

KIC 009178894

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})
009178894-01	OBS	No	1.171074	132.234413	8.9	4.073	10.2	10.7	2.50	7892	0.85	29901.53
009178894-02	OBS	No	266.987781	262.992512	66.0	8.554	17.5	4.2	2.50	7892	2.11	21.47
009178894-03	OBS	No	176.089066	293.059717	82.4	10.035	11.5	6.2	2.50	7892	2.56	37.40
009178894-04	OBS	No	2.973683	133.529773	17.0	8.127	10.3	10.5	2.50	7892	1.19	8631.37
009178894-05	OBS	No	2.973575	132.705080	14.9	11.352	9.8	9.2	2.50	7892	1.11	8631.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009178894-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009178894-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009178894-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009178894-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009178894-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

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

Ephemeris Match Information For 009178894-01

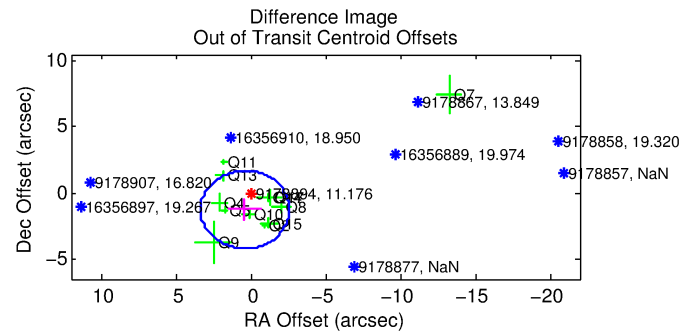
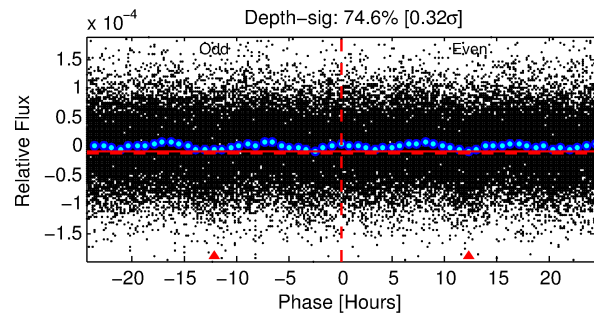
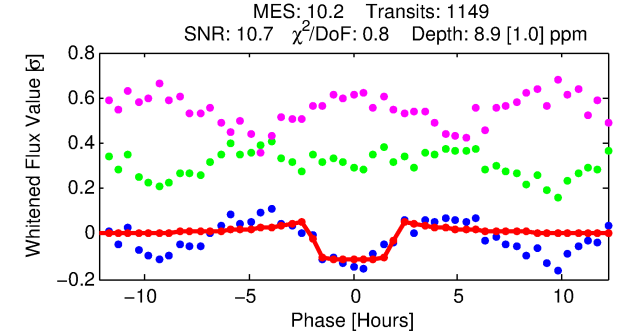
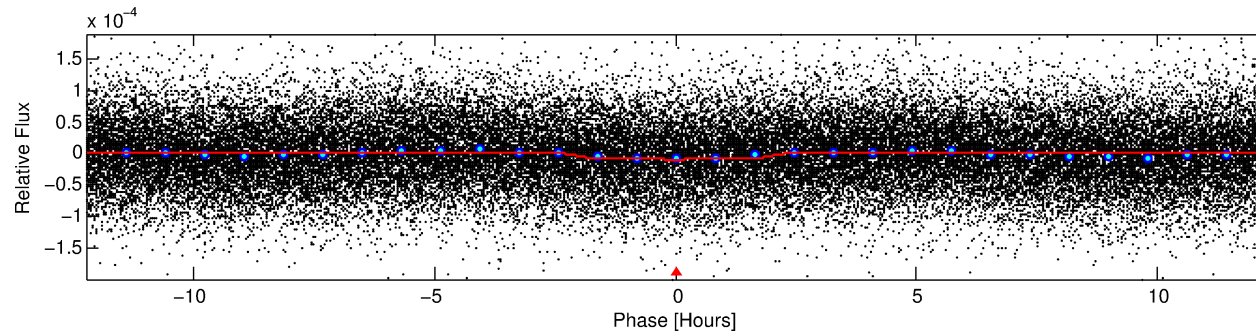
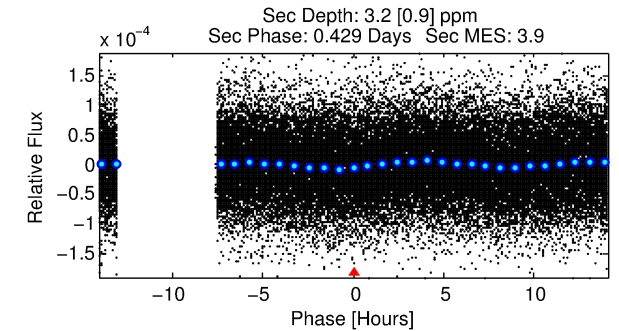
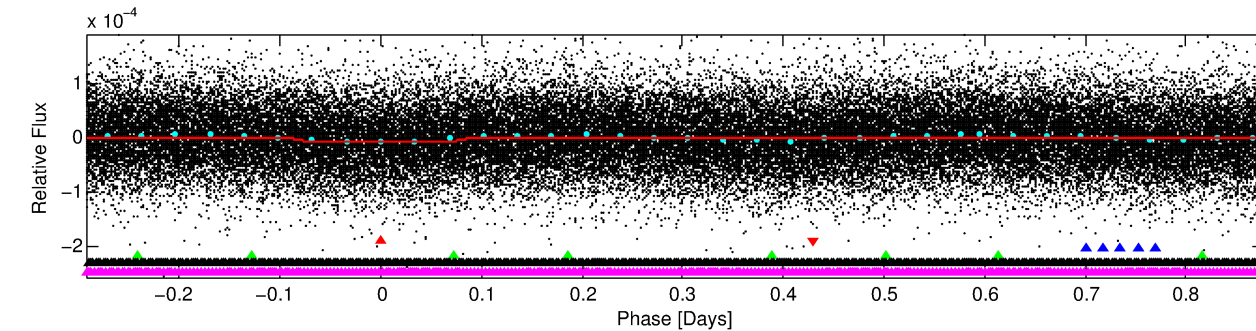
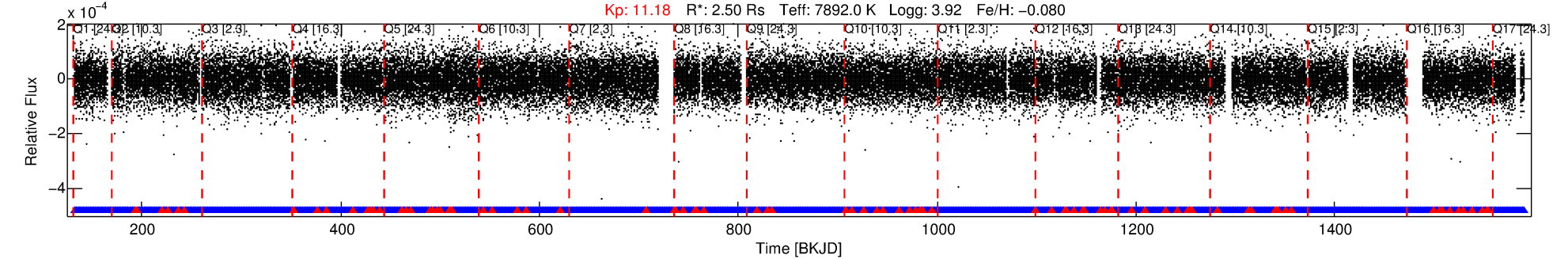
No Significant Match Found

DV One-Page Summary

KIC: 9178894 Candidate: 1 of 5 Period: 1.171 d

KOI: K05635 Corr: No Ephemeris Match

Kp: 11.18 R*: 2.50 Rs Teff: 7892.0 K Logg: 3.92 Fe/H: -0.080



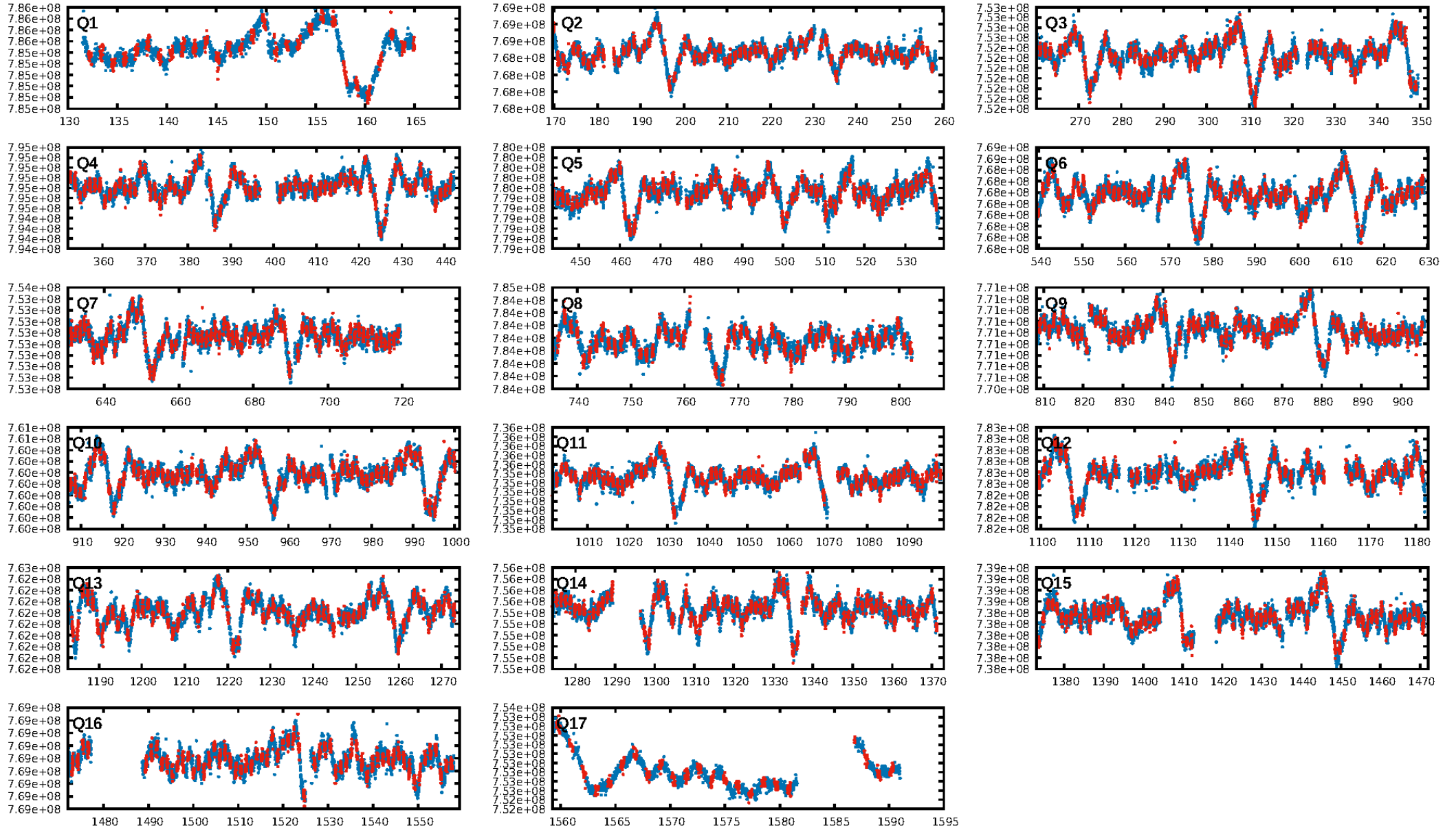
DV Fit Results:

Period = 1.17107 [0.00001] d
Epoch = 132.2344 [0.0032] BKJD
Rp/R* = 0.0031 [0.0005]
a/R* = 1.40 [0.64]
b = 0.88 [0.24]
Seff = 29901.53 [14063.53]
Teff = 3353 [394] K
Rp = 0.86 [0.32] Re
a = 0.0269 [0.0079] AU
Ag = 1.76 [1.08] [0.71σ]
Teffp = 5975 [680] K [3.33σ]

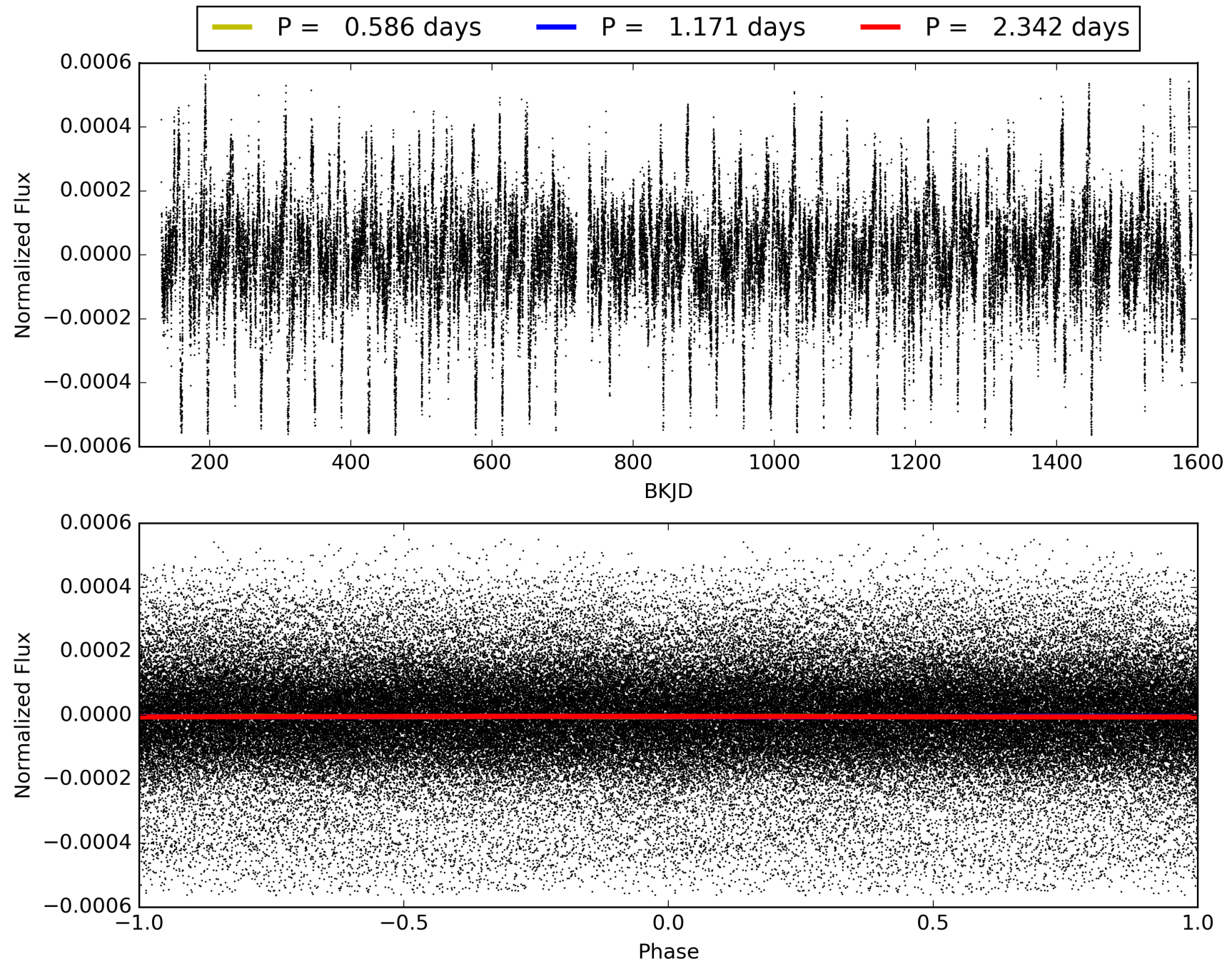
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.59σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.11e-15
RollingBand-fgt: 0.92 [1010/1098]
GhostDiagnostic-chr: 0.9482
Centroid-sig: 70.2%
Centroid-so: 0.835 arcsec [0.66σ]
OotOffset-rm: 1.315 arcsec [1.33σ]
KicOffset-rm: 1.341 arcsec [1.40σ]
OotOffset-st: 3/3/2/4 [12]
KicOffset-st: 3/3/2/4 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009178894-01, PDC Light Curves

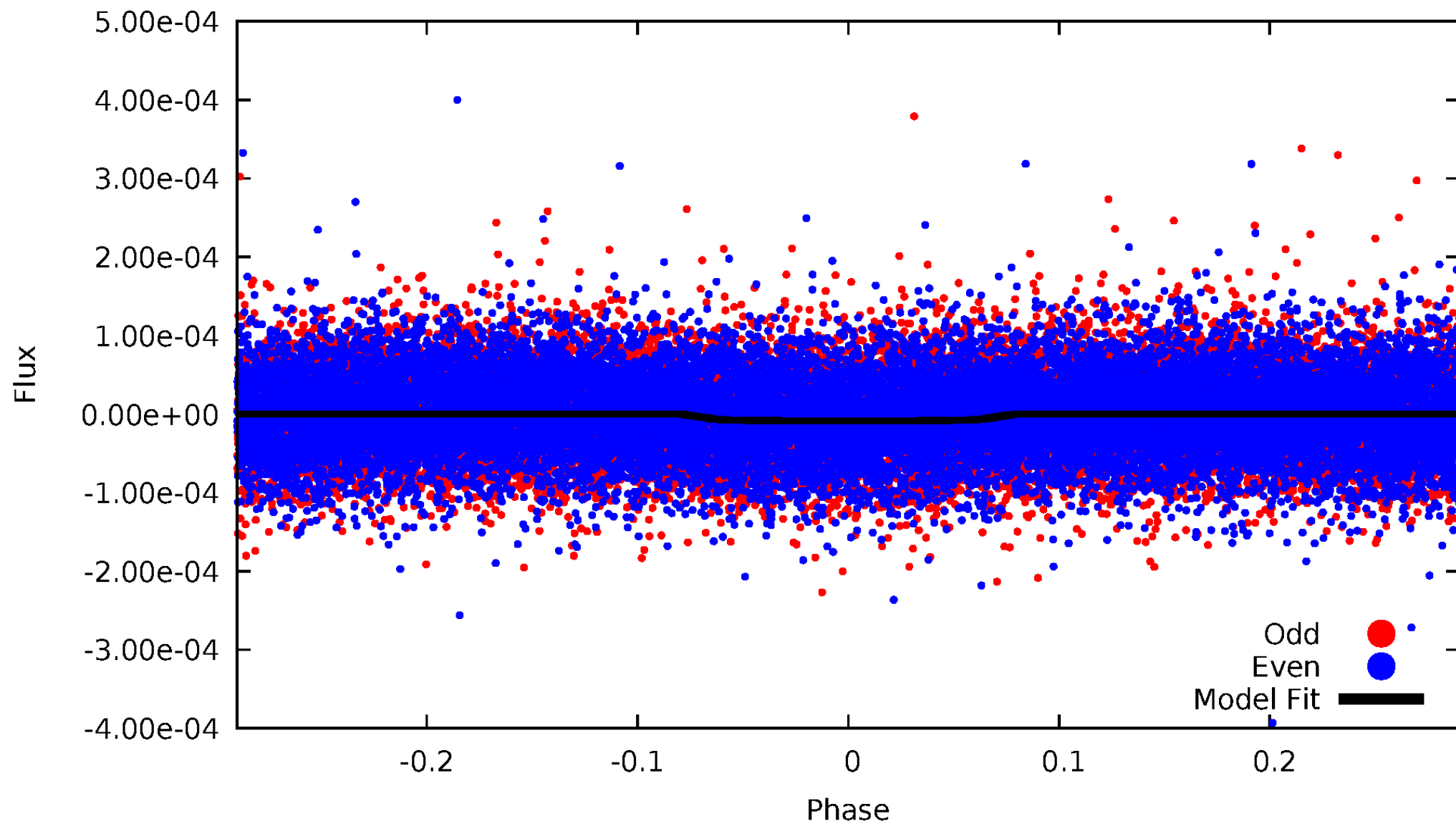


TCE 009178894-01



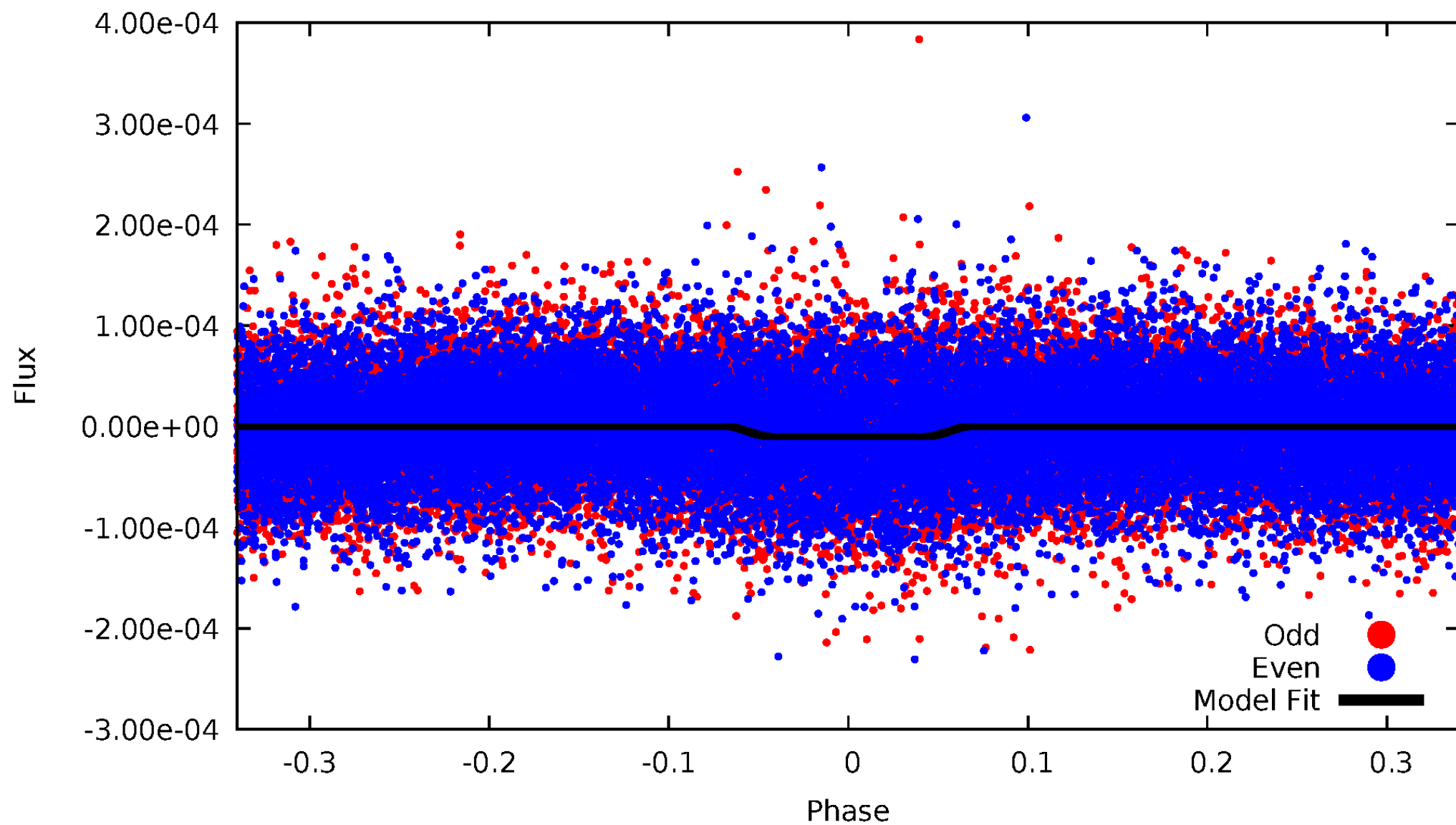
DV Odd/Even

TCE 009178894-01

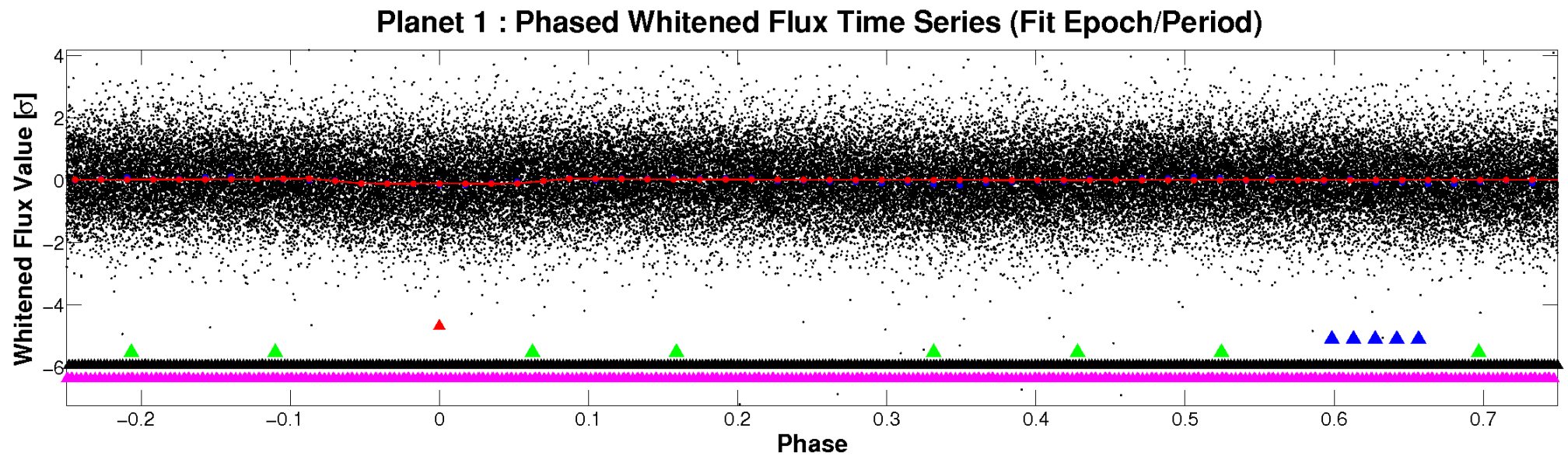
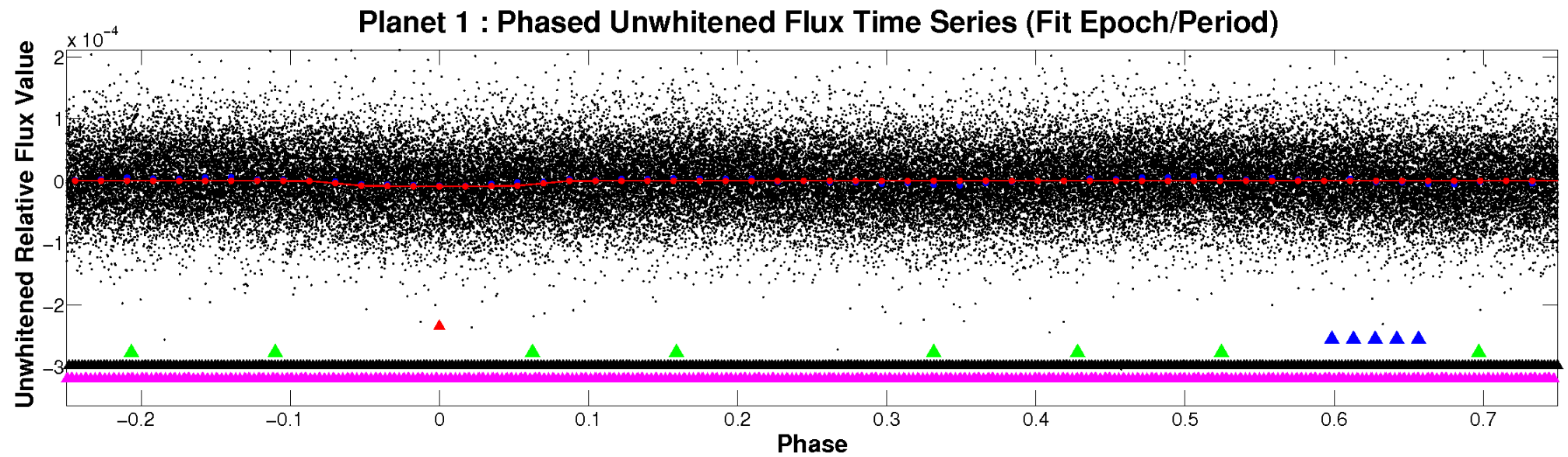


ALT Odd/Even

TCE 009178894-01

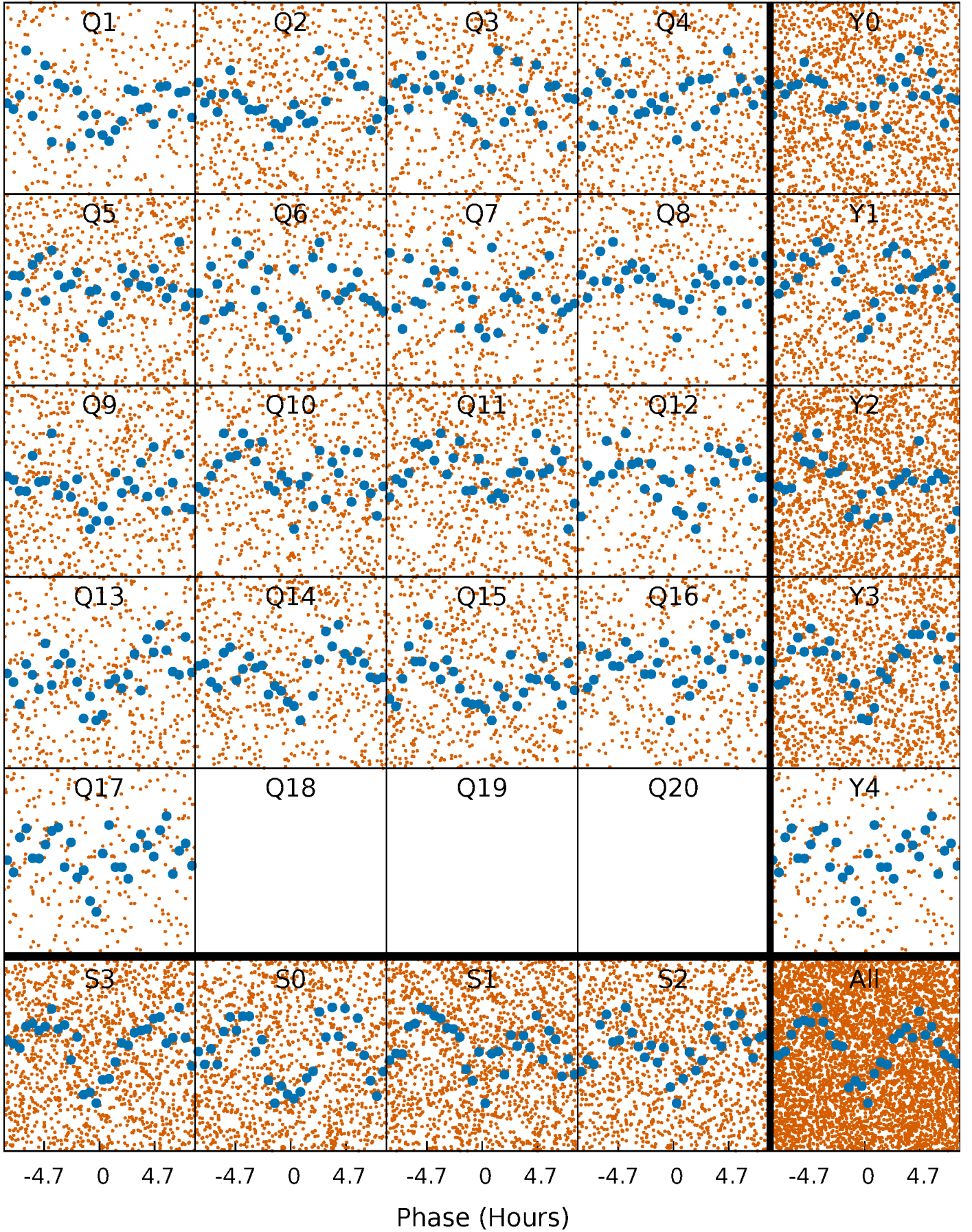


Non-Whitened Vs. Whitened Light Curve



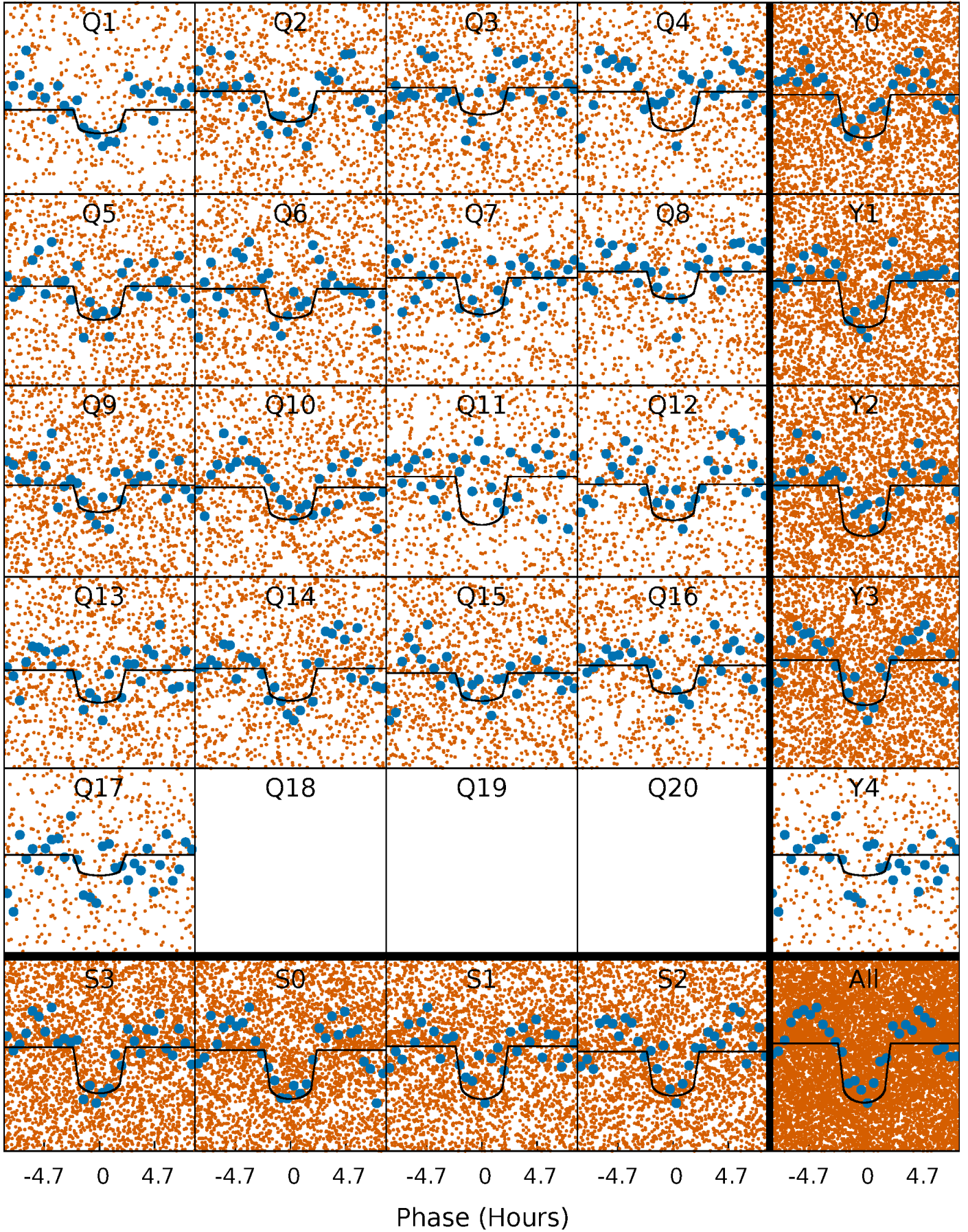
PDC Quarter-Phased Transit Curves

TCE 009178894-01 P= 1.171074 Days $T_0=132.234413$ (BKJD)



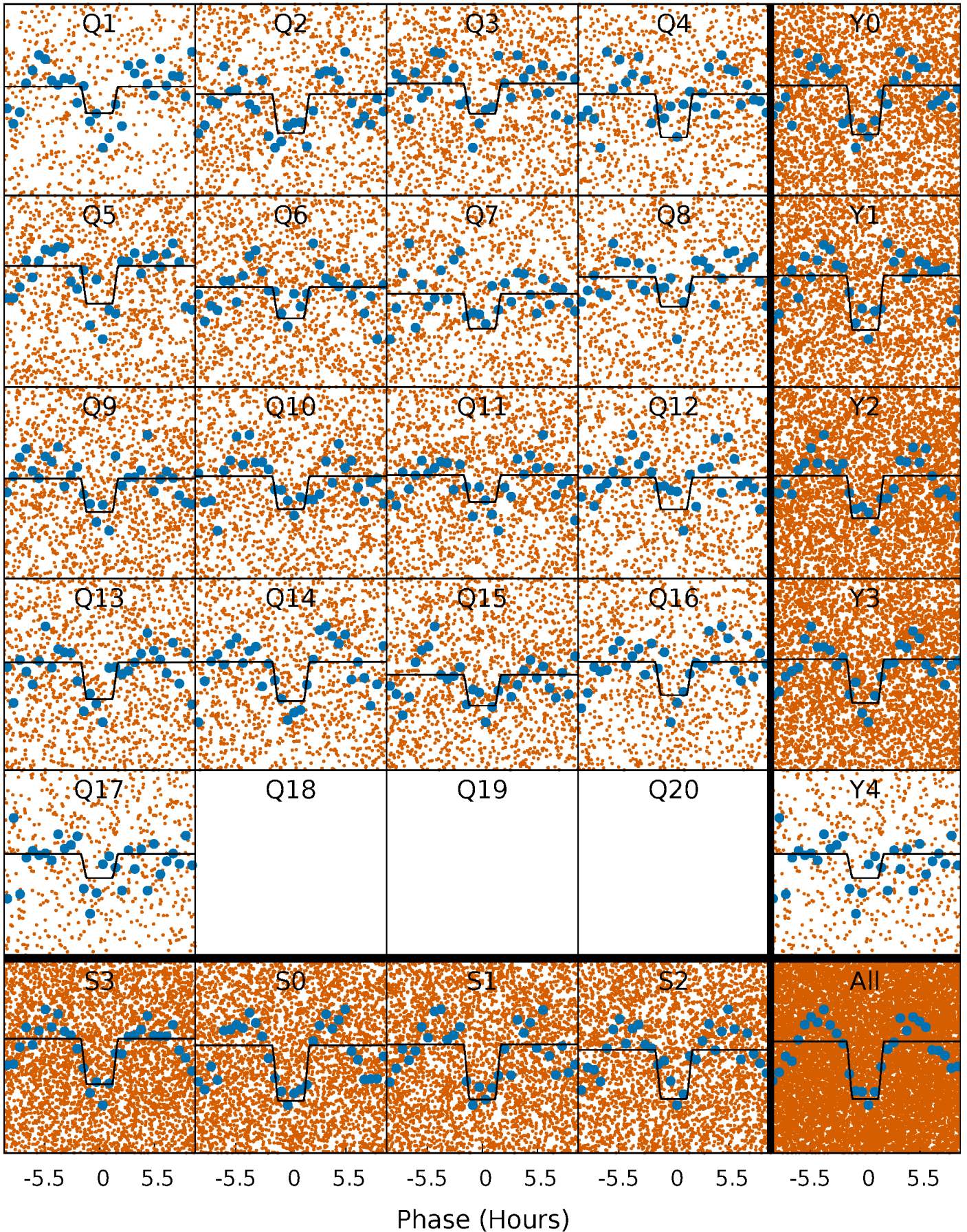
DV Quarter-Phased Transit Curves

TCE 009178894-01 P= 1.171074 Days $T_0=132.234413$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

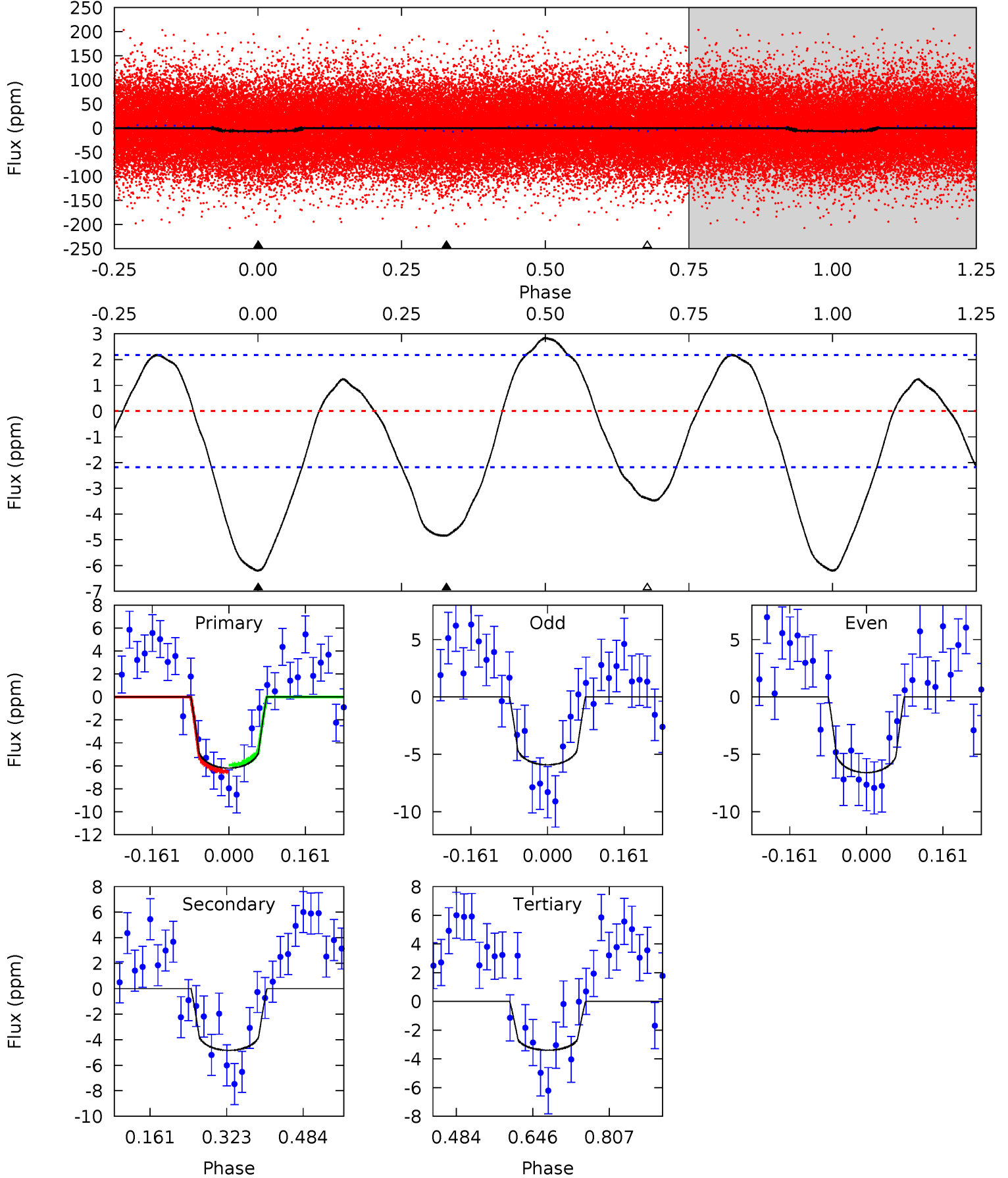
TCE 009178894-01 P= 1.171093 Days $T_0=132.216147$ (BKJD)



DV Model-Shift Uniqueness Test

009178894-01, P = 1.171074 Days, E = 131.063339 Days

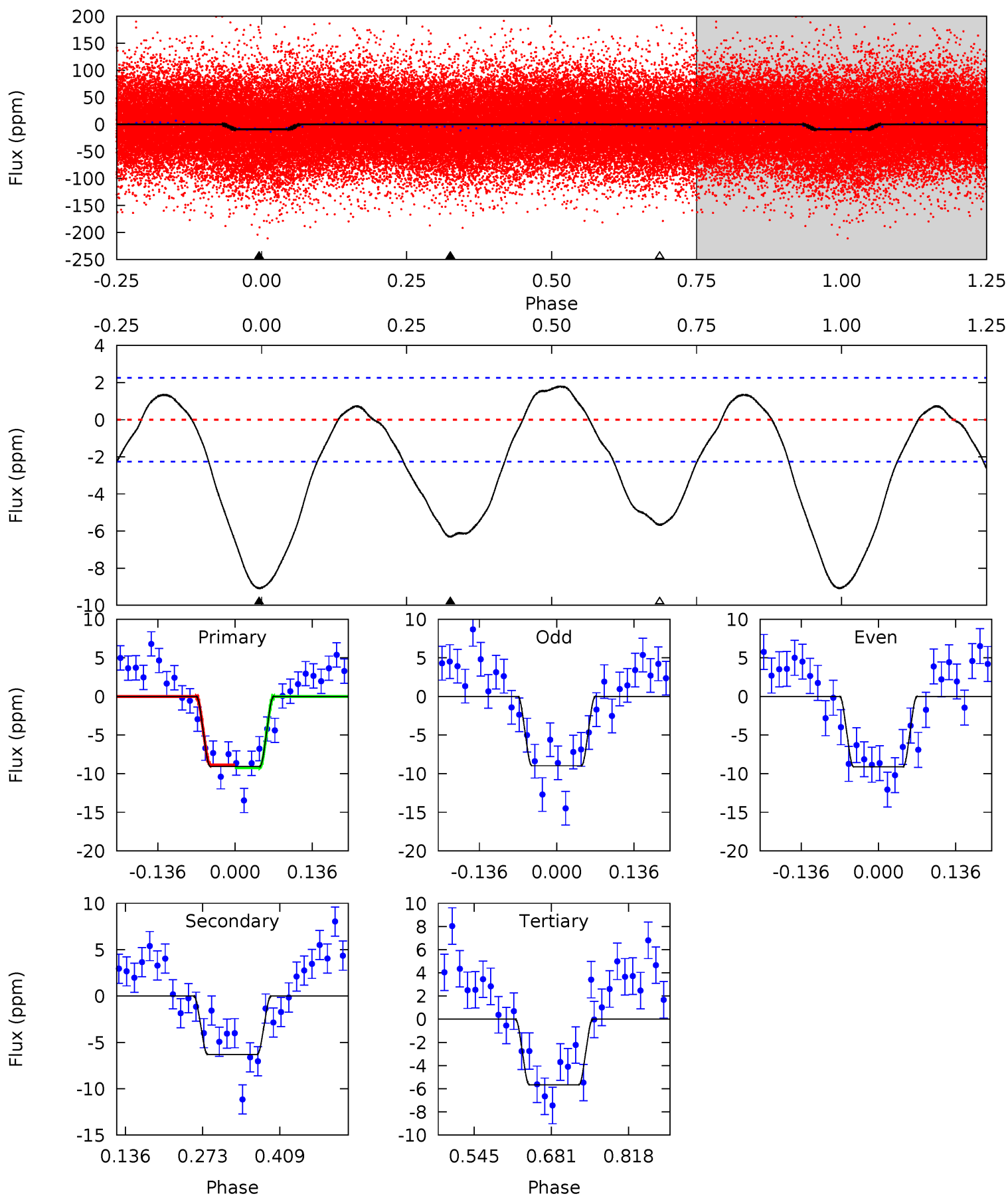
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	9.91	6.96	0	4.46	1.40	4.48	5.74	12.7	2.96	9.91	0.70	1.22	0.31	0.57



Alt Model-Shift Uniqueness Test

009178894-01, P = 1.171093 Days, E = 131.045054 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	12.6	11.3	0	4.50	1.49	5.01	6.82	18.1	1.28	12.6	0.13	1.07	0.16	0.35



Stellar Parameters For KIC 009178894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7892^{+218}_{-327}	$3.921^{+0.247}_{-0.114}$	$-0.080^{+0.200}_{-0.350}$	$2.496^{+0.450}_{-0.837}$	$1.894^{+0.098}_{-0.390}$	$0.172^{+0.300}_{-0.060}$
	+3%/-4%	+6%/-3%	+250%/-438%	+18%/-34%	+5%/-21%	+175%/-35%
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 009178894-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 0	$0.82^{+0.19}_{-0.19}$	4621^{+303}_{-399}	6260^{+746}_{-584}	$2.795^{+1.908}_{-0.938}$
Alt.	-6 ± 1	$0.82^{+0.17}_{-0.18}$	4614^{+306}_{-351}	6756^{+822}_{-636}	$3.616^{+2.208}_{-1.101}$

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 $A_{\text{obs}} \gg 1.0$

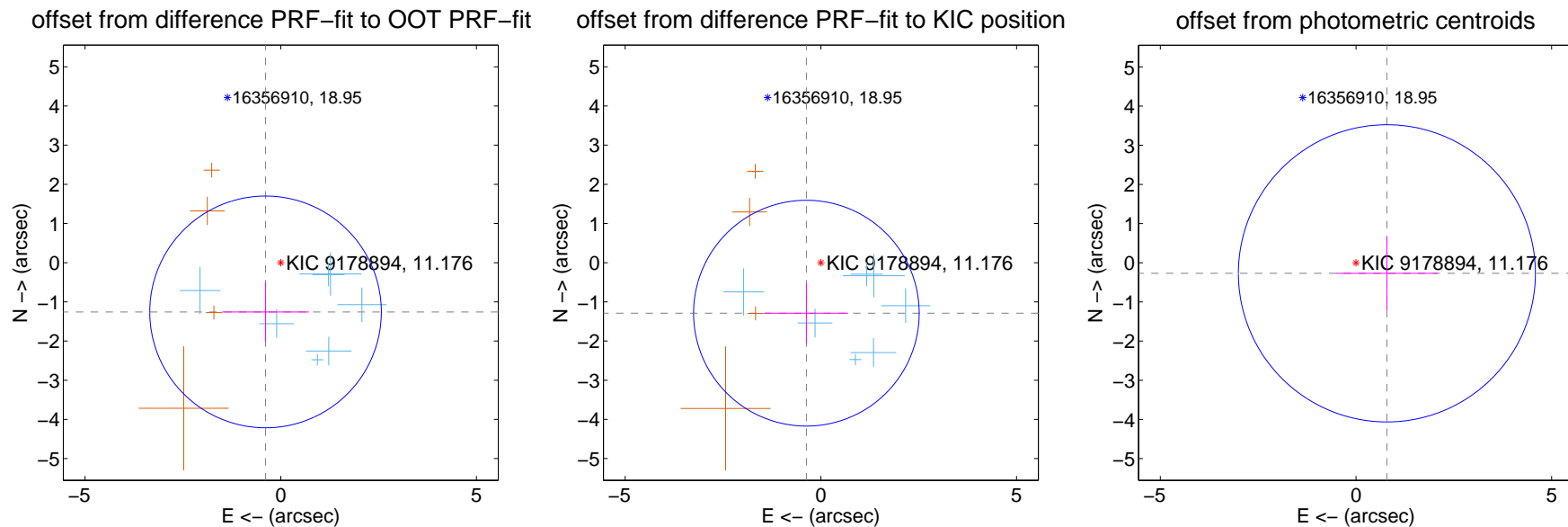
DV Centroid Data

Supplemental centroid analysis for 009178894-01. **Kepler magnitude: 11.18.** Transit SNR 10.66

There are 7 quarters with good PRF difference image offsets

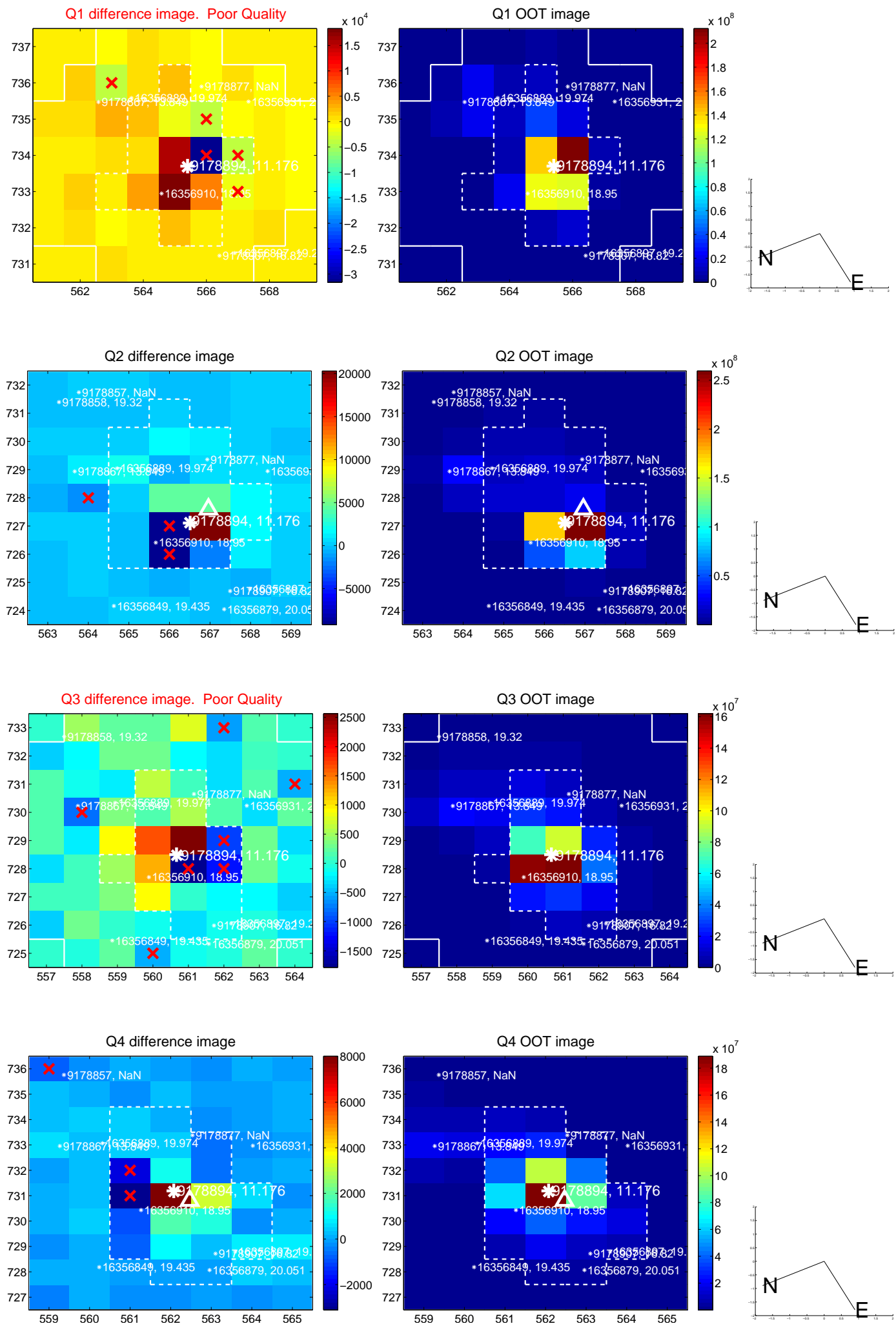
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.315 ± 0.986	1.33	0.388 ± 1.109	-1.257 ± 0.758
PRF-fit source offset from KIC position	1.341 ± 0.961	1.40	0.370 ± 1.069	-1.289 ± 0.765
photometric centroid source offset	0.83 ± 1.26	0.66	-0.79 ± 1.30	-0.27 ± 0.94

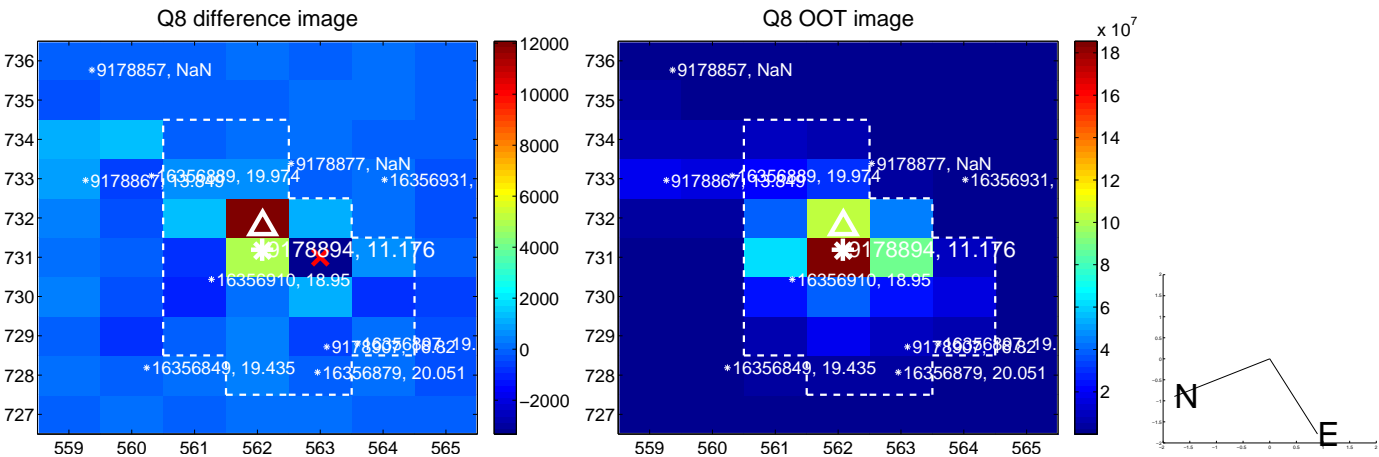
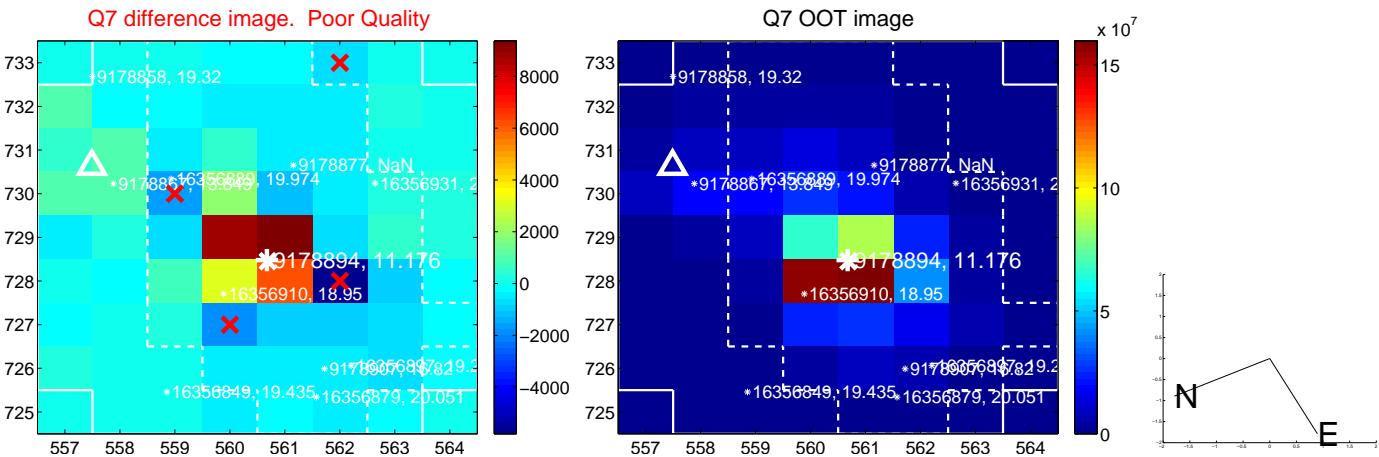
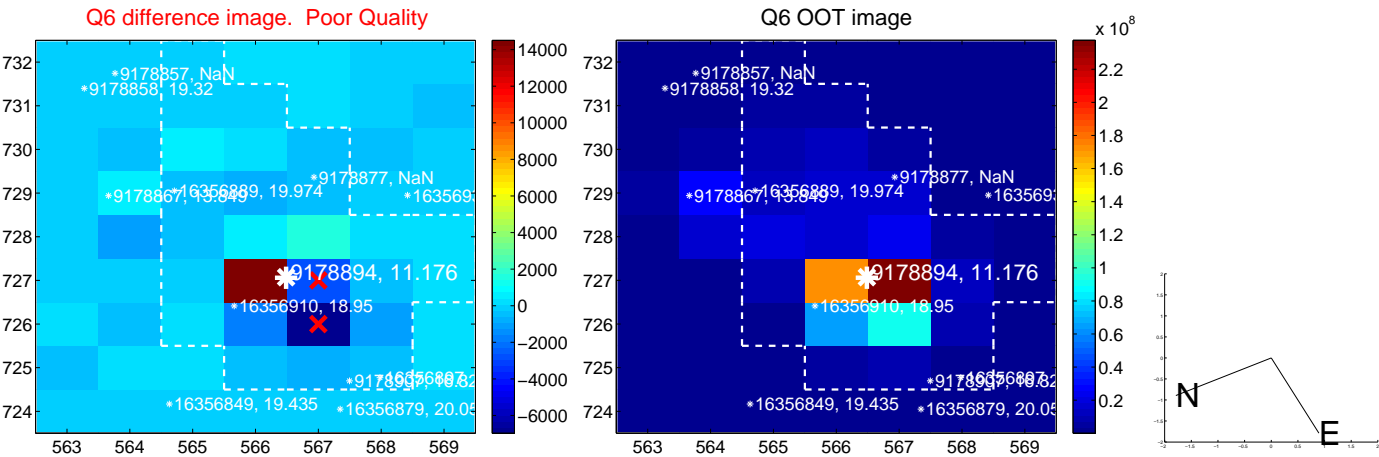
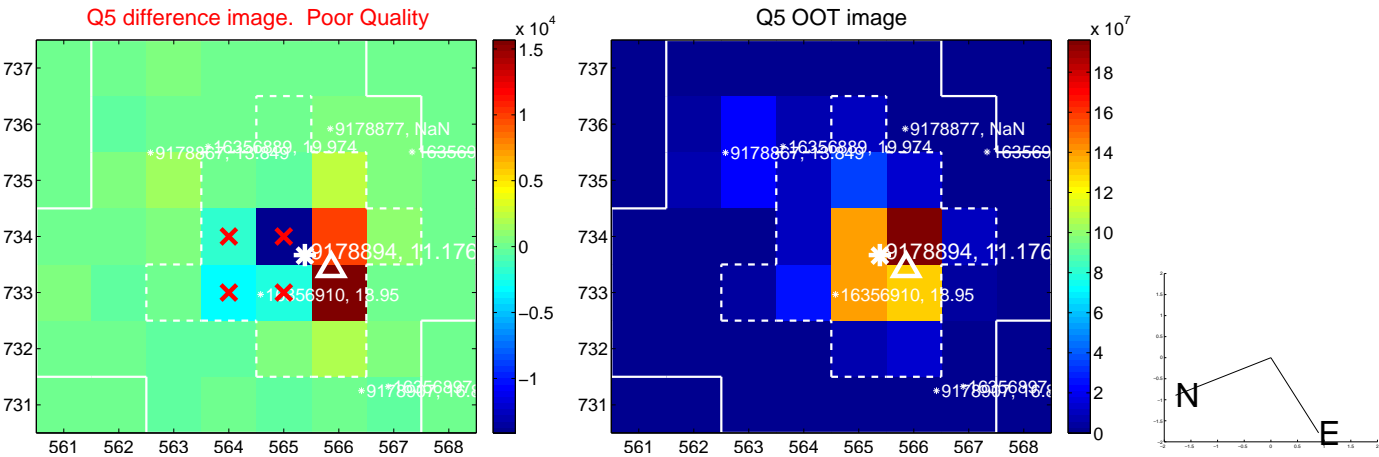


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

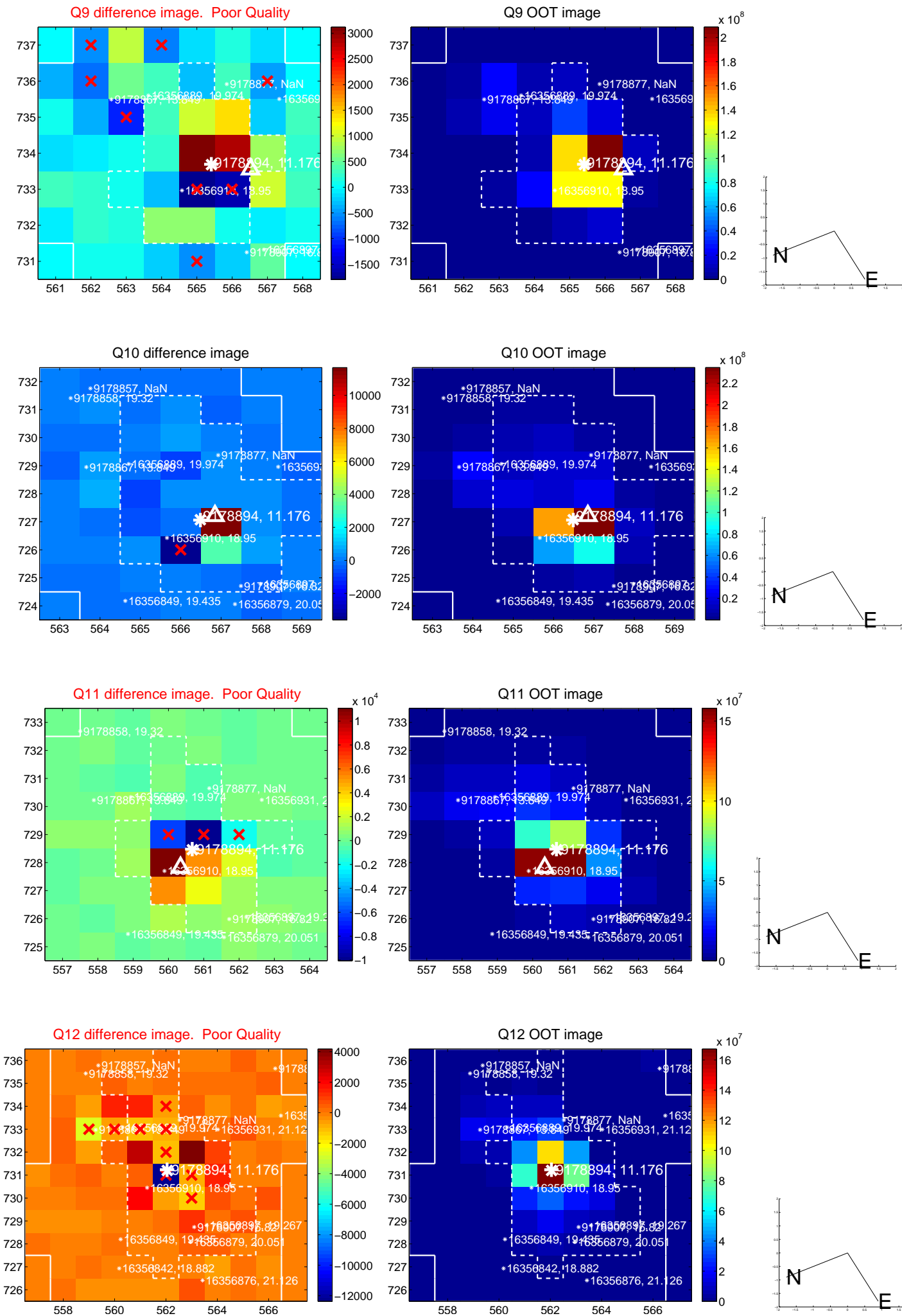
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



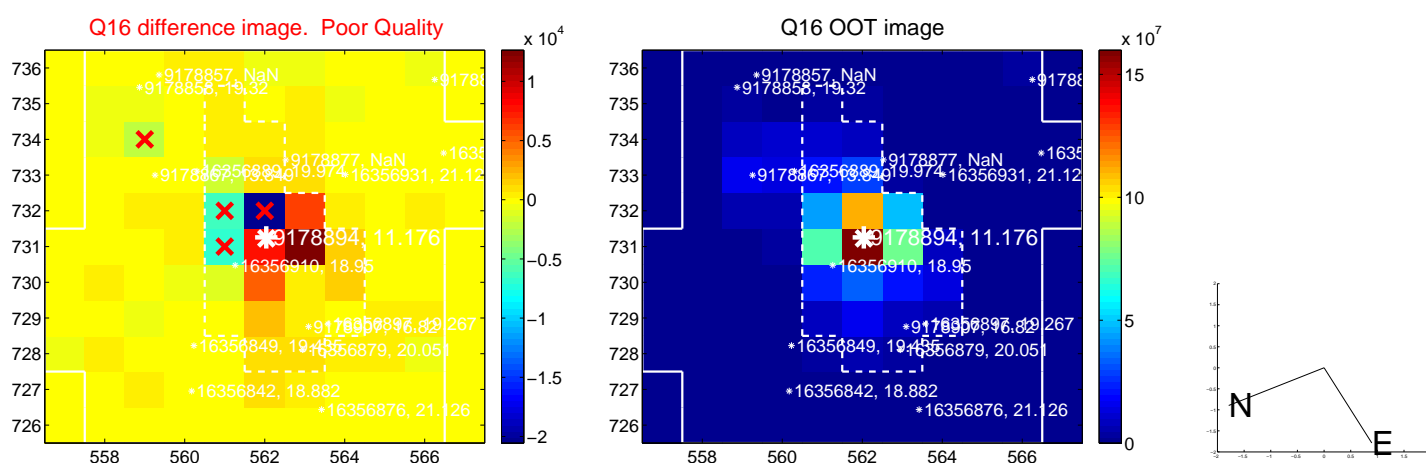
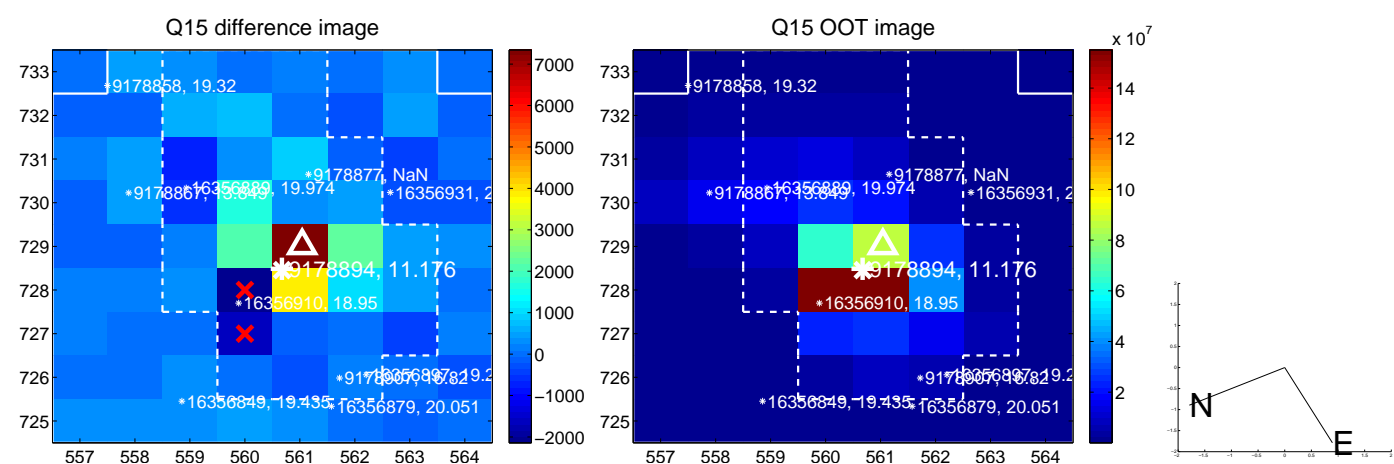
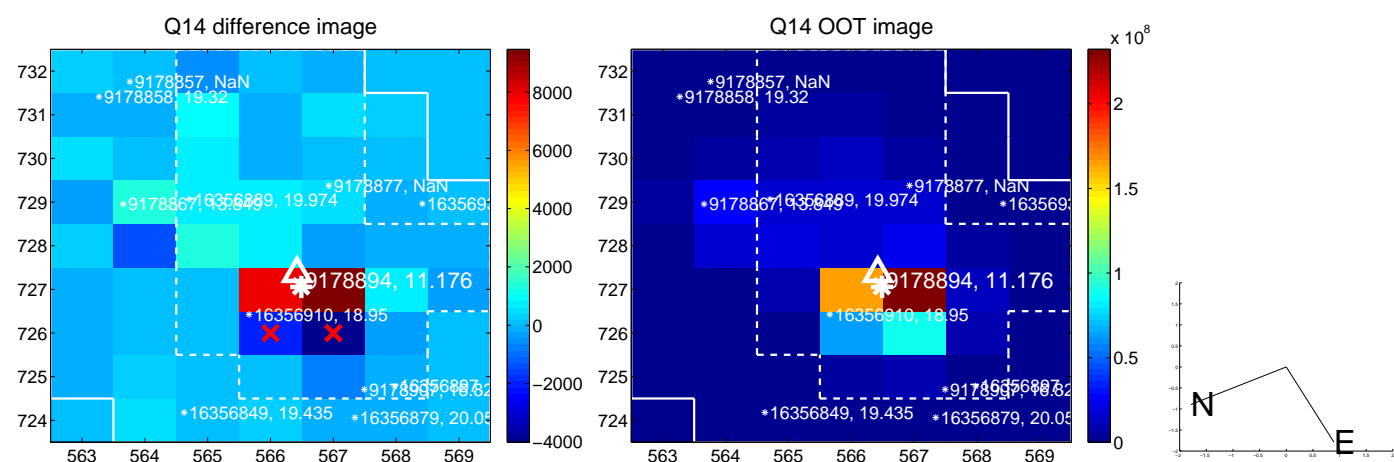
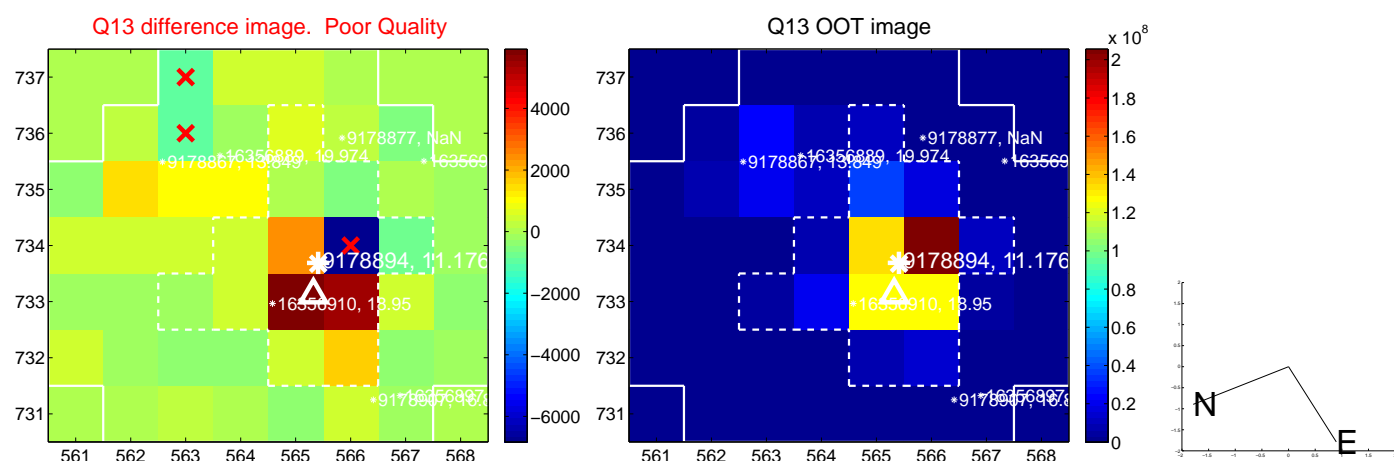
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



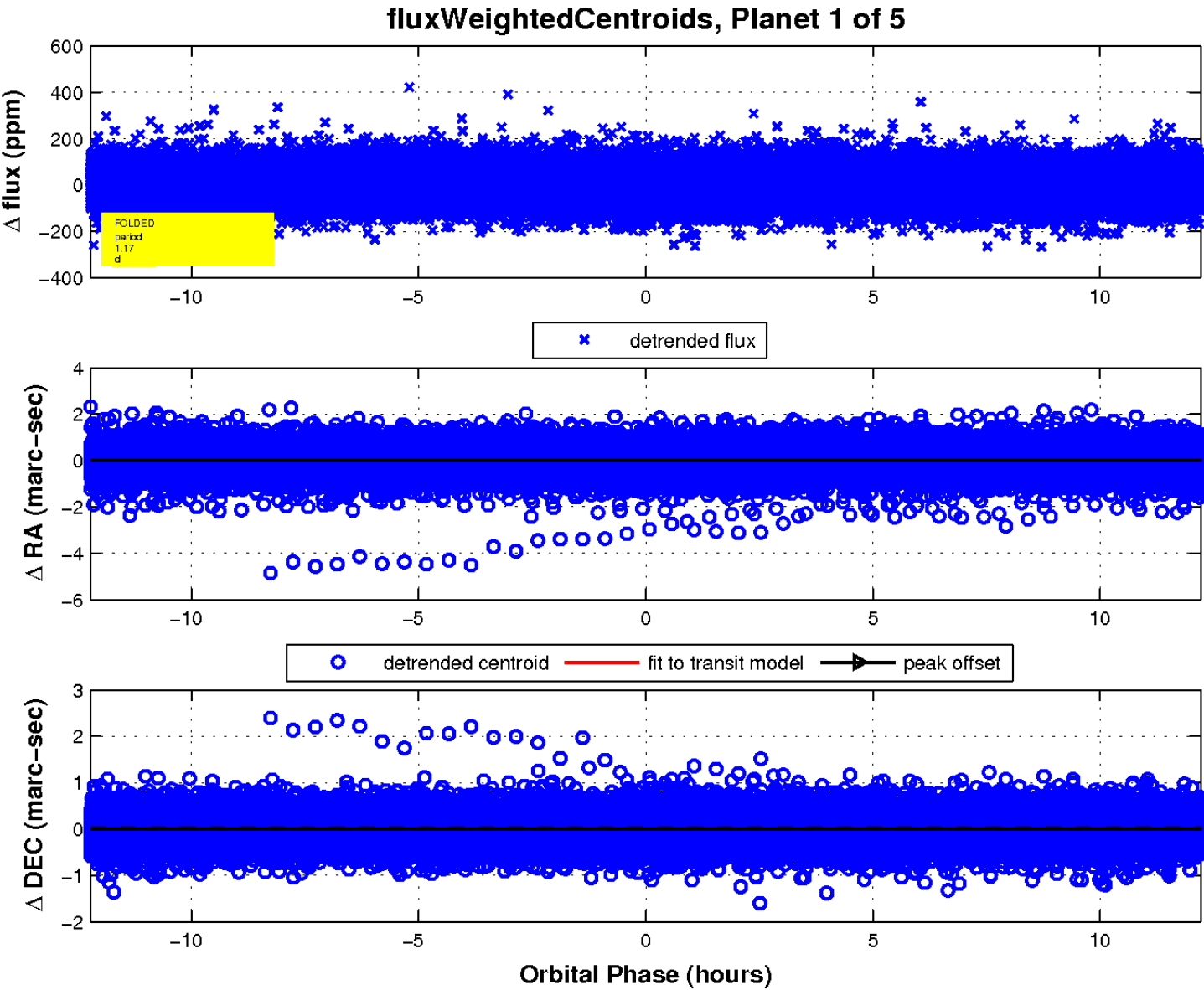
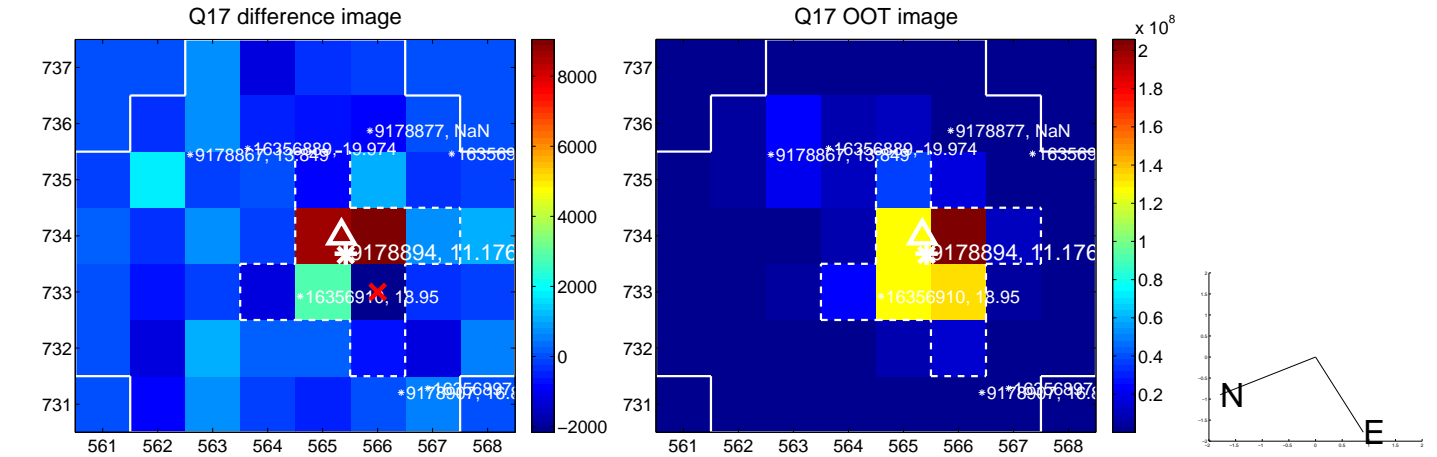
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

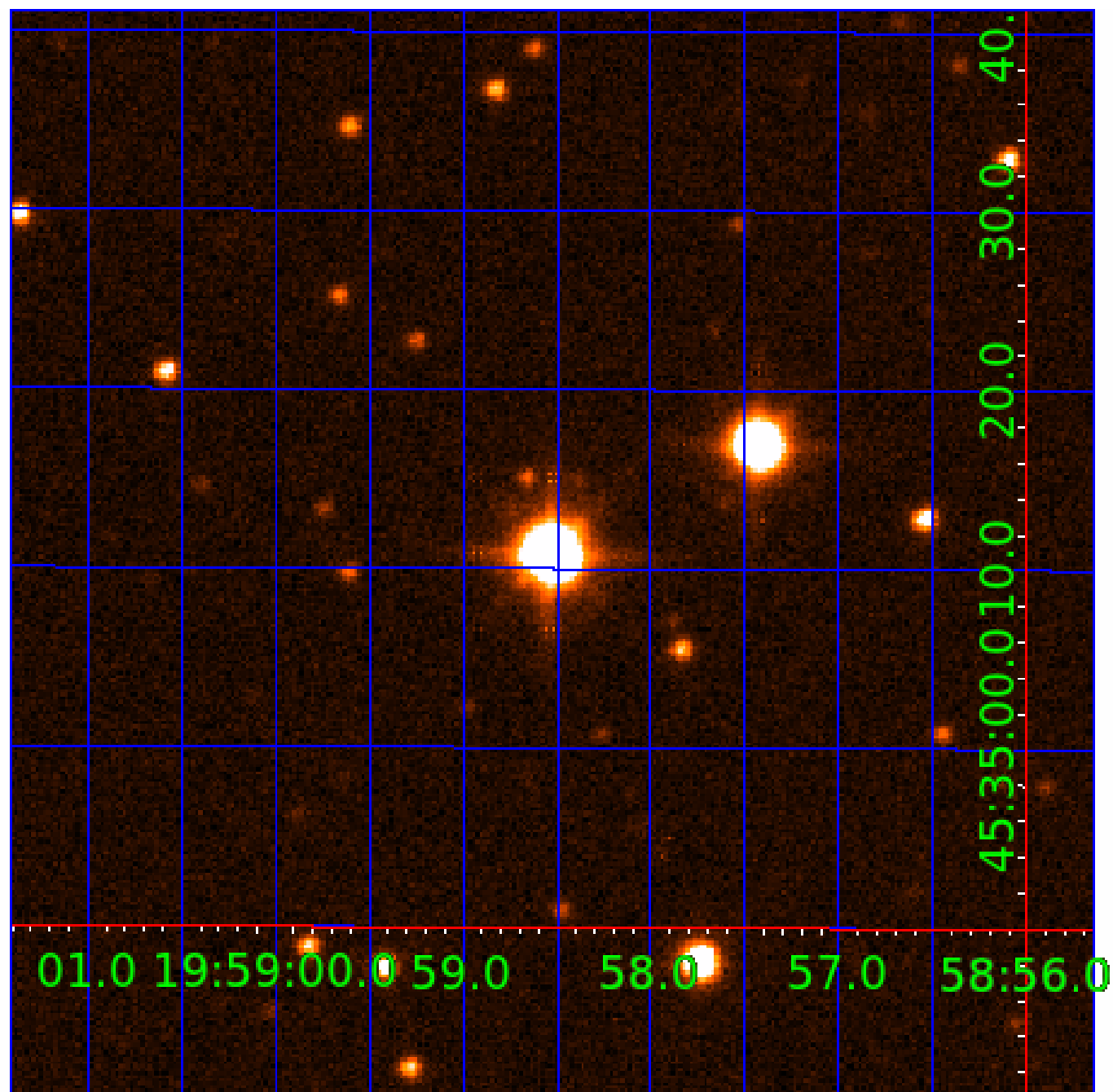


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009178894

Q1-17 DR25 TCE Parameters

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009178894-01	OBS	No	1.171074	132.234413	8.9	4.073	10.2	10.7	2.50	7892	0.85	29901.53
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009178894-03	OBS	No	176.089066	293.059717	82.4	10.035	11.5	6.2	2.50	7892	2.56	37.40
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Robovetter Results

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009178894-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009178894-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009178894-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009178894-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

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

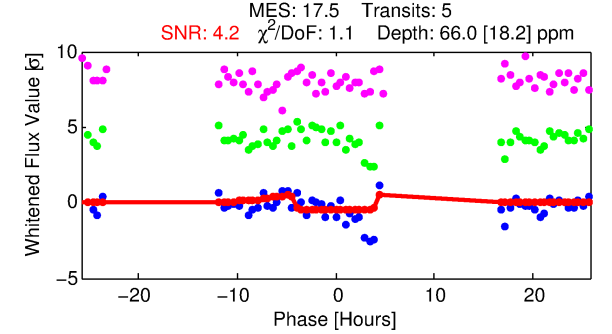
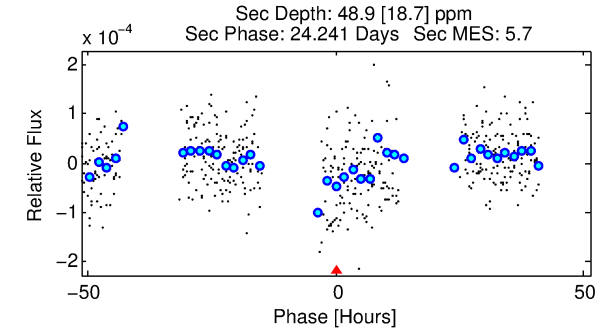
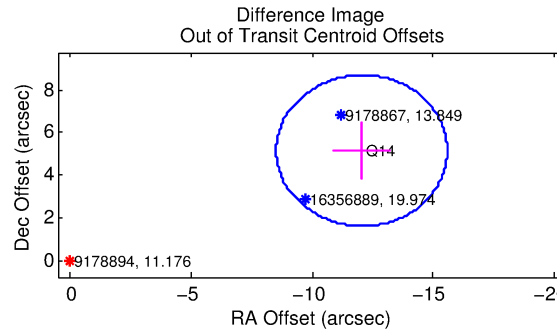
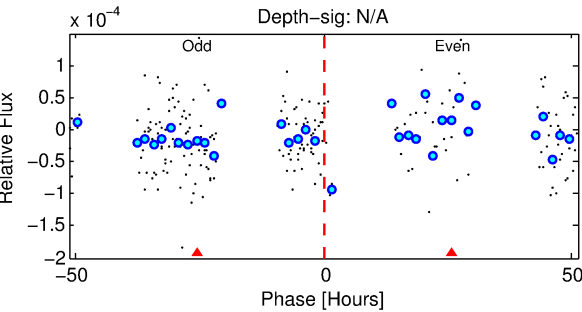
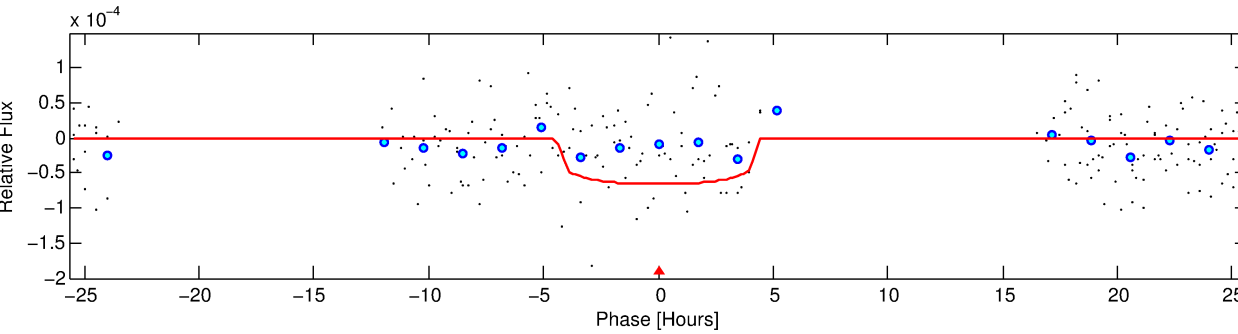
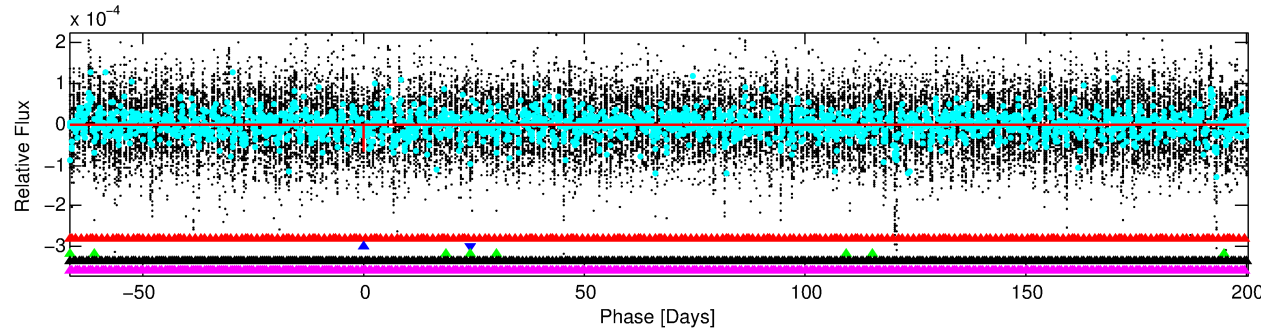
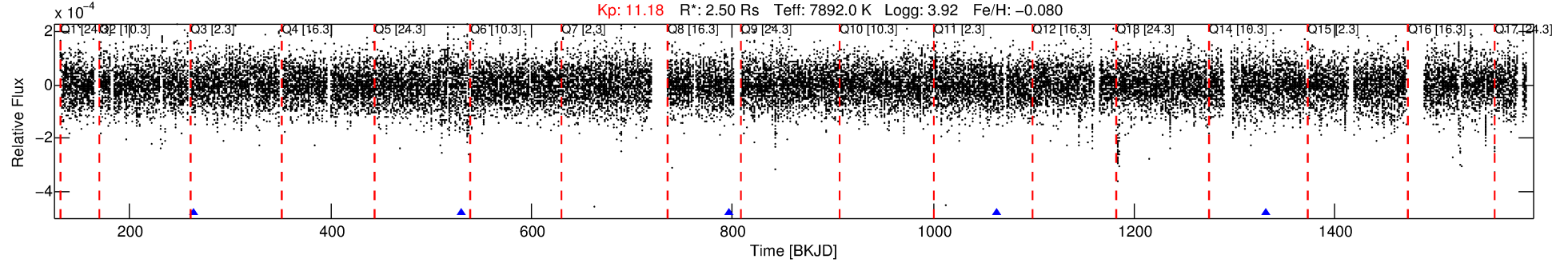
Ephemeris Match Information For 009178894-02

No Significant Match Found

DV One-Page Summary

KIC: 9178894 Candidate: 2 of 5 Period: 266.988 d
KOI: K05635 Corr: No Ephemeris Match

Kp: 11.18 R*: 2.50 Rs Teff: 7892.0 K Logg: 3.92 Fe/H: -0.080



DV Fit Results:

Period = 266.98778 [0.00837] d
Epoch = 262.9925 [0.0229] BKJD
Rp/R* = 0.0077 [0.0091]
a/R* = 205.49 [1398.36]
b = 0.52 [9.57]
Seff = 21.47 [10.10]
Teq = 549 [65] K
Rp = 2.11 [2.58] Re
a = 1.0043 [0.2944] AU
Ag = 6104.16 [14823.54] [0.41σ]
Teffp = 7501 [4489] K [1.55σ]

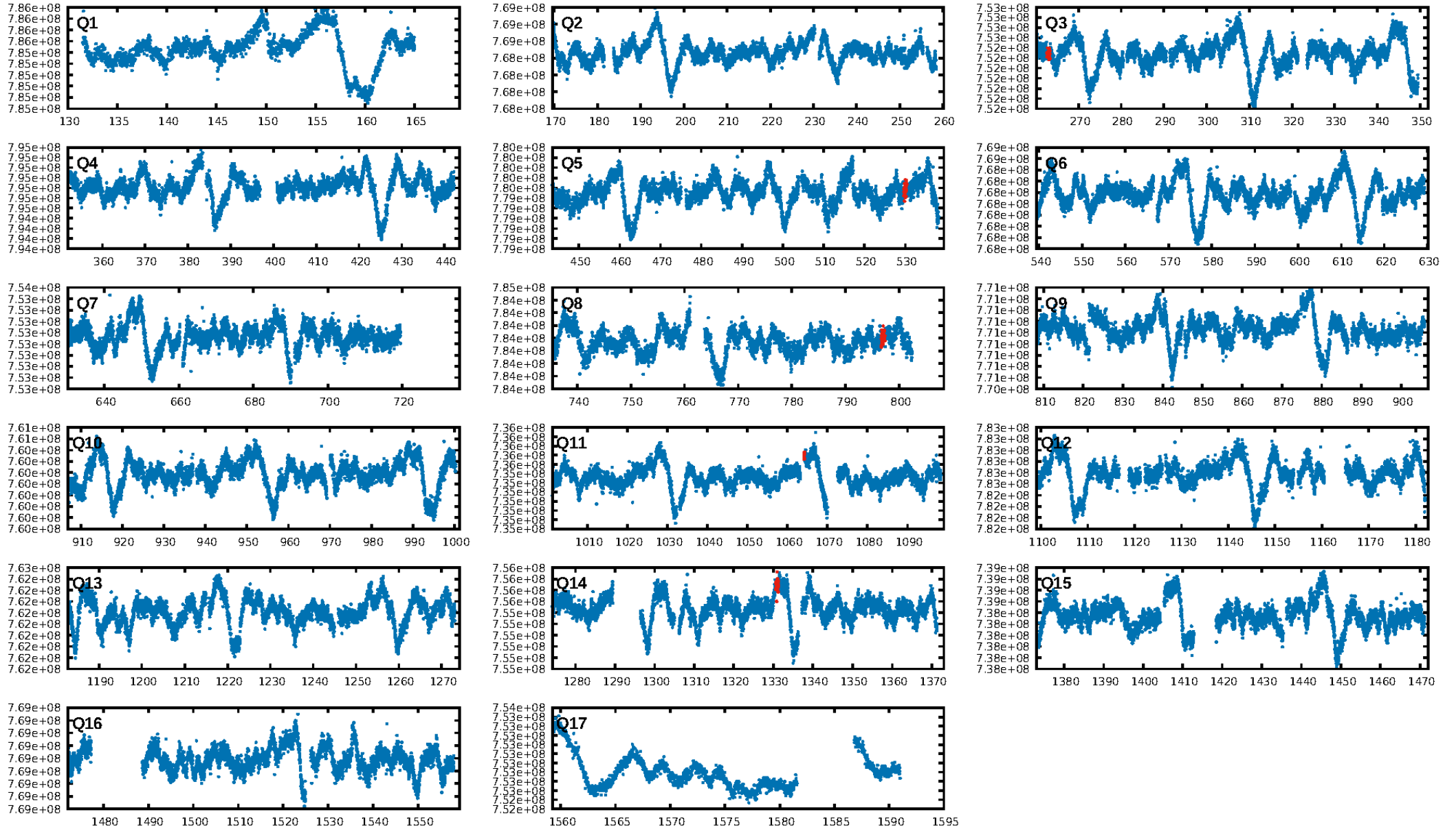
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [165.44σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.5%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.61e-43
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.1659
Centroid-sig: 4.5%
Centroid-so: 2.868 arcsec [1.30σ]
OotOffset-rm: 13.109 arcsec [11.14σ]
KicOffset-rm: 13.101 arcsec [11.14σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/4]

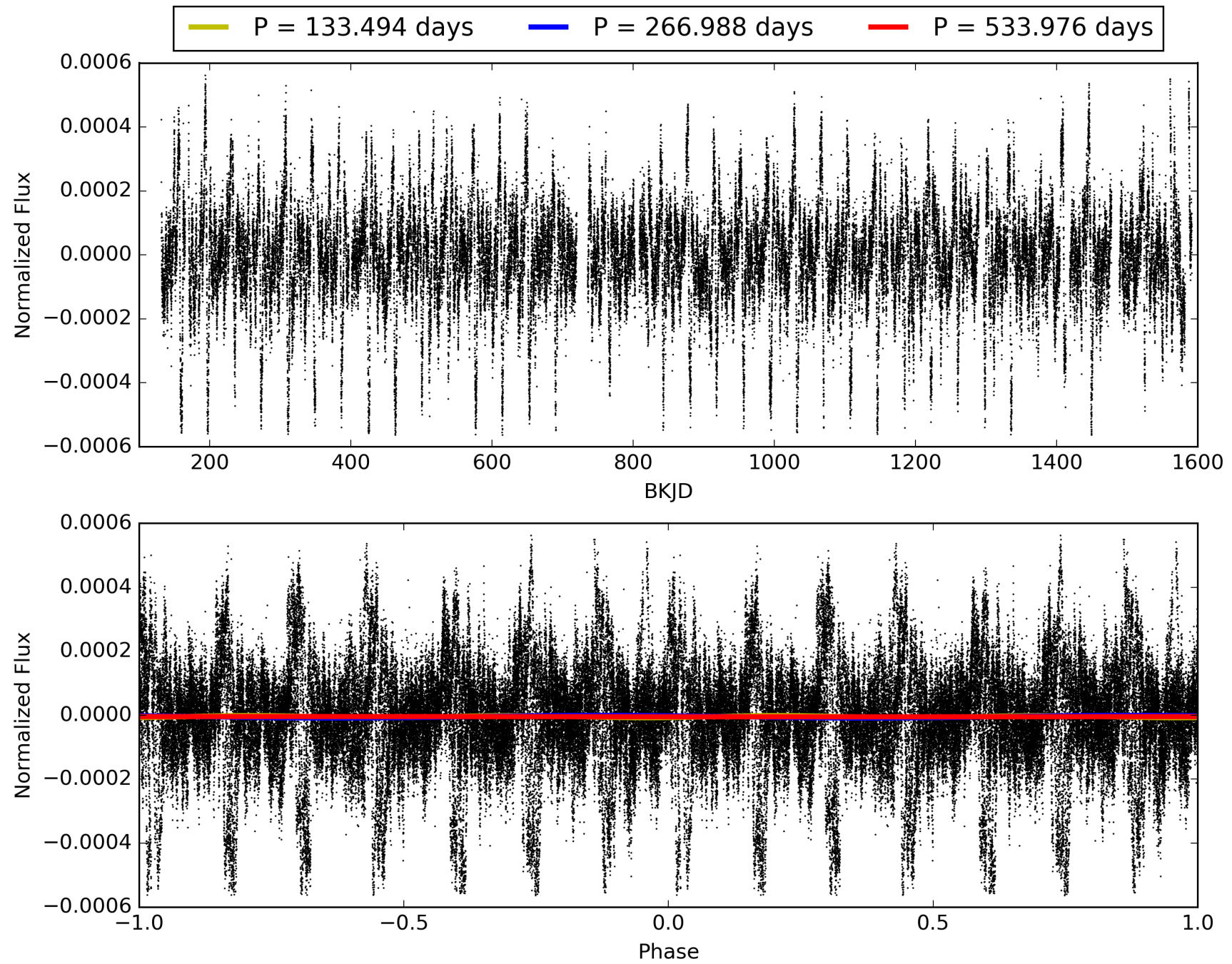
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009178894-02, PDC Light Curves

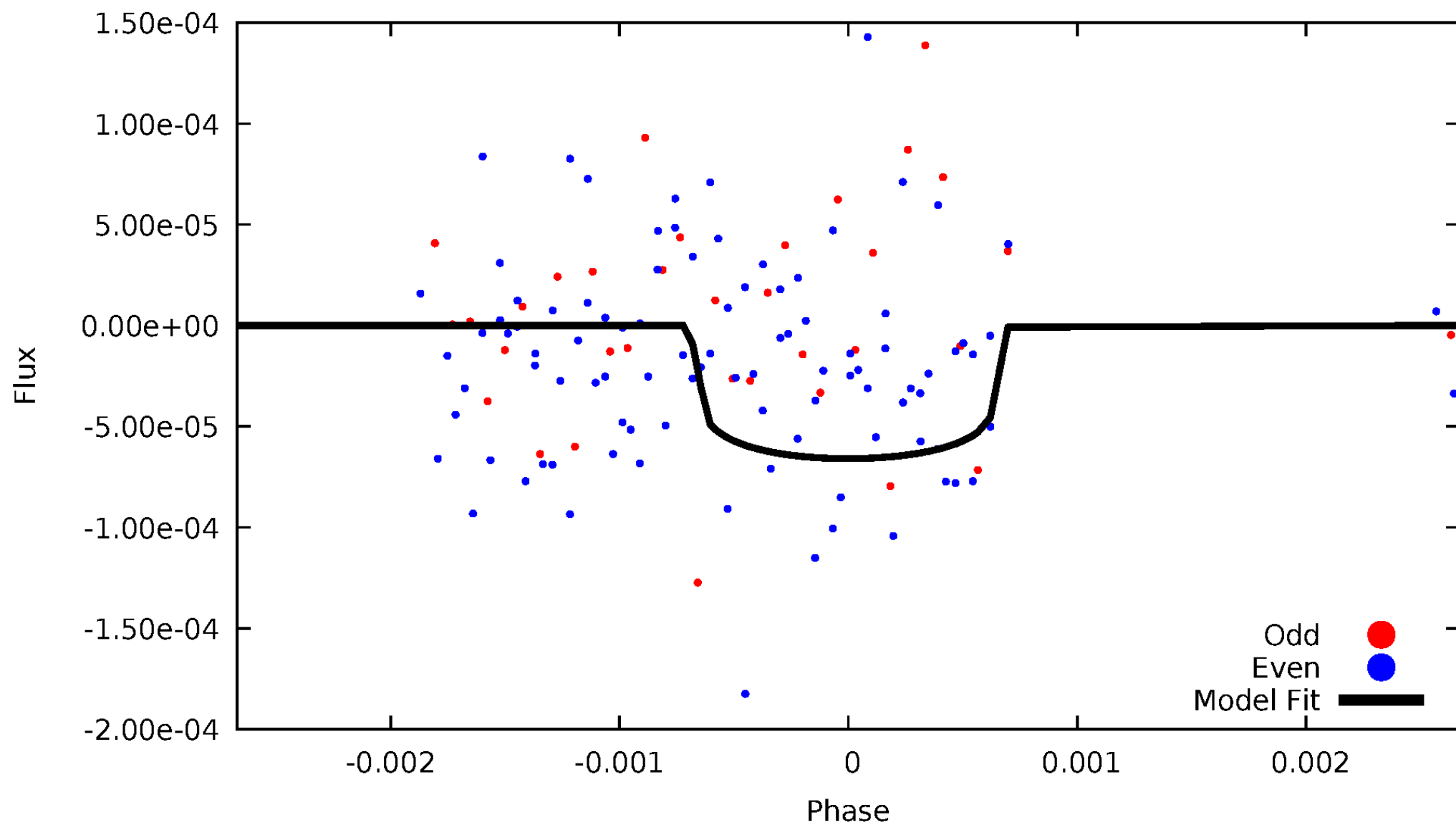


TCE 009178894-02



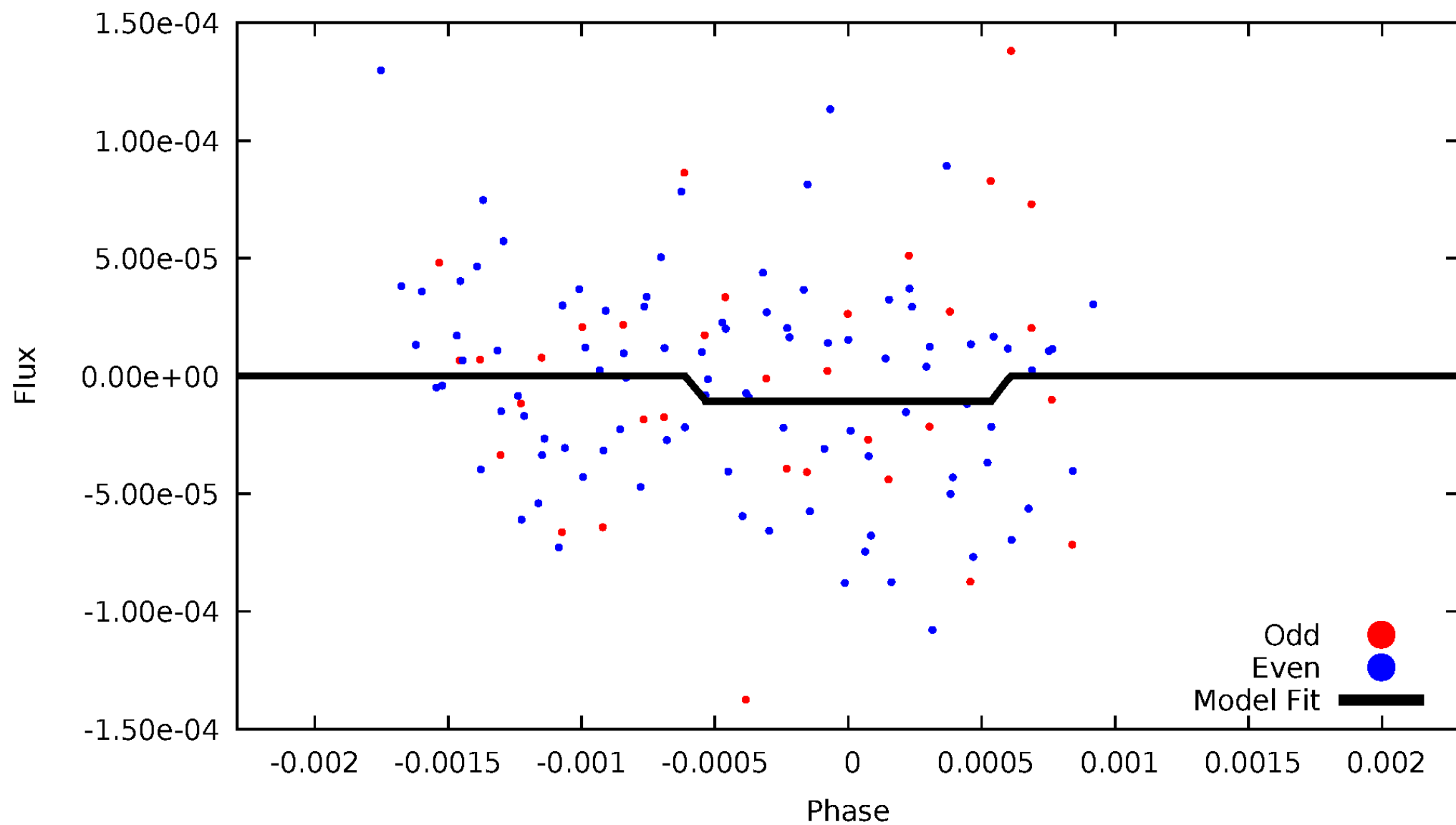
DV Odd/Even

TCE 009178894-02



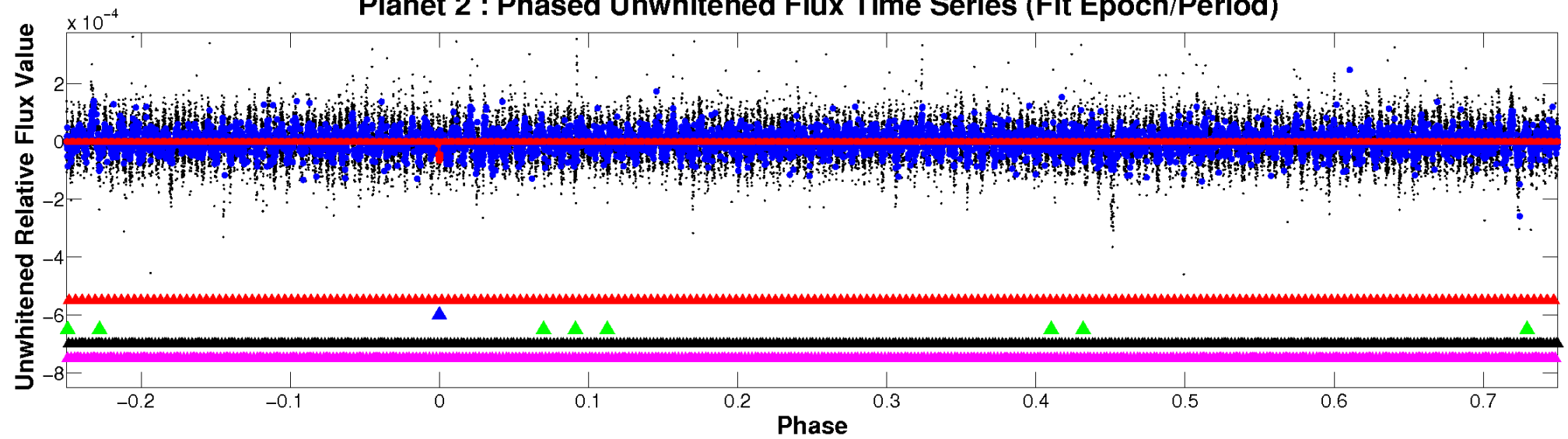
ALT Odd/Even

TCE 009178894-02

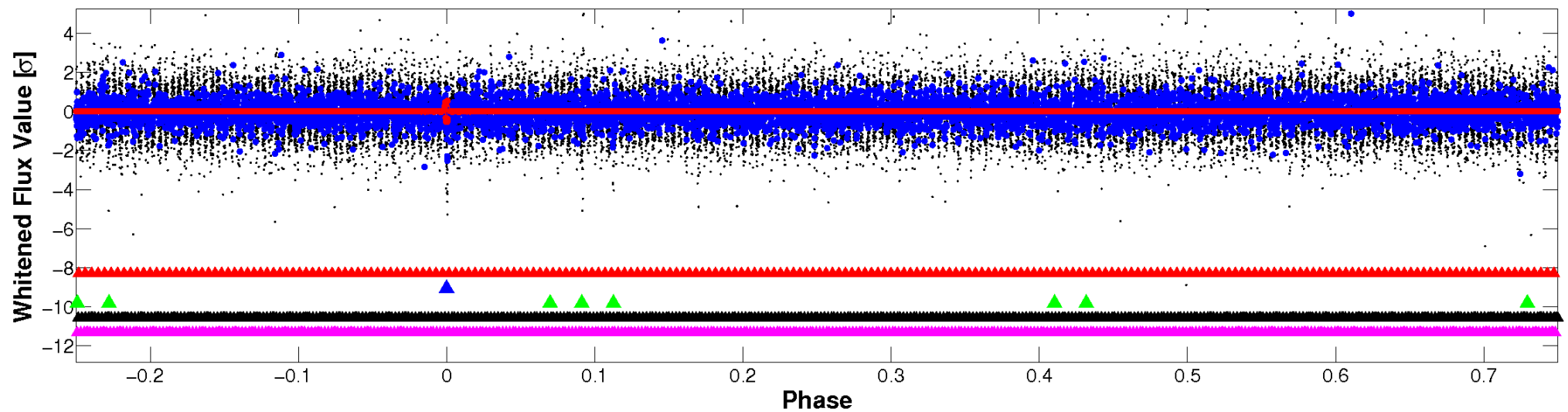


Non-Whitened Vs. Whitened Light Curve

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

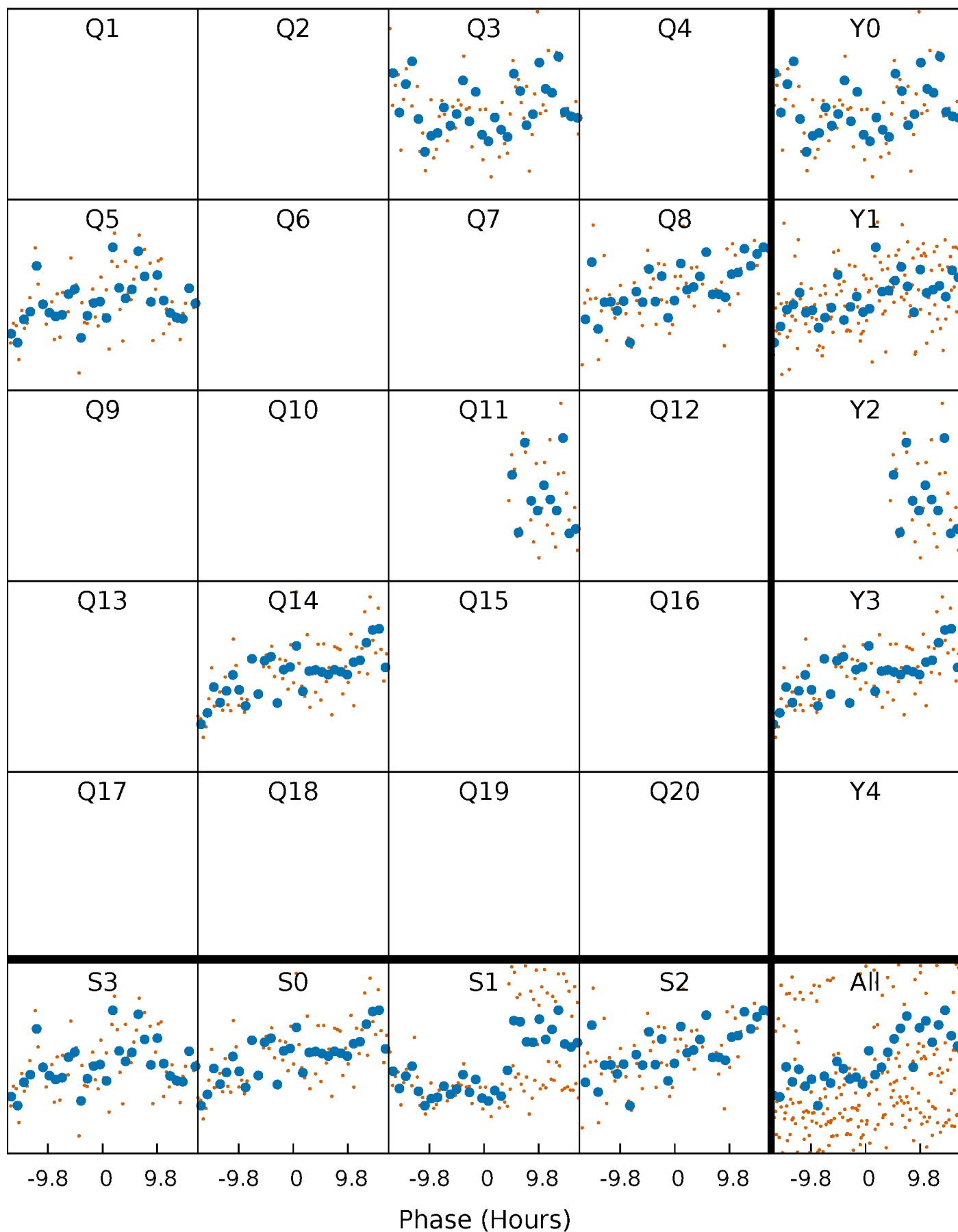


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



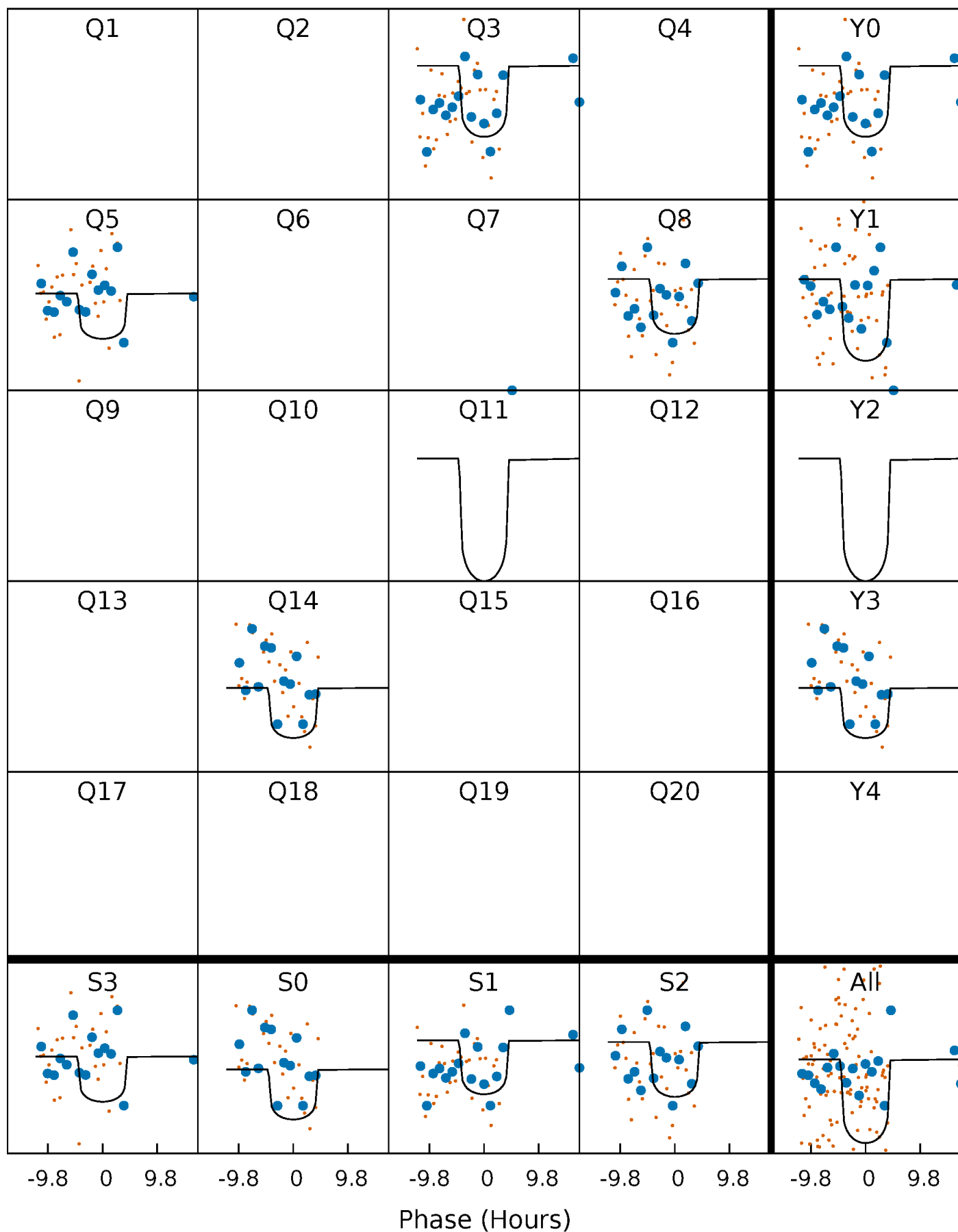
PDC Quarter-Phased Transit Curves

TCE 009178894-02 P=266.987781 Days $T_0=262.992512$ (BKJD)



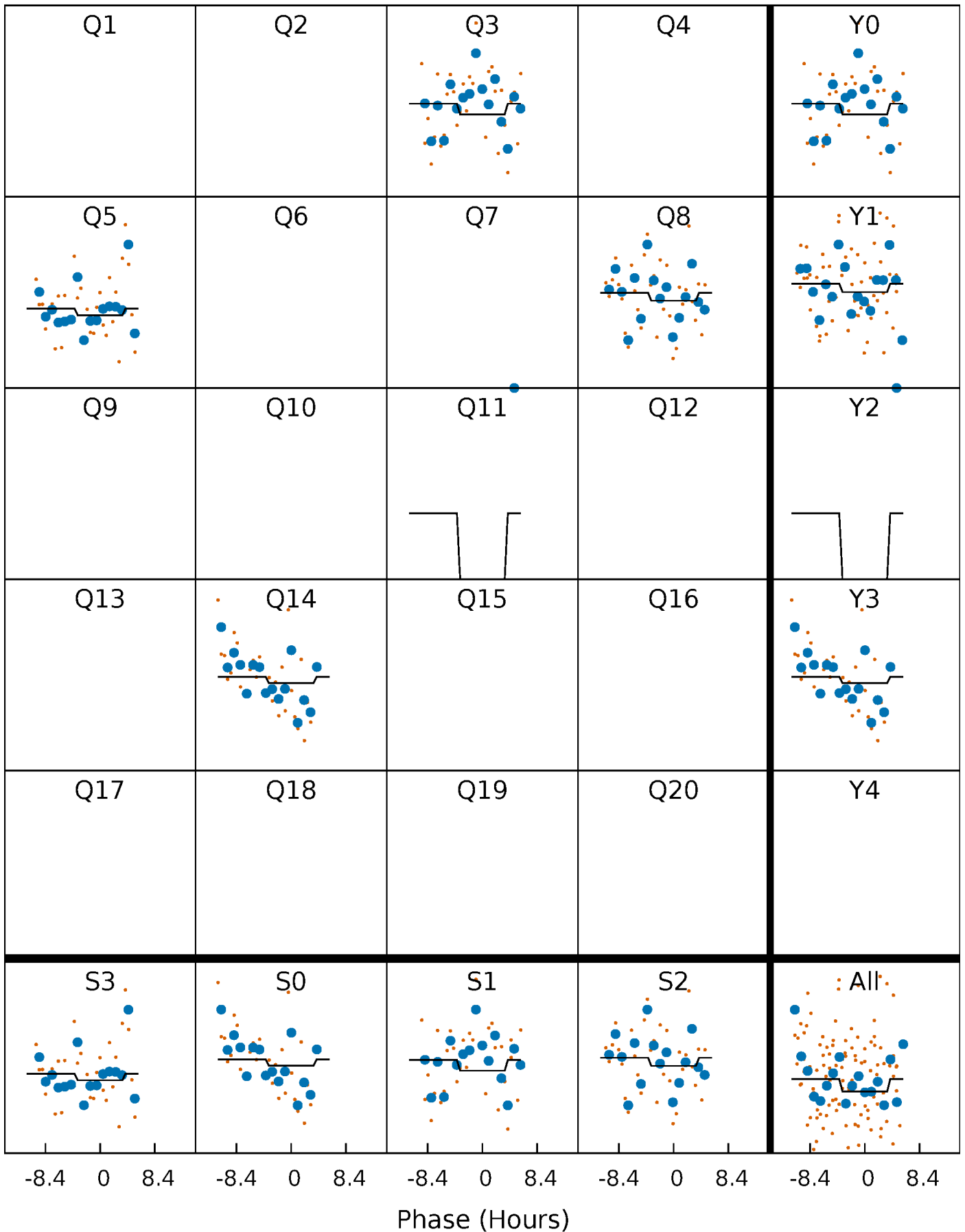
DV Quarter-Phased Transit Curves

TCE 009178894-02 P=266.987781 Days $T_0=262.992512$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

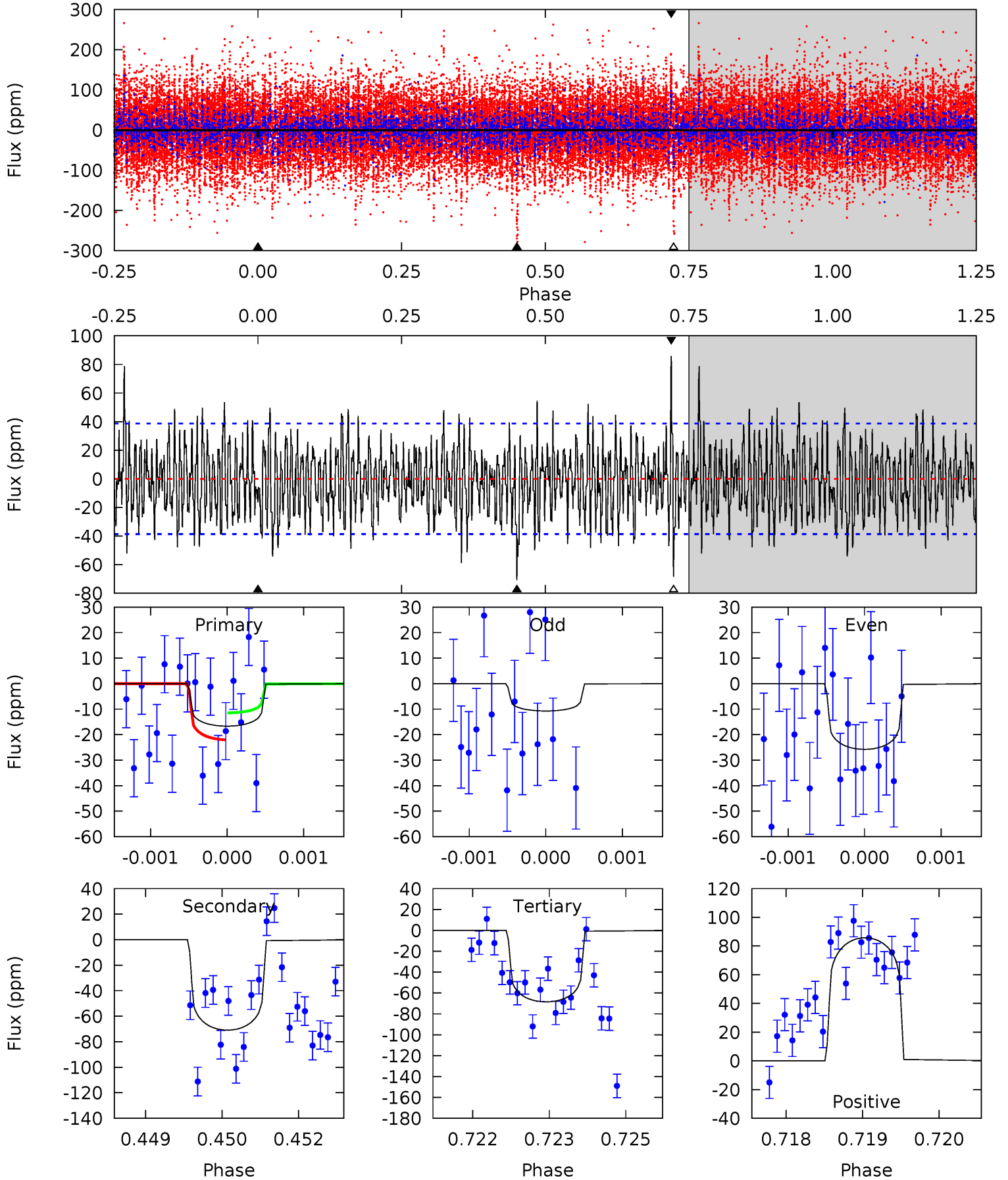
TCE 009178894-02 P=267.025762 Days $T_0=262.881549$ (BKJD)



DV Model-Shift Uniqueness Test

009178894-02, P = 266.987781 Days, E = 262.992512 Days

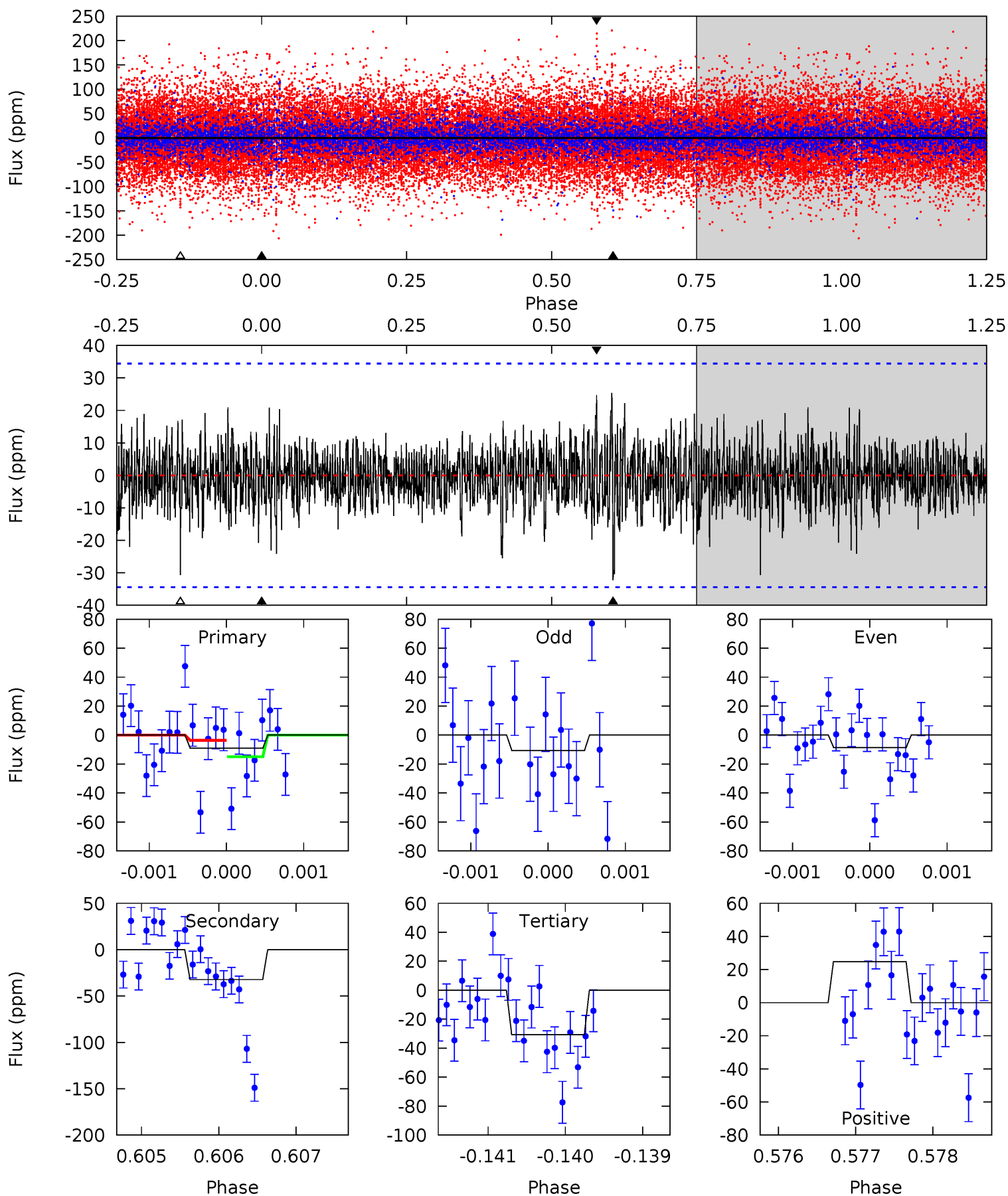
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.33	9.90	9.55	12.0	5.39	3.20	2.91	-7.23	-9.64	0.34	-2.07	0.92	0.82	0.55	0.74



Alt Model-Shift Uniqueness Test

009178894-02, P = 267.025762 Days, E = 262.881549 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.43	5.09	4.84	3.91	5.43	3.25	0.99	-3.40	-2.47	0.26	1.19	0.15	0.95	0.44	0.89



Stellar Parameters For KIC 009178894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7892^{+218}_{-327}	$3.921^{+0.247}_{-0.114}$	$-0.080^{+0.200}_{-0.350}$	$2.496^{+0.450}_{-0.837}$	$1.894^{+0.098}_{-0.390}$	$0.172^{+0.300}_{-0.060}$
	+3%/-4%	+6%/-3%	+250%/-438%	+18%/-34%	+5%/-21%	+175%/-35%
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 009178894-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-71 ± 7	$2.55^{+2.19}_{-1.66}$	757^{+50}_{-62}	7090^{+8313}_{-1815}	6033^{+41320}_{-4330}
Alt.	-32 ± 6	$1.87^{+2.06}_{-1.27}$	755^{+52}_{-62}	6867^{+8336}_{-2034}	4900^{+45712}_{-3804}

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 $A_{obs} \gg 1.0$

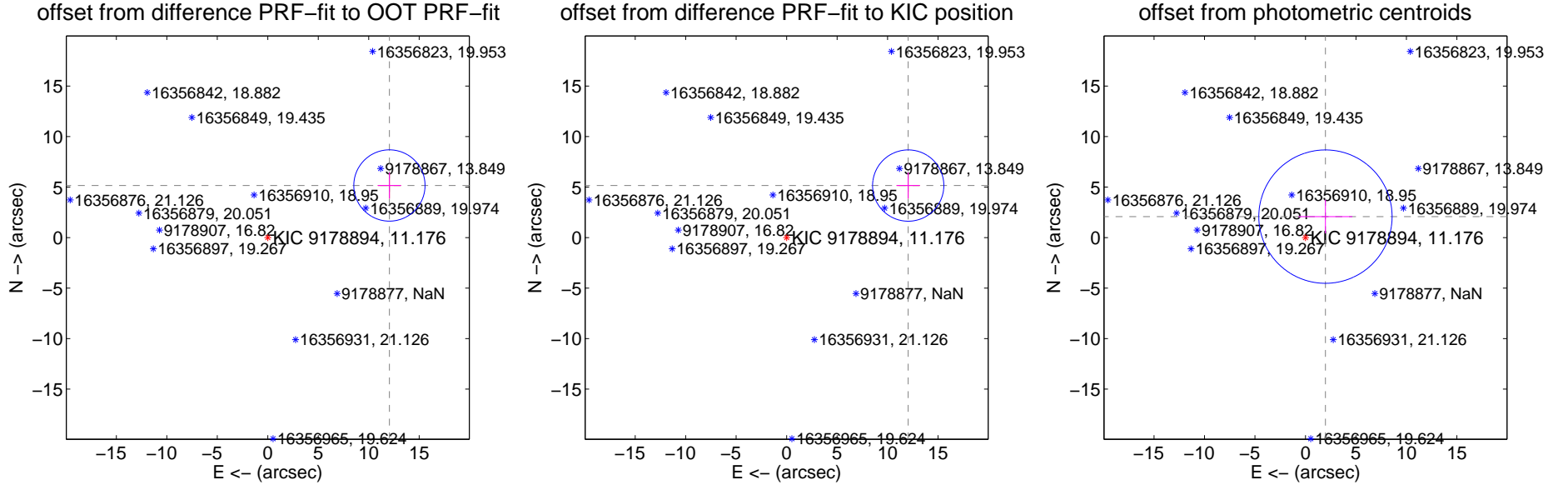
DV Centroid Data

Supplemental centroid analysis for 009178894-02. **Kepler magnitude: 11.18.** Transit SNR 4.21

There are 0 quarters with good PRF difference image offsets

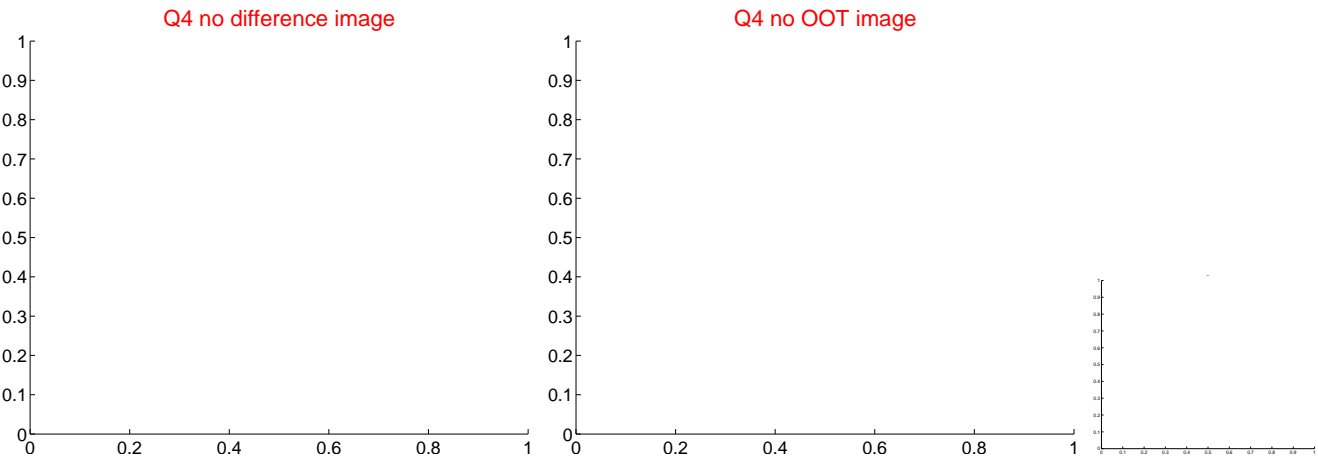
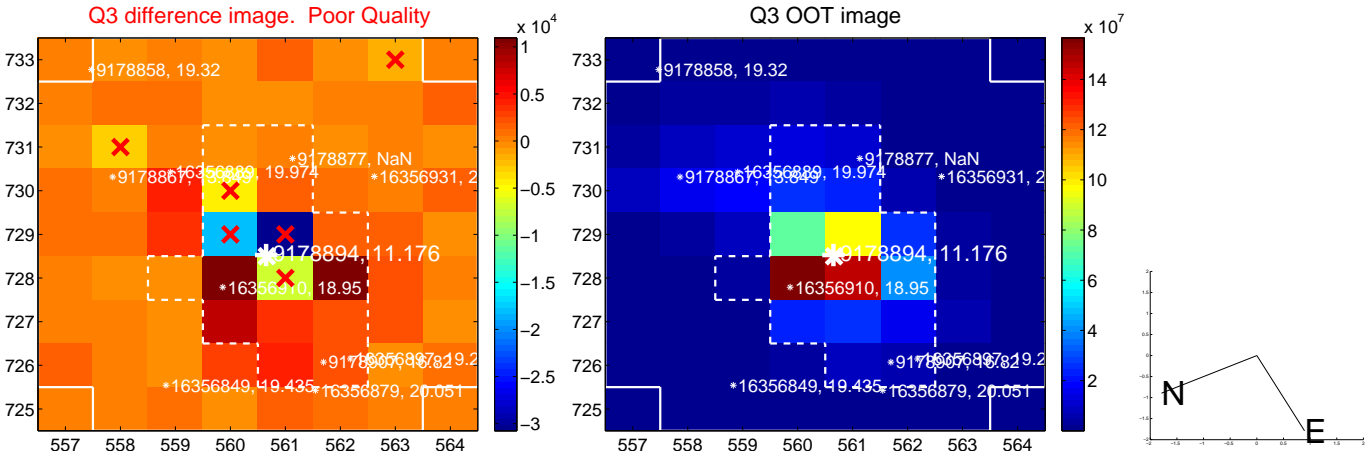
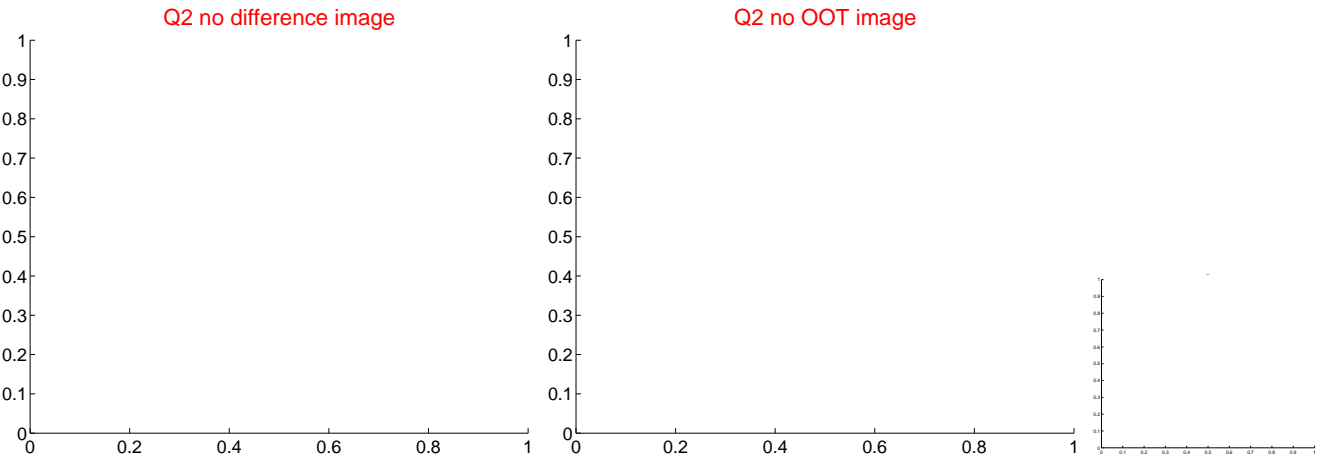
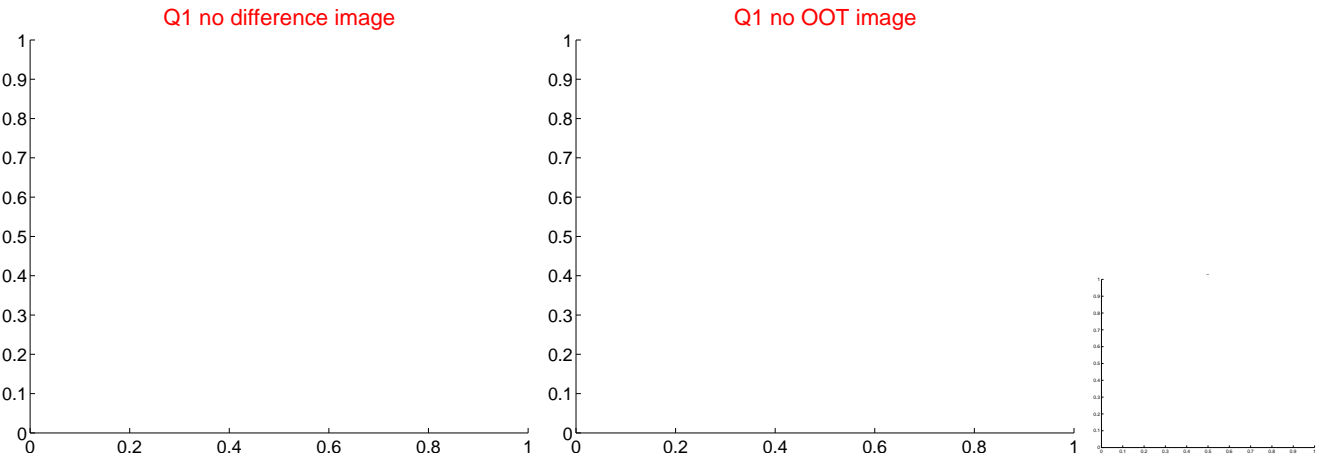
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	13.109 \pm 1.176	11.14	-12.051 \pm 1.153	5.157 \pm 1.295
PRF-fit source offset from KIC position	13.101 \pm 1.176	11.14	-12.046 \pm 1.153	5.150 \pm 1.295
photometric centroid source offset	2.87 \pm 2.20	1.30	-1.98 \pm 2.67	2.07 \pm 1.67

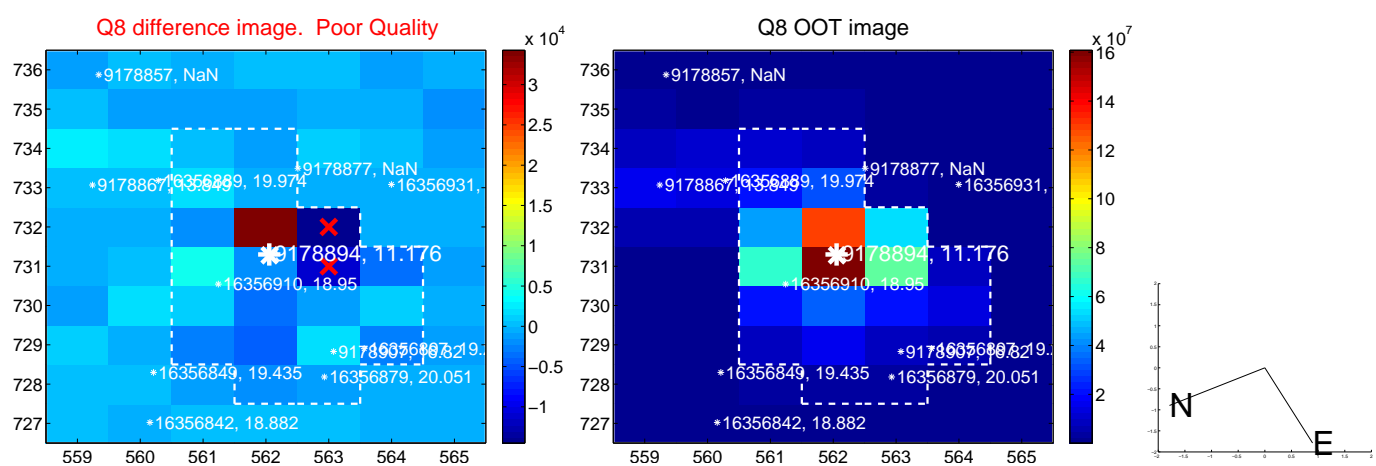
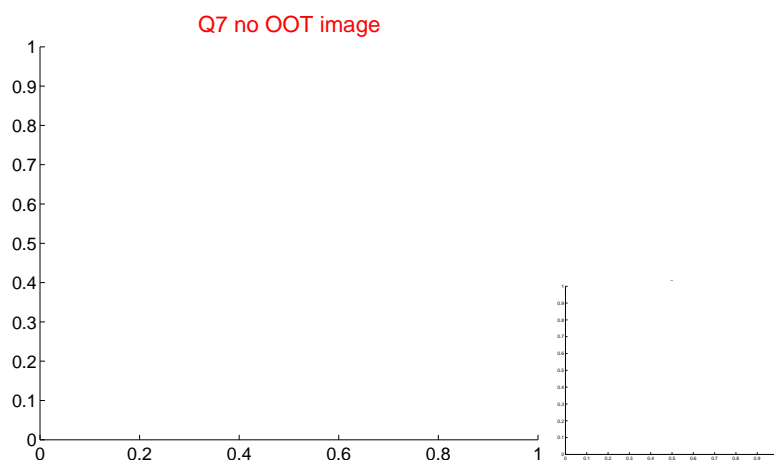
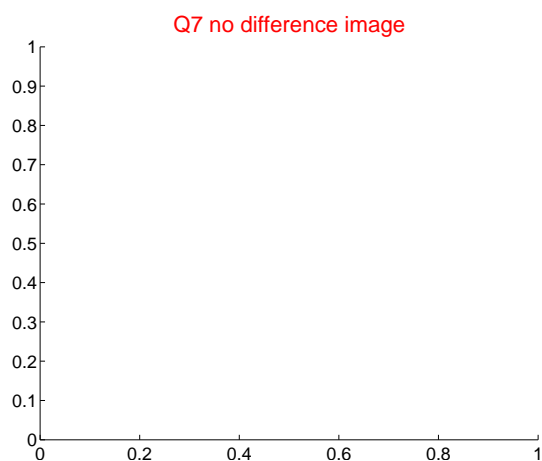
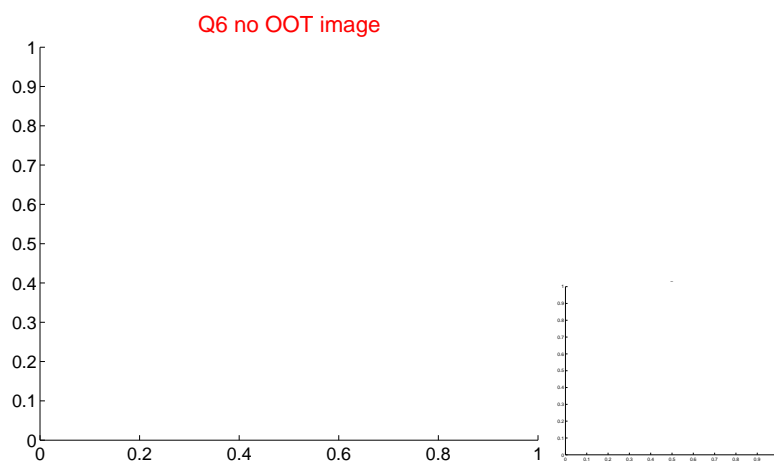
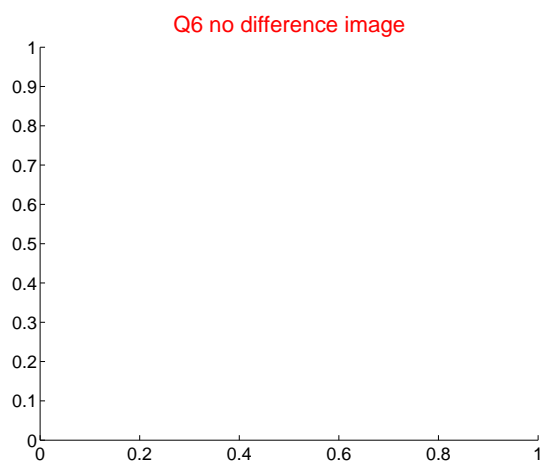
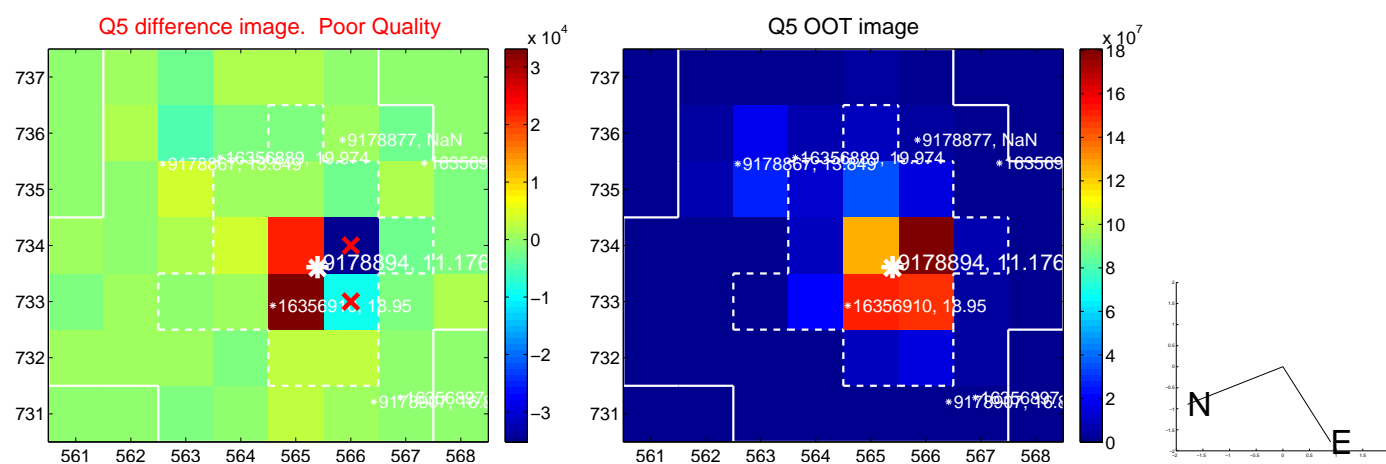


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



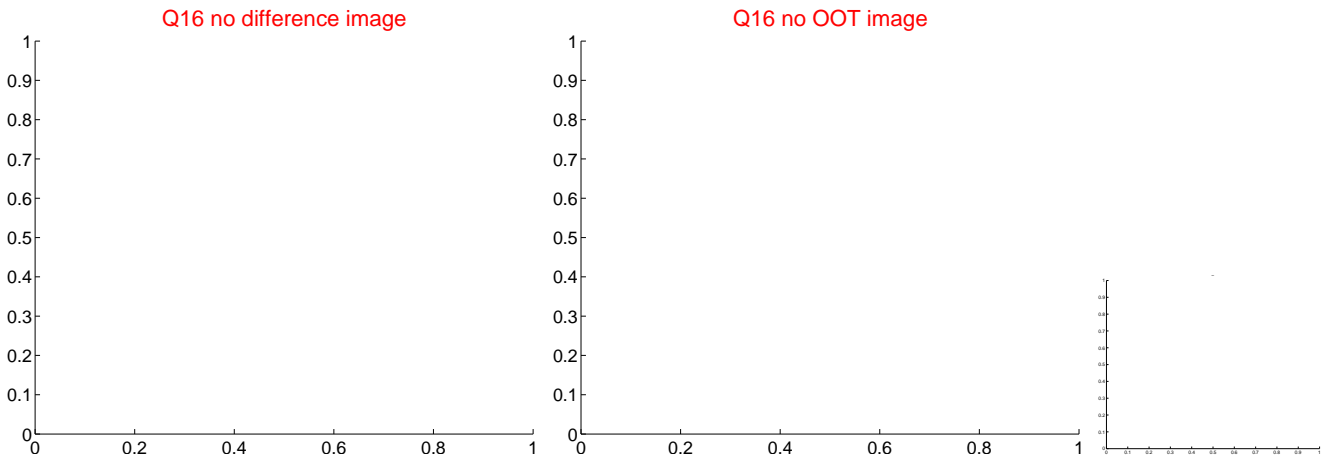
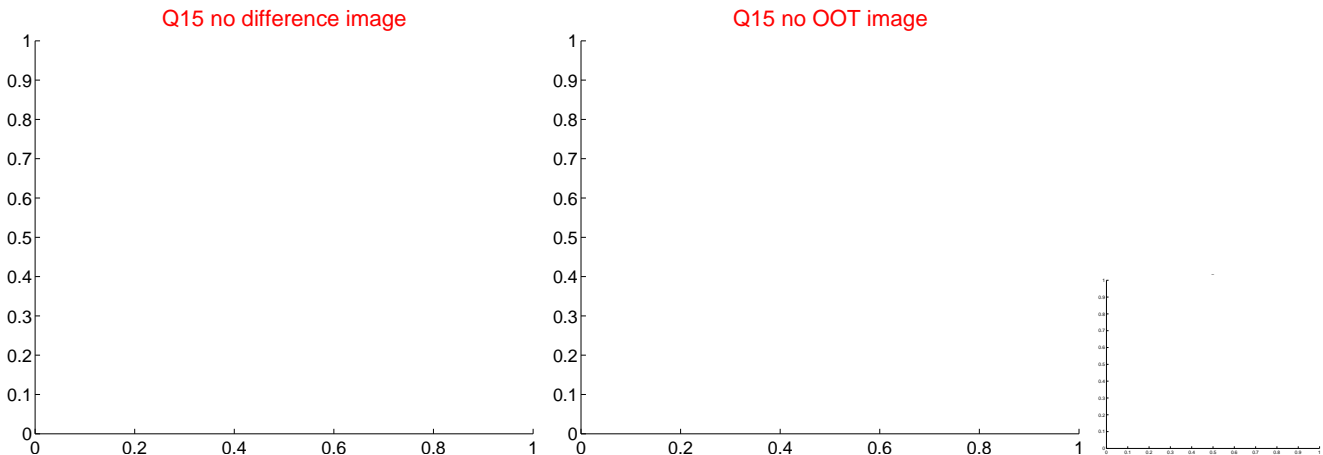
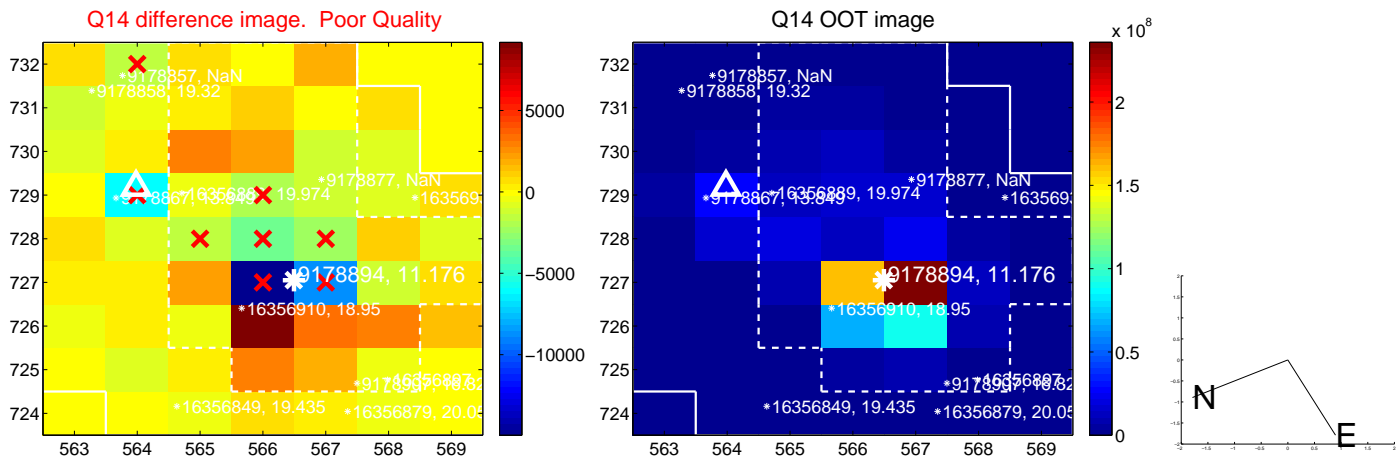
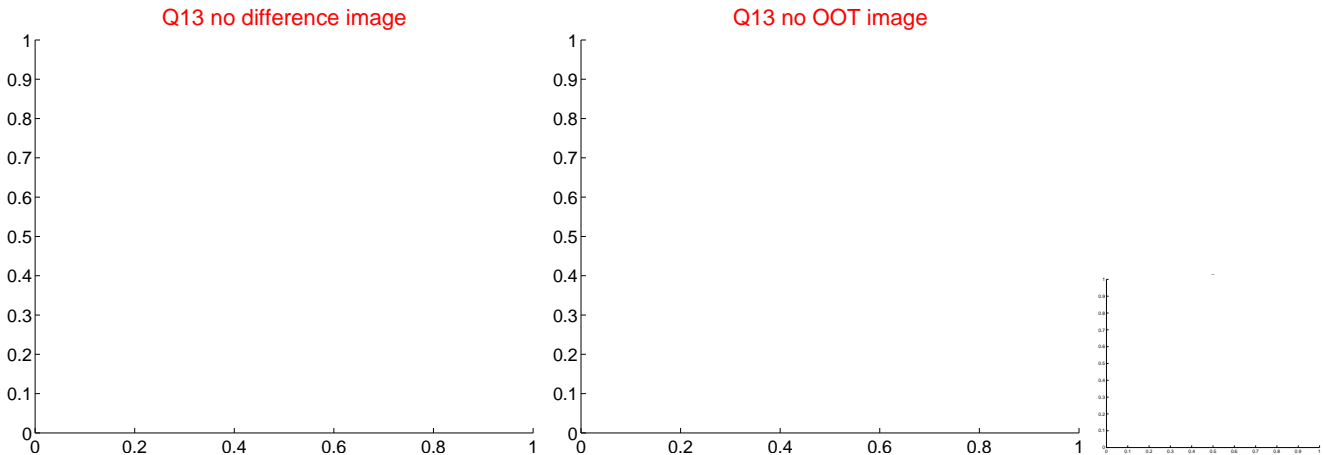
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



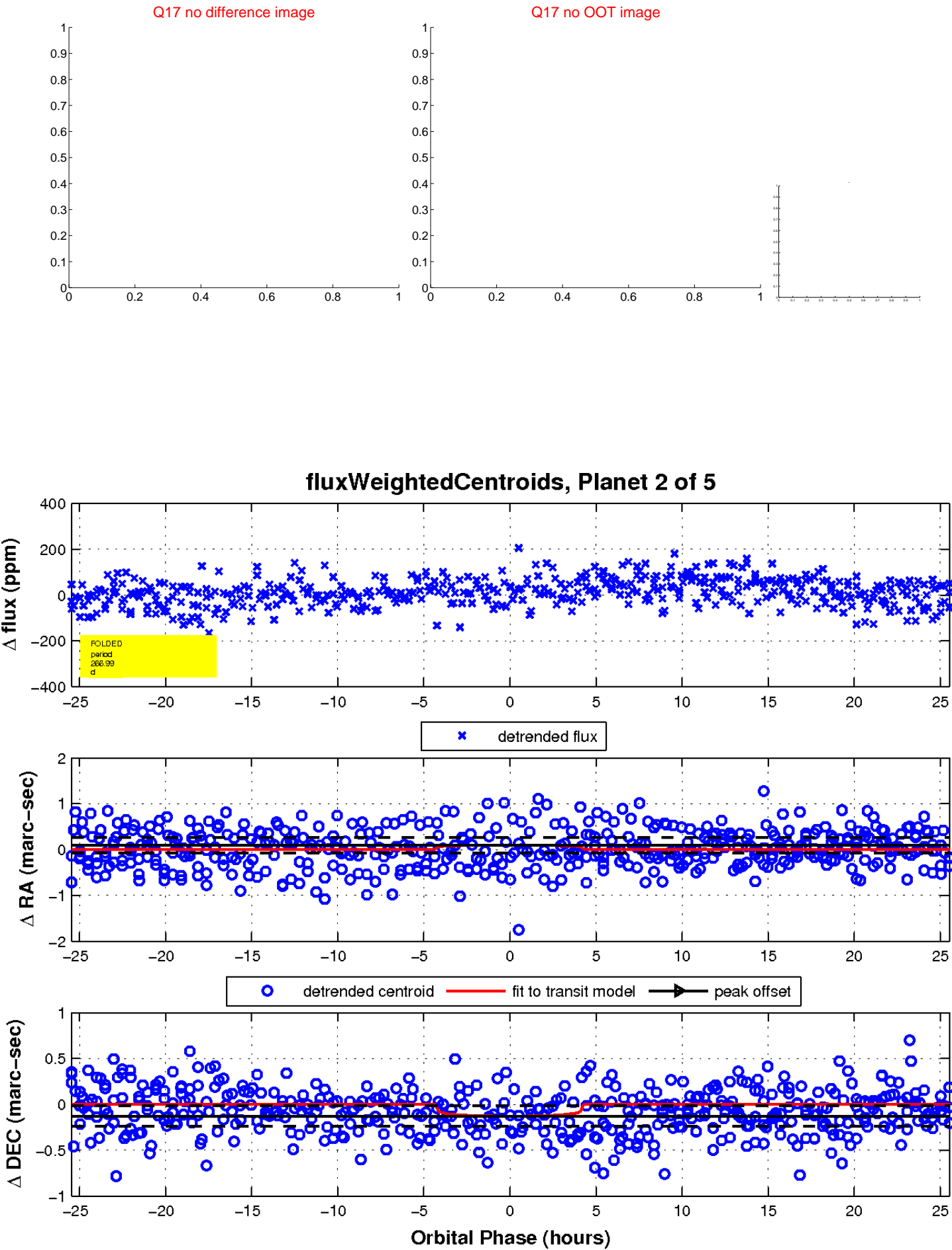
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

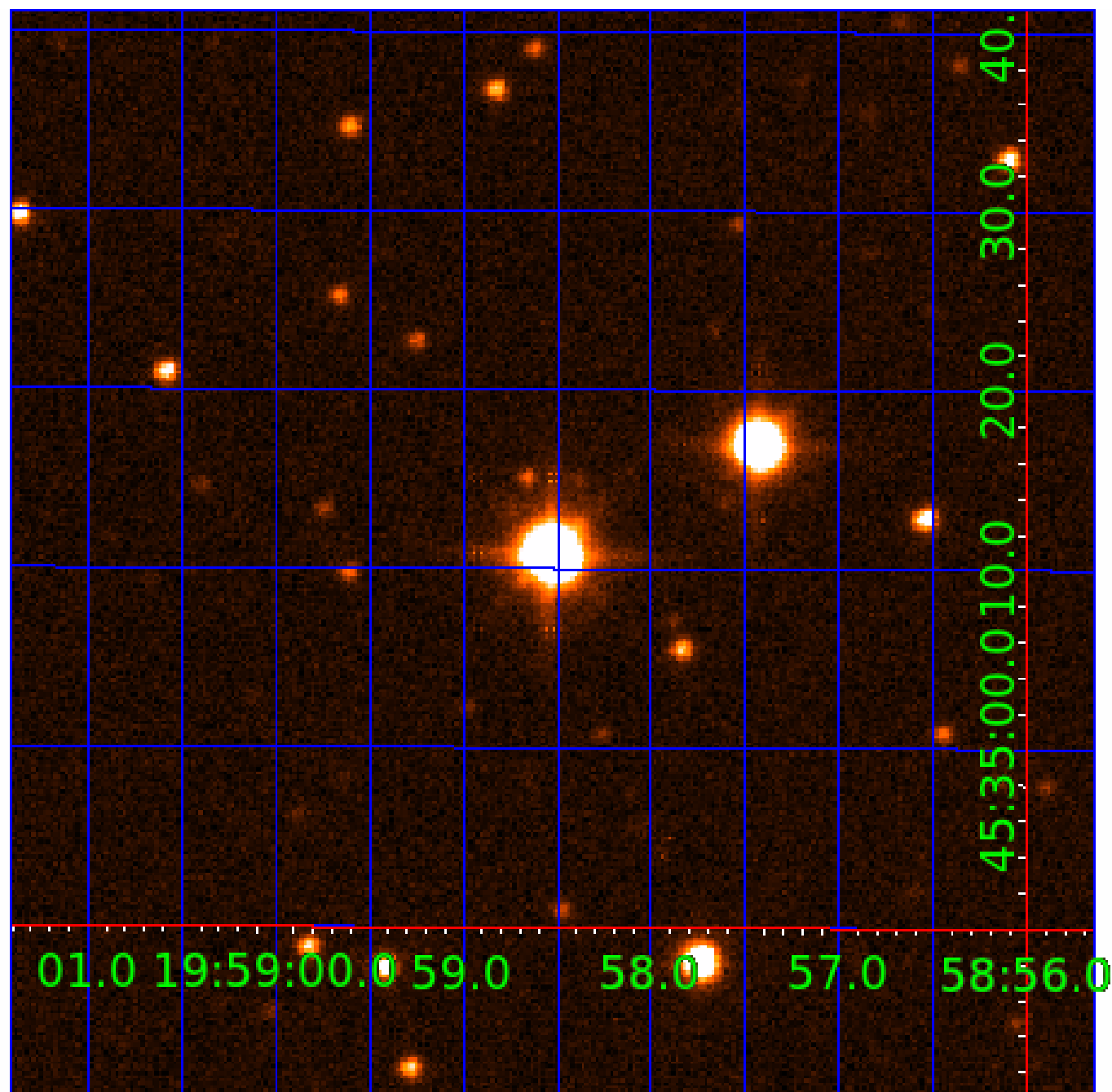


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009178894

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})
009178894-01	OBS	No	1.171074	132.234413	8.9	4.073	10.2	10.7	2.50	7892	0.85	29901.53
009178894-02	OBS	No	266.987781	262.992512	66.0	8.554	17.5	4.2	2.50	7892	2.11	21.47
009178894-03	OBS	No	176.089066	293.059717	82.4	10.035	11.5	6.2	2.50	7892	2.56	37.40
009178894-04	OBS	No	2.973683	133.529773	17.0	8.127	10.3	10.5	2.50	7892	1.19	8631.37
009178894-05	OBS	No	2.973575	132.705080	14.9	11.352	9.8	9.2	2.50	7892	1.11	8631.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009178894-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009178894-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009178894-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009178894-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009178894-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

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

Ephemeris Match Information For 009178894-03

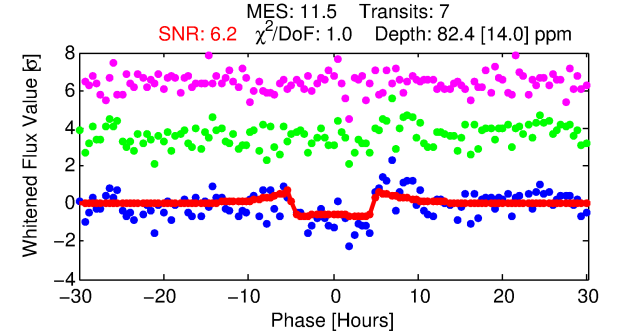
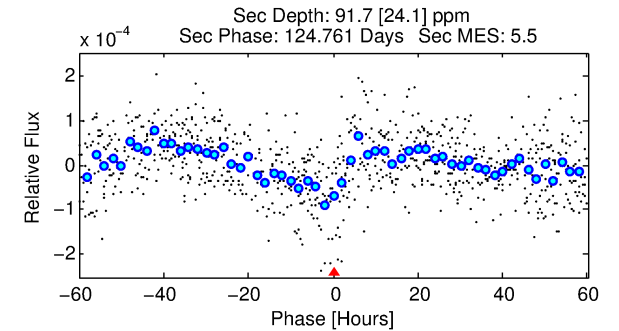
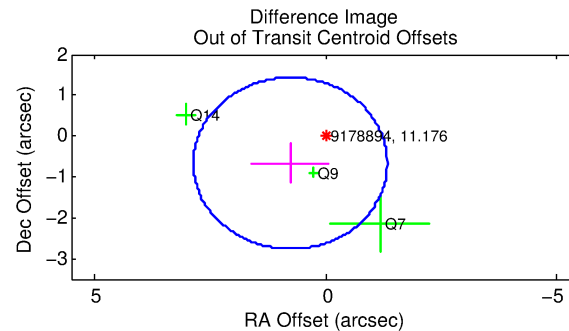
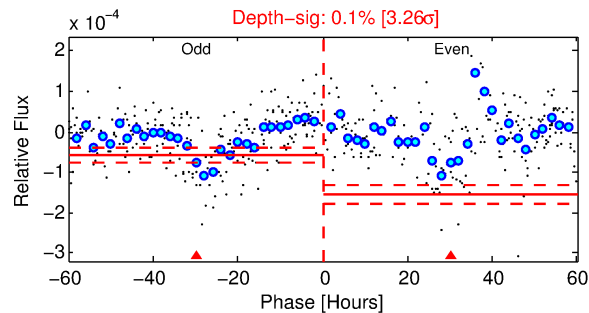
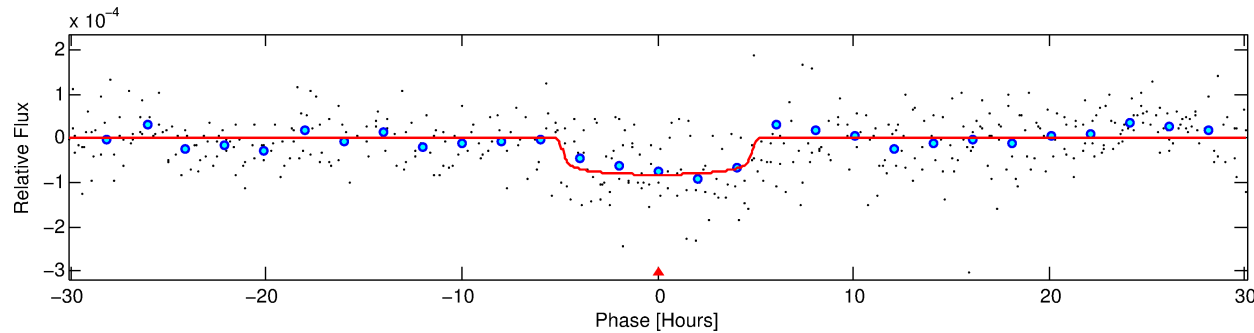
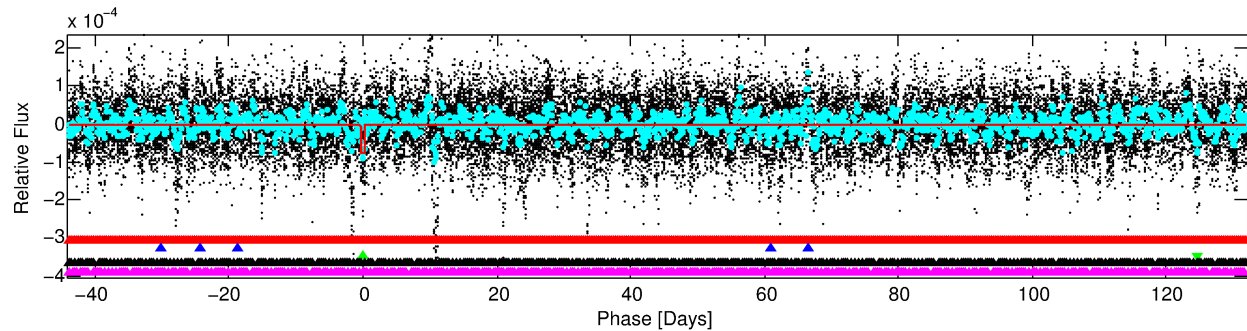
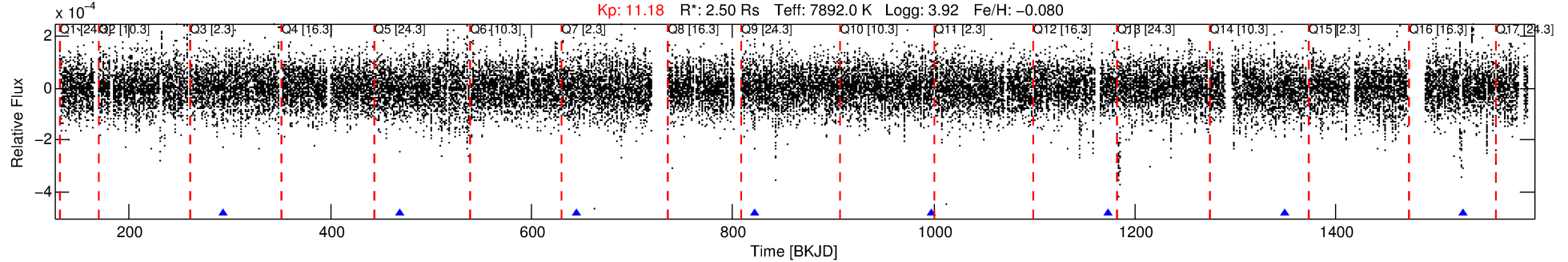
No Significant Match Found

DV One-Page Summary

KIC: 9178894 Candidate: 3 of 5 Period: 176.089 d

KOI: K05635 Corr: No Ephemeris Match

Kp: 11.18 R*: 2.50 Rs Teff: 7892.0 K Logg: 3.92 Fe/H: -0.080



DV Fit Results:

Period = 176.08907 [0.00318] d
Epoch = 293.0597 [0.0124] BKJD
Rp/R* = 0.0094 [0.0026]
a/R* = 71.96 [116.64]
b = 0.85 [0.51]
Seff = 37.40 [17.59]
Teq = 631 [74] K
Rp = 2.56 [1.12] Re
a = 0.7609 [0.2230] AU
Ag = 4466.29 [3400.83] [1.31σ]
Teffp = 7970 [1281] K [5.72σ]

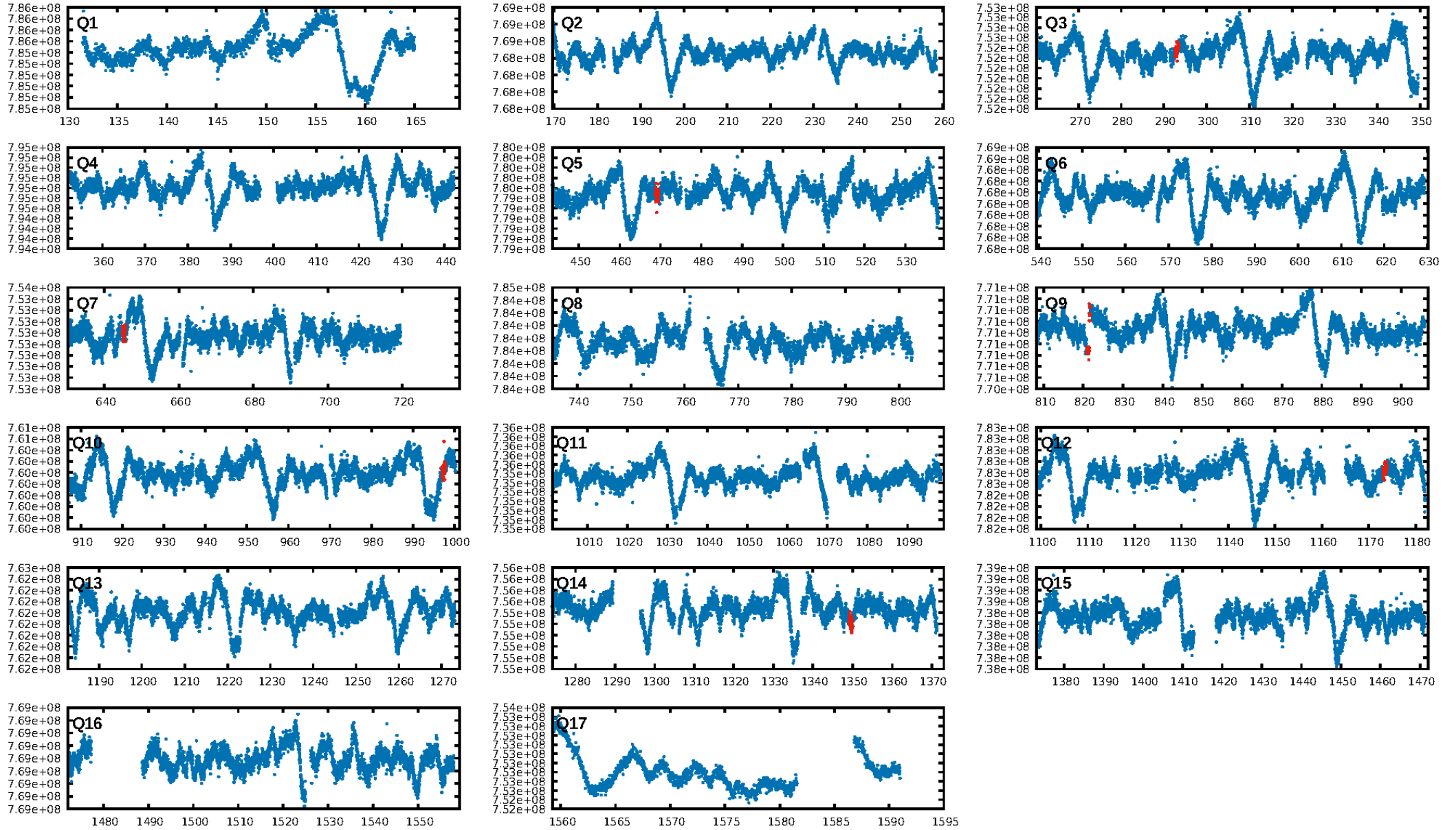
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [321.74σ]
LongPeriod-sig: 100.0% [165.44σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.83e-18
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -5.376
Centroid-sig: 43.2%
Centroid-so: 1.950 arcsec [1.23σ]
OotOffset-rm: 1.011 arcsec [1.44σ]
KicOffset-rm: 0.977 arcsec [1.41σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/6]

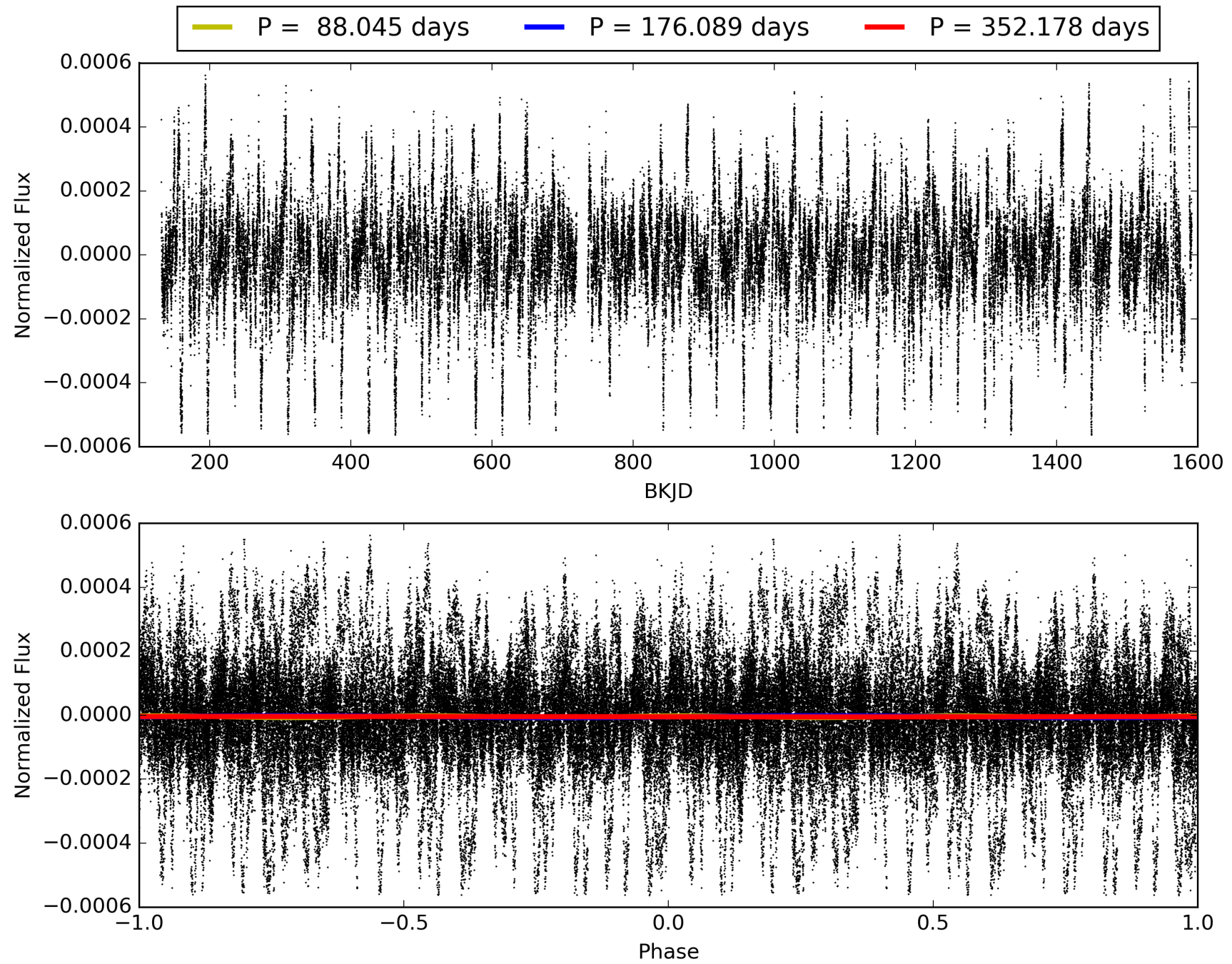
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:45:52 Z

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

TCE 009178894-03, PDC Light Curves

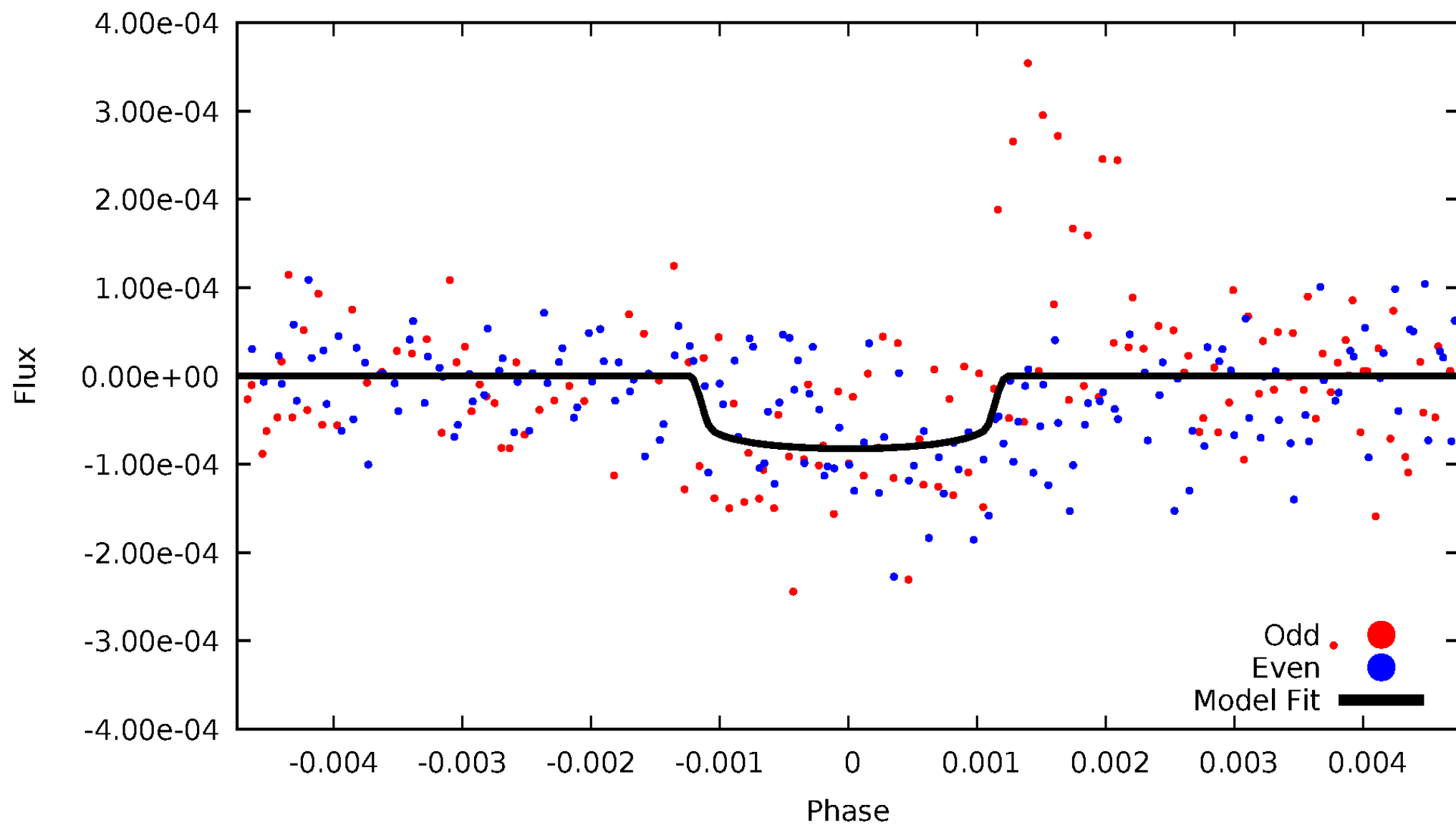


TCE 009178894-03



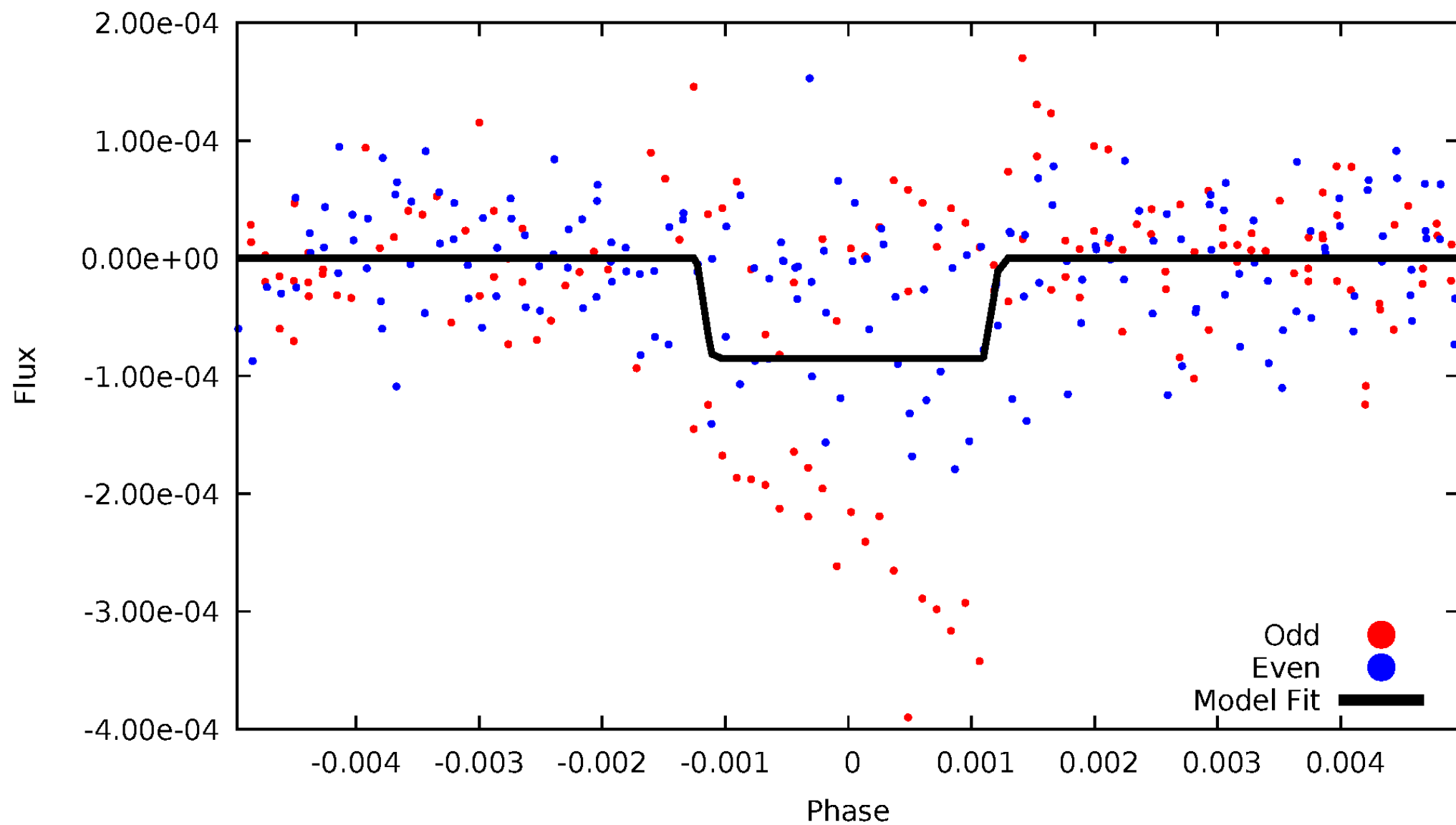
DV Odd/Even

TCE 009178894-03



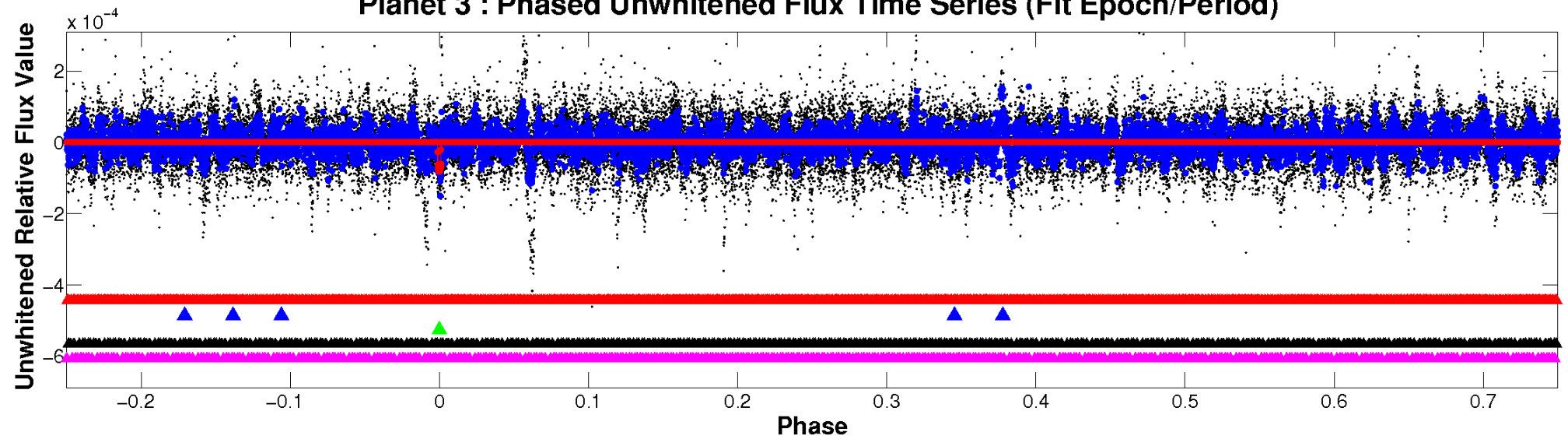
ALT Odd/Even

TCE 009178894-03

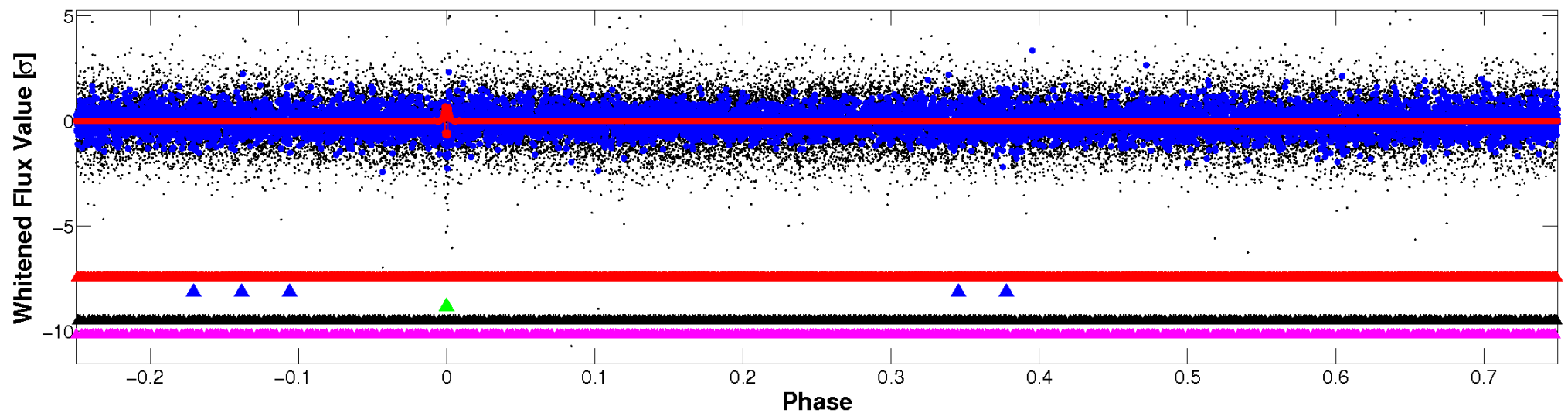


Non-Whitened Vs. Whitened Light Curve

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

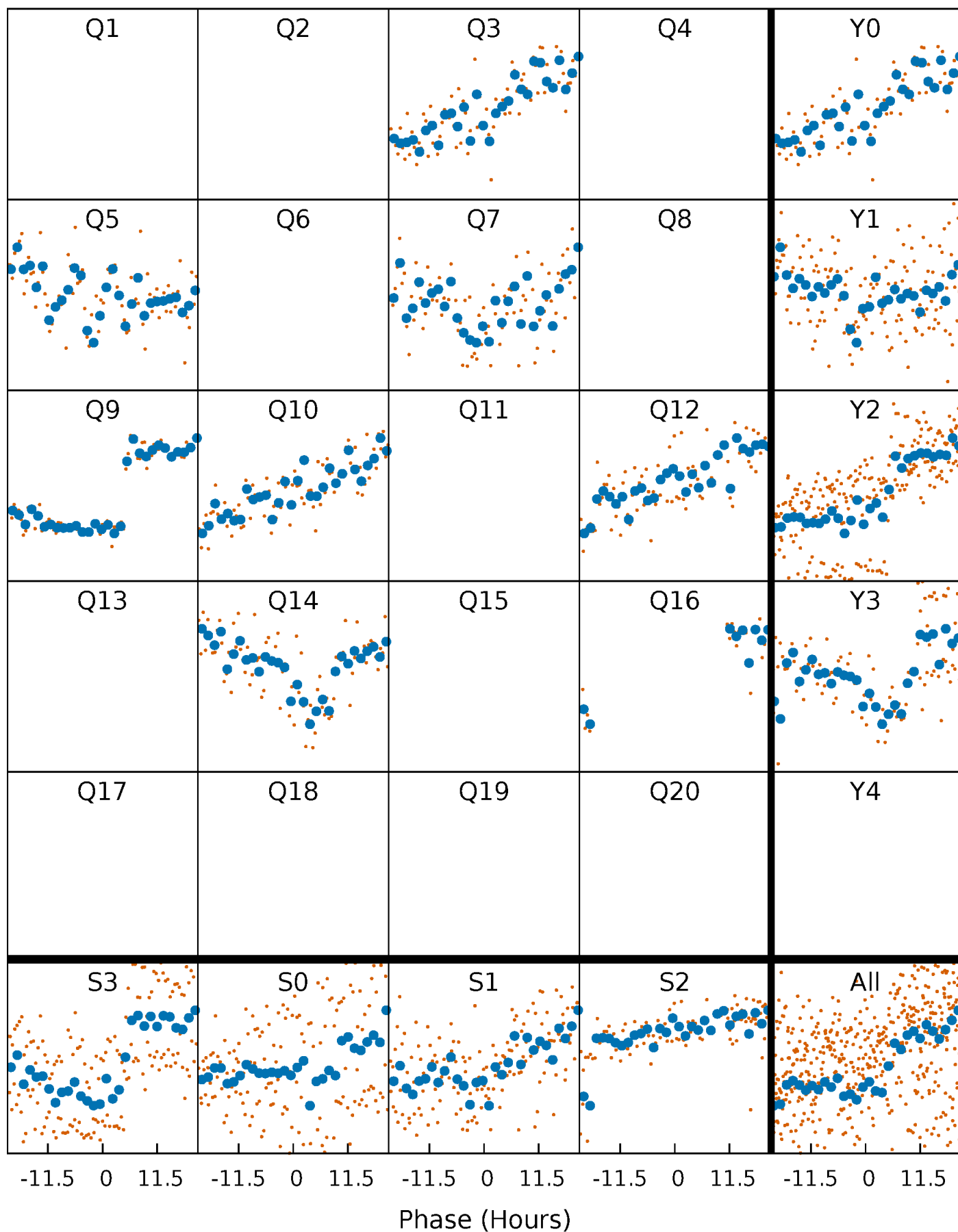


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



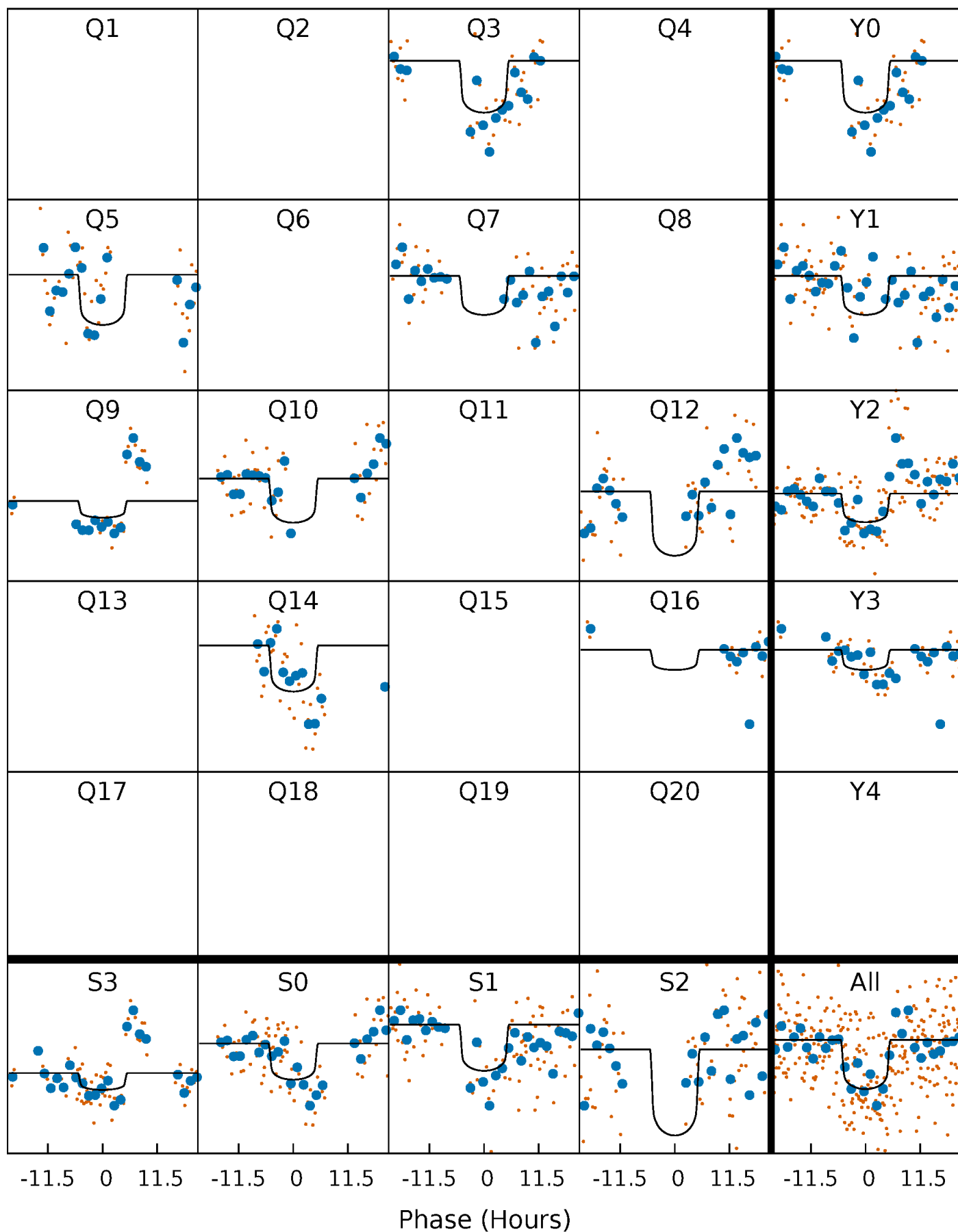
PDC Quarter-Phased Transit Curves

TCE 009178894-03 P=176.089066 Days $T_0=293.059717$ (BKJD)



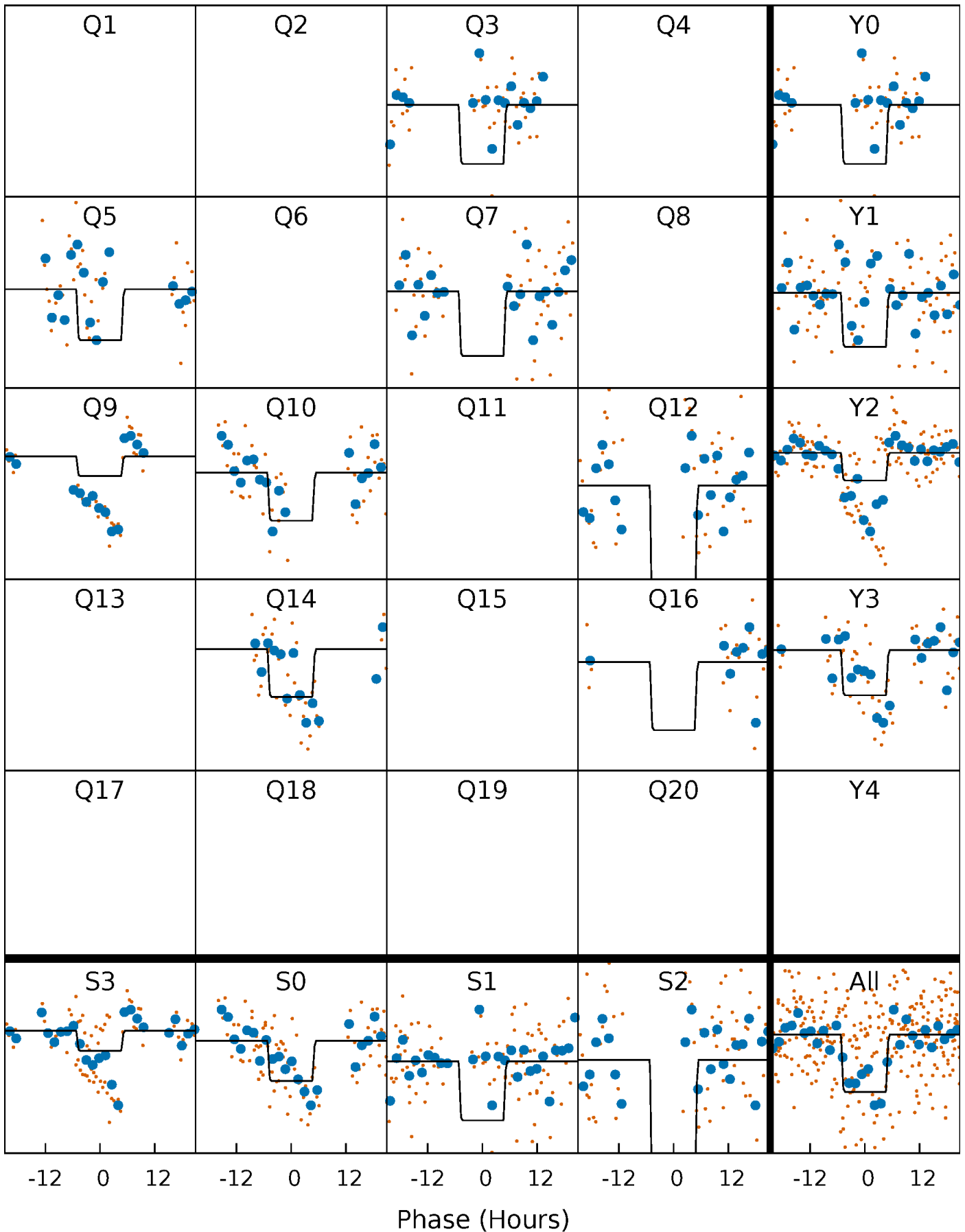
DV Quarter-Phased Transit Curves

TCE 009178894-03 P=176.089066 Days $T_0=293.059717$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

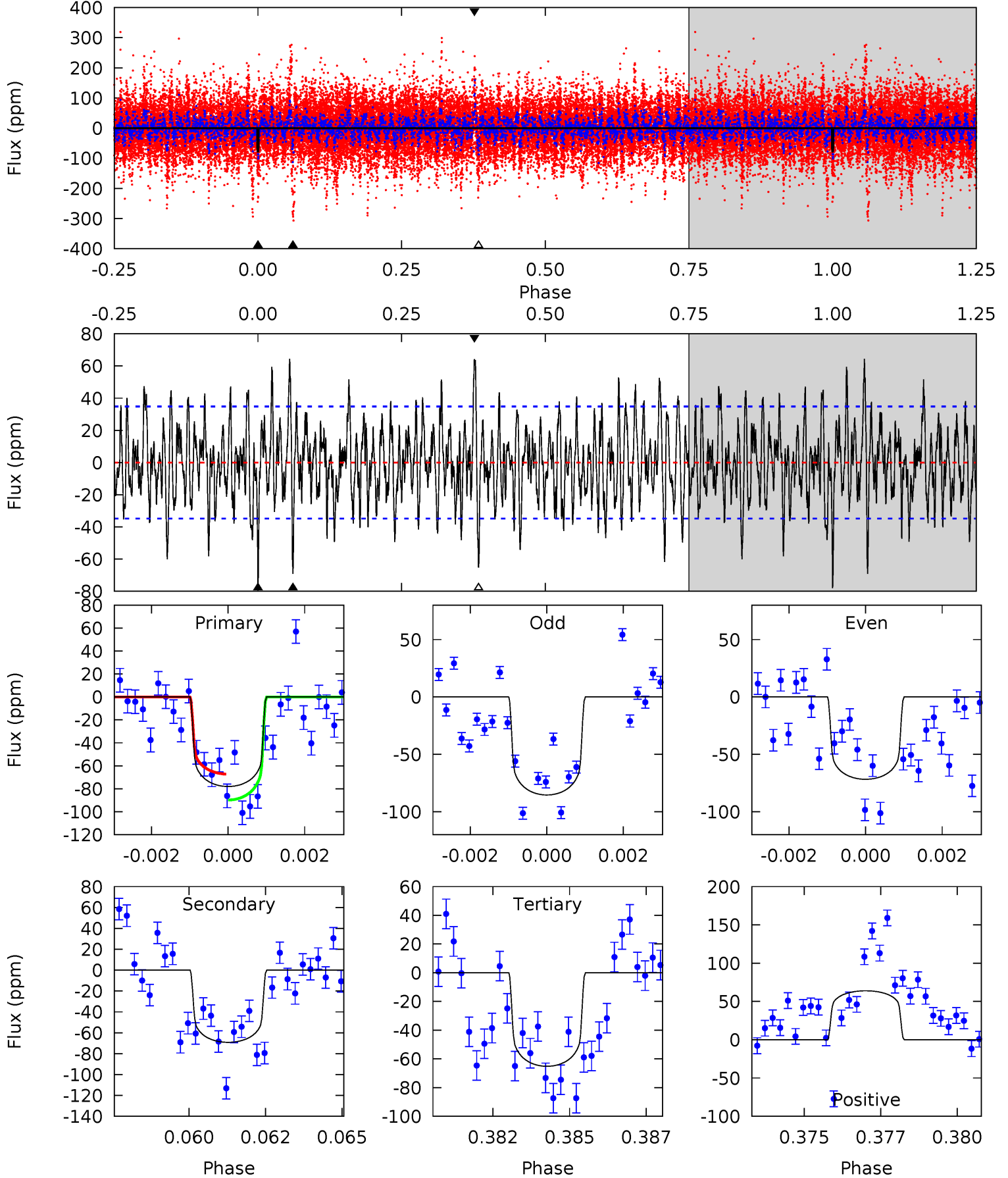
TCE 009178894-03 P=176.096420 Days $T_0=293.034531$ (BKJD)



DV Model-Shift Uniqueness Test

009178894-03, P = 176.089066 Days, E = 116.970651 Days

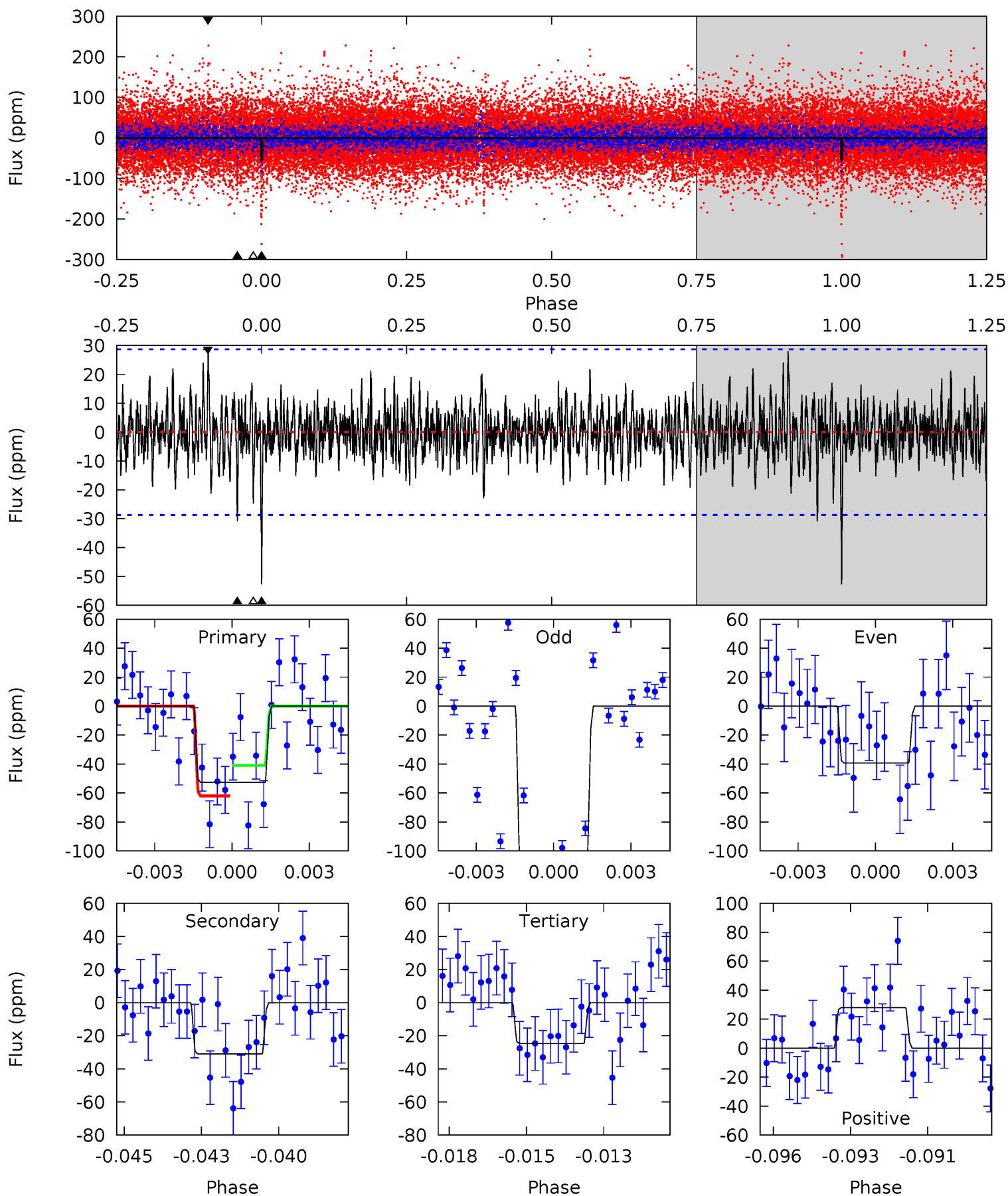
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	10.5	9.89	9.70	5.29	3.03	3.14	1.95	2.14	0.61	0.79	1.03	1.15	0.45	1.71



Alt Model-Shift Uniqueness Test

009178894-03, P = 176.096420 Days, E = 116.938111 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.70	5.69	4.55	5.16	5.28	3.02	1.26	5.15	4.54	1.14	0.54	7.25	1.71	0.35	1.94



Stellar Parameters For KIC 009178894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7892^{+218}_{-327}	$3.921^{+0.247}_{-0.114}$	$-0.080^{+0.200}_{-0.350}$	$2.496^{+0.450}_{-0.837}$	$1.894^{+0.098}_{-0.390}$	$0.172^{+0.300}_{-0.060}$
	+3%/-4%	+6%/-3%	+250%/-438%	+18%/-34%	+5%/-21%	+175%/-35%
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 009178894-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-69 ± 7	$2.38^{+0.85}_{-0.76}$	866^{+58}_{-70}	7328^{+1730}_{-952}	3778^{+4230}_{-1656}
Alt.	-31 ± 5	$2.35^{+0.81}_{-0.76}$	866^{+59}_{-71}	5962^{+1248}_{-778}	1677^{+2085}_{-775}

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

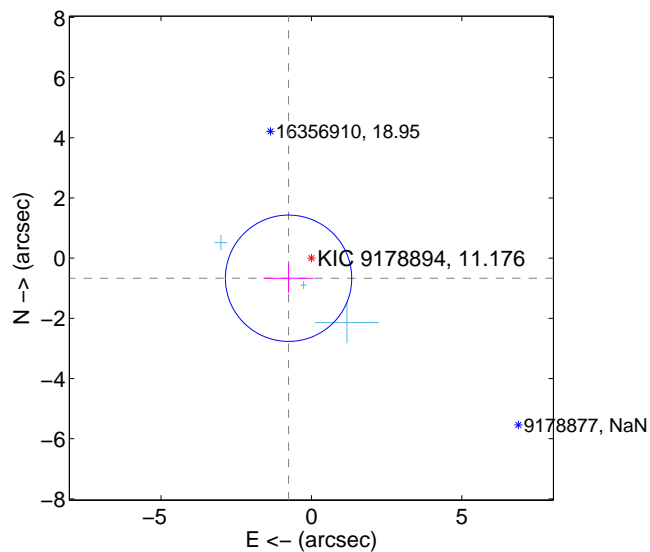
Supplemental centroid analysis for 009178894-03. **Kepler magnitude: 11.18.** Transit SNR 6.20

There are 3 quarters with good PRF difference image offsets

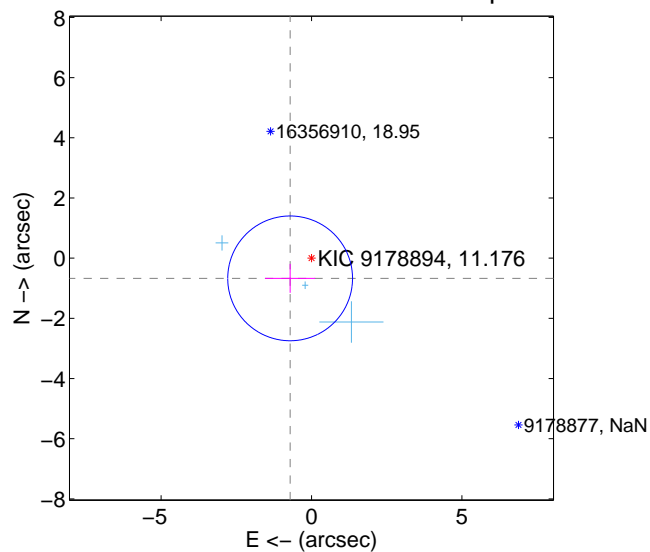
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.011 ± 0.700	1.44	0.760 ± 0.829	-0.667 ± 0.484
PRF-fit source offset from KIC position	0.977 ± 0.691	1.41	0.710 ± 0.835	-0.671 ± 0.481
photometric centroid source offset	1.95 ± 1.58	1.23	-1.92 ± 1.60	-0.36 ± 1.16

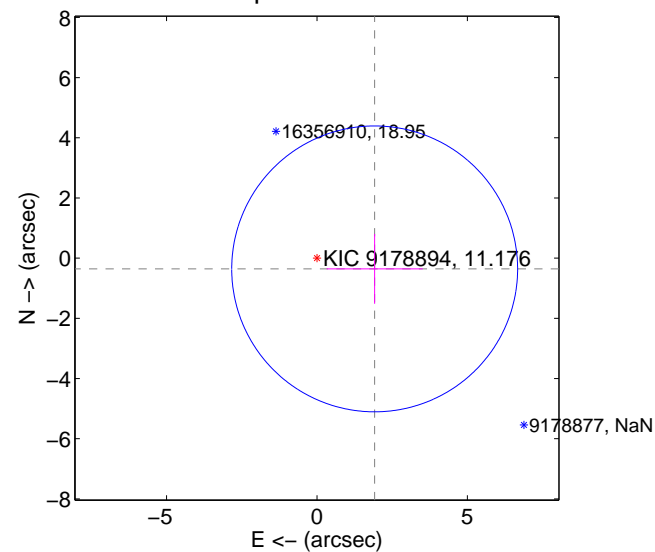
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

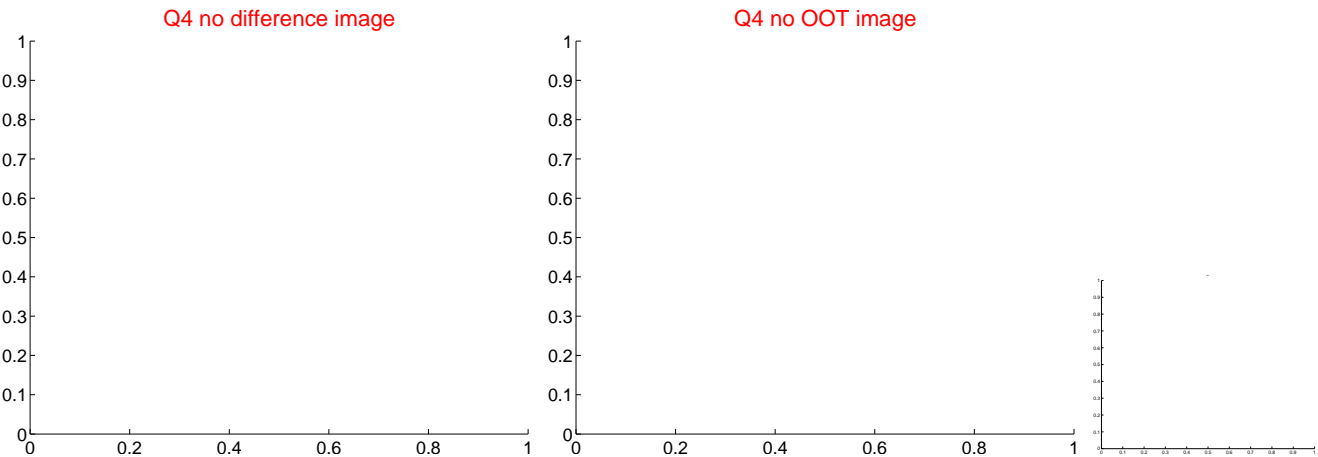
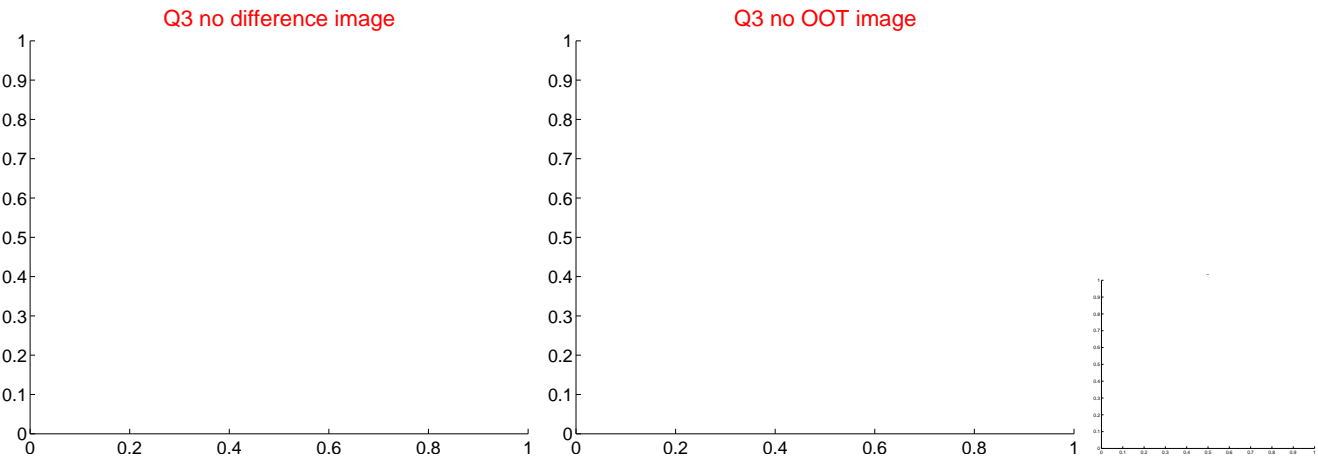
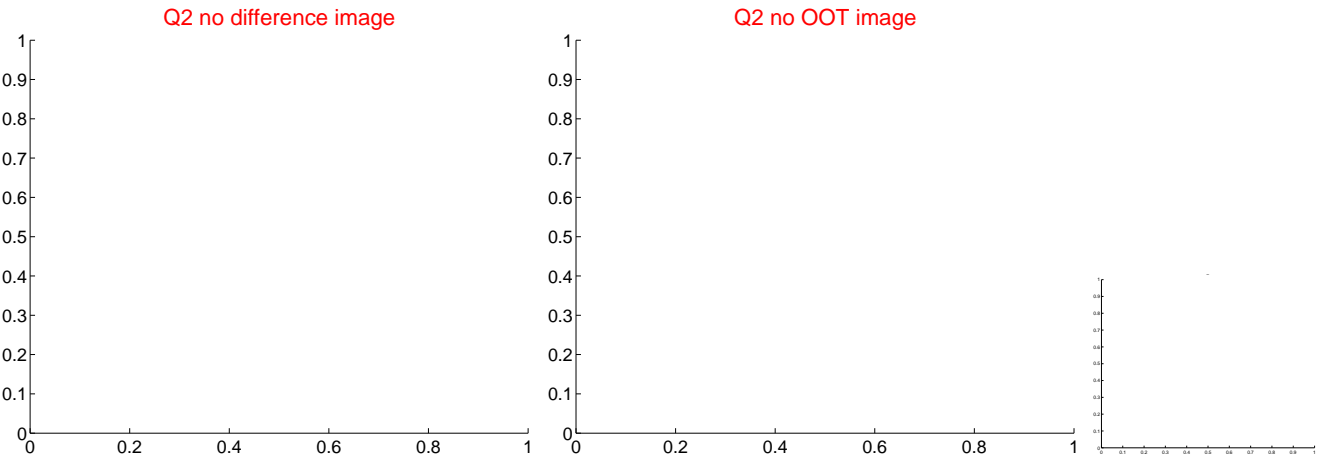
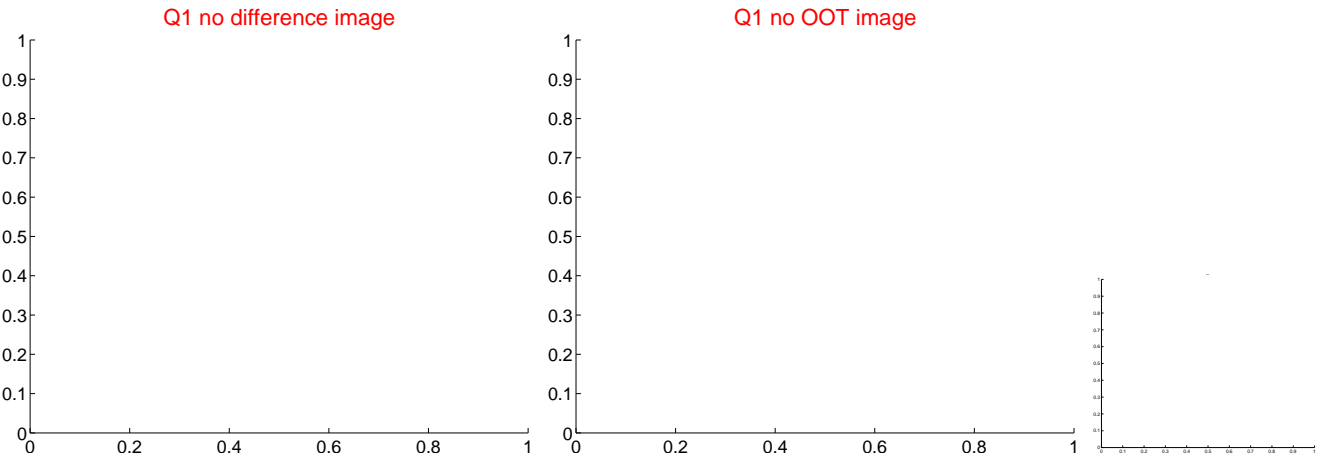


offset from photometric centroids

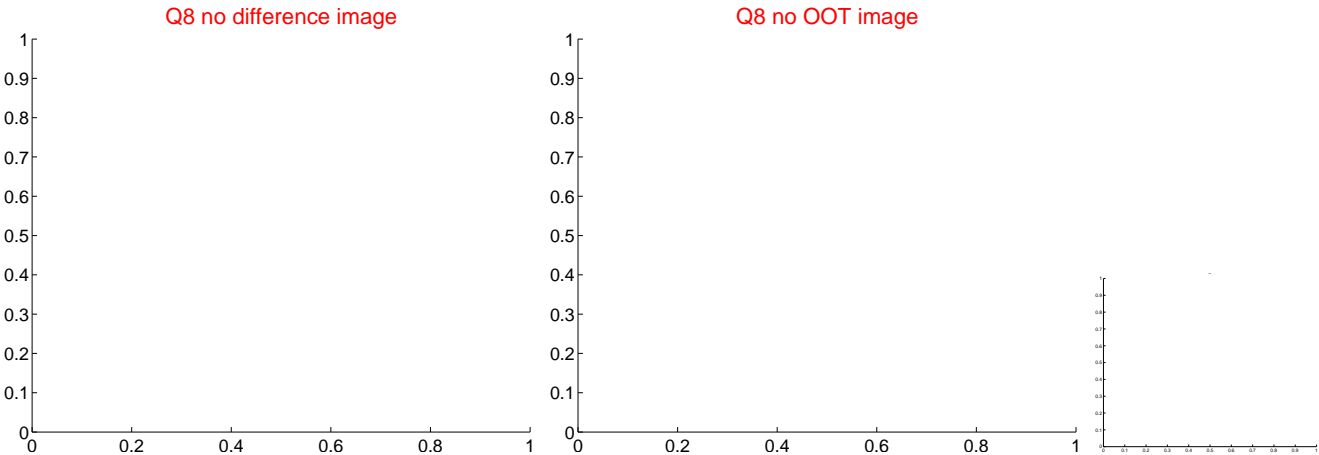
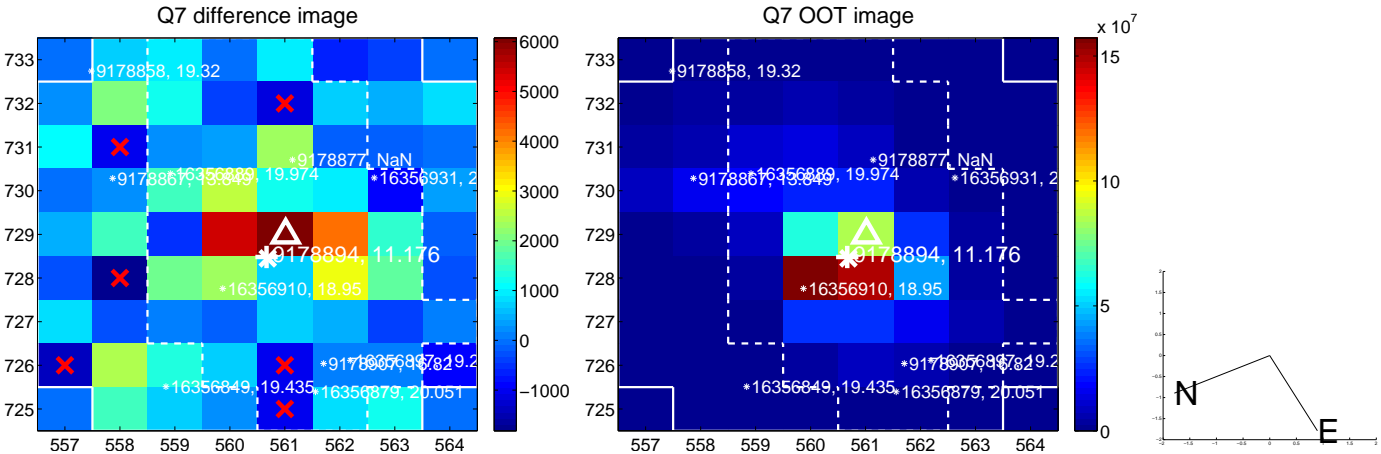
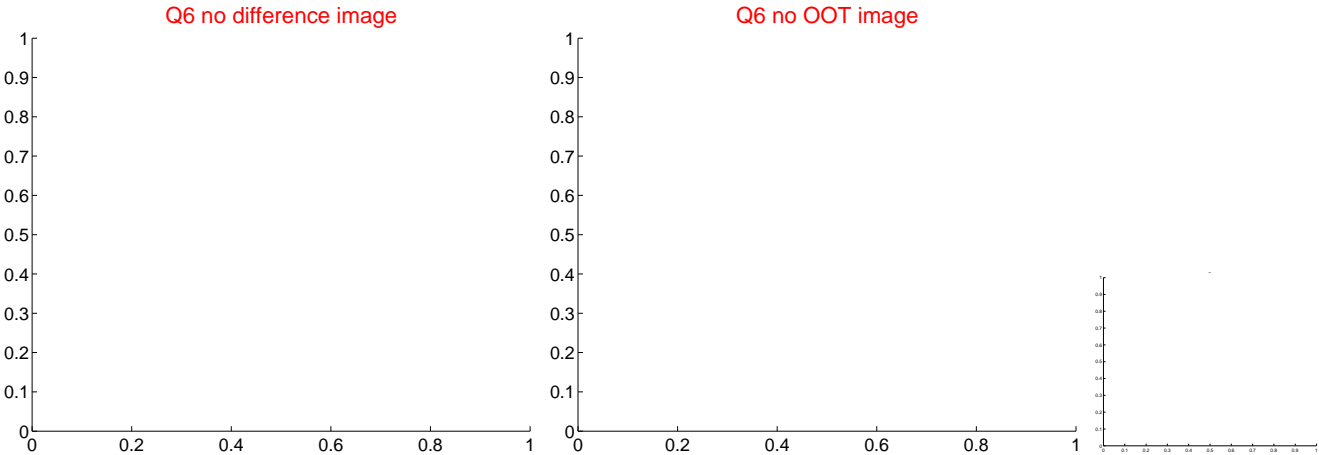
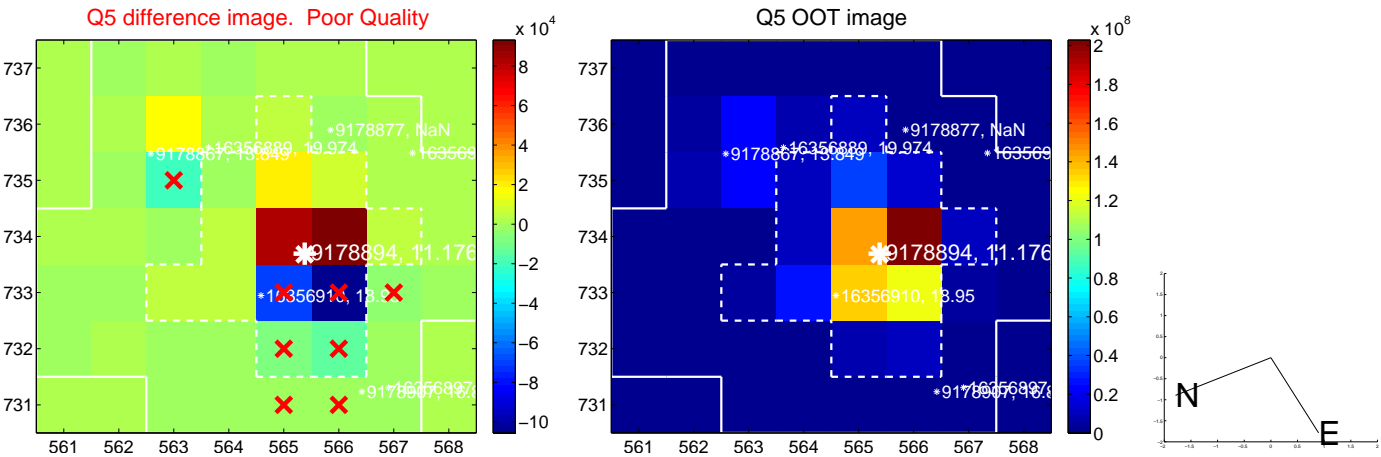


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

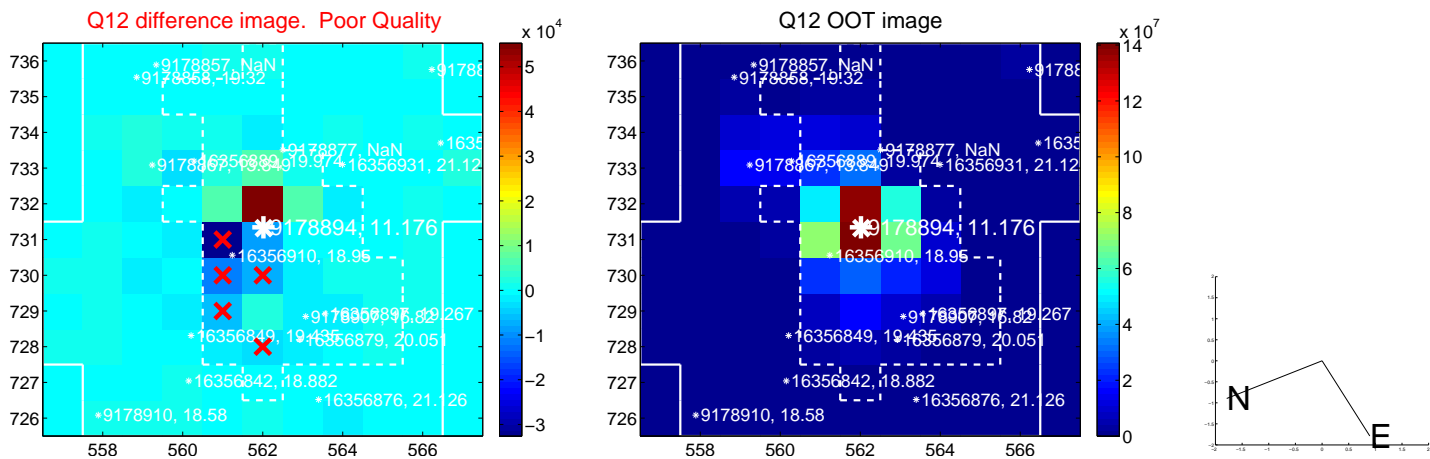
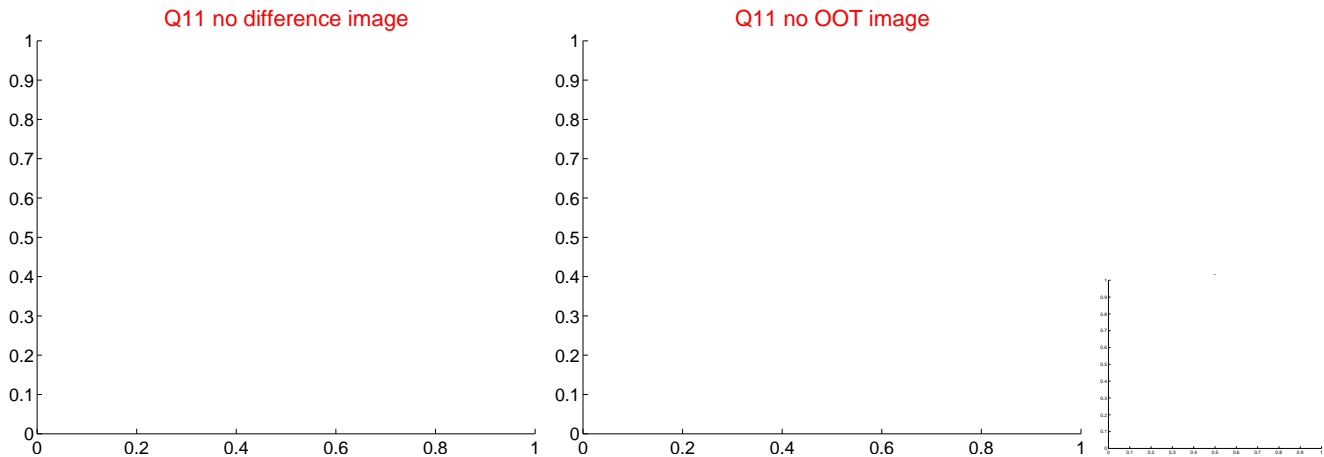
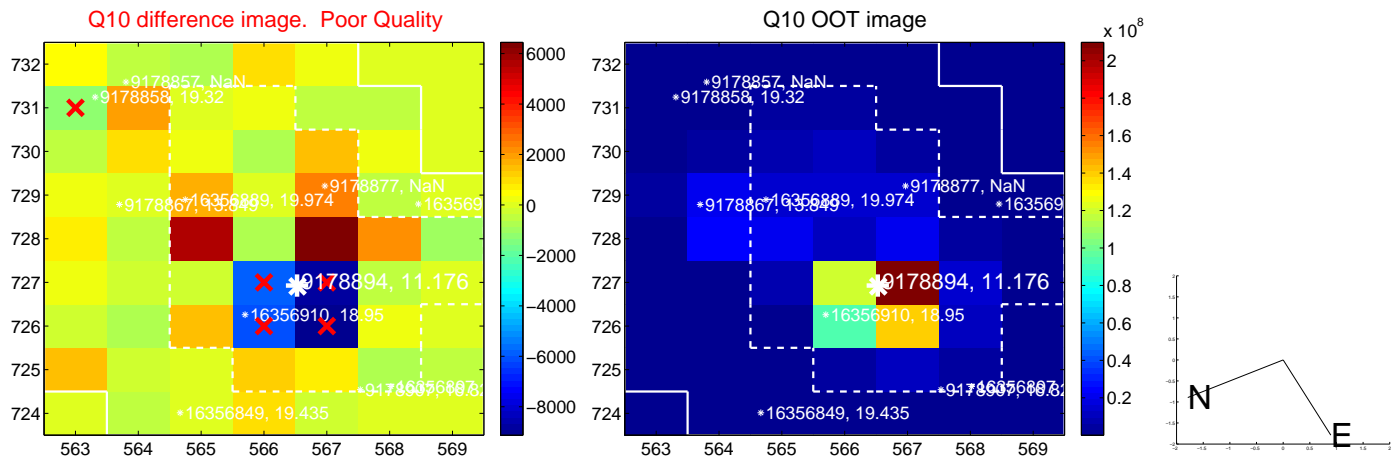
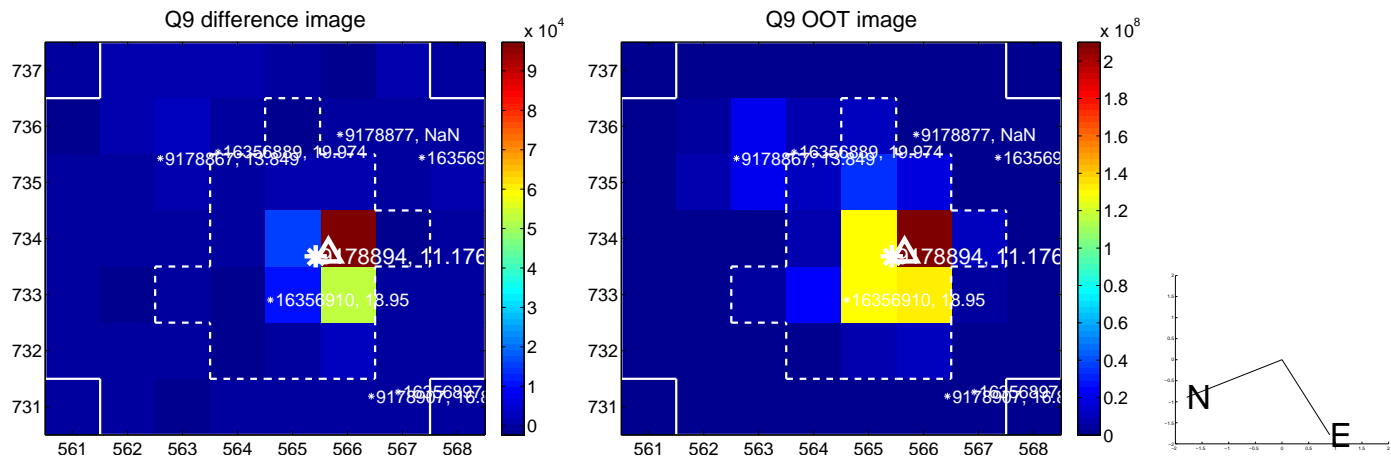
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



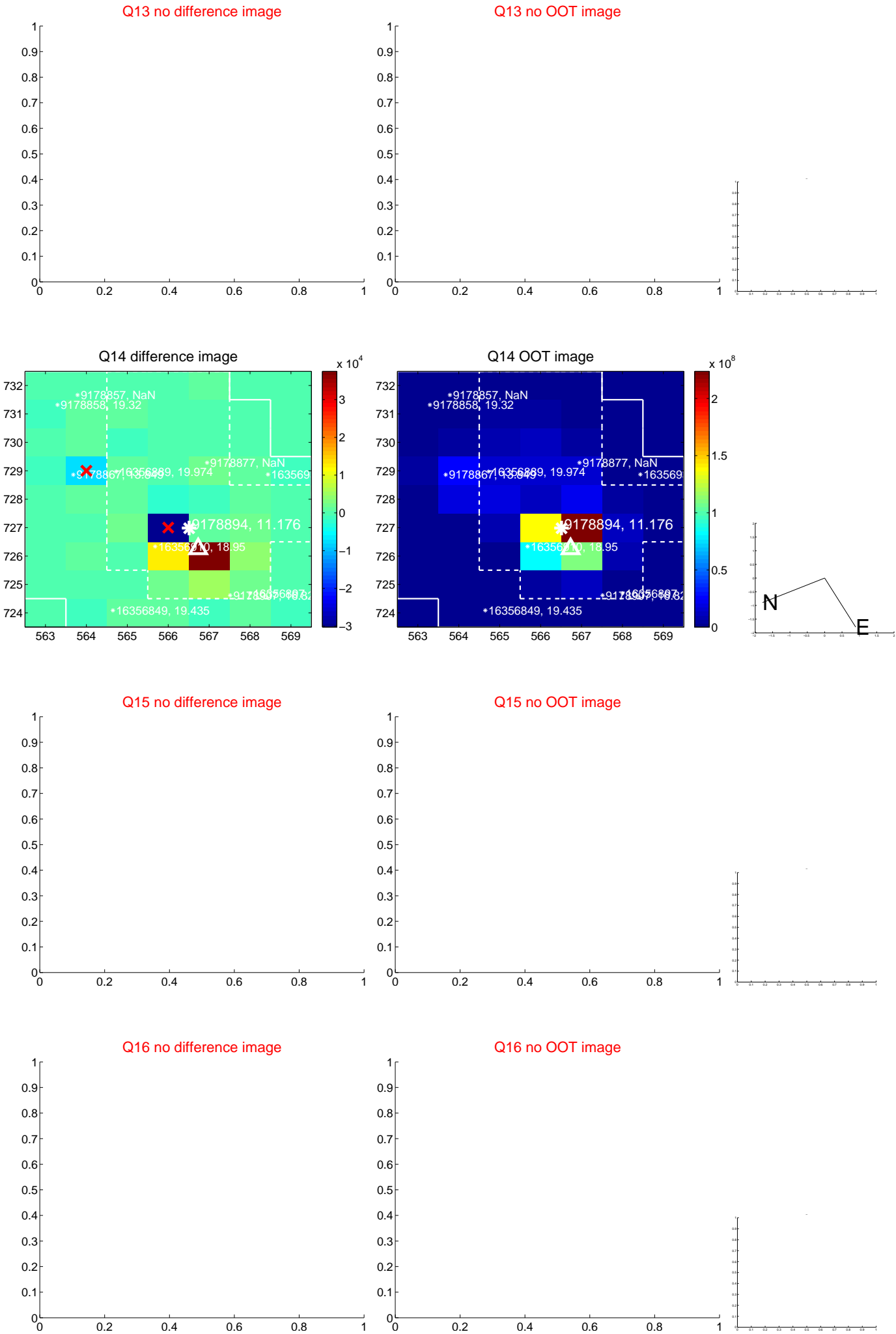
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



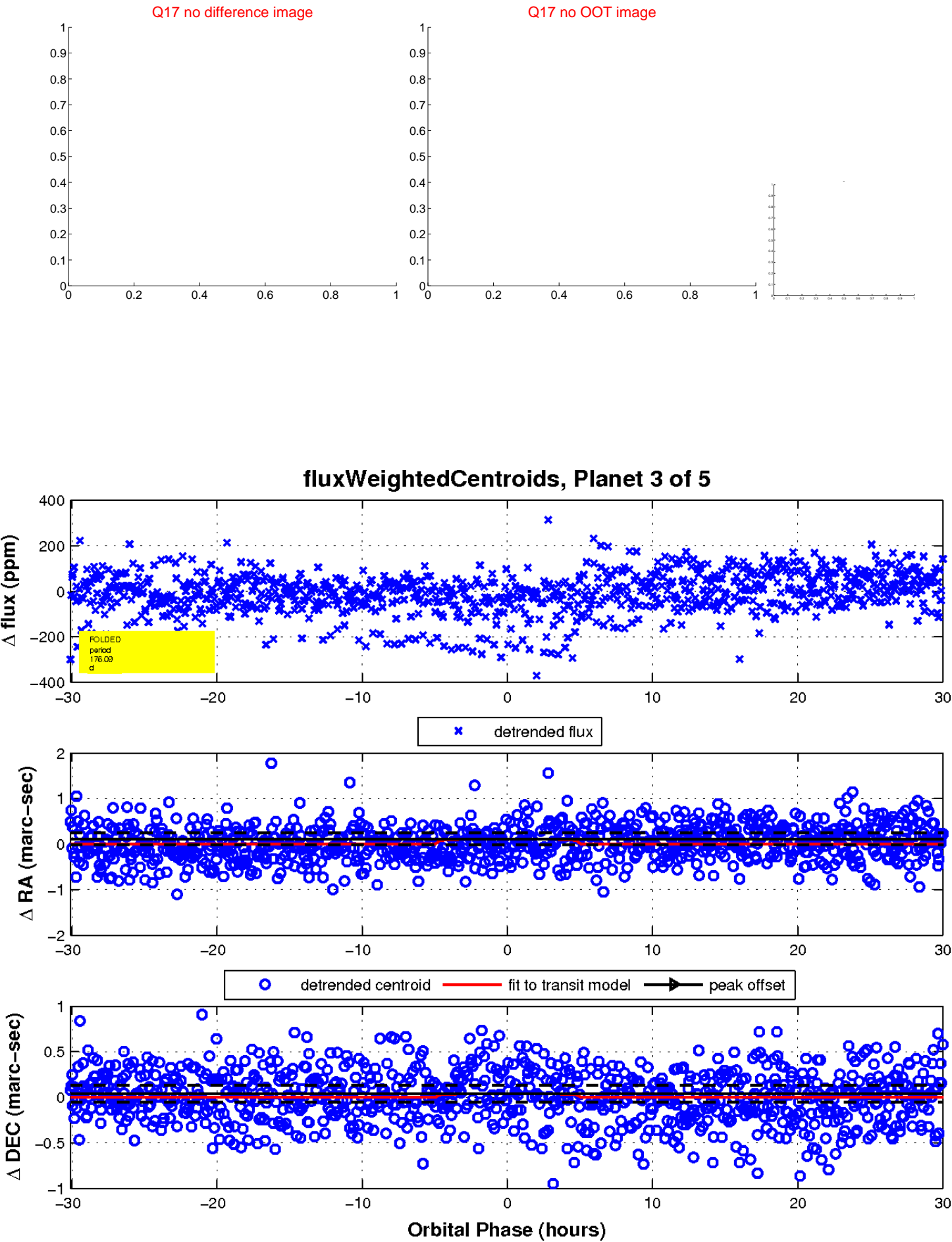
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

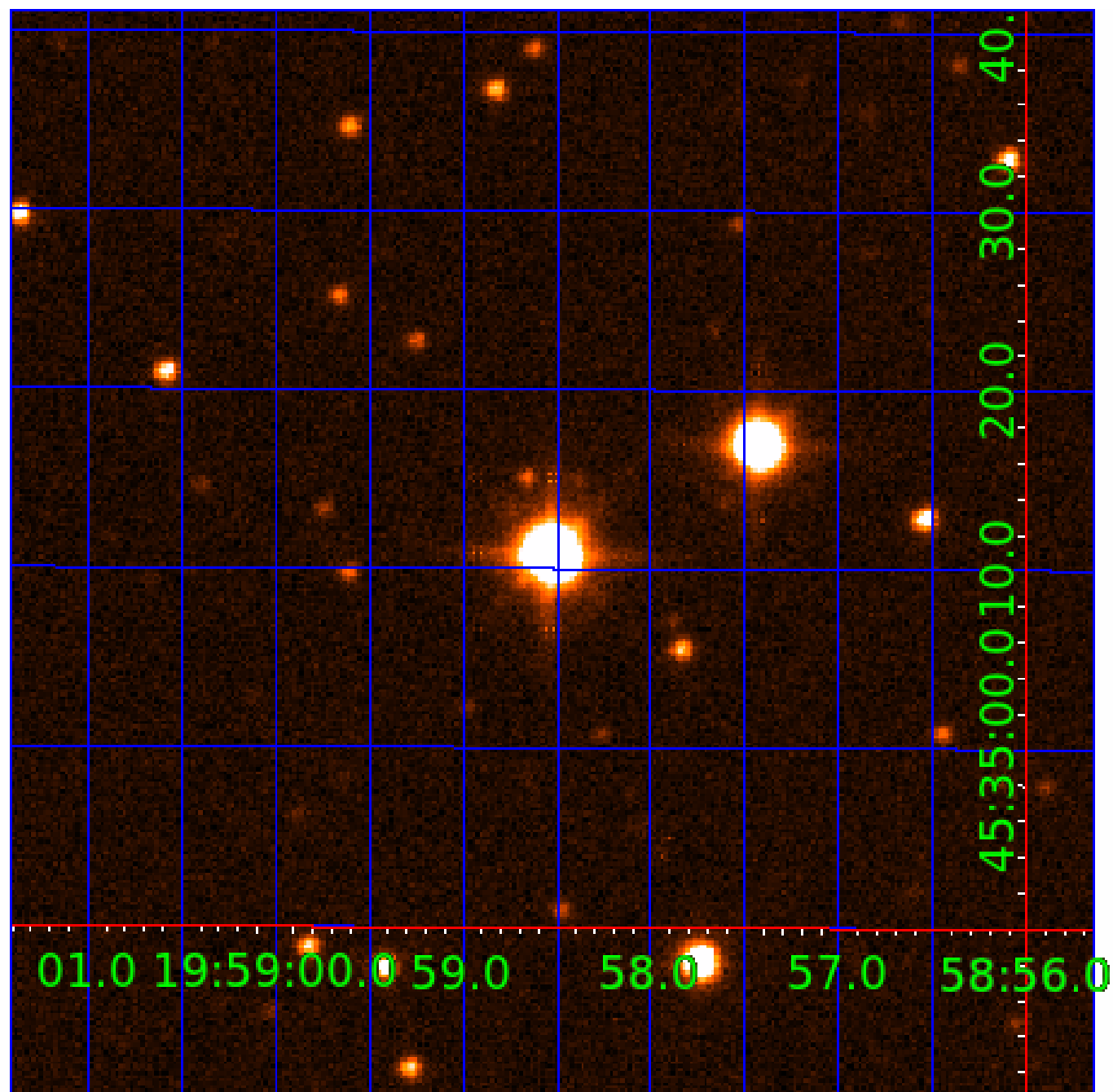


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009178894

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})
009178894-01	OBS	No	1.171074	132.234413	8.9	4.073	10.2	10.7	2.50	7892	0.85	29901.53
009178894-02	OBS	No	266.987781	262.992512	66.0	8.554	17.5	4.2	2.50	7892	2.11	21.47
009178894-03	OBS	No	176.089066	293.059717	82.4	10.035	11.5	6.2	2.50	7892	2.56	37.40
009178894-04	OBS	No	2.973683	133.529773	17.0	8.127	10.3	10.5	2.50	7892	1.19	8631.37
009178894-05	OBS	No	2.973575	132.705080	14.9	11.352	9.8	9.2	2.50	7892	1.11	8631.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009178894-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009178894-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009178894-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009178894-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009178894-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

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

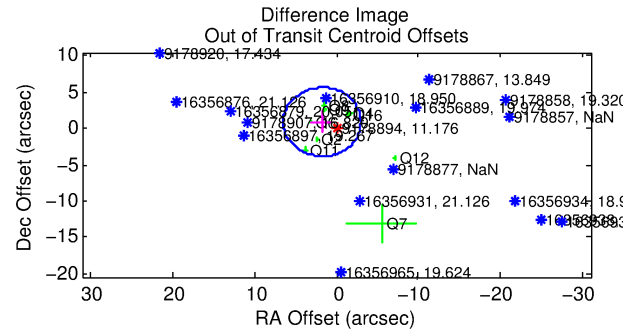
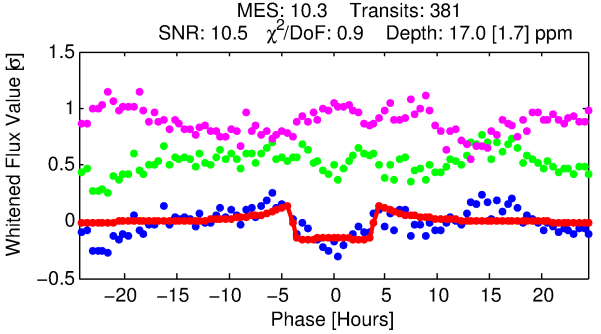
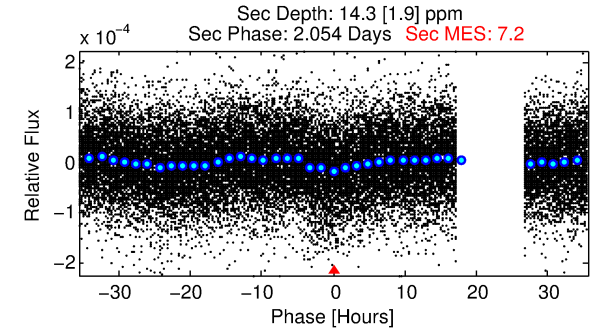
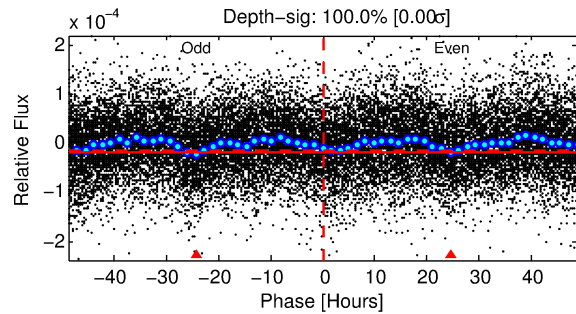
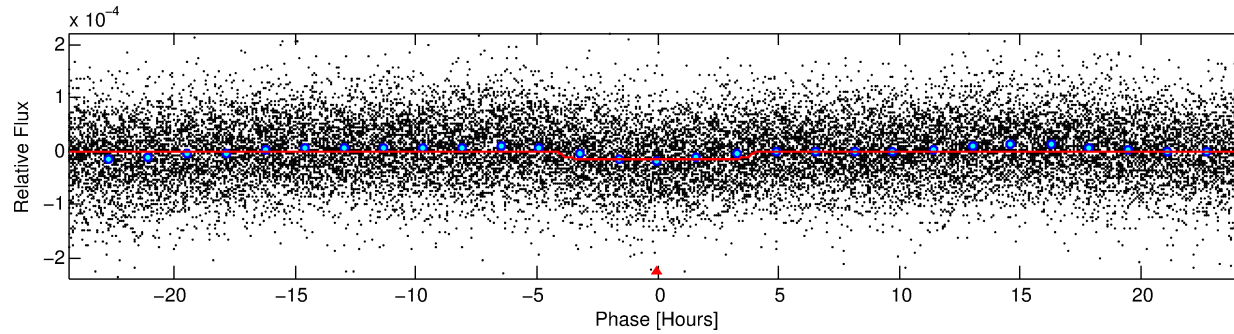
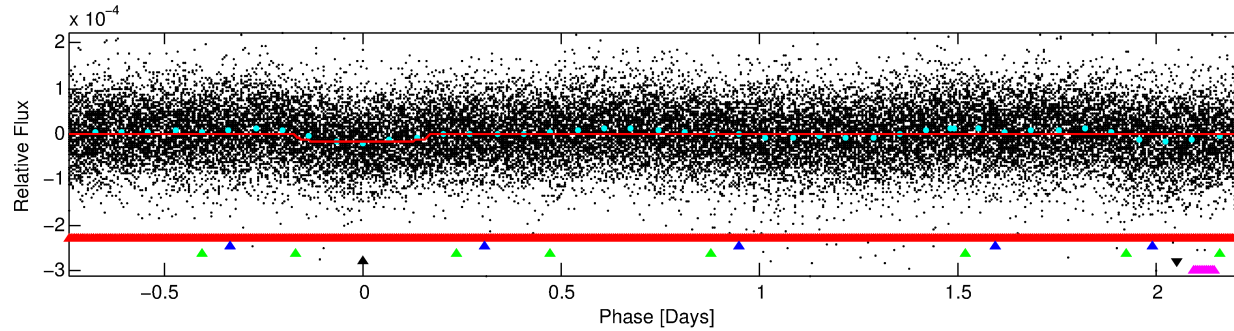
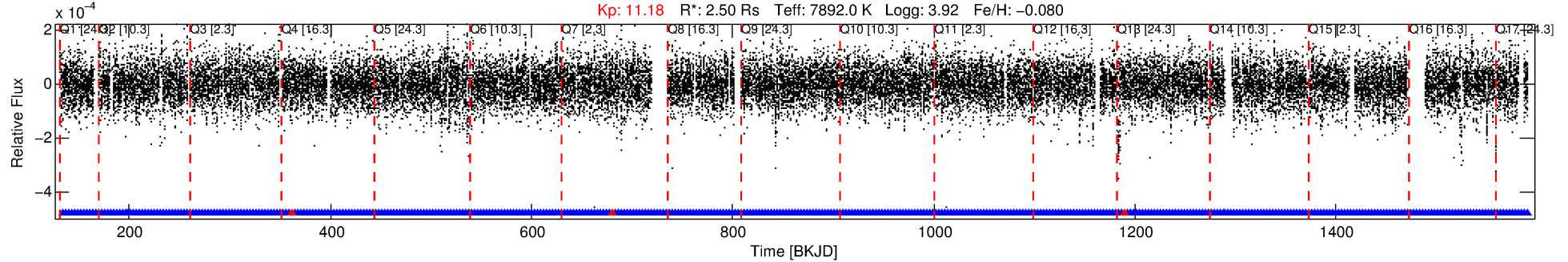
Ephemeris Match Information For 009178894-04

No Significant Match Found

DV One-Page Summary

KIC: 9178894 Candidate: 4 of 5 Period: 2.974 d
KOI: K05635 Corr: No Ephemeris Match

Kp: 11.18 R*: 2.50 Rs Teff: 7892.0 K Logg: 3.92 Fe/H: -0.080



DV Fit Results:

Period = 2.97368 [0.00002] d
Epoch = 133.5298 [0.0047] BKJD
Rp/R* = 0.0044 [0.0007]
a/R* = 1.56 [0.87]
b = 0.90 [0.20]
Seff = 8631.37 [4059.57]
Teq = 2458 [289] K
Rp = 1.19 [0.44] Re
a = 0.0501 [0.0147] AU
Ag = 13.84 [7.73] [1.66σ]
Teffp = 7330 [700] K [6.44σ]

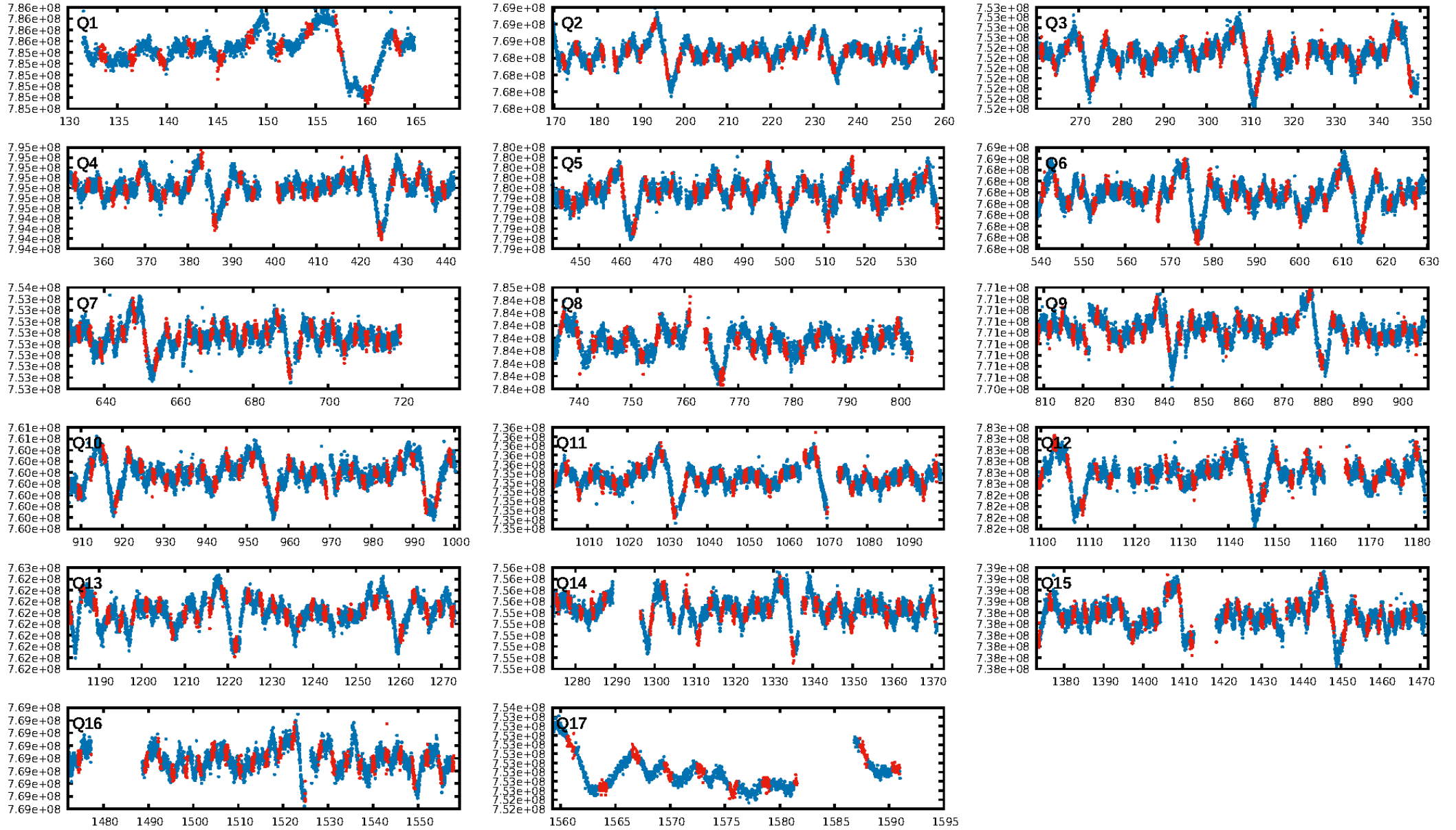
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [321.74σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.62e-14
RollingBand-fgt: 0.99 [360/363]
GhostDiagnostic-chr: -5.644
Centroid-sig: 19.6%
Centroid-so: 1.771 arcsec [1.91σ]
OotOffset-rm: 1.980 arcsec [1.25σ]
KicOffset-rm: 1.986 arcsec [1.36σ]
OotOffset-st: 2/2/4/1 [9]
KicOffset-st: 2/2/4/1 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.00 [0/17]

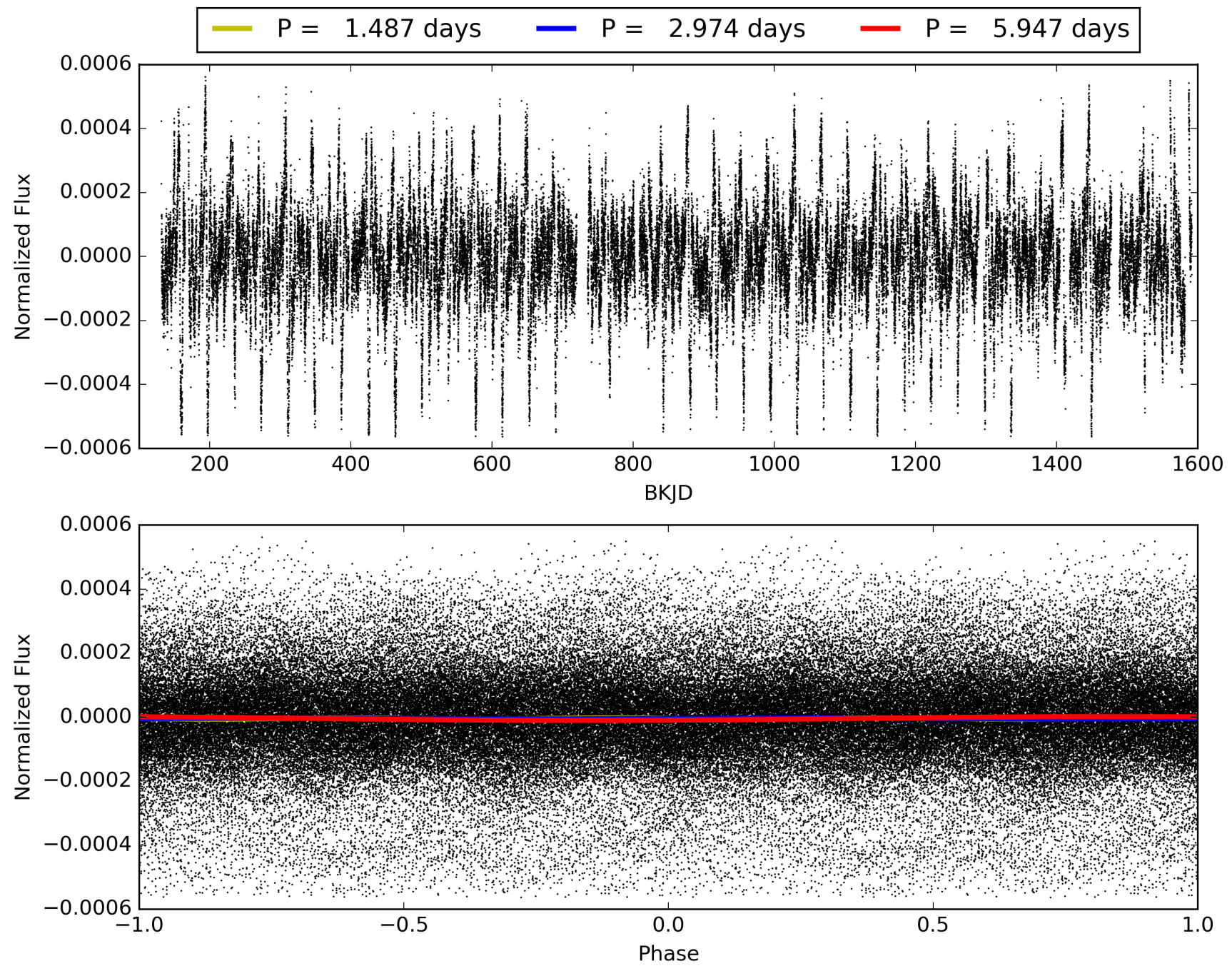
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:45:59 Z

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

TCE 009178894-04, PDC Light Curves

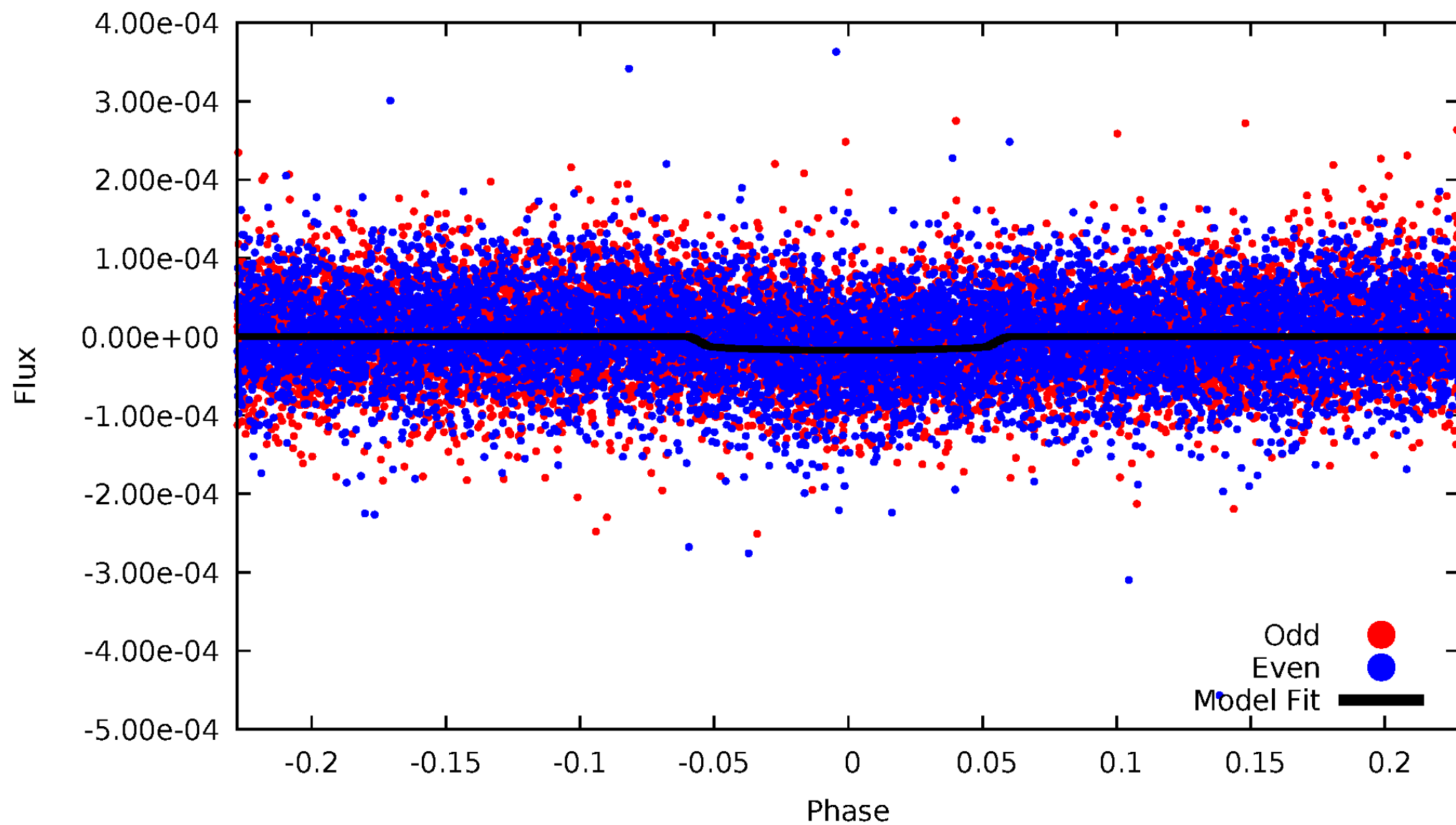


TCE 009178894-04



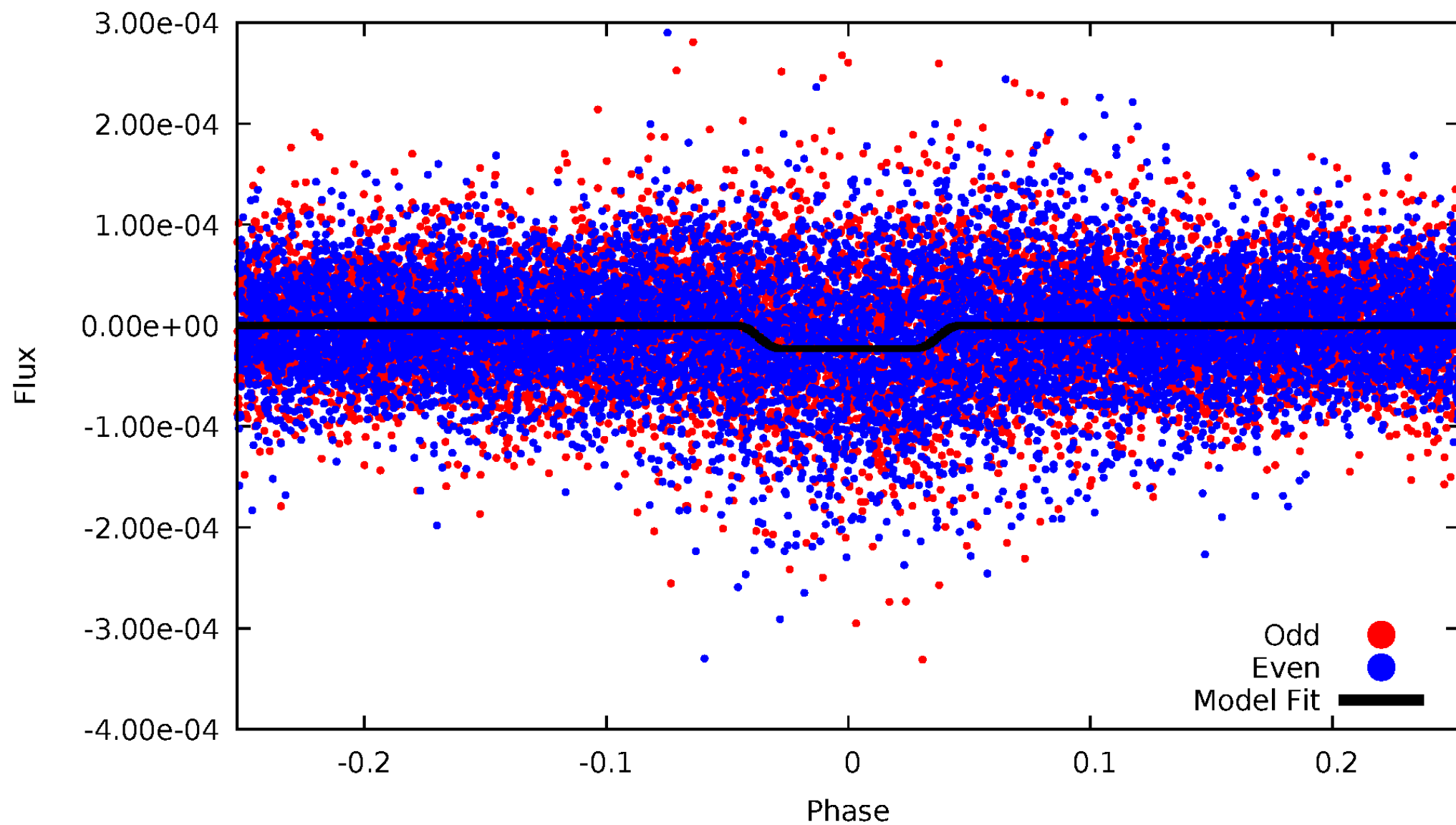
DV Odd/Even

TCE 009178894-04



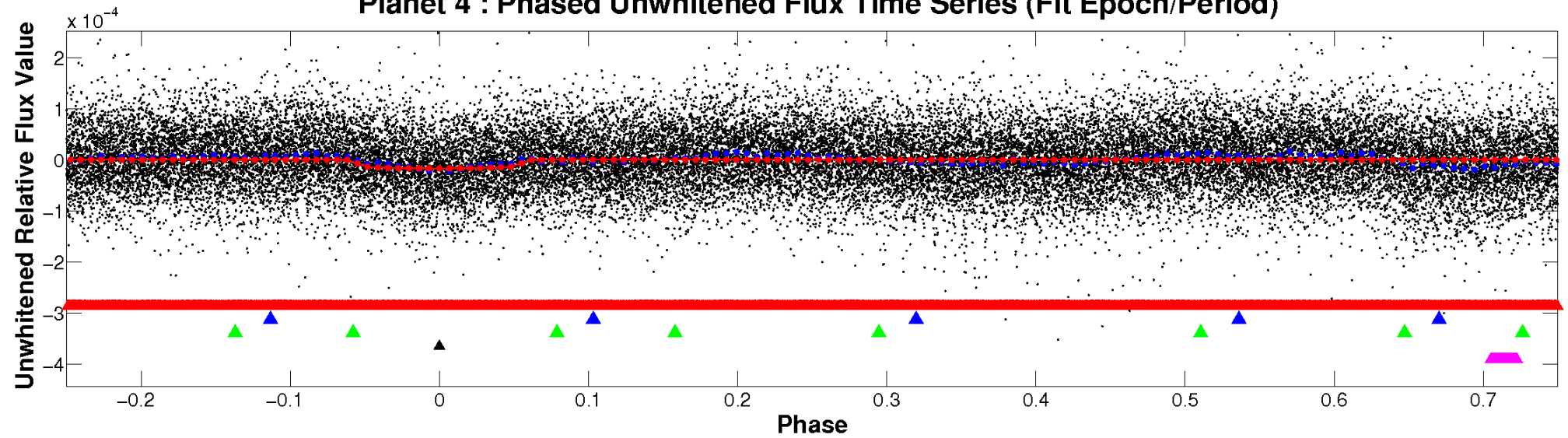
ALT Odd/Even

TCE 009178894-04

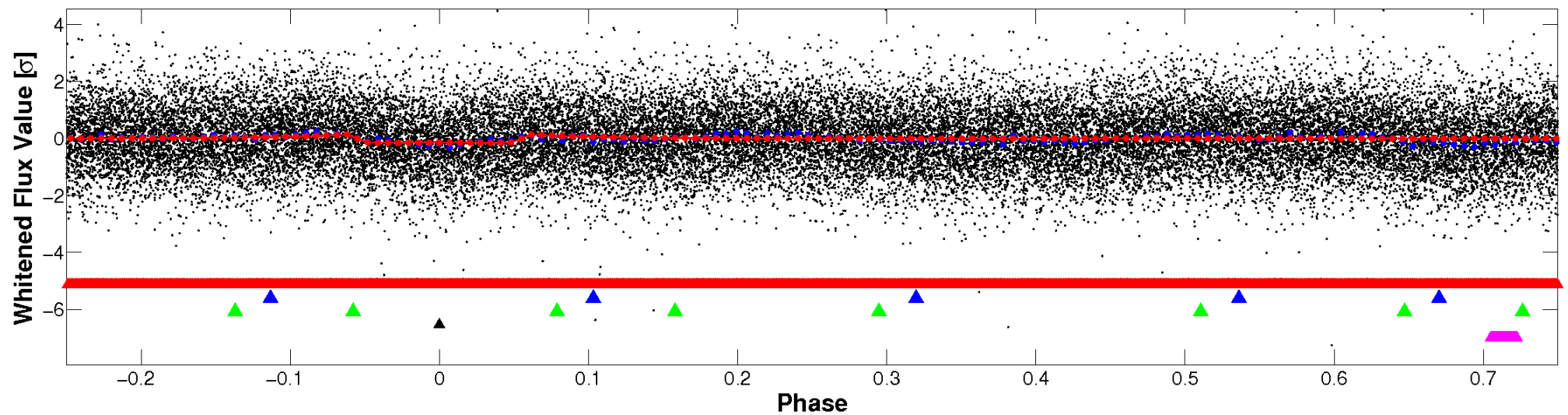


Non-Whitened Vs. Whitened Light Curve

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

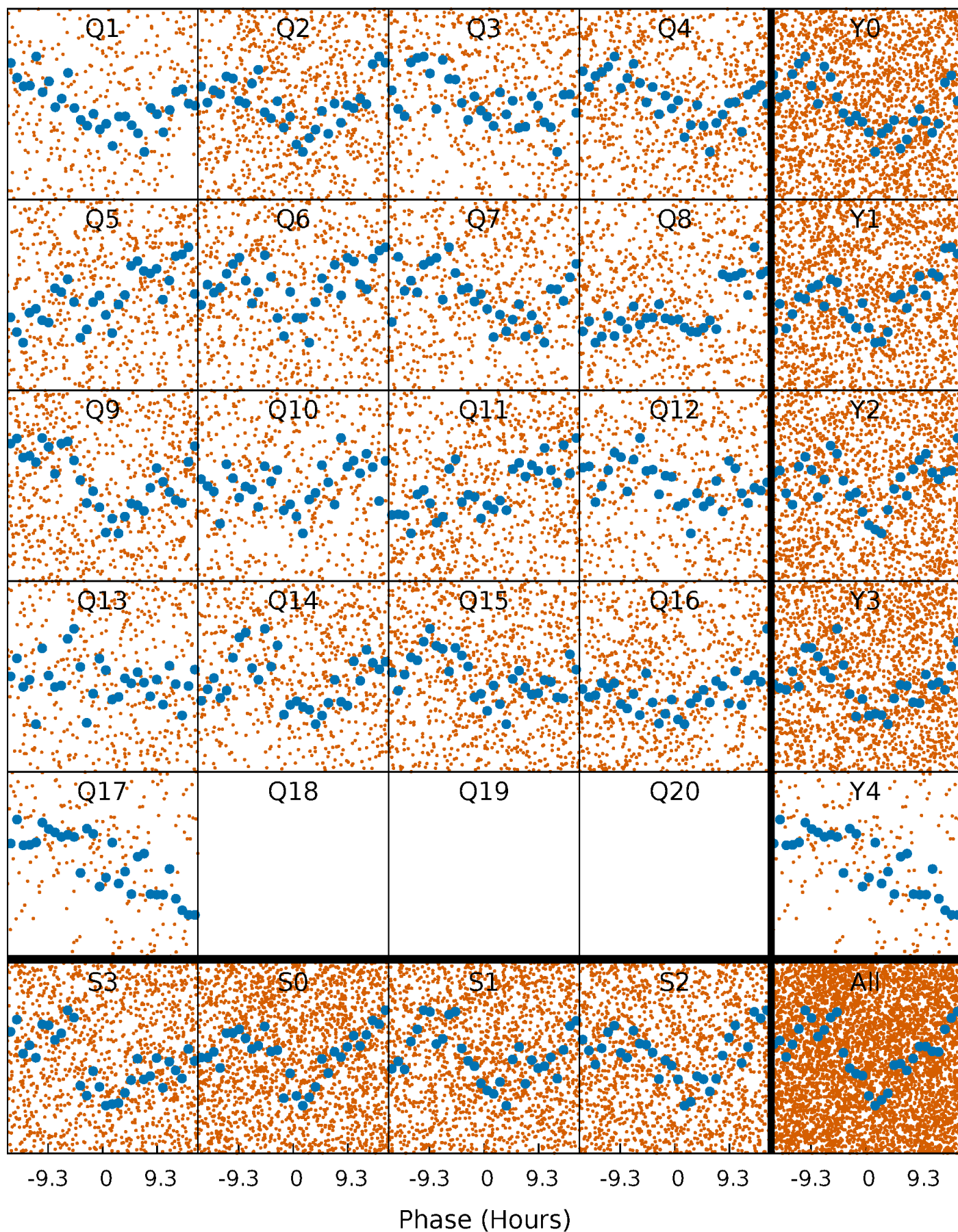


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



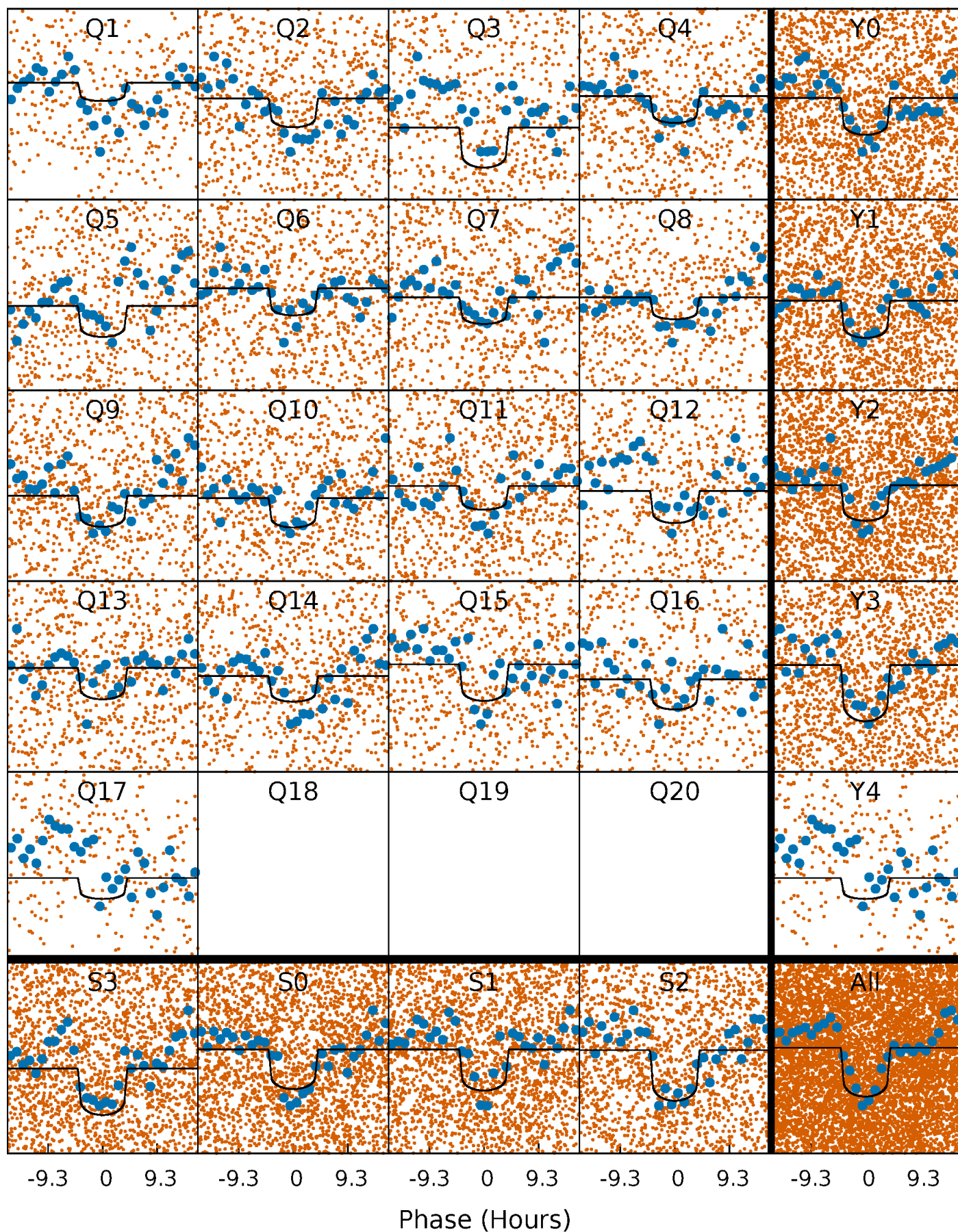
PDC Quarter-Phased Transit Curves

TCE 009178894-04 P= 2.973683 Days $T_0=133.529773$ (BKJD)



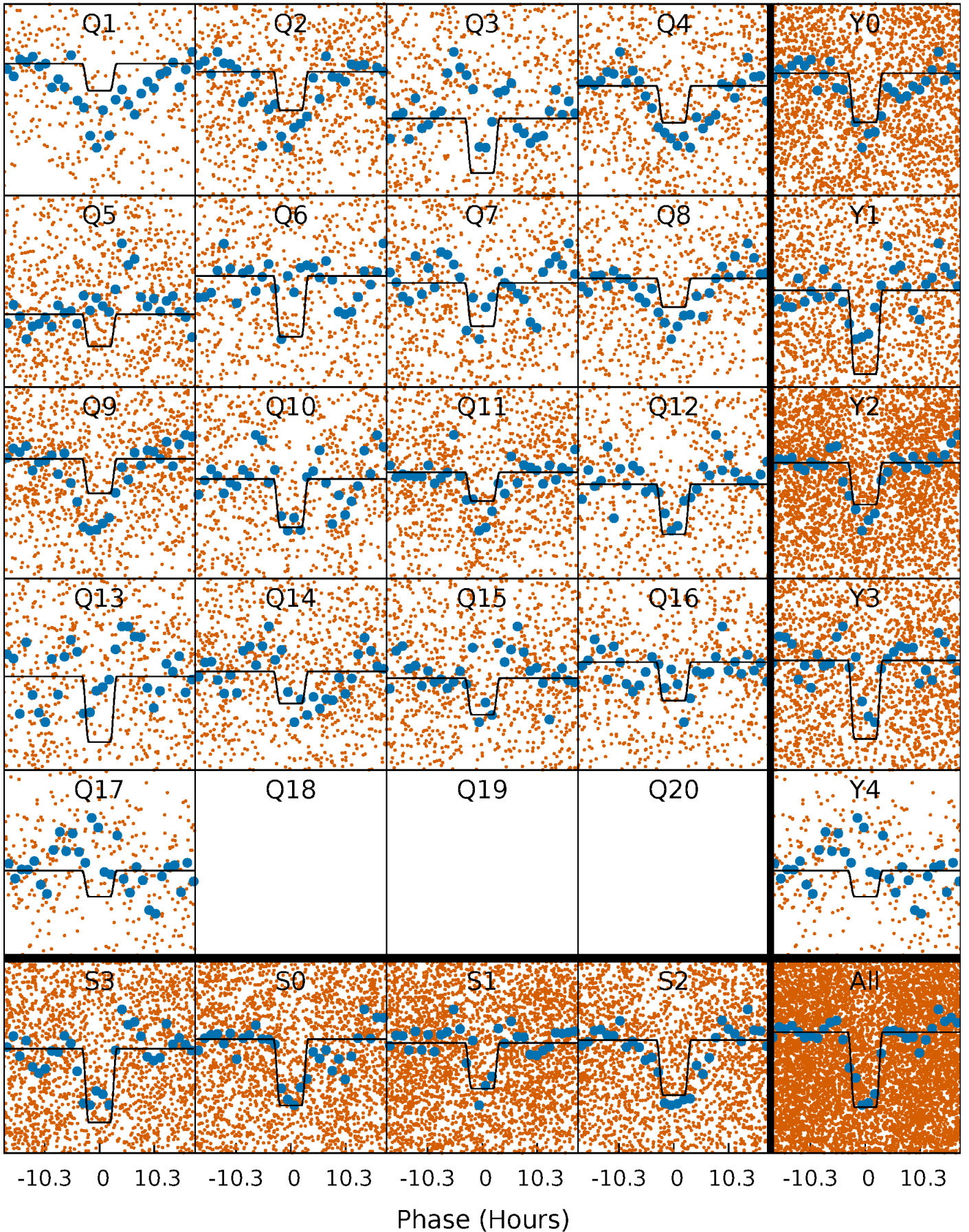
DV Quarter-Phased Transit Curves

TCE 009178894-04 P= 2.973683 Days $T_0=133.529773$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

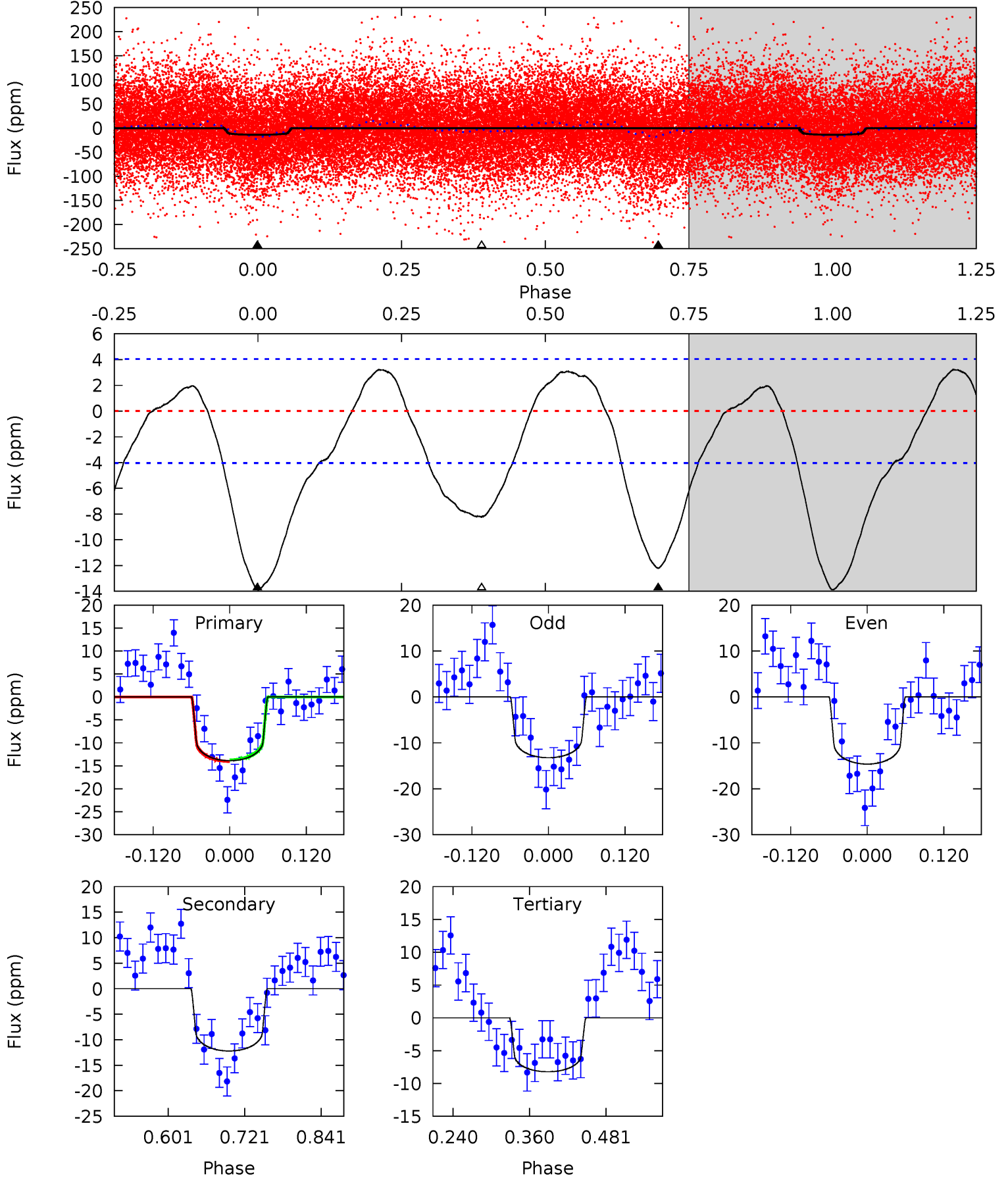
TCE 009178894-04 $P = 2.973567$ Days $T_0 = 133.545487$ (BKJD)



DV Model-Shift Uniqueness Test

009178894-04, P = 2.973683 Days, E = 130.556090 Days

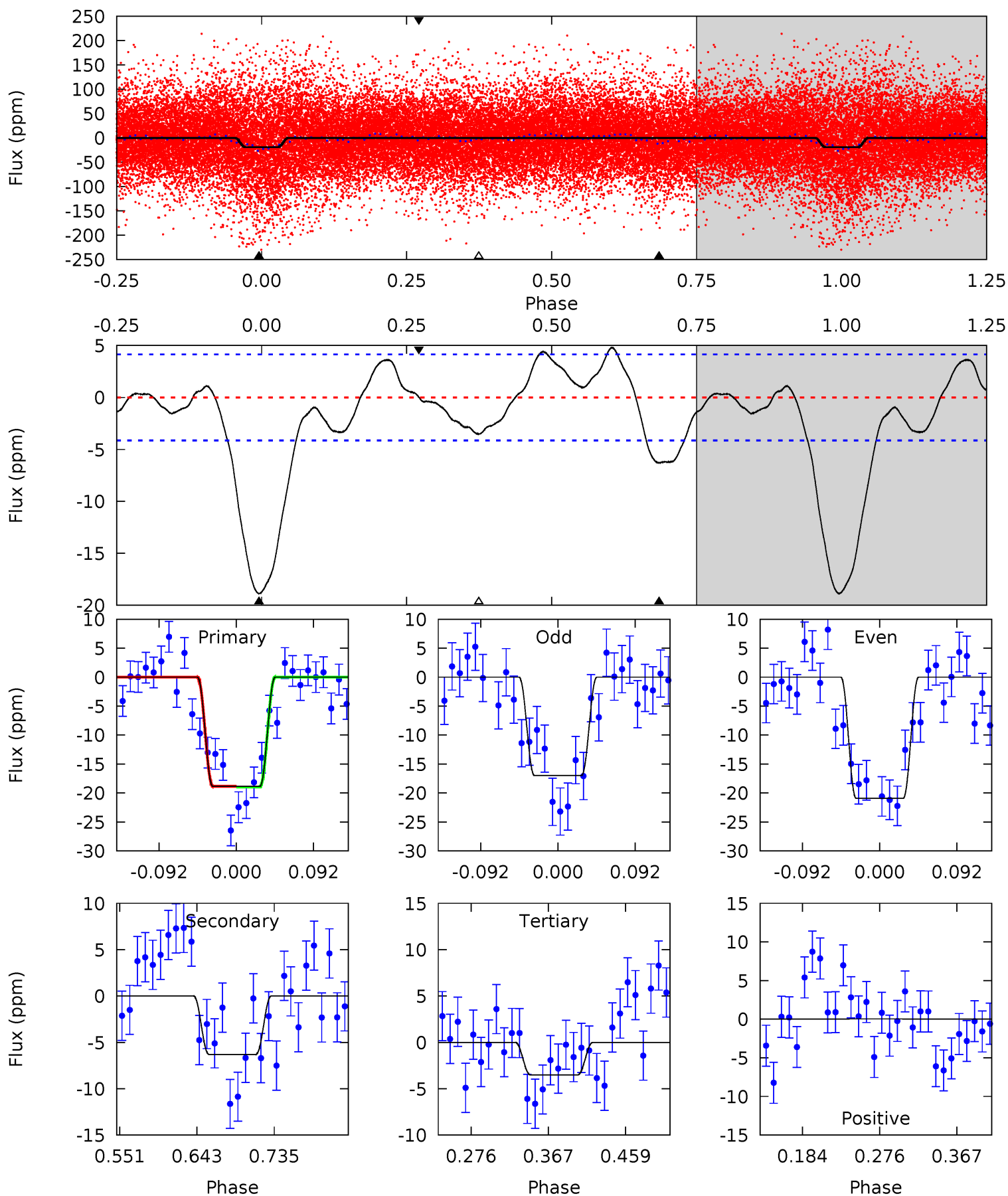
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	13.7	9.20	0	4.53	1.55	4.32	6.35	15.5	4.47	13.7	0.77	0.80	0.19	0.18



Alt Model-Shift Uniqueness Test

009178894-04, P = 2.973567 Days, E = 130.571920 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	6.98	3.90	0.03	4.58	1.69	2.38	17.0	20.9	3.08	6.95	2.18	0.86	0.20	0.07



Stellar Parameters For KIC 009178894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7892^{+218}_{-327}	$3.921^{+0.247}_{-0.114}$	$-0.080^{+0.200}_{-0.350}$	$2.496^{+0.450}_{-0.837}$	$1.894^{+0.098}_{-0.390}$	$0.172^{+0.300}_{-0.060}$
	+3%/-4%	+6%/-3%	+250%/-438%	+18%/-34%	+5%/-21%	+175%/-35%
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 009178894-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 1	$1.15^{+0.23}_{-0.24}$	3402^{+208}_{-272}	6837^{+828}_{-587}	12^{+7}_{-4}
Alt.	-6 ± 1	$1.25^{+0.26}_{-0.24}$	3395^{+220}_{-285}	5508^{+473}_{-434}	$5.389^{+2.751}_{-1.748}$

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 $A_{\text{obs}} \gg 1.0$

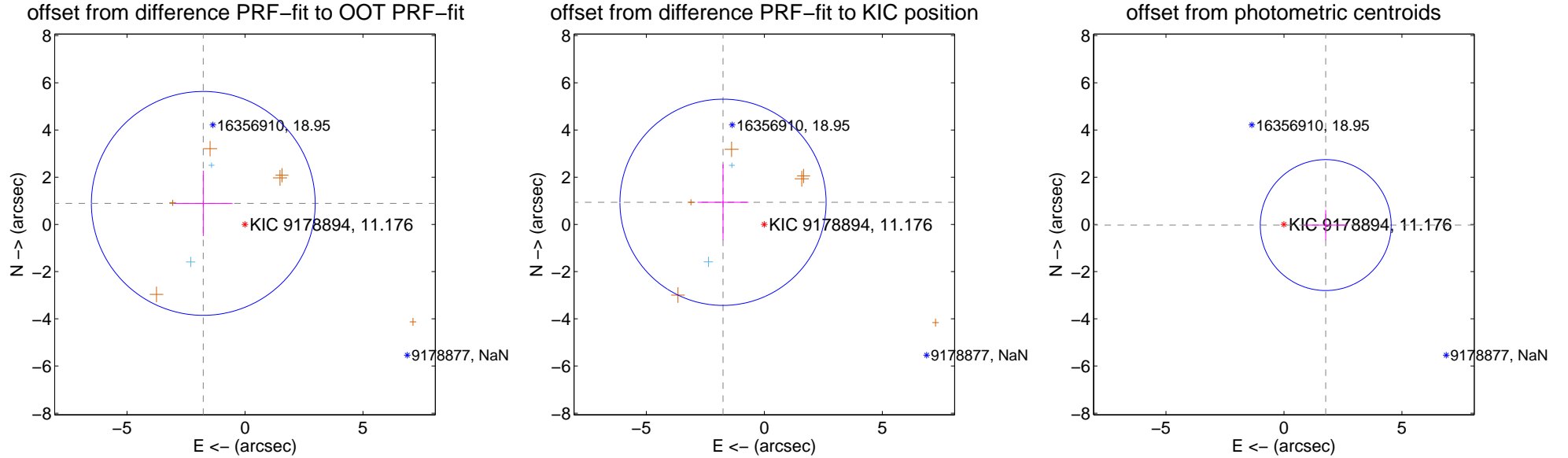
DV Centroid Data

Supplemental centroid analysis for 009178894-04. **Kepler magnitude: 11.18.** Transit SNR 10.48

There are 2 quarters with good PRF difference image offsets

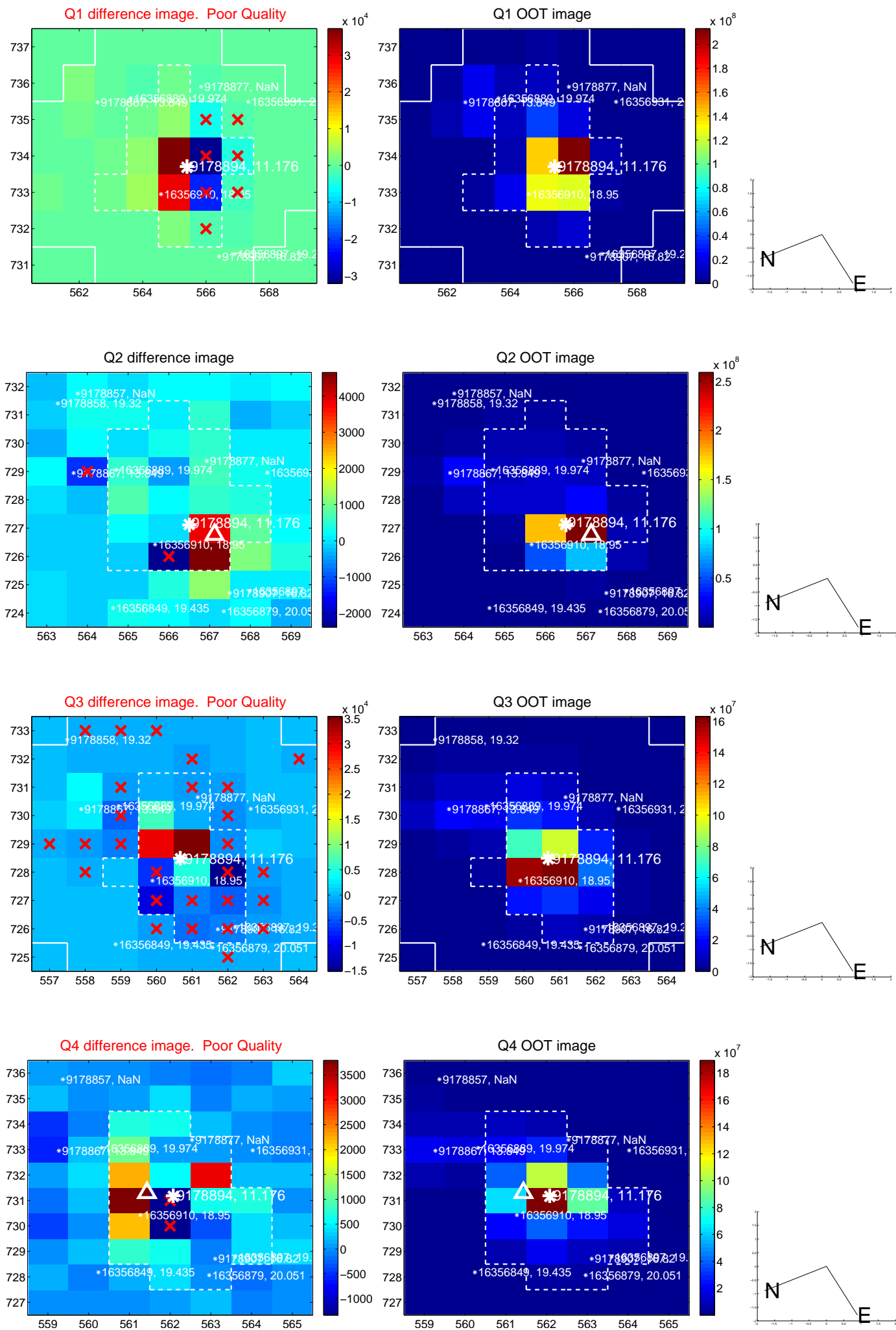
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.980 ± 1.581	1.25	1.768 ± 1.239	0.891 ± 1.386
PRF-fit source offset from KIC position	1.986 ± 1.457	1.36	1.751 ± 1.081	0.937 ± 1.608
photometric centroid source offset	1.77 ± 0.92	1.91	-1.77 ± 0.92	-0.03 ± 0.64

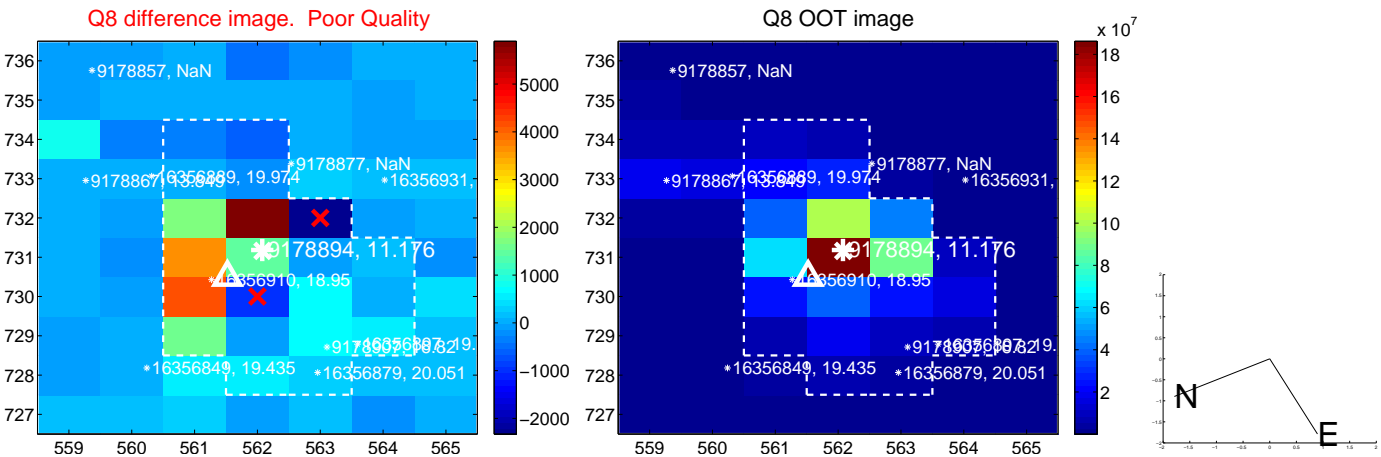
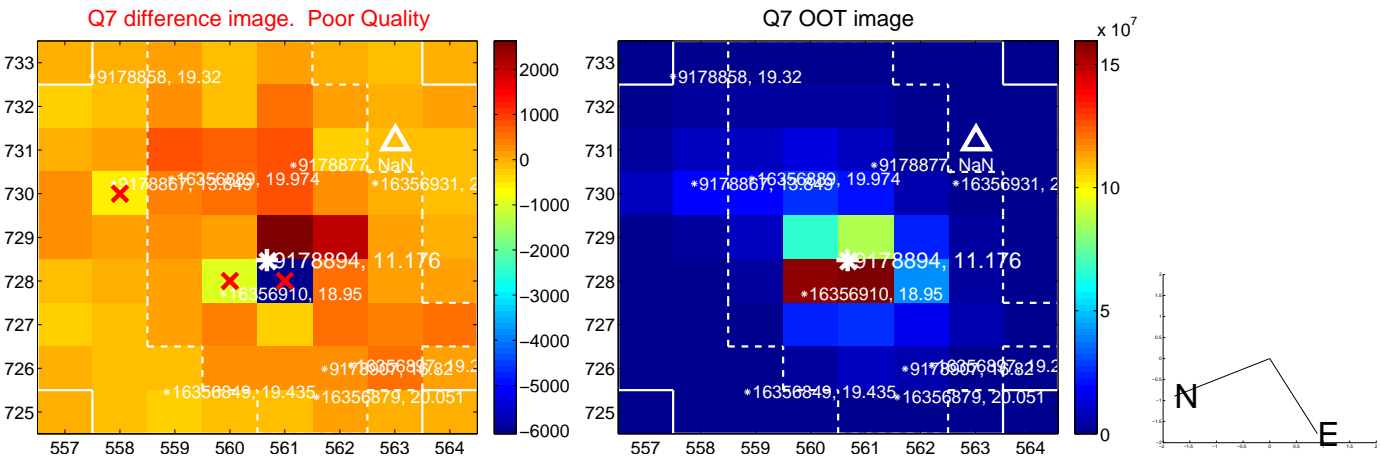
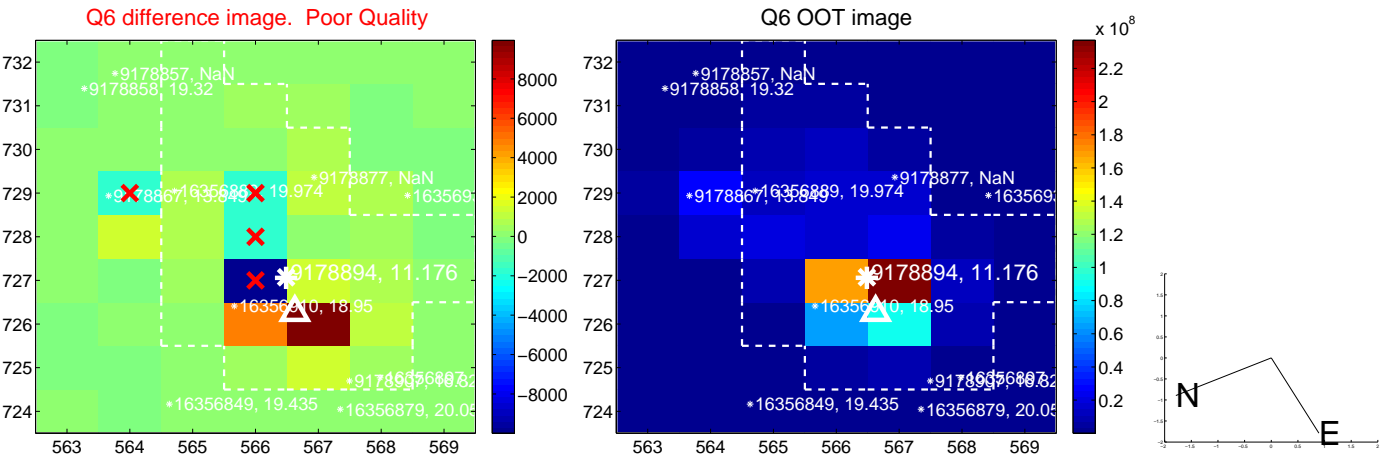
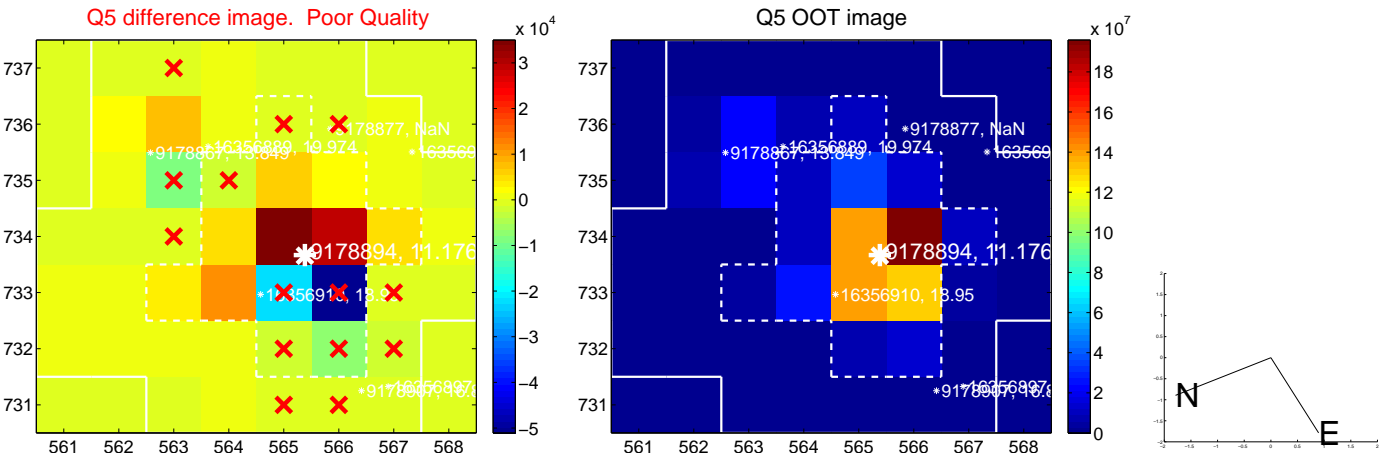


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

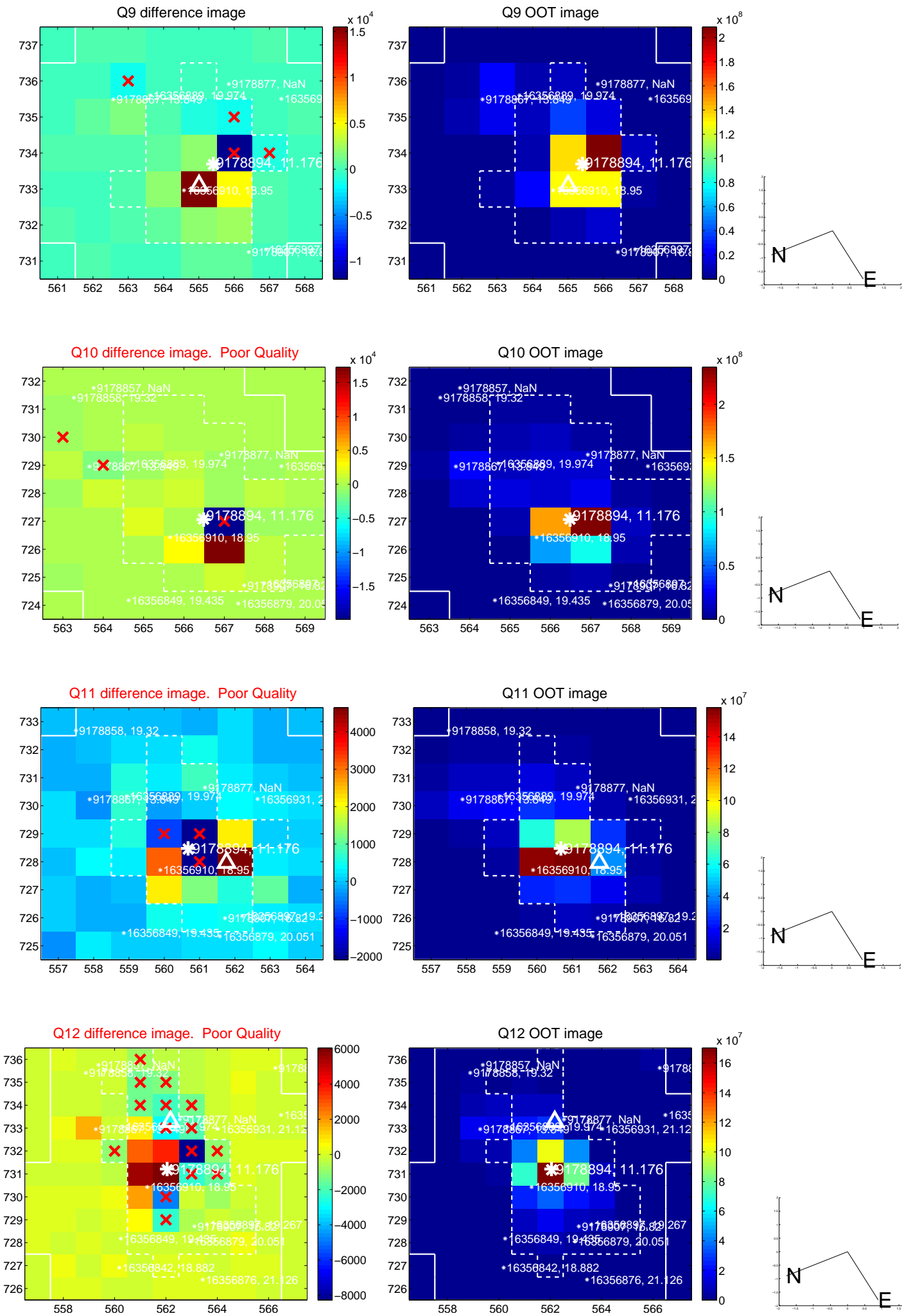
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



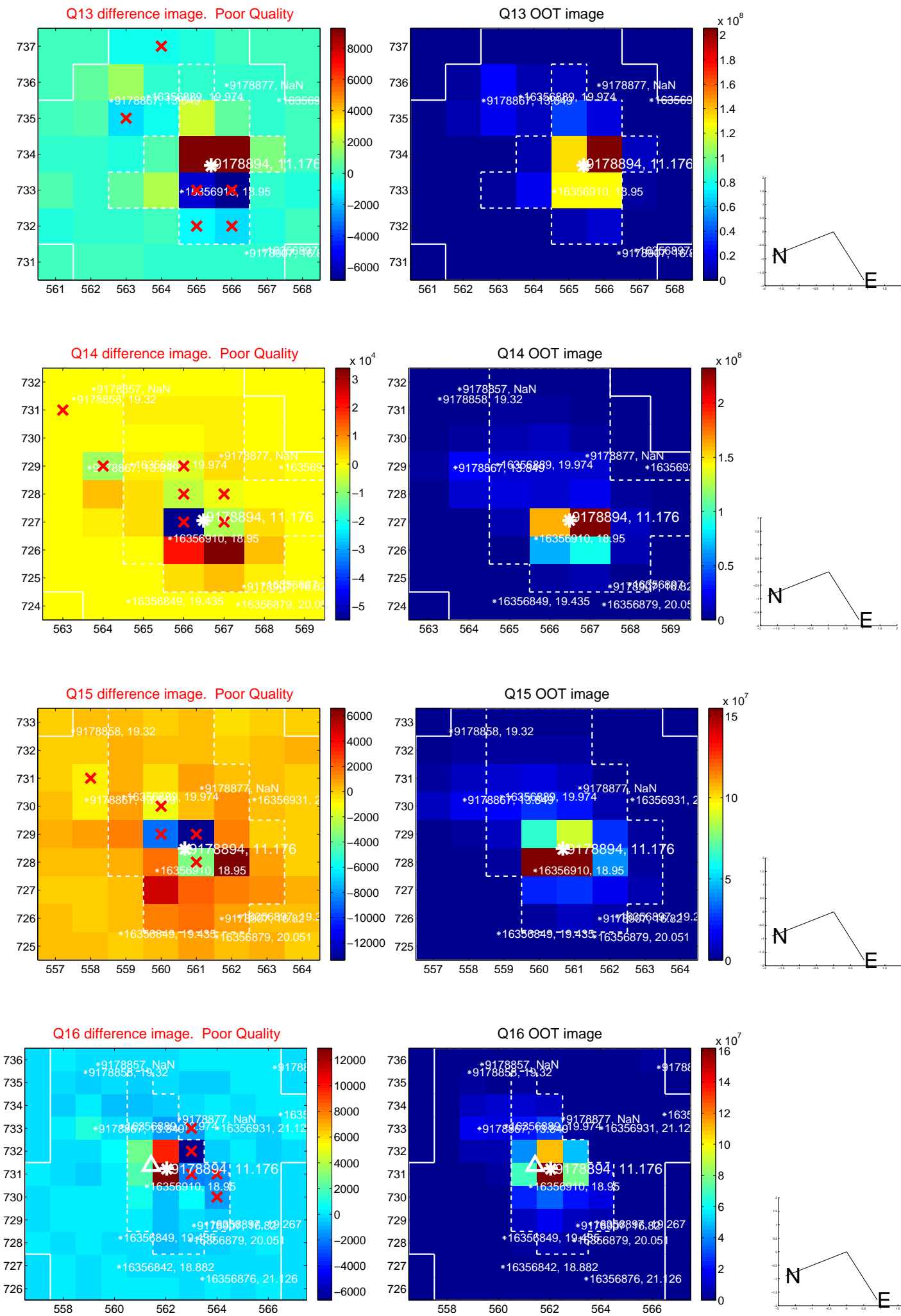
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



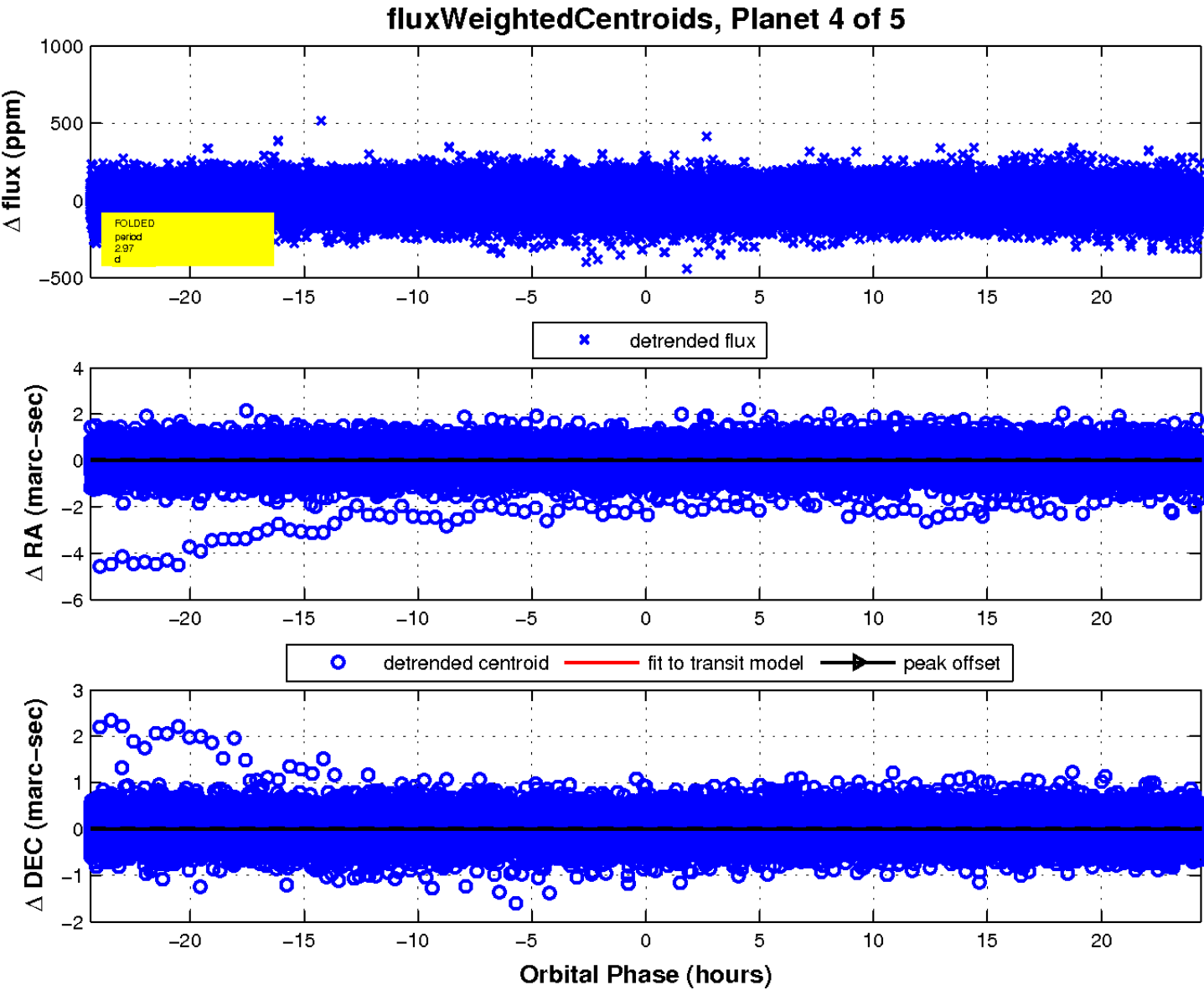
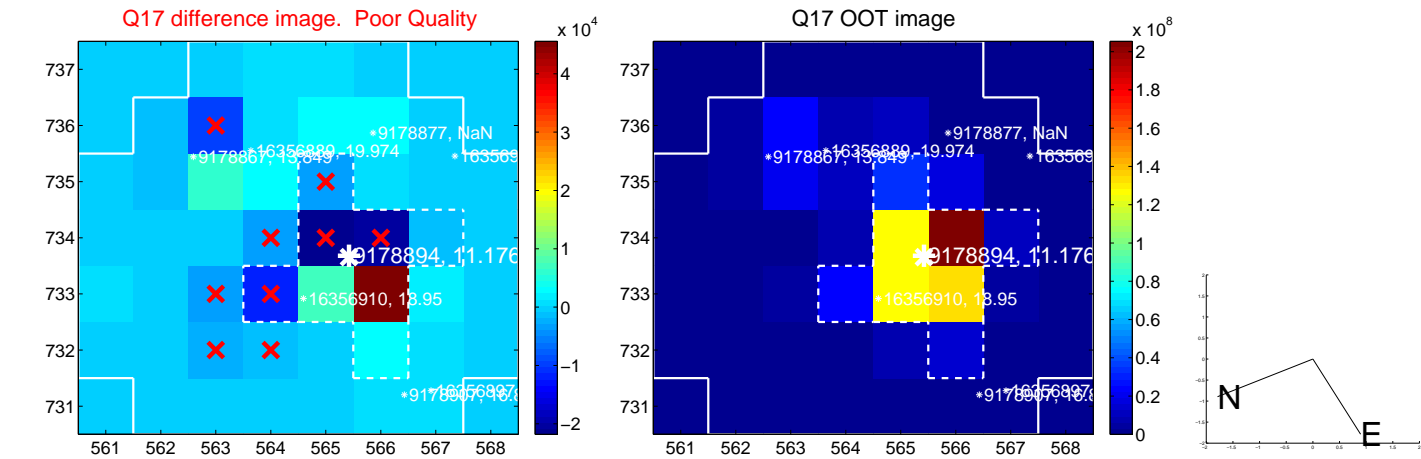
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

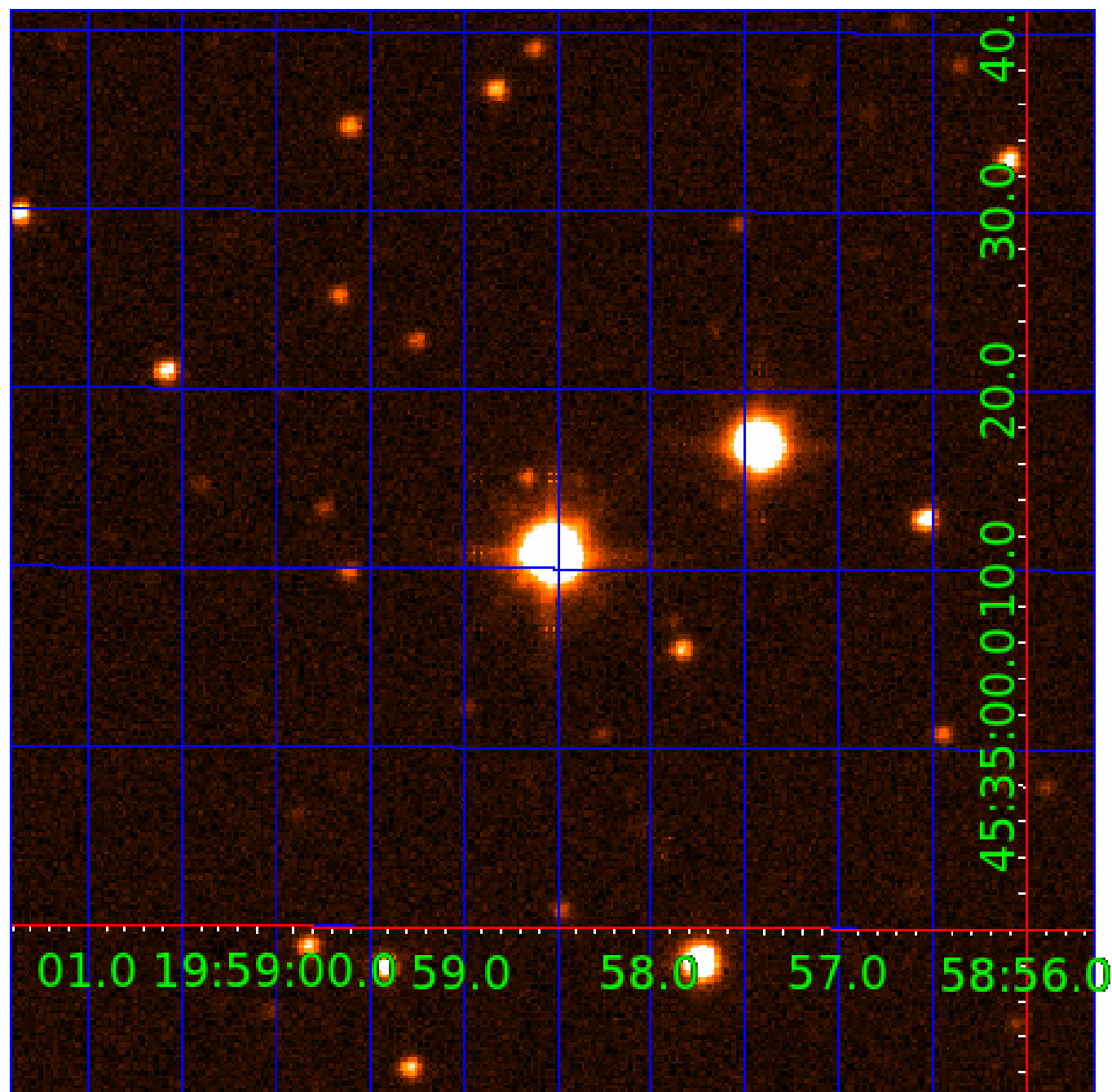


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009178894

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})
009178894-01	OBS	No	1.171074	132.234413	8.9	4.073	10.2	10.7	2.50	7892	0.85	29901.53
009178894-02	OBS	No	266.987781	262.992512	66.0	8.554	17.5	4.2	2.50	7892	2.11	21.47
009178894-03	OBS	No	176.089066	293.059717	82.4	10.035	11.5	6.2	2.50	7892	2.56	37.40
009178894-04	OBS	No	2.973683	133.529773	17.0	8.127	10.3	10.5	2.50	7892	1.19	8631.37
009178894-05	OBS	No	2.973575	132.705080	14.9	11.352	9.8	9.2	2.50	7892	1.11	8631.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009178894-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
009178894-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009178894-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
009178894-04	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
009178894-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

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

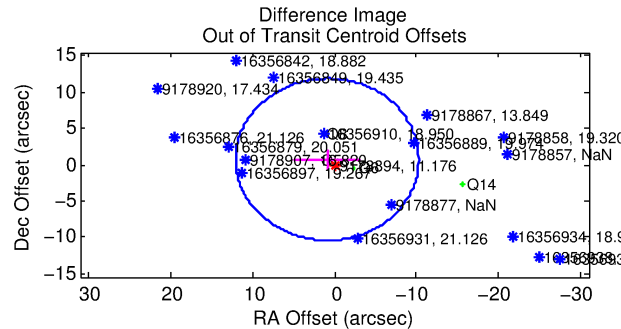
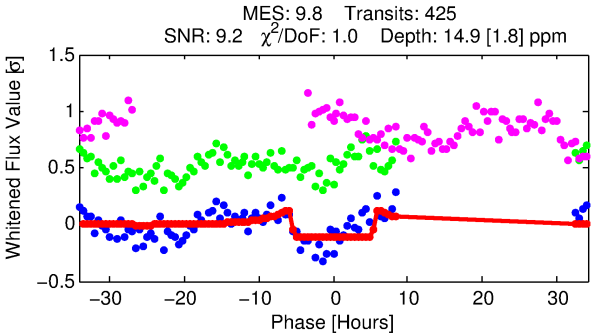
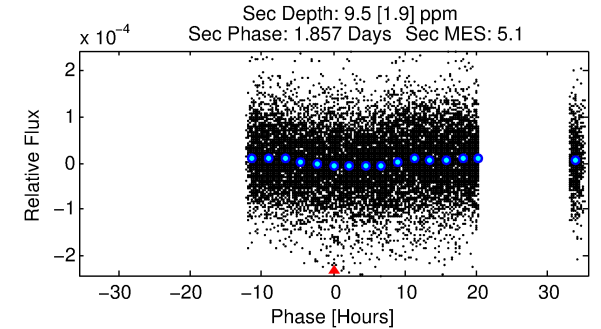
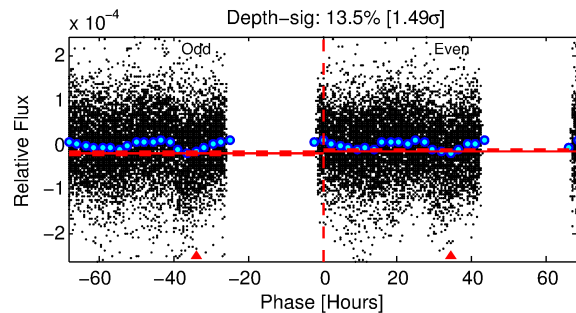
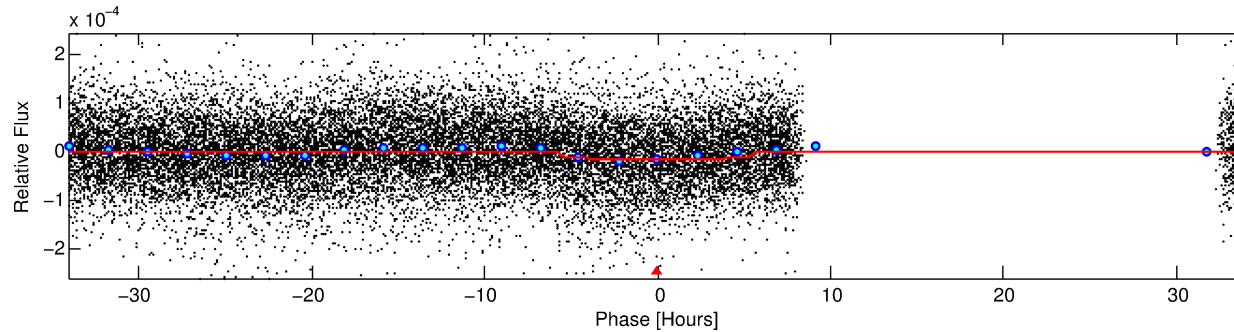
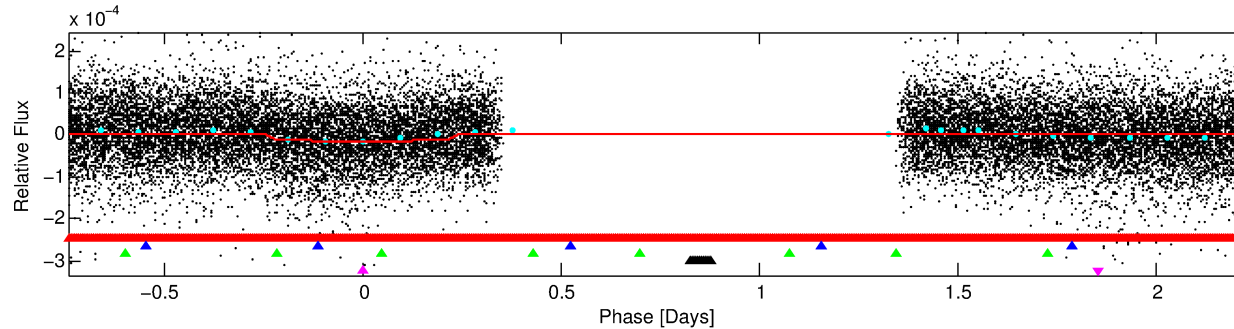
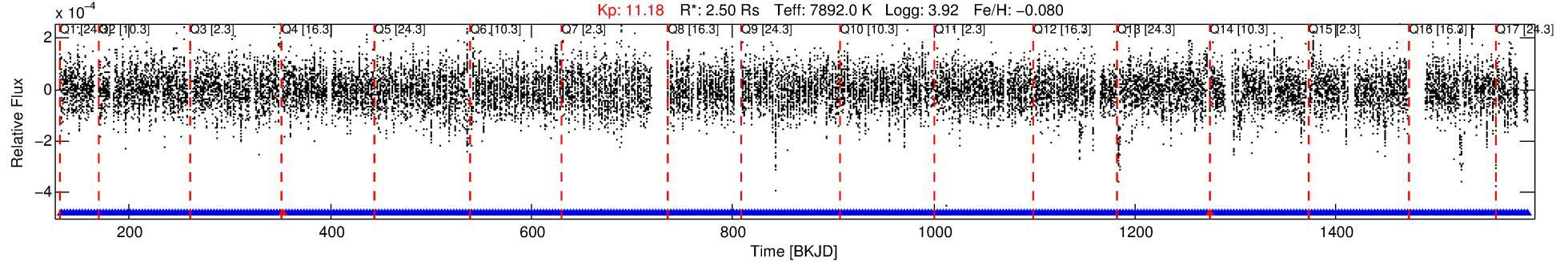
Ephemeris Match Information For 009178894-05

No Significant Match Found

DV One-Page Summary

KIC: 9178894 Candidate: 5 of 5 Period: 2.974 d
KOI: K05635 Corr: No Ephemeris Match

Kp: 11.18 R*: 2.50 Rs Teff: 7892.0 K Logg: 3.92 Fe/H: -0.080



DV Fit Results:

Period = 2.97358 [0.00003] d
Epoch = 132.7051 [0.0059] BKJD
Rp/R* = 0.0041 [0.0006]
a/R* = 1.32 [0.48]
b = 0.89 [0.21]
Seff = 8631.78 [4059.77]
Teq = 2458 [289] K
Rp = 1.11 [0.41] Re
a = 0.0501 [0.0147] AU
Ag = 10.62 [6.04] [1.59σ]
Teffp = 6861 [680] K [5.96σ]

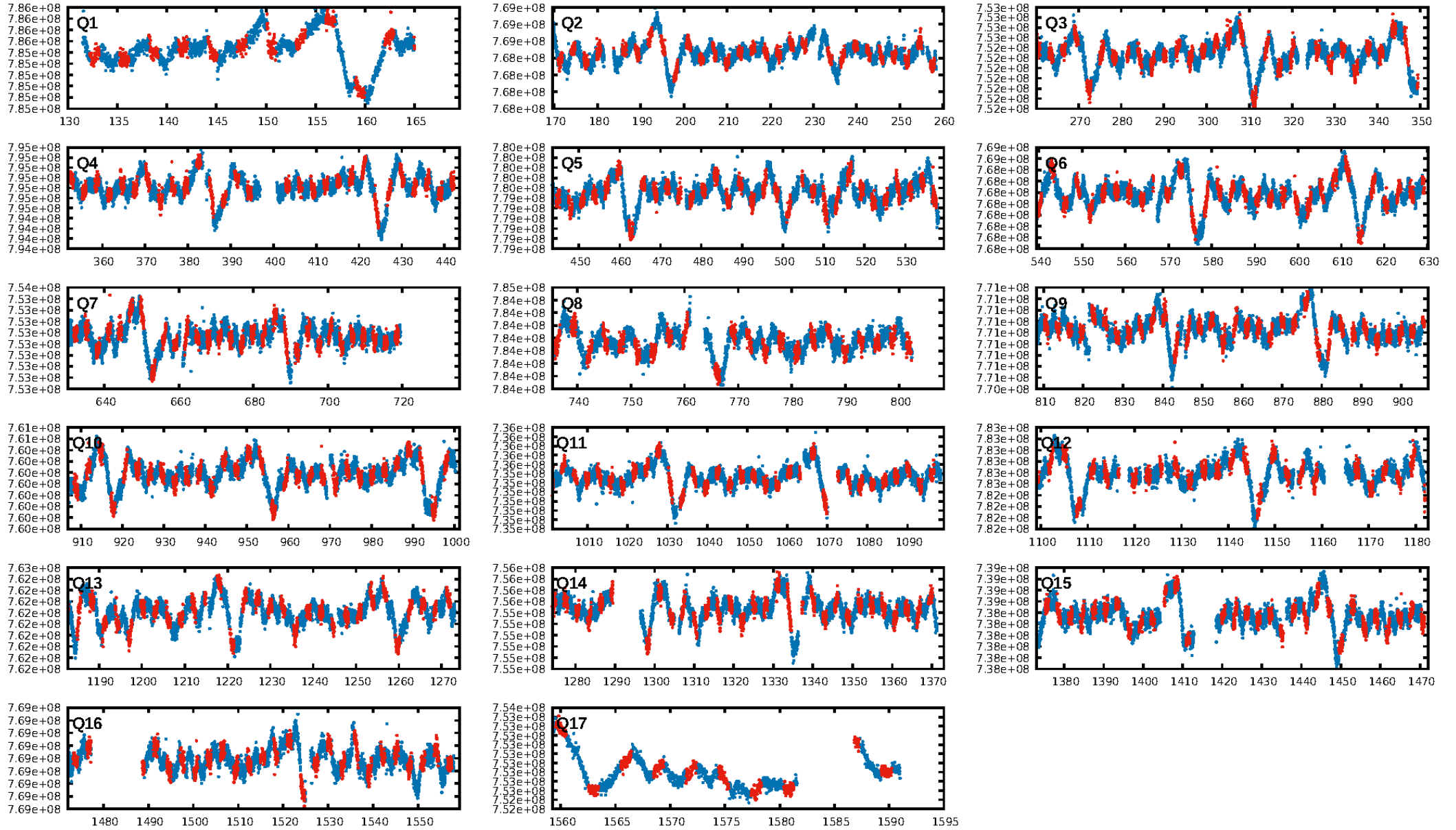
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.59σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.23e-14
RollingBand-fgt: 1.00 [403/405]
GhostDiagnostic-chr: 1.802
Centroid-sig: 10.1%
Centroid-so: 1.870 arcsec [1.95σ]
OotOffset-rm: 1.143 arcsec [0.31σ]
KicOffset-rm: 1.109 arcsec [0.40σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/17]

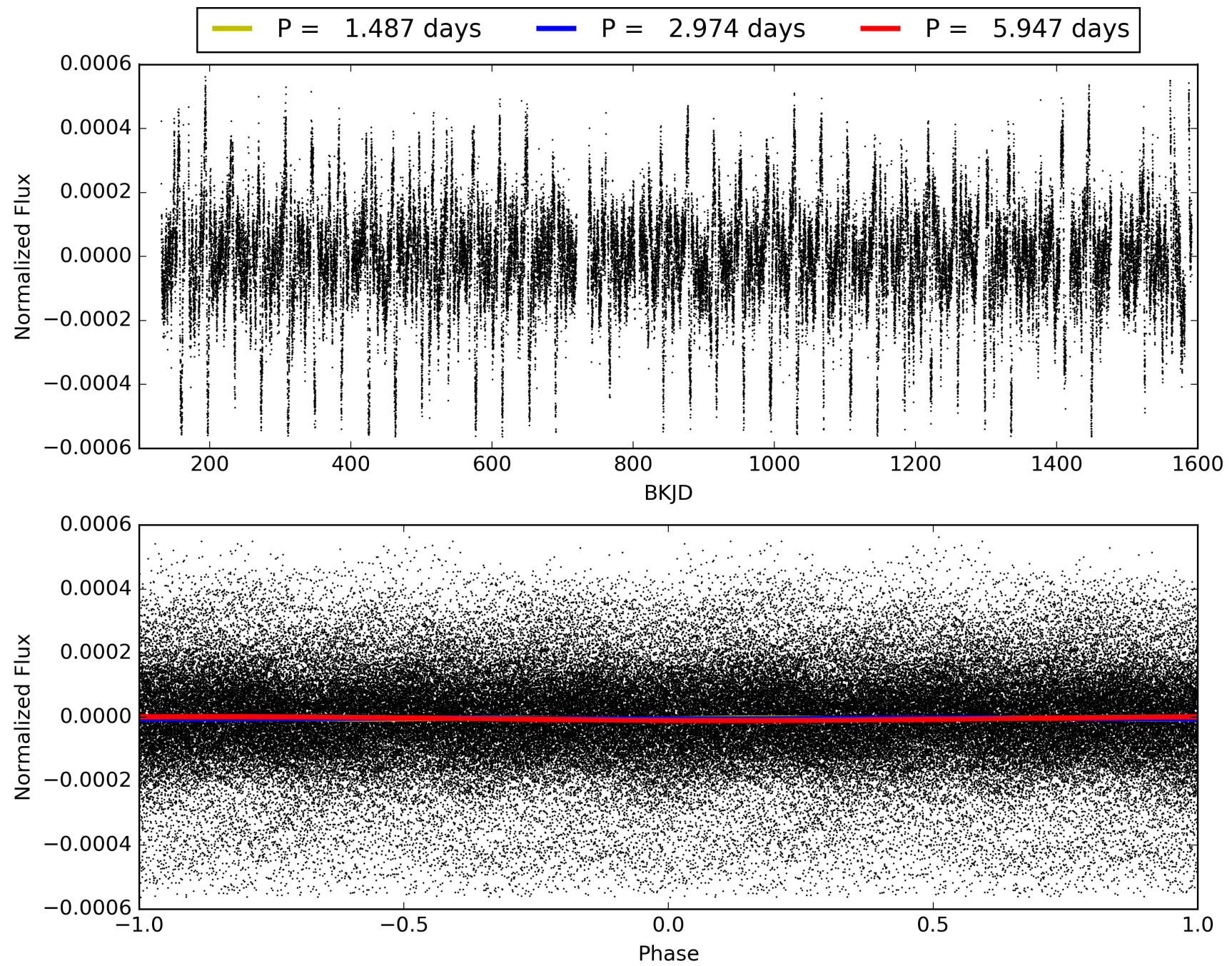
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:46:08 Z

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

TCE 009178894-05, PDC Light Curves

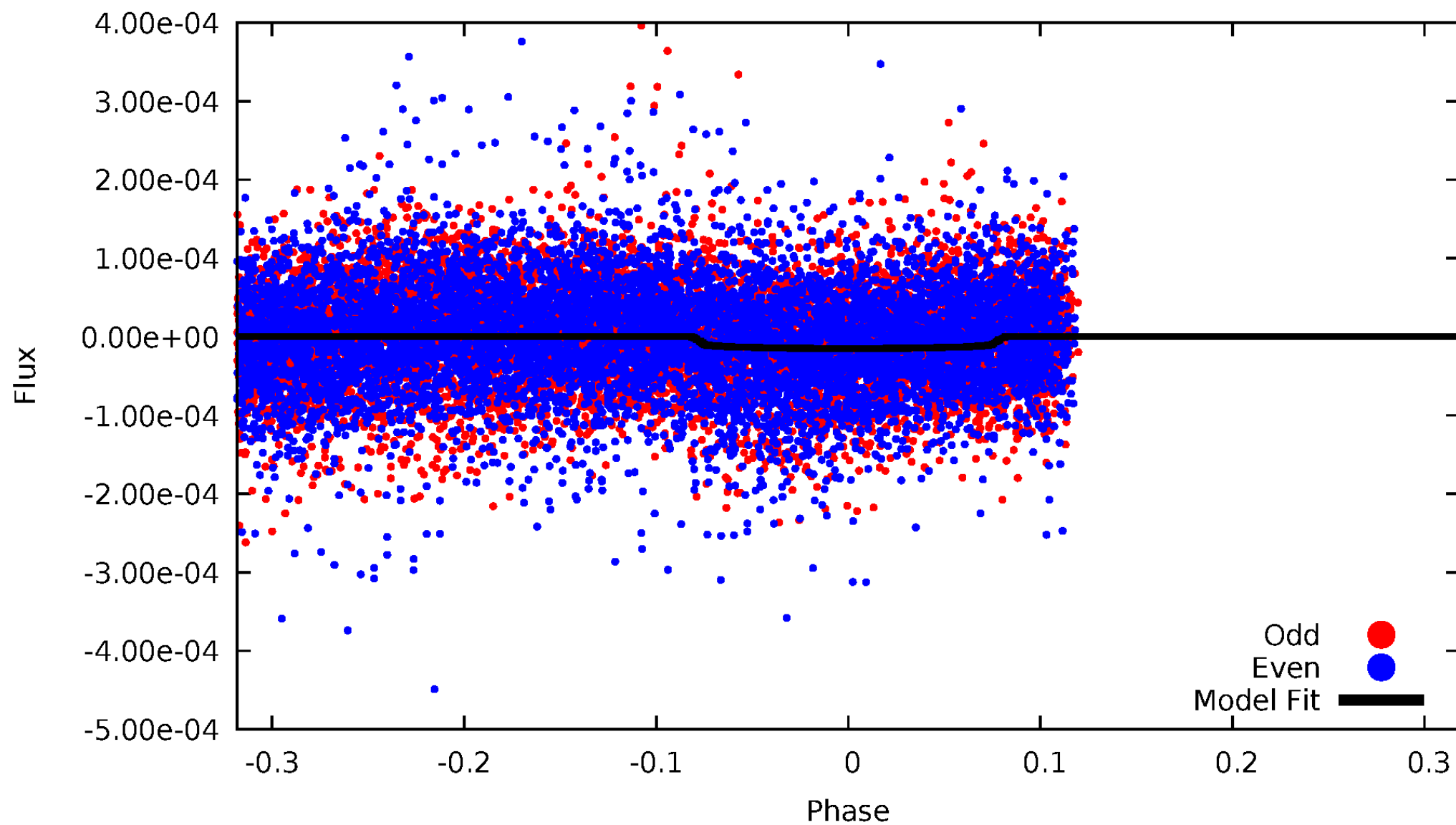


TCE 009178894-05



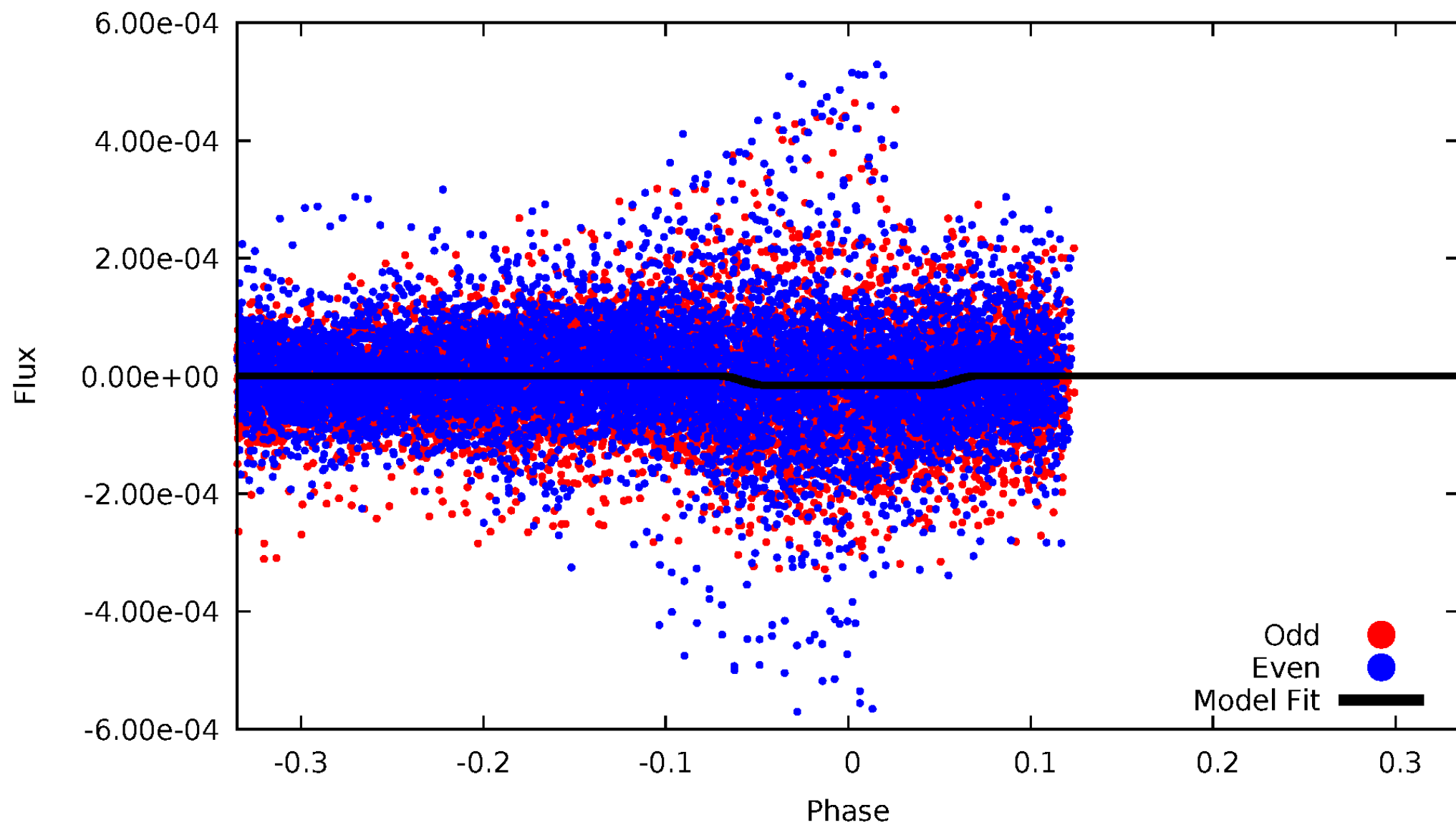
DV Odd/Even

TCE 009178894-05



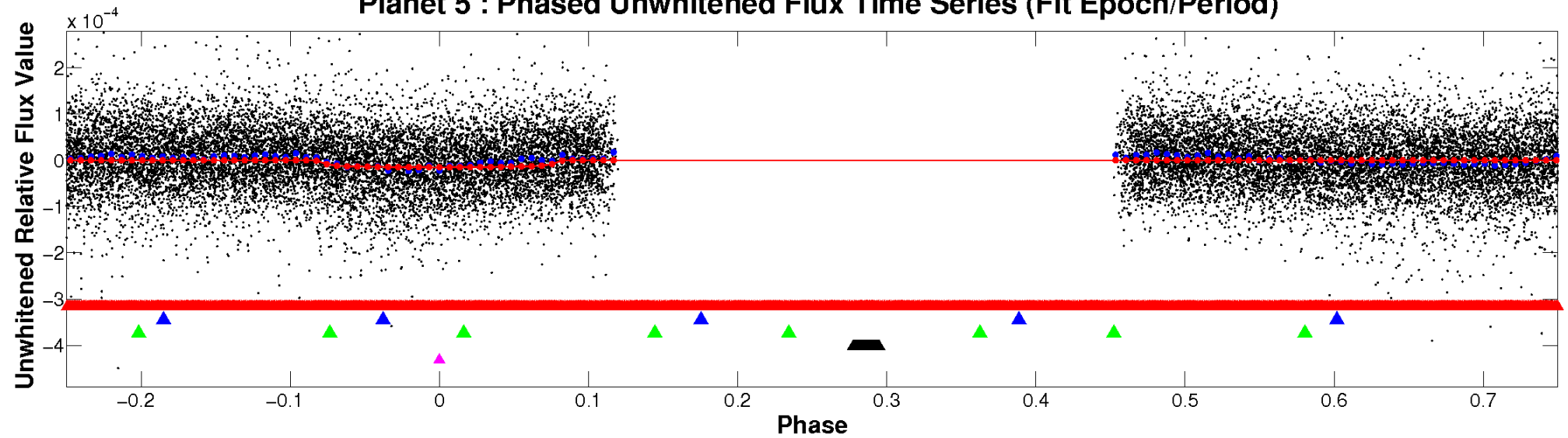
ALT Odd/Even

TCE 009178894-05

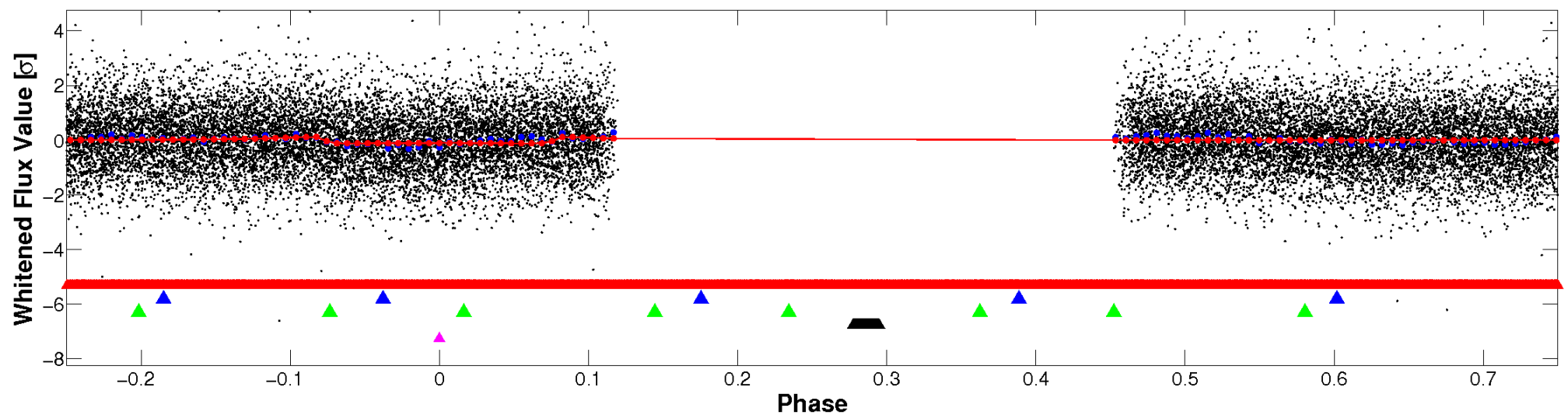


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

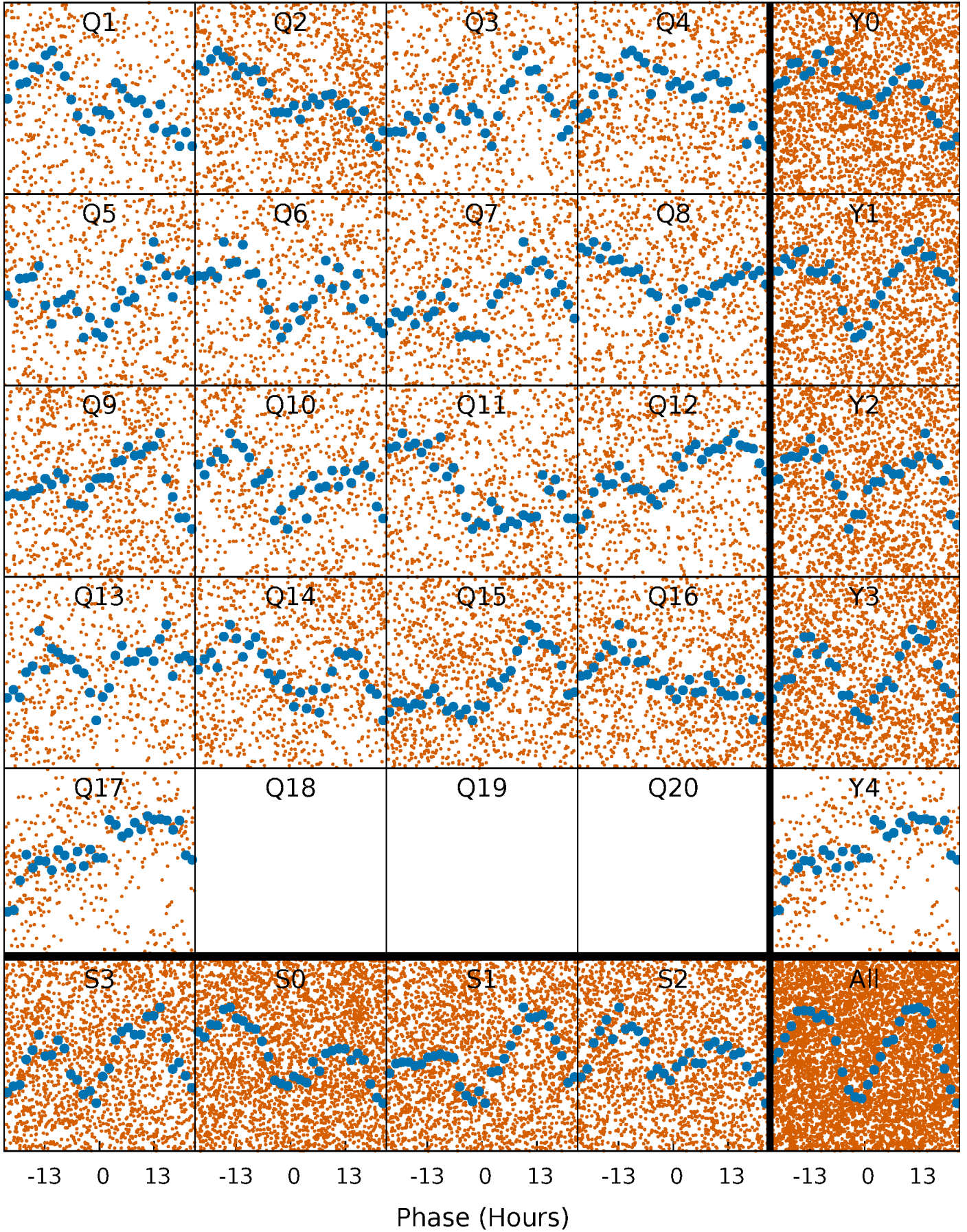


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



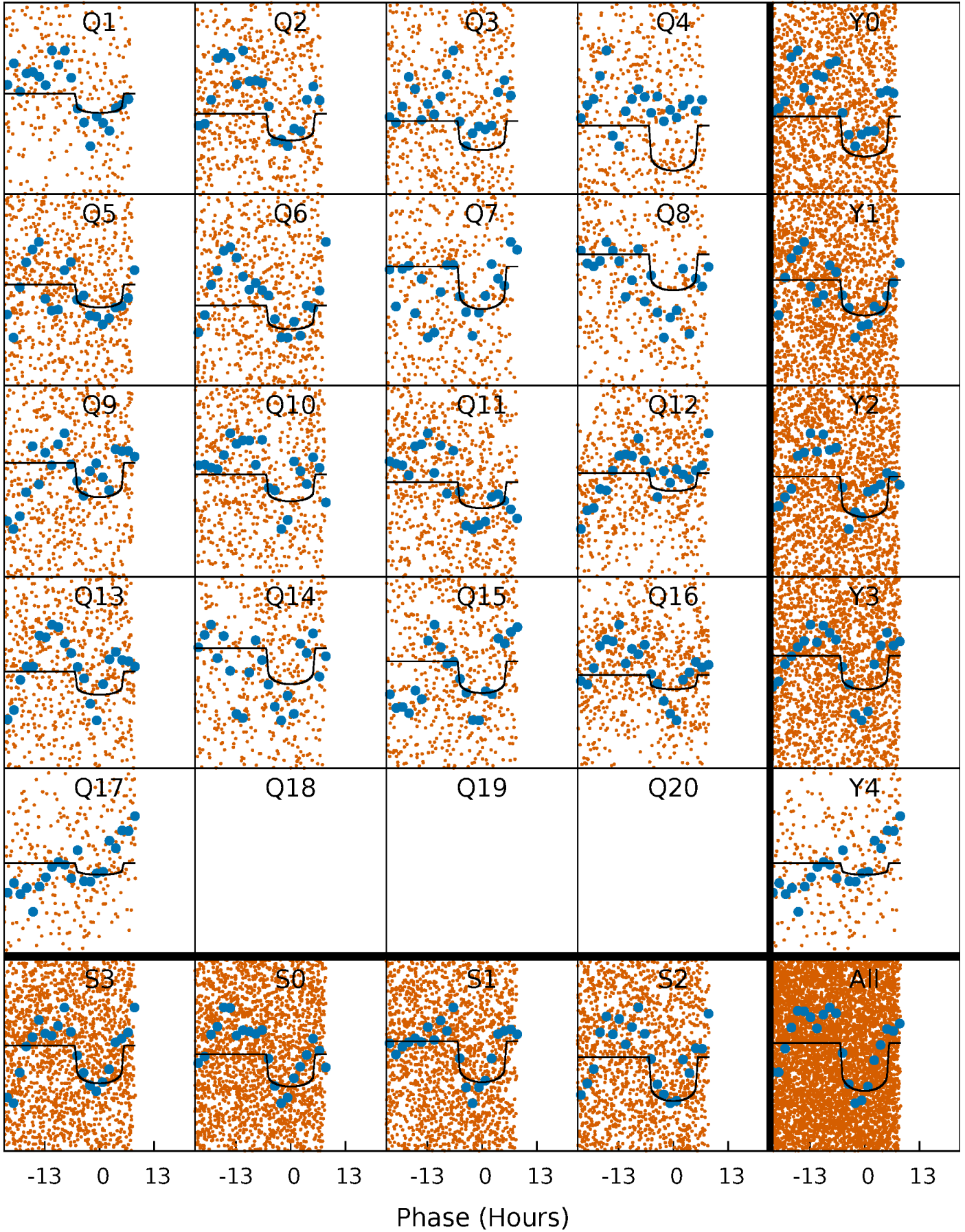
PDC Quarter-Phased Transit Curves

TCE 009178894-05 P= 2.973575 Days $T_0=132.705080$ (BKJD)



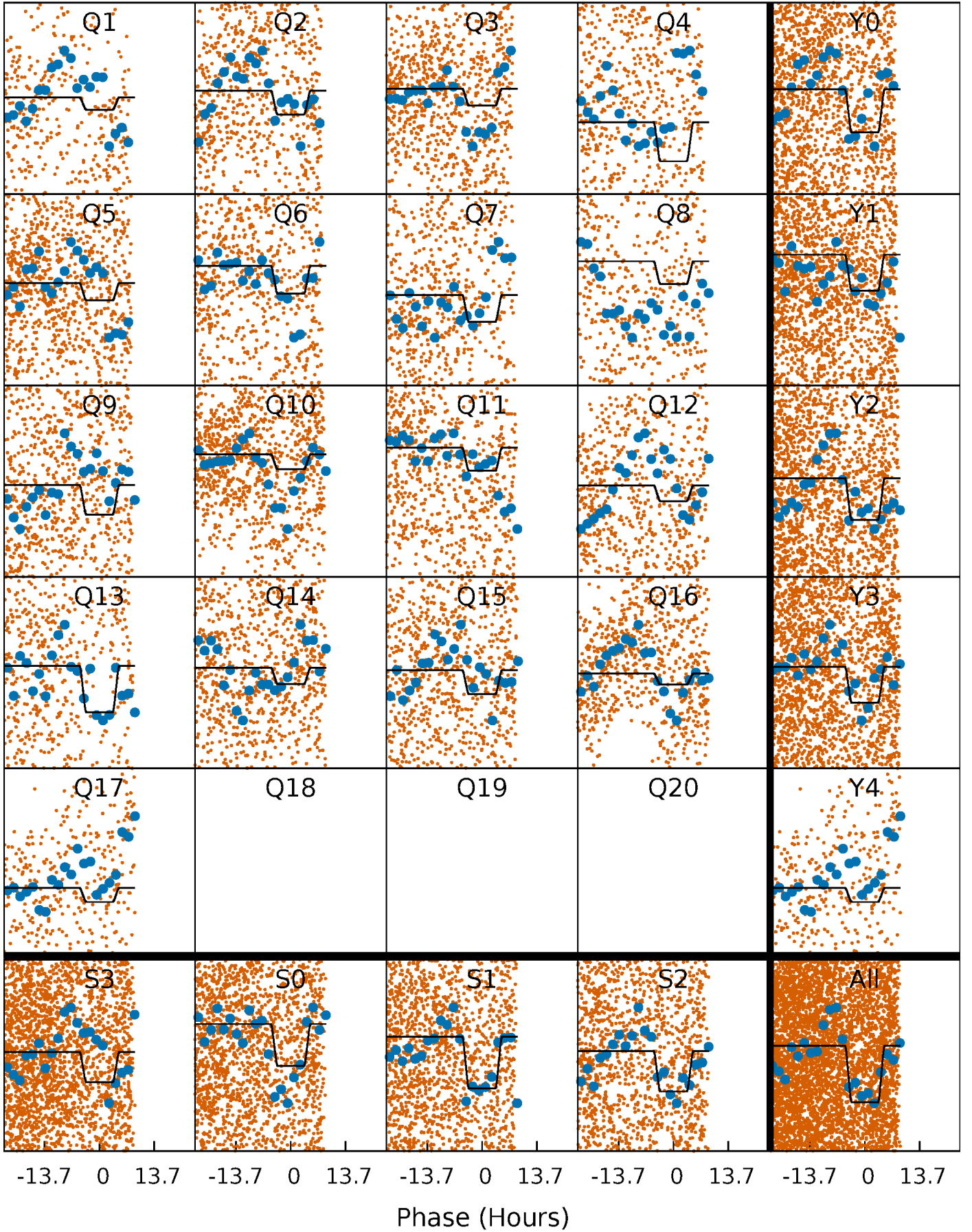
DV Quarter-Phased Transit Curves

TCE 009178894-05 P= 2.973575 Days $T_0=132.705080$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

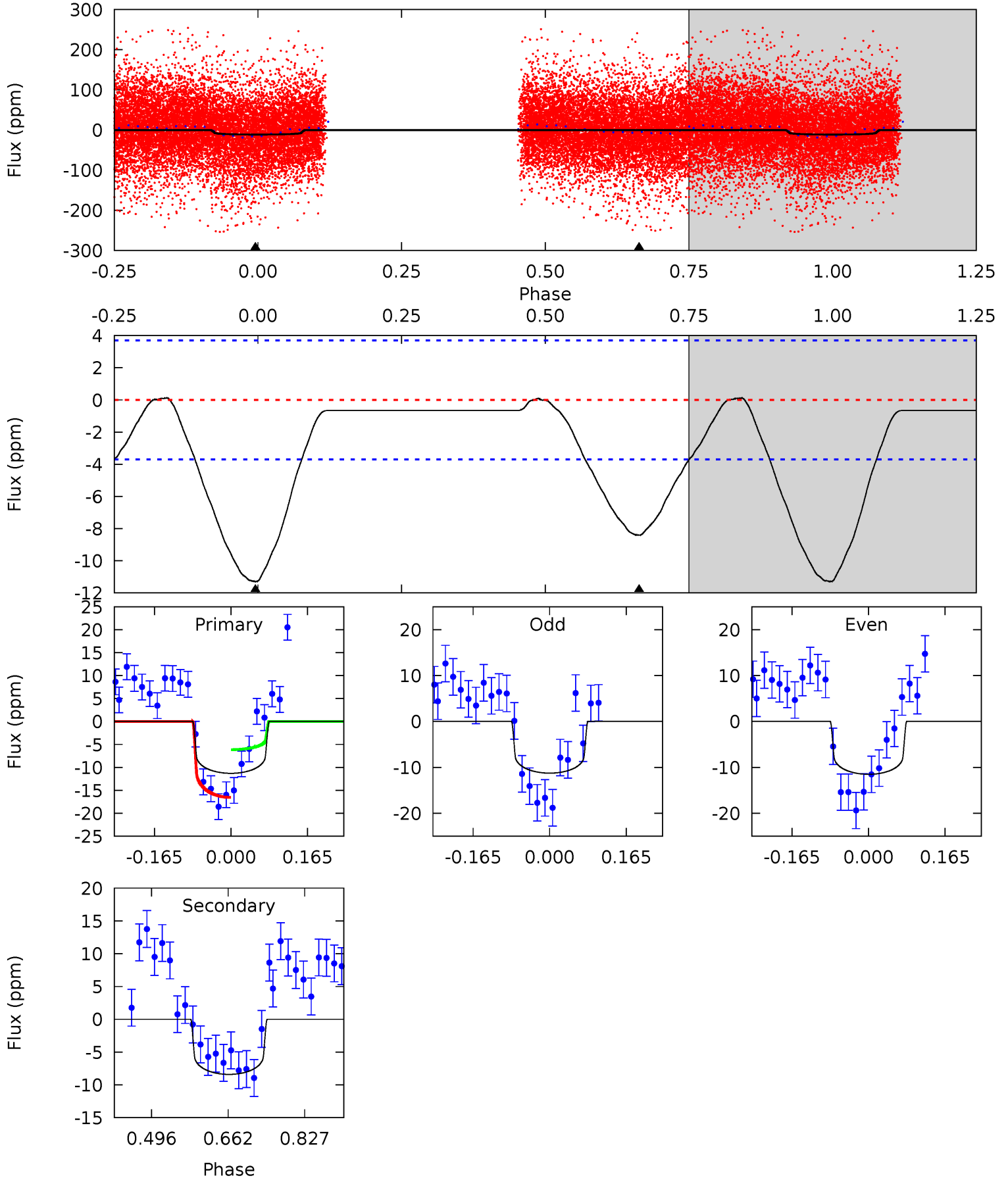
TCE 009178894-05 $P = 2.973564$ Days $T_0 = 132.698190$ (BKJD)



DV Model-Shift Uniqueness Test

009178894-05, P = 2.973575 Days, E = 129.731505 Days

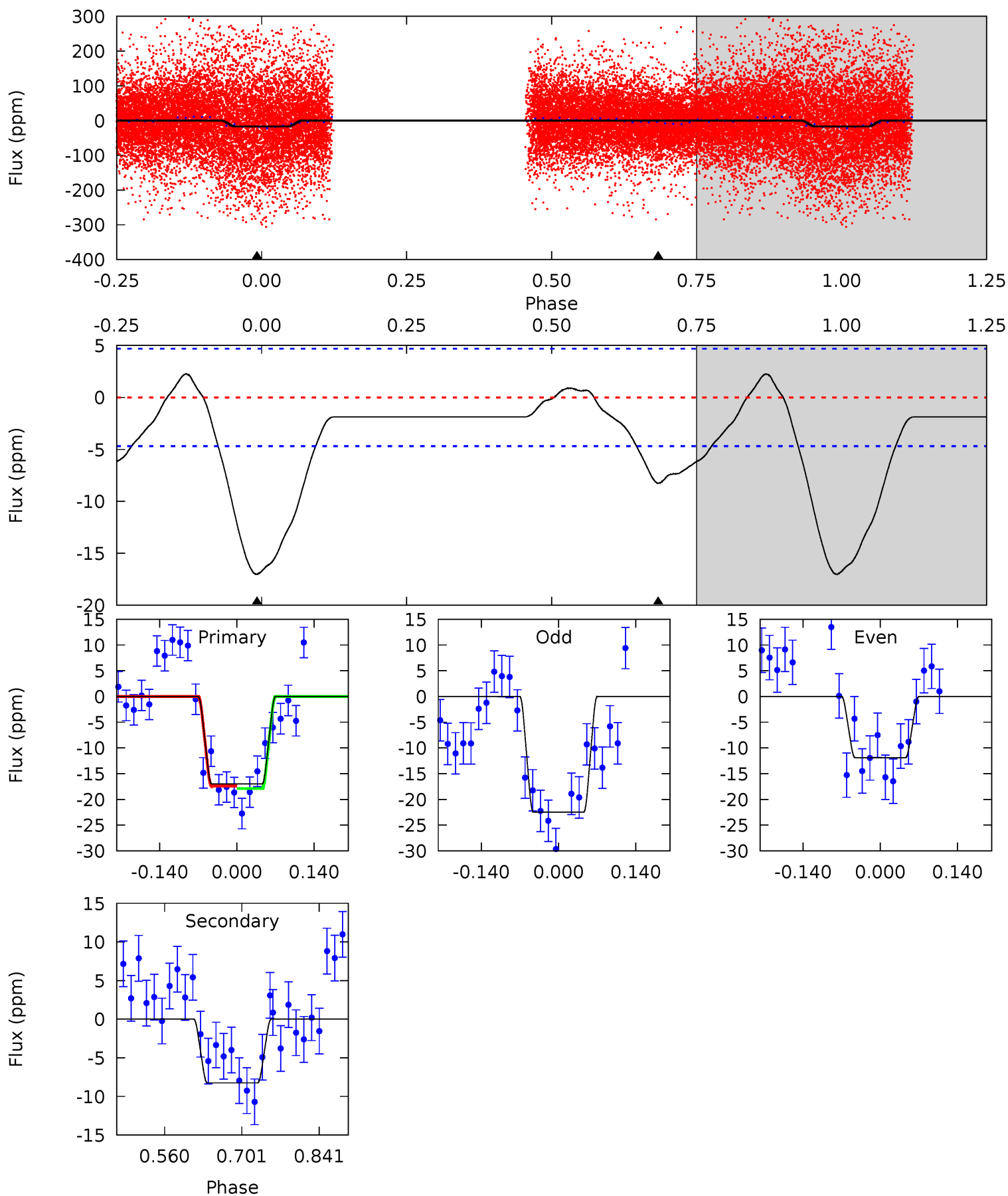
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	10.1	0	0	4.46	1.39	0.21	13.6	13.6	10.1	10.1	0.15	1.20	0.01	6.20



Alt Model-Shift Uniqueness Test

009178894-05, P = 2.973564 Days, E = 129.724626 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	7.90	0	0	4.49	1.48	0.74	16.3	16.3	7.90	7.90	5.11	0.59	0.12	0.22



Stellar Parameters For KIC 009178894

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7892^{+218}_{-327}	$3.921^{+0.247}_{-0.114}$	$-0.080^{+0.200}_{-0.350}$	$2.496^{+0.450}_{-0.837}$	$1.894^{+0.098}_{-0.390}$	$0.172^{+0.300}_{-0.060}$
	+3%/-4%	+6%/-3%	+250%/-438%	+18%/-34%	+5%/-21%	+175%/-35%
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 009178894-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 1	$1.06^{+0.22}_{-0.23}$	3386^{+226}_{-275}	6434^{+728}_{-524}	10^{+6}_{-3}
Alt.	-8 ± 1	$1.04^{+0.23}_{-0.22}$	3395^{+220}_{-286}	6473^{+682}_{-551}	10^{+5}_{-4}

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 $A_{\text{obs}} \gg 1.0$

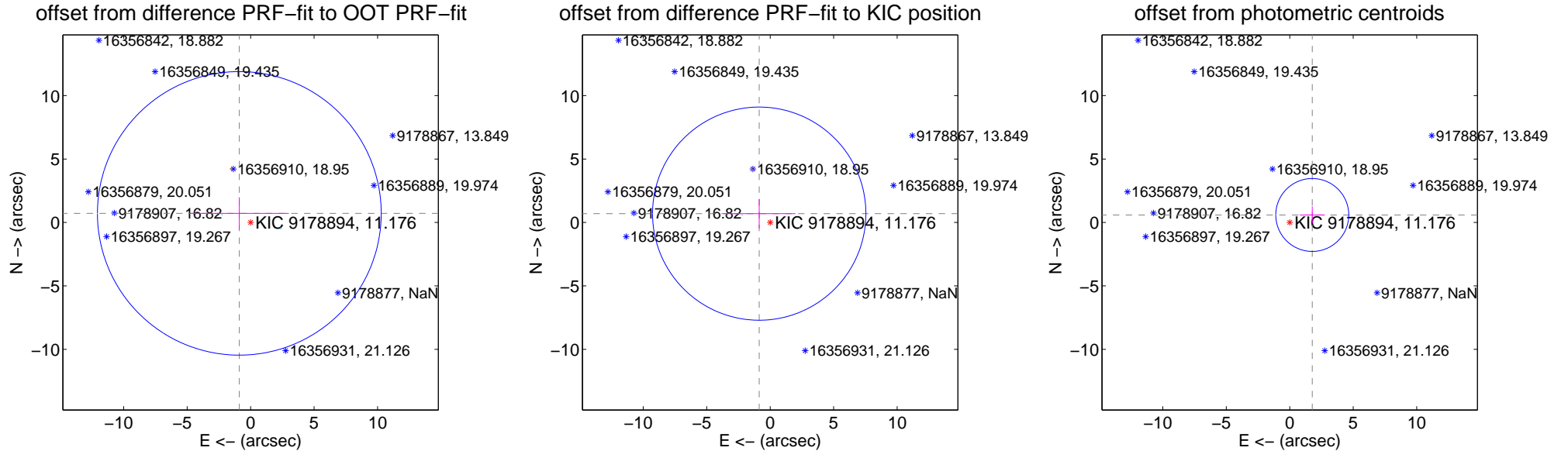
DV Centroid Data

Supplemental centroid analysis for 009178894-05. **Kepler magnitude: 11.18.** Transit SNR 9.20

There are 2 quarters with good PRF difference image offsets

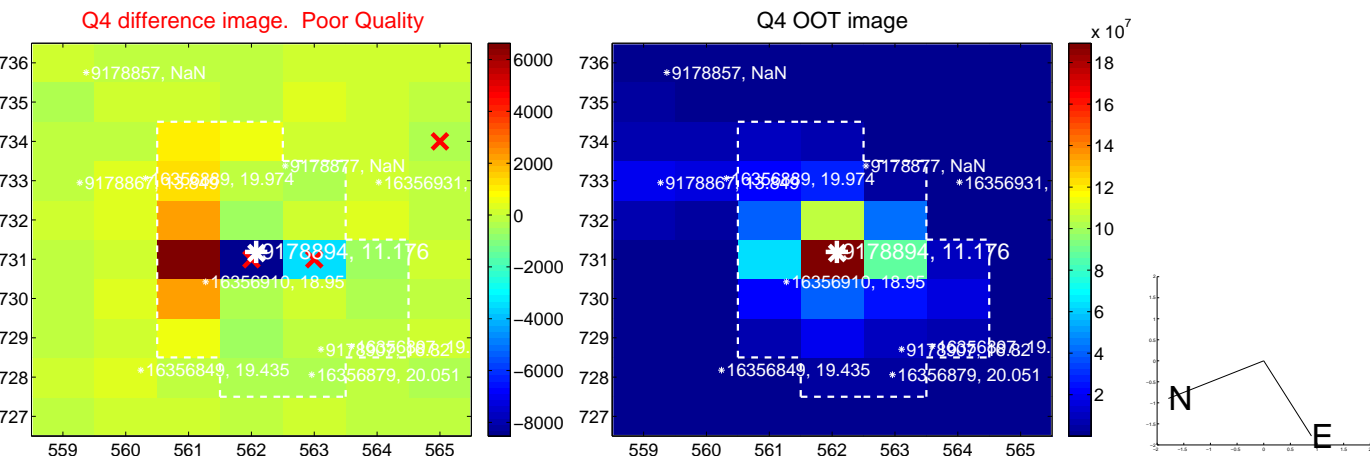
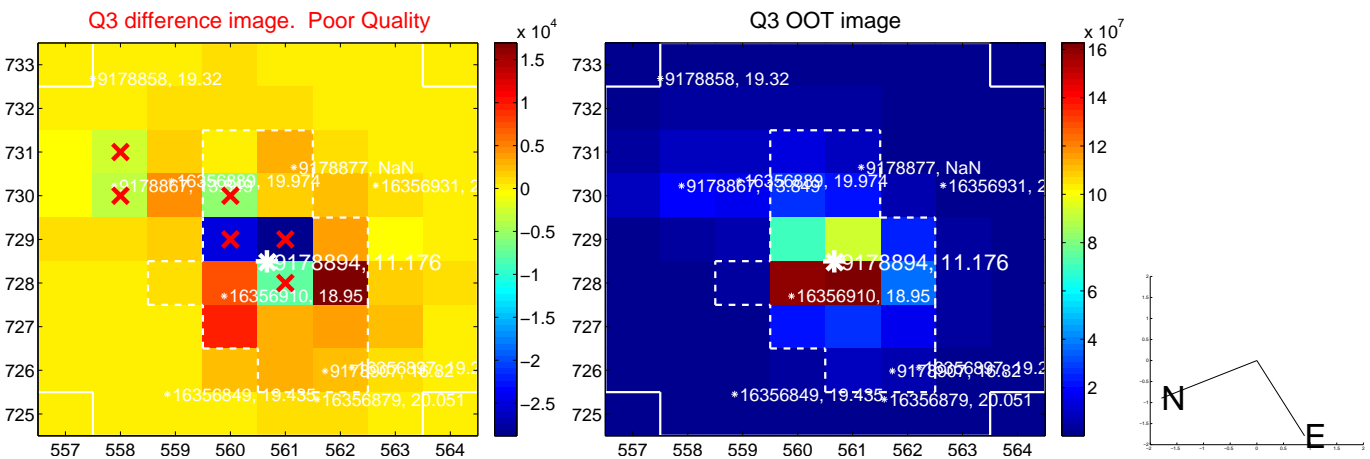
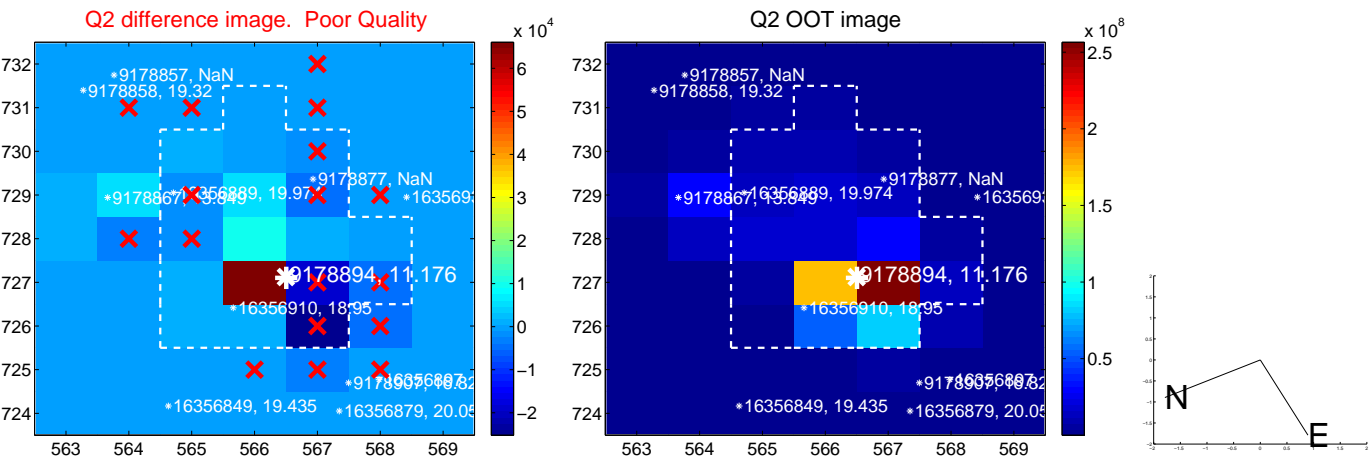
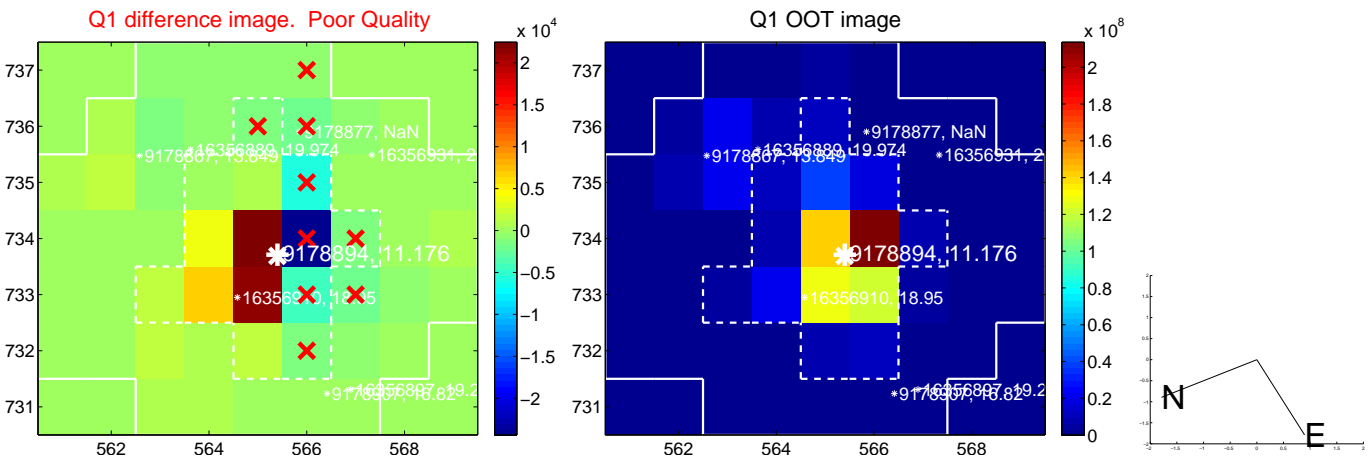
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.143 ± 3.724	0.31	0.889 ± 3.901	0.718 ± 1.273
PRF-fit source offset from KIC position	1.109 ± 2.800	0.40	0.864 ± 2.846	0.695 ± 1.163
photometric centroid source offset	1.87 ± 0.96	1.95	-1.77 ± 0.98	0.59 ± 0.67

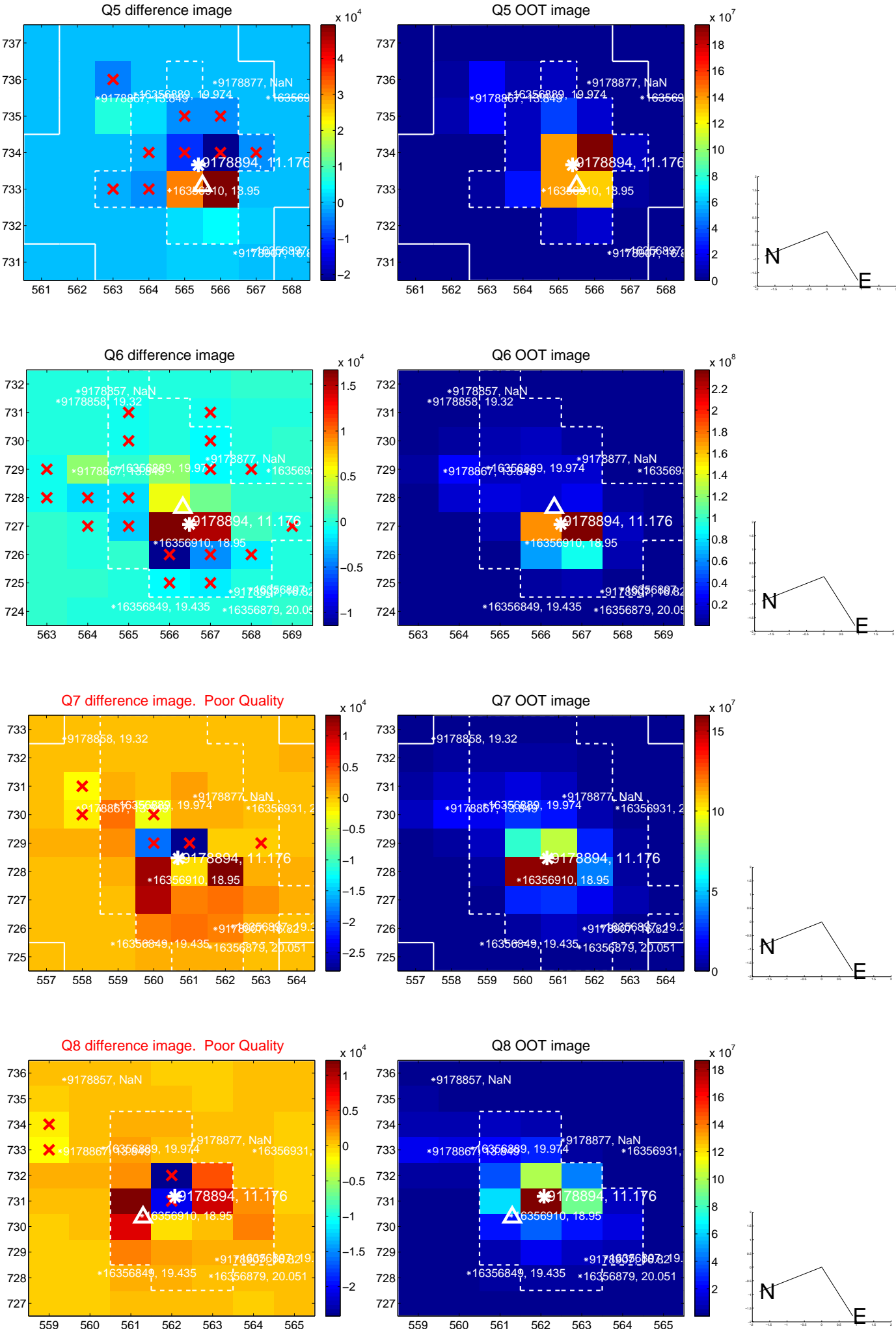


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

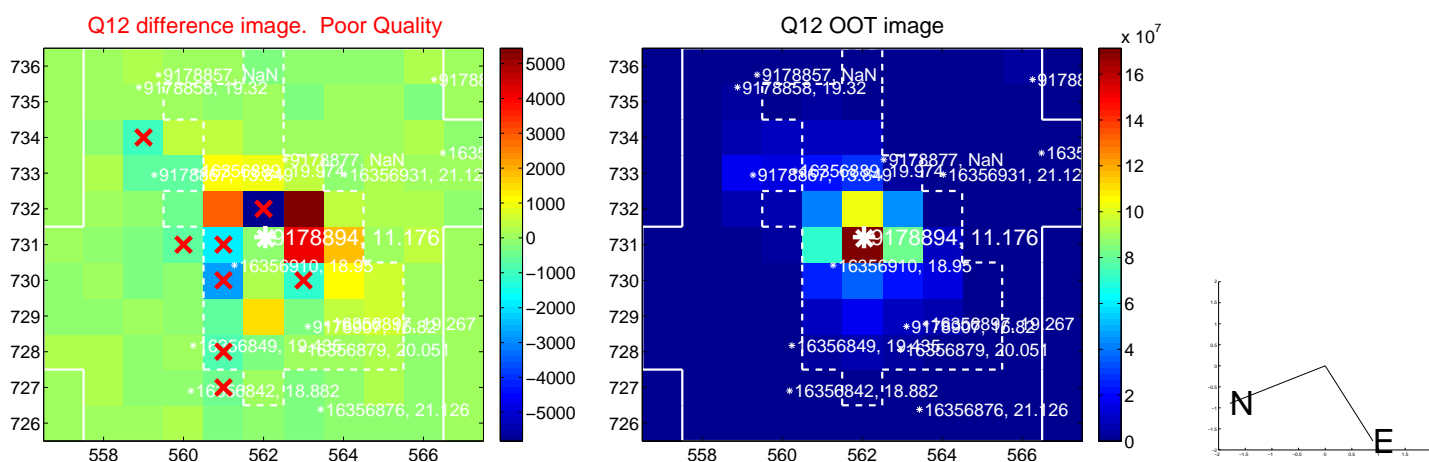
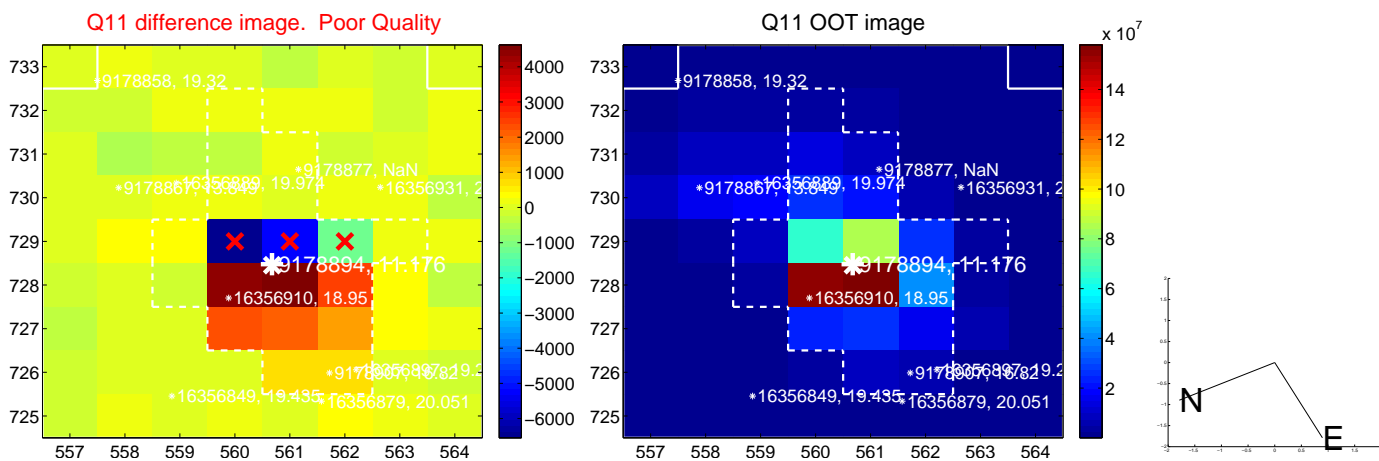
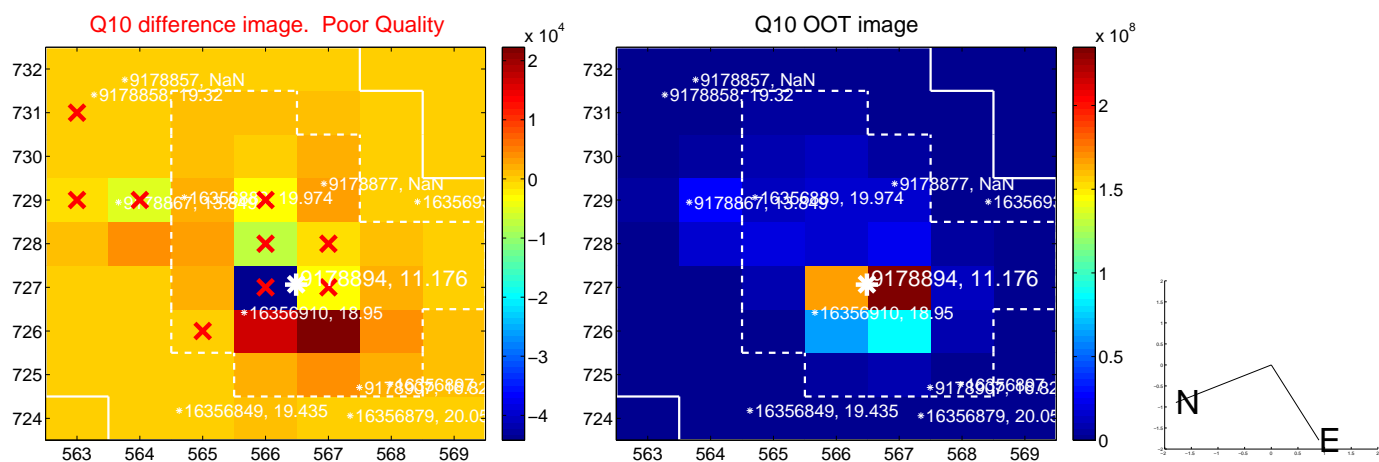
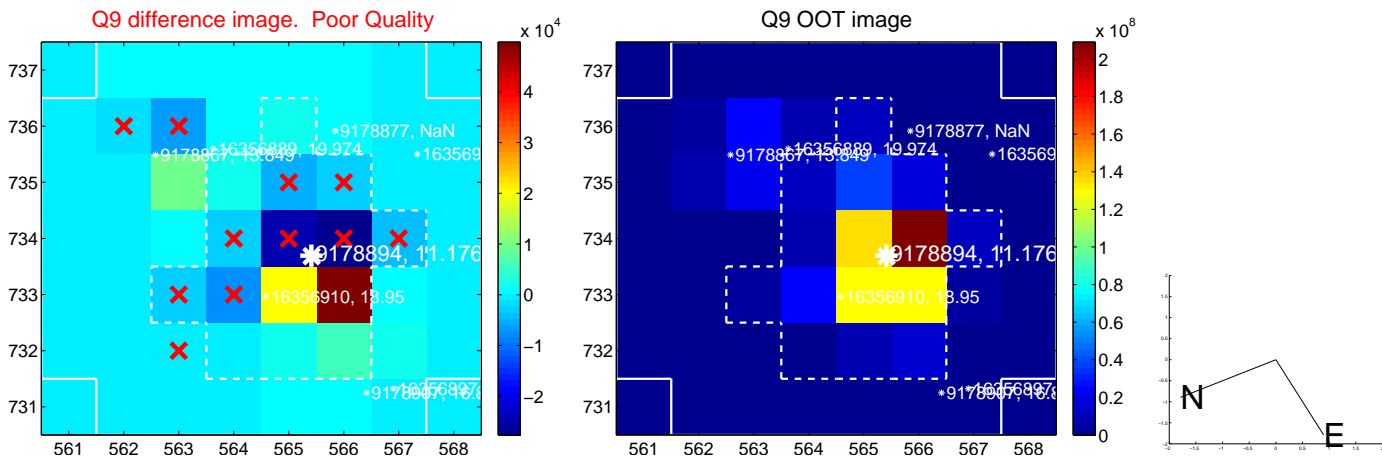
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



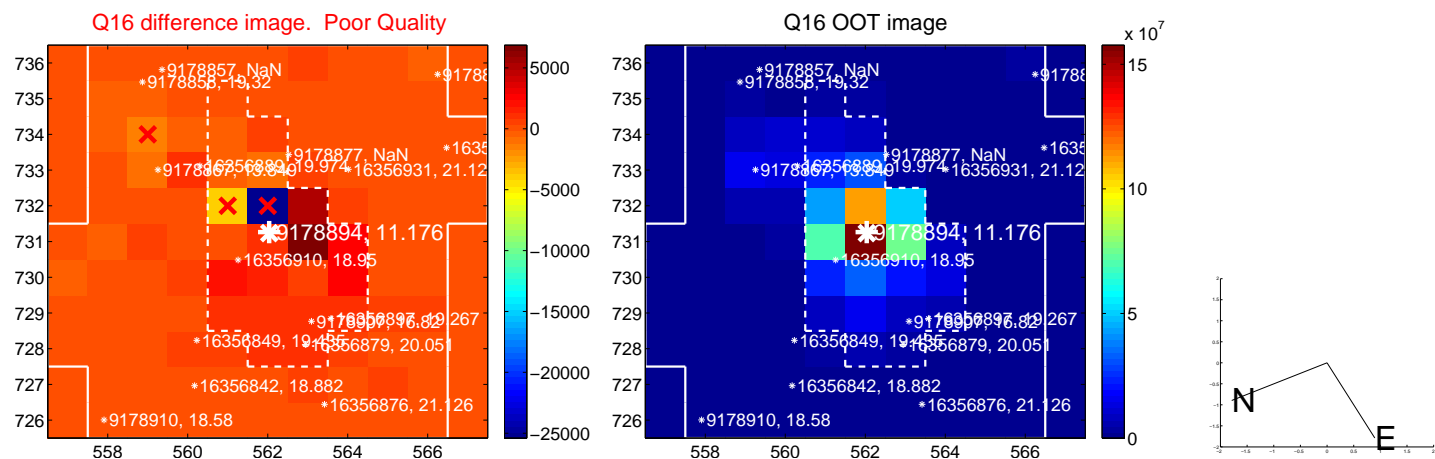
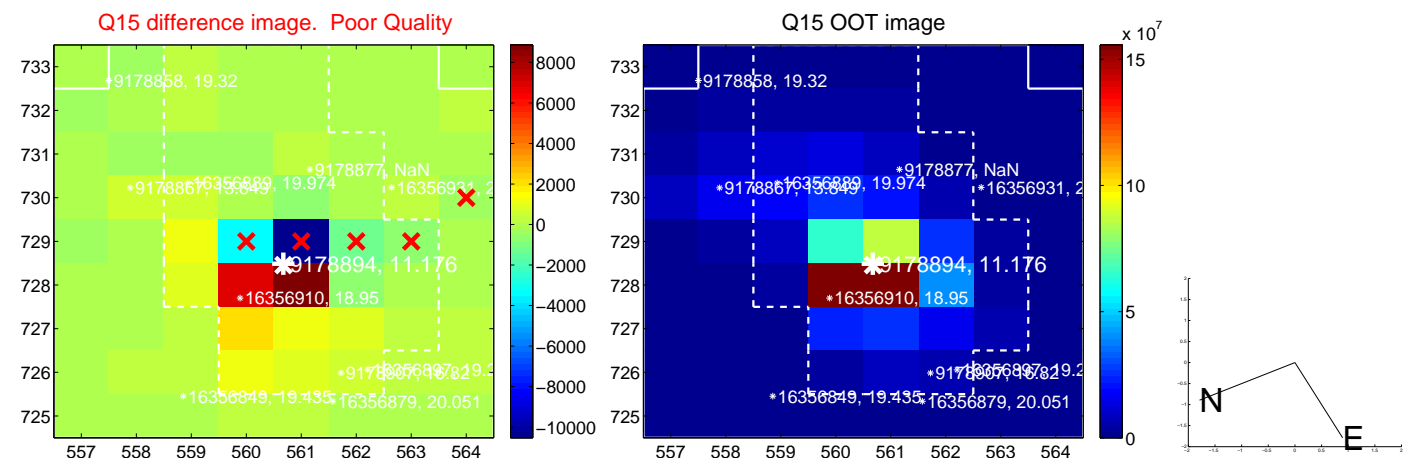
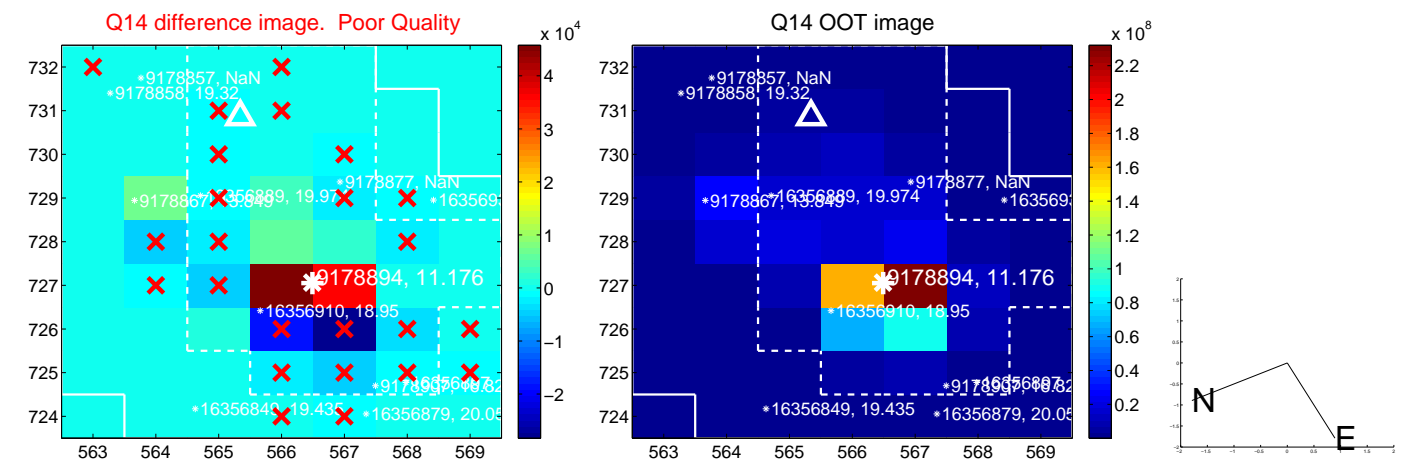
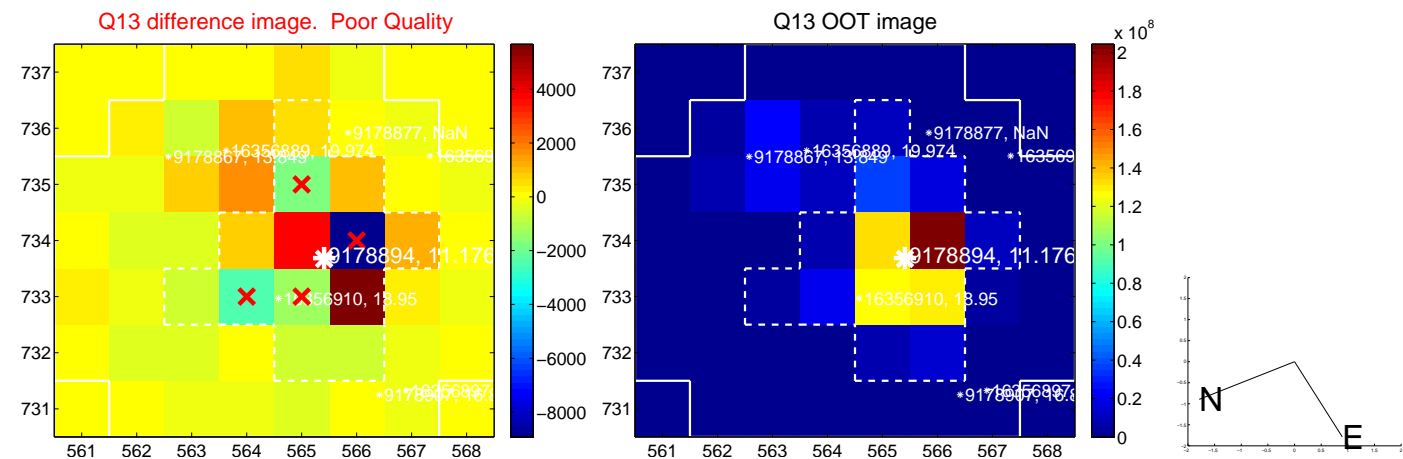
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



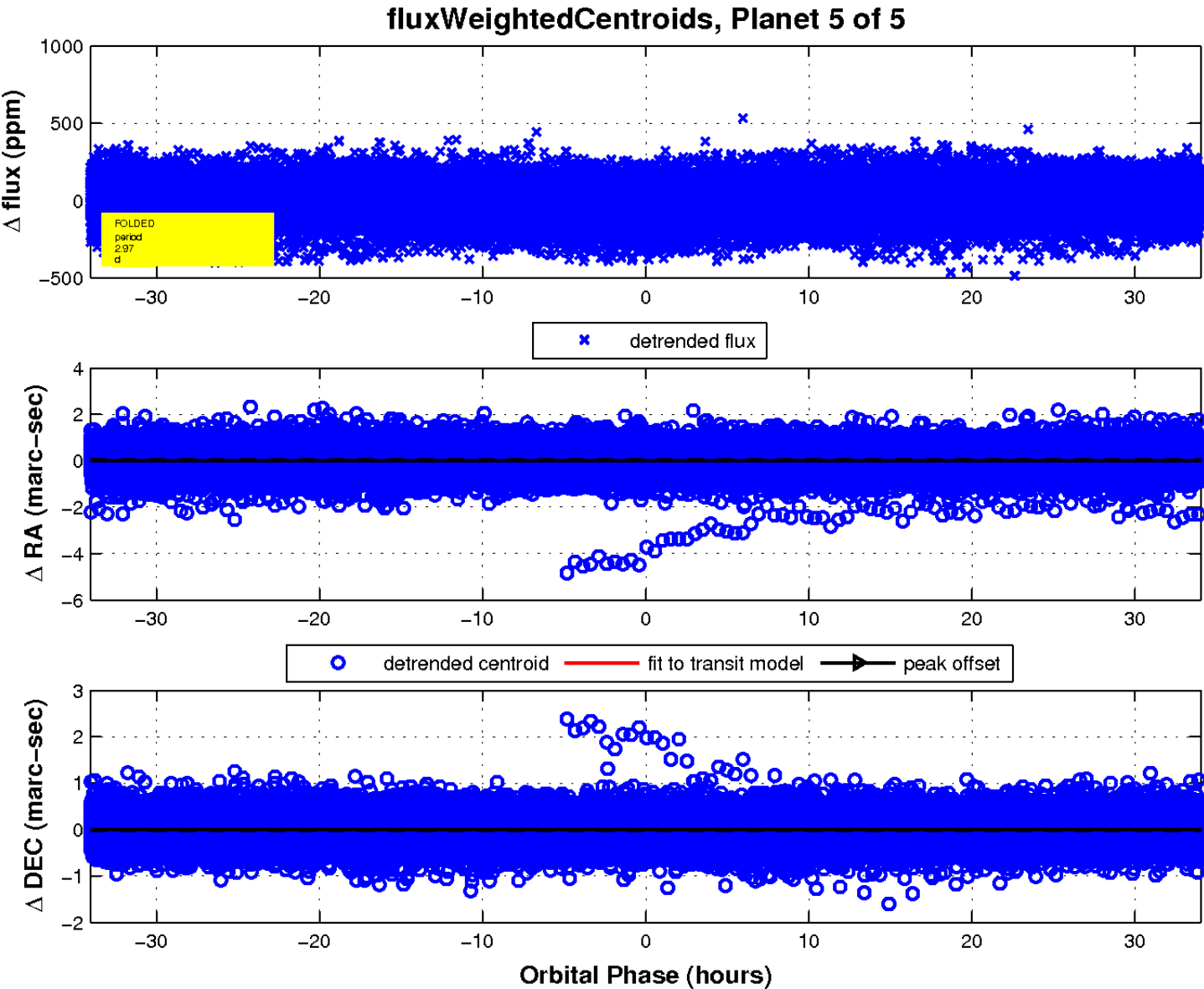
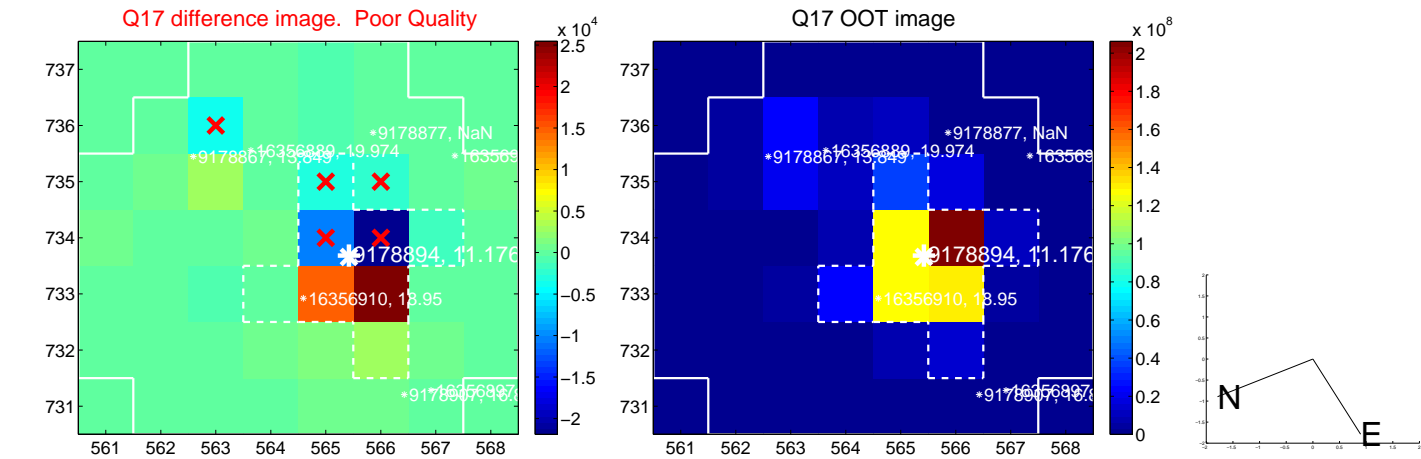
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

Declination

