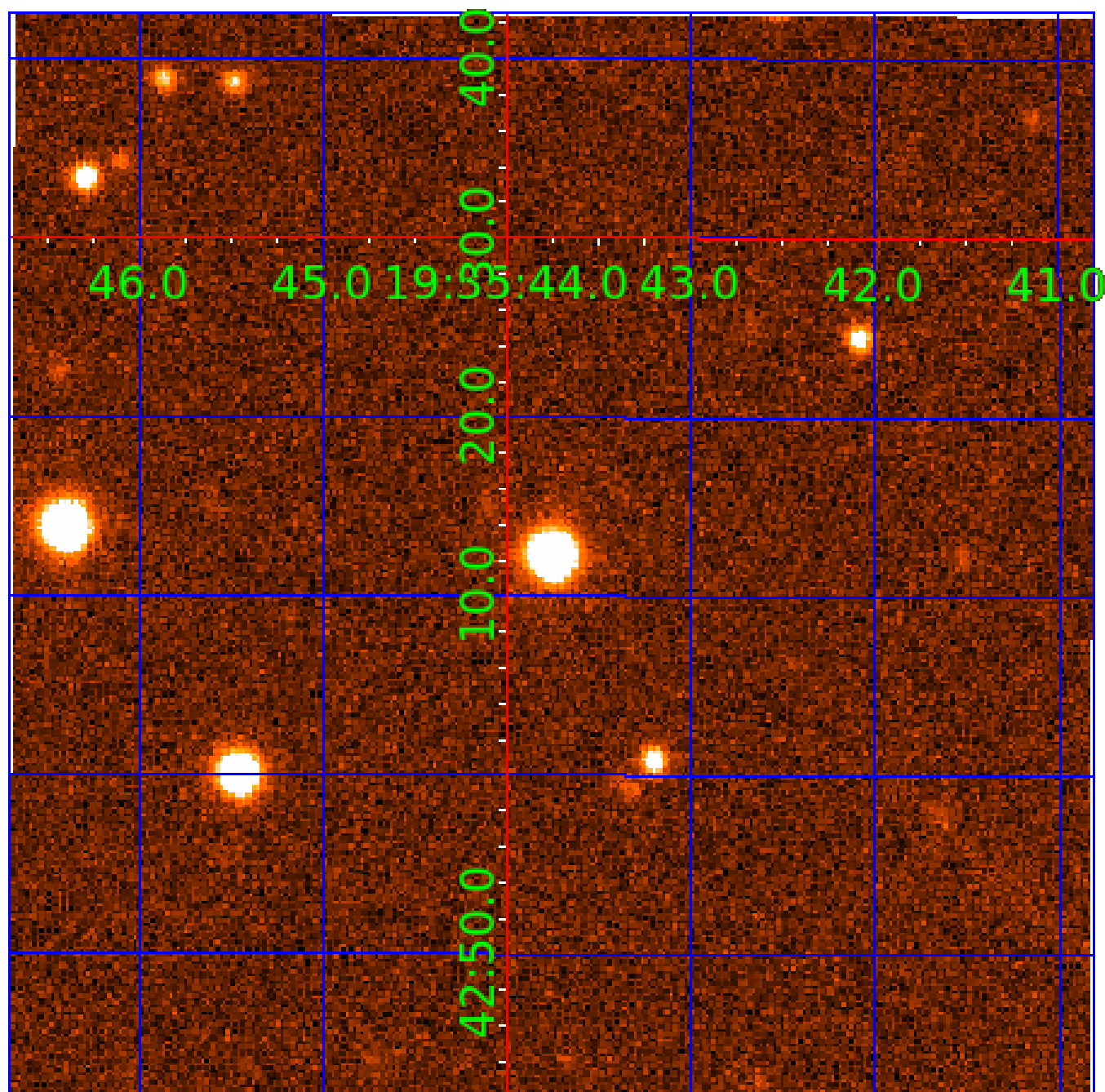


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 009895857

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})
009895857-01	OBS	No	0.865659	131.725008	12.6	5.809	10.4	9.2	2.04	8163	0.73	34259.09
009895857-03	OBS	No	50.760069	172.748590	374.3	1.045	8.3	8.1	2.04	8163	4.65	150.39

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009895857-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009895857-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

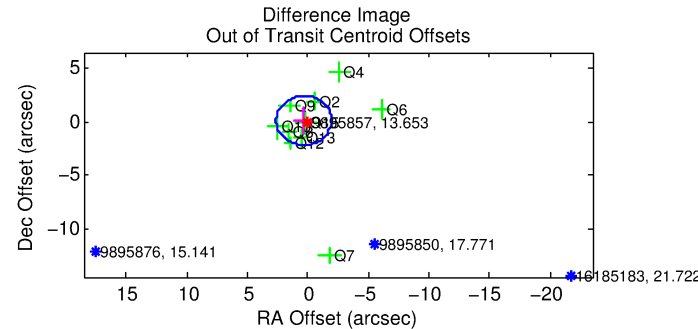
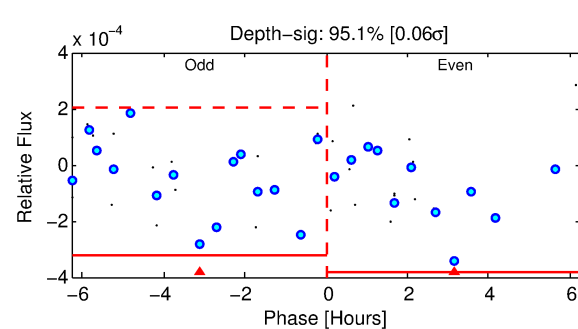
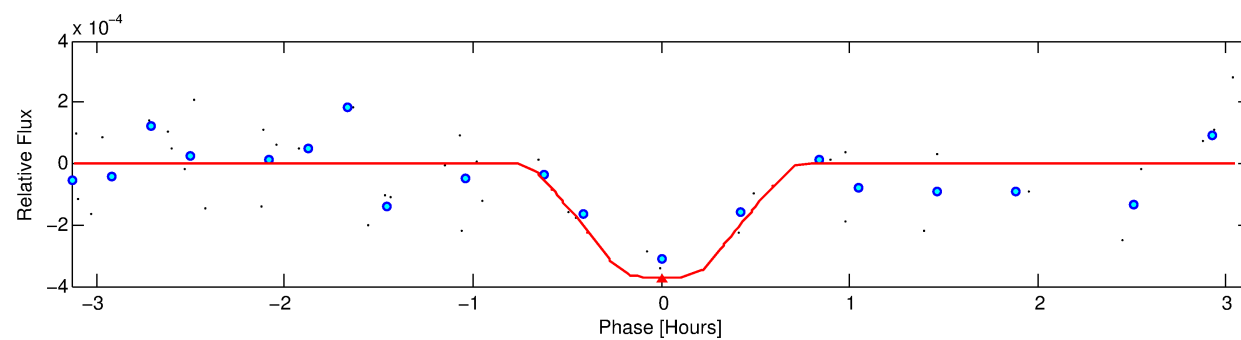
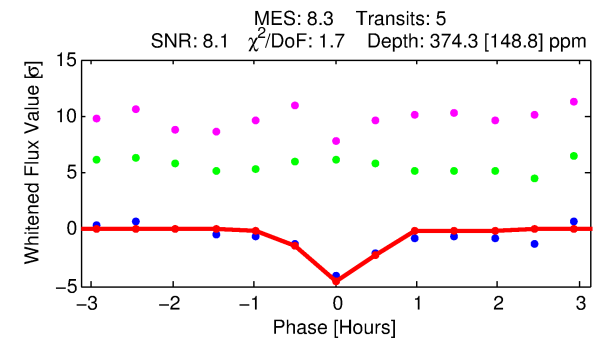
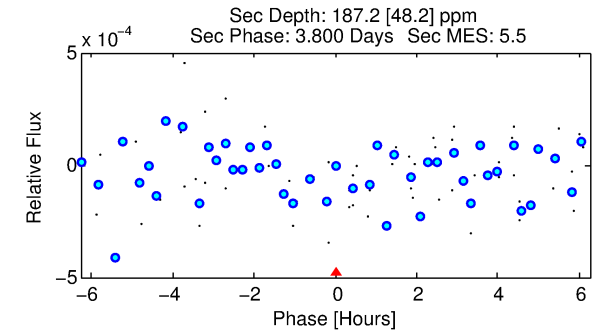
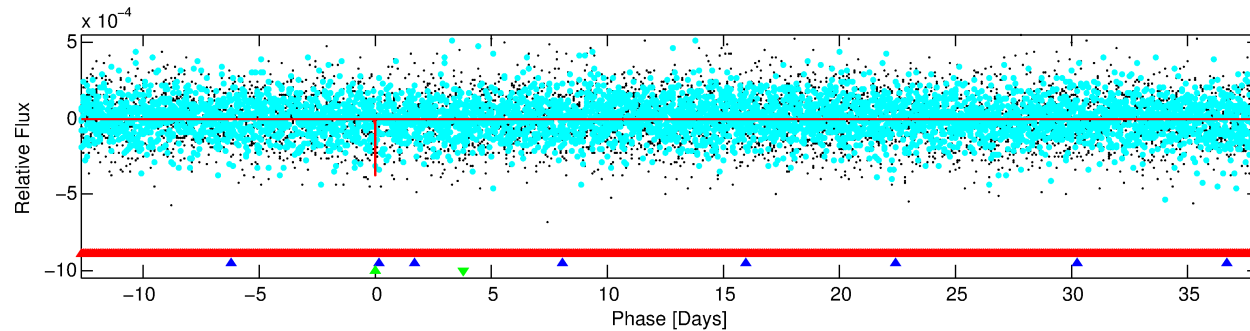
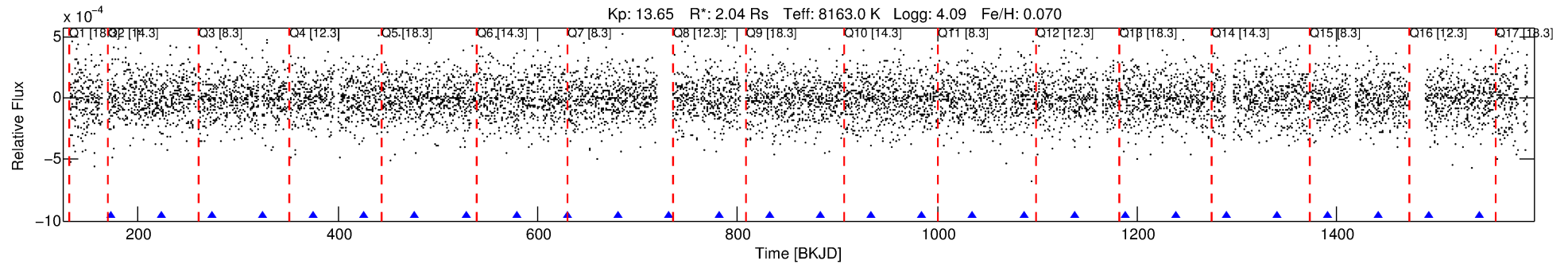
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009895857-03

No Significant Match Found

DV One-Page Summary

KIC: 9895857 Candidate: 3 of 3 Period: 50.760 d



DV Fit Results:

Period = 50.76007 [0.00054] d
Epoch = 172.7486 [0.0084] BKJD
Rp/R* = 0.0209 [0.0740]
a/R* = 171.99 [3822.47]
b = 0.91 [4.31]
Seff = 150.39 [51.63]
Teq = 893 [77] K
Rp = 4.65 [16.51] Re
a = 0.3316 [0.0669] AU
Ag = 523.58 [3714.03] [0.14σ]
Teffp = 6604 [11705] K [0.49σ]

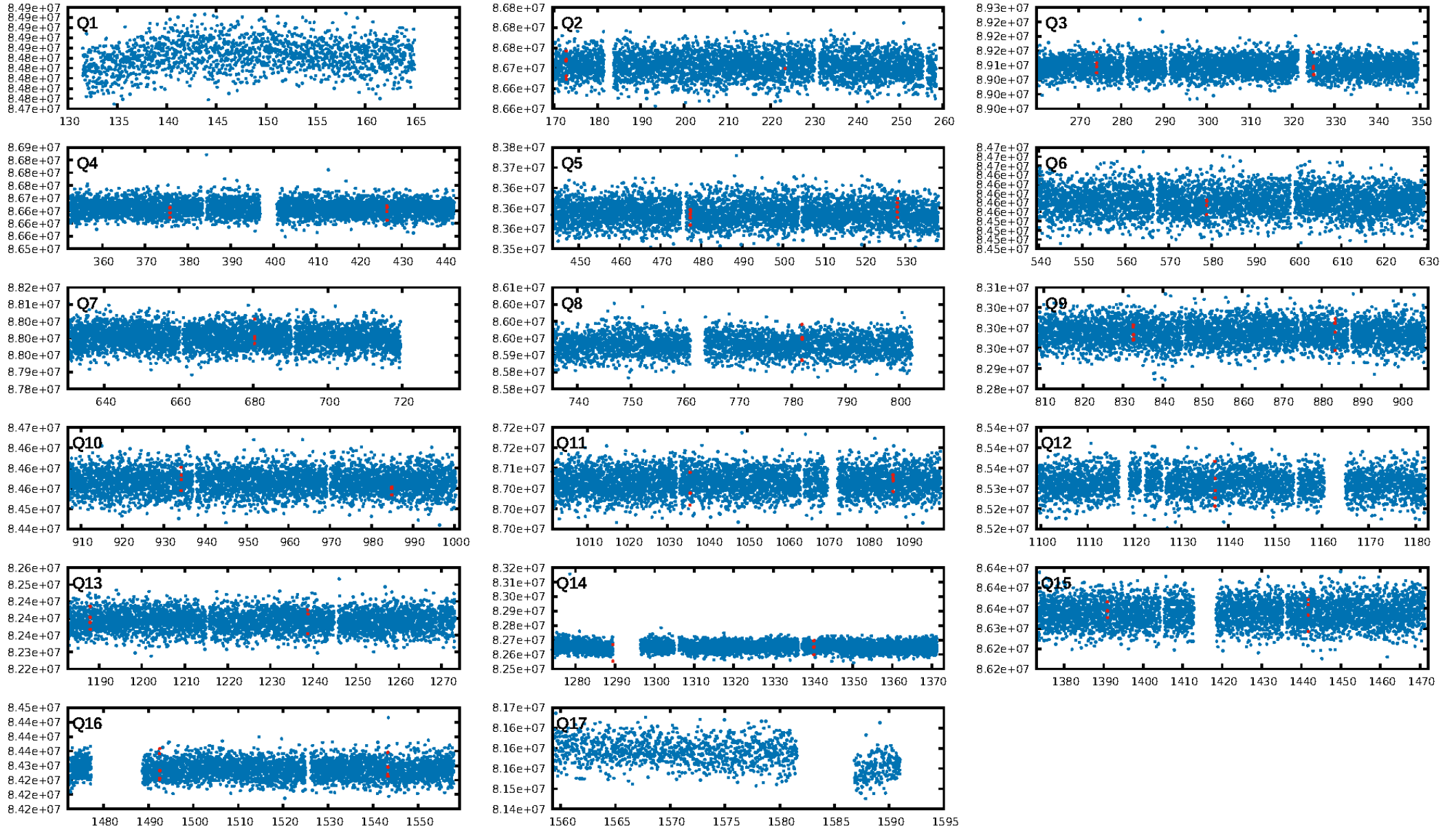
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [202.87σ]
LongPeriod-sig: 100.0% [1523.56σ]
ModelChiSquare2-sig: 73.3%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 9.89e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 1.439
Centroid-sig: 0.1%
Centroid-so: 2.252 arcsec [2.50σ]
OotOffset-rm: 0.365 arcsec [0.48σ]
KicOffset-rm: 0.322 arcsec [0.32σ]
OotOffset-st: 3/2/3/2 [10]
KicOffset-st: 3/2/3/2 [10]
DiffImageQuality-fgm: 0.60 [6/10]
DiffImageOverlap-fno: 0.27 [4/15]

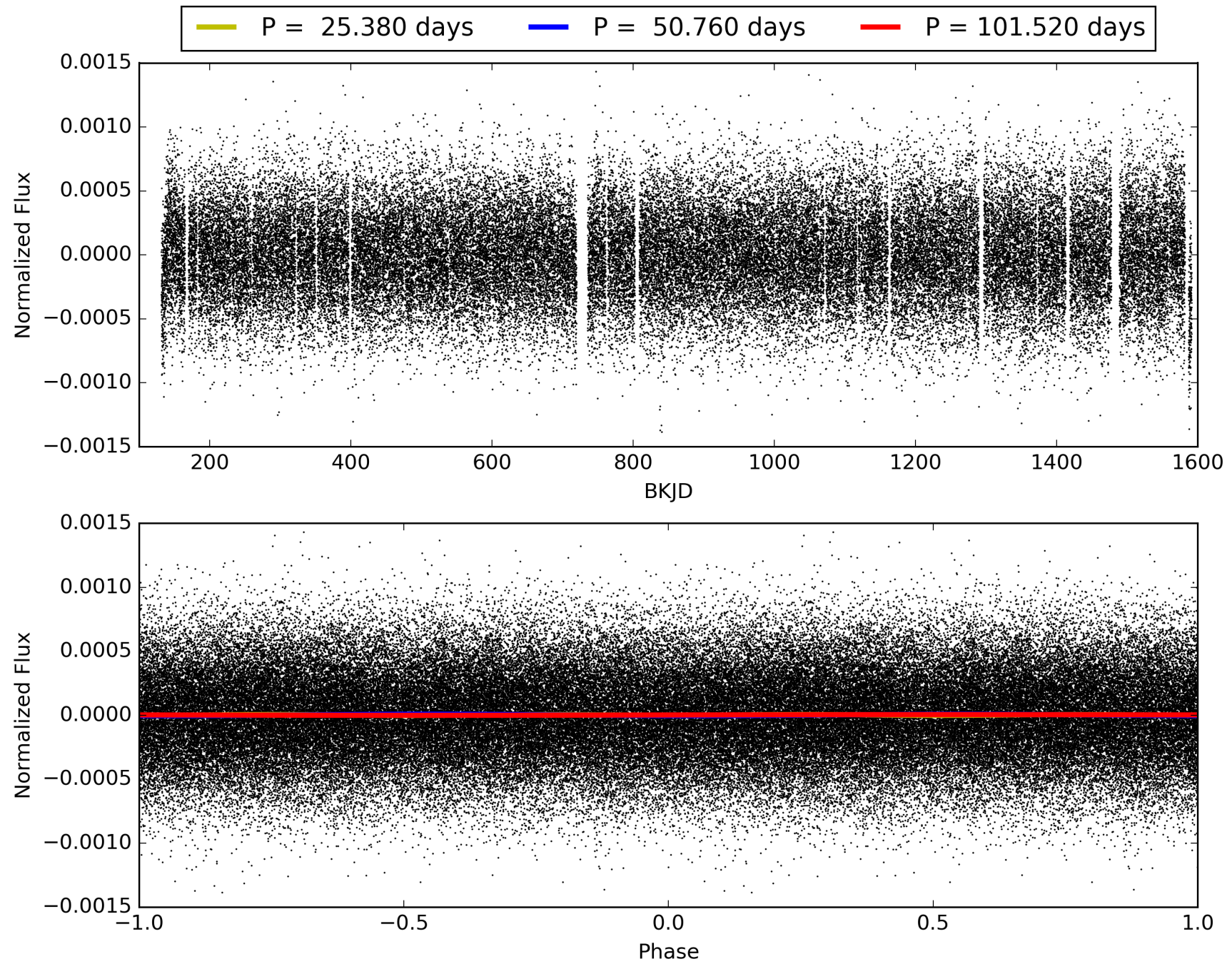
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:44:21 Z

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

TCE 009895857-03, PDC Light Curves

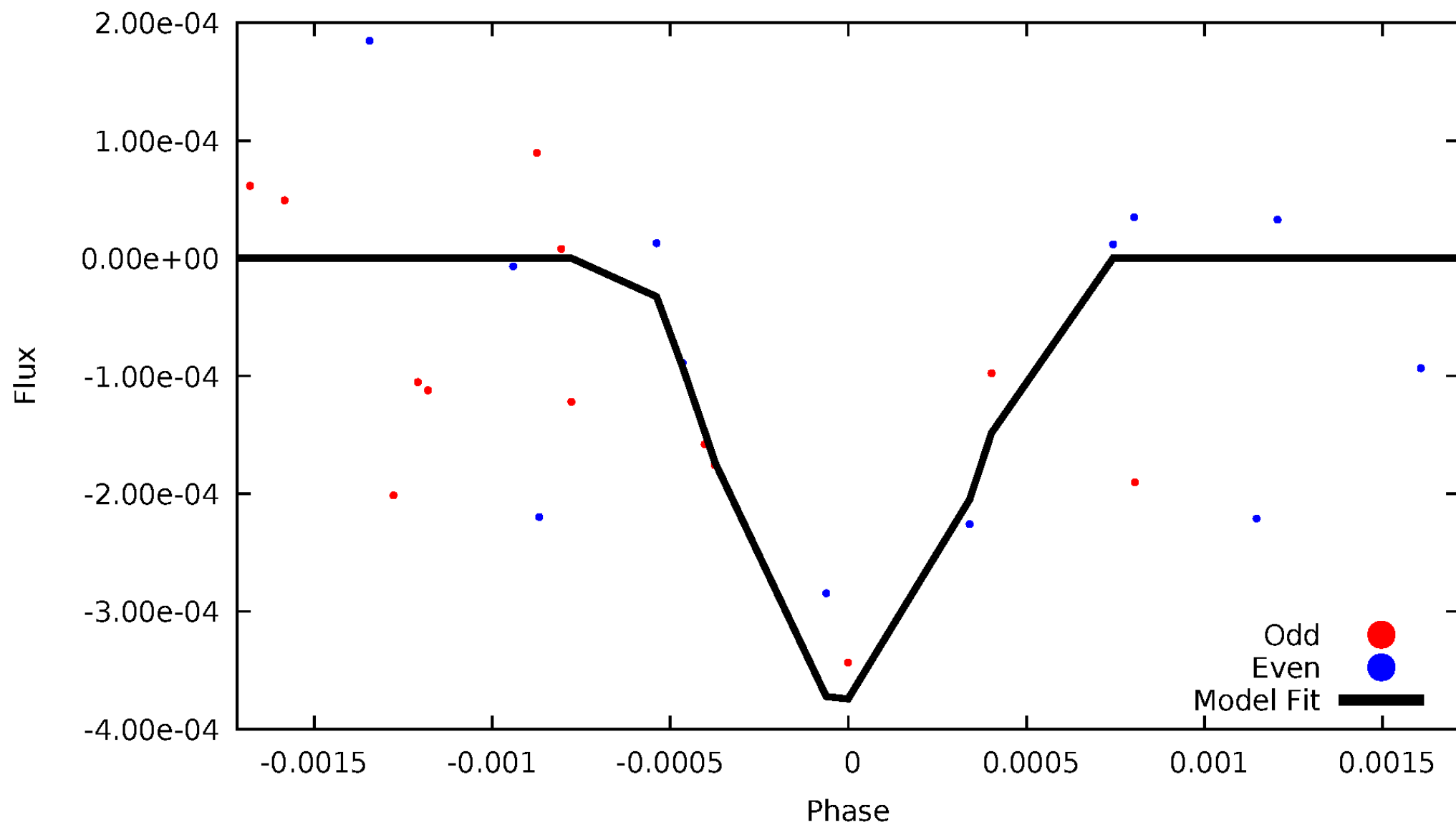


TCE 009895857-03



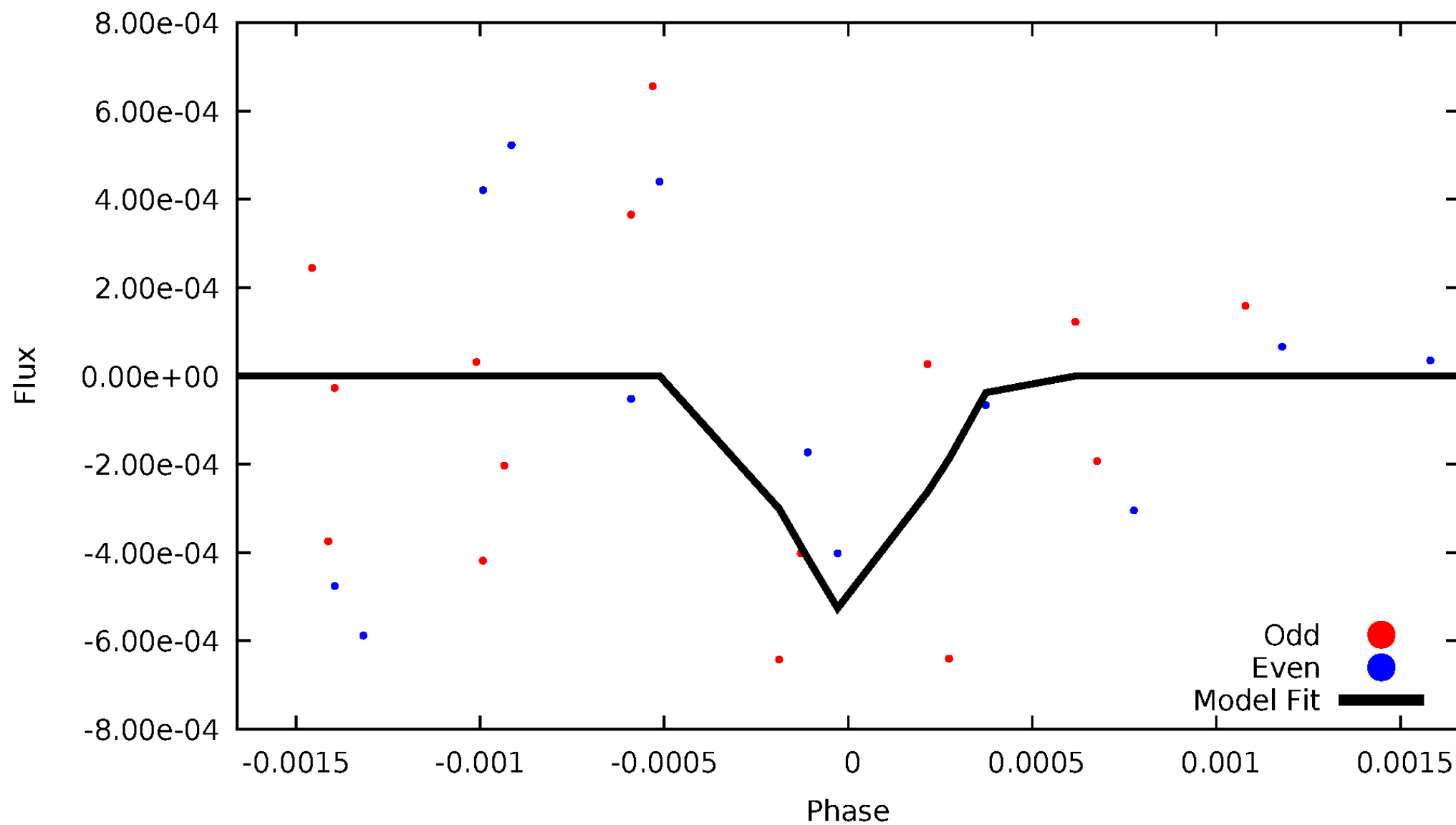
DV Odd/Even

TCE 009895857-03

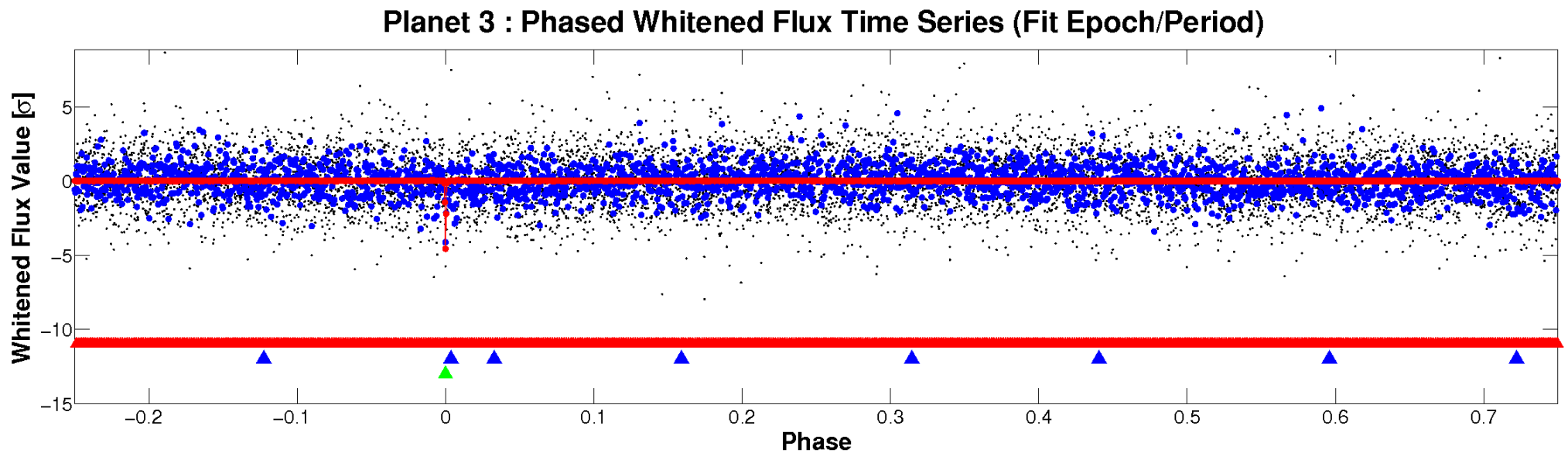
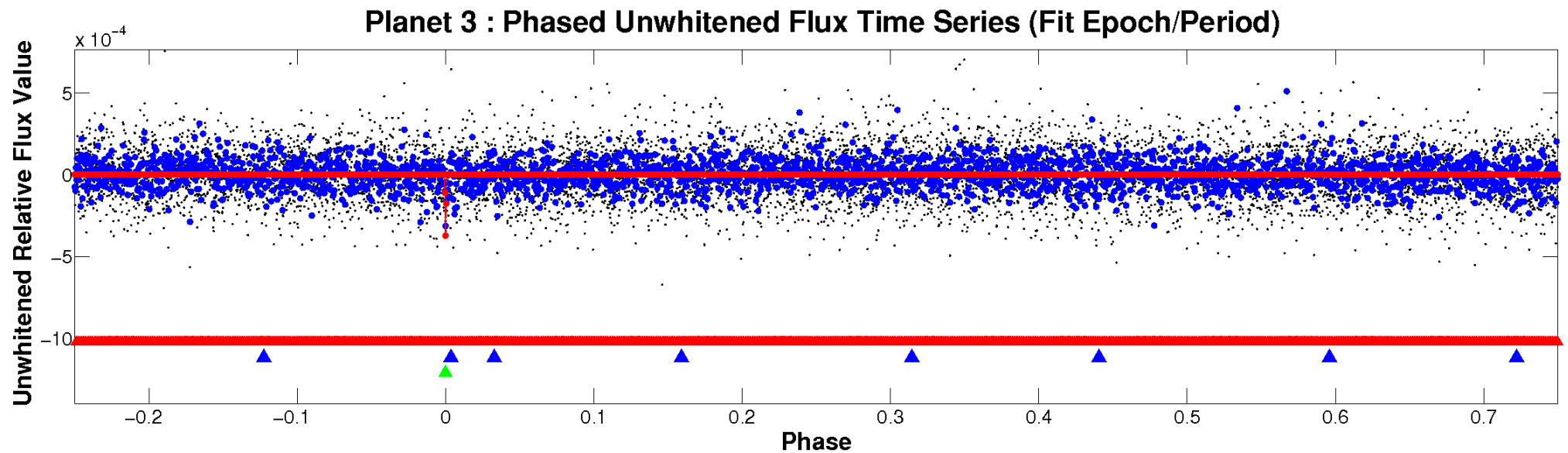


ALT Odd/Even

TCE 009895857-03

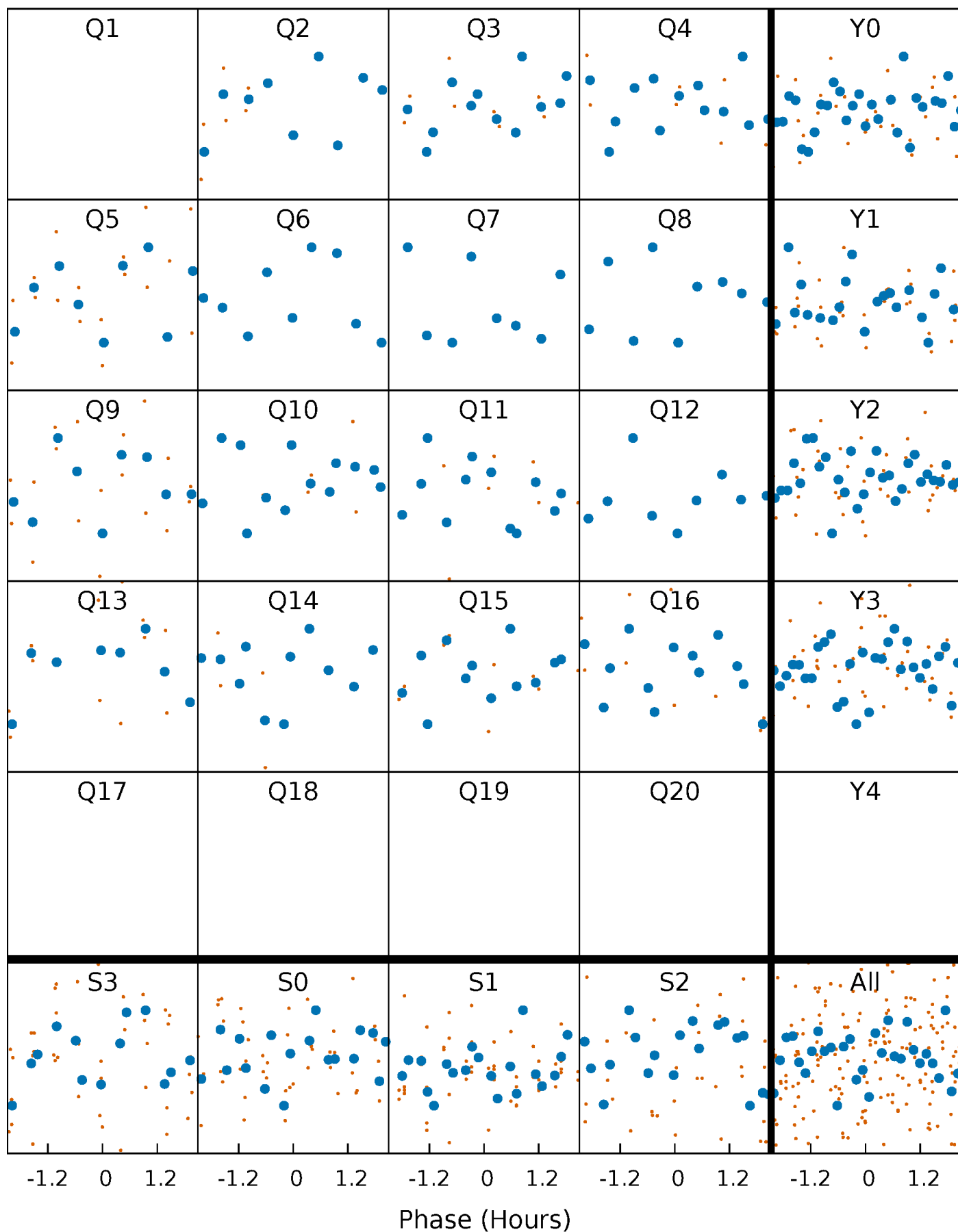


Non-Whitened Vs. Whitened Light Curve



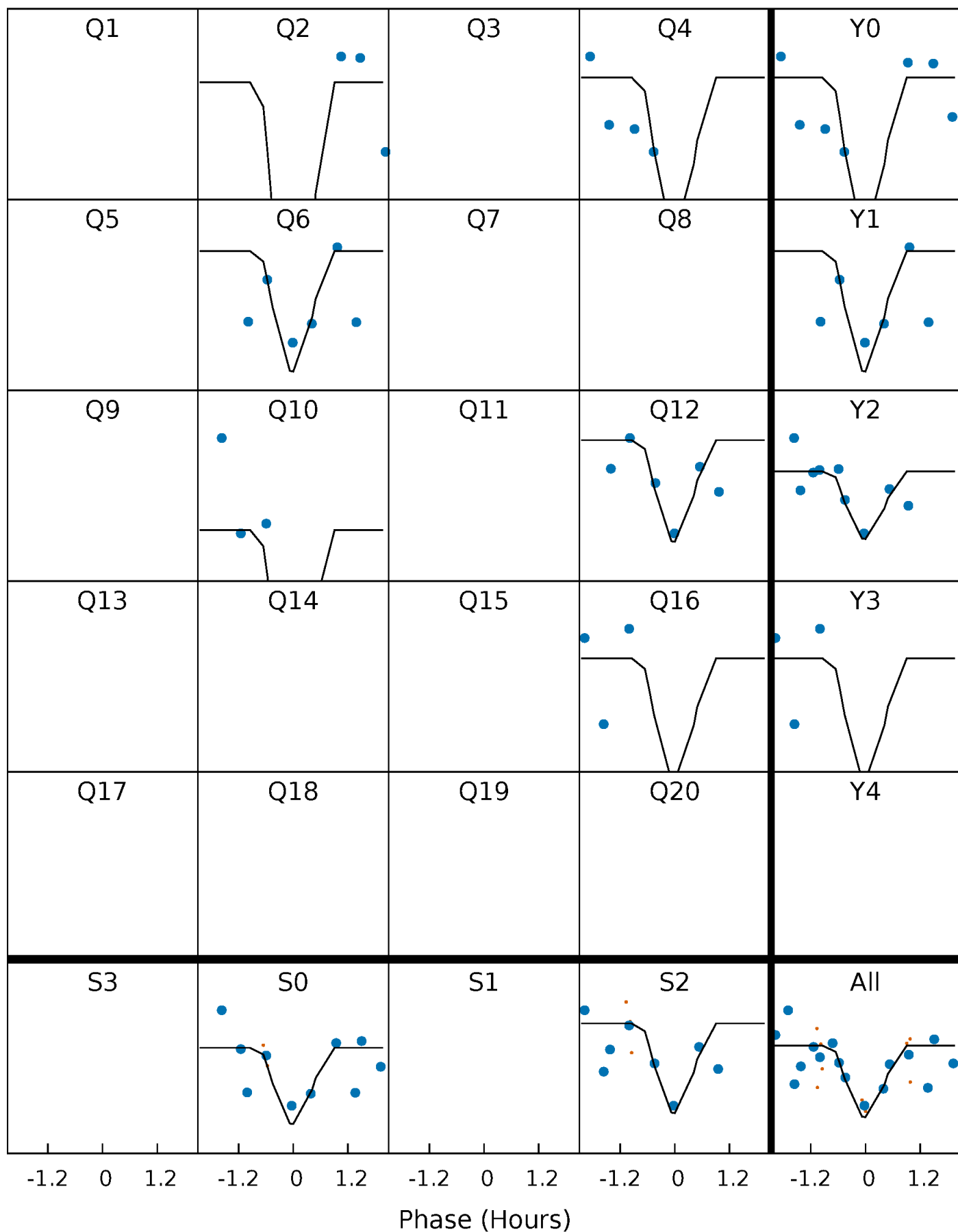
PDC Quarter-Phased Transit Curves

TCE 009895857-03 P= 50.760069 Days $T_0=172.748590$ (BKJD)



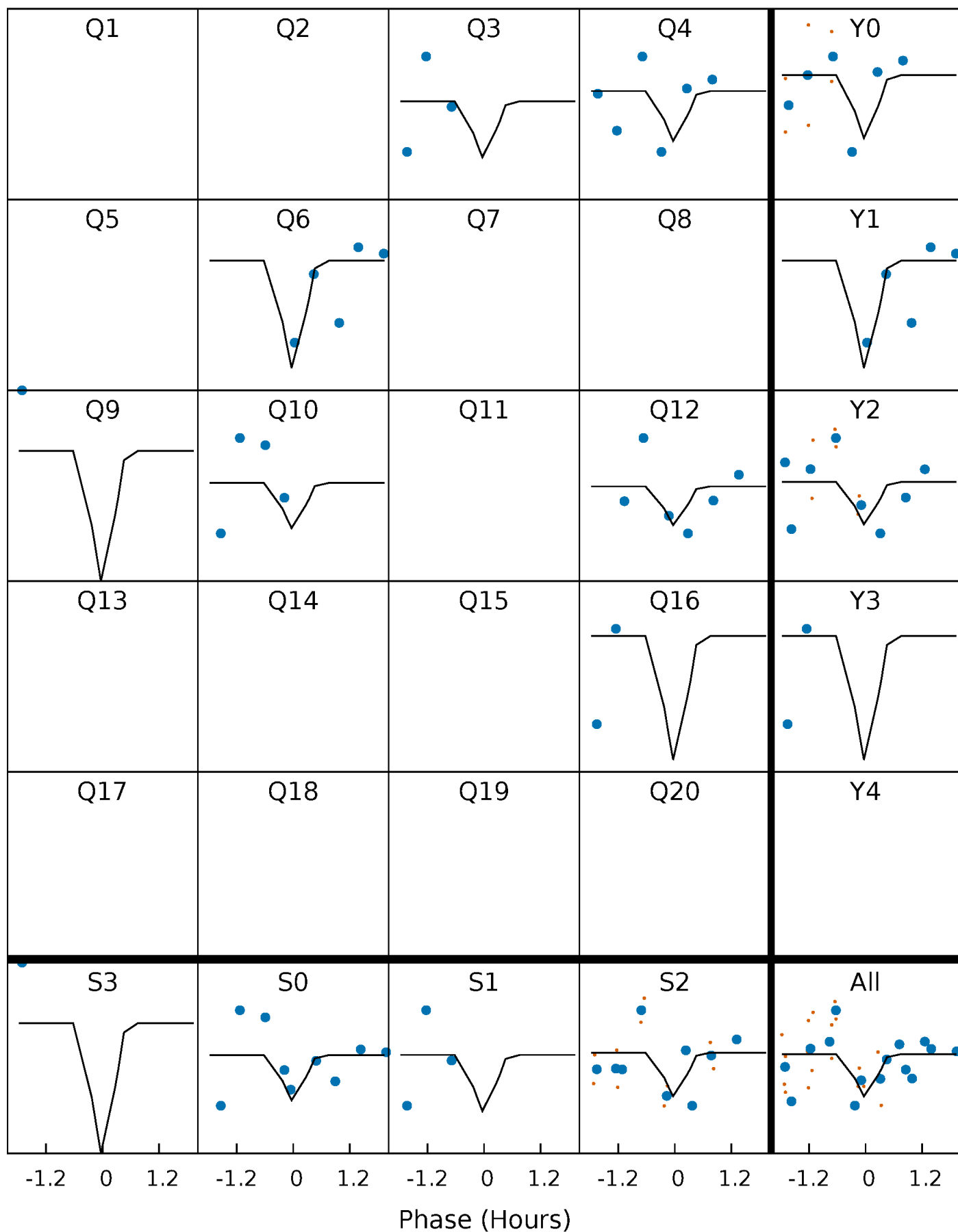
DV Quarter-Phased Transit Curves

TCE 009895857-03 P= 50.760069 Days $T_0=172.748590$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

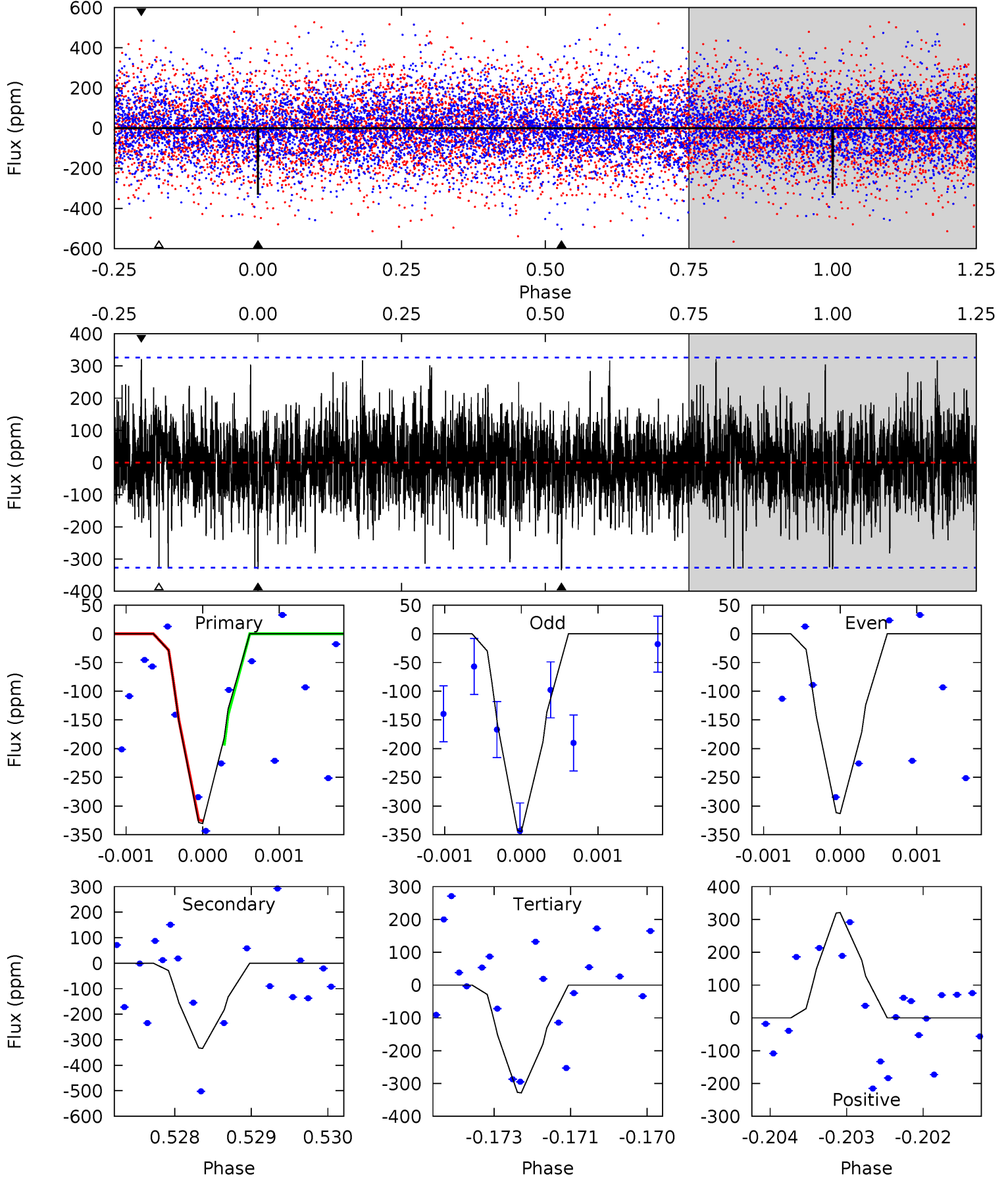
TCE 009895857-03 P= 50.762673 Days $T_0=172.685206$ (BKJD)



DV Model-Shift Uniqueness Test

009895857-03, P = 50.760069 Days, E = 121.988521 Days

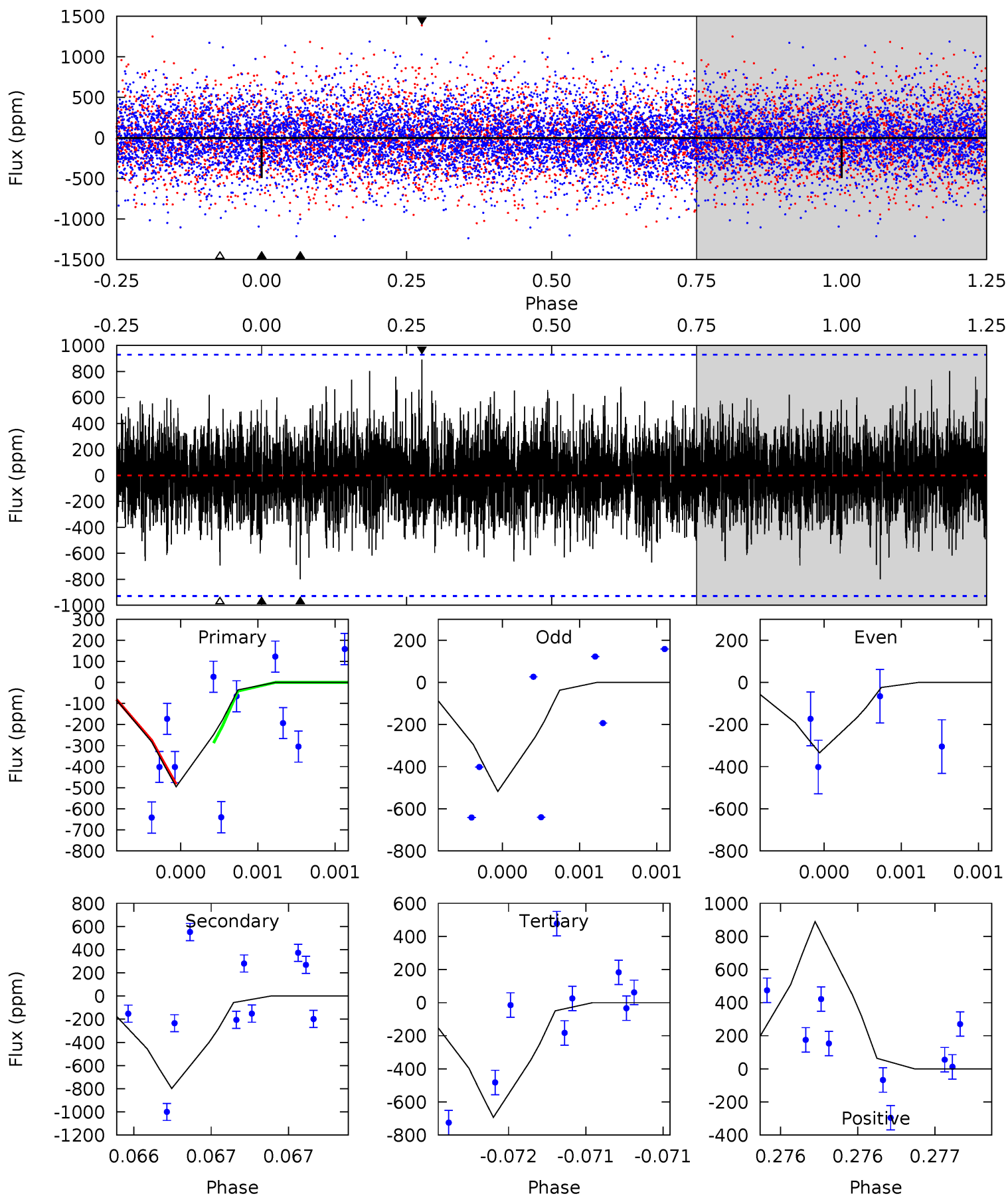
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.49	5.54	5.45	5.33	5.42	3.24	1.43	0.03	0.16	0.09	0.21	0.25	1.00	0.49	1.03



Alt Model-Shift Uniqueness Test

009895857-03, P = 50.762673 Days, E = 121.922533 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.97	4.79	4.16	5.34	5.57	3.48	1.25	-1.19	-2.37	0.63	-0.55	0.55	0.98	0.53	0.59



Stellar Parameters For KIC 009895857

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8163^{+226}_{-368}	$4.095^{+0.130}_{-0.159}$	$0.070^{+0.300}_{-0.400}$	$2.039^{+0.491}_{-0.446}$	$1.885^{+0.274}_{-0.335}$	$0.313^{+0.226}_{-0.141}$
	+3%/-5%	+3%/-4%	+429%/-571%	+24%/-22%	+15%/-18%	+72%/-45%
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 009895857-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-334 ± 60	$13.24^{+14.29}_{-8.64}$	1252^{+82}_{-81}	4509^{+2920}_{-993}	111^{+787}_{-85}
Alt.	-798 ± 167	$13.19^{+12.77}_{-8.85}$	1252^{+83}_{-86}	5451^{+4980}_{-1321}	270^{+2083}_{-201}

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 $A_{obs} \gg 1.0$

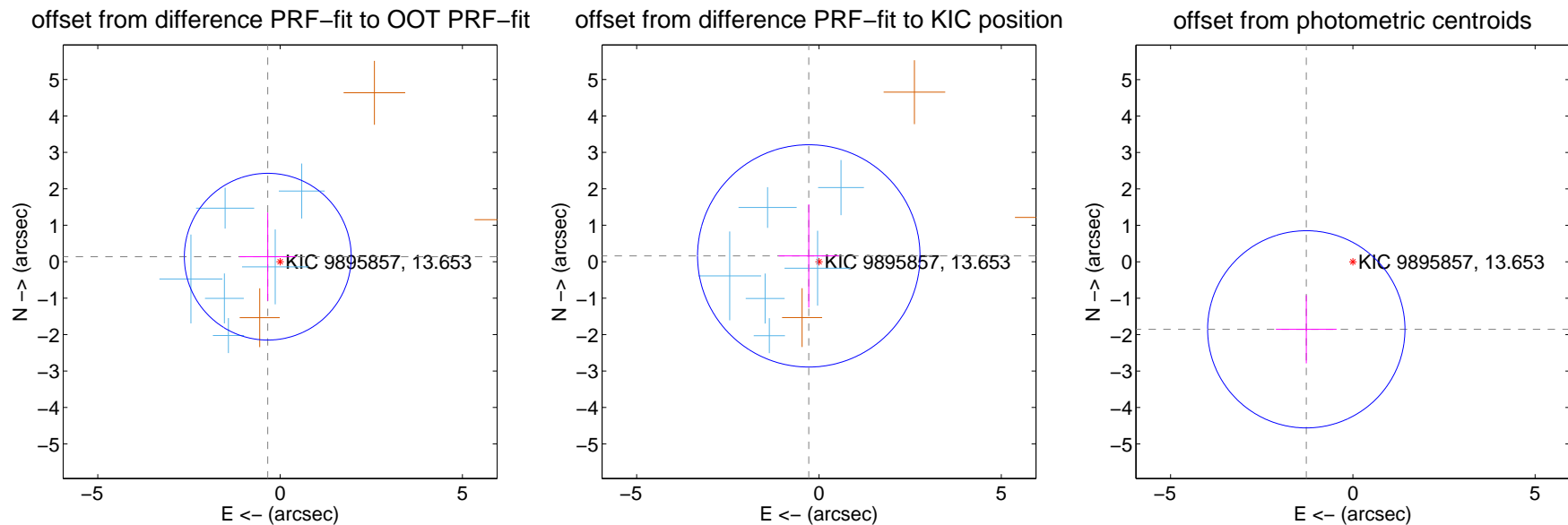
DV Centroid Data

Supplemental centroid analysis for 009895857-03. Kepler magnitude: 13.65. Transit SNR 8.13

There are 6 quarters with good PRF difference image offsets

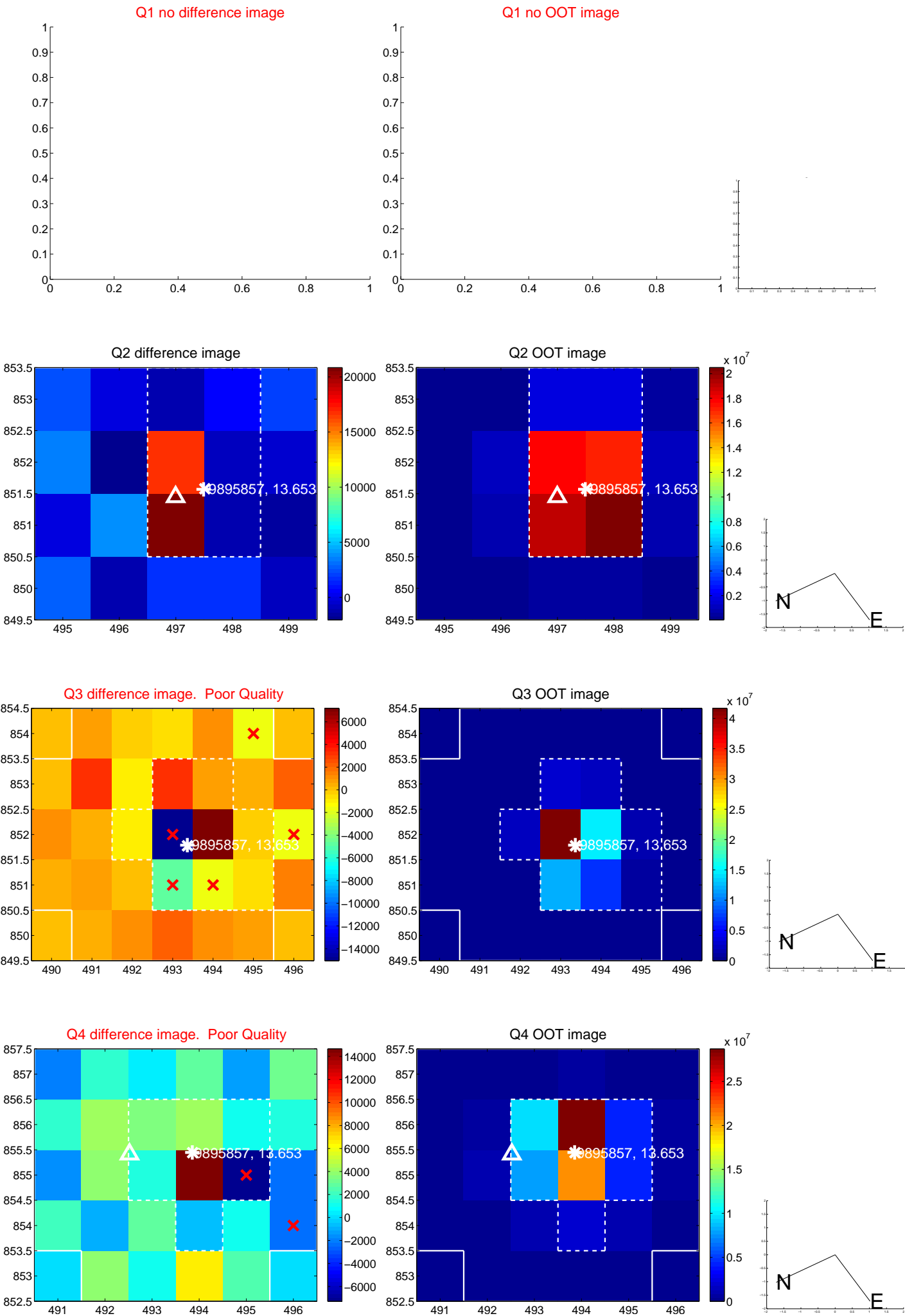
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.365 ± 0.763	0.48	0.338 ± 0.774	0.137 ± 1.211
PRF-fit source offset from KIC position	0.322 ± 1.017	0.32	0.280 ± 0.829	0.159 ± 1.417
photometric centroid source offset	2.25 ± 0.90	2.50	1.28 ± 0.83	-1.85 ± 0.93

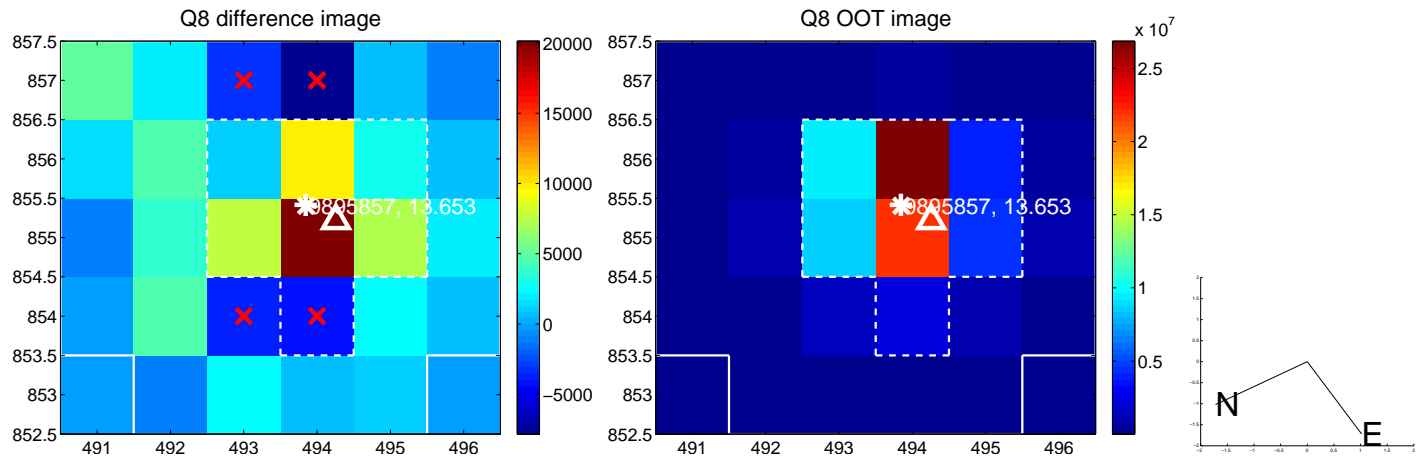
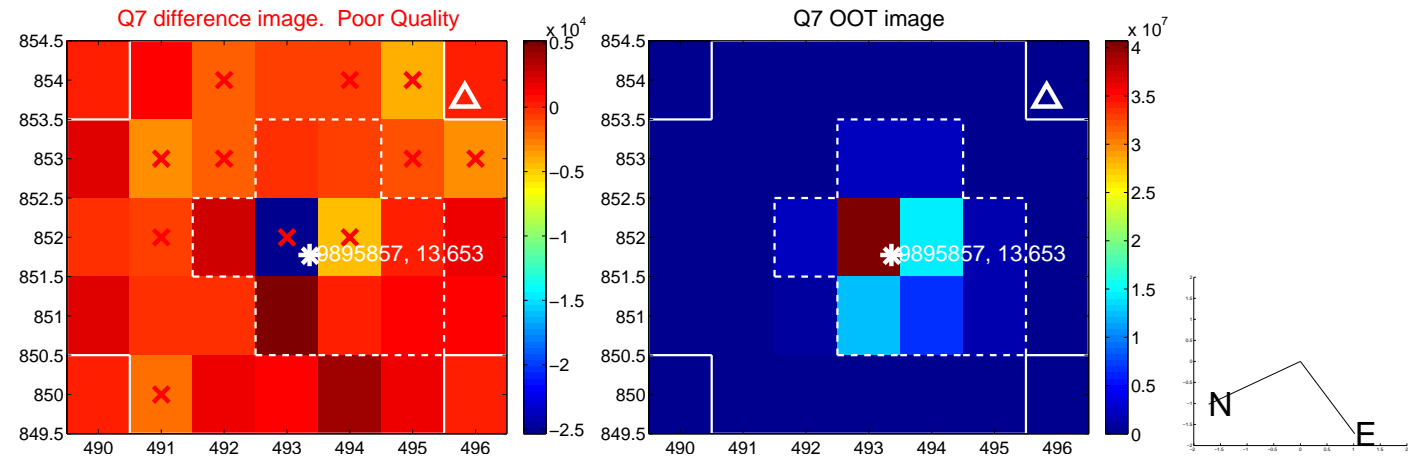
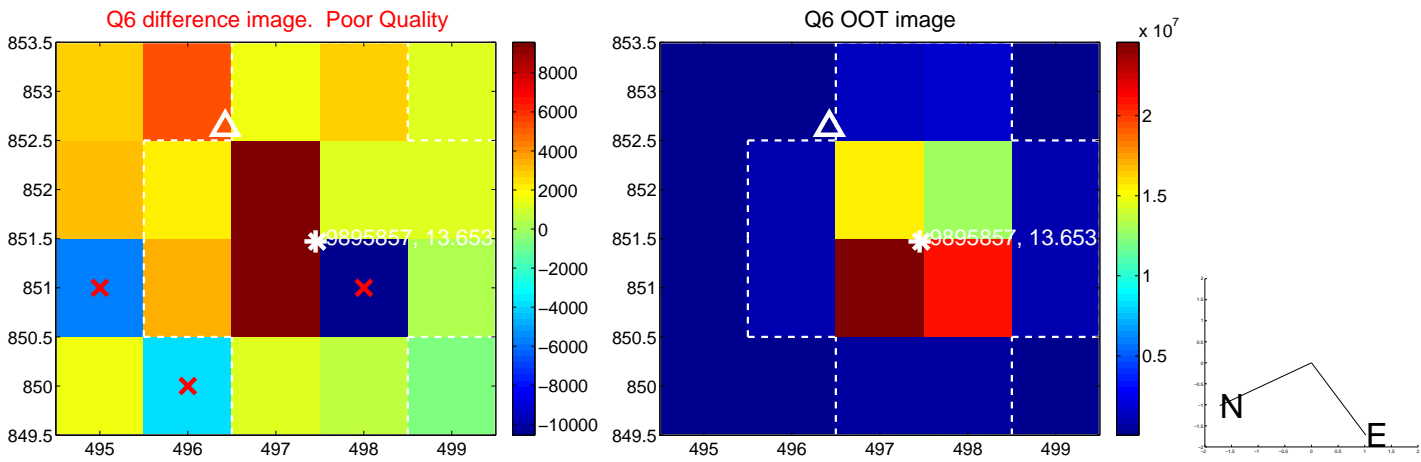
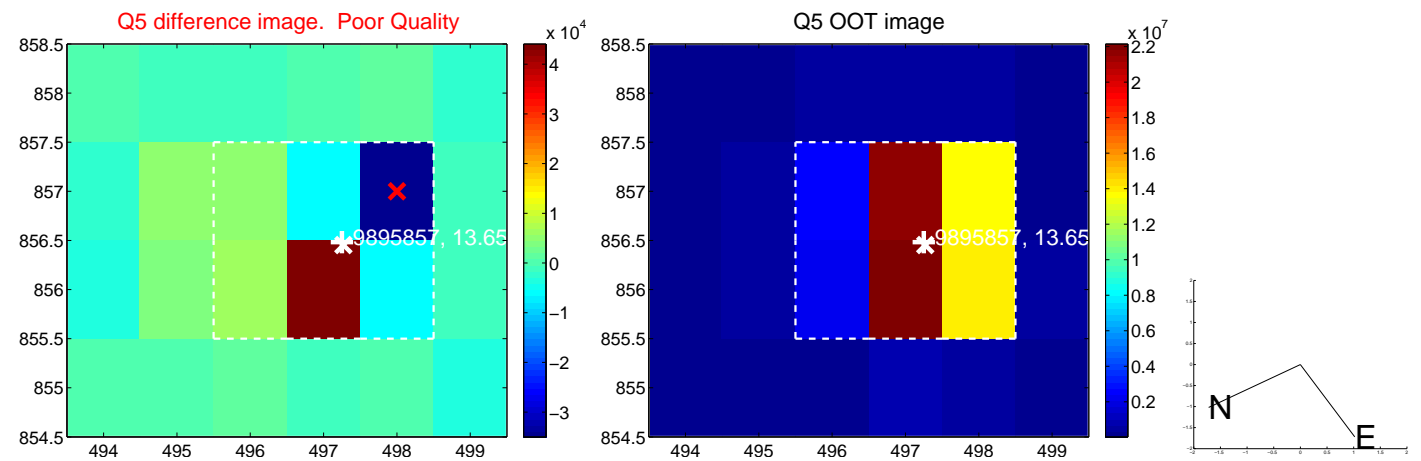


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

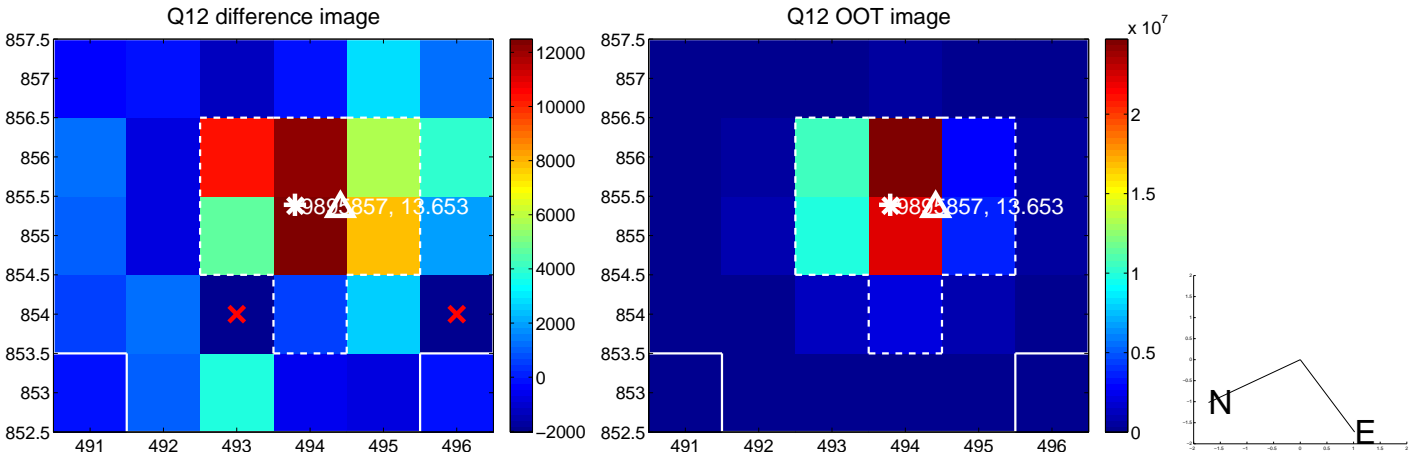
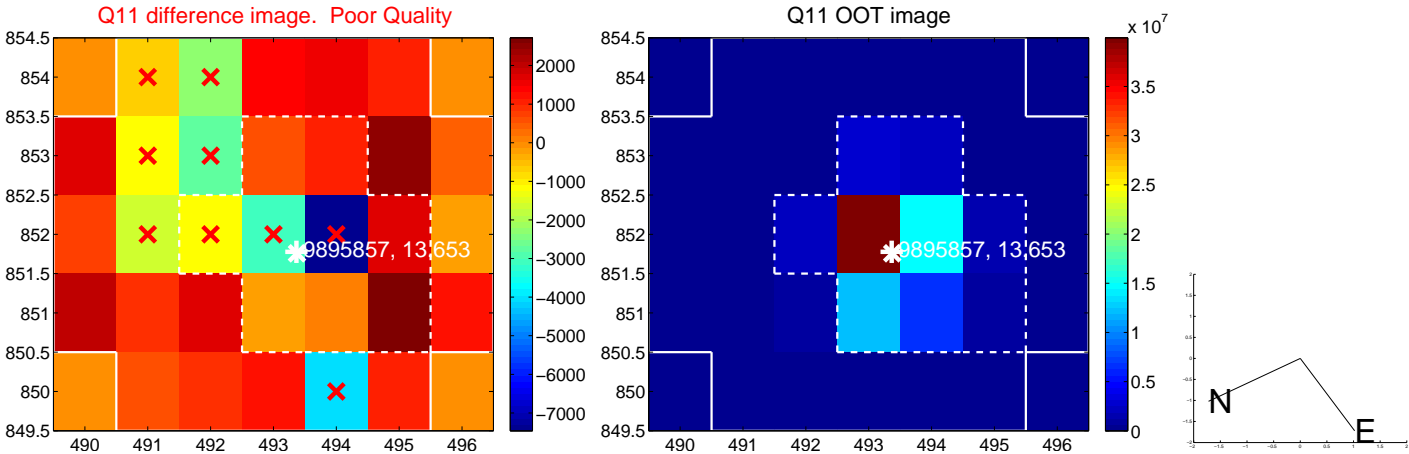
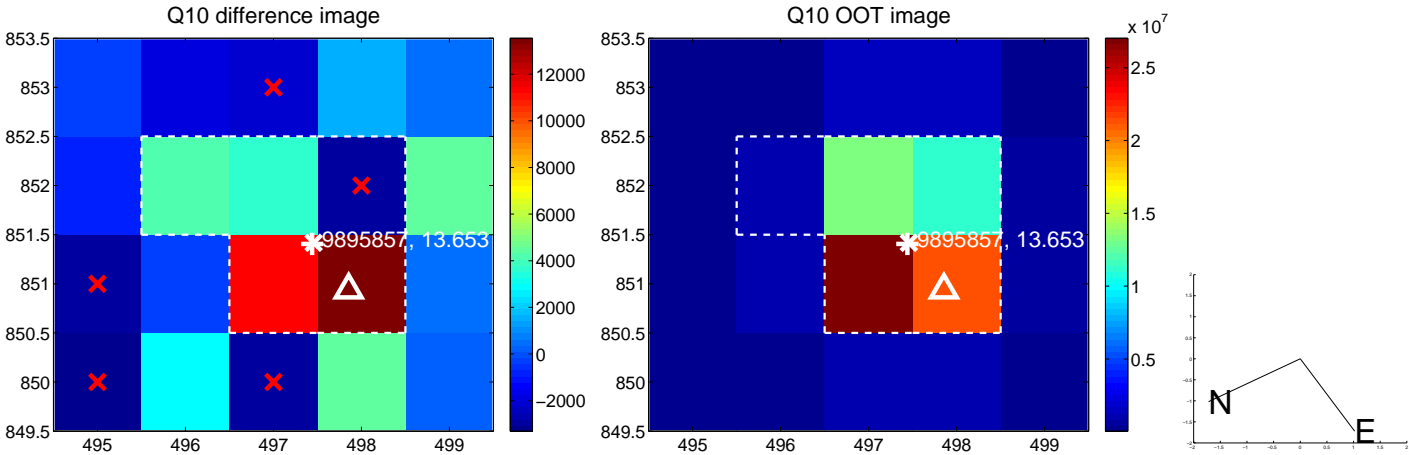
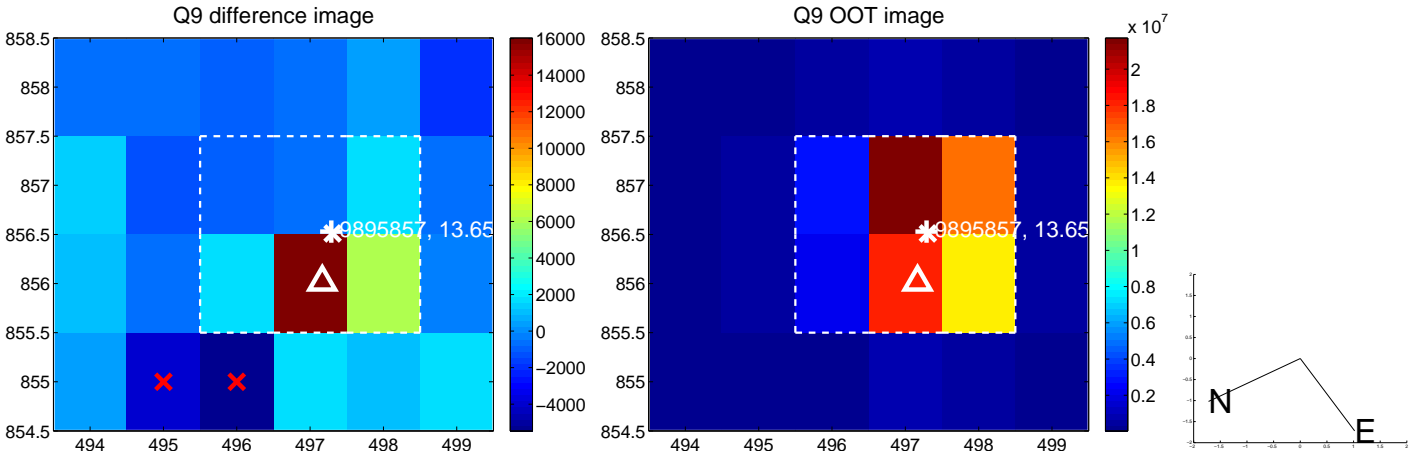
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



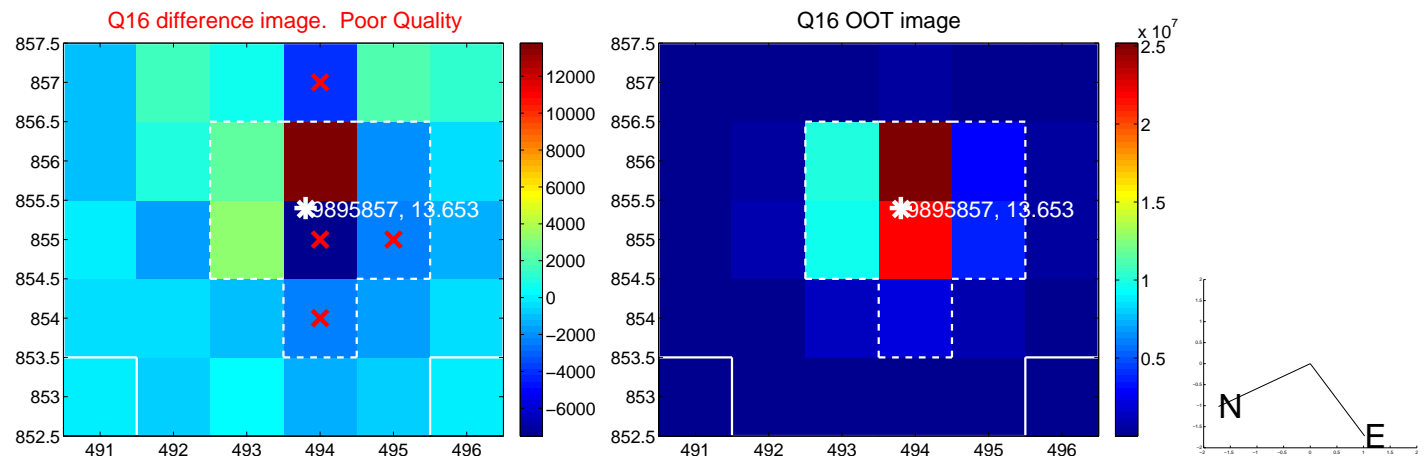
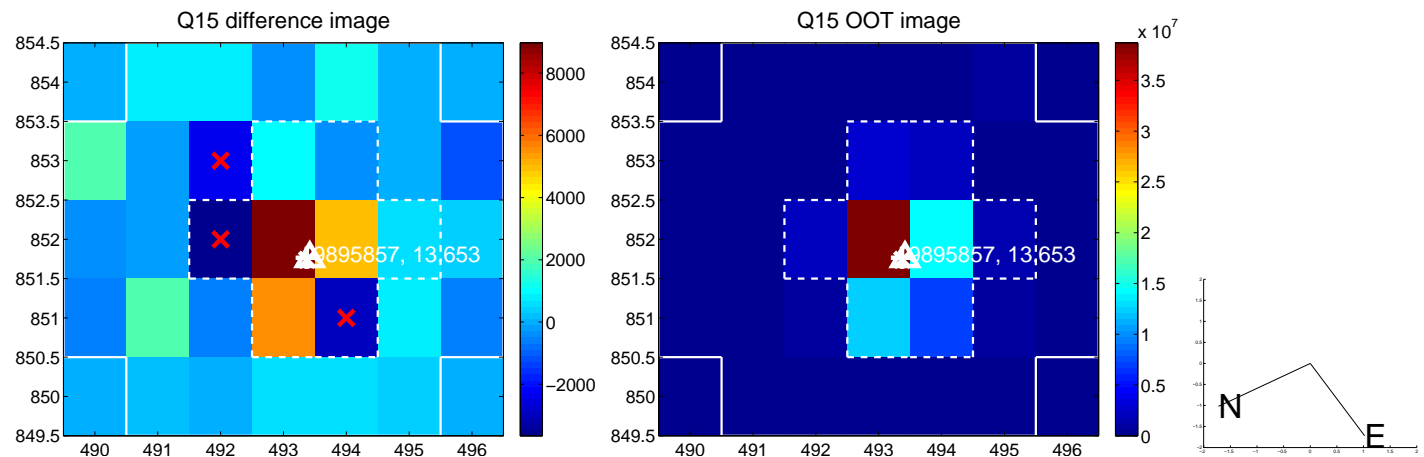
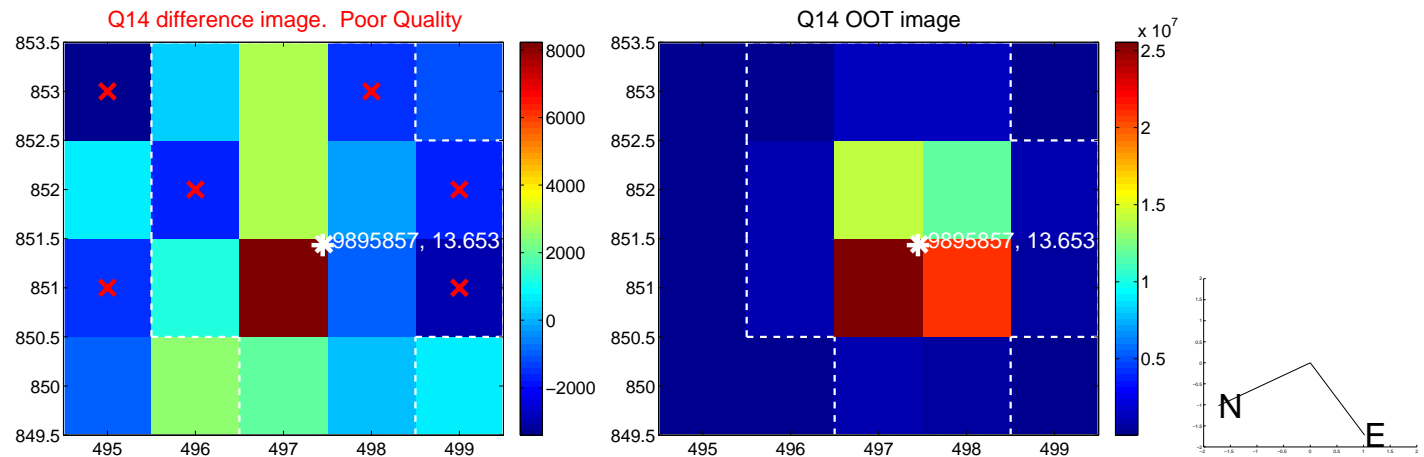
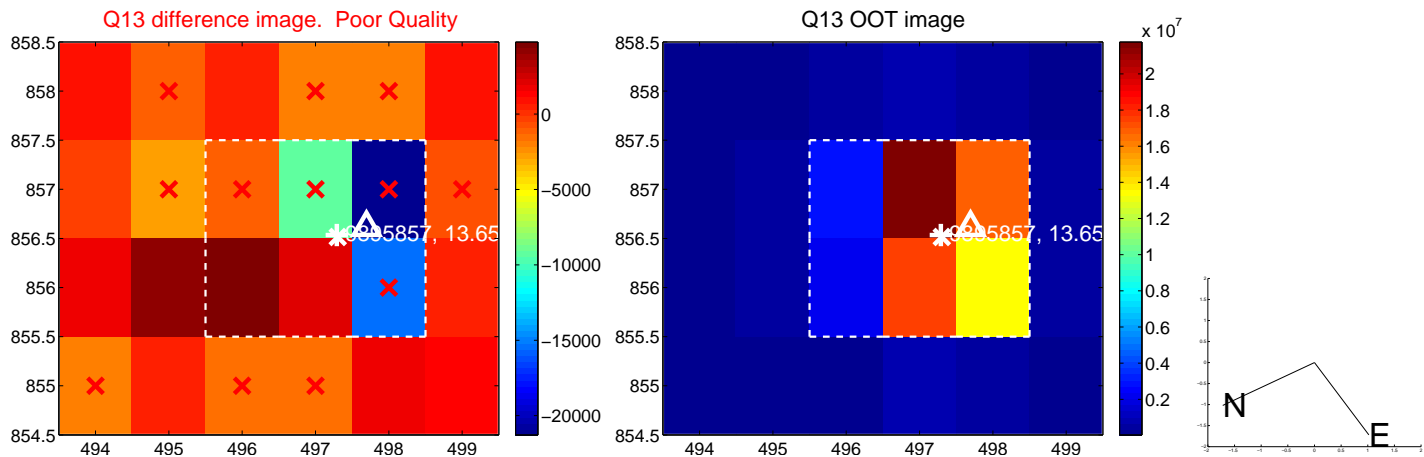
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



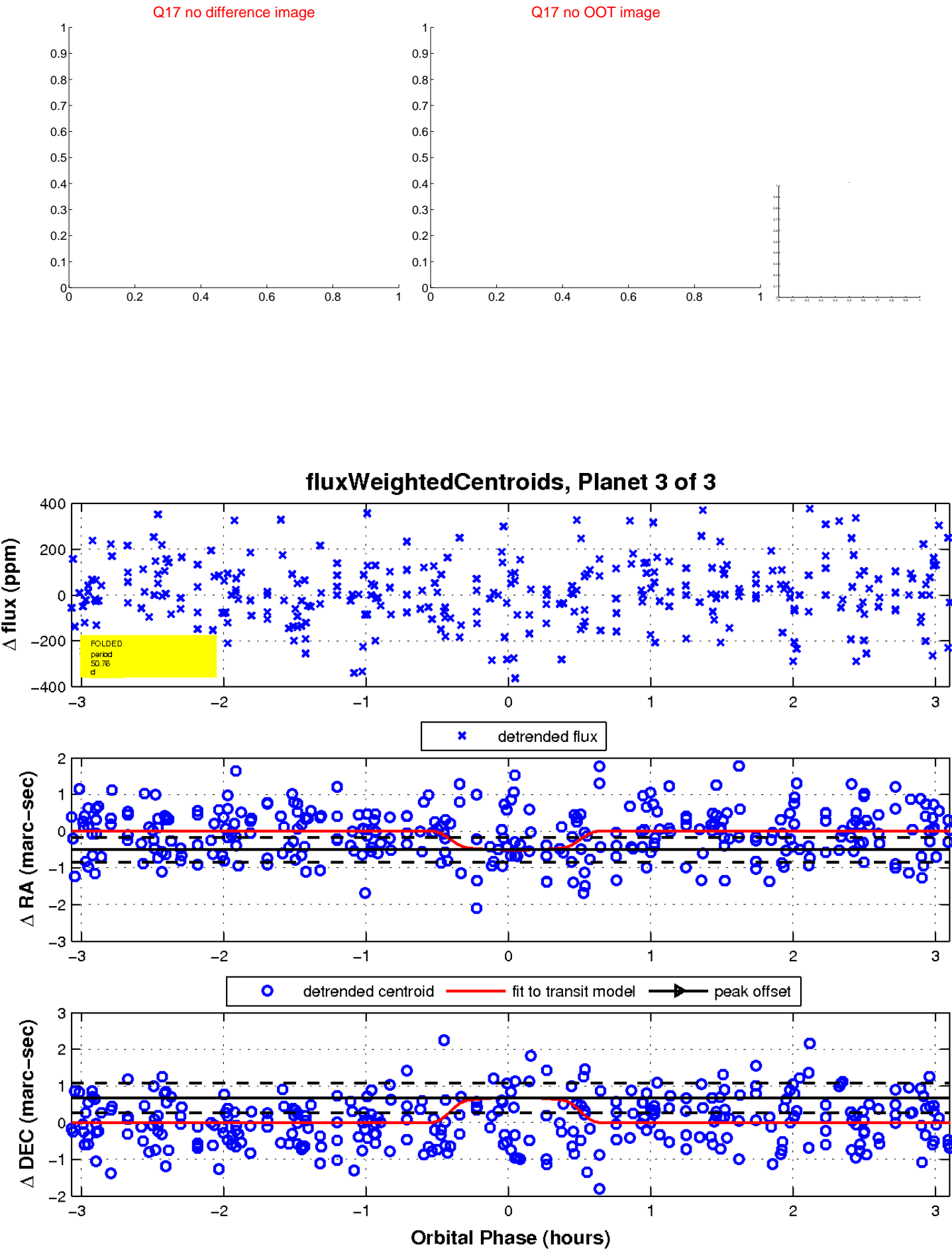
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

