

KIC 008362899

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})
008362899-01	OBS	No	0.807057	132.193938	107.8	1.555	9.6	6.1	2.62	7884	3.17	53550.72
008362899-02	OBS	No	0.807061	132.029436	170.6	1.204	8.7	9.2	2.62	7884	4.00	53550.36
008362899-03	OBS	No	0.807079	131.546093	158.6	1.861	9.0	9.5	2.62	7884	3.84	53548.78
008362899-04	OBS	No	1.077321	132.437315	61.0	3.500	8.3	-1.0	2.62	7884	2.07	36434.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008362899-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008362899-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS

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.

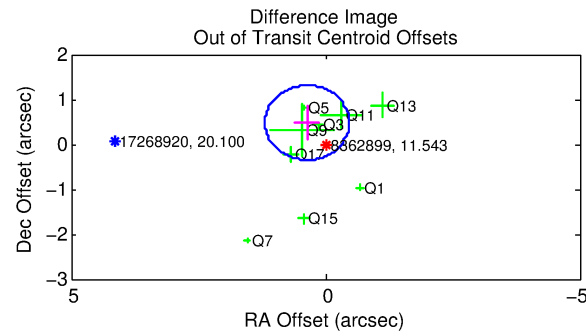
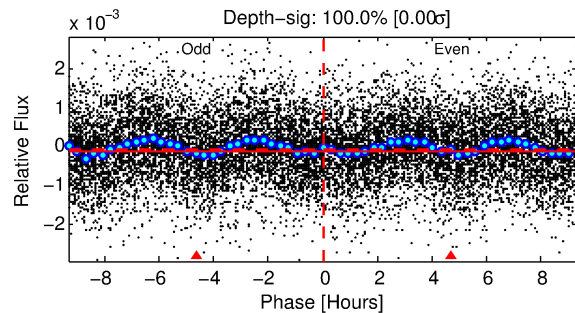
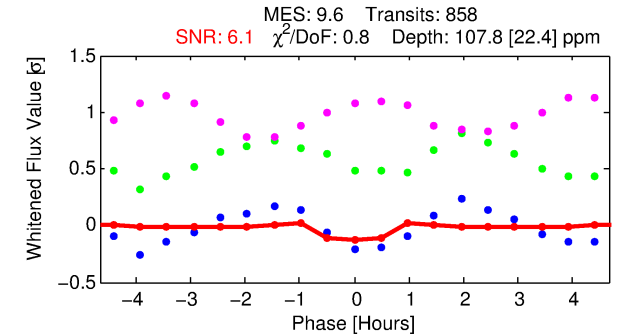
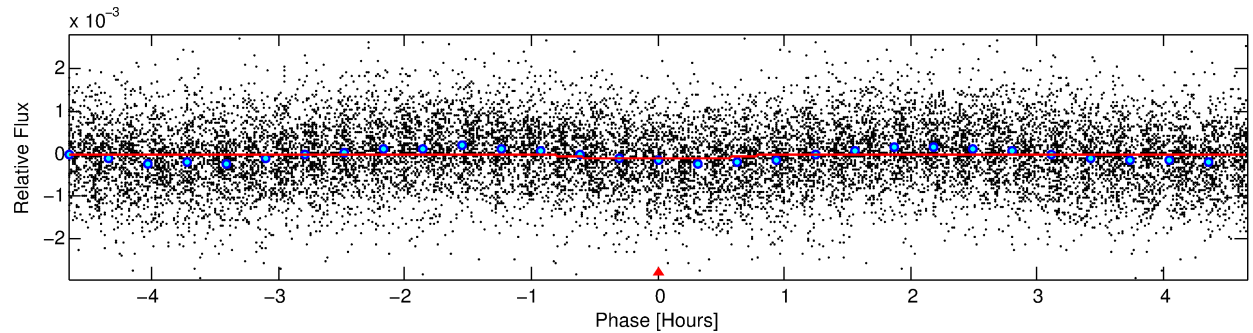
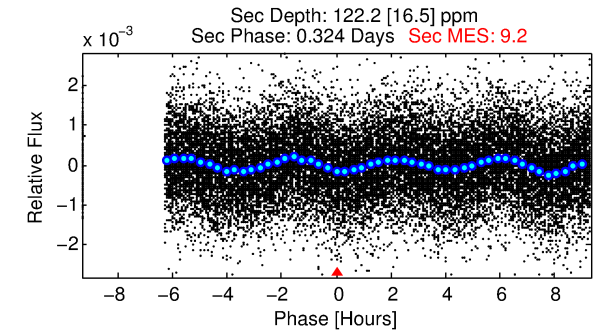
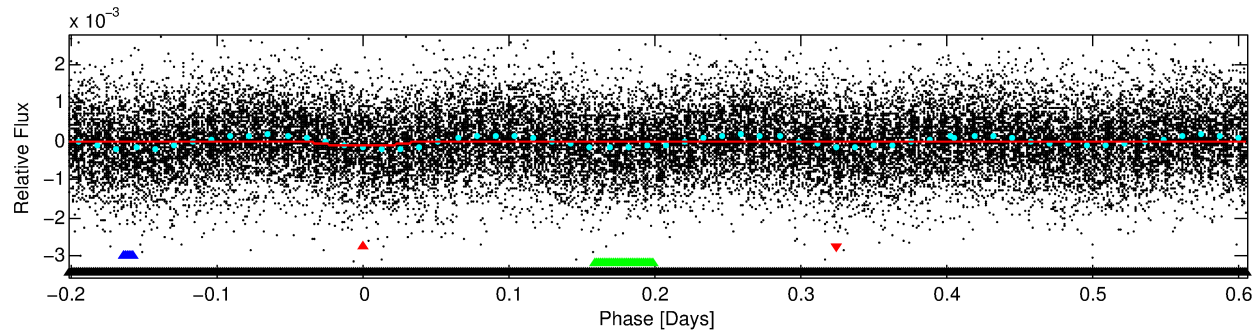
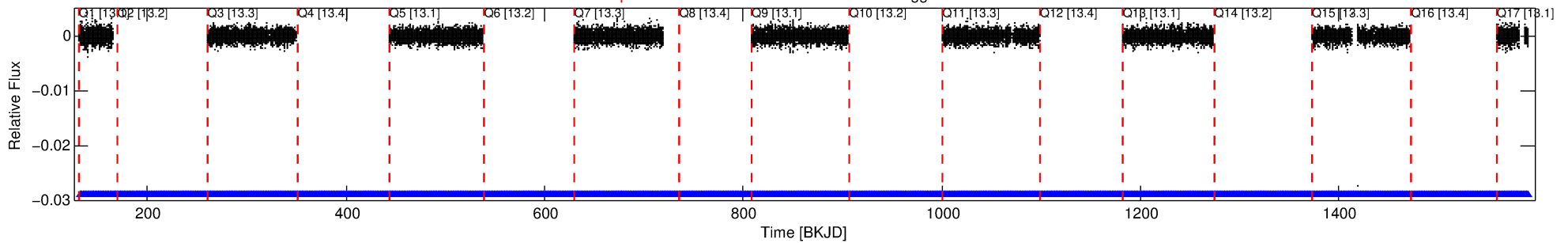
Ephemeris Match Information For 008362899-01

No Significant Match Found

DV One-Page Summary

KIC: 8362899 Candidate: 1 of 4 Period: 0.807 d

Kp: 11.54 R*: 2.62 Rs Teff: 7884.0 K Logg: 3.88 Fe/H: -0.120



DV Fit Results:

Period = 0.80706 [0.00002] d
Epoch = 132.1939 [0.0027] BKJD
Rp/R* = 0.0111 [0.0053]
a/R* = 2.05 [4.52]
b = 0.90 [0.62]
Seff = 53550.72 [29871.93]
Teff = 3879 [541] K
Rp = 3.17 [1.91] Re
a = 0.0211 [0.0072] AU
Ag = 2.97 [3.26] [0.60σ]
Teffp = 7873 [1916] K [2.01σ]

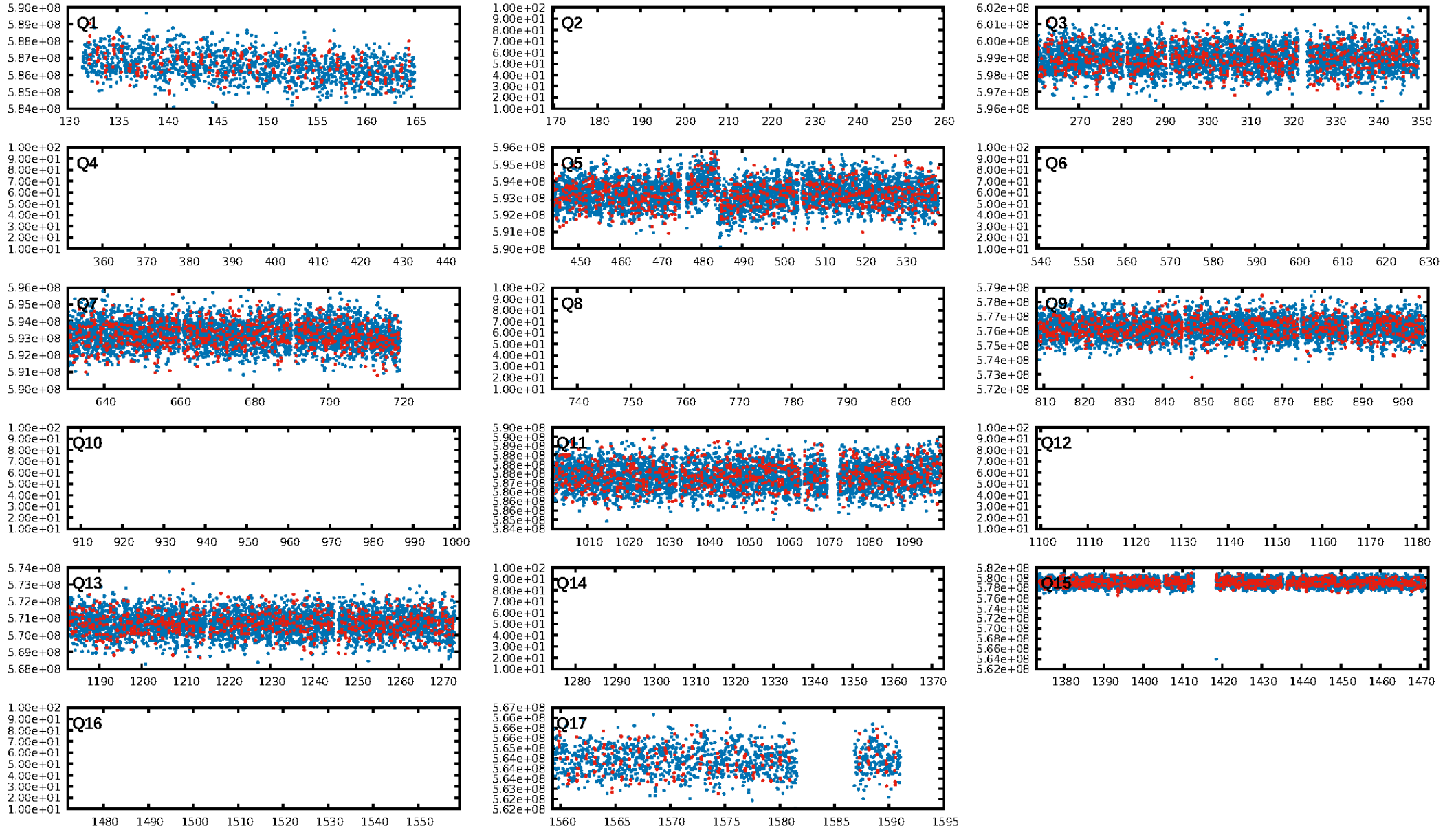
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [785/785]
GhostDiagnostic-chr: 1.357
Centroid-sig: 0.0%
Centroid-so: 0.827 arcsec [1.80σ]
OotOffset-rm: 0.602 arcsec [2.17σ]
KicOffset-rm: 0.290 arcsec [1.38σ]
OotOffset-st: 0/4/0/5 [9]
KicOffset-st: 0/4/0/5 [9]
DiffImageQuality-fgm: 0.67 [6/9]
DiffImageOverlap-fno: 0.00 [0/9]

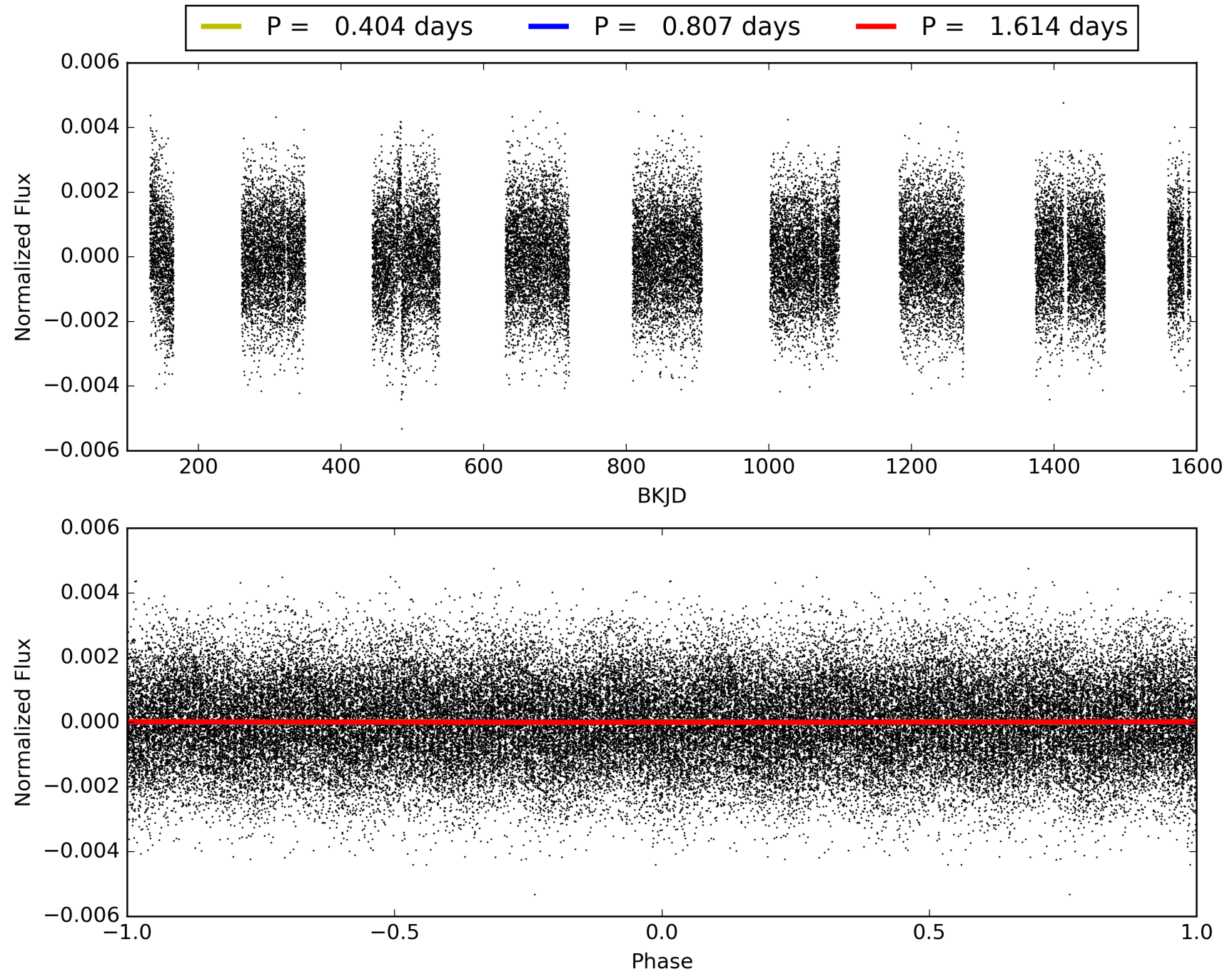
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:56:07 Z

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

TCE 008362899-01, PDC Light Curves

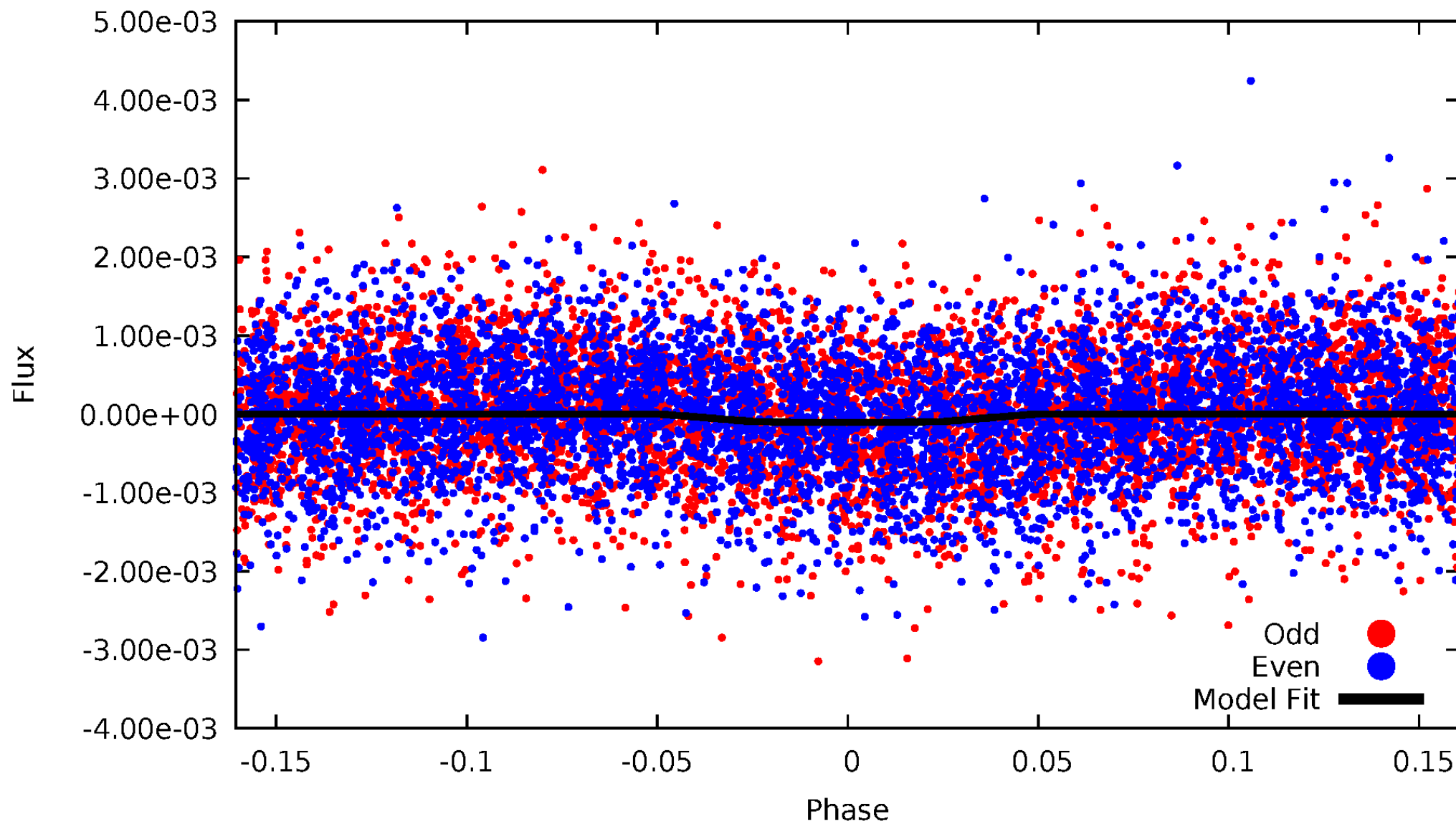


TCE 008362899-01



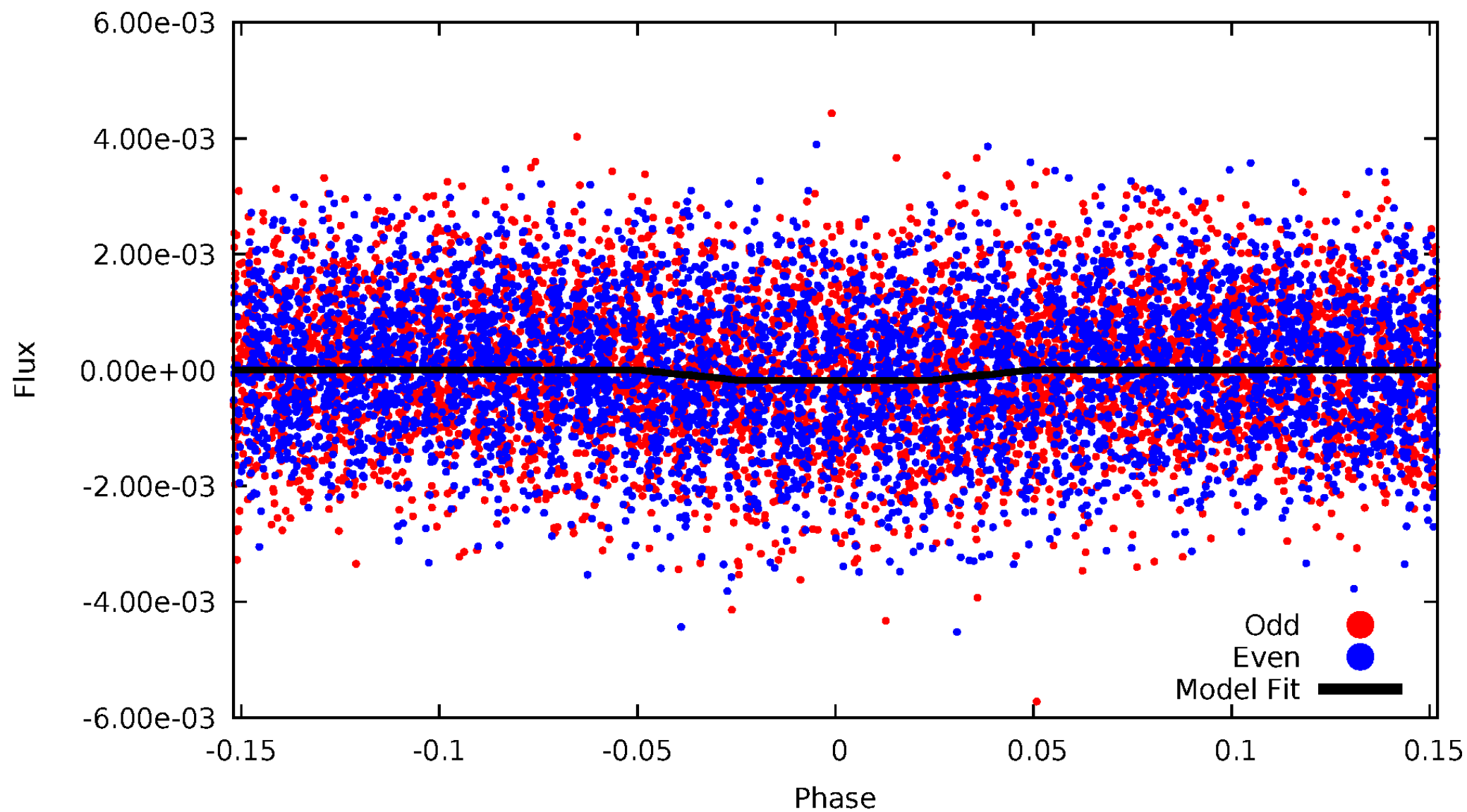
DV Odd/Even

TCE 008362899-01



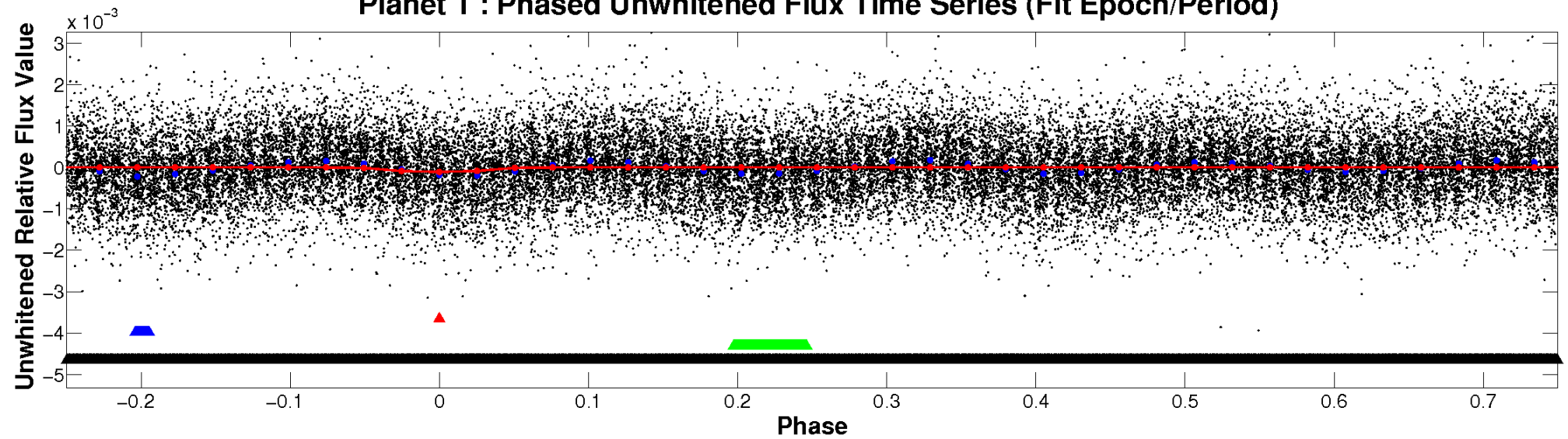
ALT Odd/Even

TCE 008362899-01

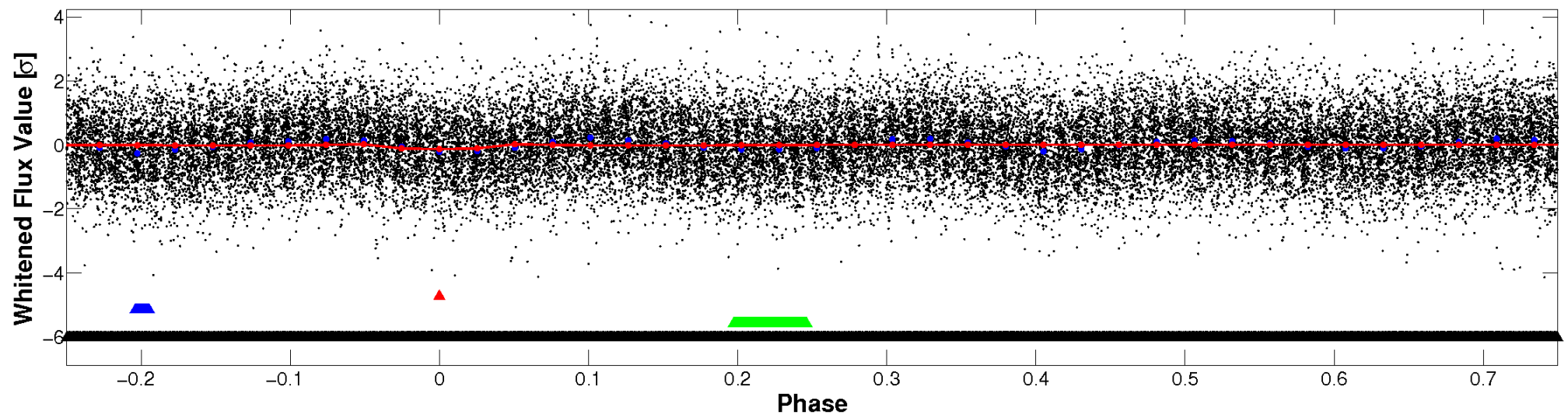


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

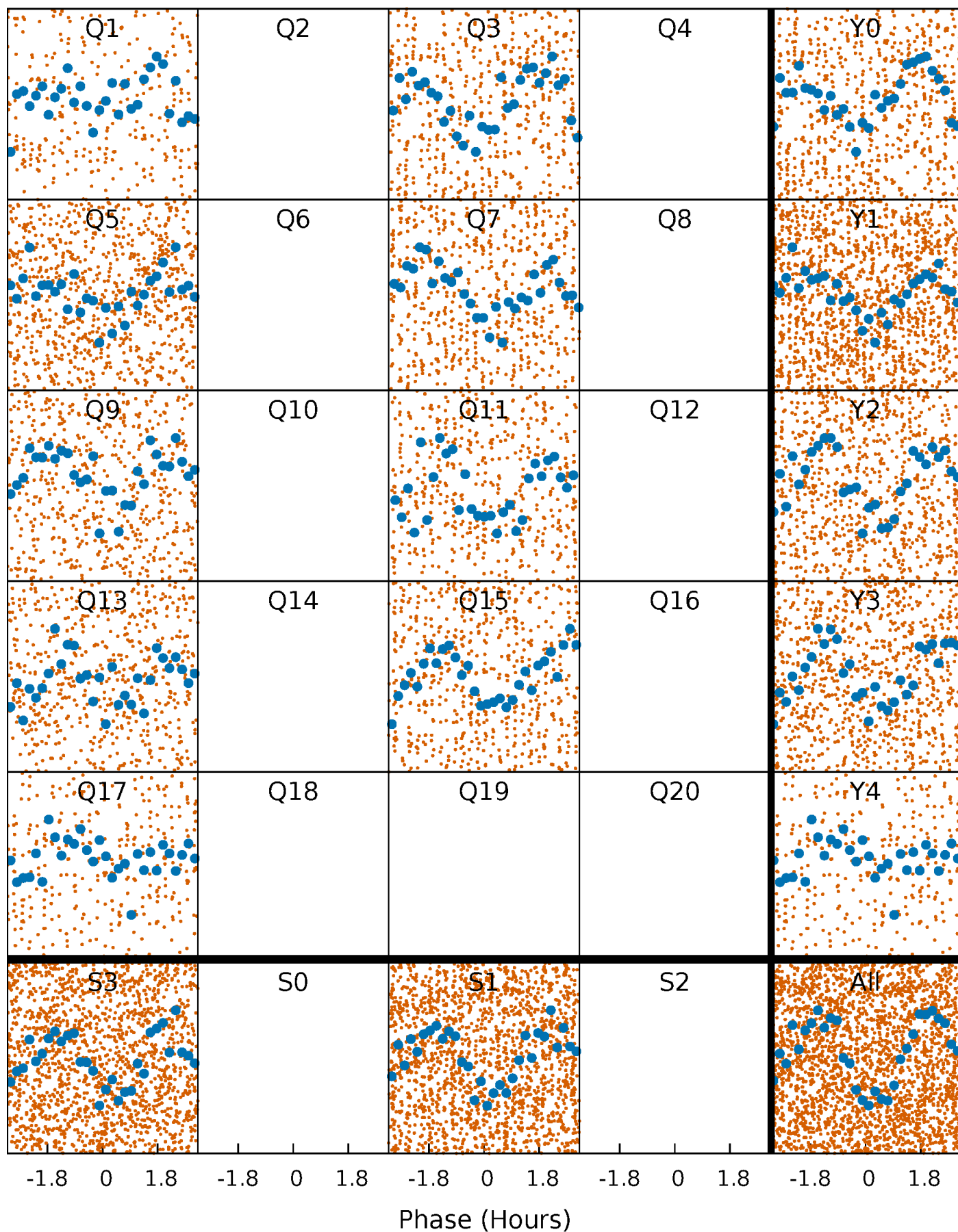


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



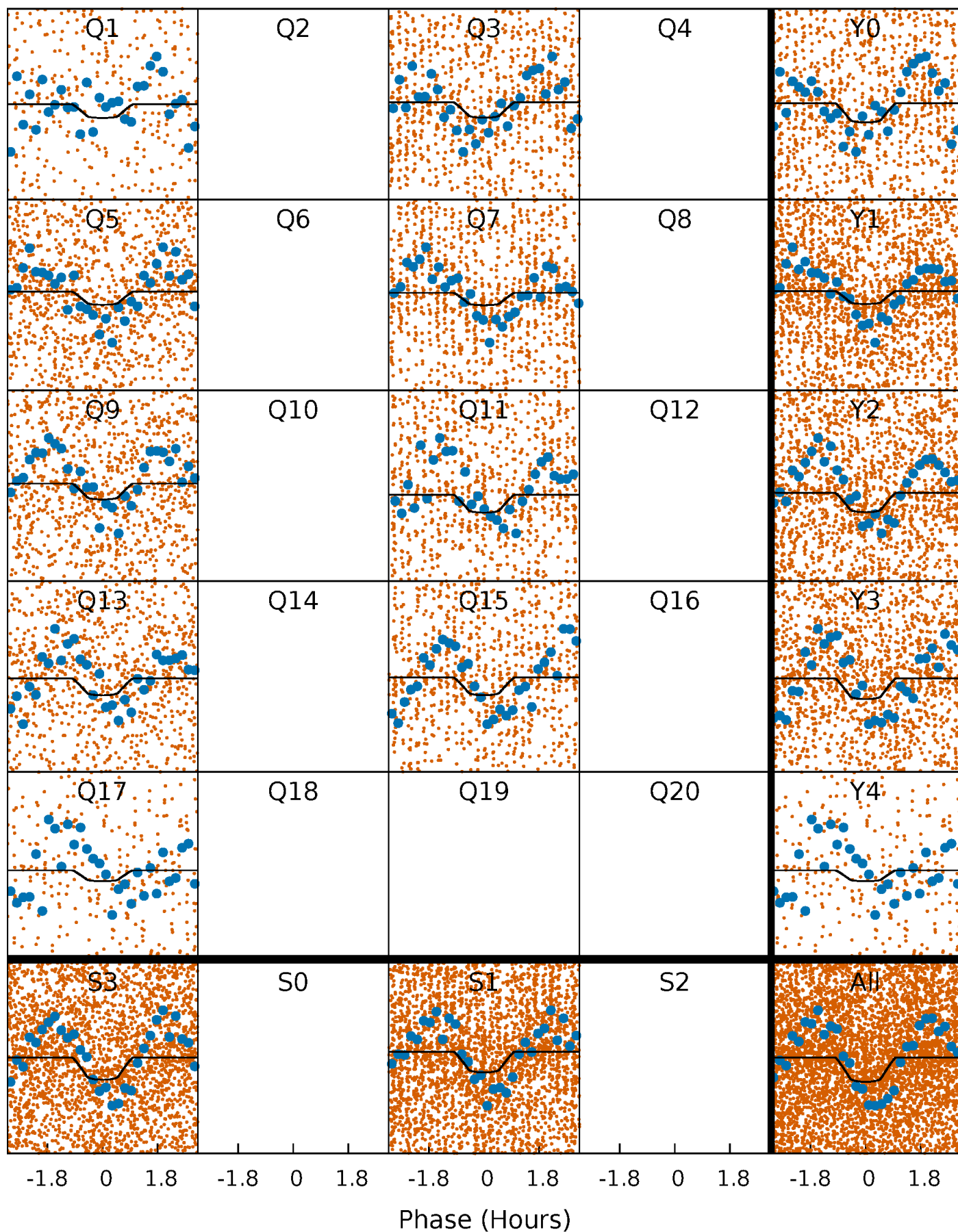
PDC Quarter-Phased Transit Curves

TCE 008362899-01 P= 0.807057 Days $T_0=132.193938$ (BKJD)



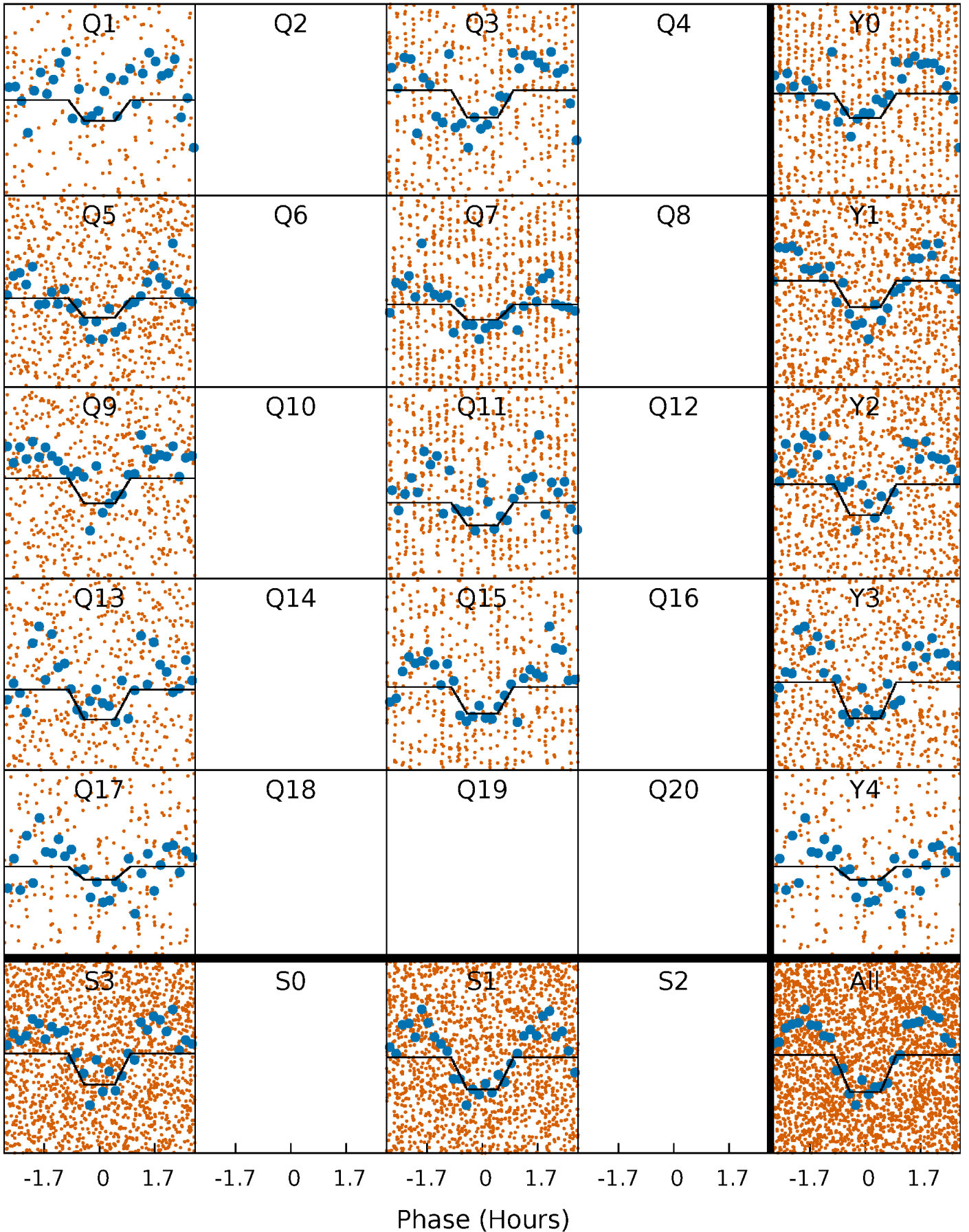
DV Quarter-Phased Transit Curves

TCE 008362899-01 P= 0.807057 Days $T_0=132.193938$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

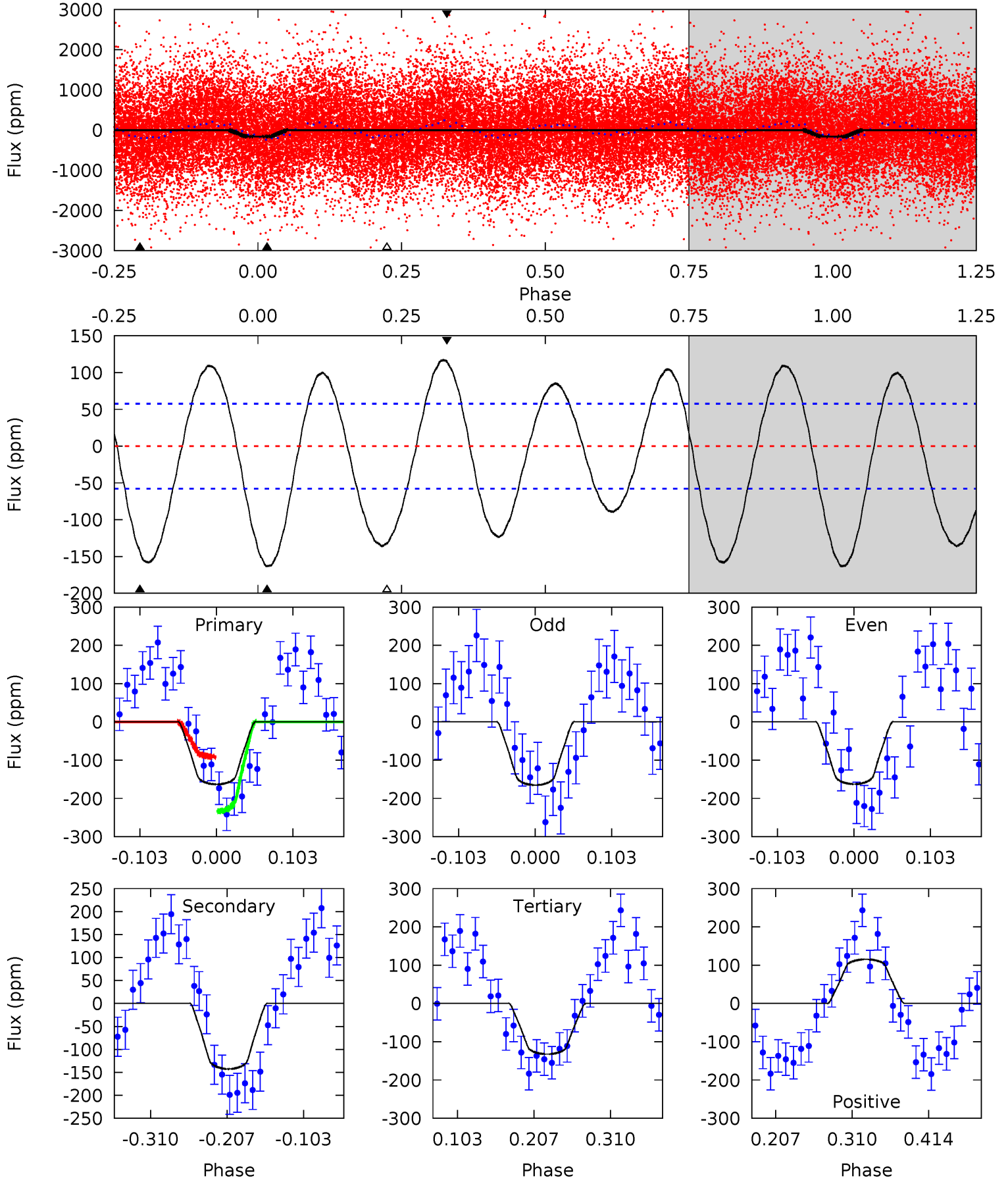
TCE 008362899-01 P= 0.807071 Days $T_0=132.194669$ (BKJD)



DV Model-Shift Uniqueness Test

008362899-01, P = 0.807057 Days, E = 131.386881 Days

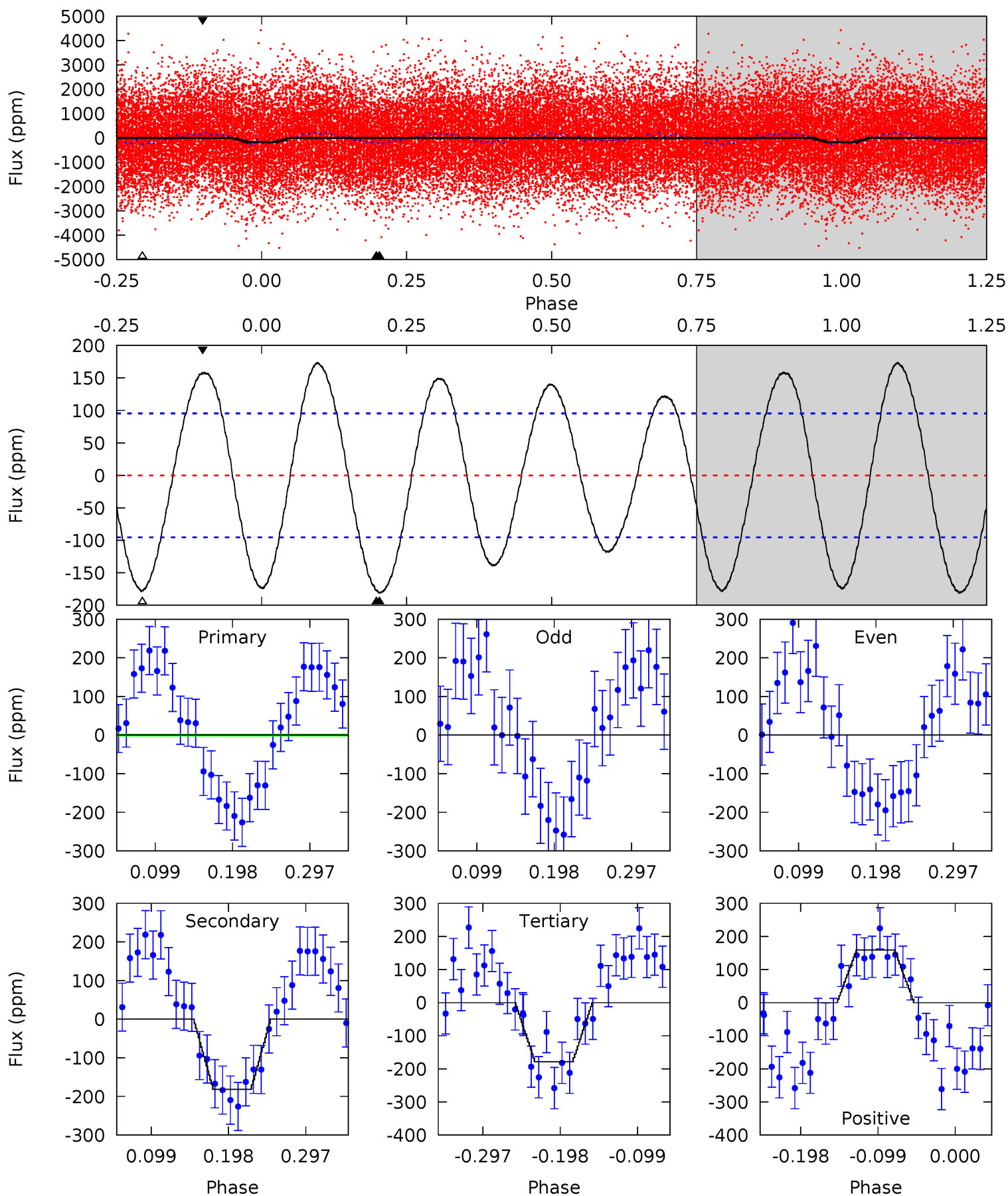
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	11.3	10.4	9.08	4.56	1.63	6.21	2.44	3.79	0.82	2.17	0.10	1.17	0.42	5.69



Alt Model-Shift Uniqueness Test

008362899-01, P = 0.807071 Days, E = 131.387598 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	8.71	8.56	7.61	4.57	1.65	5.10	-0.05	0.90	0.15	1.10	0.39	1.25	0.49	0.26



Stellar Parameters For KIC 008362899

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7884^{+219}_{-329}	$3.883^{+0.307}_{-0.102}$	$-0.120^{+0.200}_{-0.350}$	$2.619^{+0.417}_{-0.972}$	$1.912^{+0.104}_{-0.415}$	$0.150^{+0.297}_{-0.049}$
	+3%/-4%	+8%/-3%	+167%/-292%	+16%/-37%	+5%/-22%	+198%/-33%
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 008362899-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-143 ± 13	$2.95^{+1.58}_{-1.45}$	5302^{+386}_{-465}	7862^{+4994}_{-1706}	$3.924^{+10.118}_{-2.293}$
Alt.	-182 ± 21	$3.57^{+1.55}_{-1.43}$	5311^{+349}_{-479}	7583^{+3065}_{-1396}	$3.308^{+5.985}_{-1.638}$

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

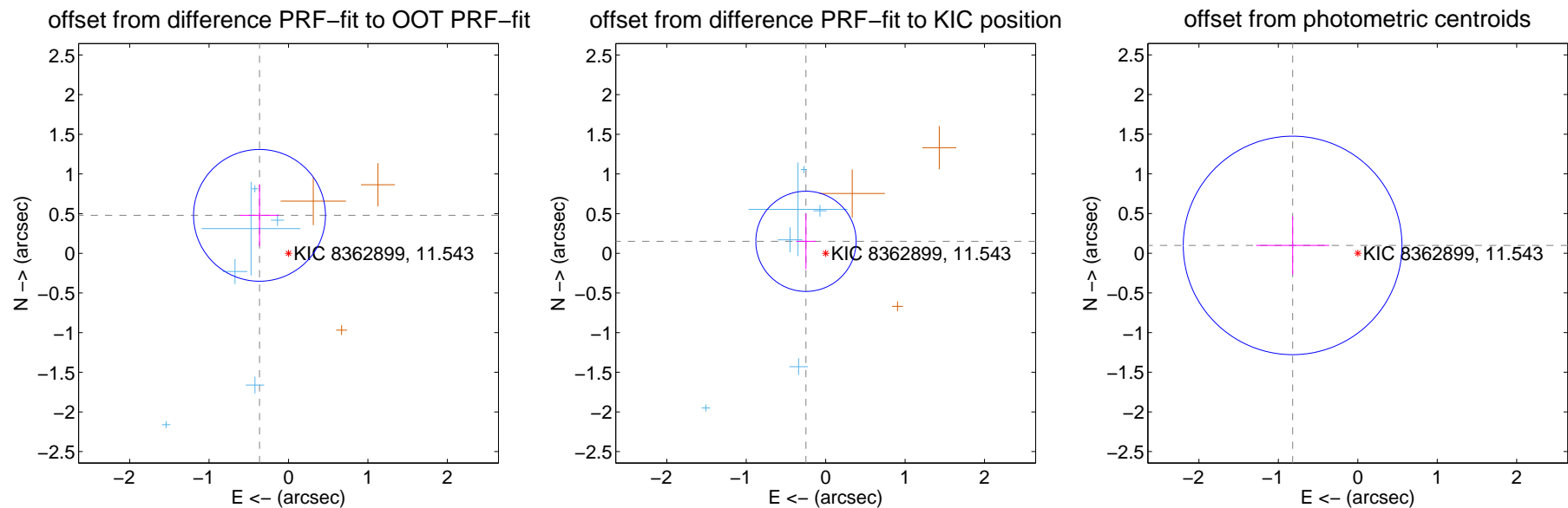
DV Centroid Data

Supplemental centroid analysis for 008362899-01. **Kepler magnitude: 11.54.** Transit SNR 6.09

There are 6 quarters with good PRF difference image offsets

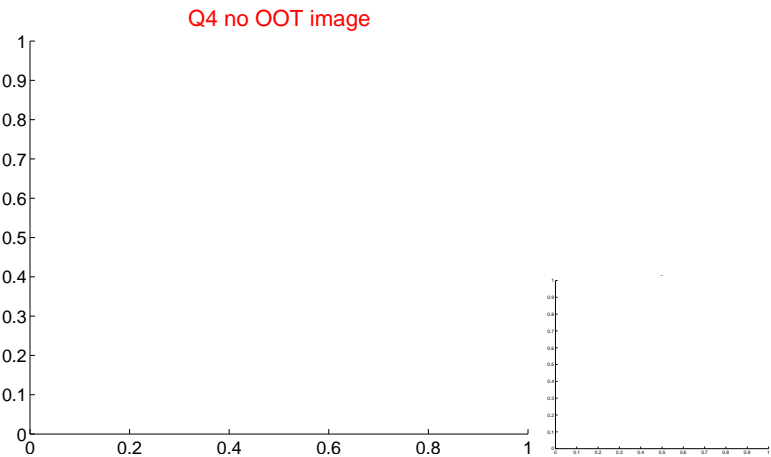
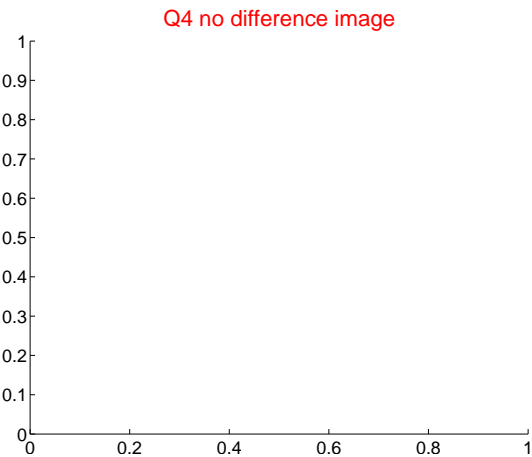
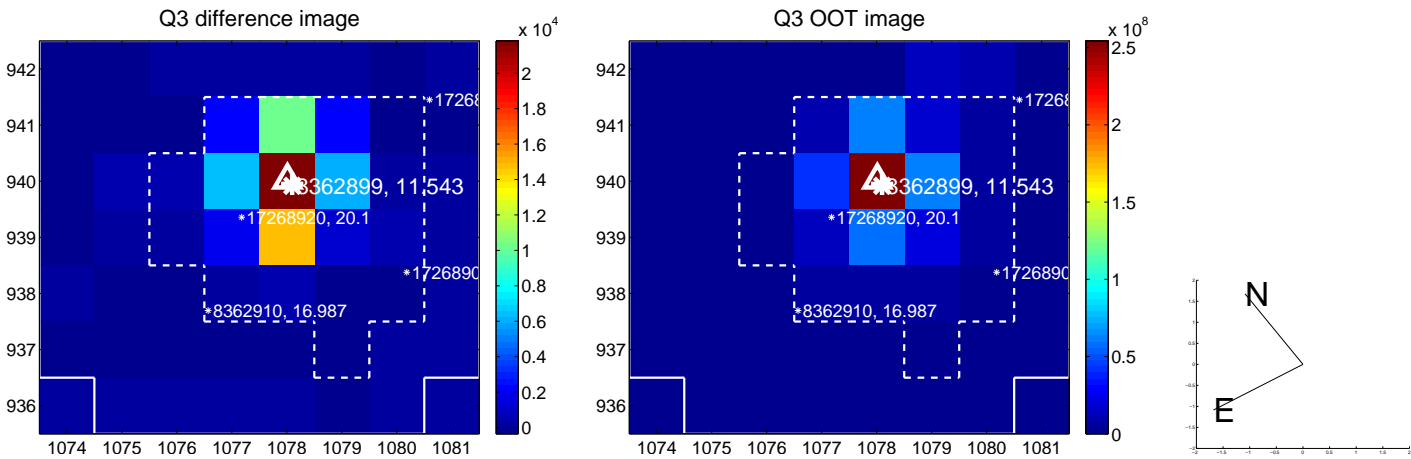
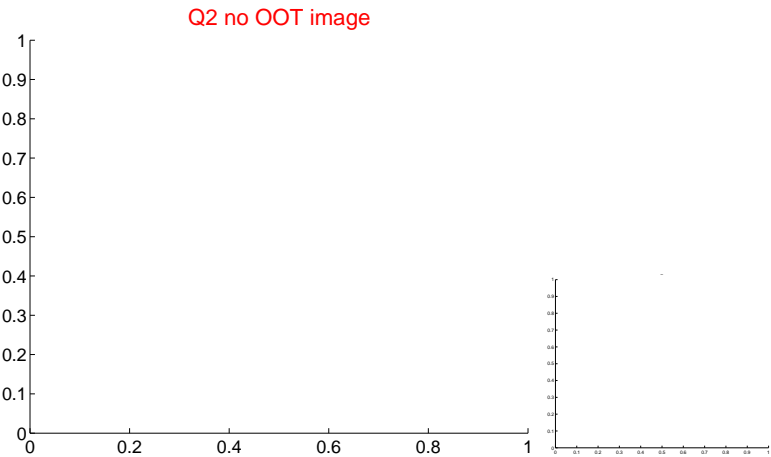
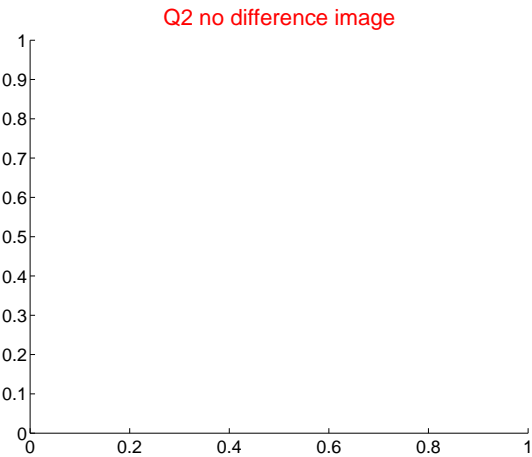
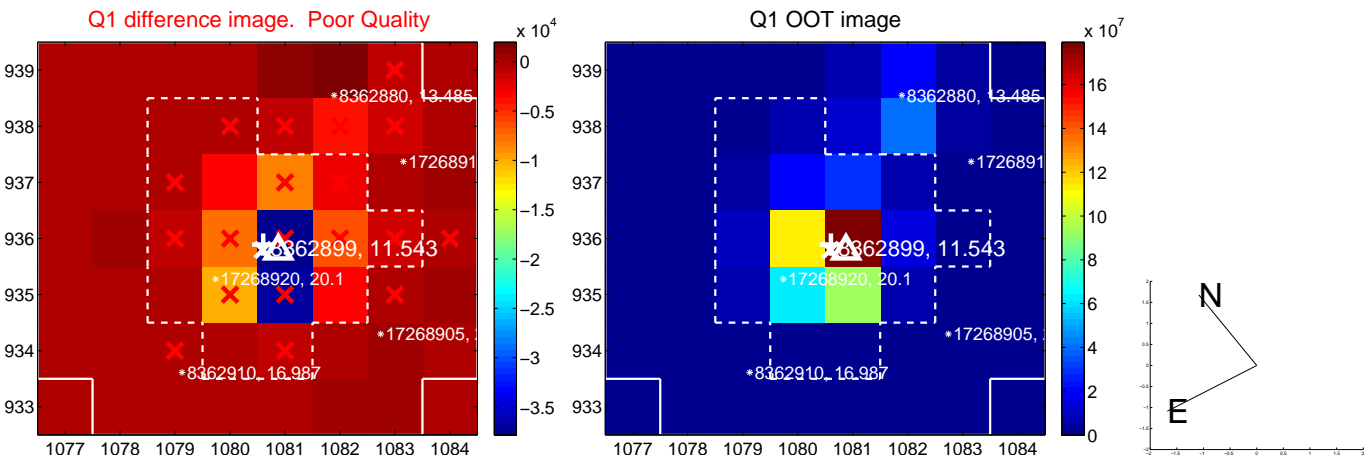
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.602 ± 0.277	2.17	0.365 ± 0.246	0.478 ± 0.388
PRF-fit source offset from KIC position	0.290 ± 0.211	1.38	0.248 ± 0.123	0.151 ± 0.351
photometric centroid source offset	0.83 ± 0.46	1.80	0.82 ± 0.46	0.10 ± 0.37

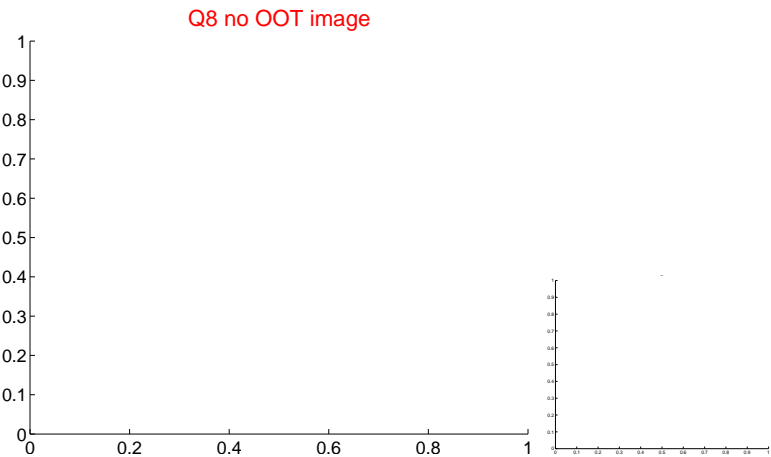
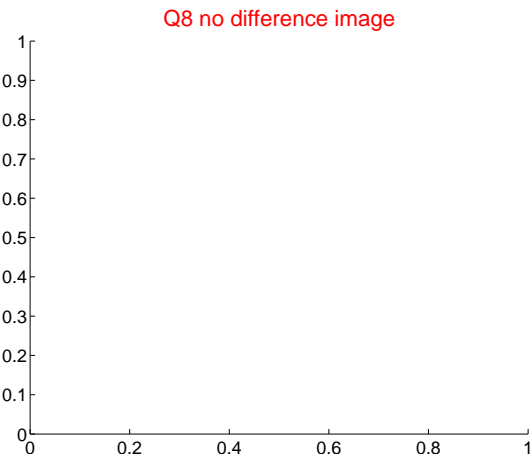
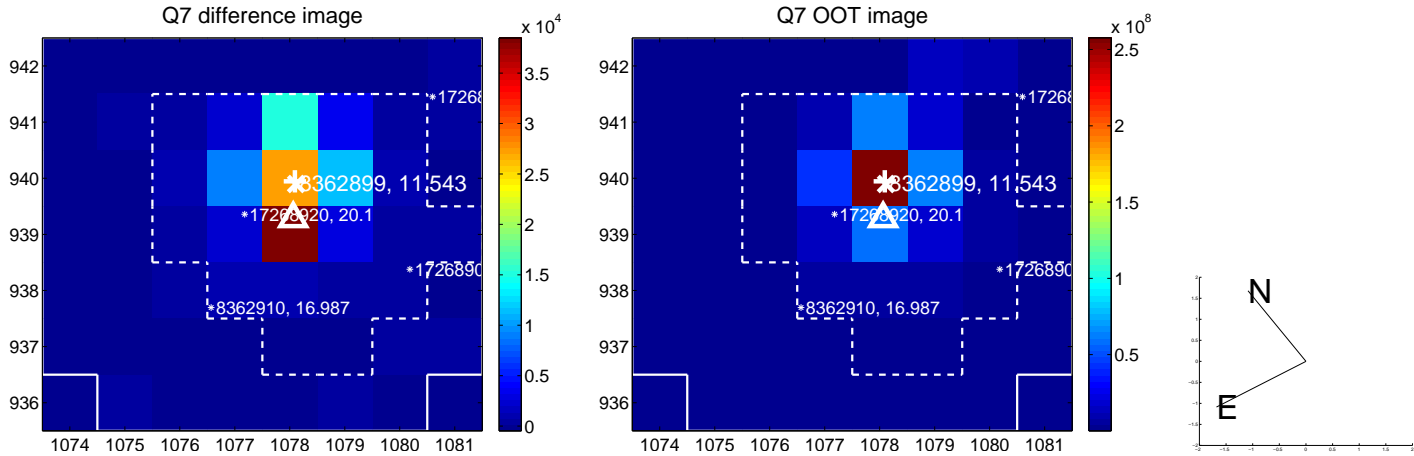
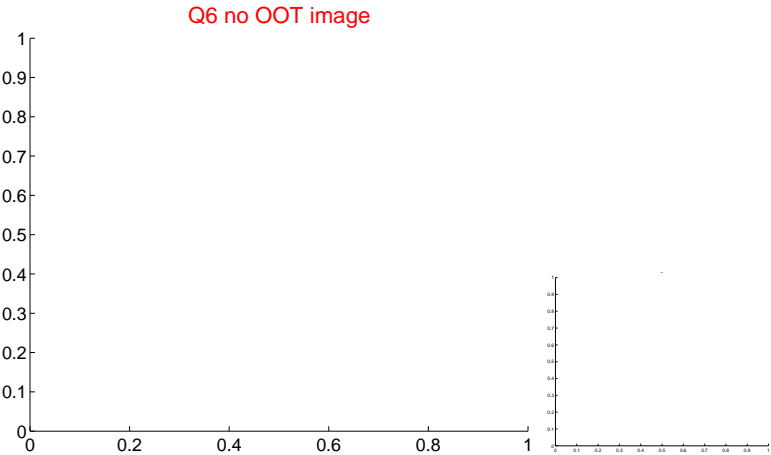
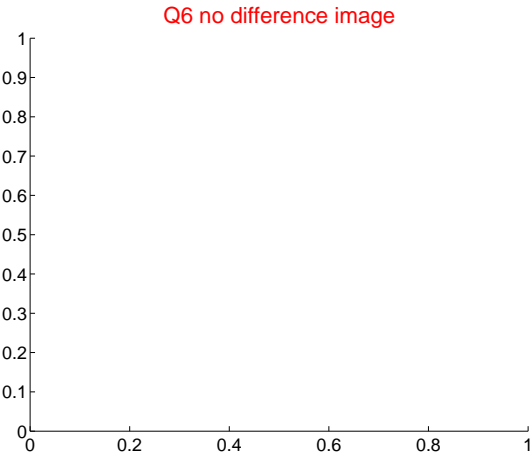
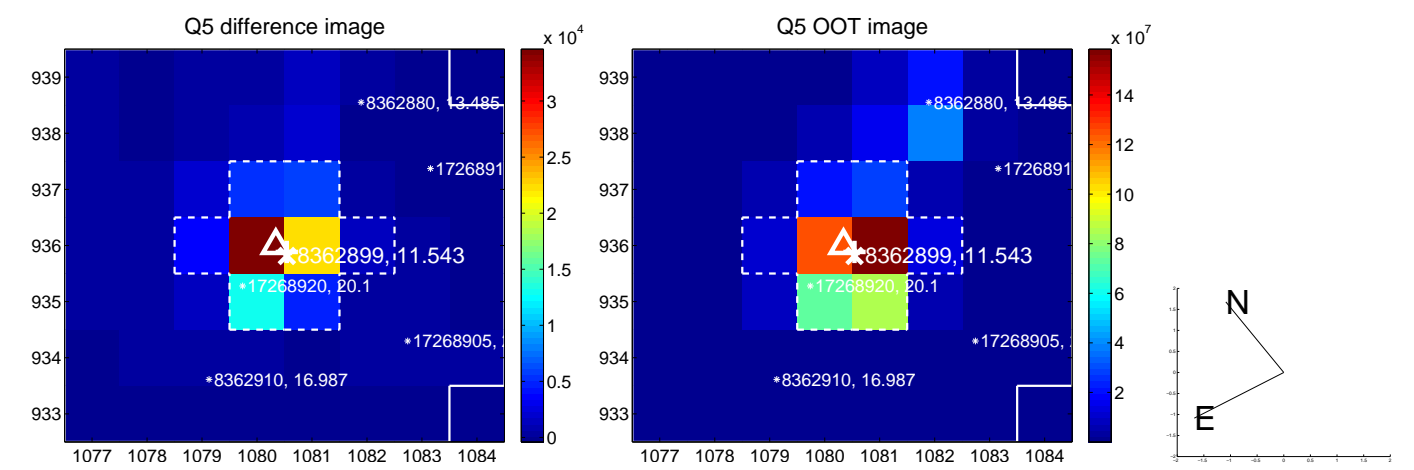


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

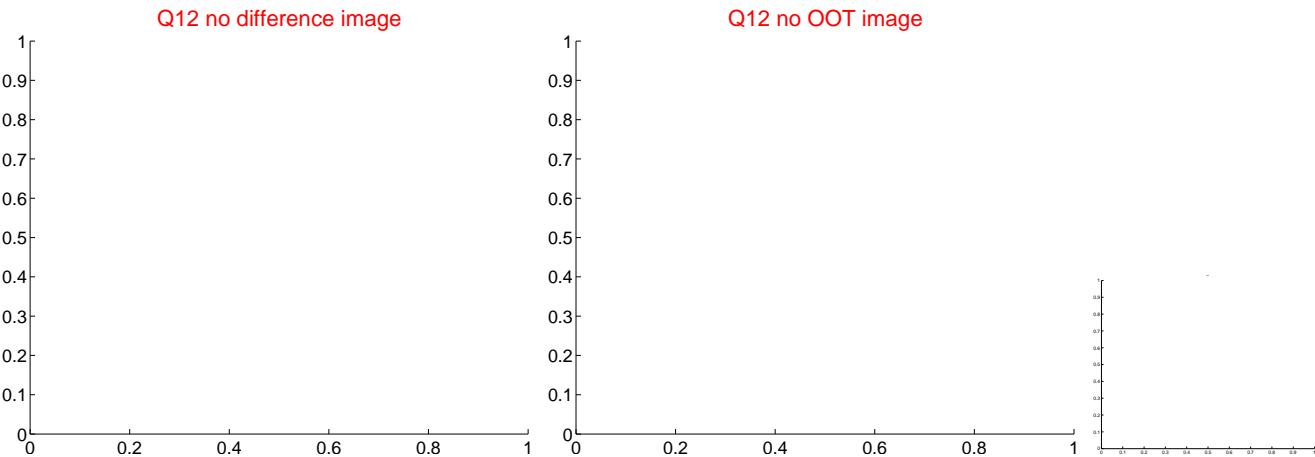
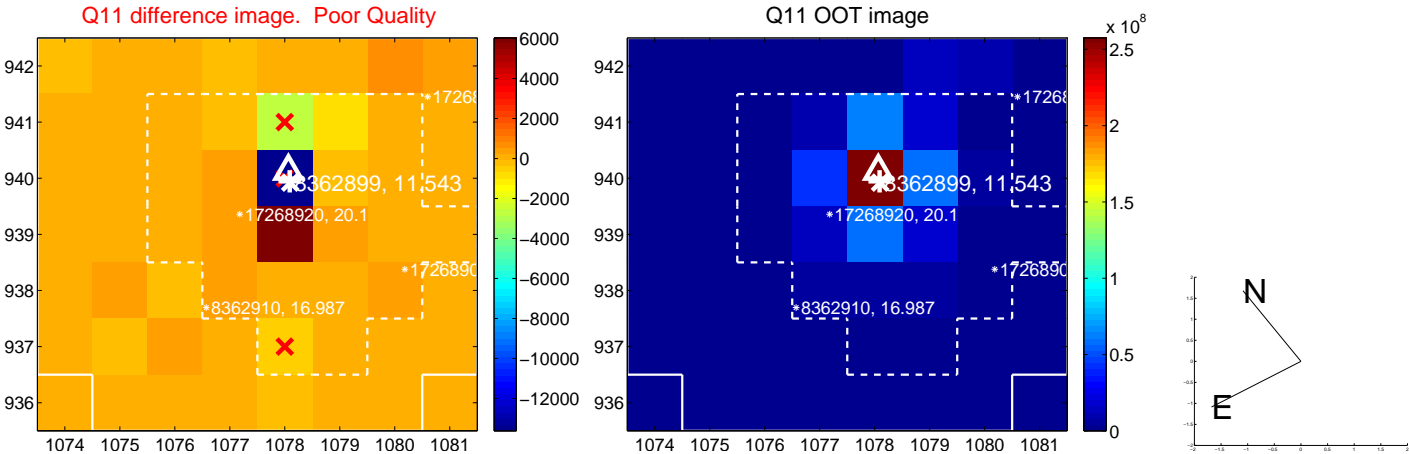
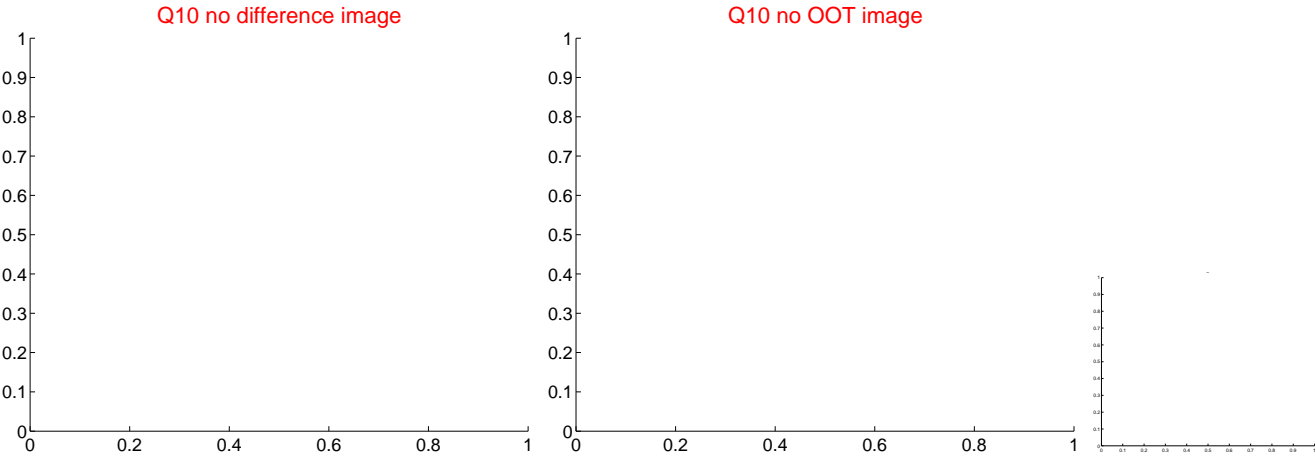
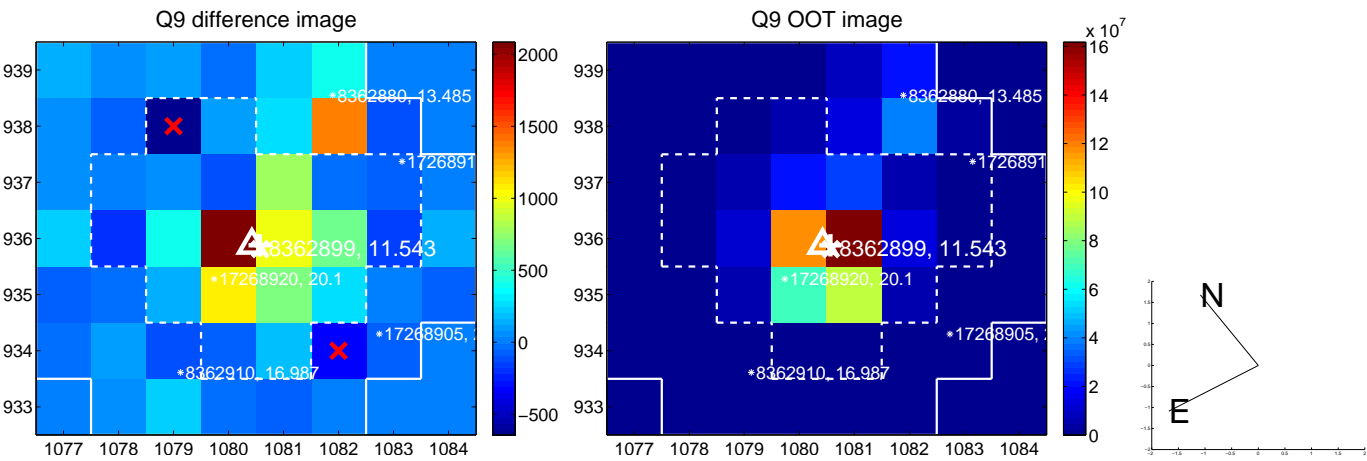
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



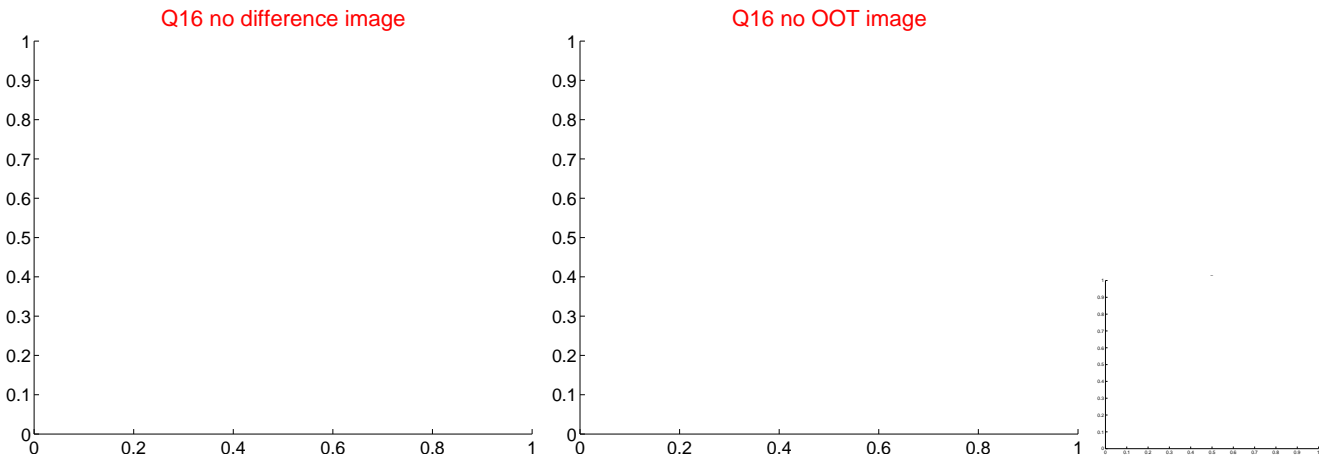
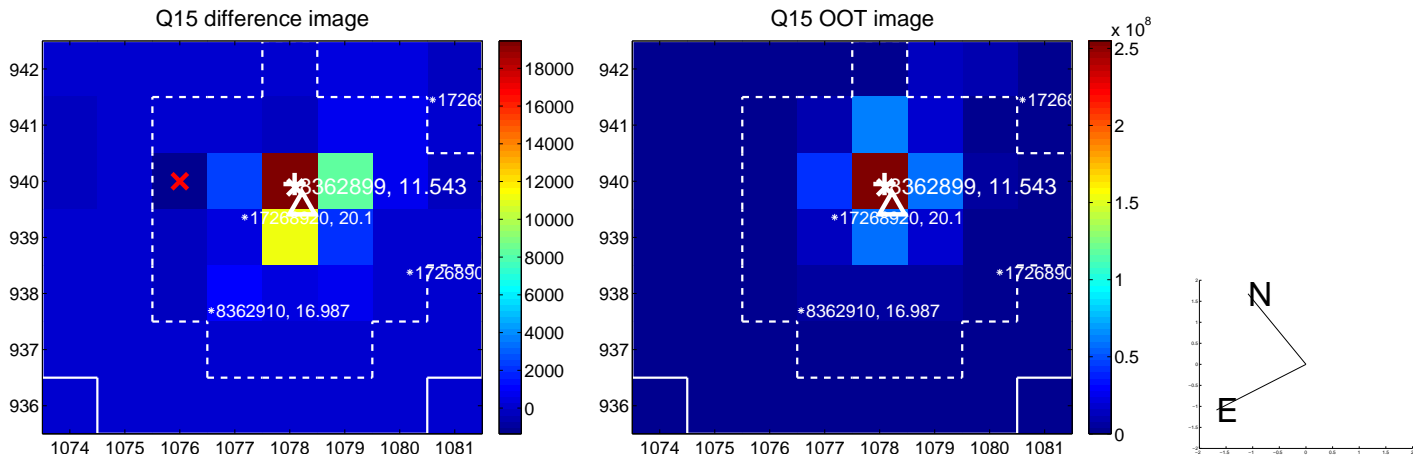
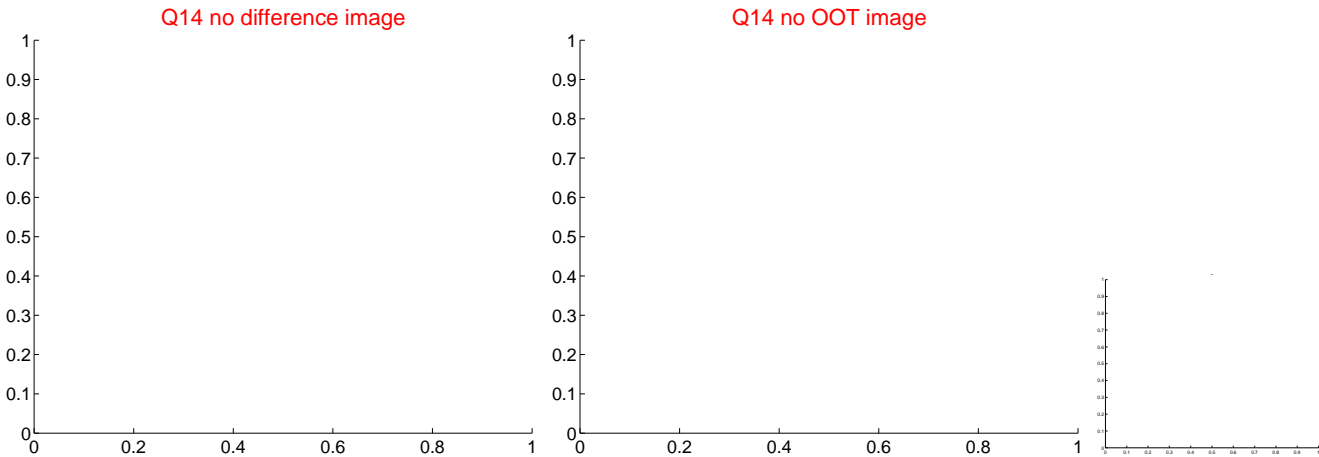
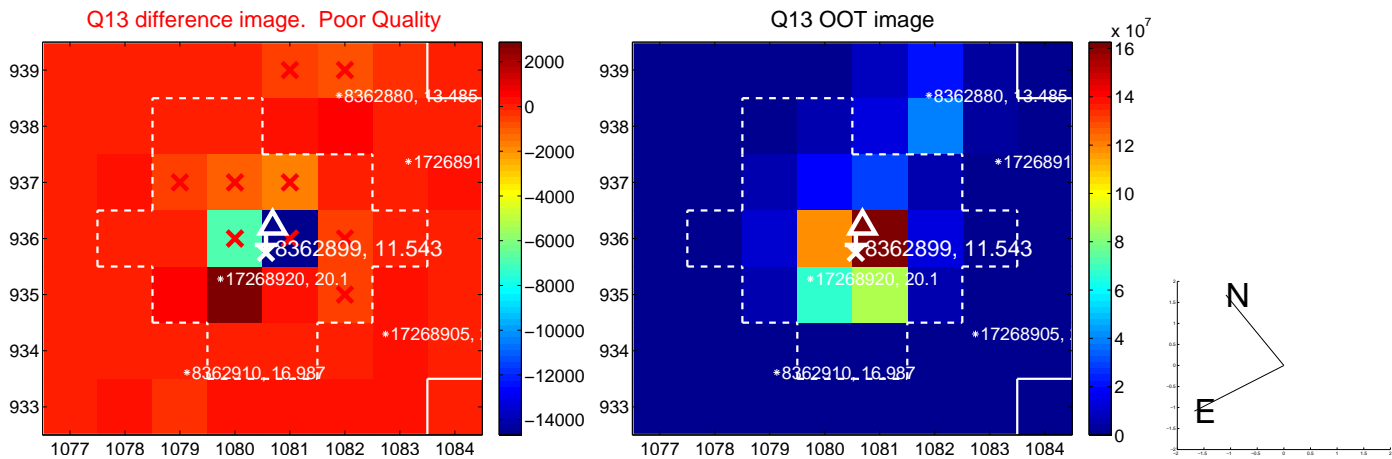
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



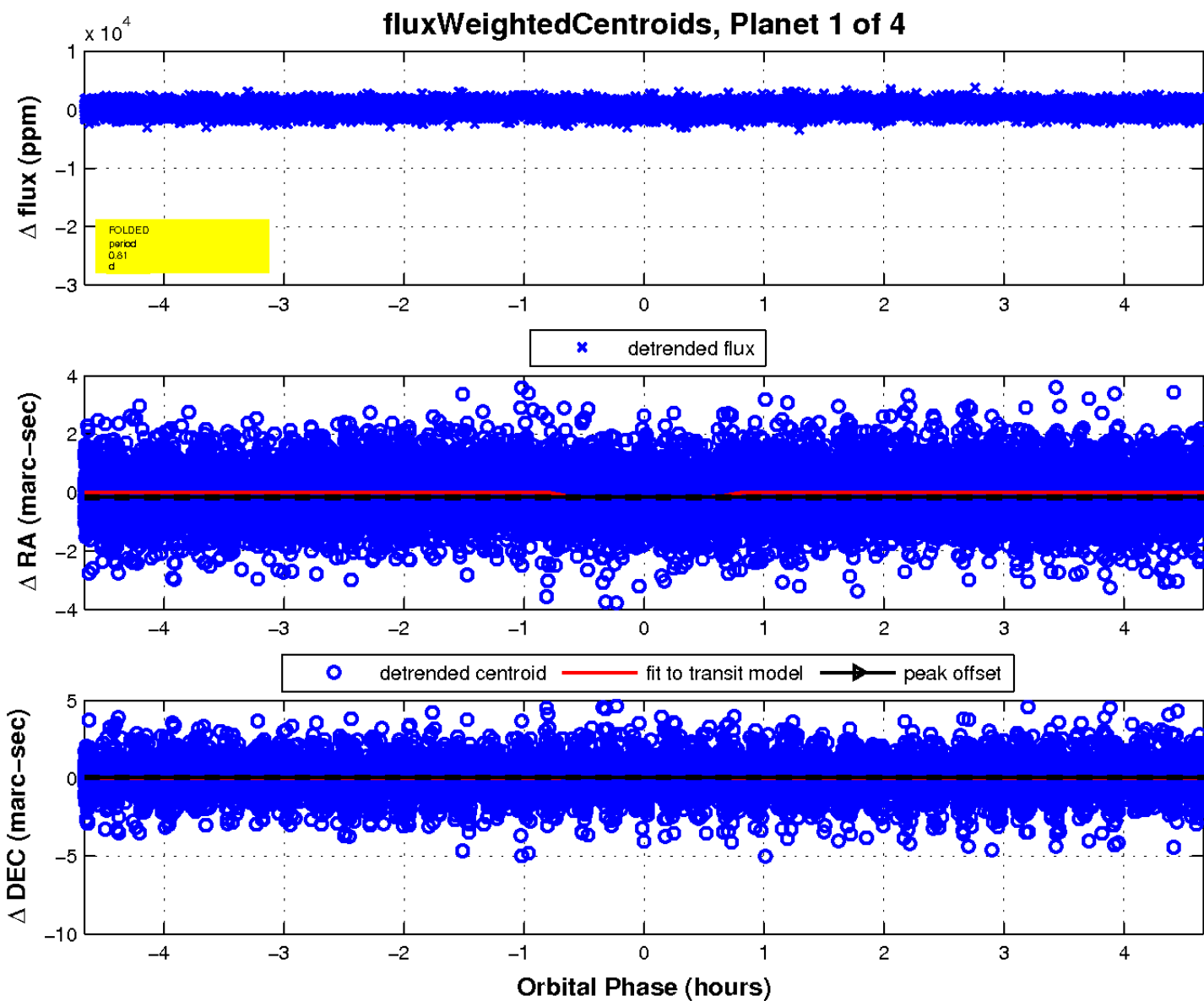
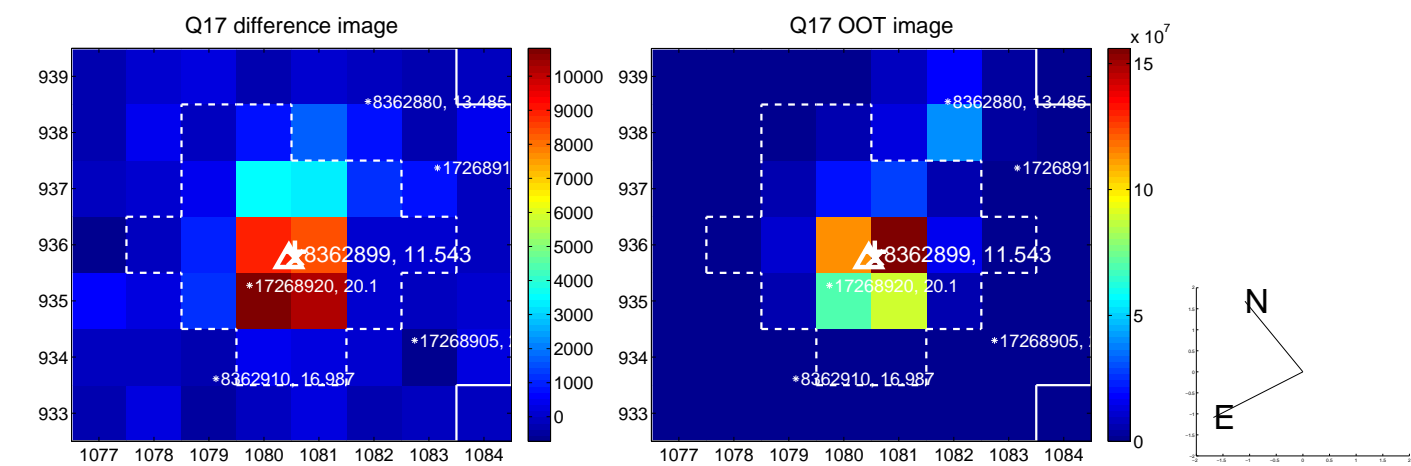
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



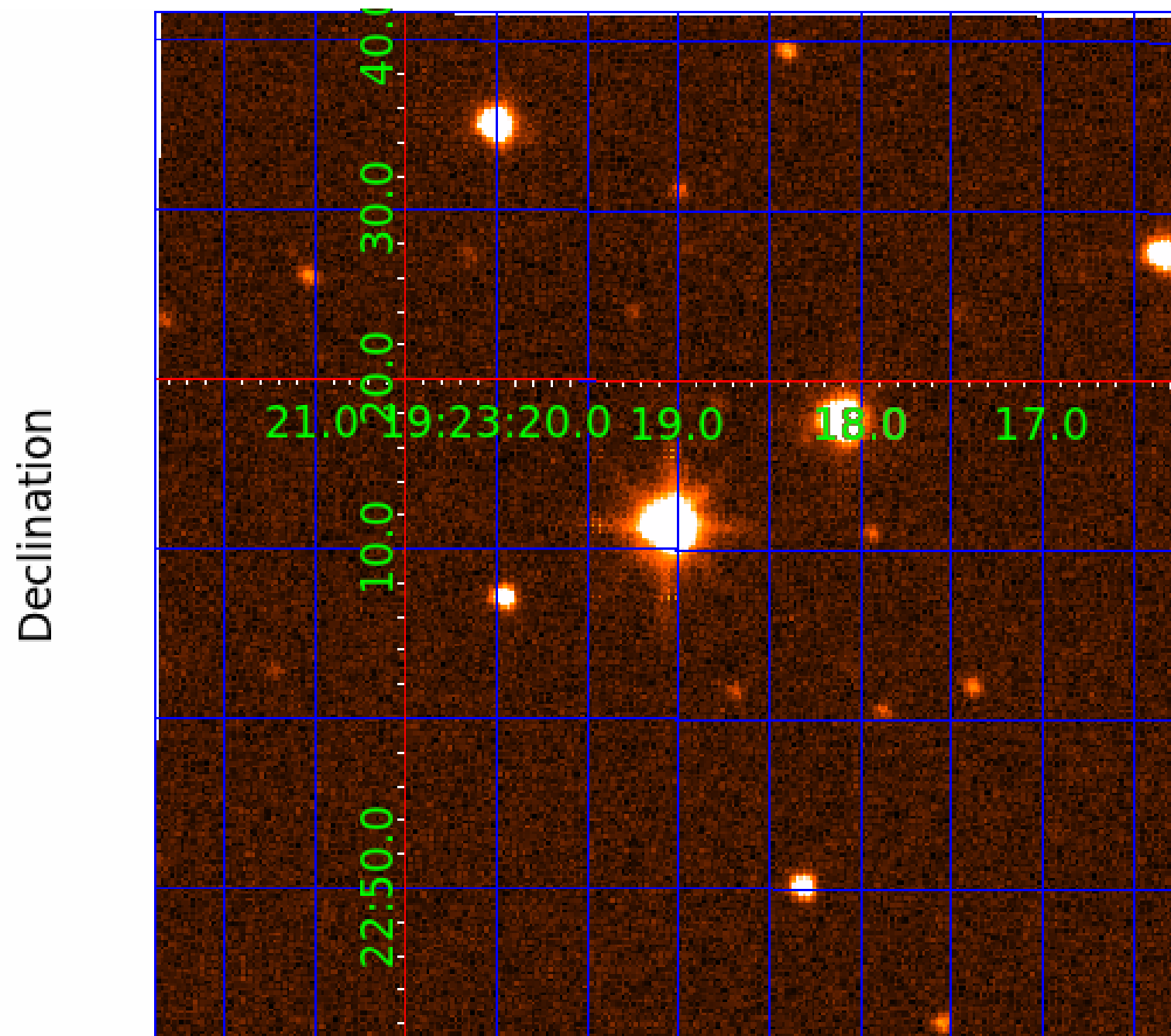
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UKIRT Image



KIC 008362899

Q1-17 DR25 TCE Parameters

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008362899-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS

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

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

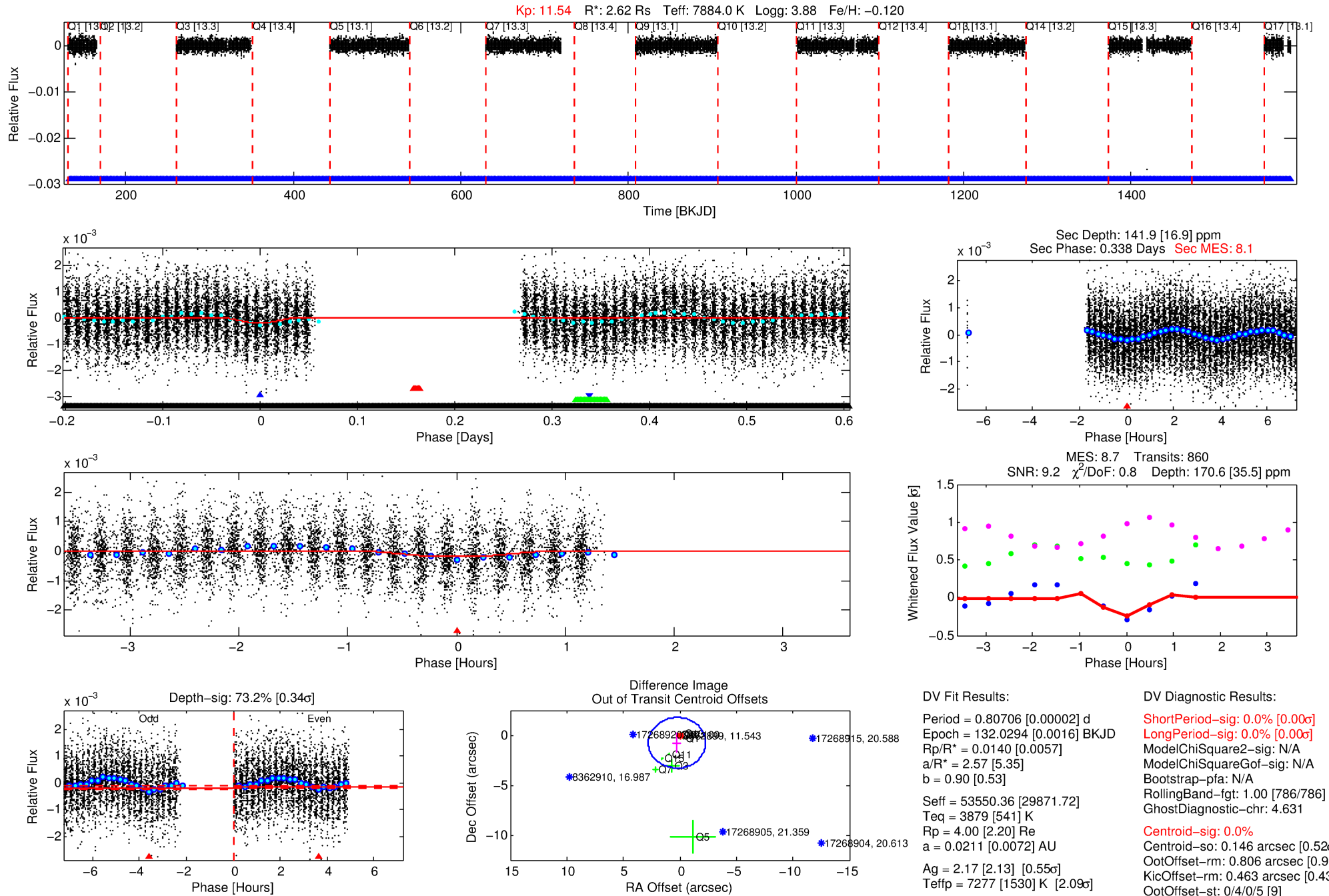
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008362899-02

No Significant Match Found

DV One-Page Summary

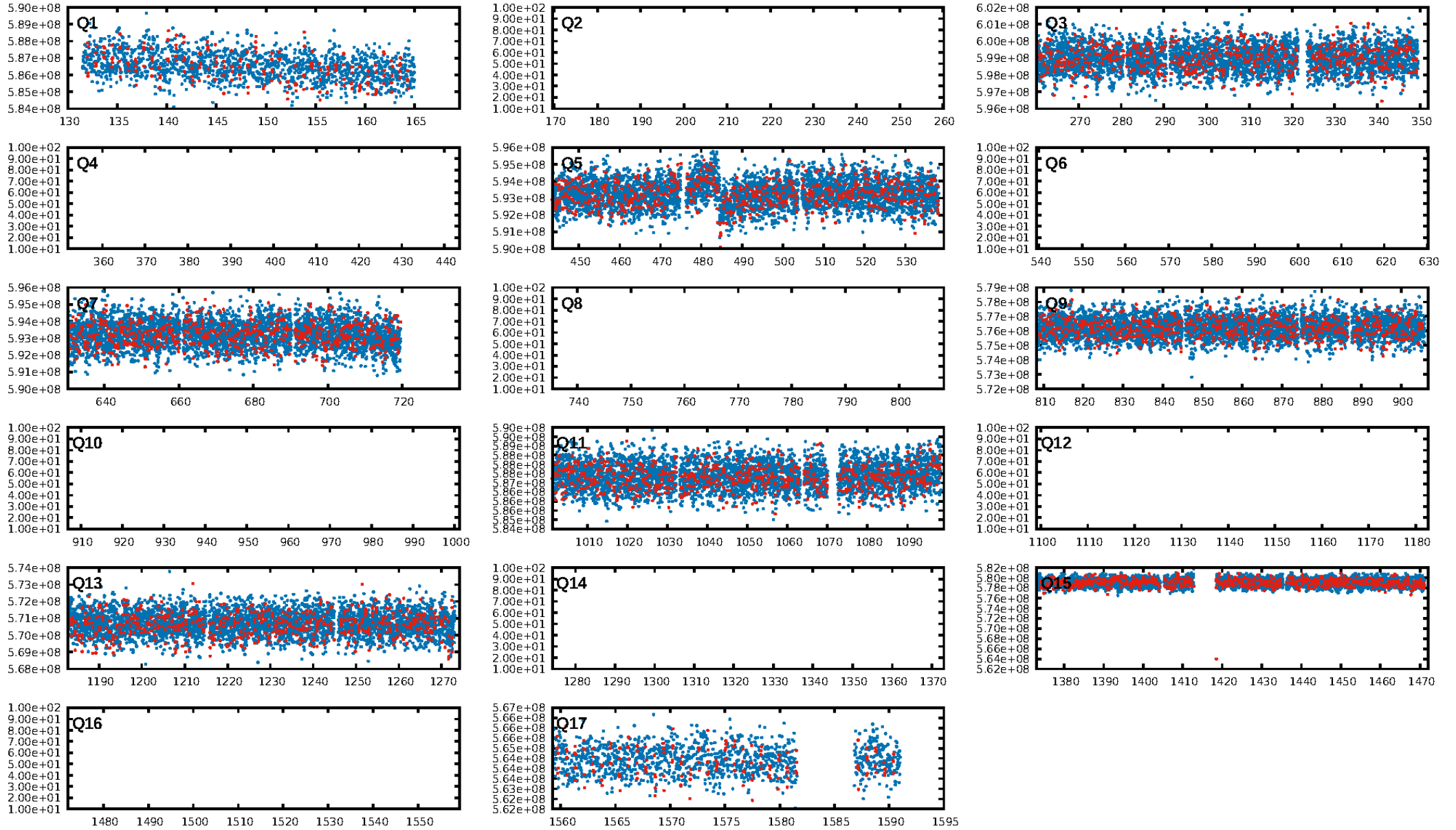
KIC: 8362899 Candidate: 2 of 4 Period: 0.807 d



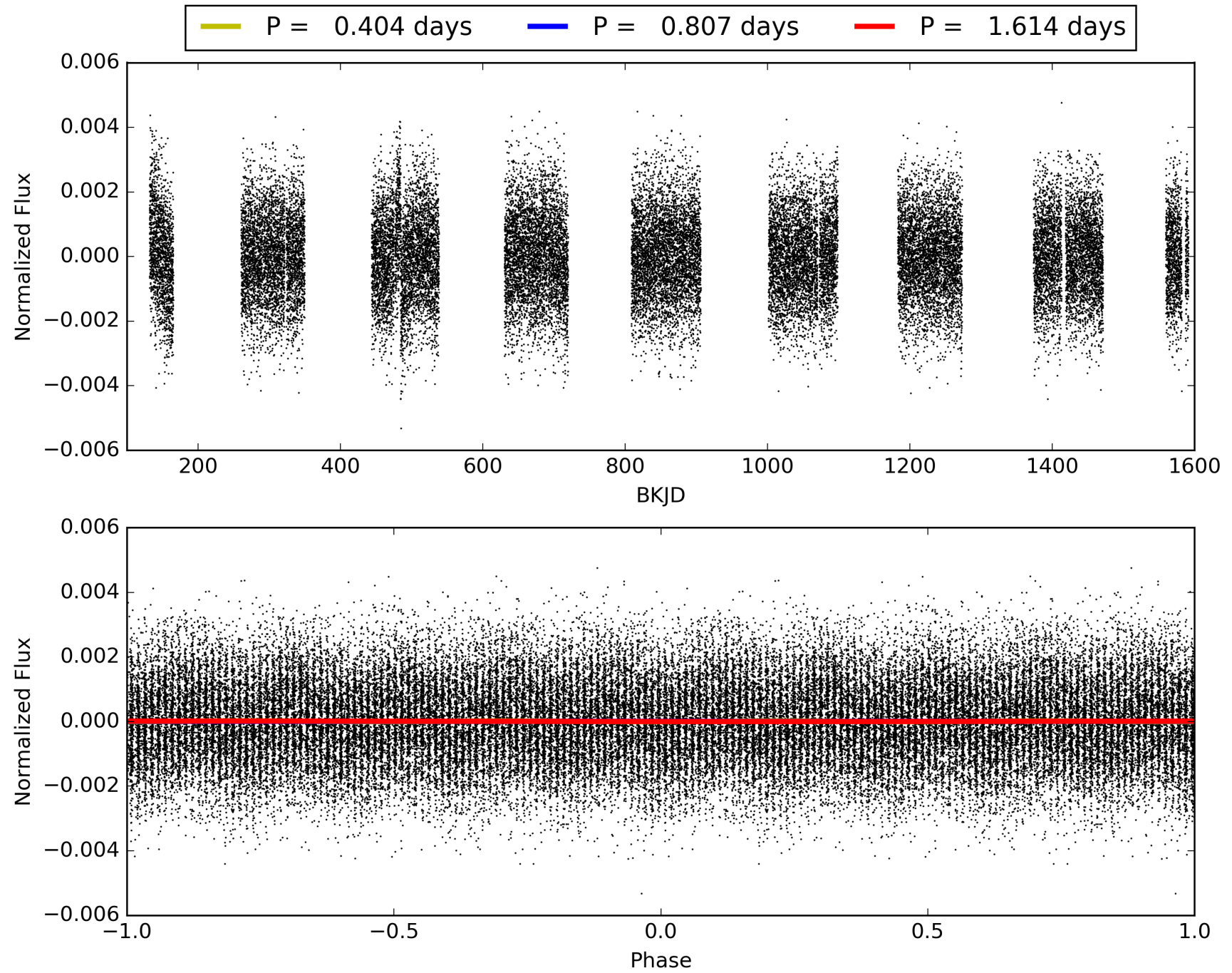
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008362899-02, PDC Light Curves

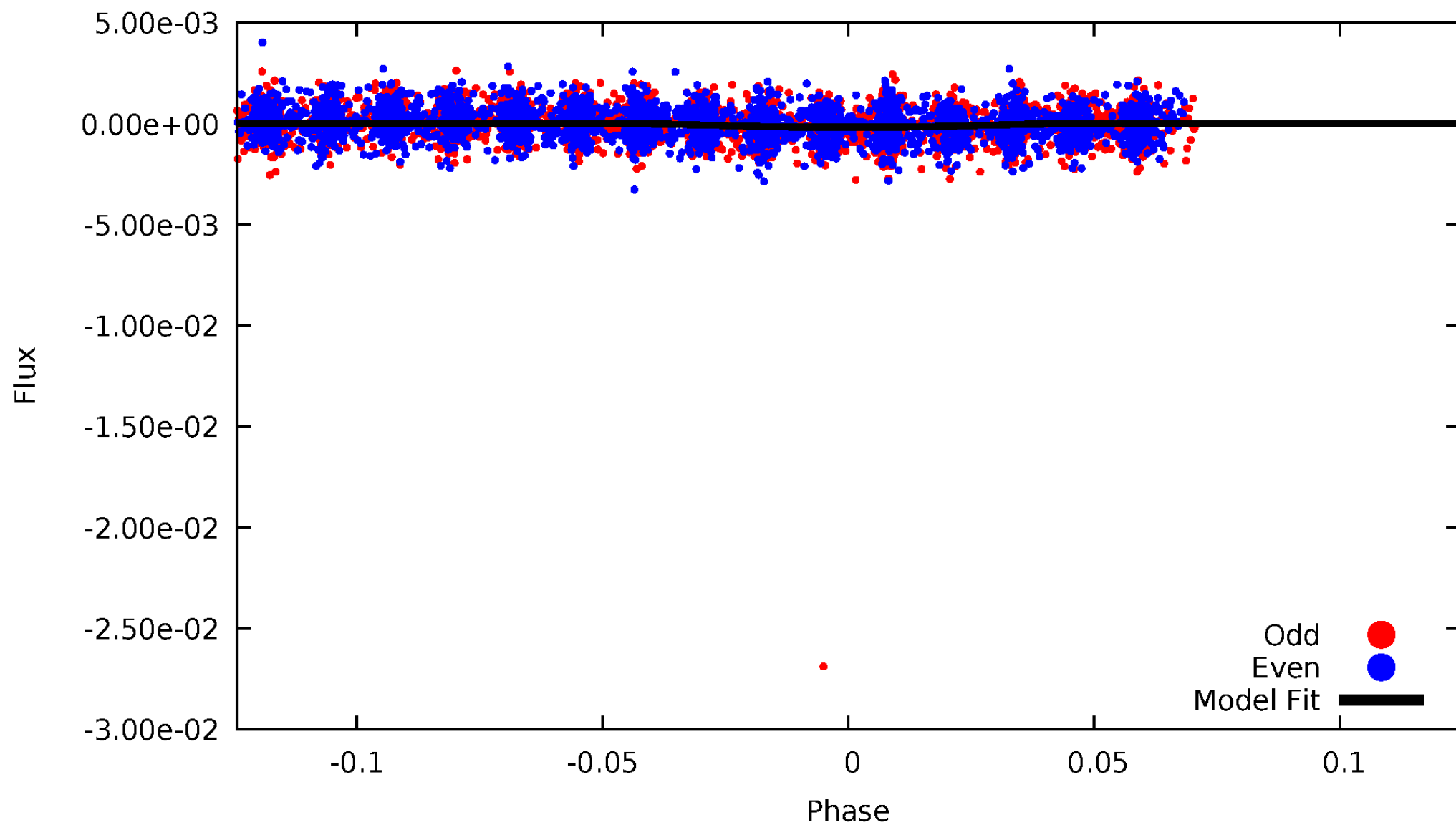


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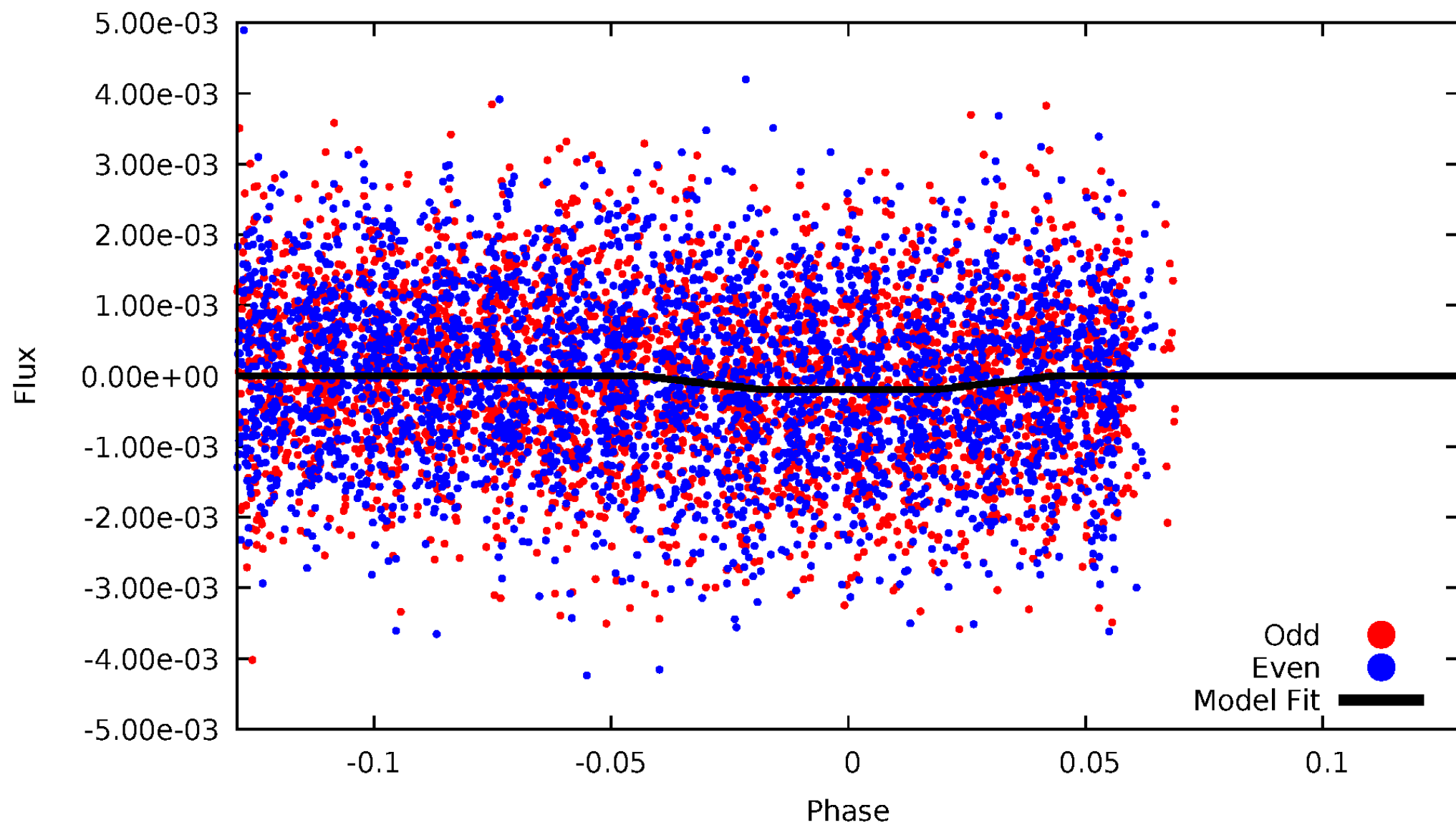
DV Odd/Even

TCE 008362899-02



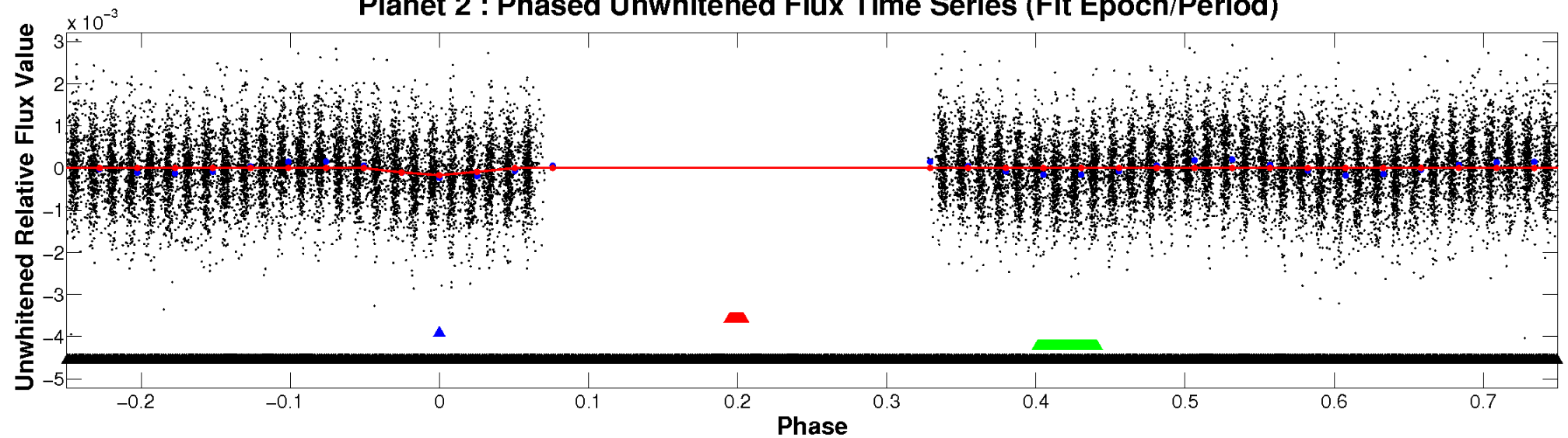
ALT Odd/Even

TCE 008362899-02

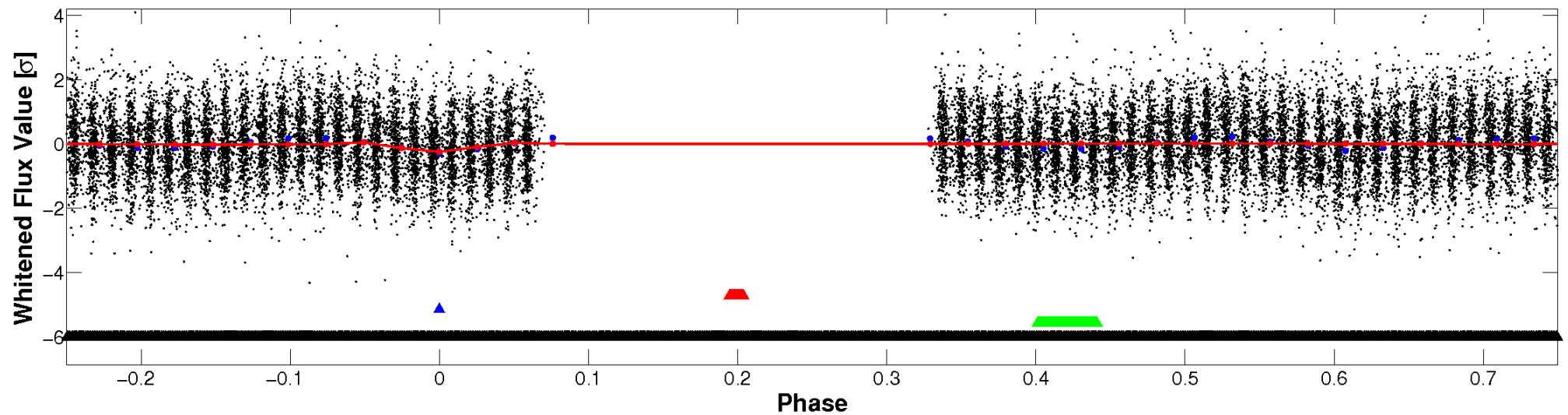


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

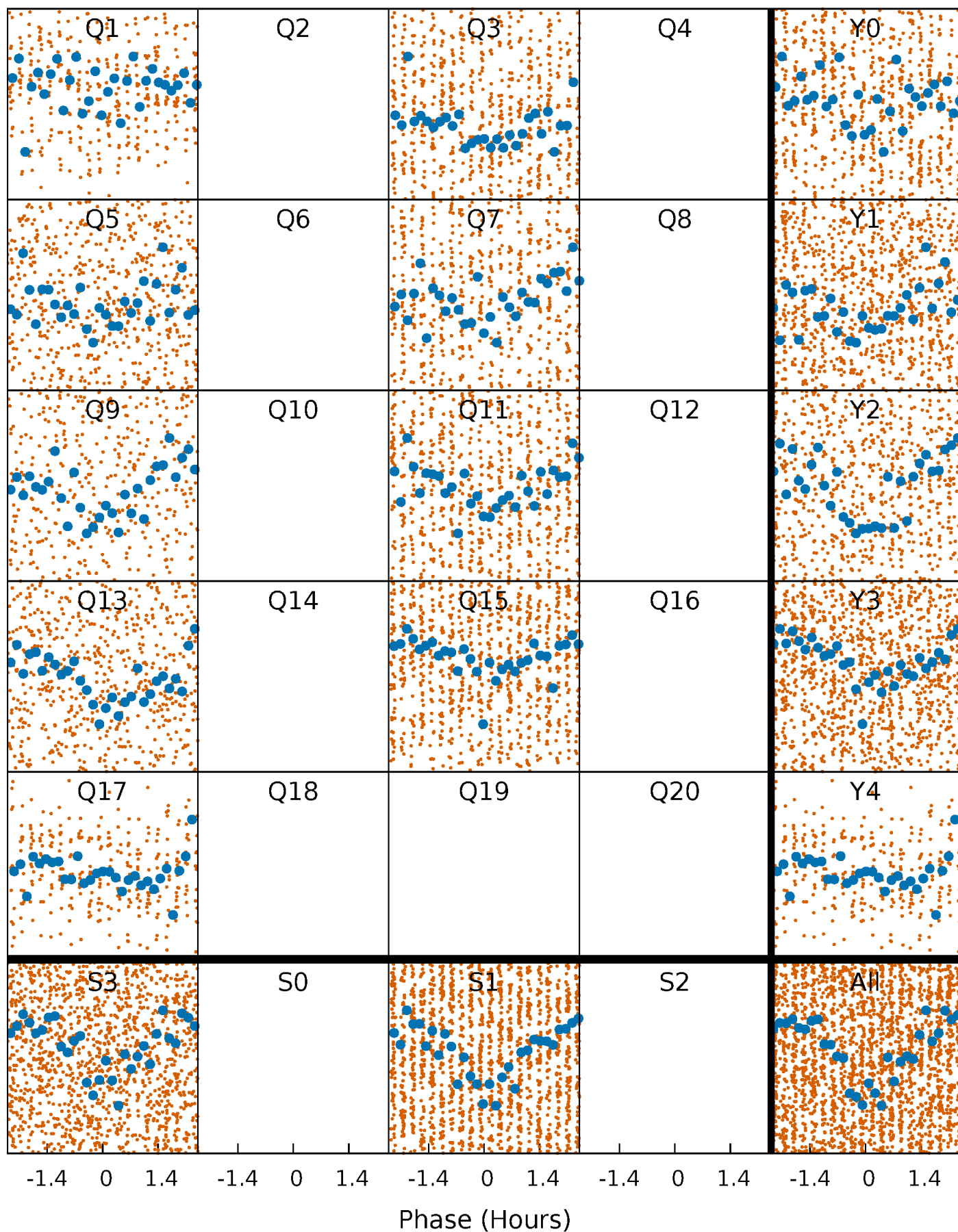


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



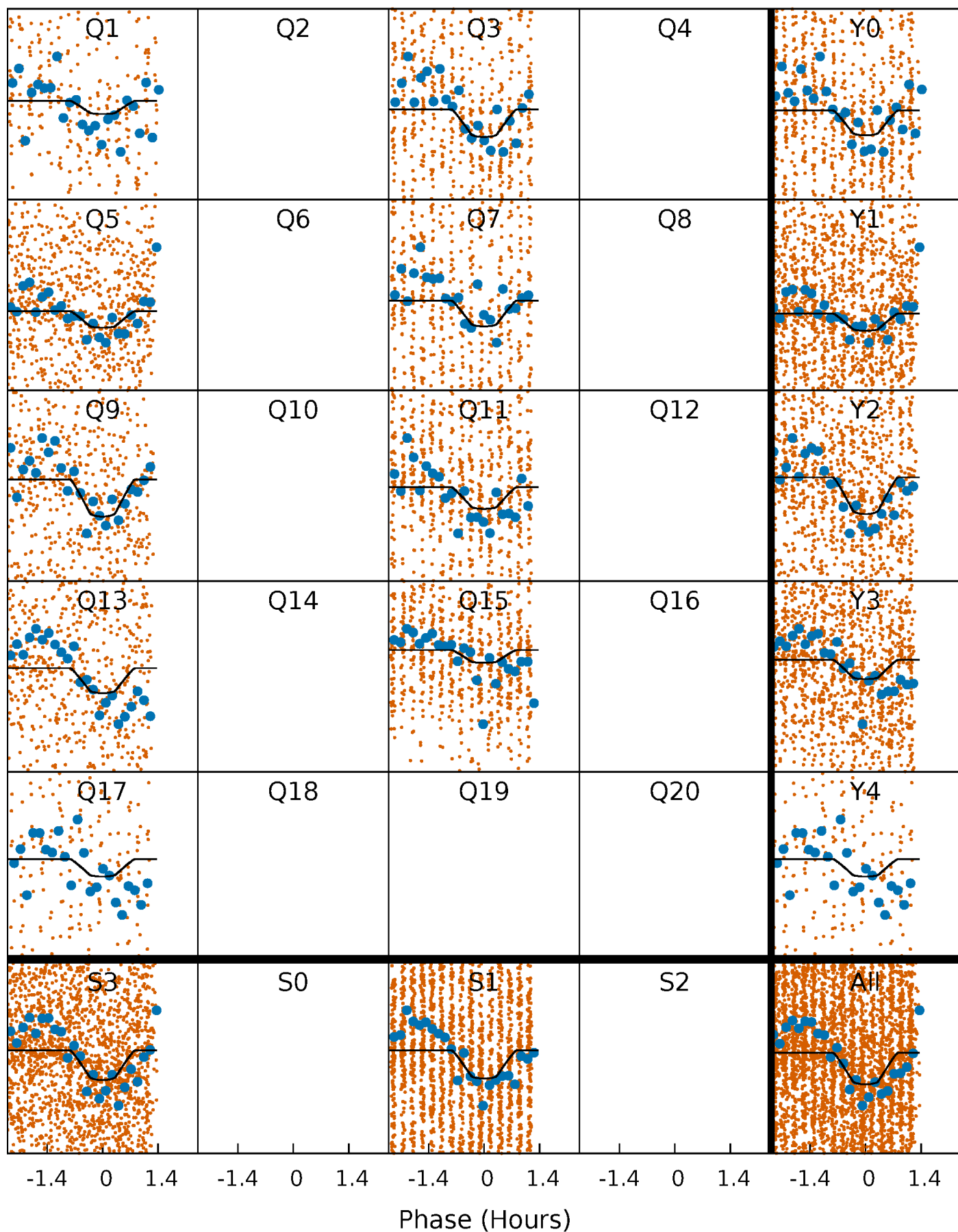
PDC Quarter-Phased Transit Curves

TCE 008362899-02 $P = 0.807061$ Days $T_0 = 132.029436$ (BKJD)



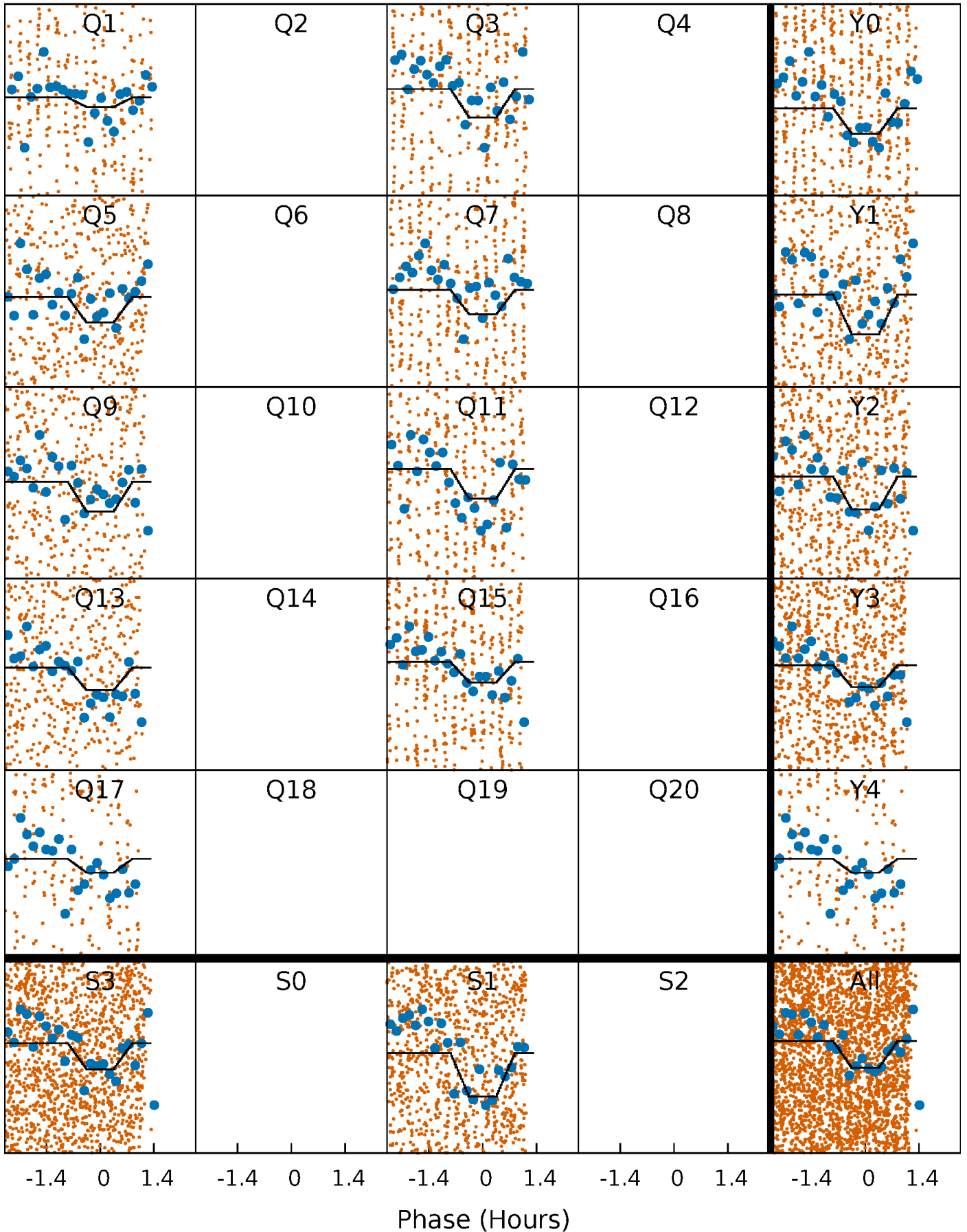
DV Quarter-Phased Transit Curves

TCE 008362899-02 $P = 0.807061$ Days $T_0 = 132.029436$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

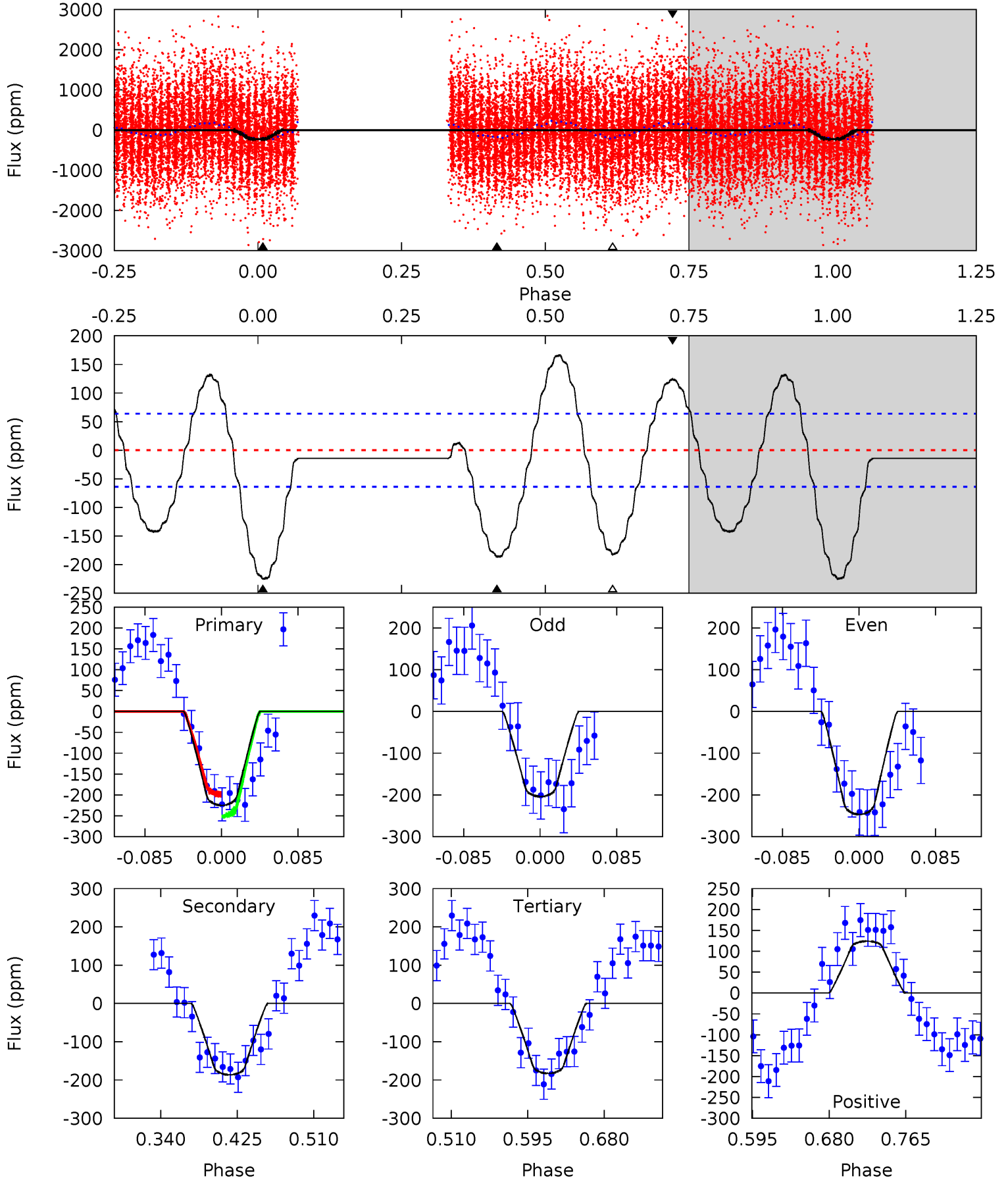
TCE 008362899-02 $P = 0.807065$ Days $T_0 = 132.030762$ (BKJD)



DV Model-Shift Uniqueness Test

008362899-02, P = 0.807061 Days, E = 131.222375 Days

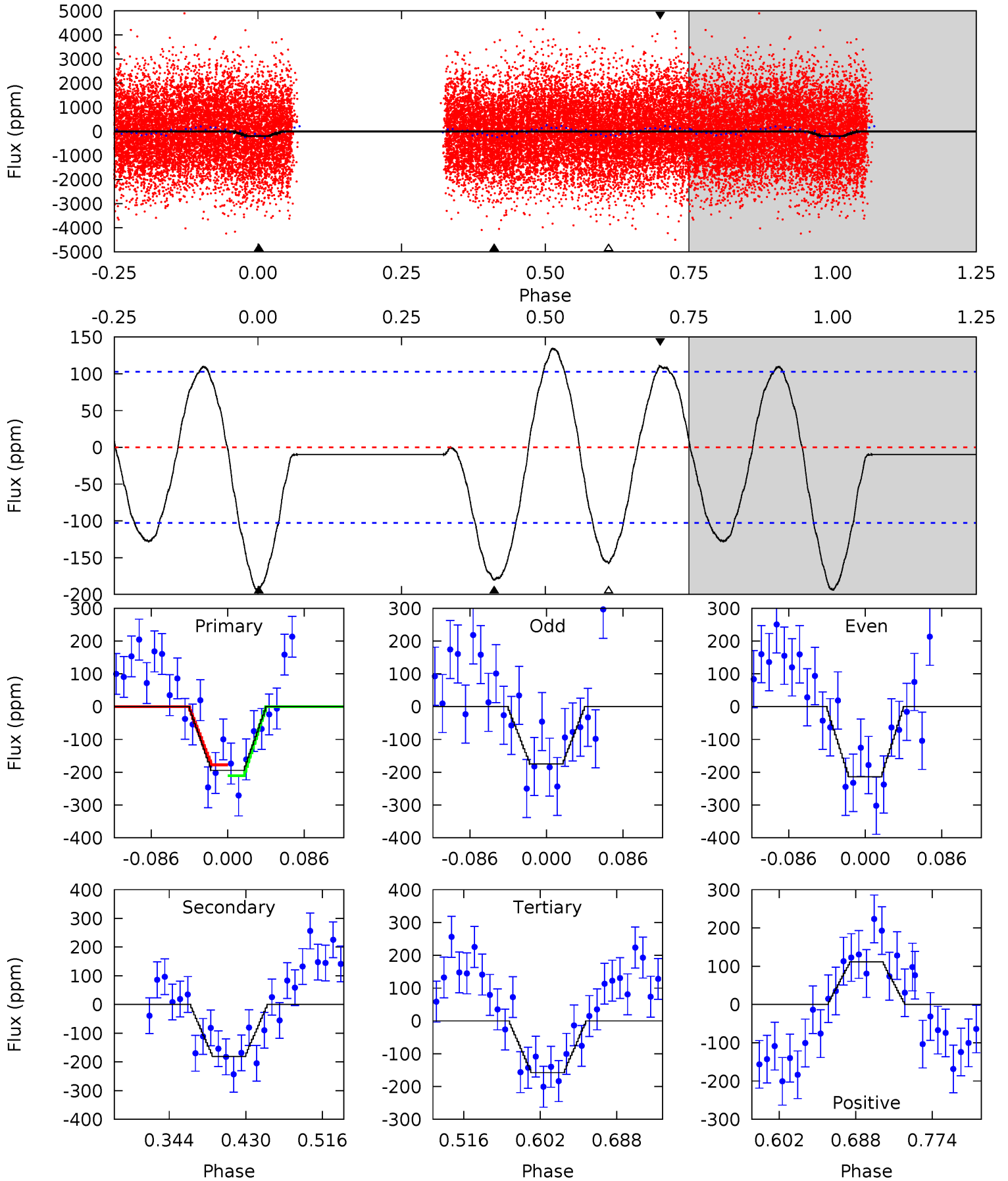
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	13.4	13.2	8.93	4.60	1.72	7.94	3.05	7.27	0.27	4.49	1.55	1.00	0.42	1.89



Alt Model-Shift Uniqueness Test

008362899-02, P = 0.807065 Days, E = 131.223697 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.69	8.09	7.06	4.97	4.60	1.72	4.19	1.63	3.72	1.03	3.12	0.87	1.06	0.41	0.74



Stellar Parameters For KIC 008362899

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7884^{+219}_{-329}	$3.883^{+0.307}_{-0.102}$	$-0.120^{+0.200}_{-0.350}$	$2.619^{+0.417}_{-0.972}$	$1.912^{+0.104}_{-0.415}$	$0.150^{+0.297}_{-0.049}$
	+3%/-4%	+8%/-3%	+167%/-292%	+16%/-37%	+5%/-22%	+198%/-33%
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 008362899-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-186 ± 14	$3.67^{+1.59}_{-1.49}$	5313^{+349}_{-483}	7570^{+3329}_{-1545}	$3.324^{+5.700}_{-1.787}$
Alt.	-181 ± 22	$3.71^{+1.66}_{-1.55}$	5306^{+354}_{-482}	7417^{+2970}_{-1408}	$3.083^{+5.728}_{-1.634}$

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 $A_{obs} \gg 1.0$

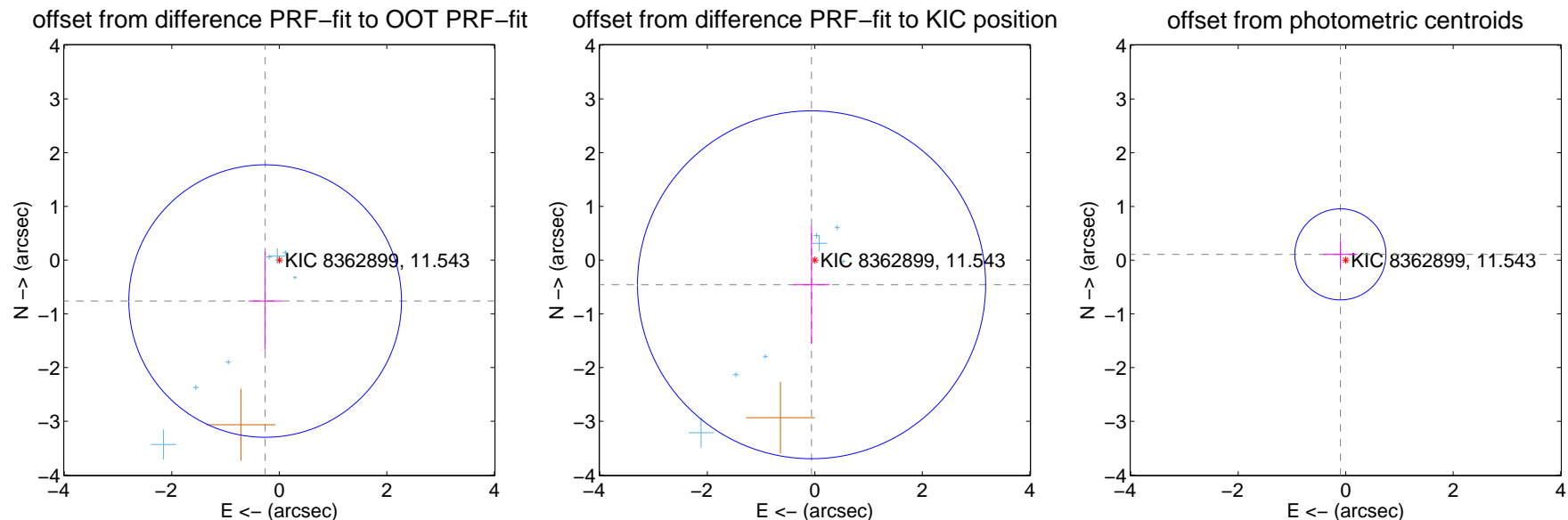
DV Centroid Data

Supplemental centroid analysis for 008362899-02. **Kepler magnitude: 11.54.** Transit SNR 9.23

There are 7 quarters with good PRF difference image offsets

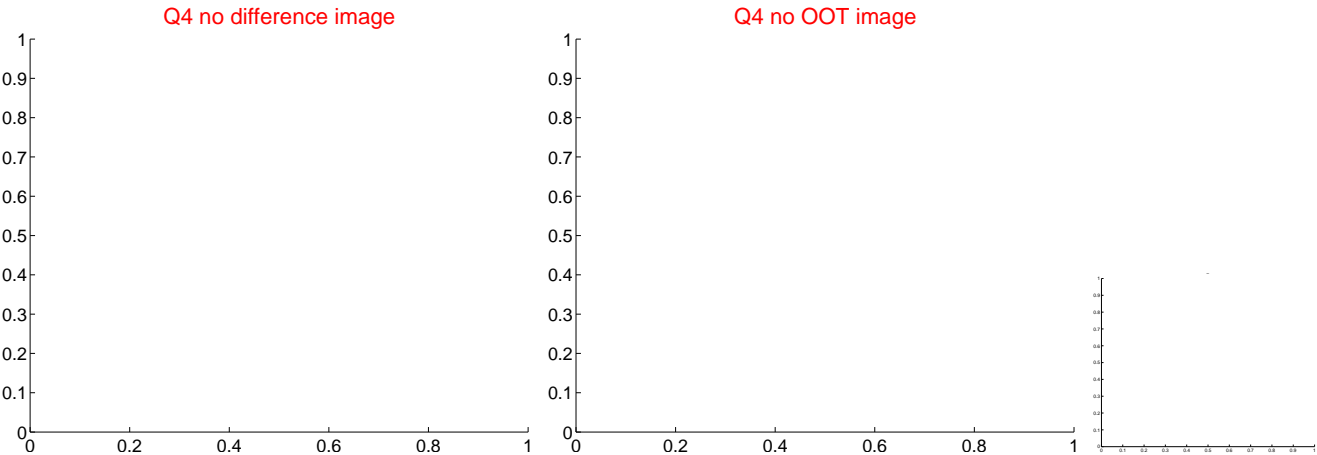
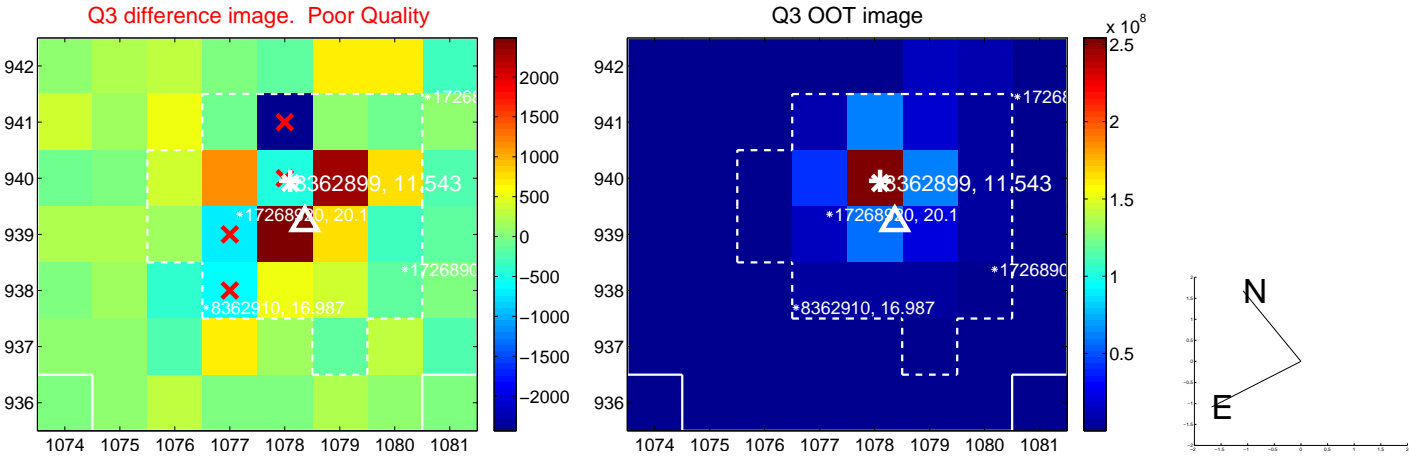
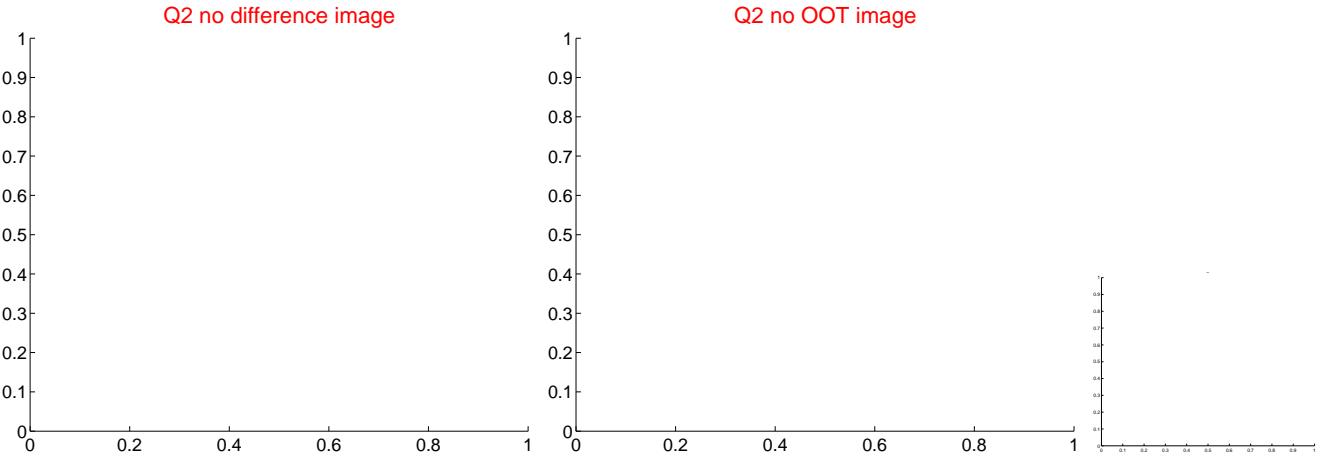
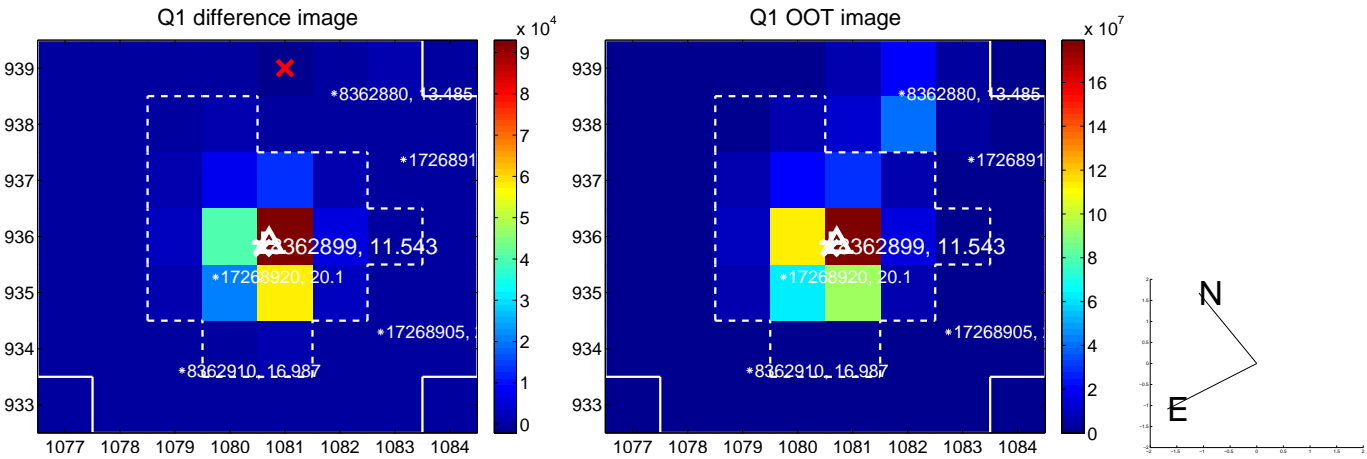
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.806 ± 0.845	0.95	0.263 ± 0.309	-0.762 ± 0.915
PRF-fit source offset from KIC position	0.463 ± 1.079	0.43	0.061 ± 0.335	-0.459 ± 1.099
photometric centroid source offset	0.15 ± 0.28	0.52	0.10 ± 0.32	0.11 ± 0.25

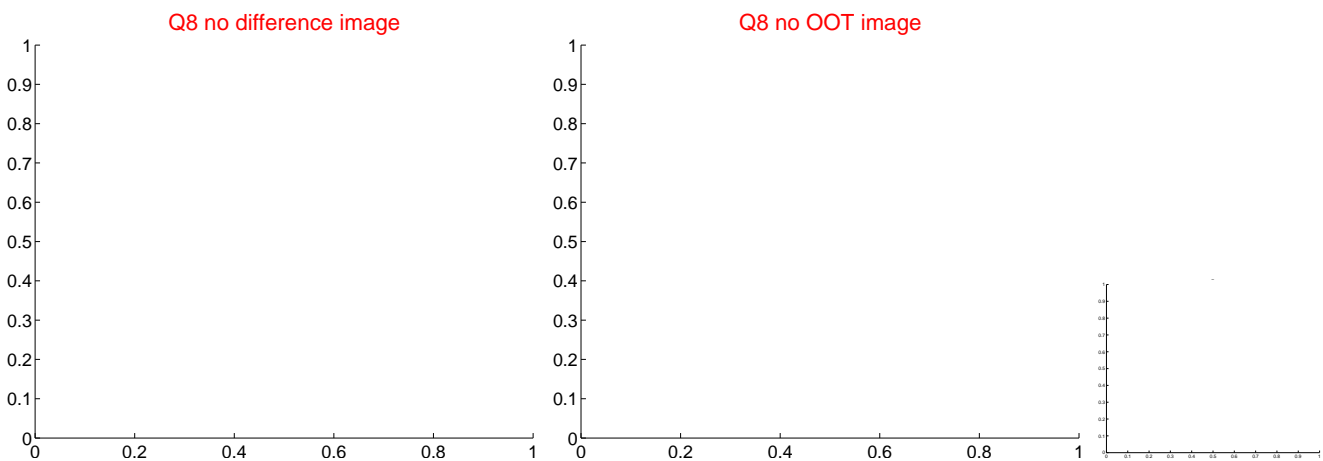
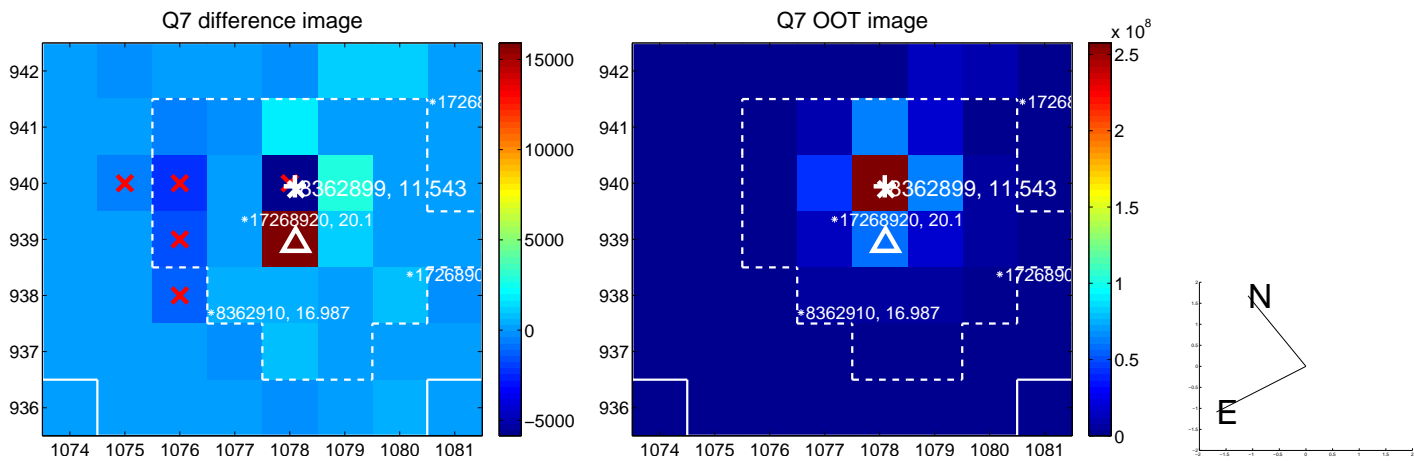
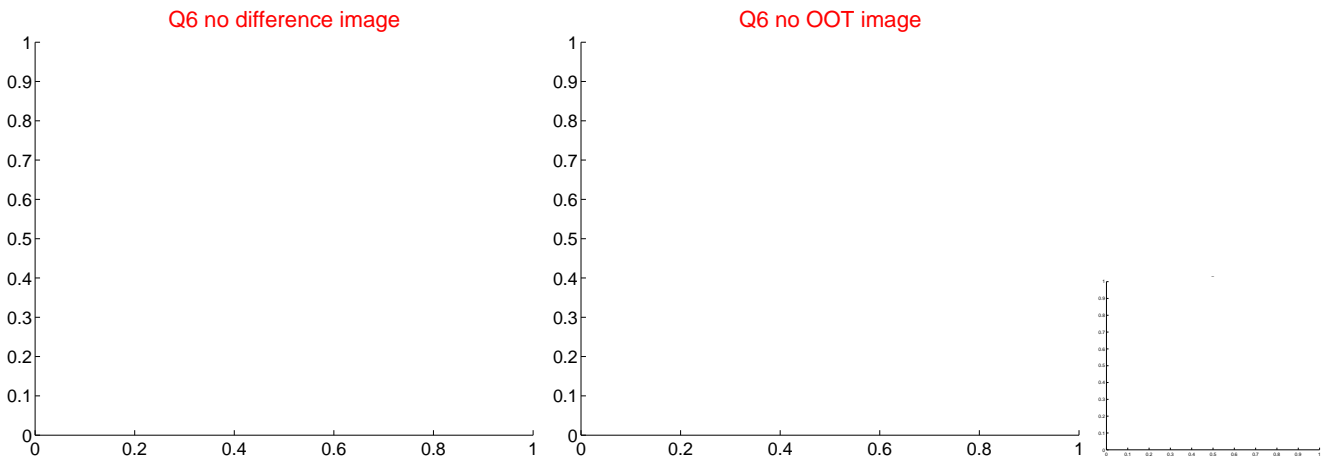
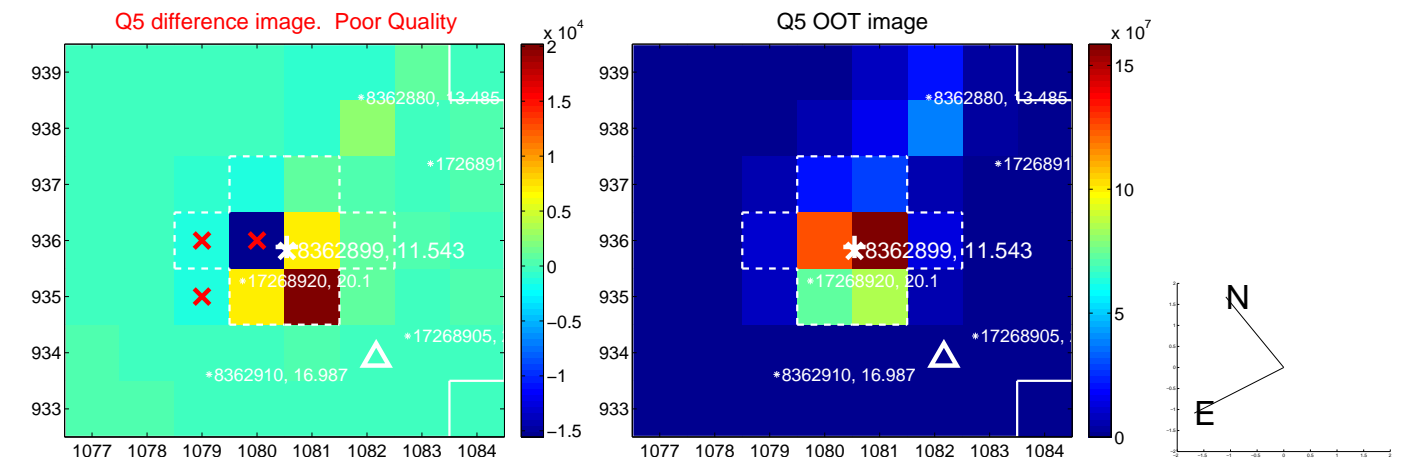


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

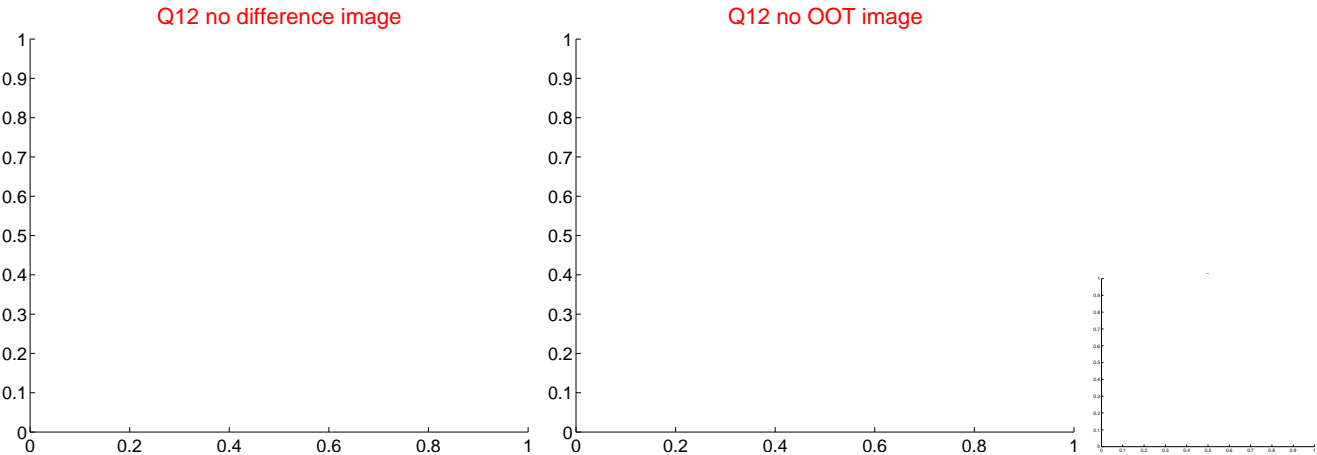
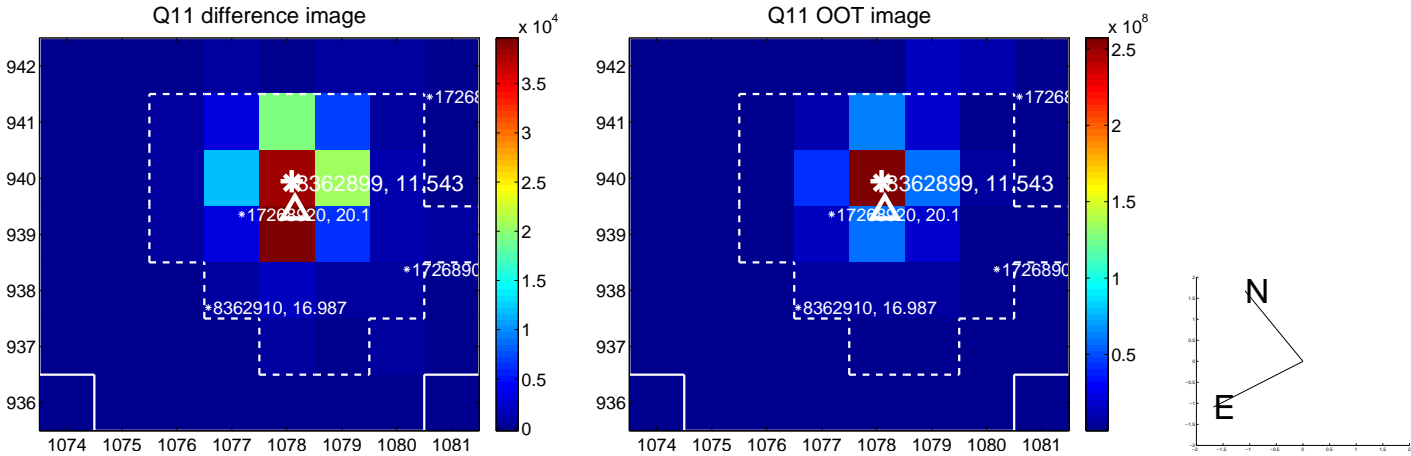
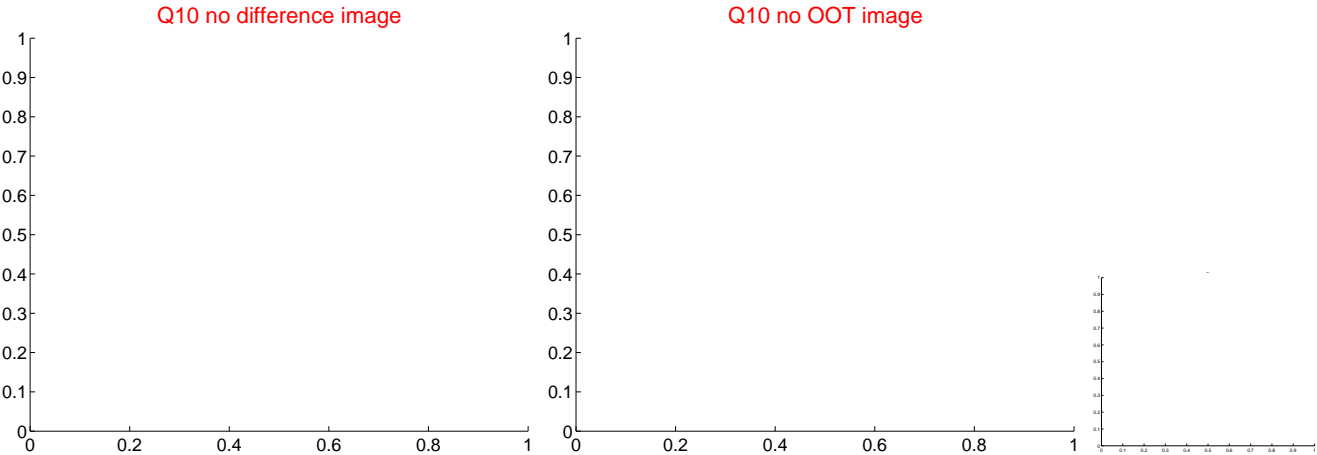
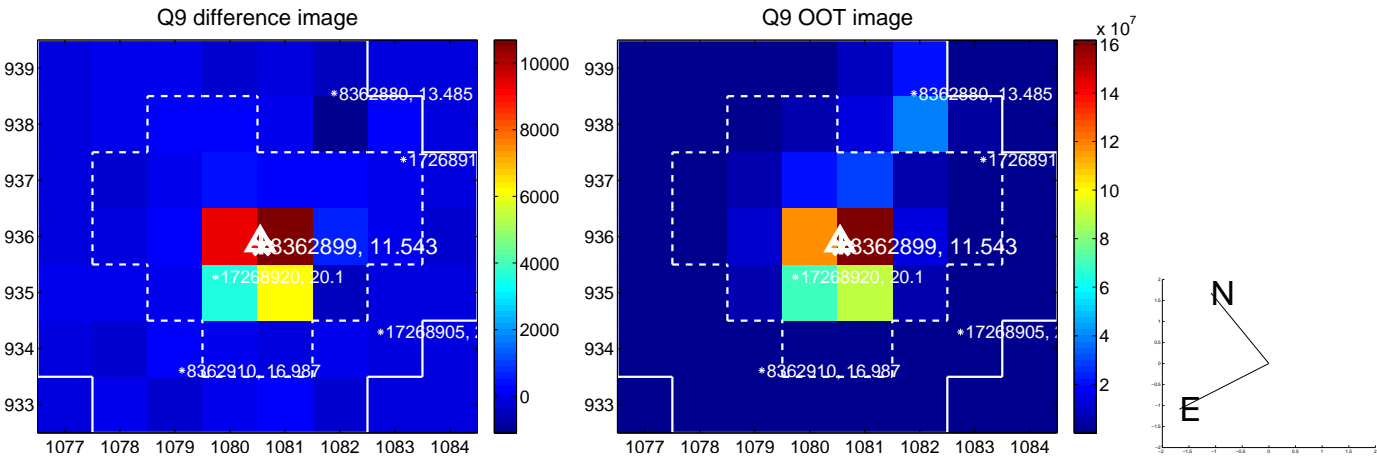
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



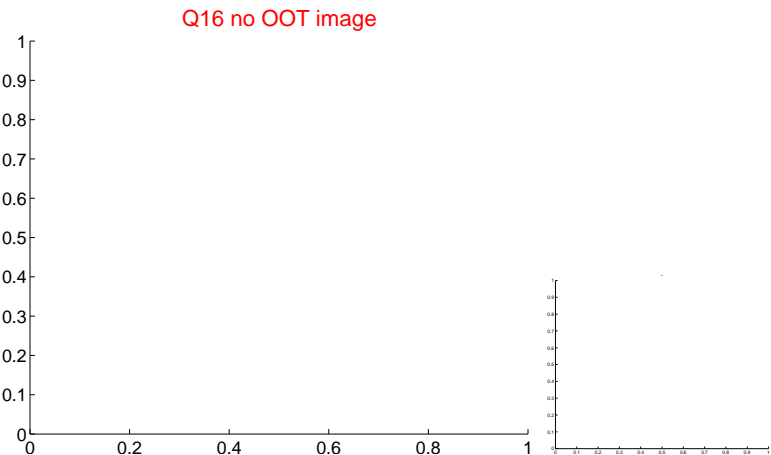
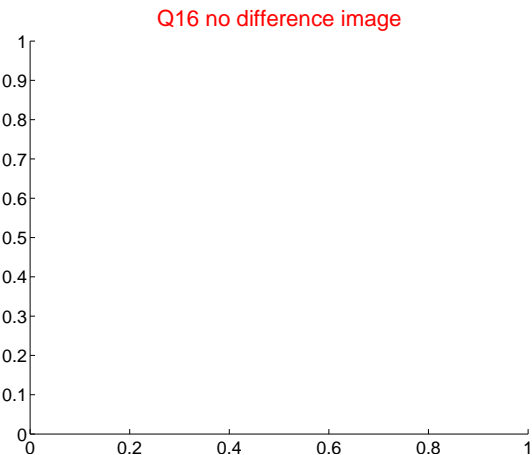
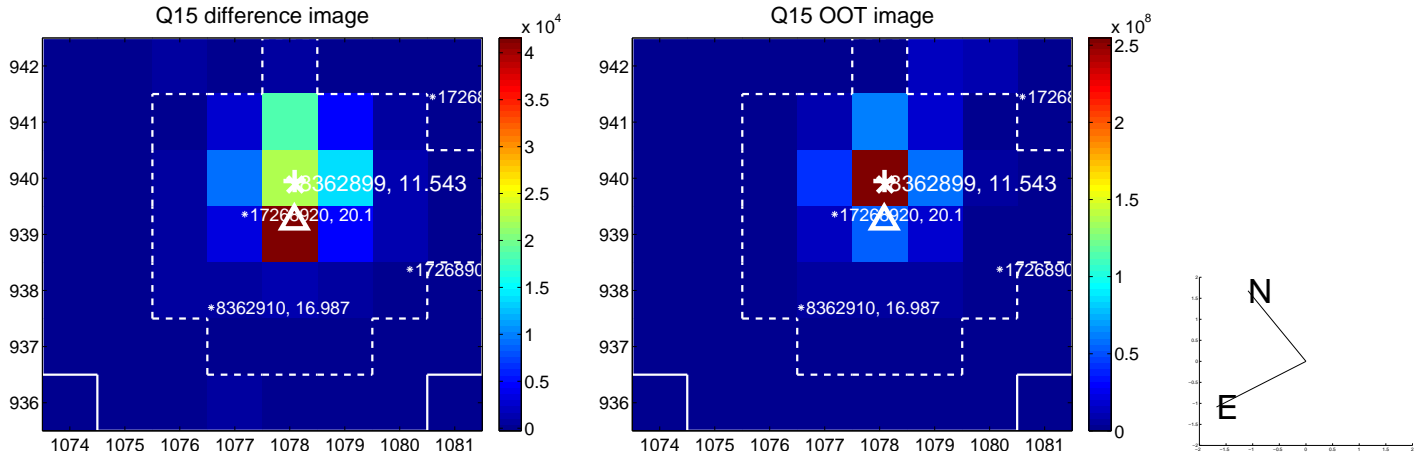
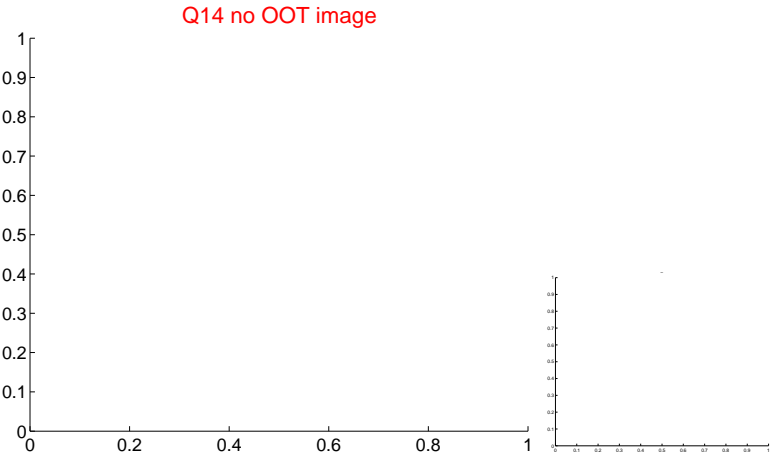
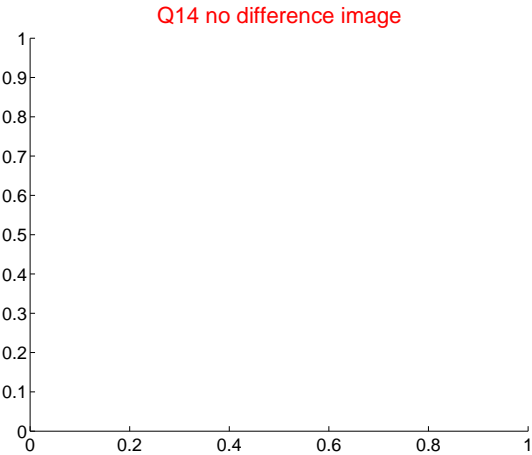
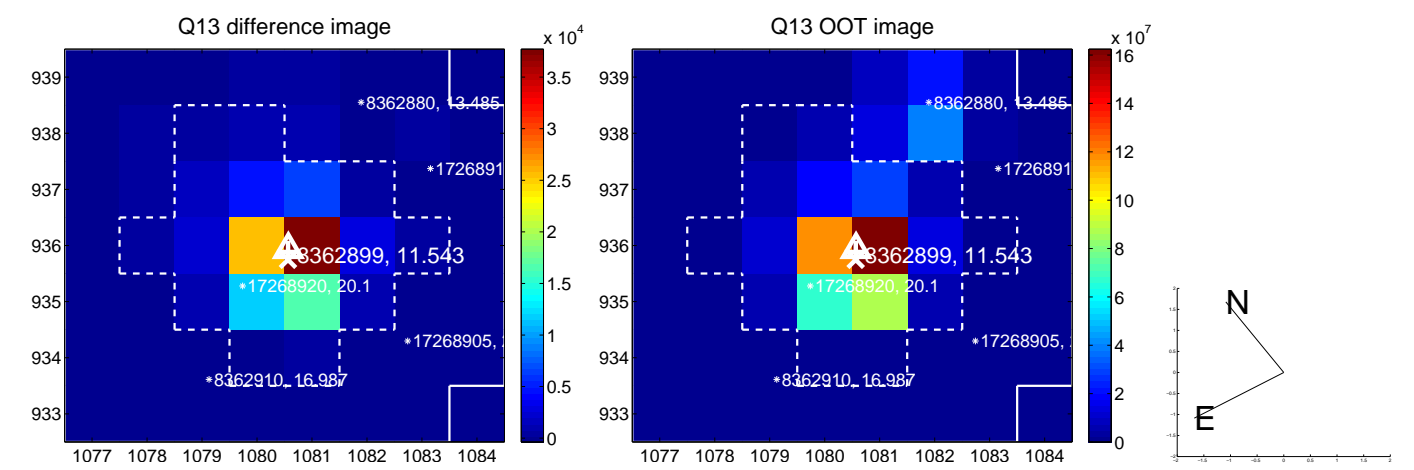
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



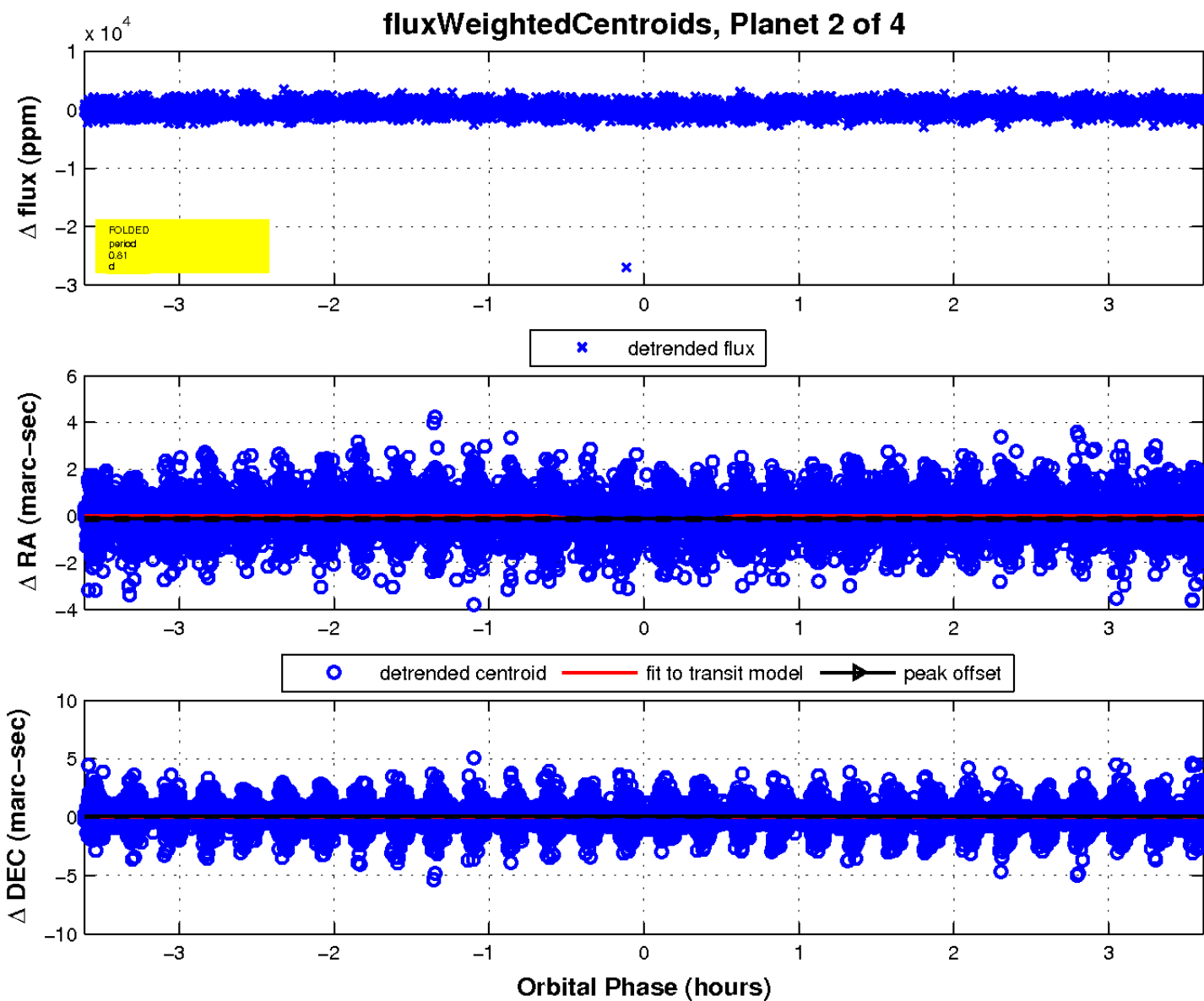
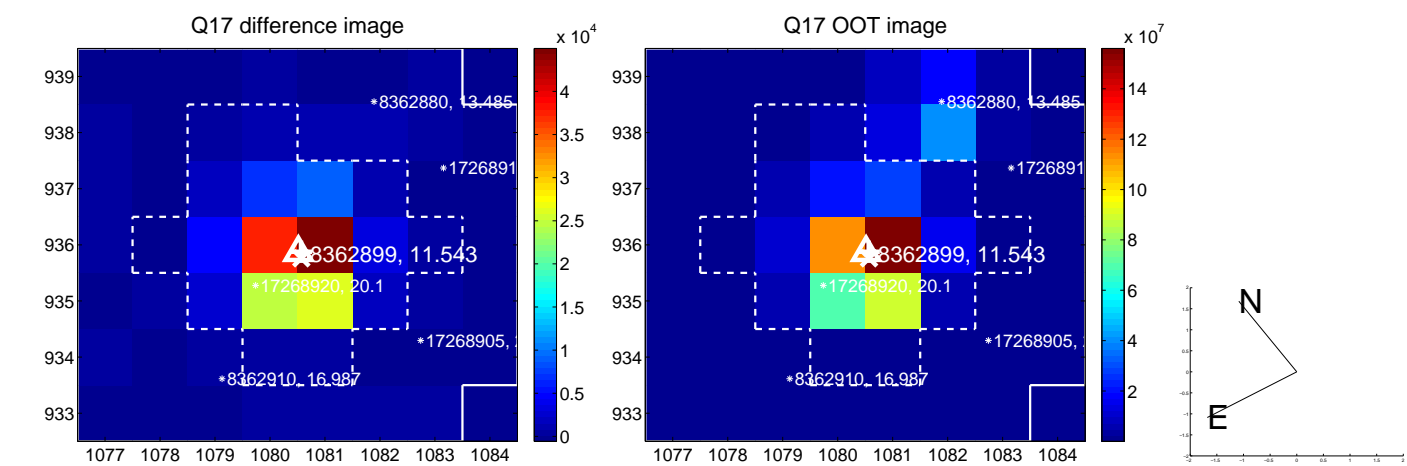
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



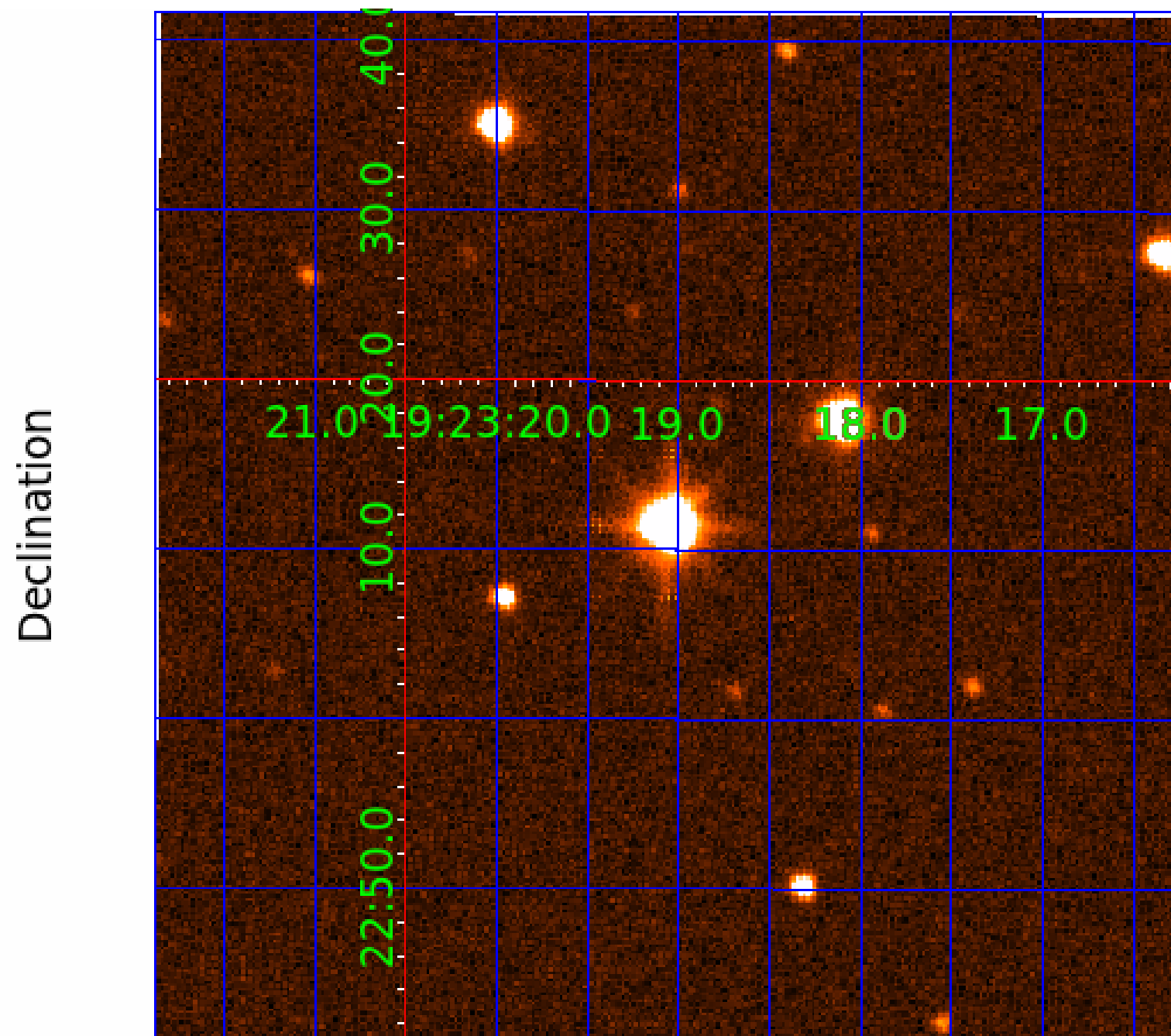
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008362899

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})
008362899-01	OBS	No	0.807057	132.193938	107.8	1.555	9.6	6.1	2.62	7884	3.17	53550.72
008362899-02	OBS	No	0.807061	132.029436	170.6	1.204	8.7	9.2	2.62	7884	4.00	53550.36
008362899-03	OBS	No	0.807079	131.546093	158.6	1.861	9.0	9.5	2.62	7884	3.84	53548.78
008362899-04	OBS	No	1.077321	132.437315	61.0	3.500	8.3	-1.0	2.62	7884	2.07	36434.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008362899-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008362899-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS

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

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

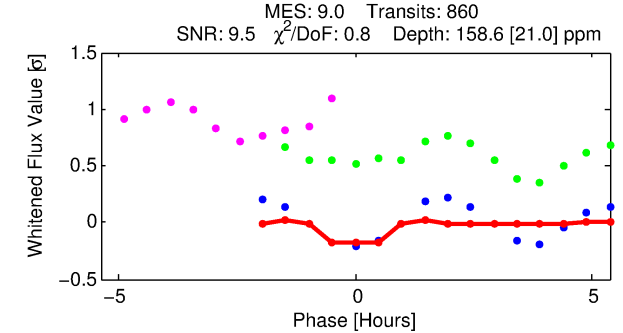
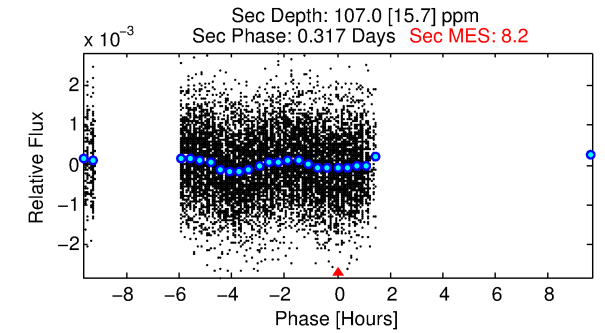
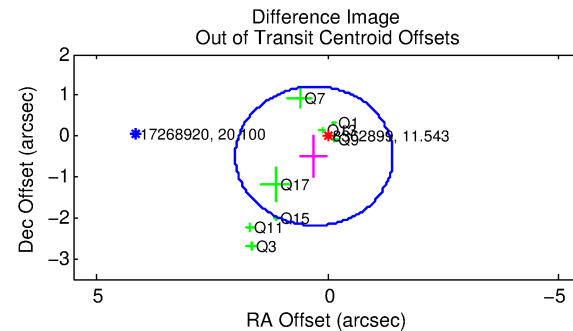
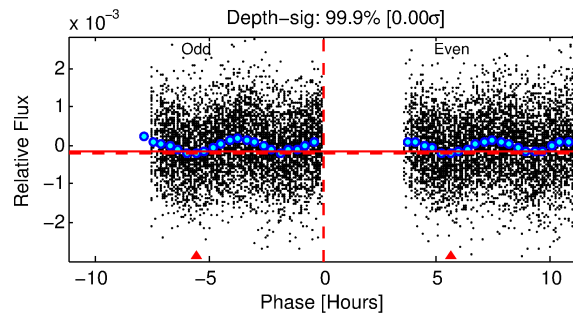
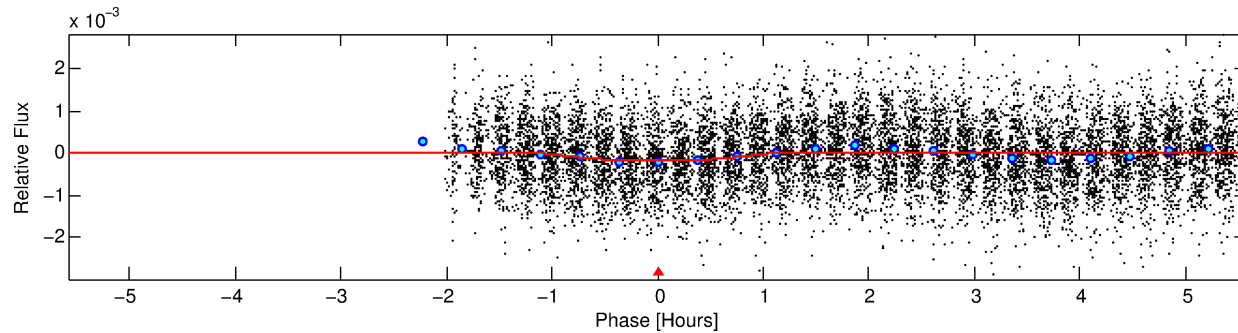
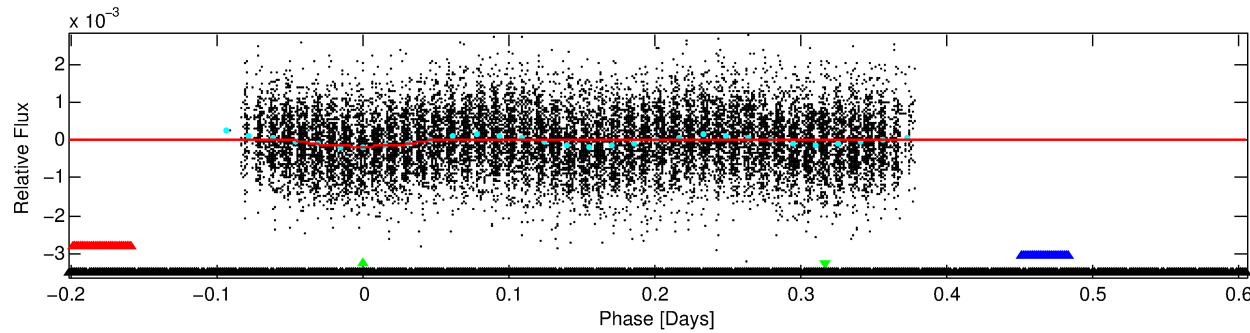
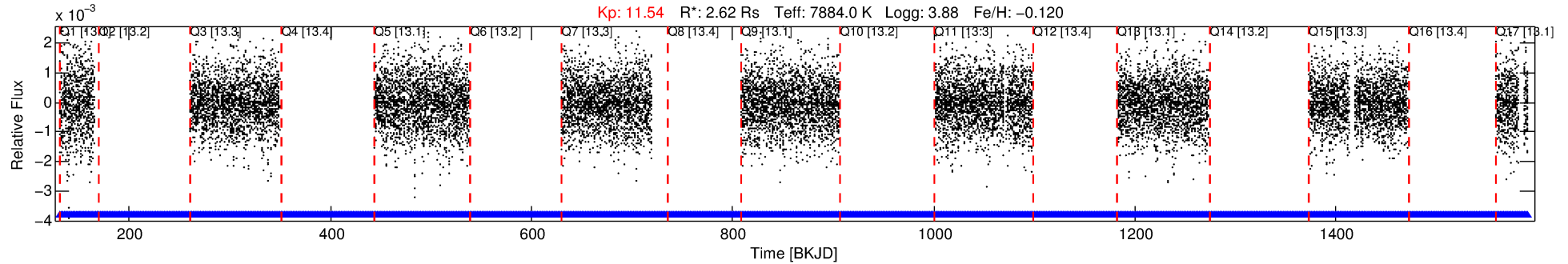
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008362899-03

No Significant Match Found

DV One-Page Summary

KIC: 8362899 Candidate: 3 of 4 Period: 0.807 d



DV Fit Results:

Period = 0.80708 [0.00001] d
Epoch = 131.5461 [0.0020] BKJD
Rp/R* = 0.0134 [0.0058]
a/R* = 1.81 [3.37]
b = 0.90 [0.58]
Seff = 53548.78 [29870.85]
Teq = 3879 [541] K
Rp = 3.84 [2.19] Re
a = 0.0211 [0.0072] AU
Ag = 1.77 [1.82] [0.42 σ]
Teffp = 6916 [1548] K [1.85 σ]

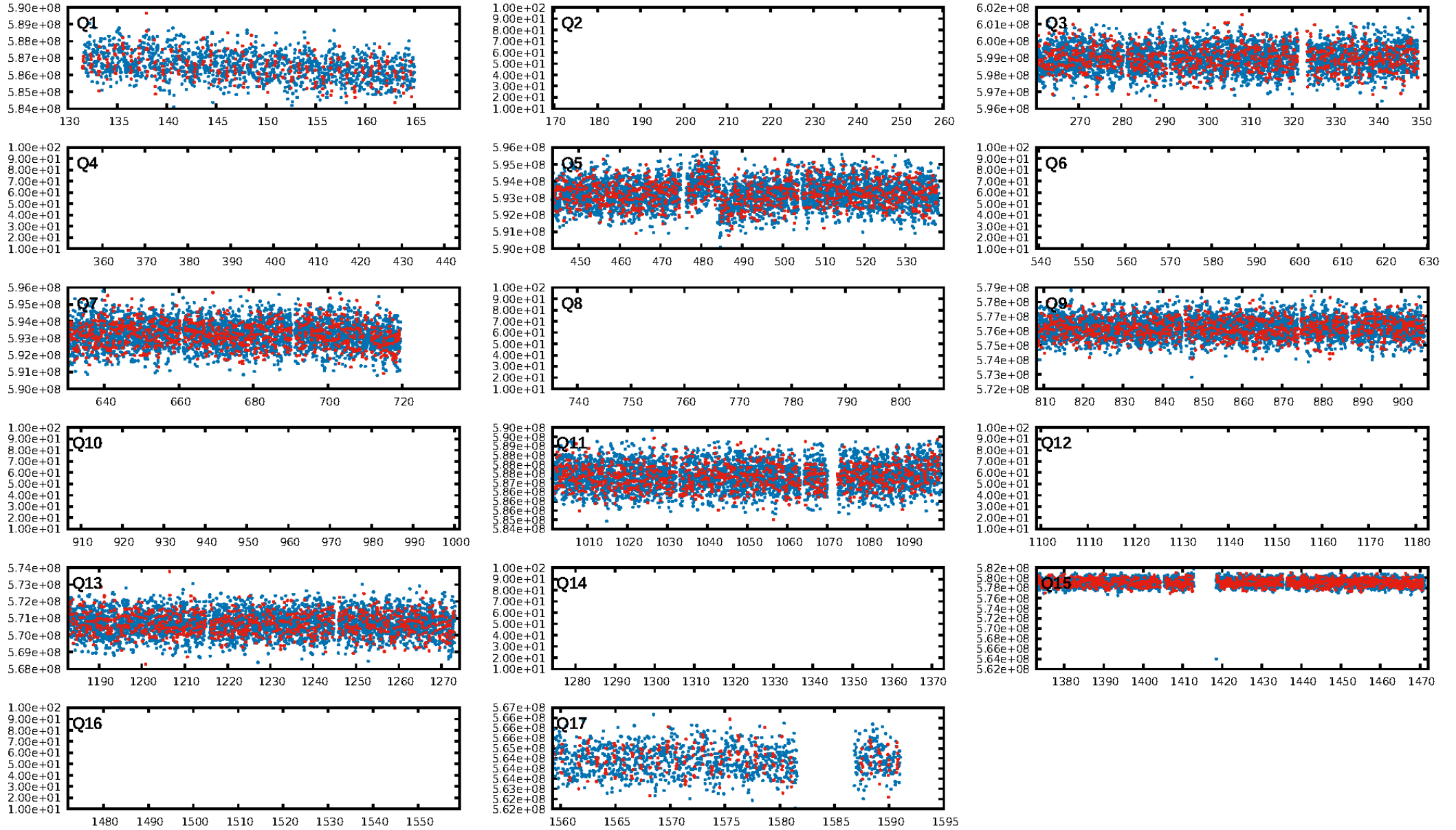
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 89.8% [1.64 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [785/785]
GhostDiagnostic-chr: 3.837
Centroid-sig: 0.0%
Centroid-so: 0.340 arcsec [1.14 σ]
OotOffset-rm: 0.568 arcsec [1.00 σ]
OotOffset-st: 0/4/0/4 [8]
KicOffset-rm: 0.232 arcsec [0.43 σ]
KicOffset-st: 0/4/0/4 [8]
DiffImageQuality-fgm: 0.88 [7/8]
DiffImageOverlap-fno: 0.00 [0/9]

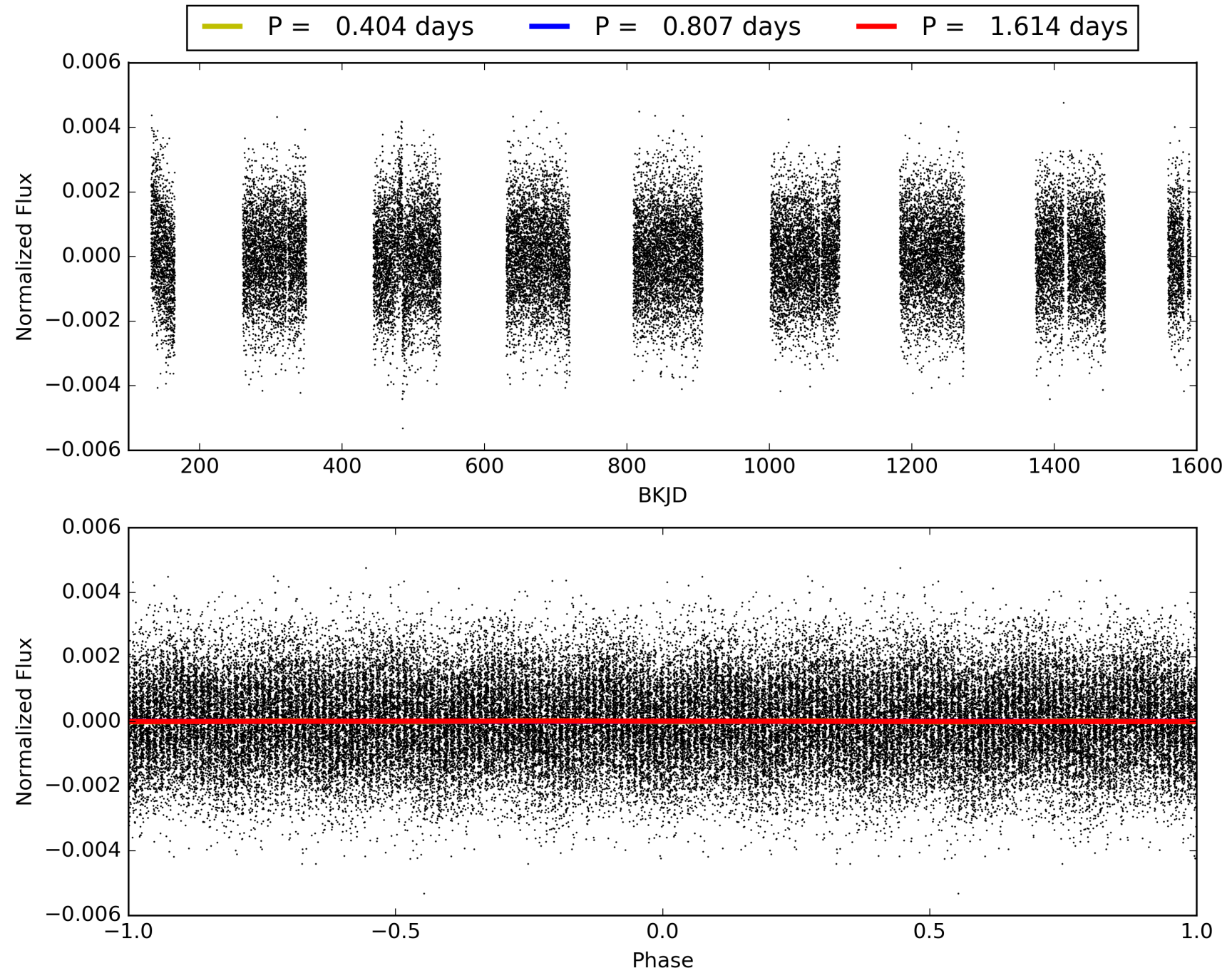
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:56:21 Z

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

TCE 008362899-03, PDC Light Curves

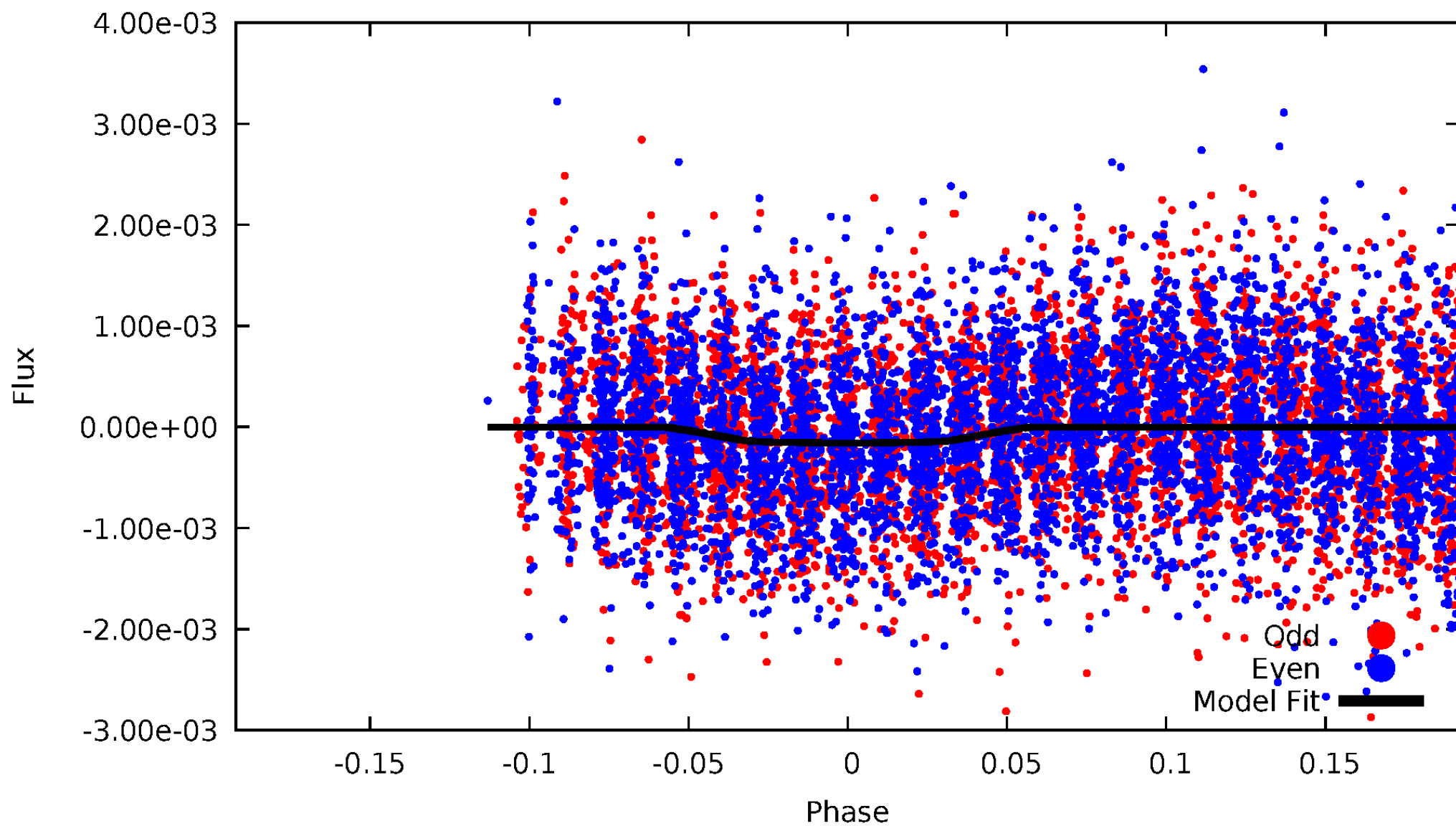


TCE 008362899-03



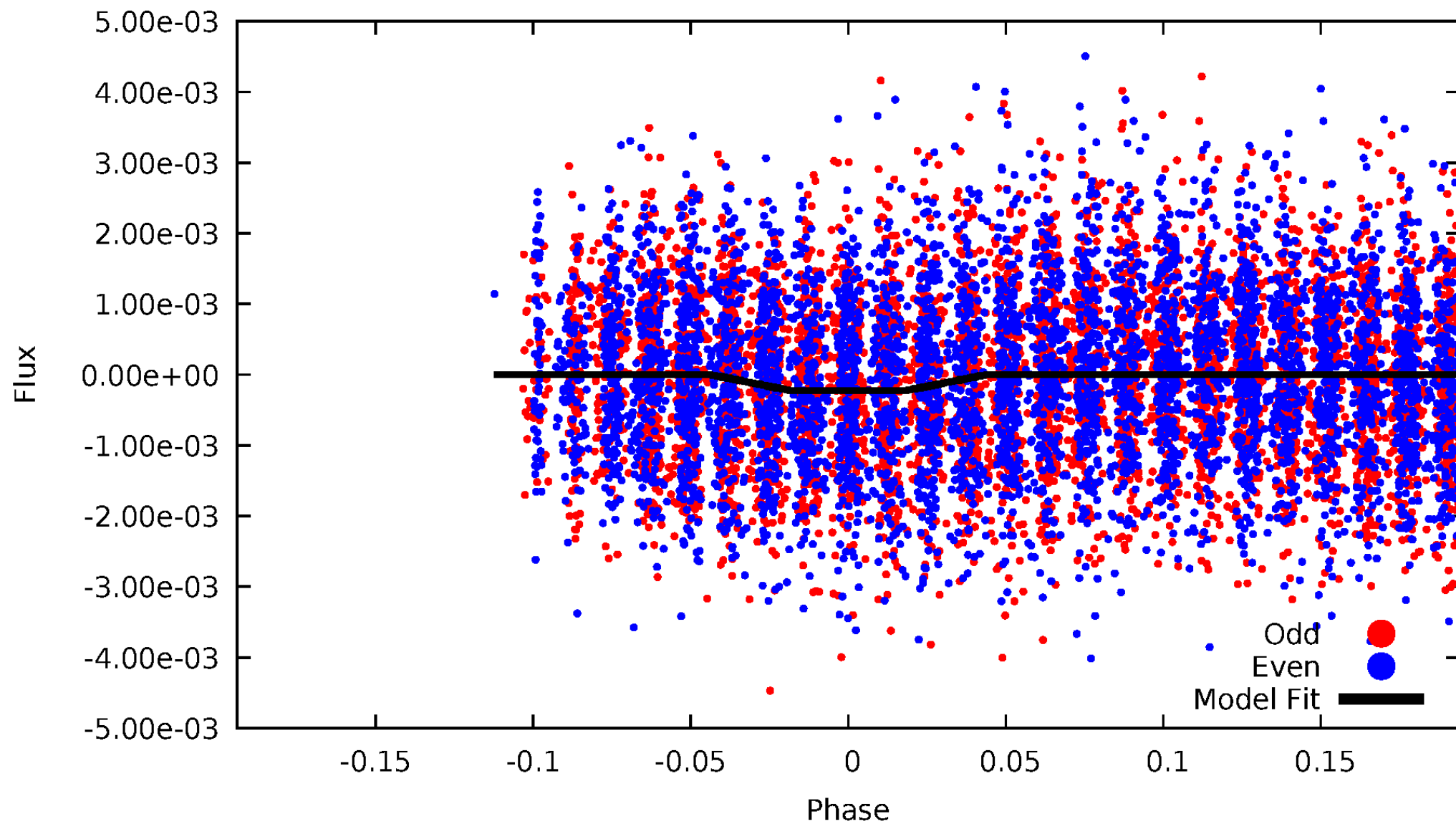
DV Odd/Even

TCE 008362899-03



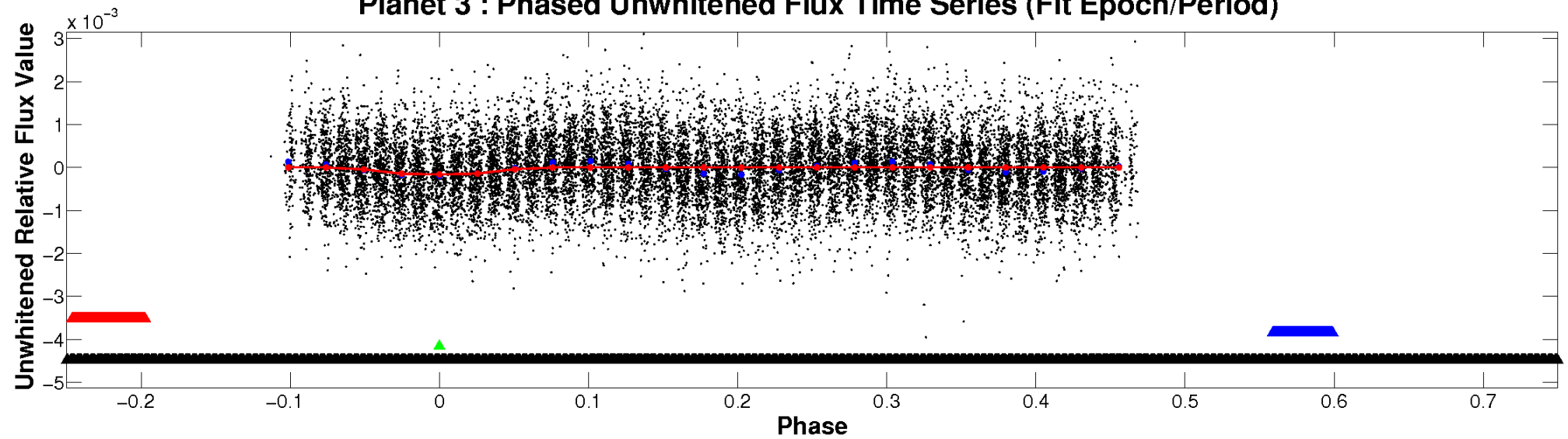
ALT Odd/Even

TCE 008362899-03

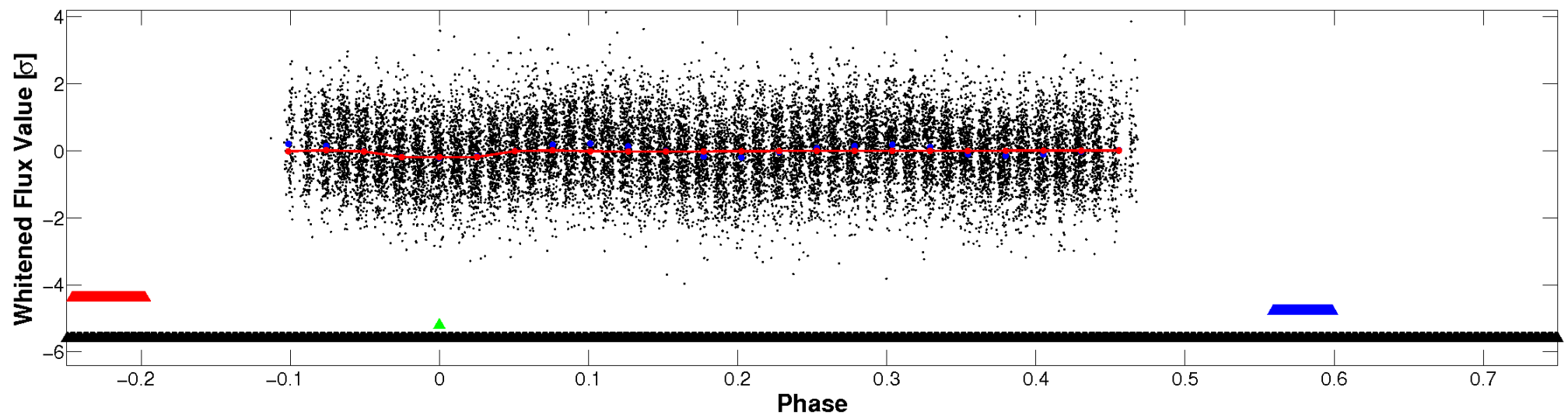


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

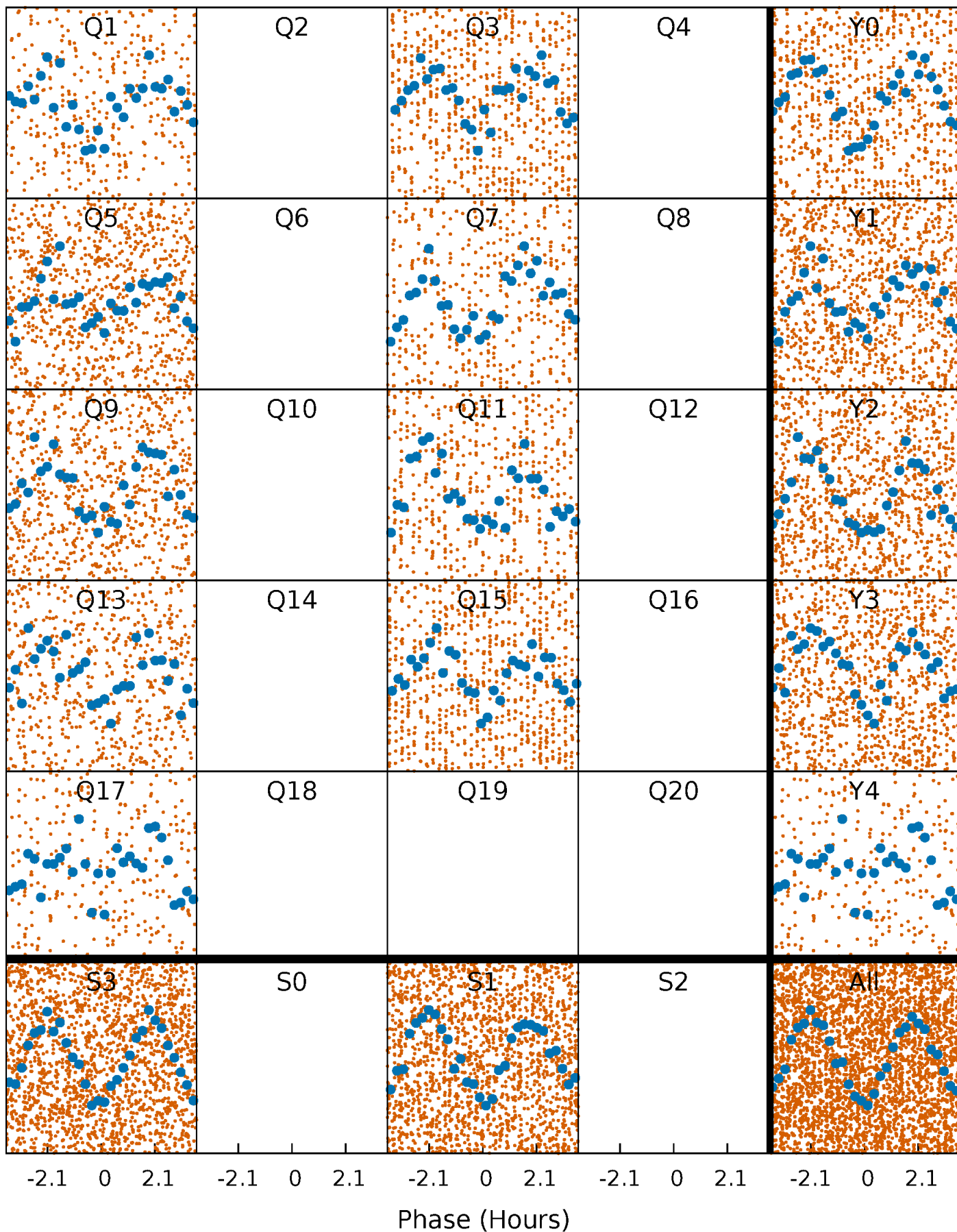


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



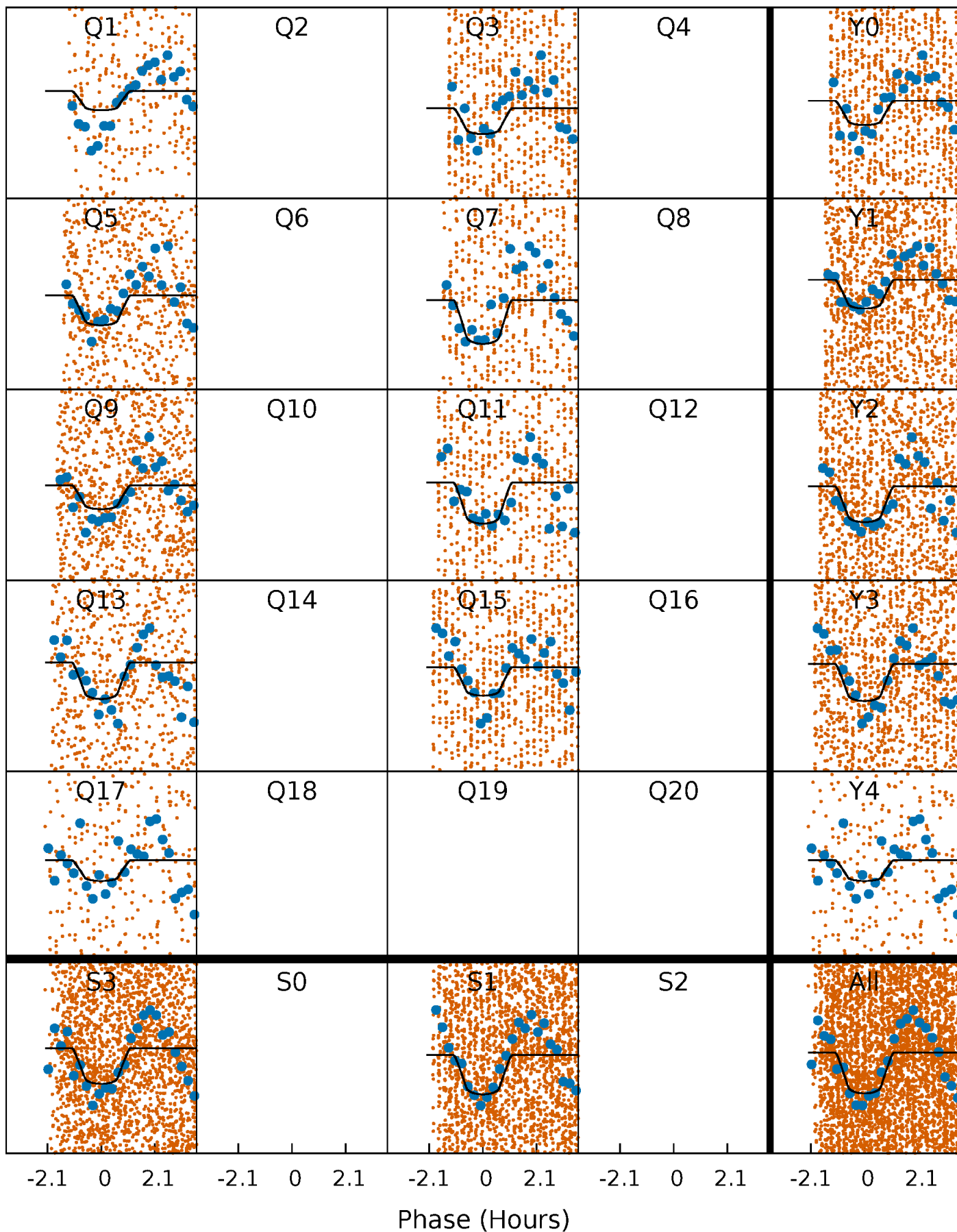
PDC Quarter-Phased Transit Curves

TCE 008362899-03 P= 0.807079 Days $T_0=131.546093$ (BKJD)



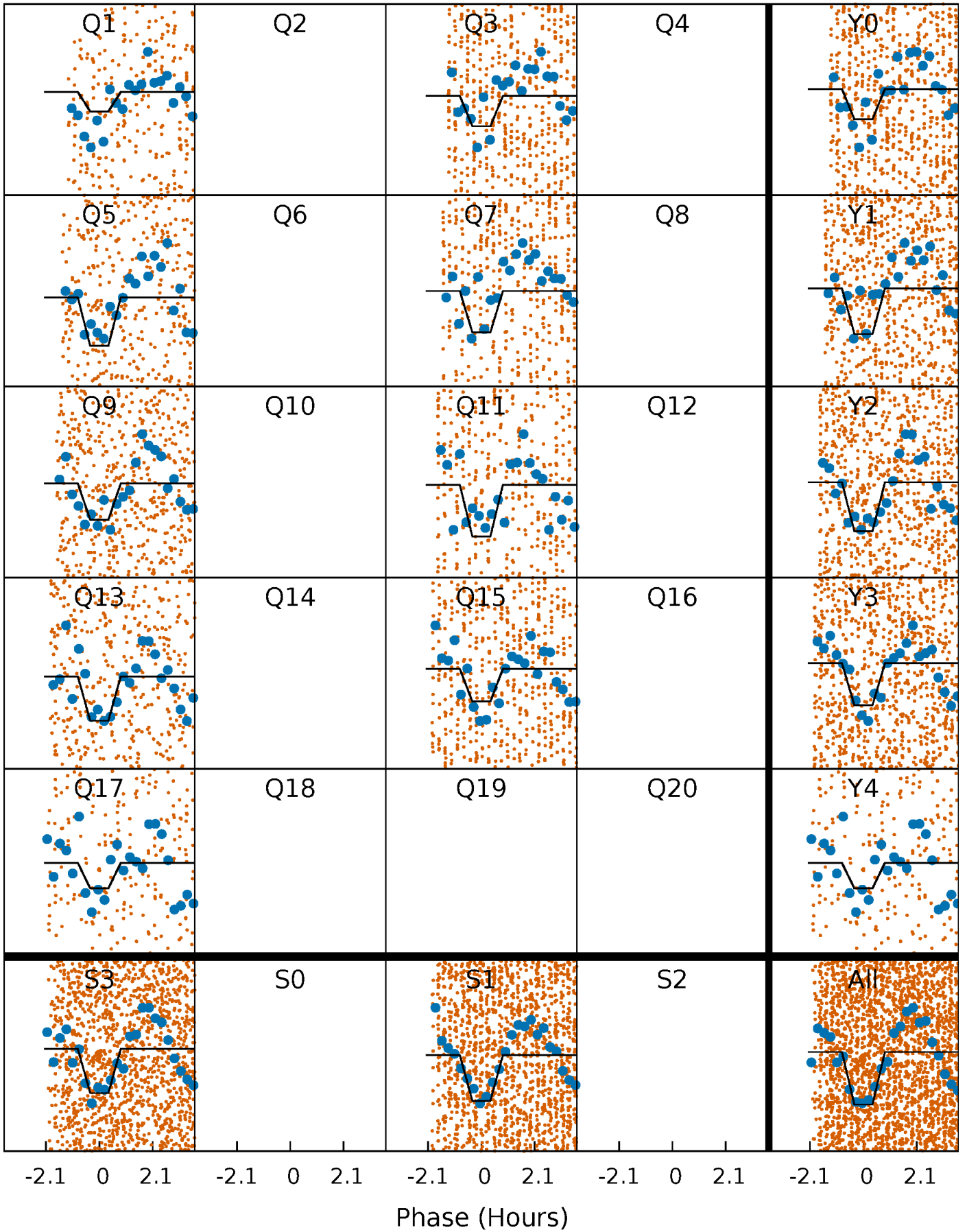
DV Quarter-Phased Transit Curves

TCE 008362899-03 P= 0.807079 Days $T_0=131.546093$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

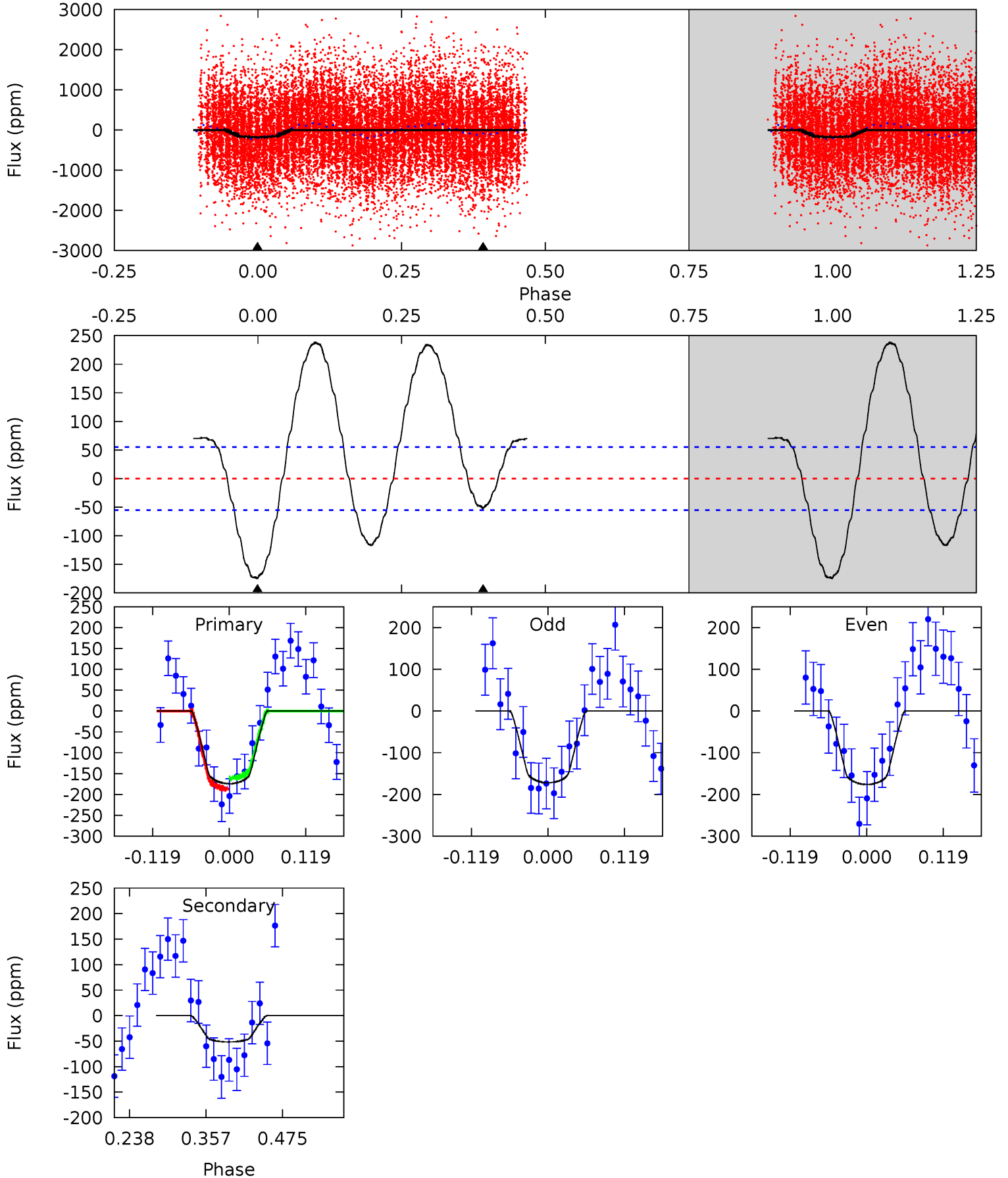
TCE 008362899-03 P= 0.807080 Days $T_0=131.544392$ (BKJD)



DV Model-Shift Uniqueness Test

008362899-03, P = 0.807079 Days, E = 130.739014 Days

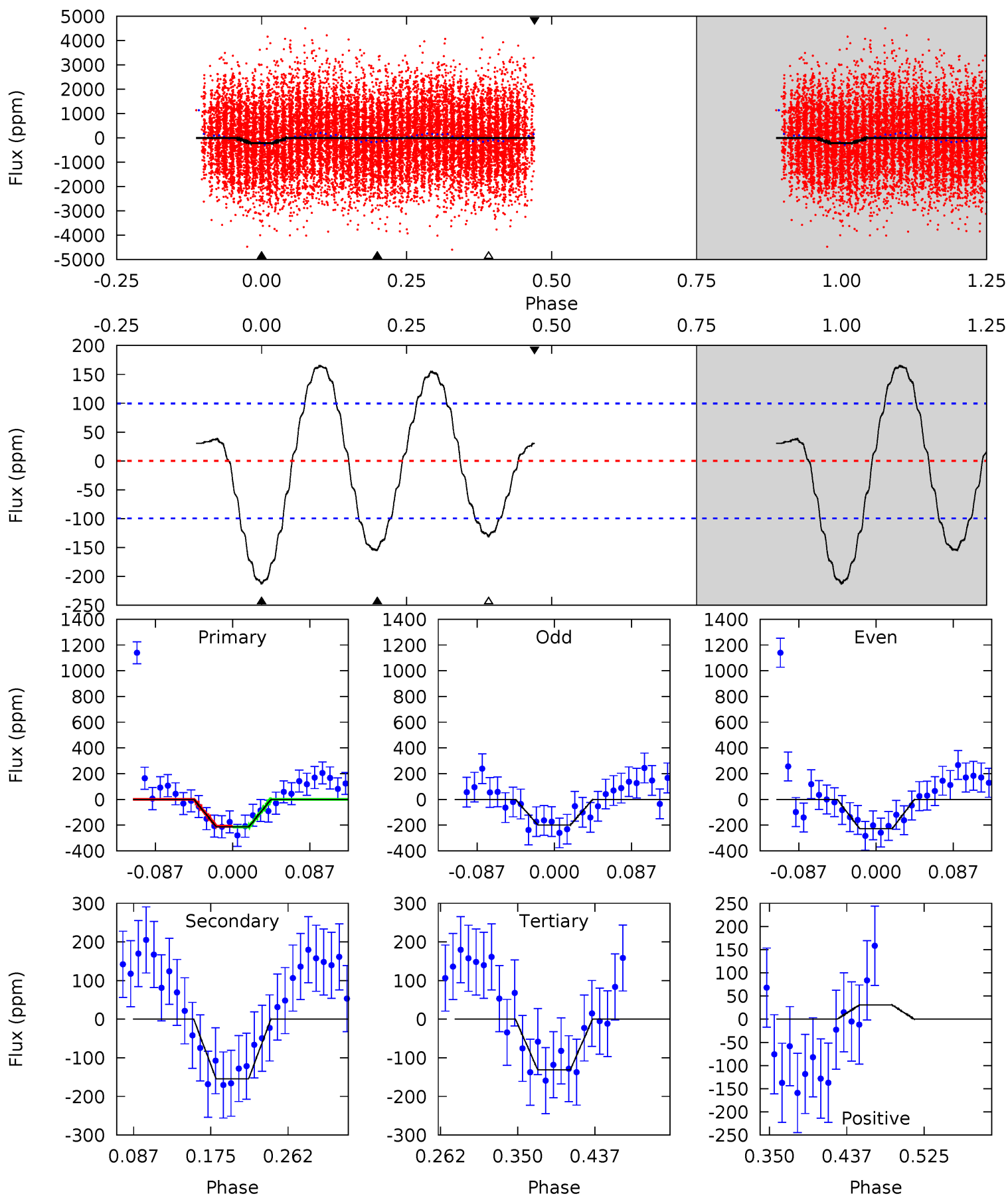
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	4.22	0	0	4.53	1.56	8.31	14.3	14.3	4.22	4.22	0.16	1.09	0.58	1.09



Alt Model-Shift Uniqueness Test

008362899-03, P = 0.807080 Days, E = 130.737312 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.84	7.14	6.06	1.42	4.59	1.71	4.86	3.79	8.43	1.08	5.72	0.66	1.02	0.44	0.16



Stellar Parameters For KIC 008362899

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7884^{+219}_{-329}	$3.883^{+0.307}_{-0.102}$	$-0.120^{+0.200}_{-0.350}$	$2.619^{+0.417}_{-0.972}$	$1.912^{+0.104}_{-0.415}$	$0.150^{+0.297}_{-0.049}$
	+3%/-4%	+8%/-3%	+167%/-292%	+16%/-37%	+5%/-22%	+198%/-33%
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 008362899-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-52 ± 12	$3.46^{+1.70}_{-1.49}$	5289^{+355}_{-499}	5214^{+2092}_{-1403}	$1.008^{+2.097}_{-0.581}$
Alt.	-155 ± 22	$4.04^{+1.89}_{-1.73}$	5305^{+362}_{-533}	6615^{+2908}_{-1217}	$2.263^{+4.605}_{-1.202}$

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 $A_{obs} \gg 1.0$

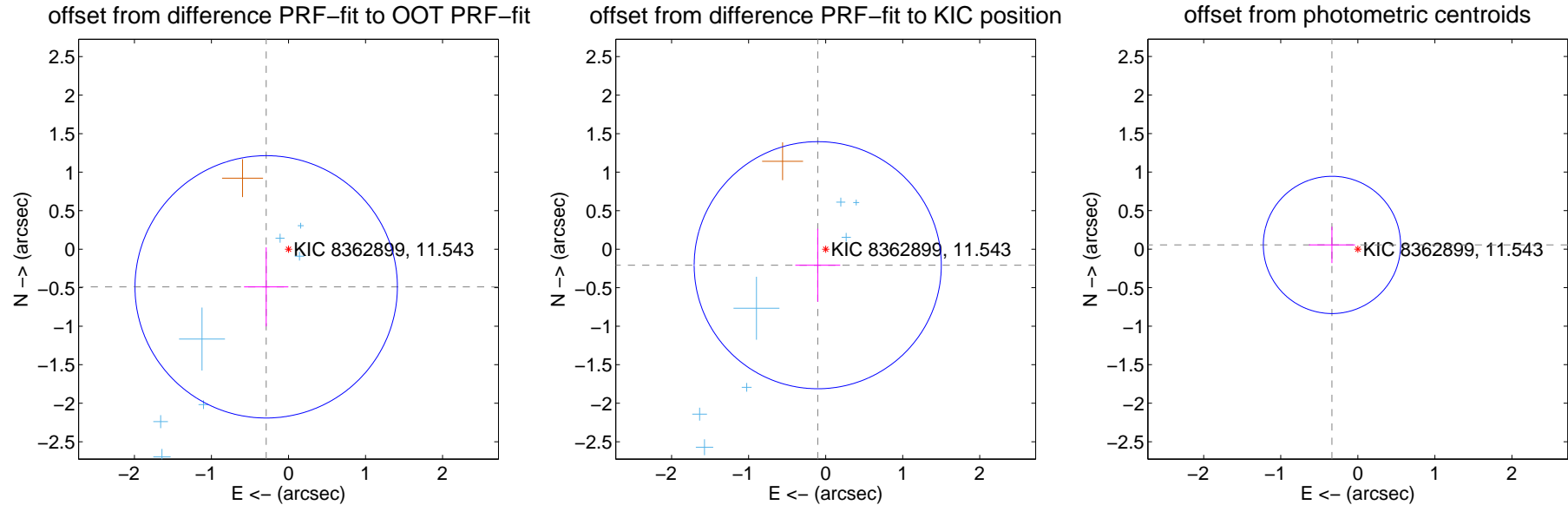
DV Centroid Data

Supplemental centroid analysis for 008362899-03. **Kepler magnitude: 11.54.** Transit SNR 9.49

There are 7 quarters with good PRF difference image offsets

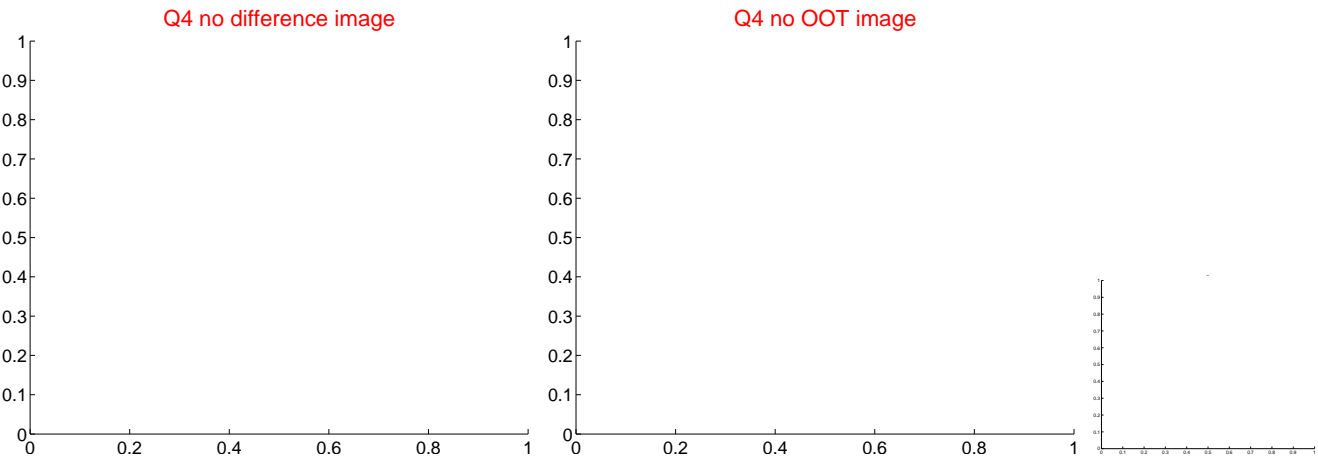
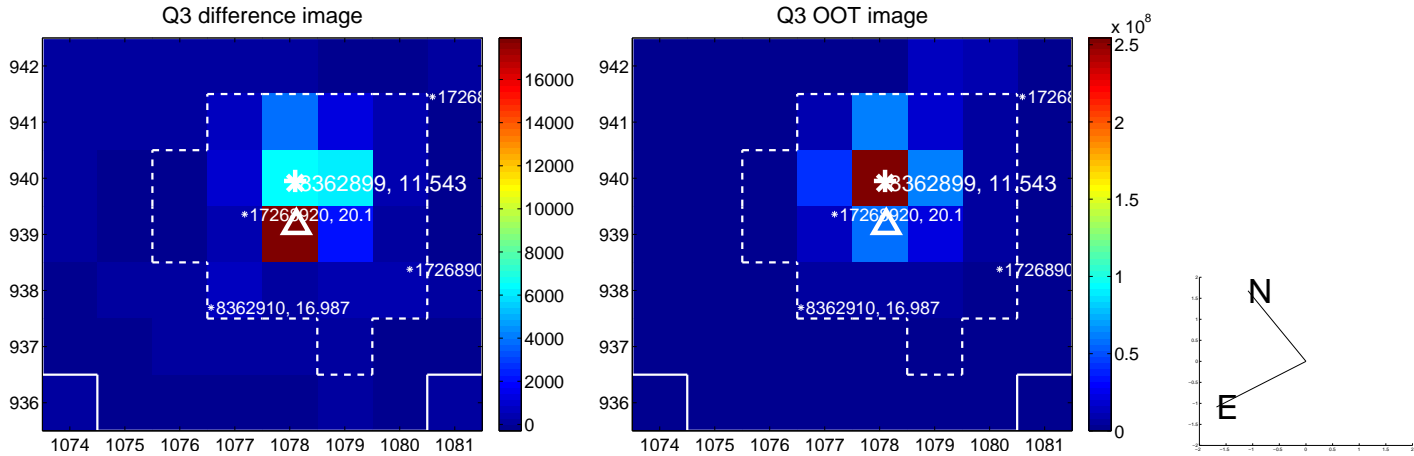
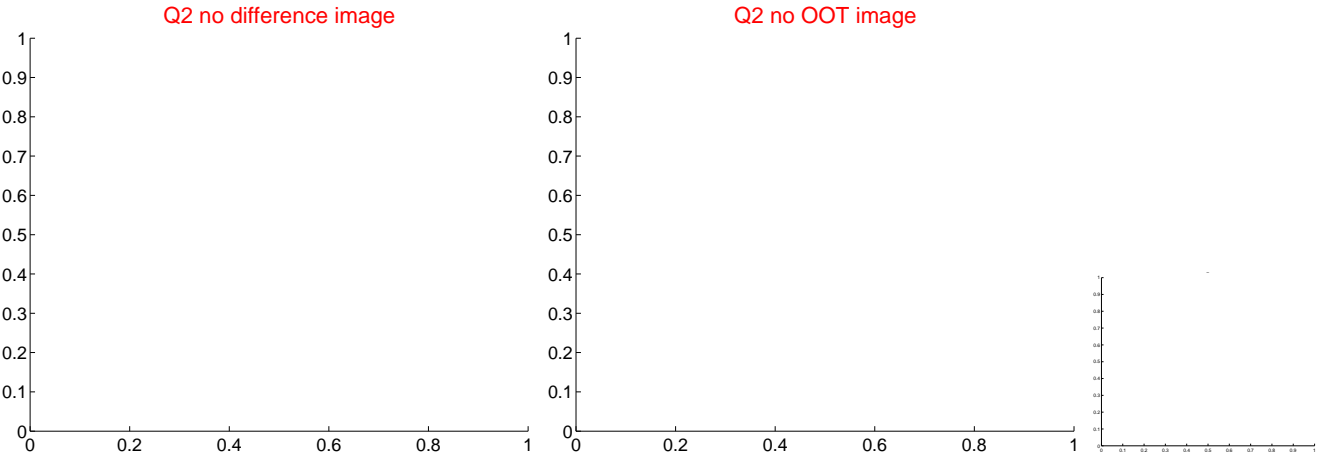
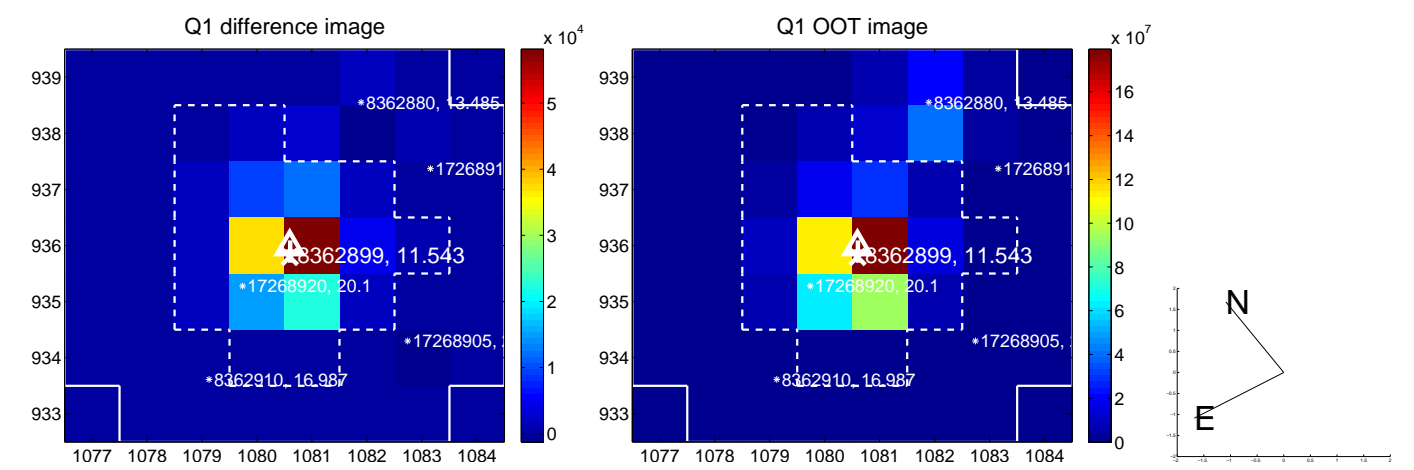
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.568 ± 0.568	1.00	0.290 ± 0.288	-0.489 ± 0.512
PRF-fit source offset from KIC position	0.232 ± 0.535	0.43	0.103 ± 0.292	-0.208 ± 0.473
photometric centroid source offset	0.34 ± 0.30	1.14	0.34 ± 0.30	0.05 ± 0.24

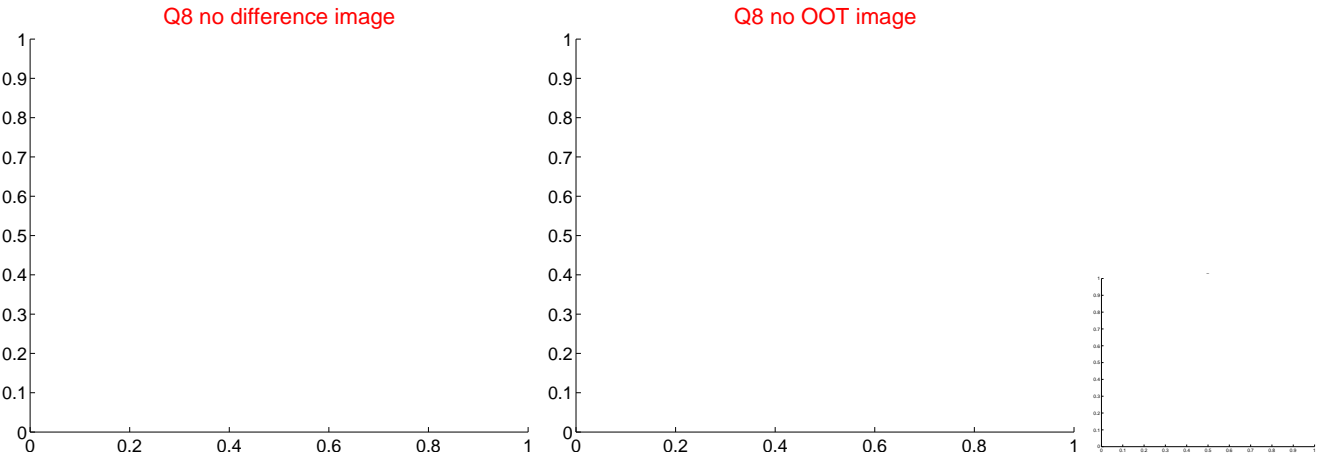
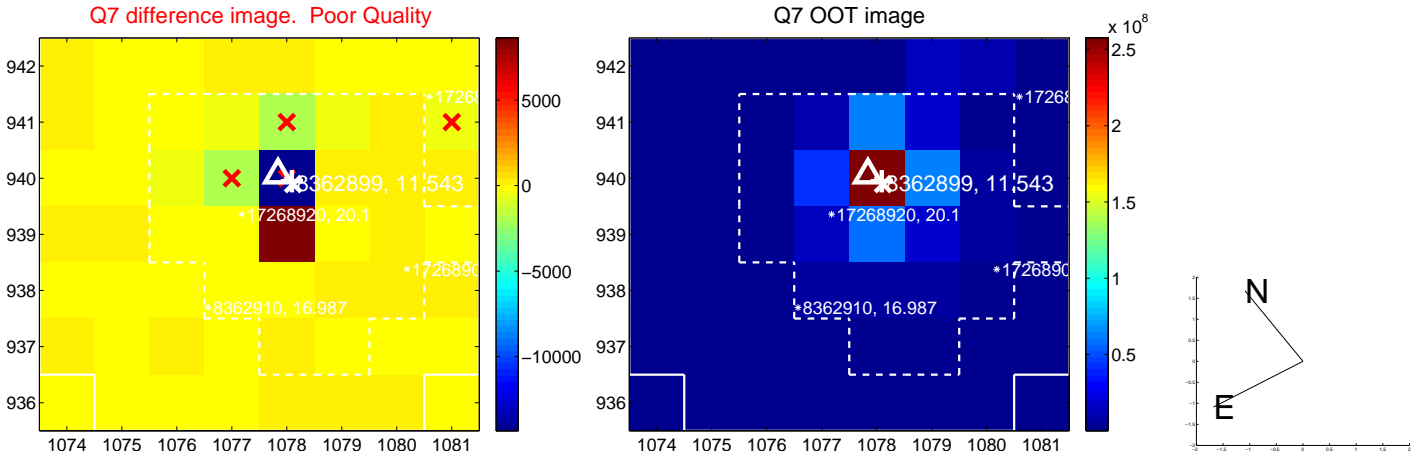
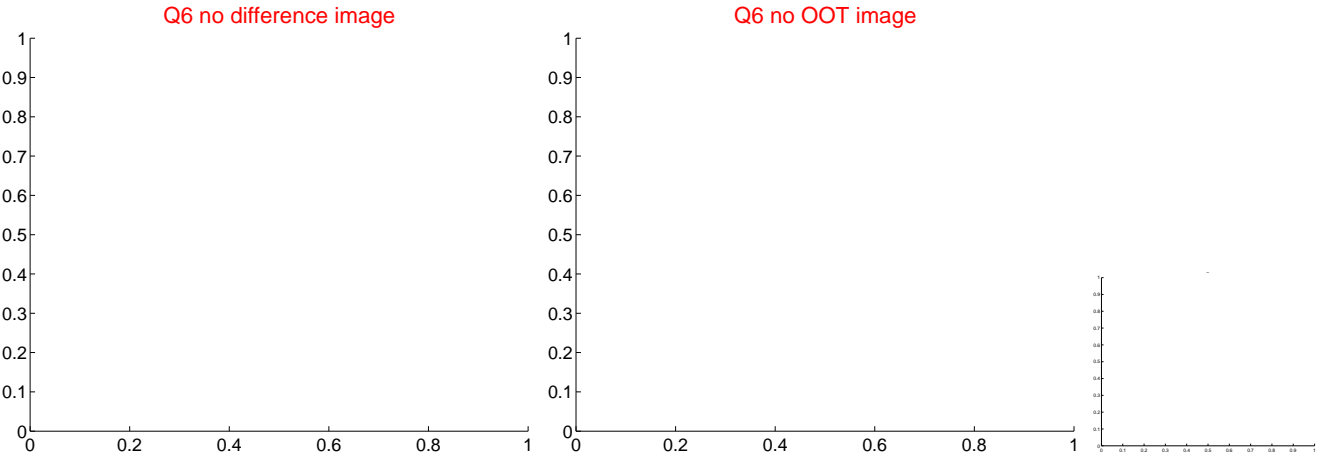
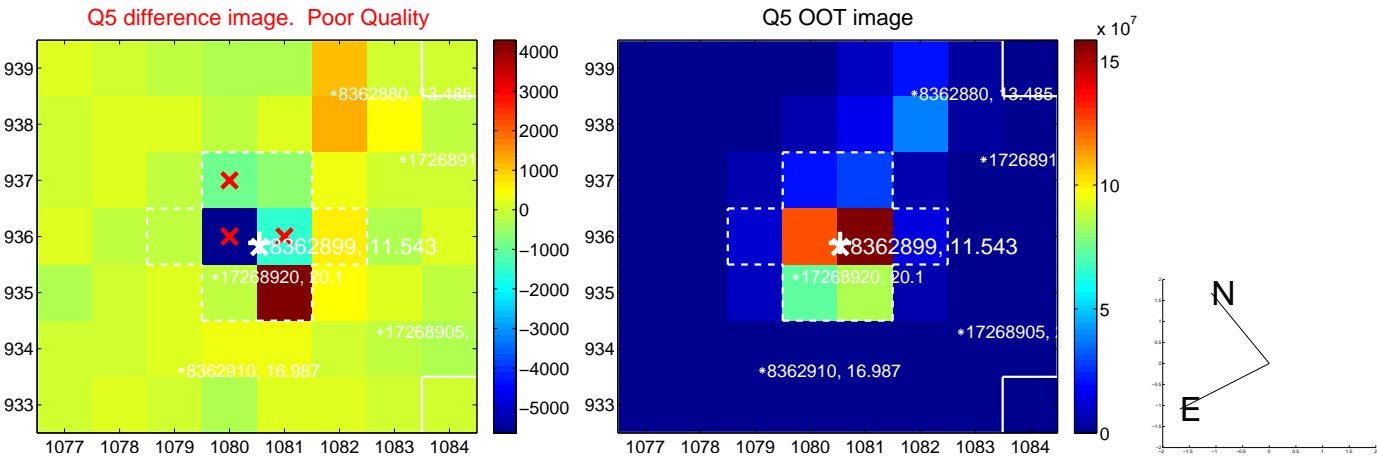


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

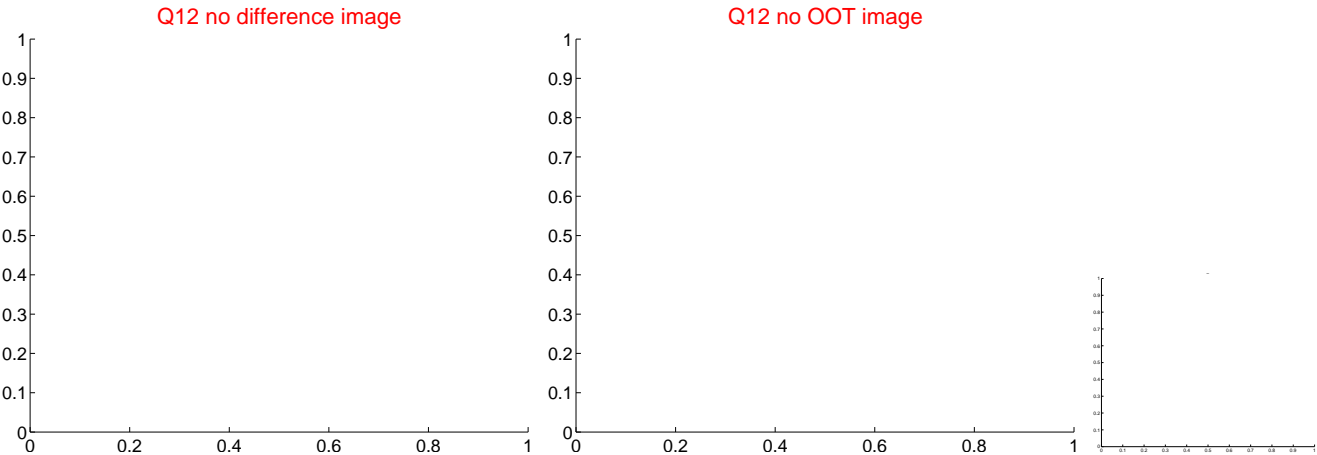
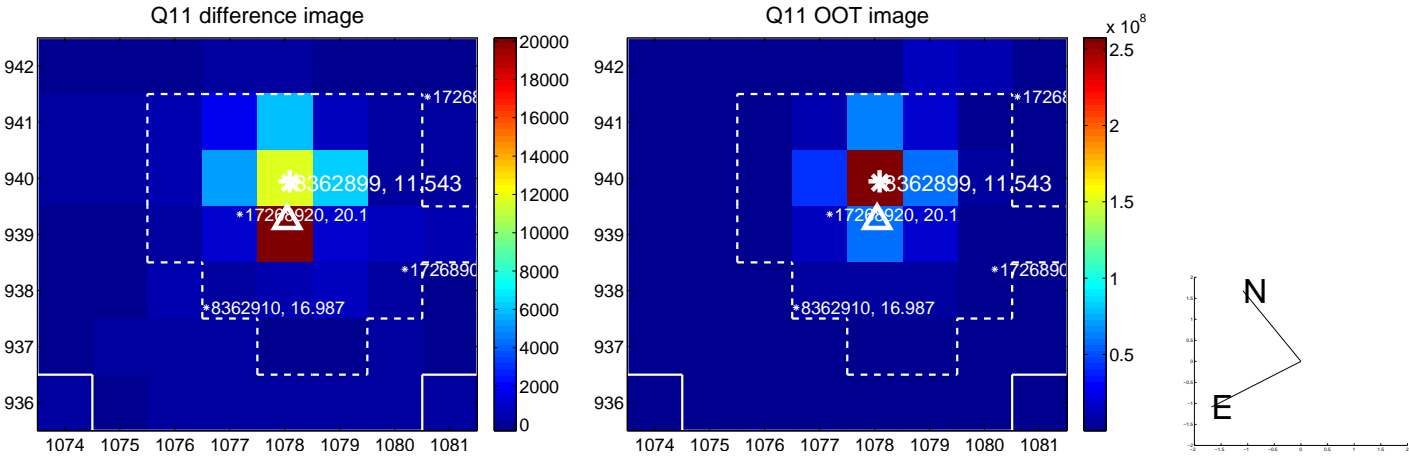
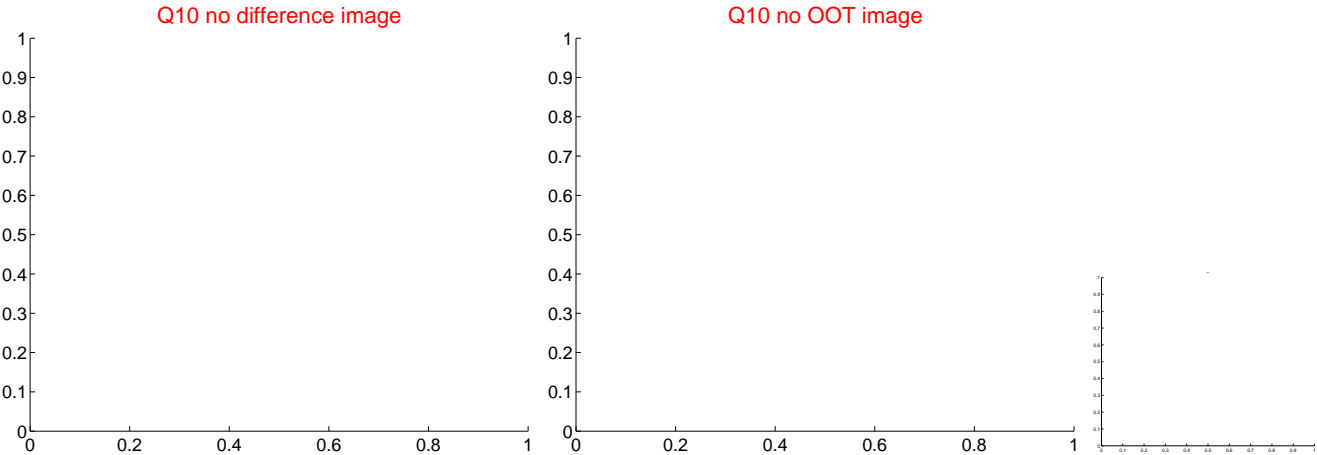
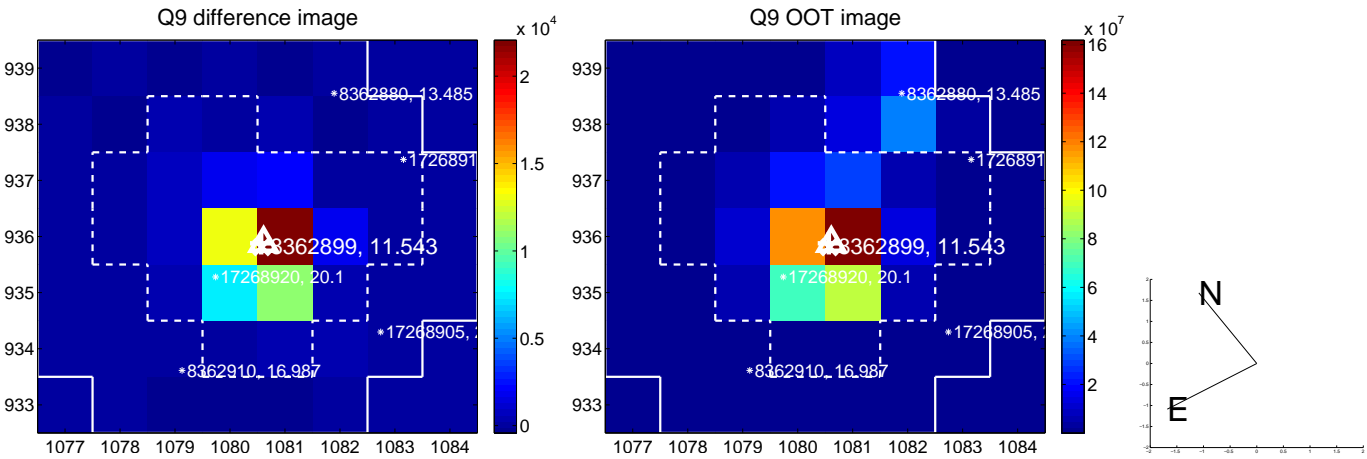
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



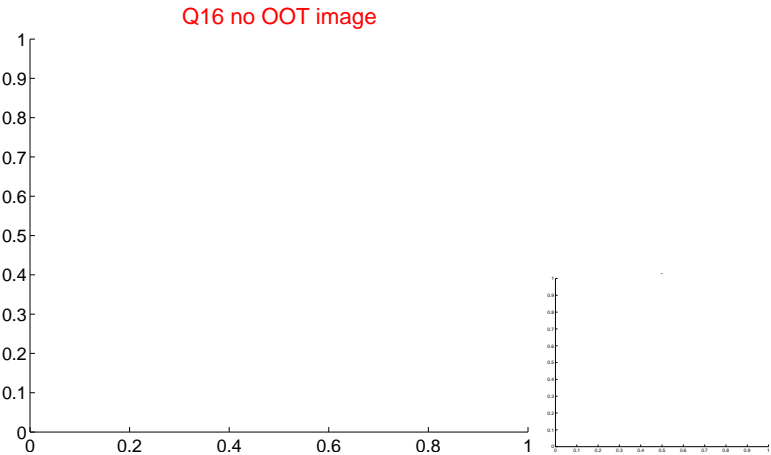
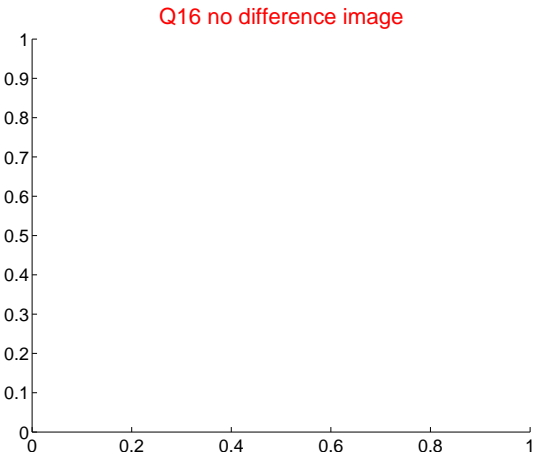
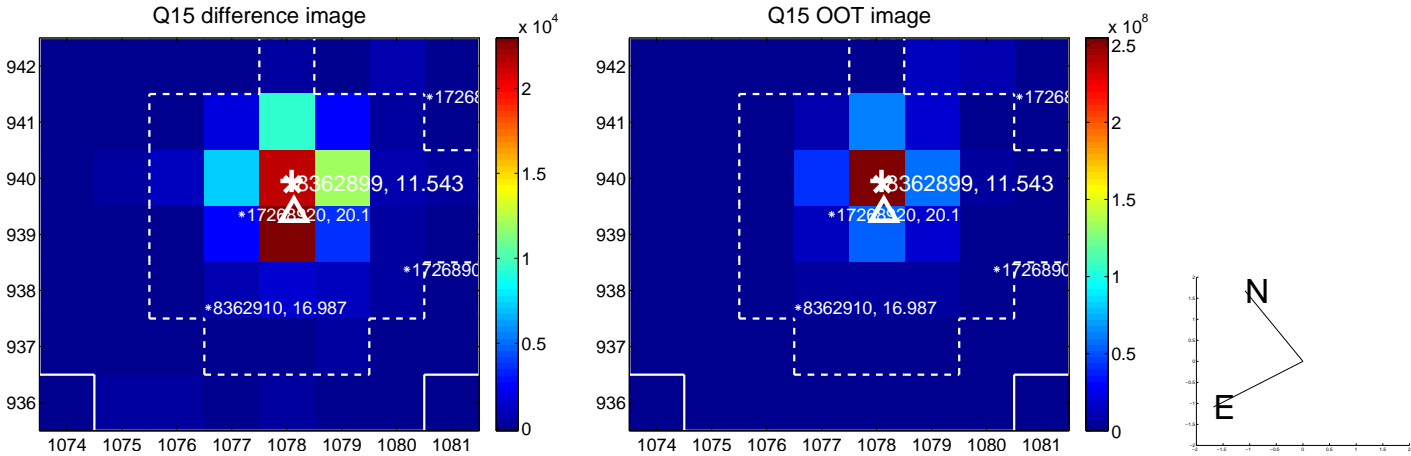
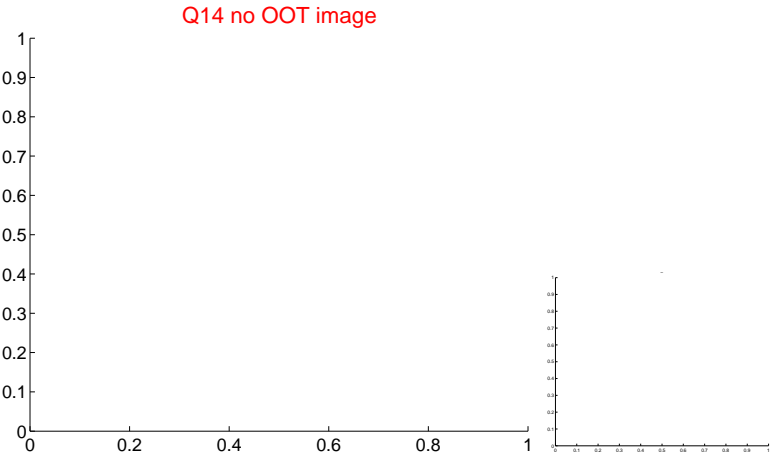
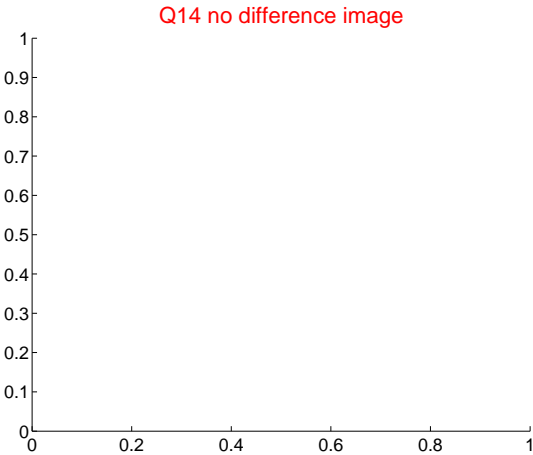
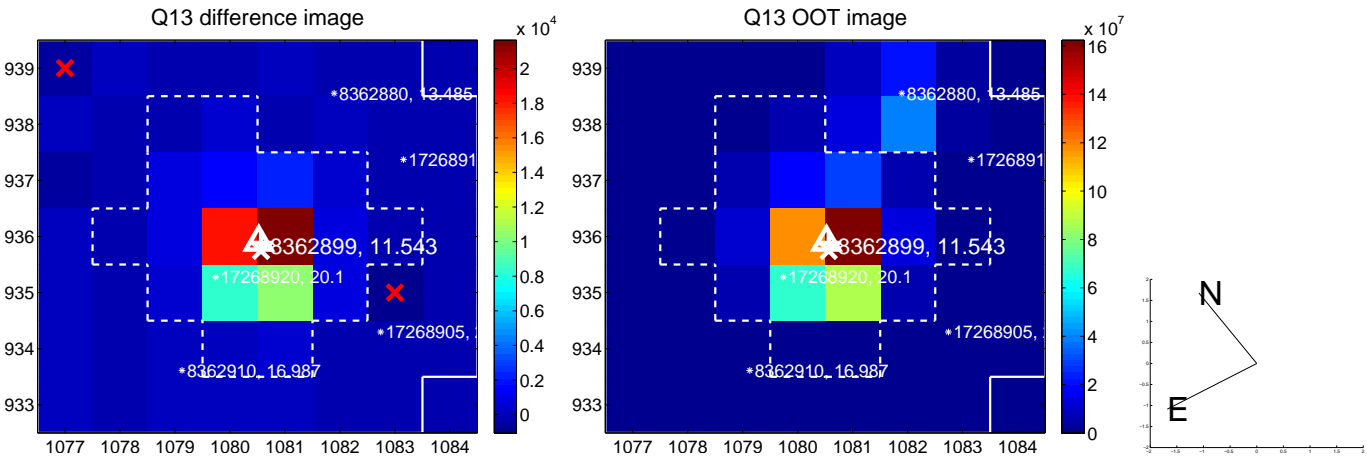
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



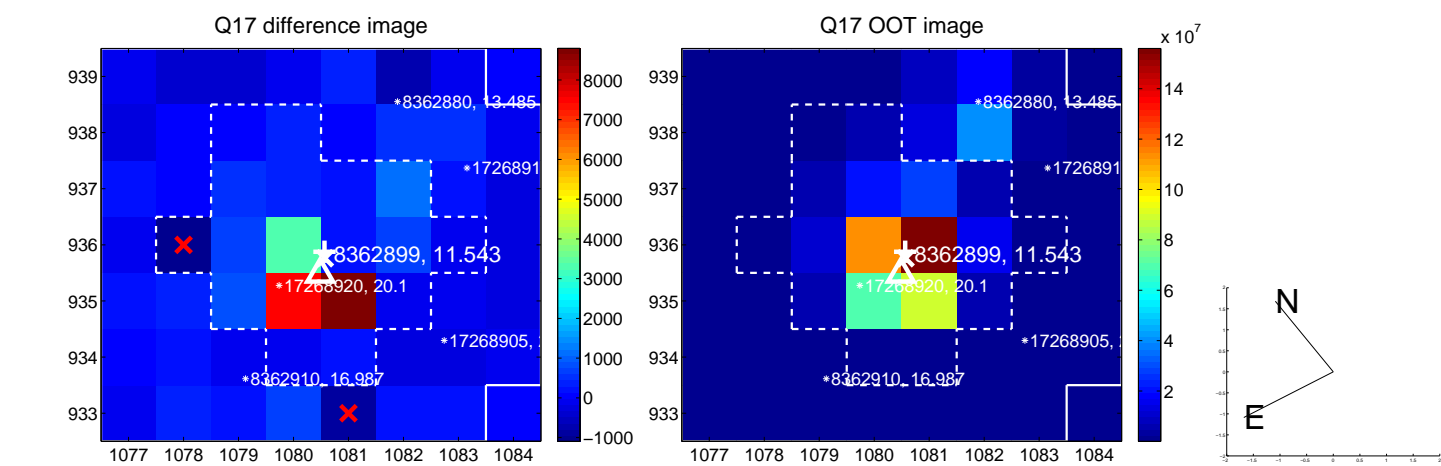
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



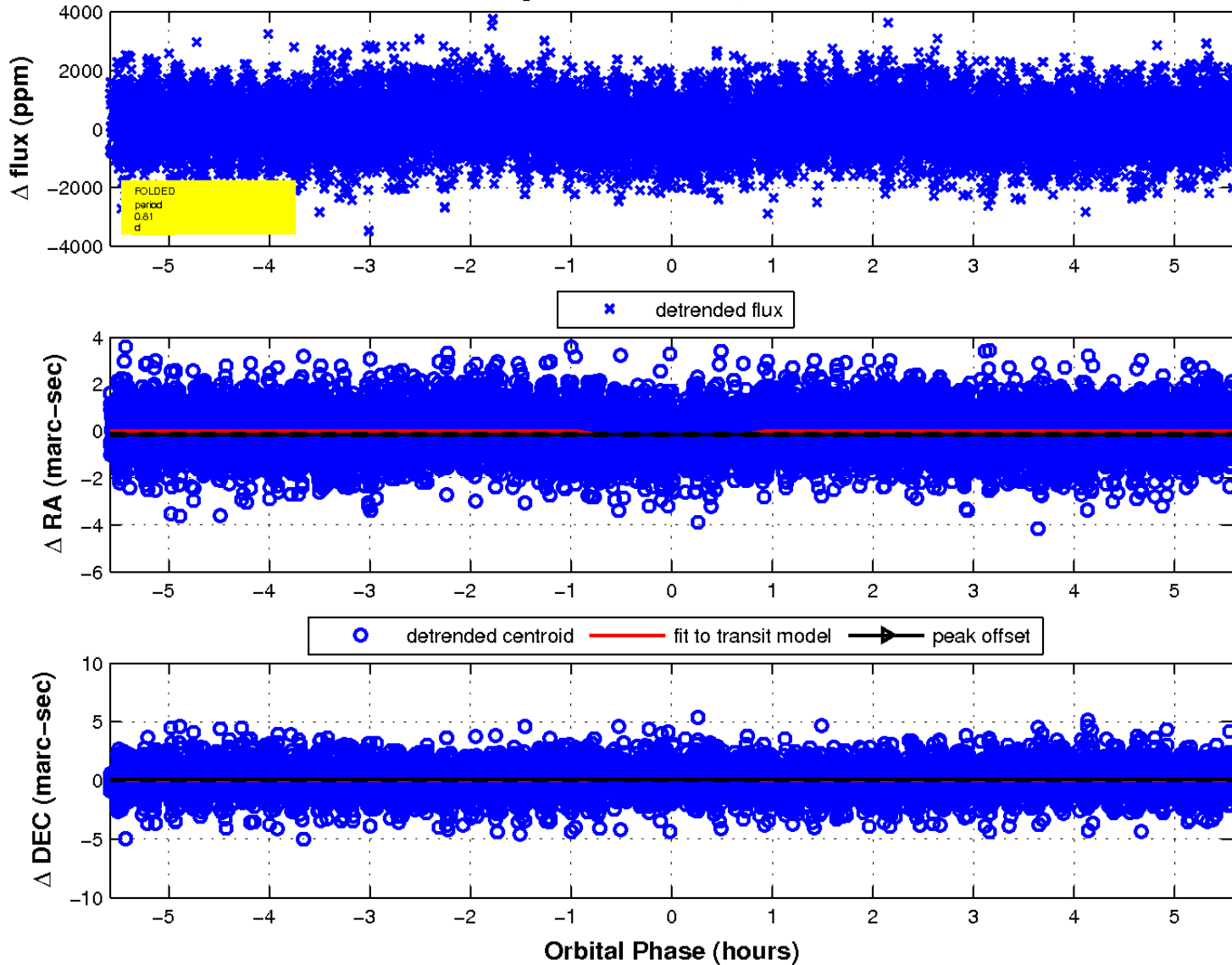
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



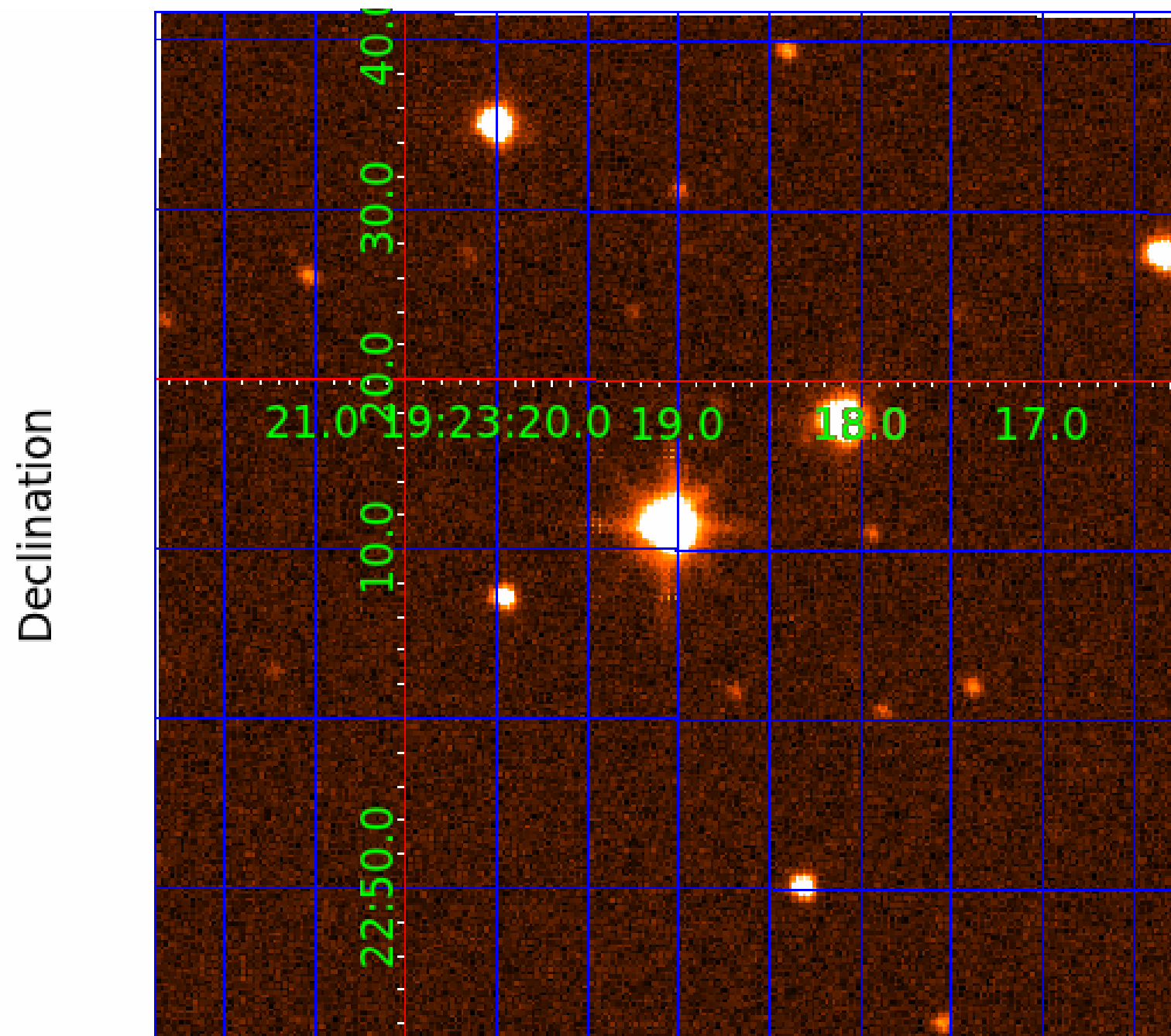
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 008362899

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})
008362899-01	OBS	No	0.807057	132.193938	107.8	1.555	9.6	6.1	2.62	7884	3.17	53550.72
008362899-02	OBS	No	0.807061	132.029436	170.6	1.204	8.7	9.2	2.62	7884	4.00	53550.36
008362899-03	OBS	No	0.807079	131.546093	158.6	1.861	9.0	9.5	2.62	7884	3.84	53548.78
008362899-04	OBS	No	1.077321	132.437315	61.0	3.500	8.3	-1.0	2.62	7884	2.07	36434.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008362899-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008362899-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
008362899-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS

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

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

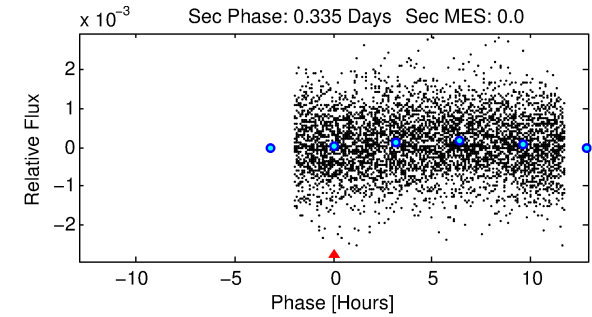
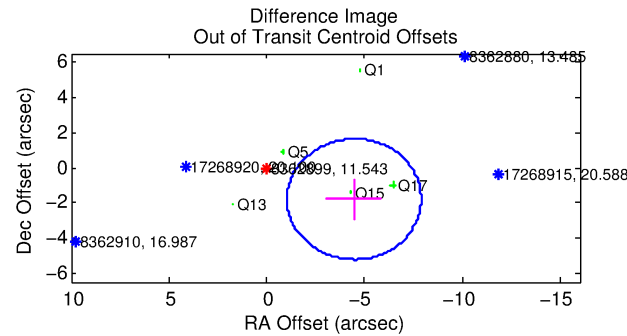
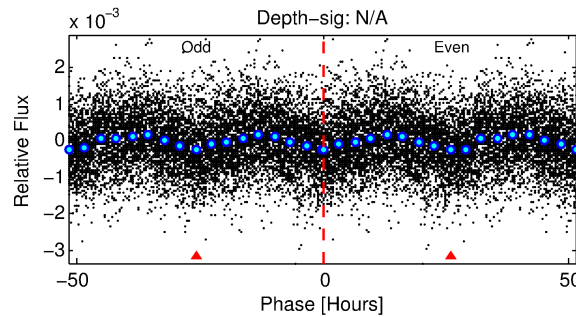
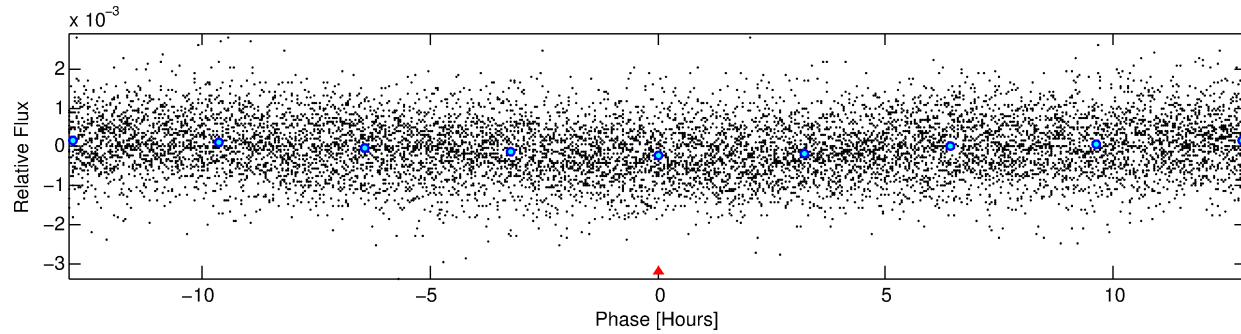
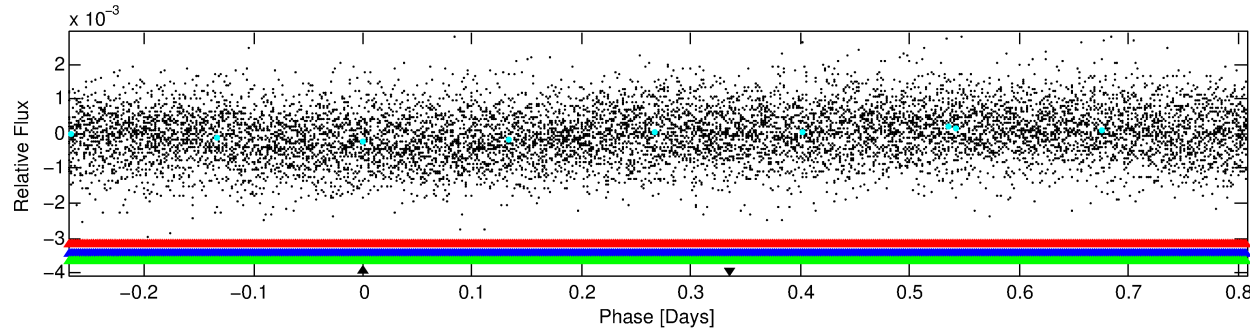
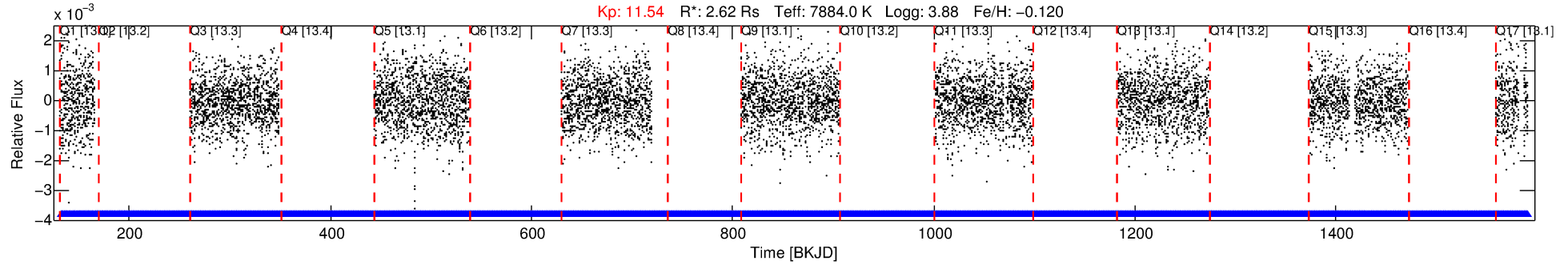
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008362899-04

No Significant Match Found

DV One-Page Summary

KIC: 8362899 Candidate: 4 of 4 Period: 1.077 d



TPS TCE Results:

Period = 1.07732 d
Epoch = 132.4373 BKJD

DV fit results are unavailable

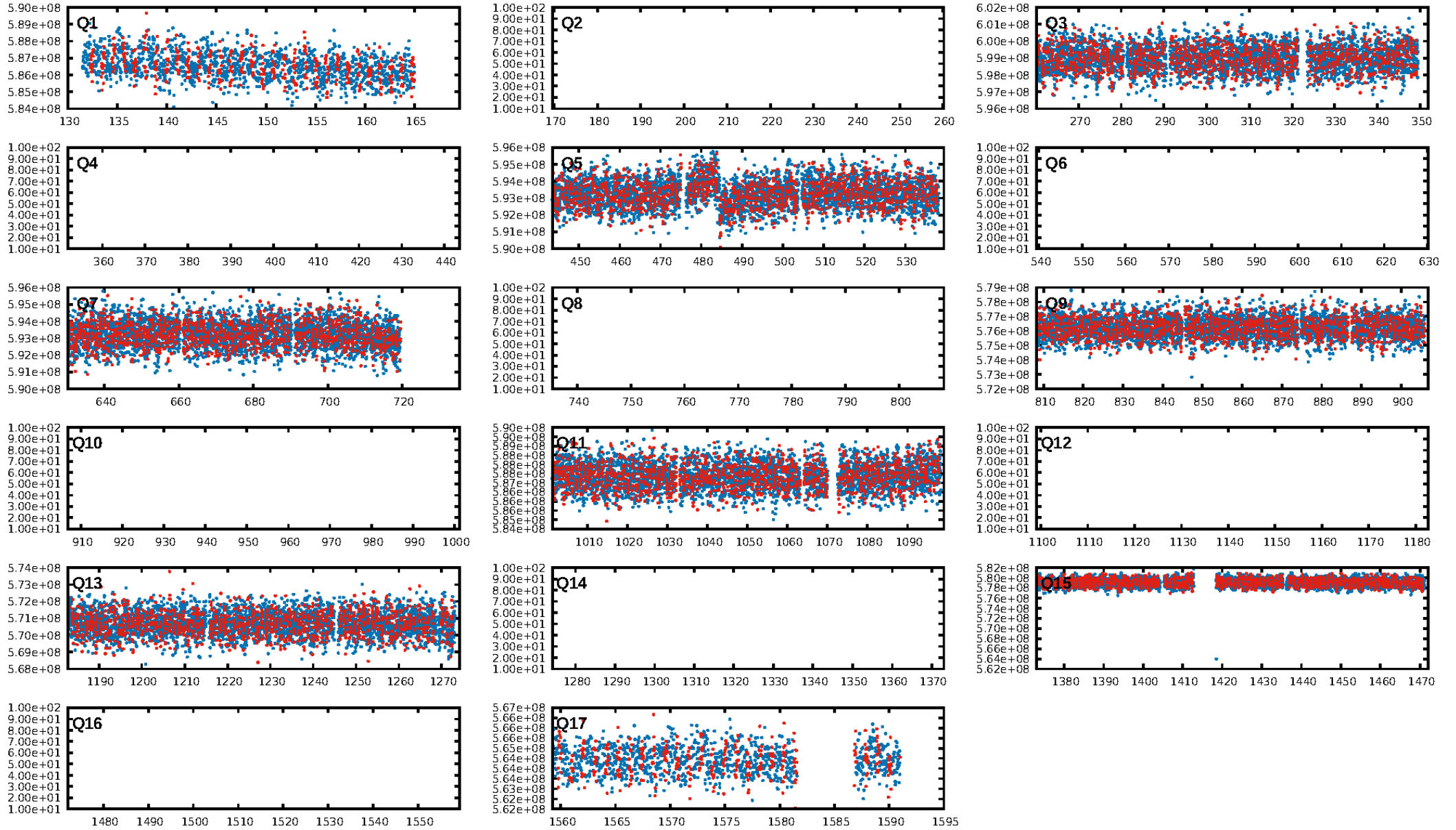
DV Diagnostic Results:

ShortPeriod-sig: 89.8% [1.64 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [492/492]
GhostDiagnostic-chr: 18.29
Centroid-sig: 0.0%
Centroid-so: 0.395 arcsec [6.65 σ]
OotOffset-rm: 4.803 arcsec [4.20 σ]
KicOffset-rm: 4.799 arcsec [3.58 σ]
OotOffset-st: 0/1/0/4 [5]
KicOffset-st: 0/1/0/4 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.00 [0/9]

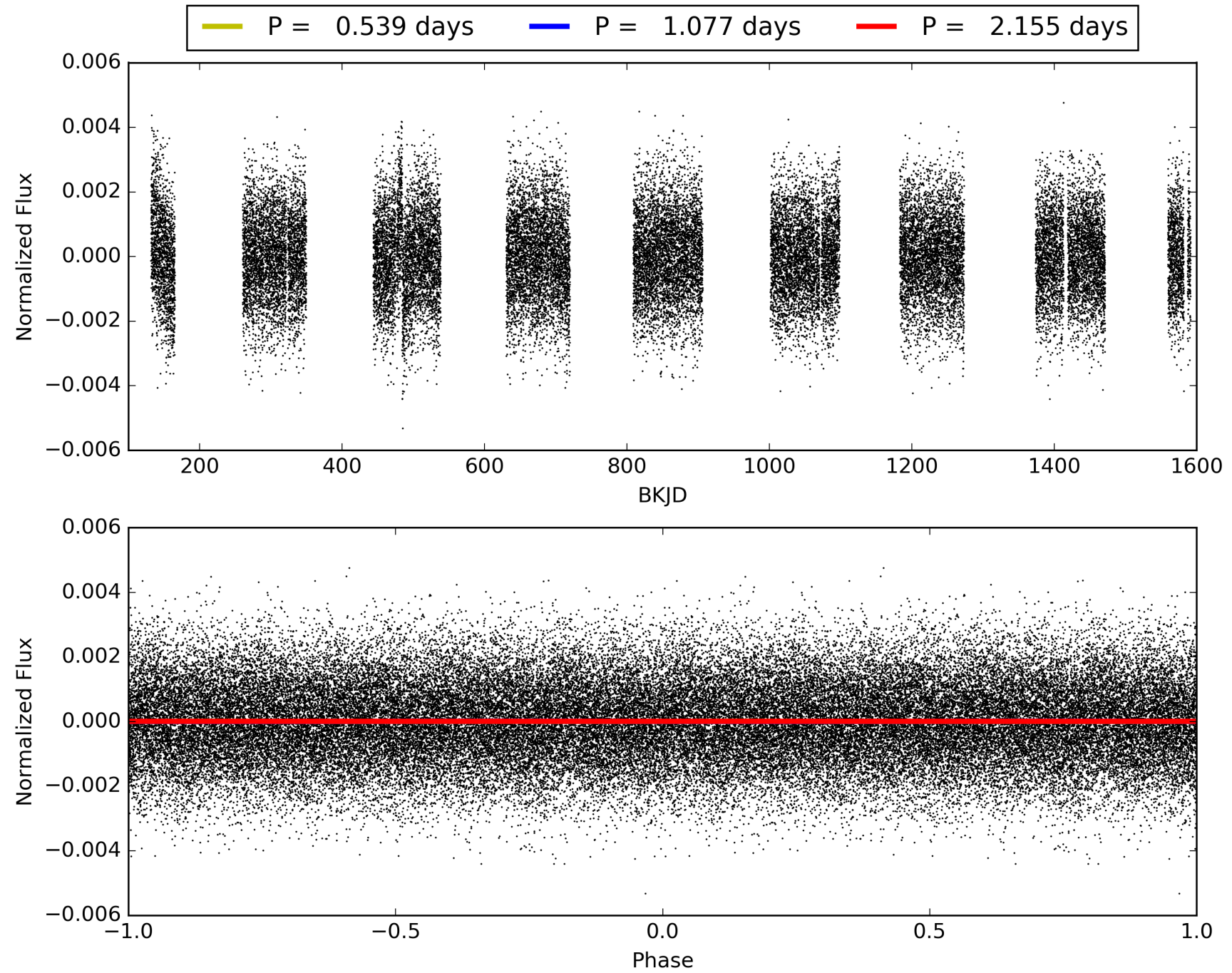
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 17:56:31 Z

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

TCE 008362899-04, PDC Light Curves

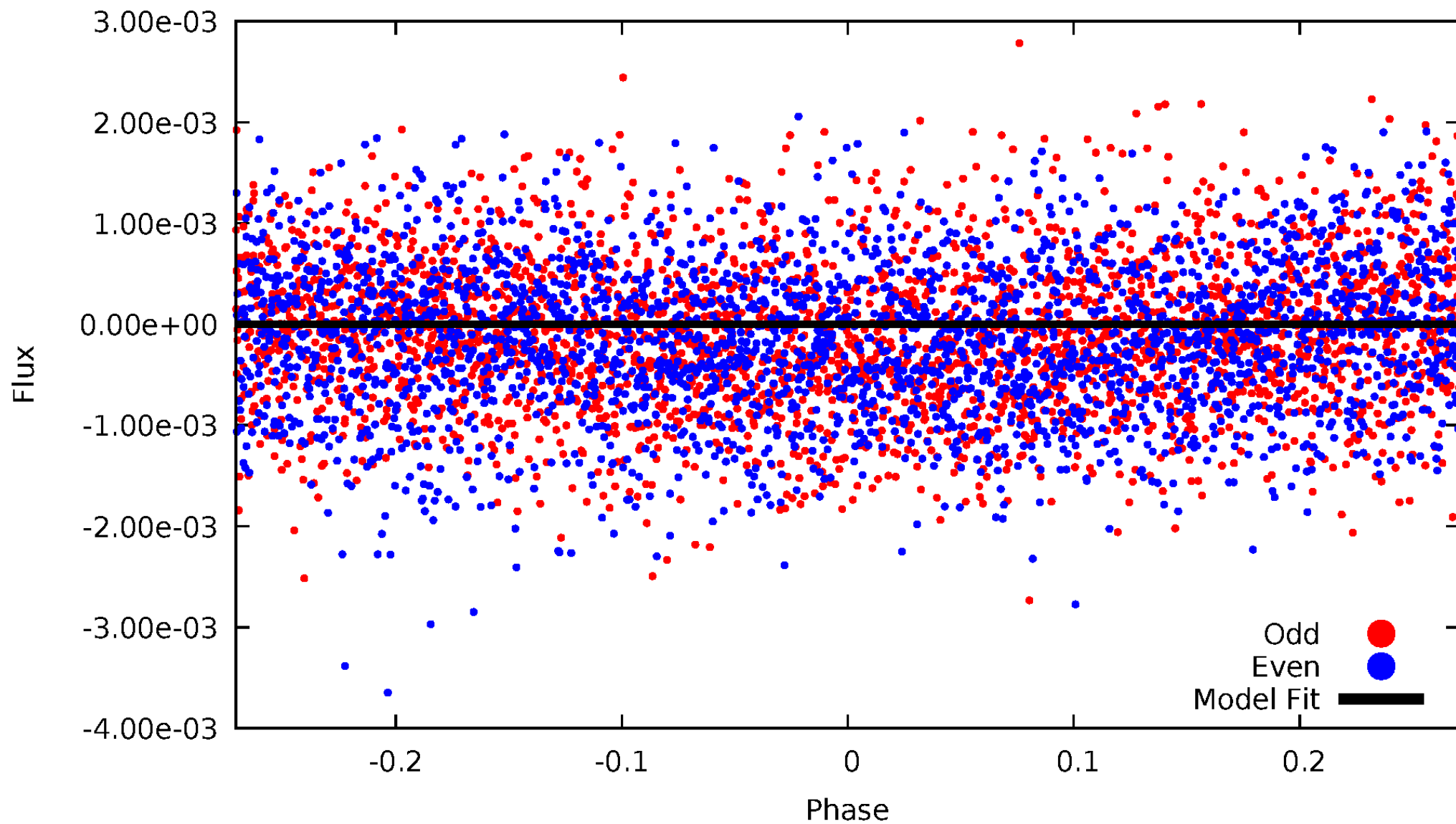


TCE 008362899-04



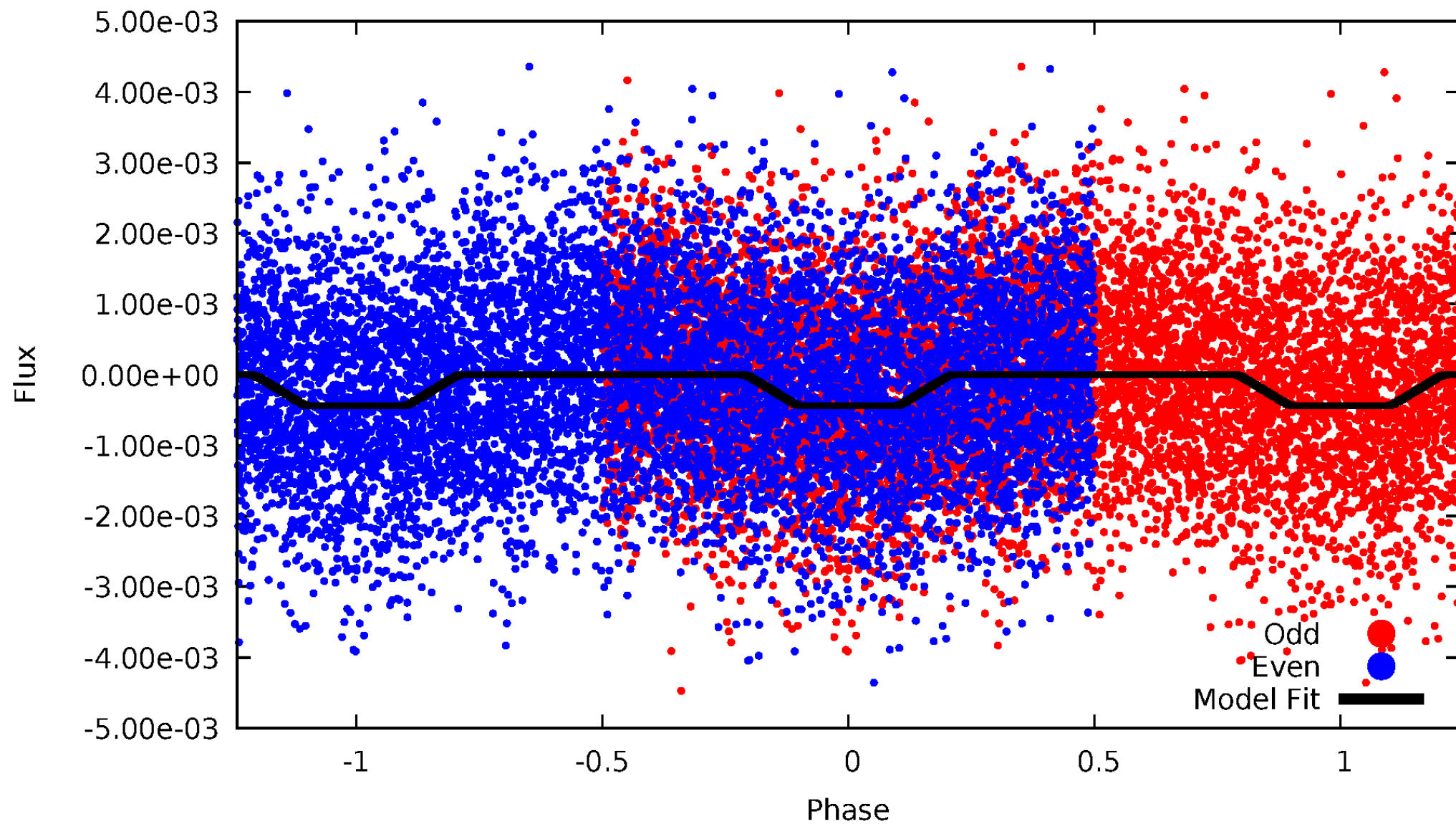
DV Odd/Even

TCE 008362899-04



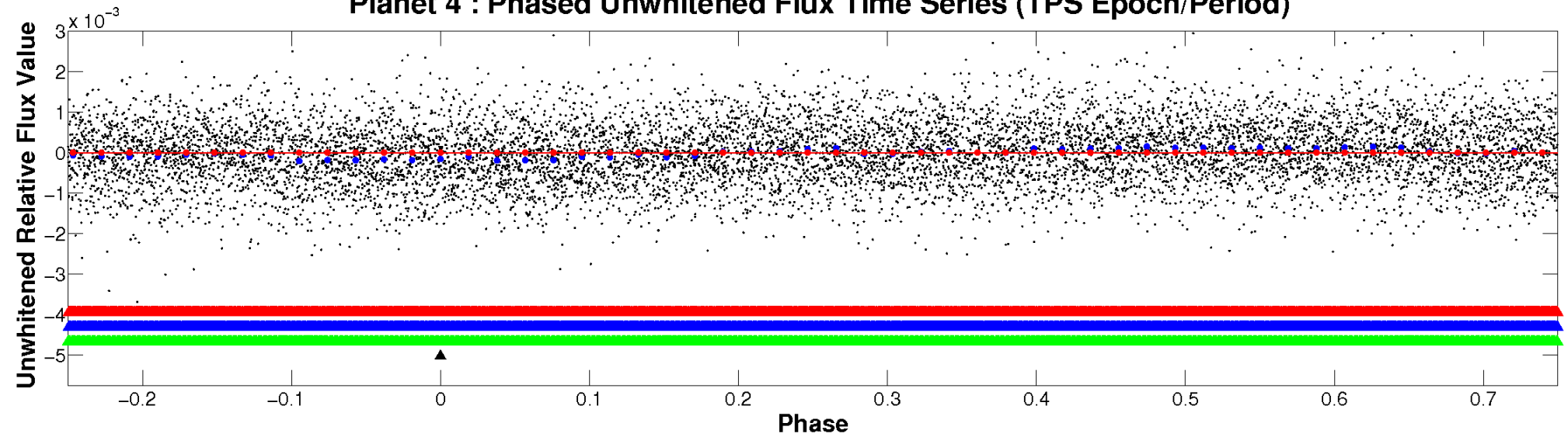
ALT Odd/Even

TCE 008362899-04

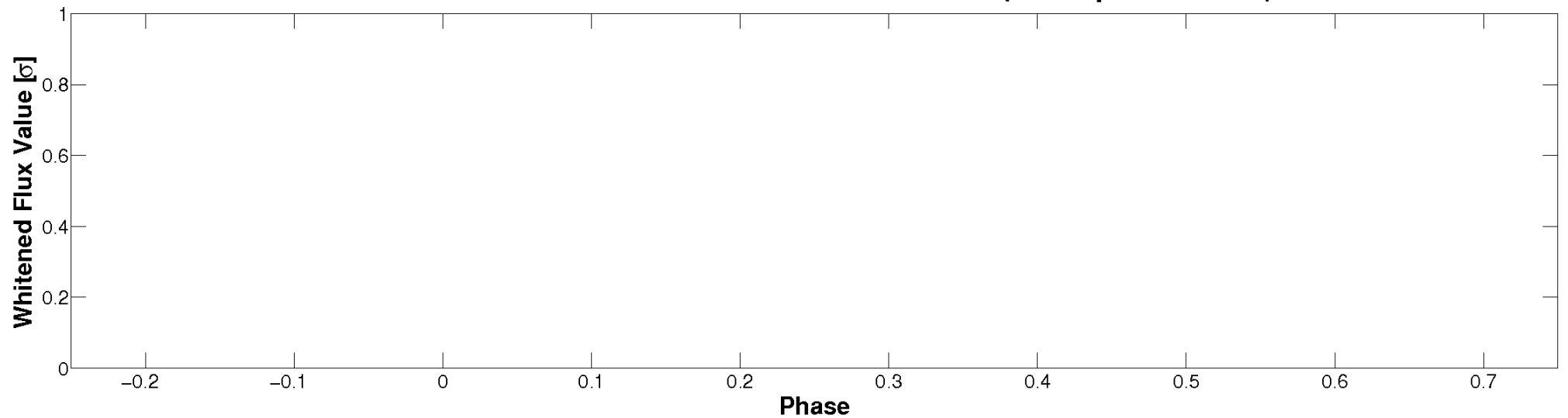


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

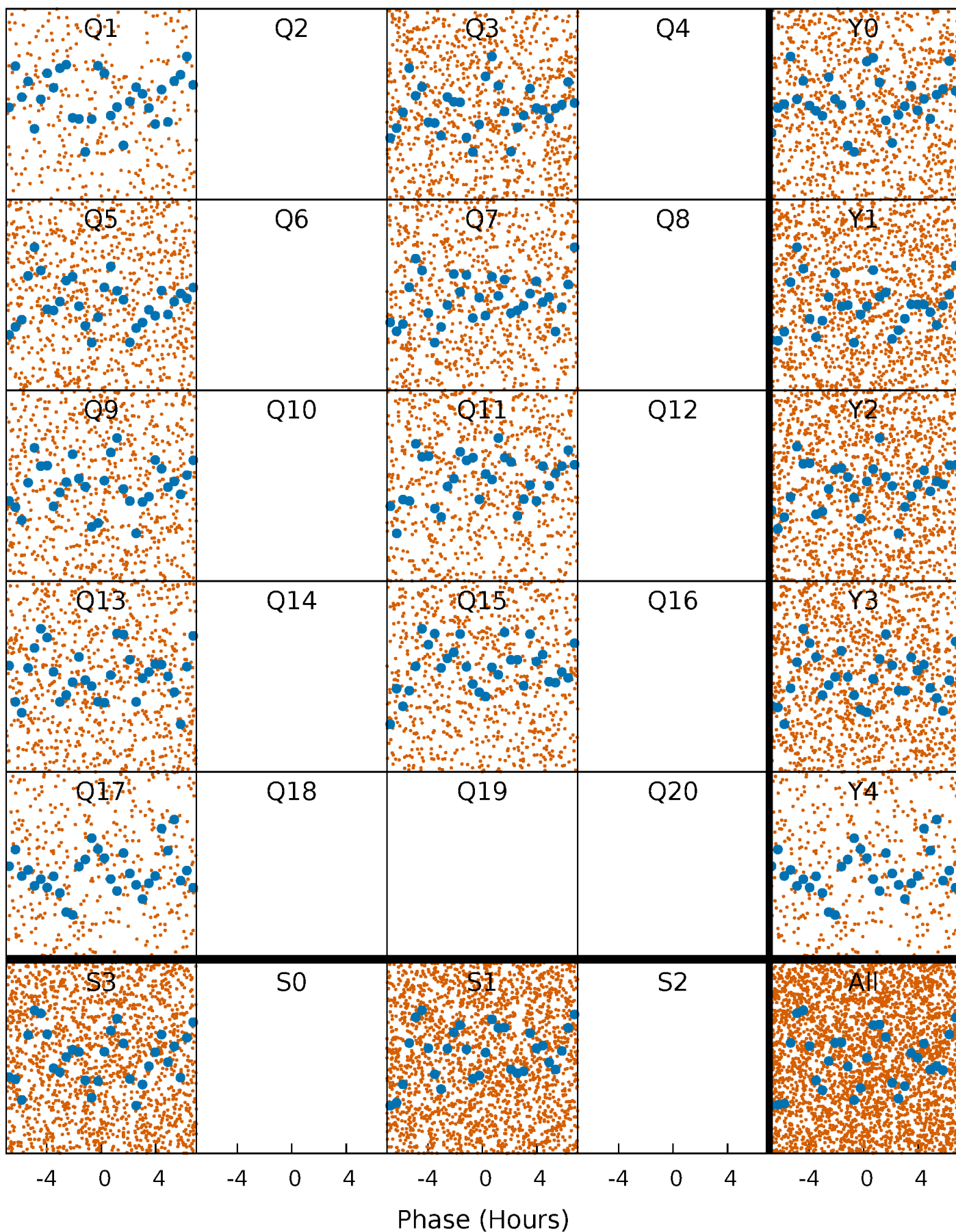


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



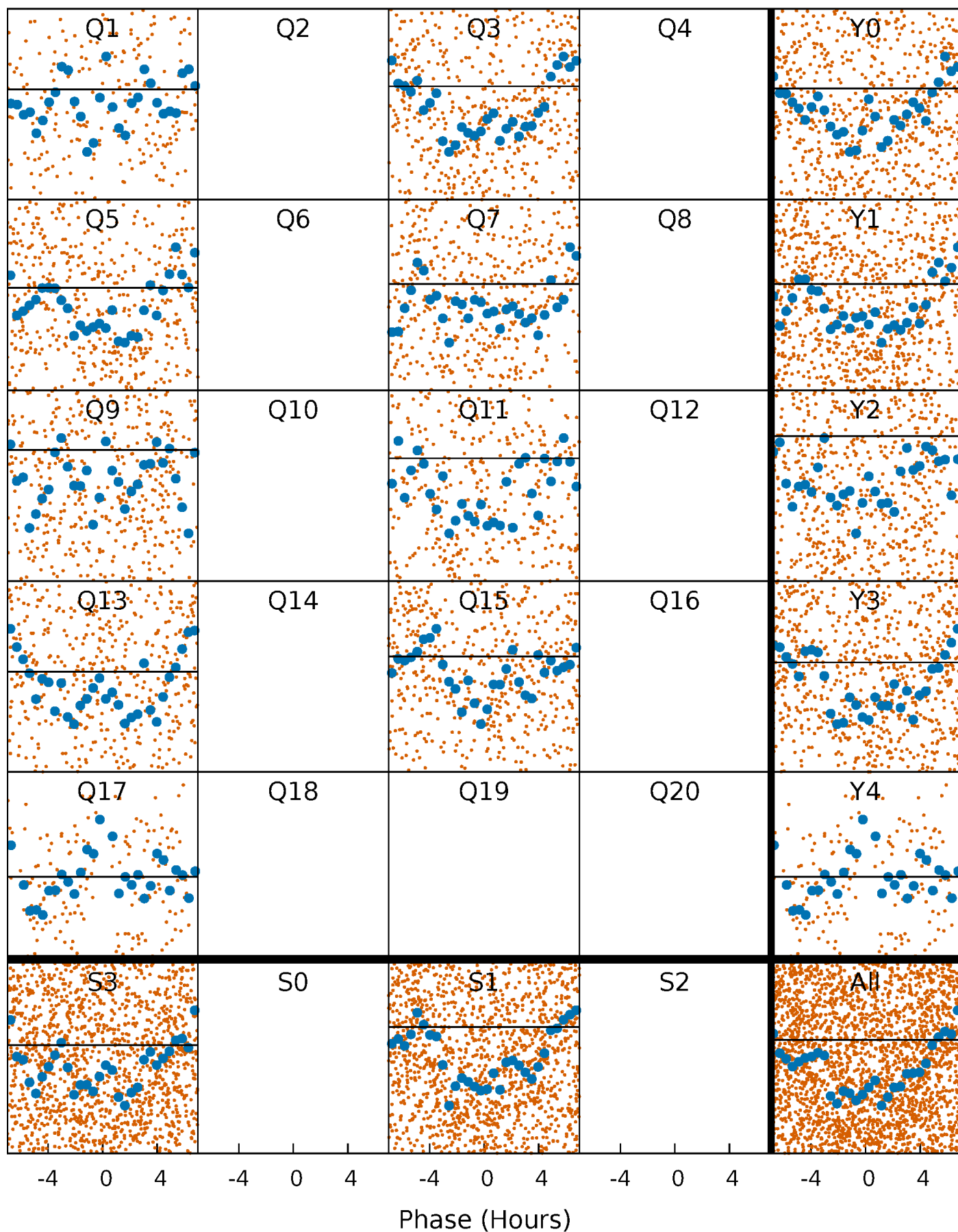
PDC Quarter-Phased Transit Curves

TCE 008362899-04 P= 1.077321 Days $T_0=132.437315$ (BKJD)



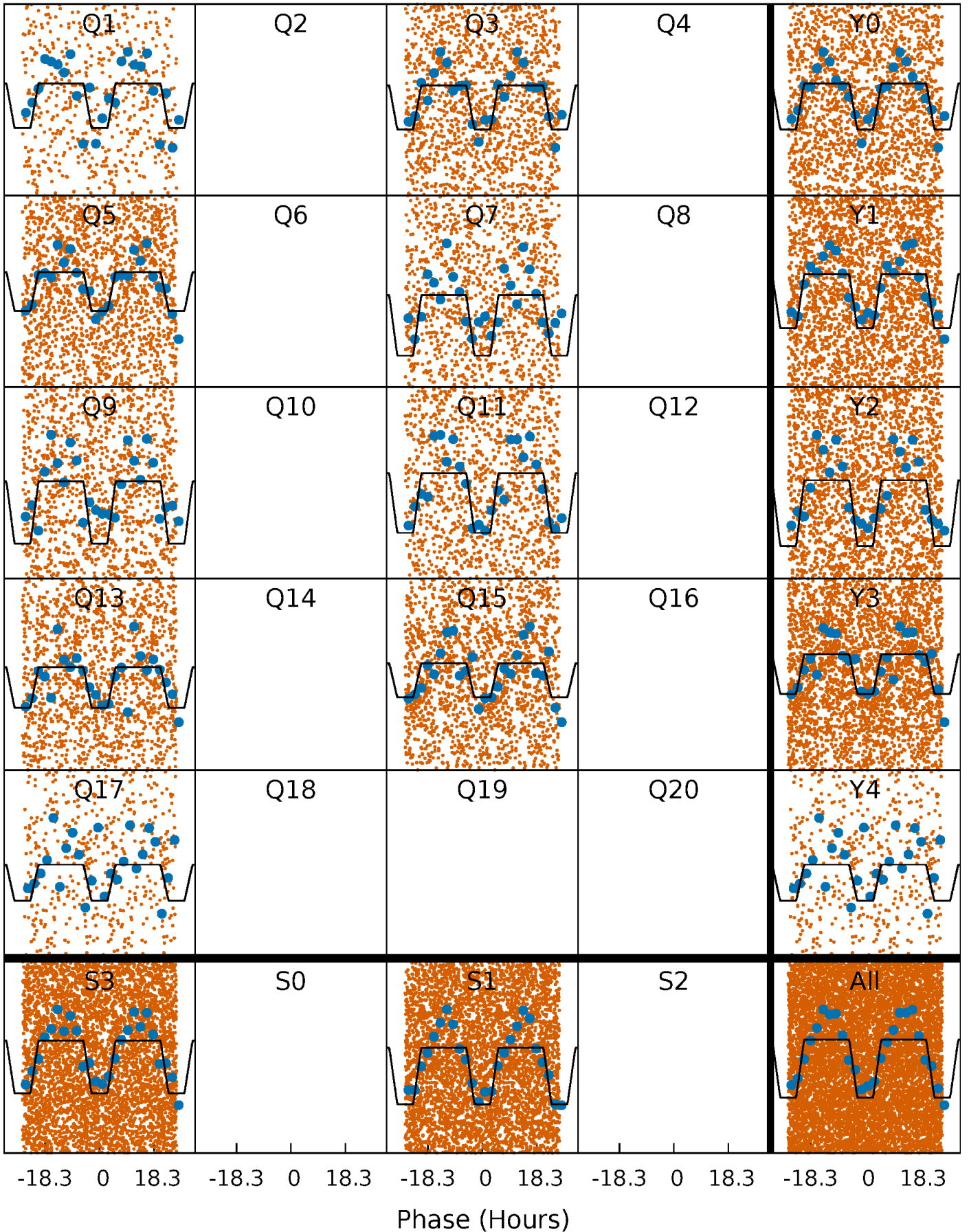
DV Quarter-Phased Transit Curves

TCE 008362899-04 $P = 1.077321$ Days $T_0 = 132.437315$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

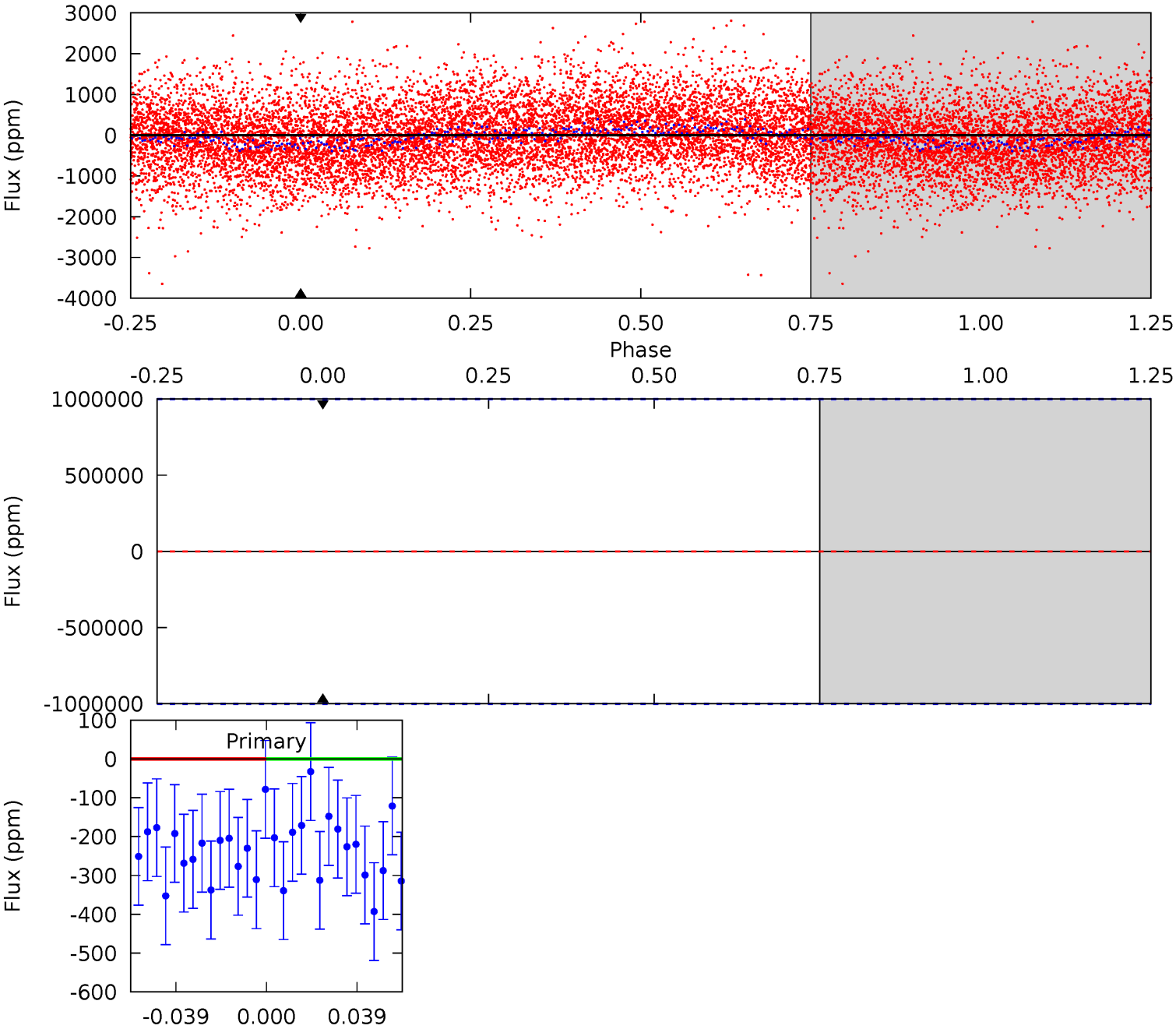
TCE 008362899-04 $P = 1.077321$ Days $T_0 = 132.434715$ (BKJD)



DV Model-Shift Uniqueness Test

008362899-04, P = 1.077321 Days, E = 131.359994 Days

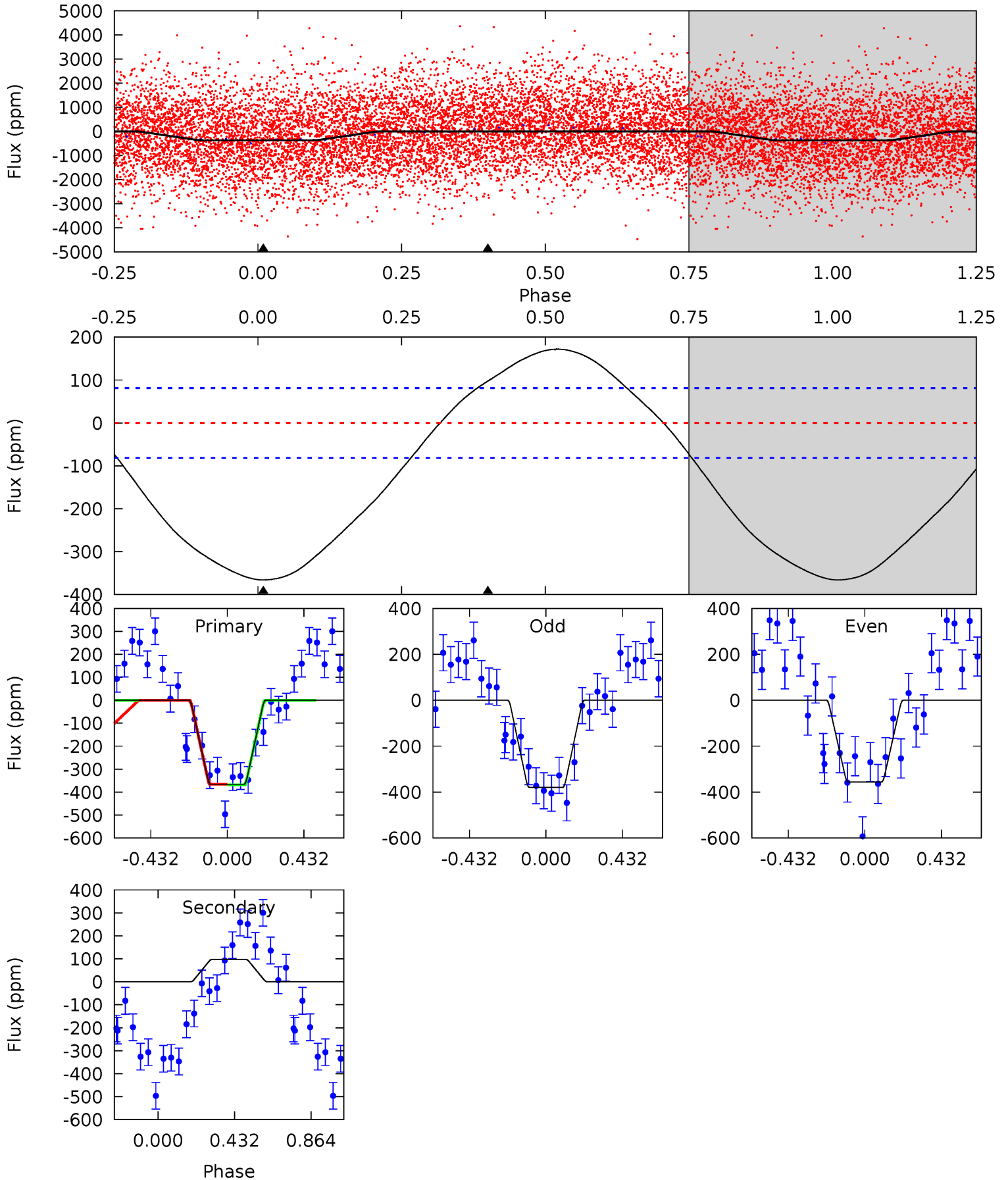
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008362899-04, P = 1.077321 Days, E = 131.357394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	-5.10	0	0	4.25	0.79	2.19	19.1	19.1	-5.10	-5.10	0.62	0.72	0.32	0.06



Stellar Parameters For KIC 008362899

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7884^{+219}_{-329}	$3.883^{+0.307}_{-0.102}$	$-0.120^{+0.200}_{-0.350}$	$2.619^{+0.417}_{-0.972}$	$1.912^{+0.104}_{-0.415}$	$0.150^{+0.297}_{-0.049}$
	+3%/-4%	+8%/-3%	+167%/-292%	+16%/-37%	+5%/-22%	+198%/-33%
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 008362899-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$18.34^{+21.84}_{-13.27}$	4818^{+324}_{-463}	3024^{+54651}_{-50001}	$0.330^{+236.511}_{-162.423}$
Alt.	98 ± 19	$20.57^{+22.36}_{-14.25}$	4789^{+329}_{-430}	-4381^{+301}_{-985}	$-0.080^{+0.062}_{-0.808}$

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

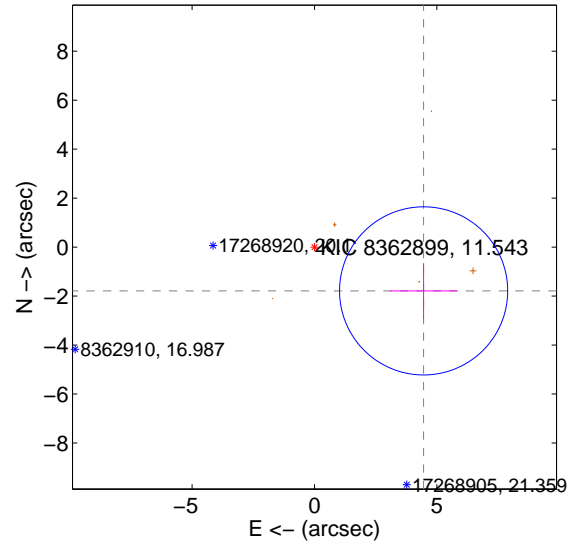
Supplemental centroid analysis for 008362899-04. **Kepler magnitude: 11.54.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

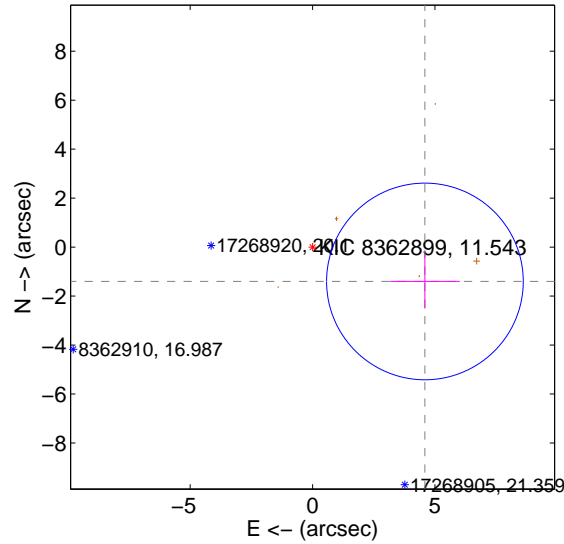
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.803 ± 1.145	4.20	-4.458 ± 1.380	-1.789 ± 1.133
PRF-fit source offset from KIC position	4.799 ± 1.339	3.58	-4.589 ± 1.426	-1.403 ± 1.106
photometric centroid source offset	0.40 ± 0.06	6.65	-0.34 ± 0.06	0.20 ± 0.05

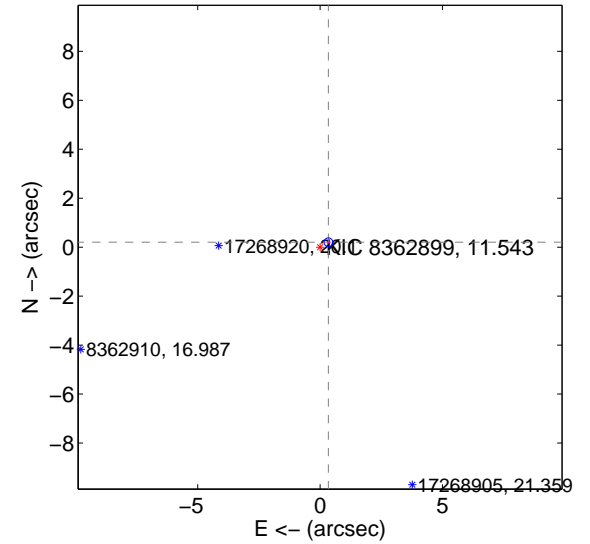
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

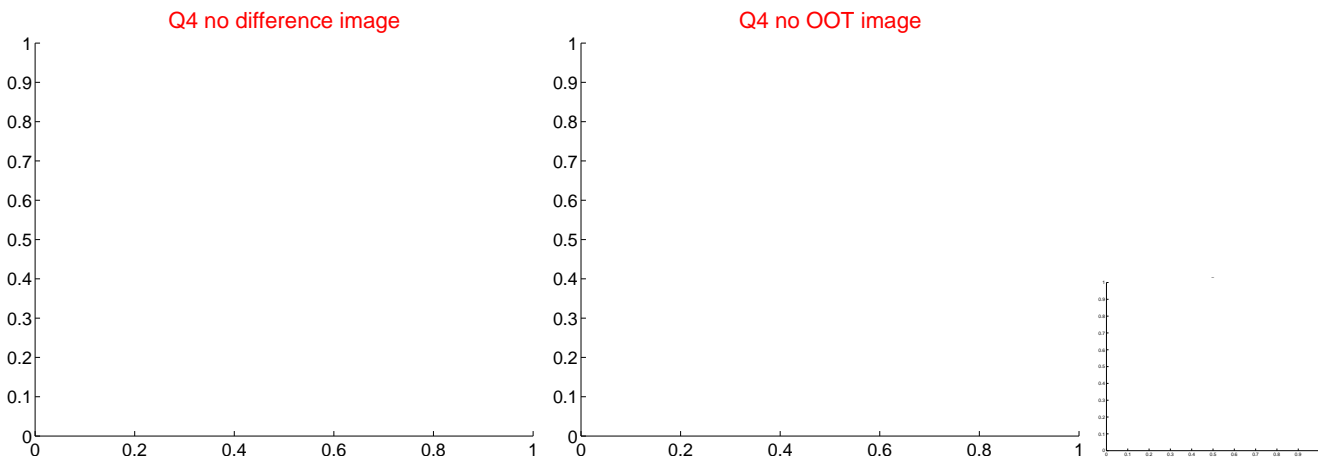
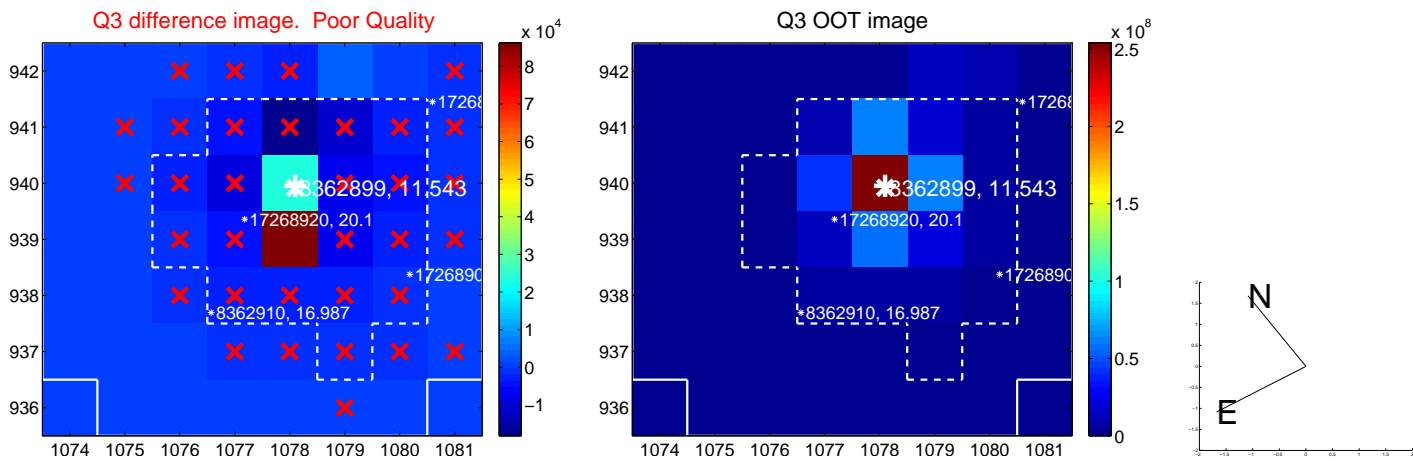
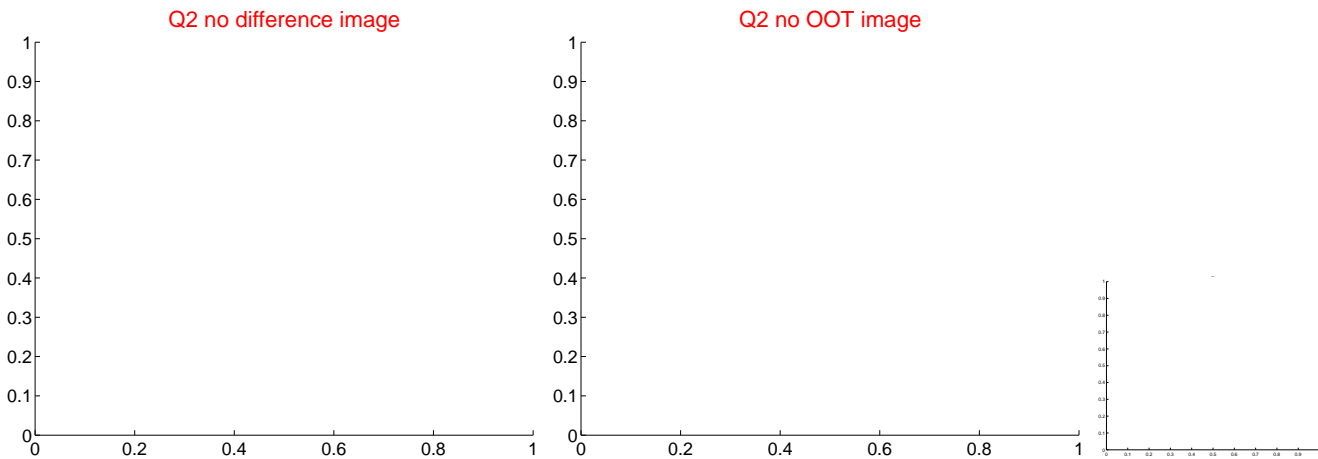
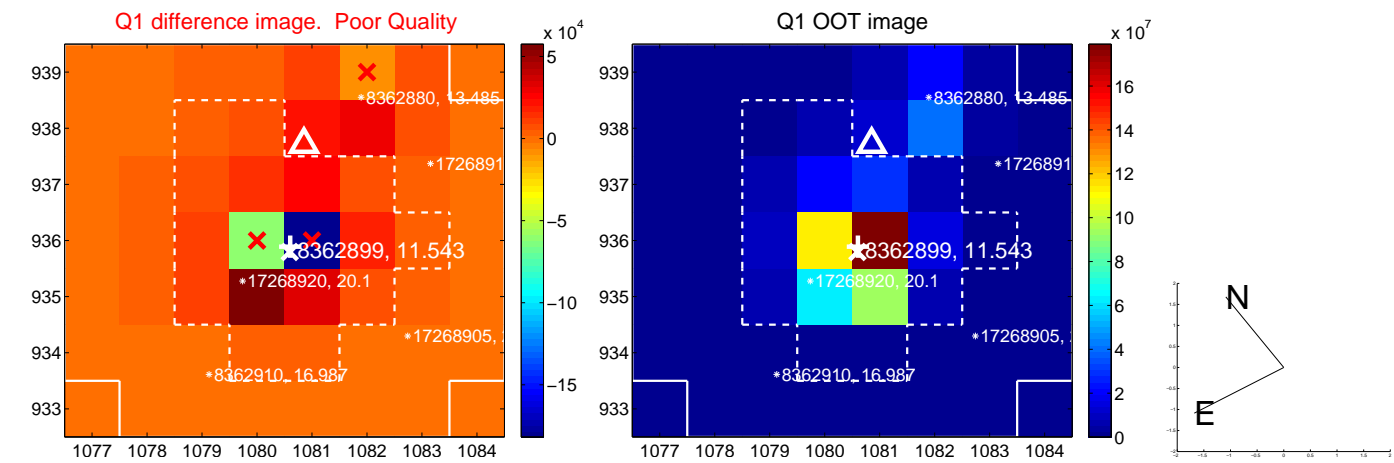


offset from photometric centroids

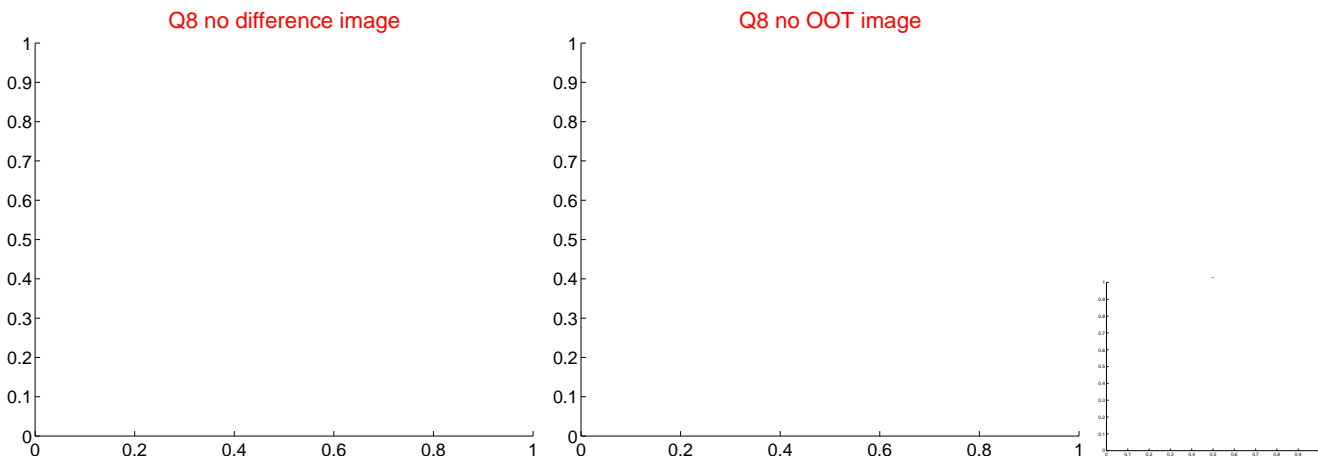
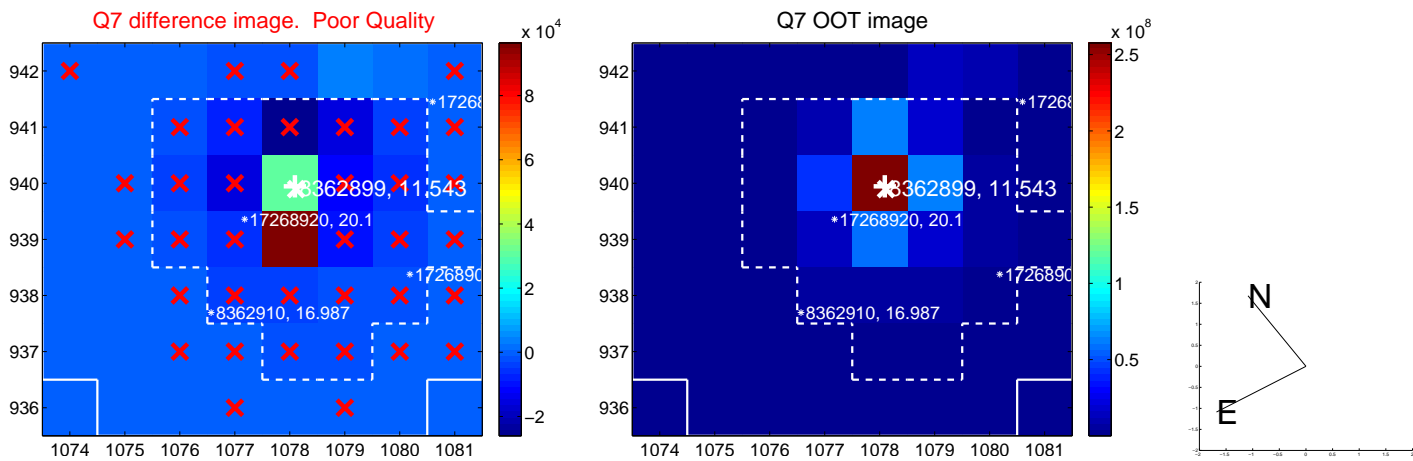
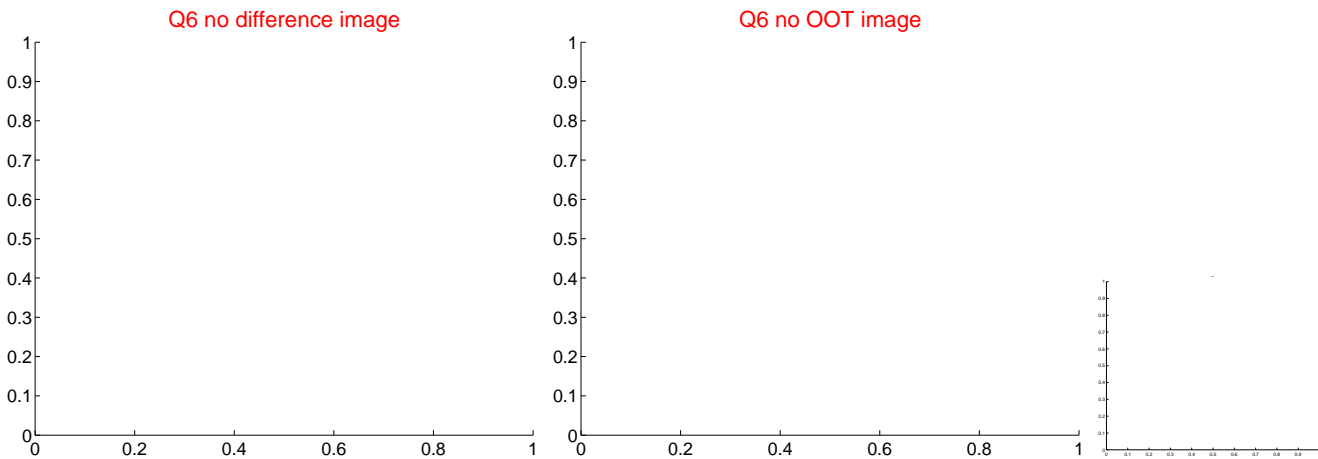
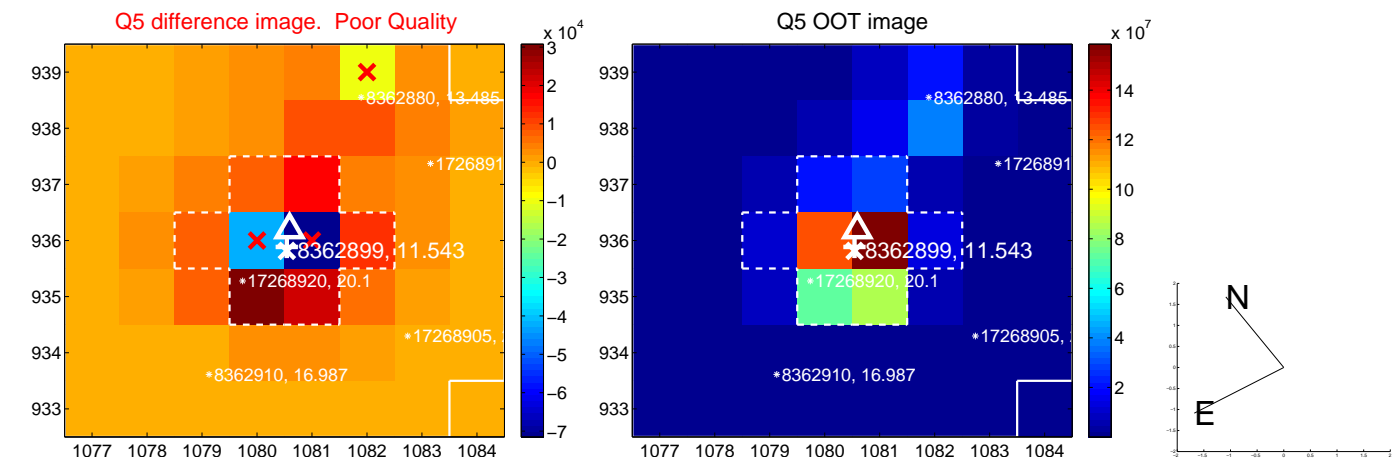


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

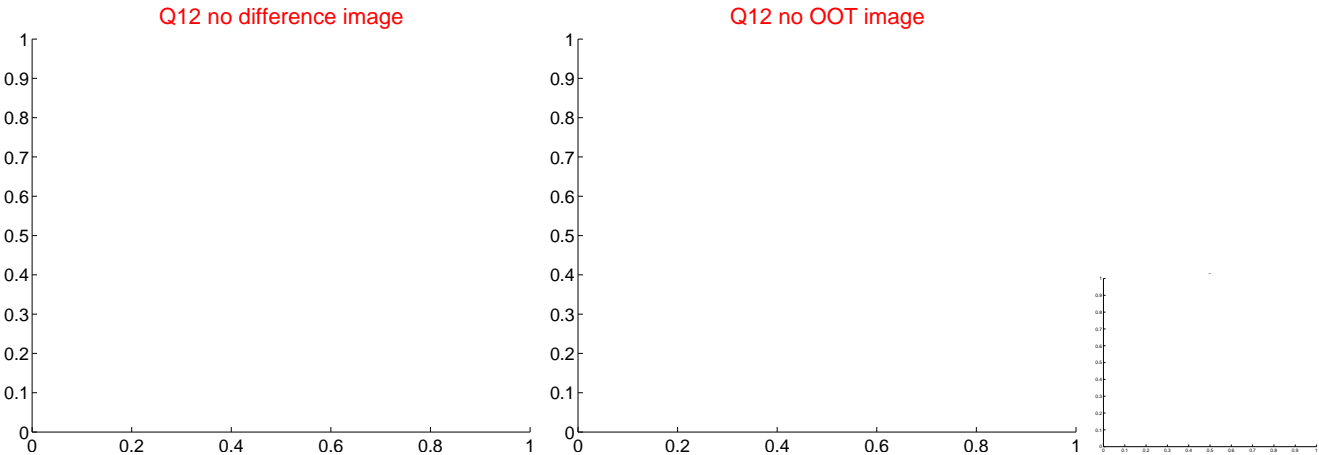
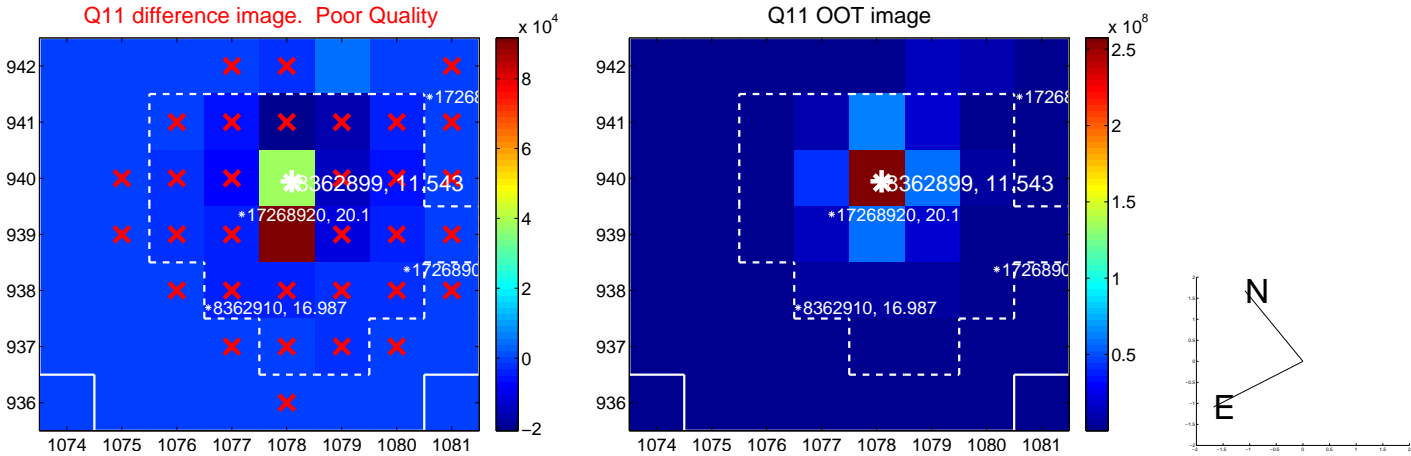
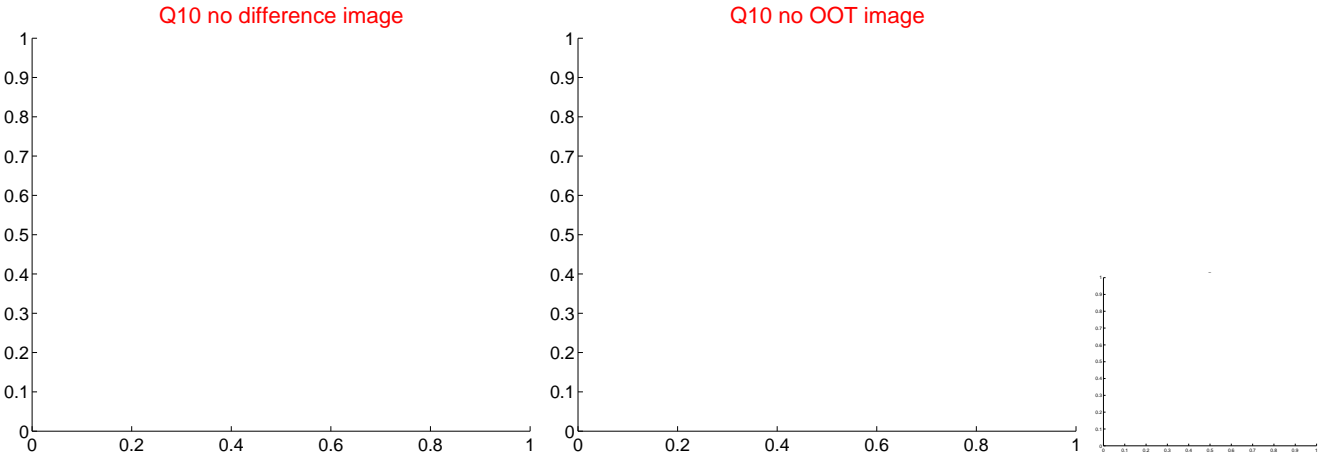
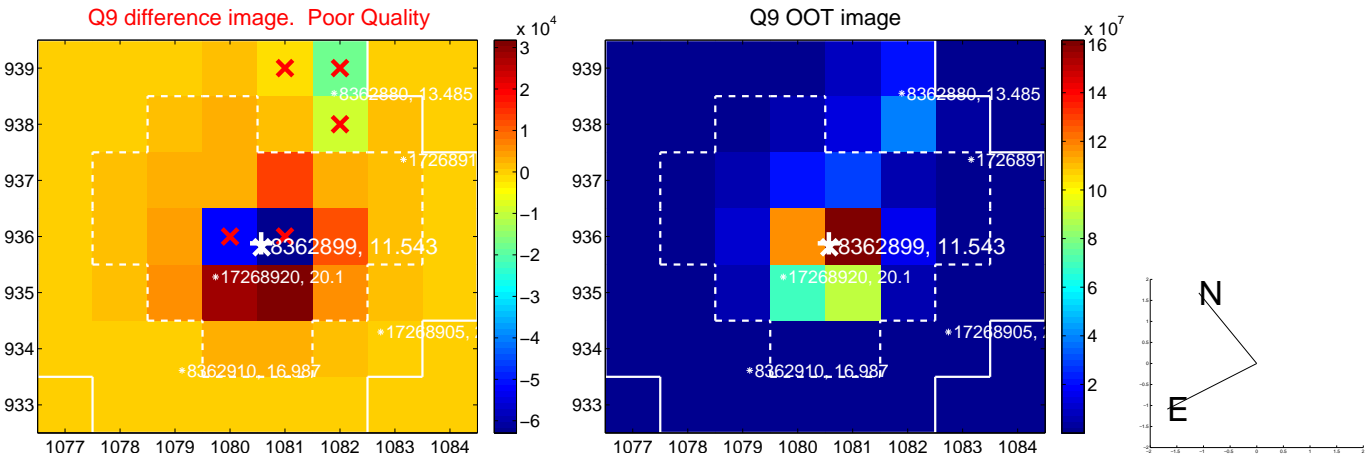
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



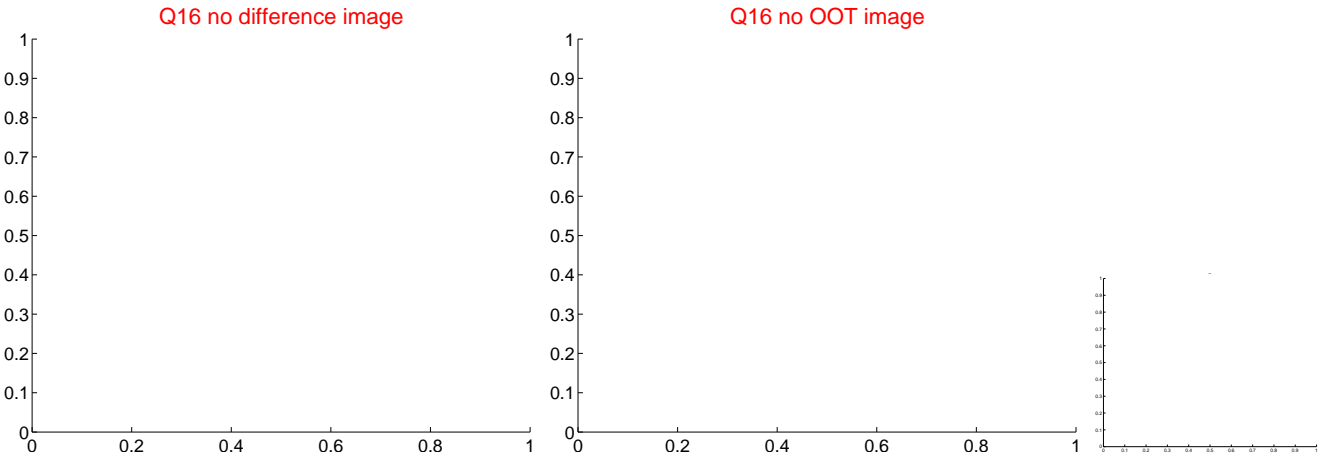
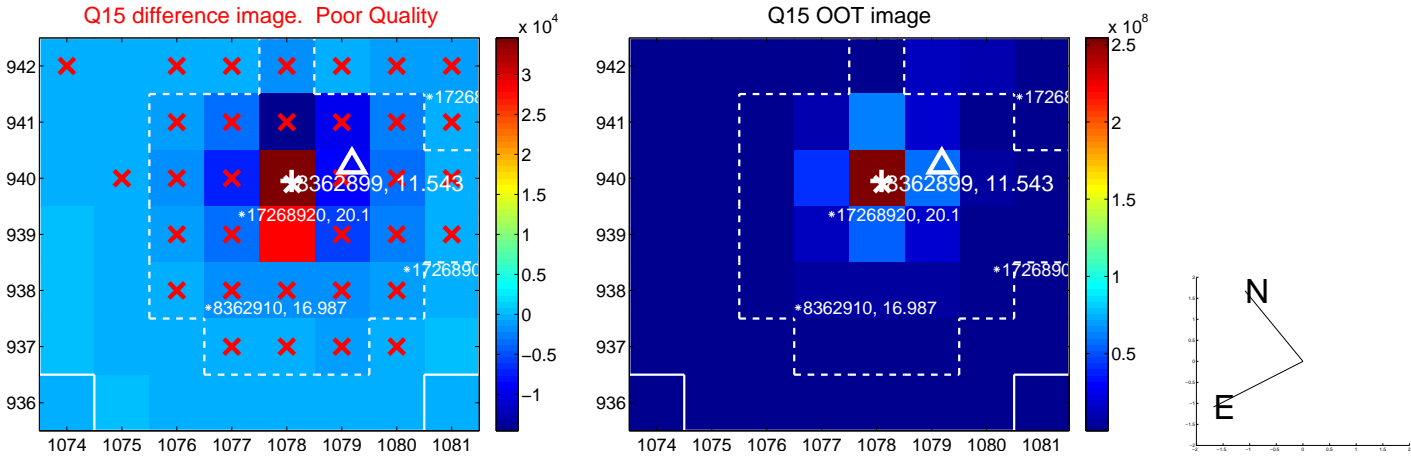
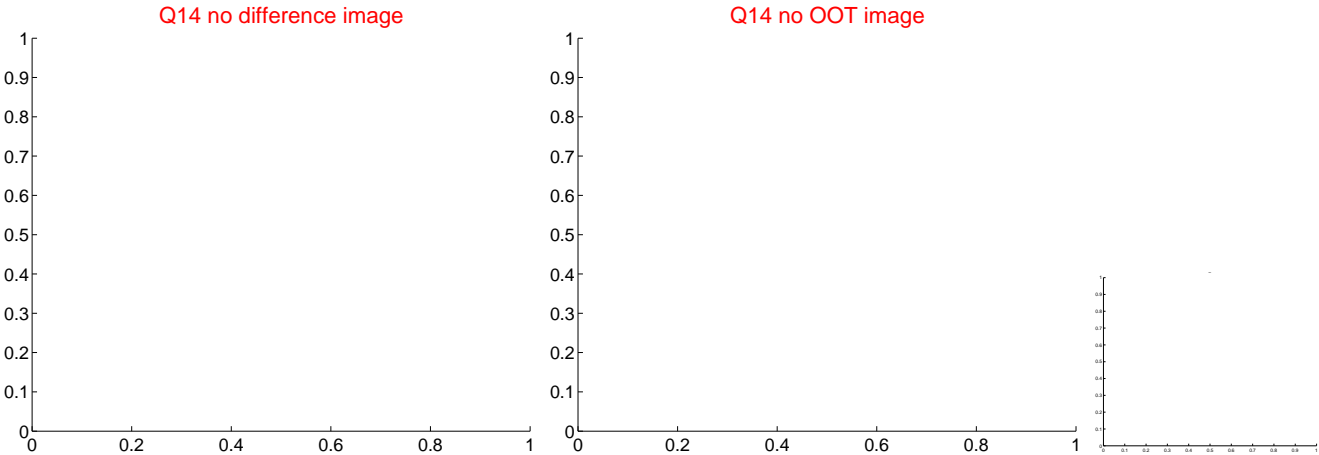
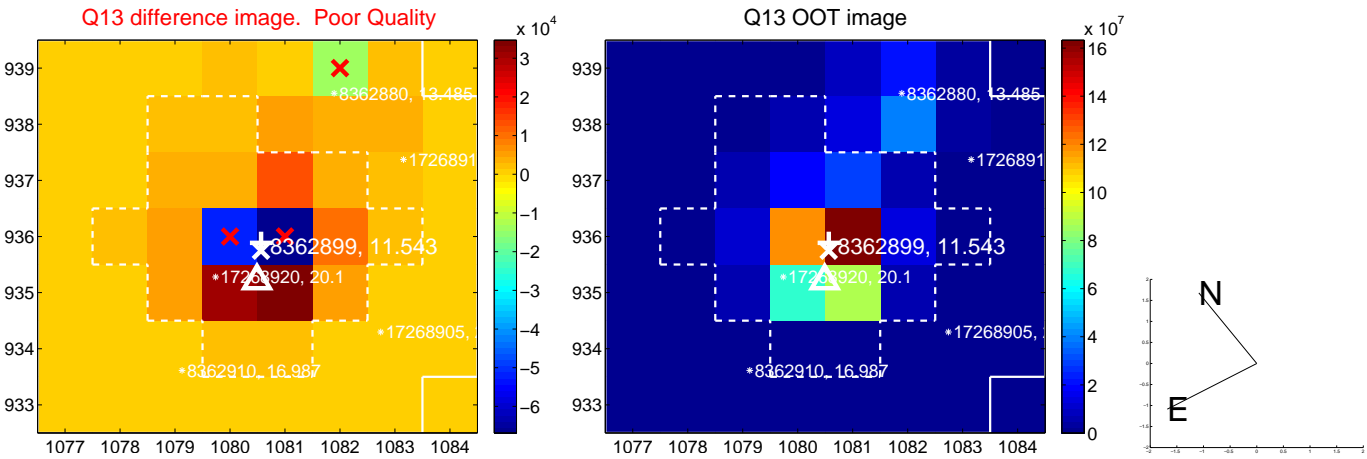
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



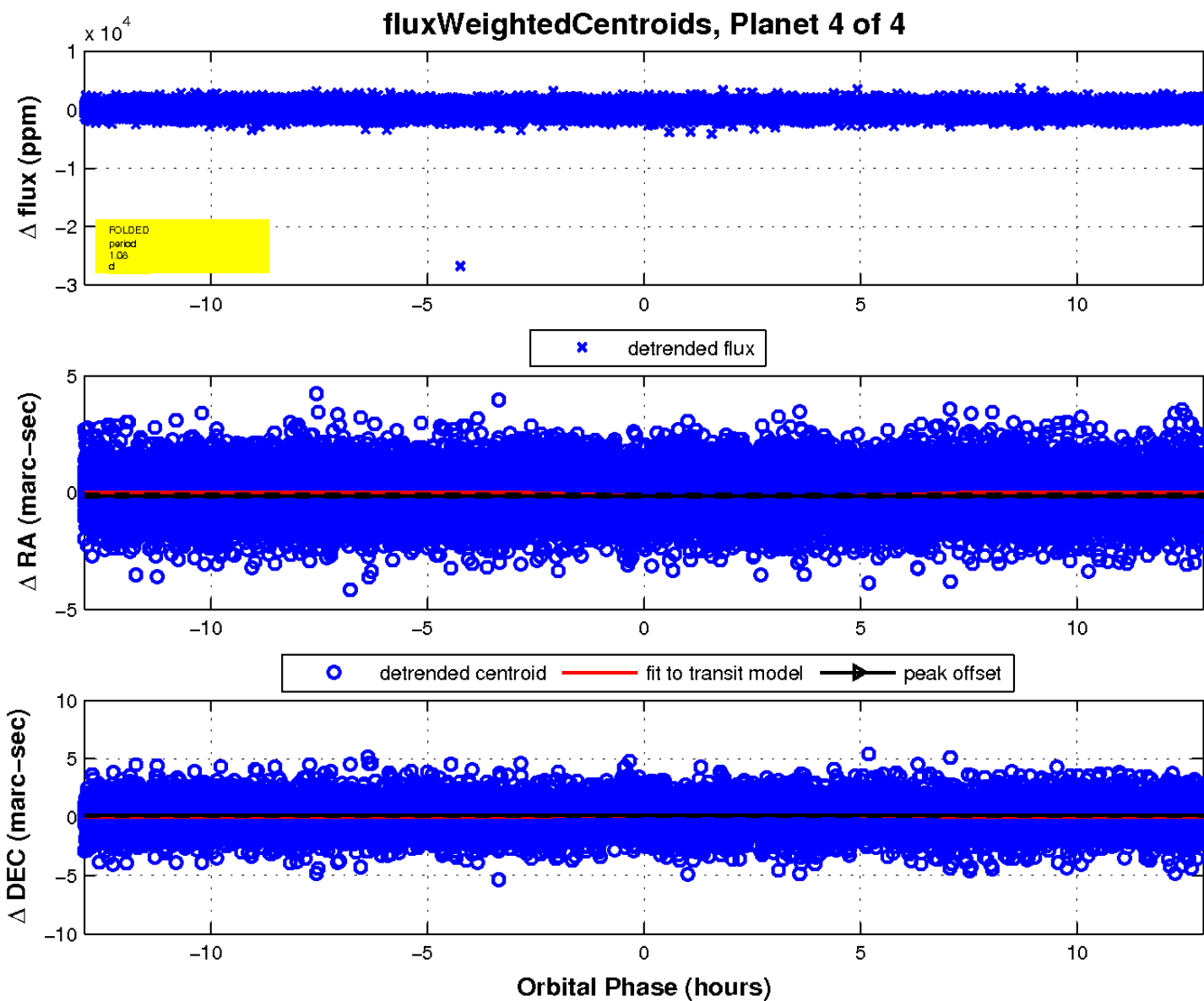
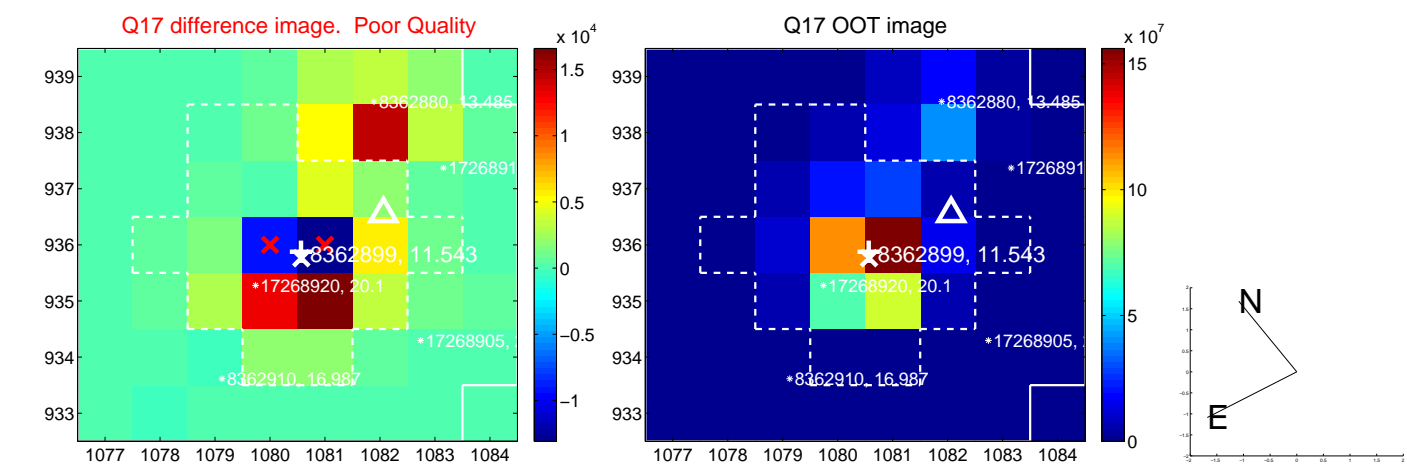
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

