

KIC 009712799

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})
009712799-01	OBS	No	2.231968	132.264655	33.3	3.928	10.3	10.2	2.15	7182	1.44	7309.88
009712799-02	OBS	No	2.231921	131.831328	25.2	4.872	9.4	9.0	2.15	7182	1.25	7310.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009712799-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009712799-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

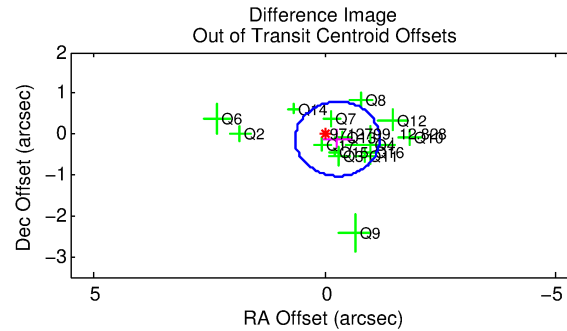
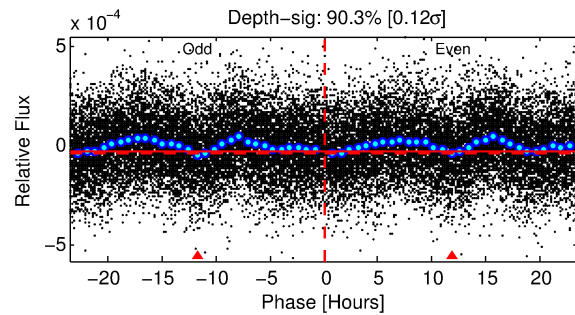
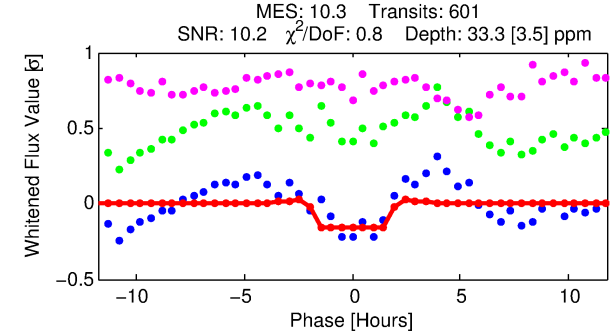
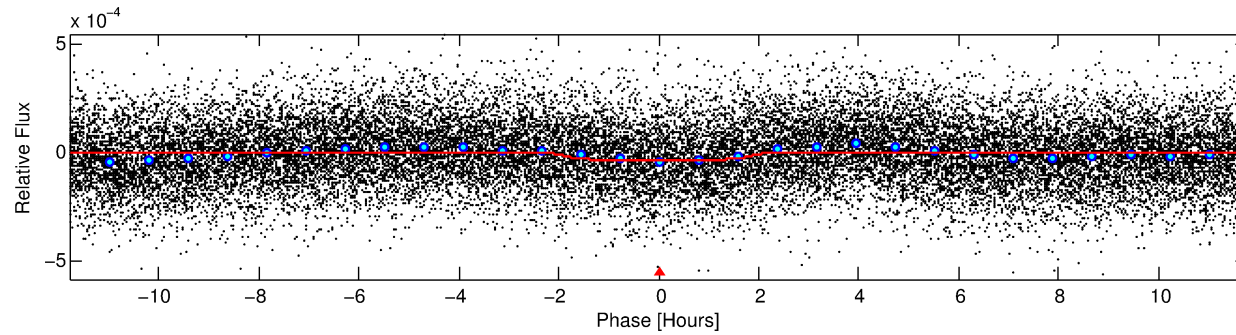
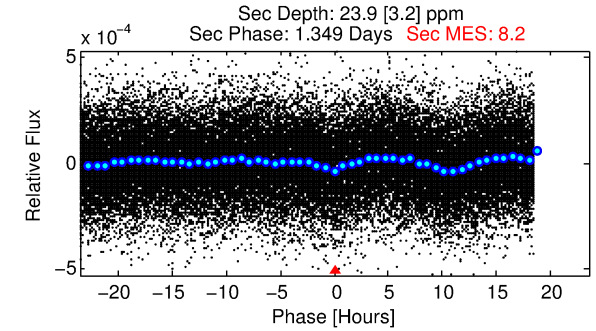
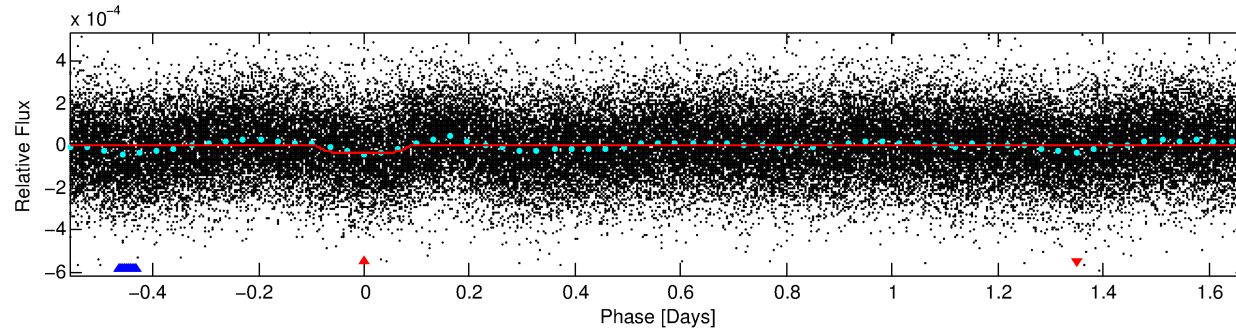
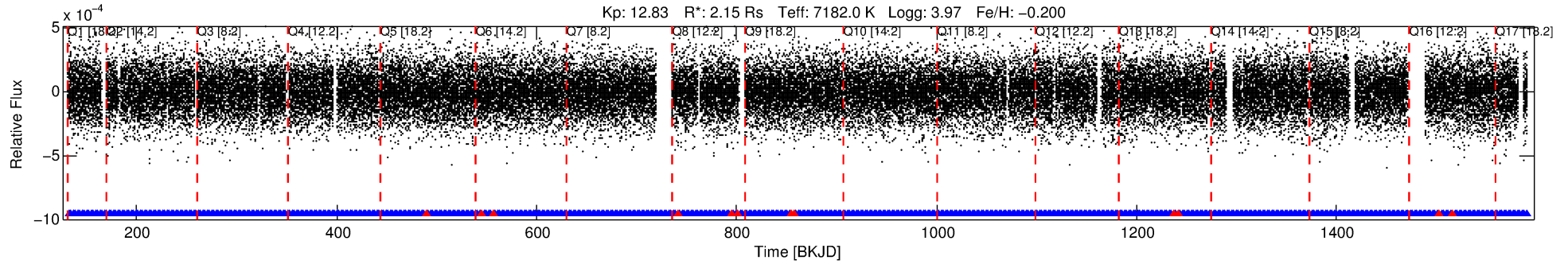
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009712799-01

No Significant Match Found

DV One-Page Summary

KIC: 9712799 Candidate: 1 of 2 Period: 2.232 d



DV Fit Results:

Period = 2.23197 [0.00002] d
Epoch = 132.2647 [0.0035] BKJD
Rp/R* = 0.0061 [0.0015]
a/R* = 2.17 [2.52]
b = 0.90 [0.31]
Seff = 7309.88 [3613.43]
Teq = 2358 [291] K
Rp = 1.44 [0.57] Re
a = 0.0387 [0.0114] AU
Ag = 9.55 [6.49] [1.32σ]
Teffp = 6409 [851] K [4.50σ]

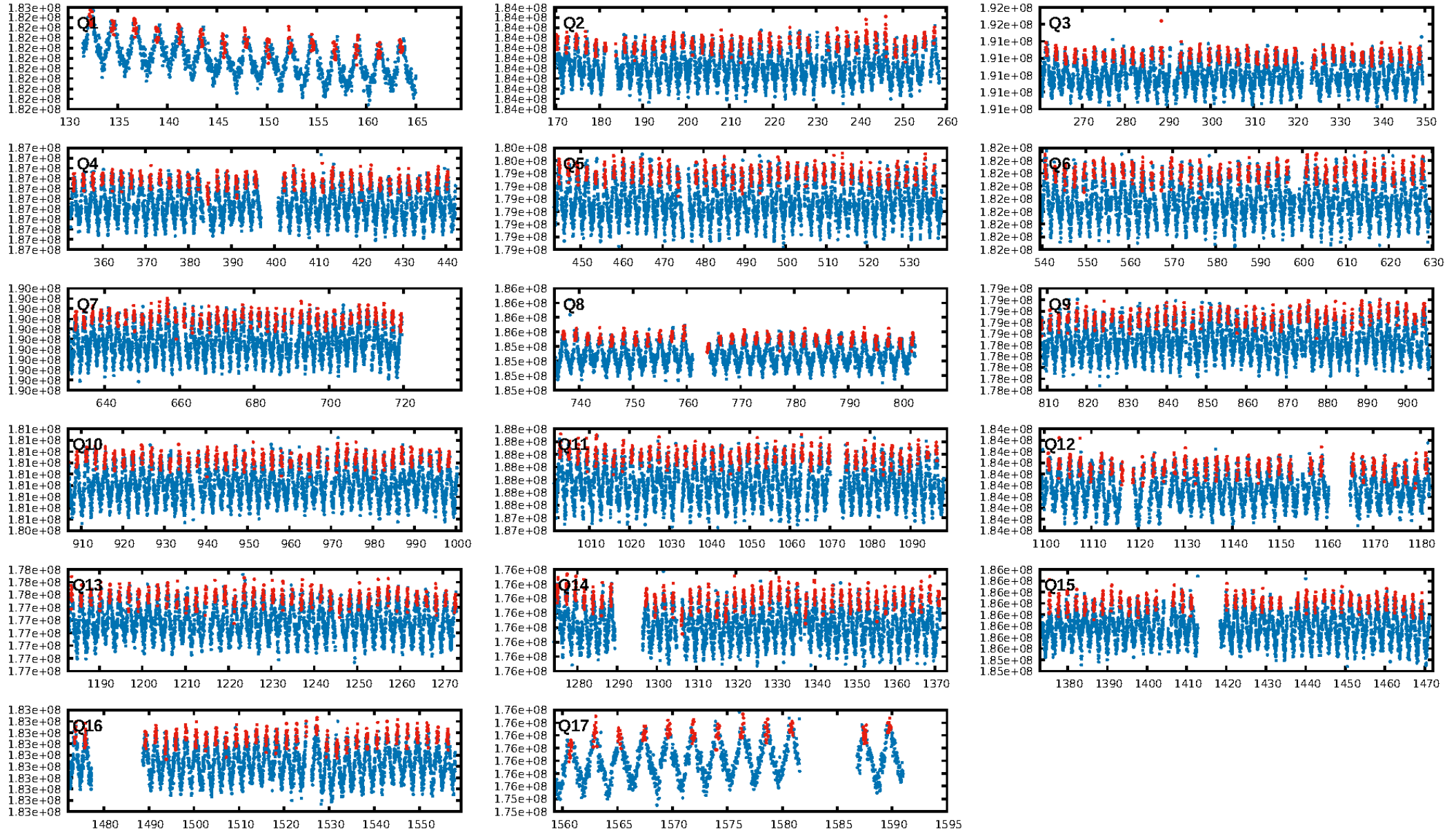
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.49e-17
RollingBand-fgt: 0.98 [562/574]
GhostDiagnostic-chr: -7.719
Centroid-sig: 0.0%
Centroid-so: 2.617 arcsec [4.13σ]
OotOffset-rm: 0.301 arcsec [0.99σ]
KicOffset-rm: 0.365 arcsec [1.25σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.00 [0/15]
DiffImageOverlap-fno: 0.00 [0/17]

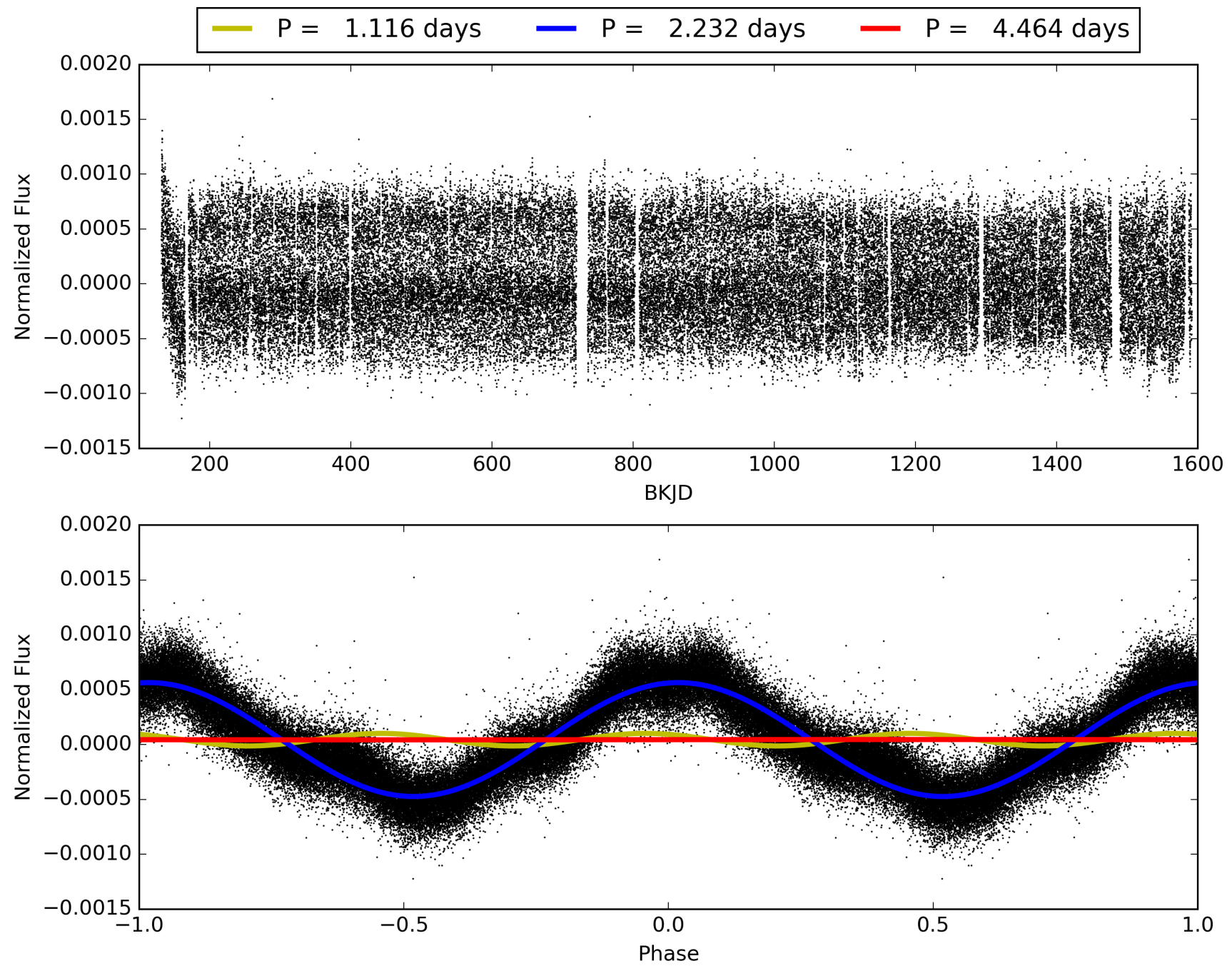
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:10:49 Z

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

TCE 009712799-01, PDC Light Curves

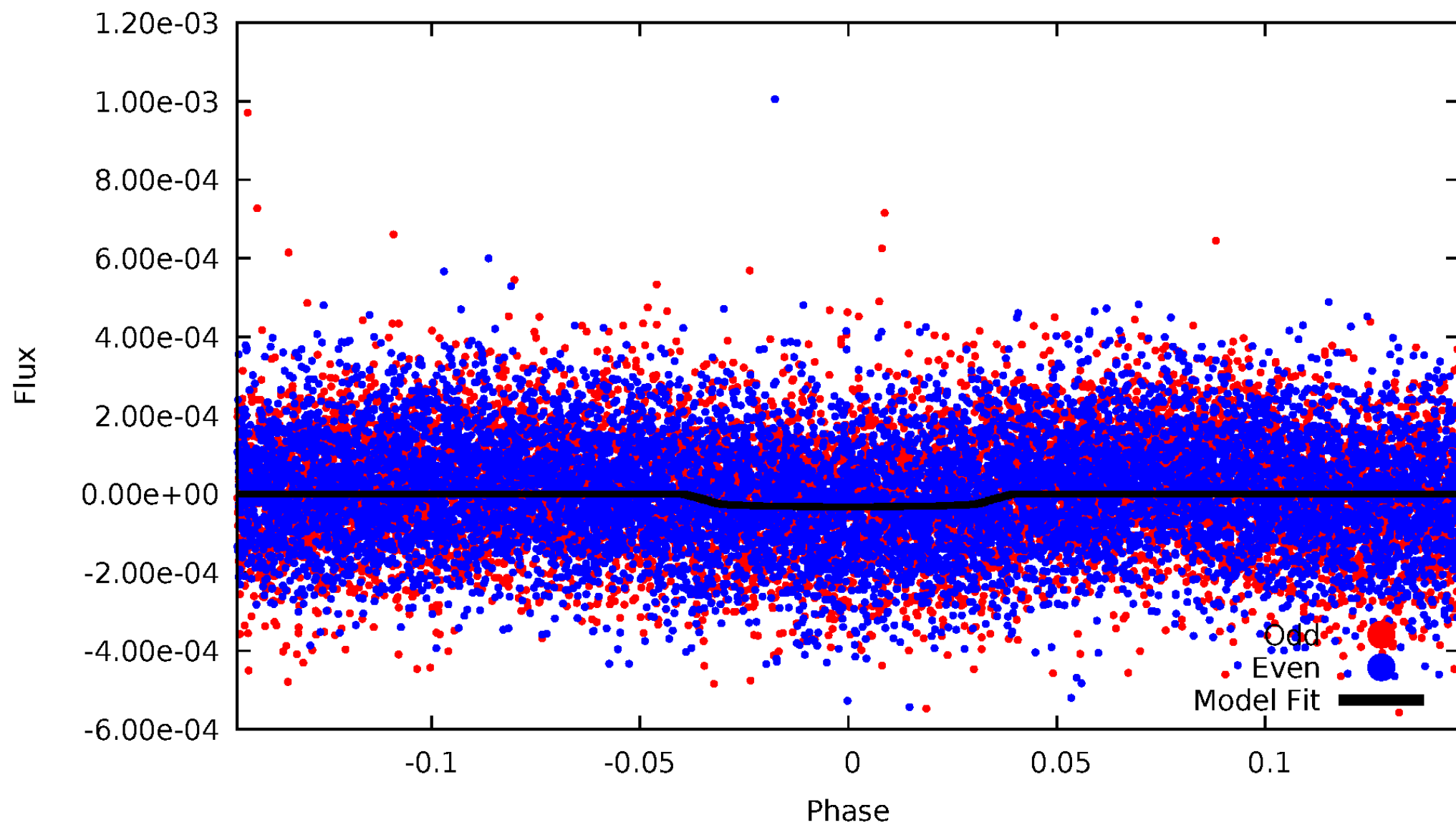


TCE 009712799-01



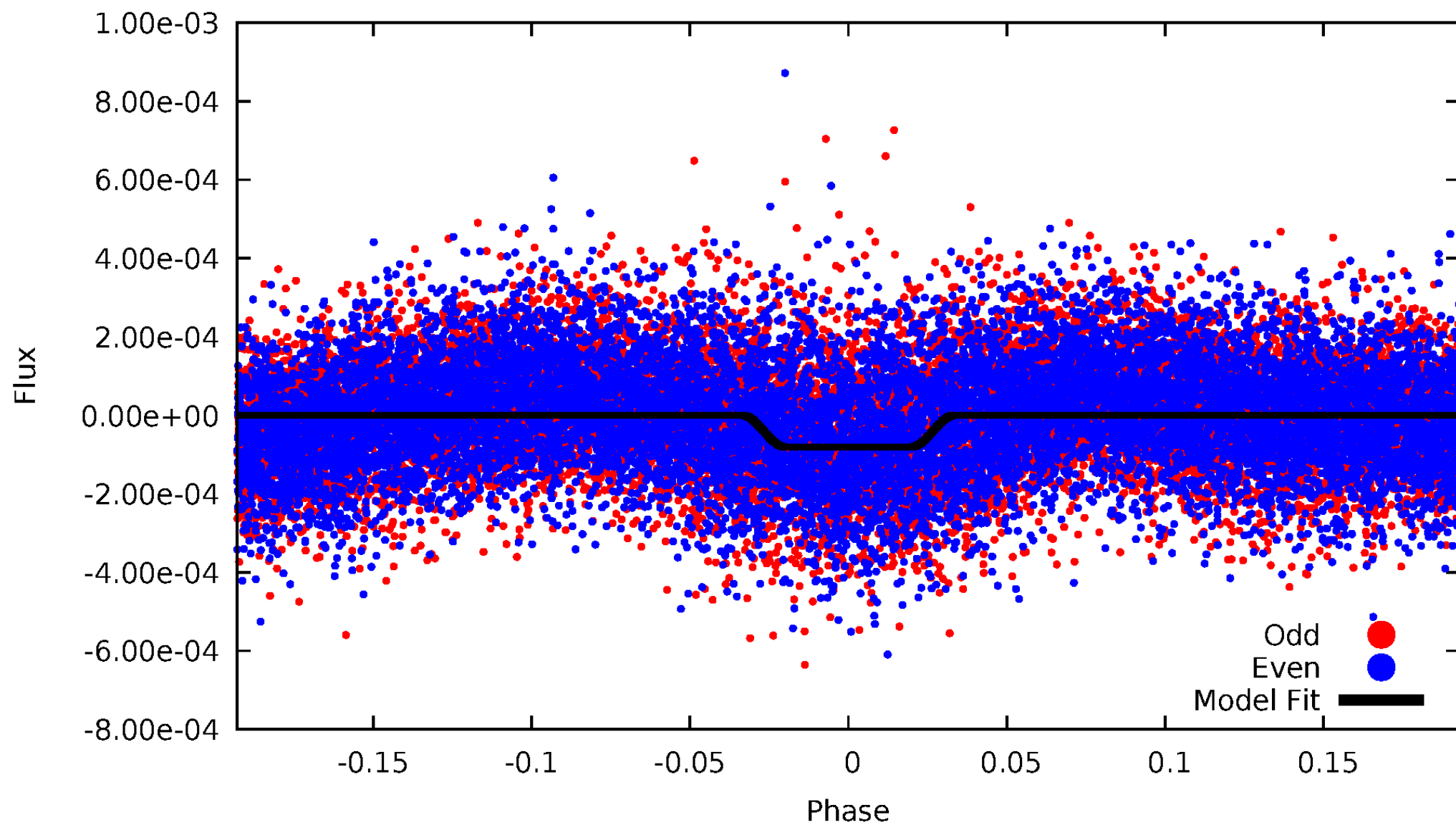
DV Odd/Even

TCE 009712799-01



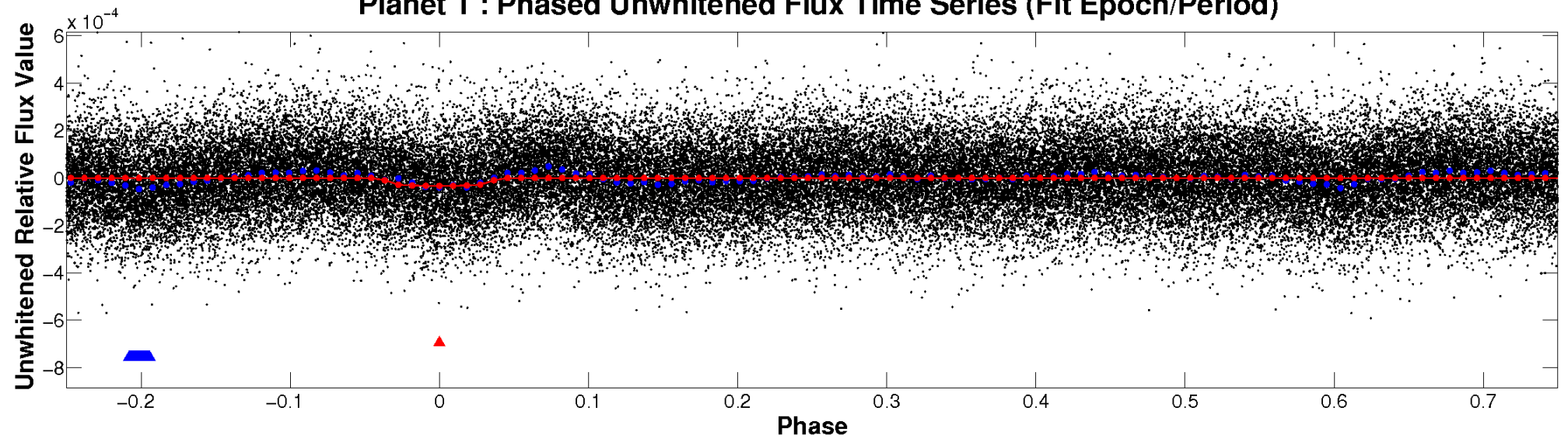
ALT Odd/Even

TCE 009712799-01

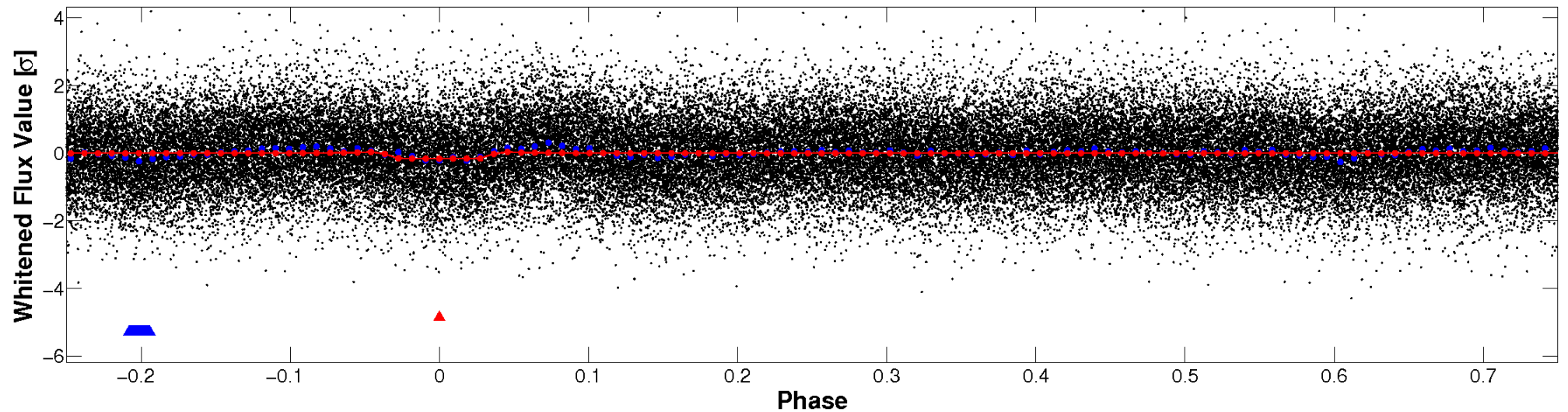


Non-Whitened Vs. Whitened Light Curve

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

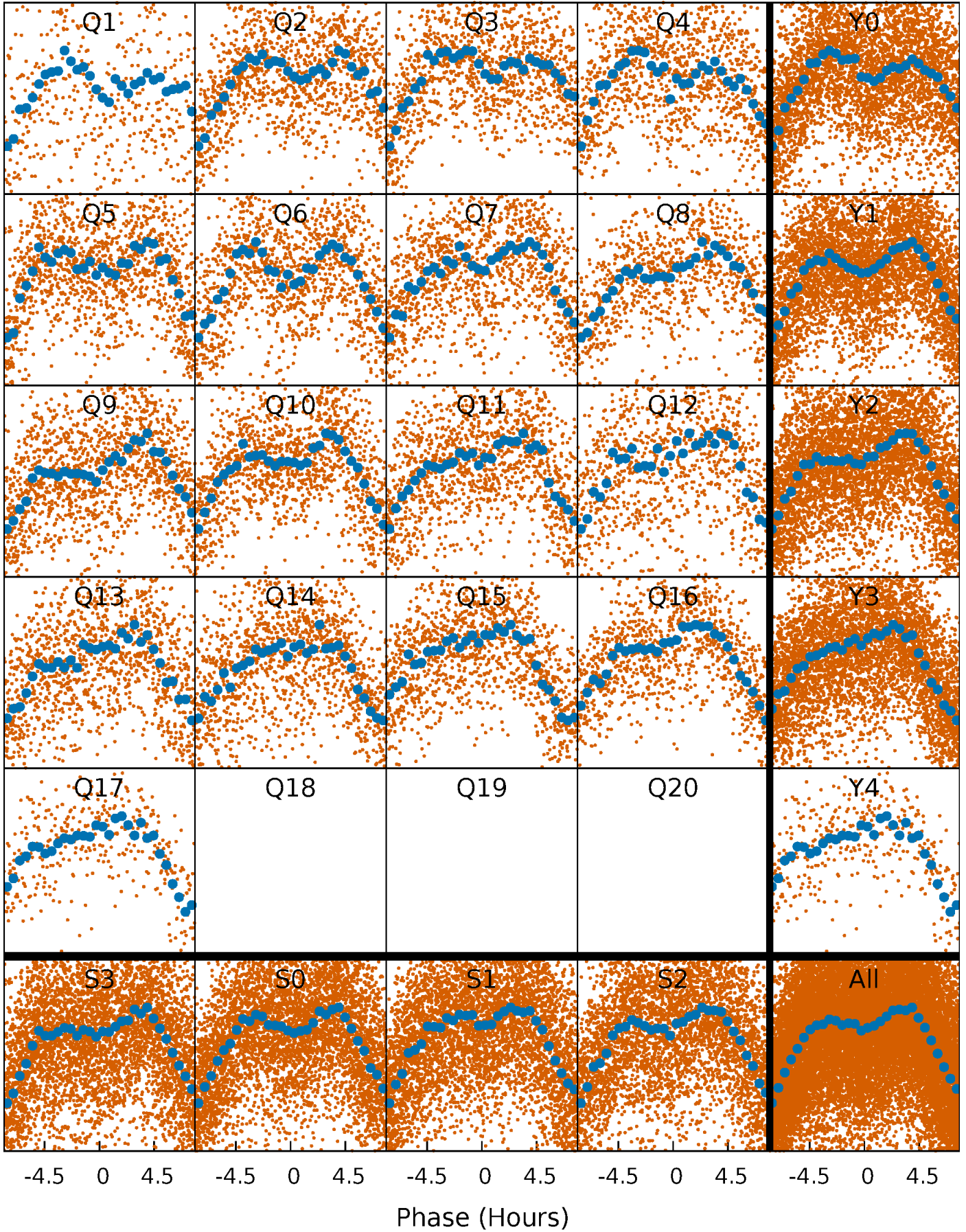


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



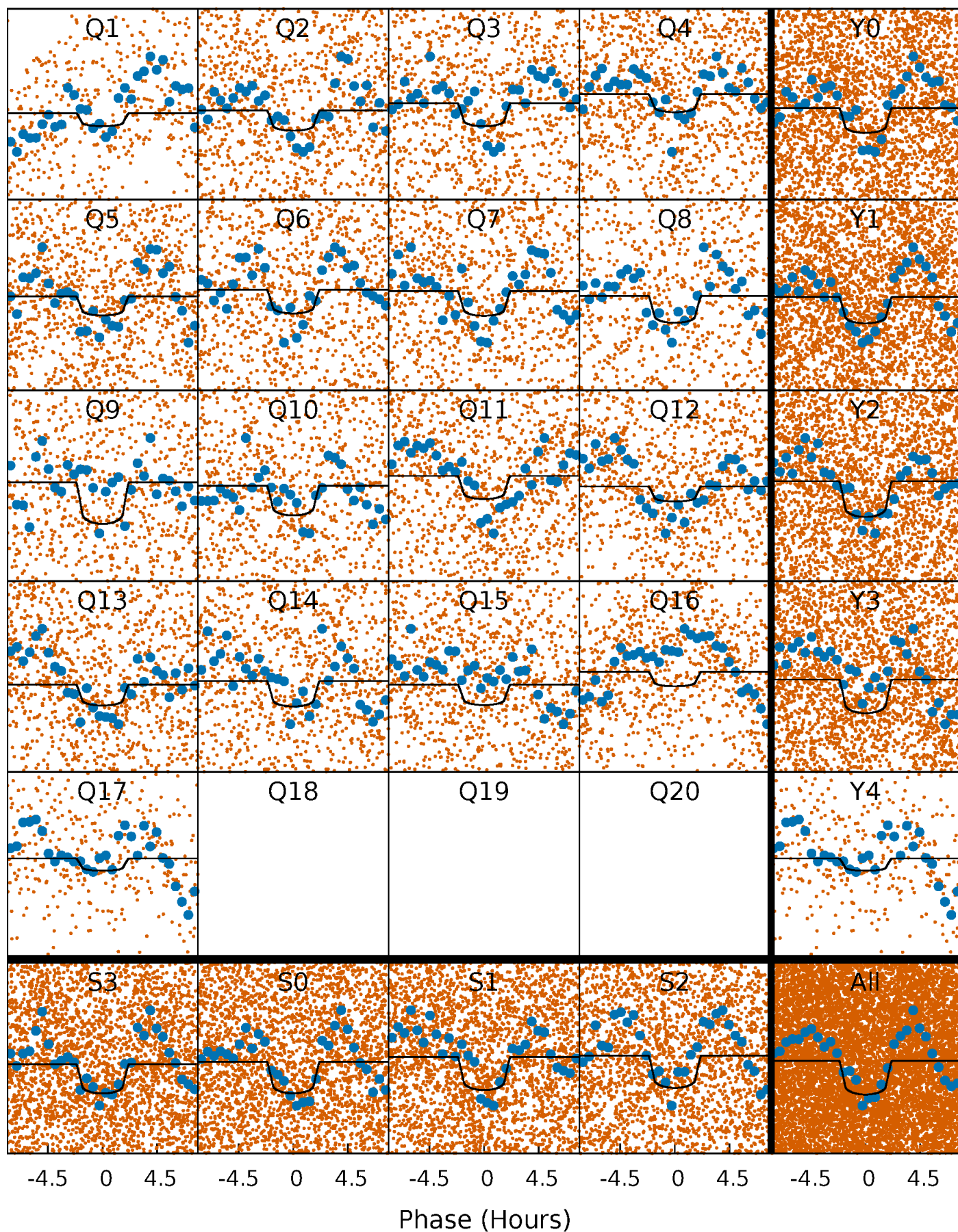
PDC Quarter-Phased Transit Curves

TCE 009712799-01 P= 2.231968 Days $T_0=132.264655$ (BKJD)



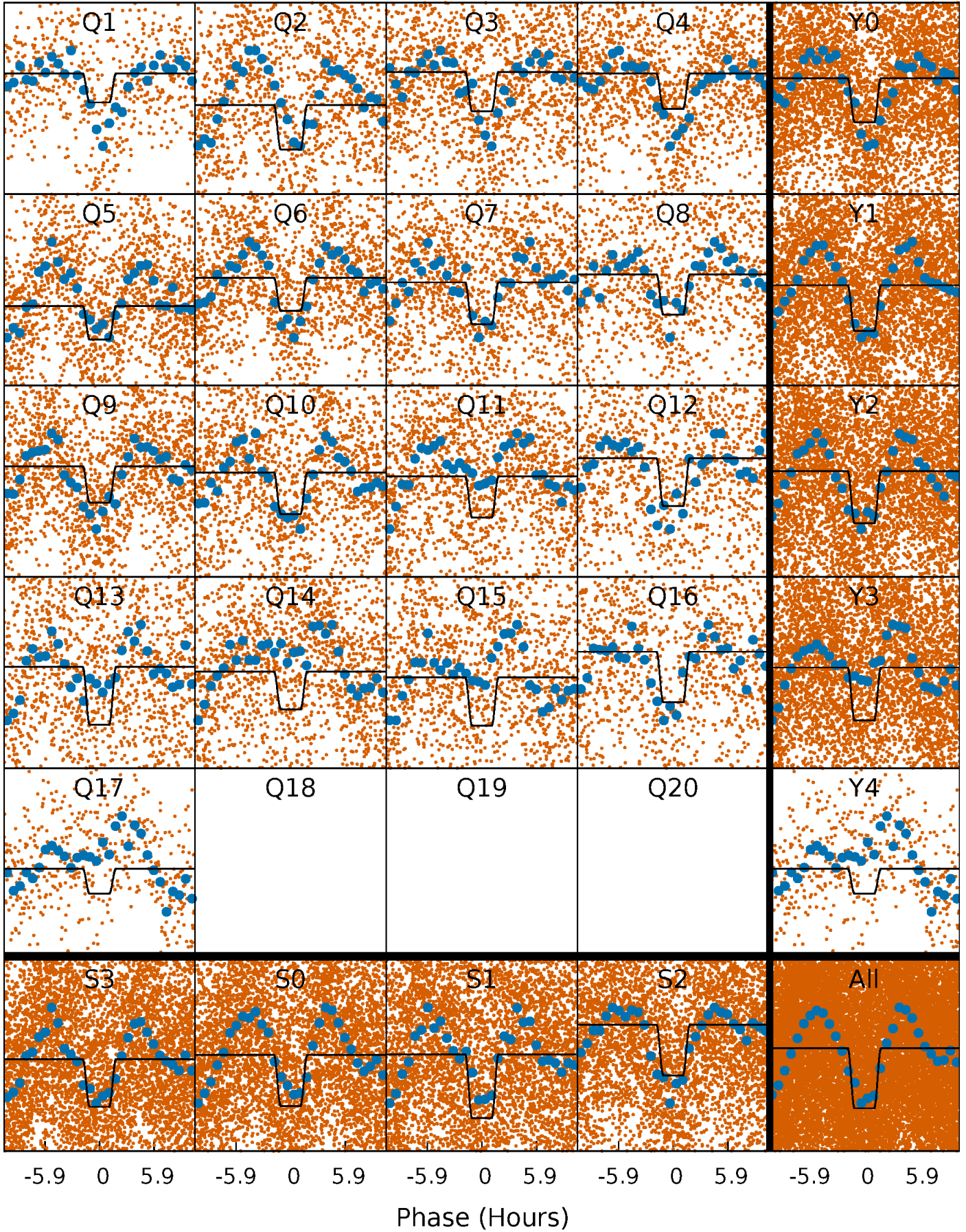
DV Quarter-Phased Transit Curves

TCE 009712799-01 P= 2.231968 Days $T_0=132.264655$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

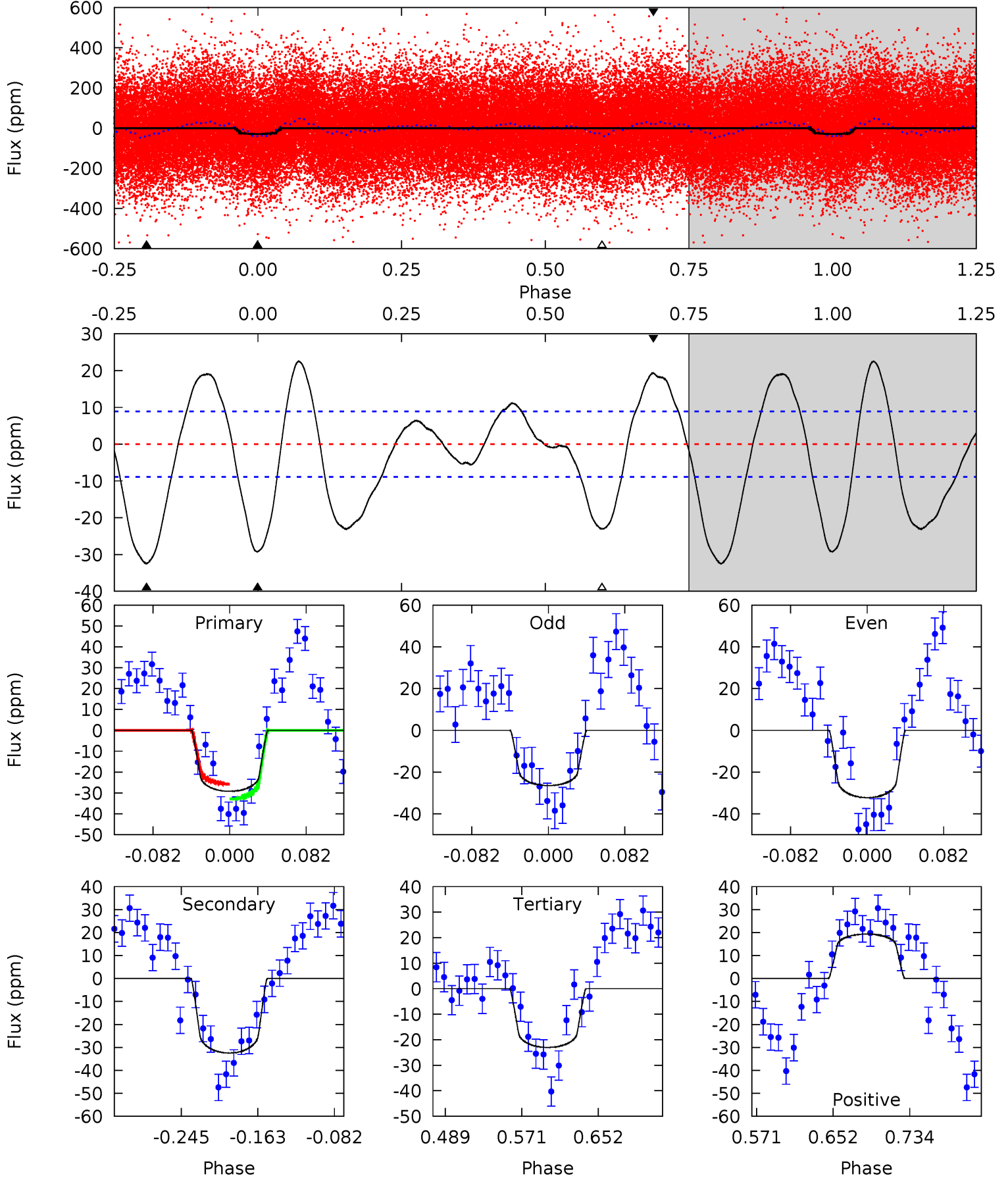
TCE 009712799-01 P= 2.231932 Days $T_0=132.272420$ (BKJD)



DV Model-Shift Uniqueness Test

009712799-01, P = 2.231968 Days, E = 130.032687 Days

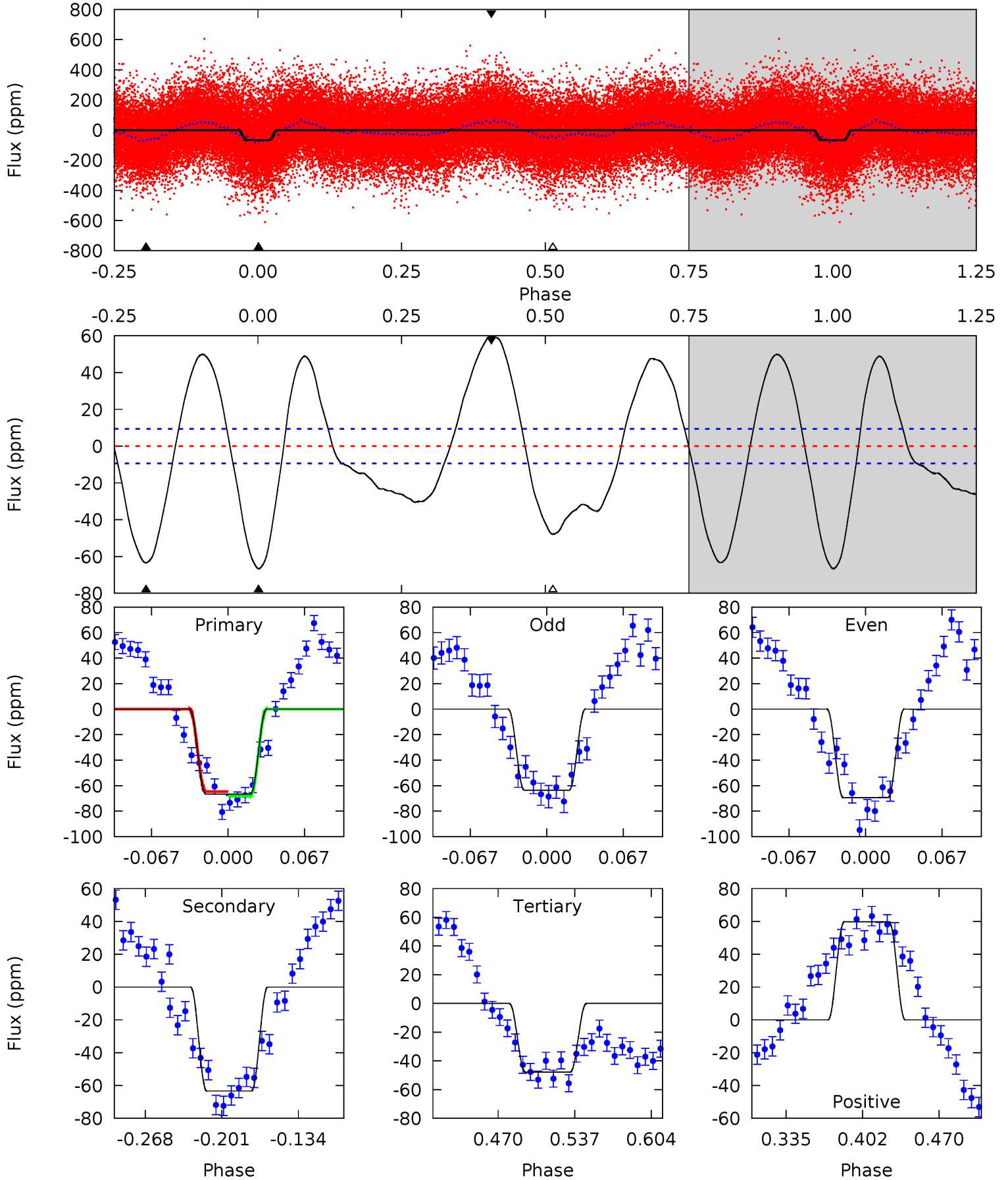
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	16.8	11.9	10.0	4.61	1.74	6.24	3.21	5.12	4.89	6.79	1.50	1.01	0.41	1.85



Alt Model-Shift Uniqueness Test

009712799-01, P = 2.231932 Days, E = 130.040488 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.0	31.4	23.7	29.6	4.65	1.83	16.4	9.29	3.38	7.69	1.77	1.43	0.99	0.47	0.87



Stellar Parameters For KIC 009712799

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7182^{+224}_{-324}	$3.967^{+0.266}_{-0.164}$	$-0.200^{+0.250}_{-0.300}$	$2.145^{+0.559}_{-0.683}$	$1.553^{+0.217}_{-0.298}$	$0.222^{+0.366}_{-0.108}$
	+3%/-5%	+7%/-4%	+125%/-150%	+26%/-32%	+14%/-19%	+165%/-49%
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 009712799-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-32 ± 2	$1.41^{+0.42}_{-0.40}$	3249^{+267}_{-273}	6772^{+1286}_{-767}	14^{+12}_{-5}
Alt.	-63 ± 2	$2.05^{+0.54}_{-0.45}$	3270^{+241}_{-298}	6642^{+762}_{-599}	12^{+7}_{-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 $A_{\text{obs}} \gg 1.0$

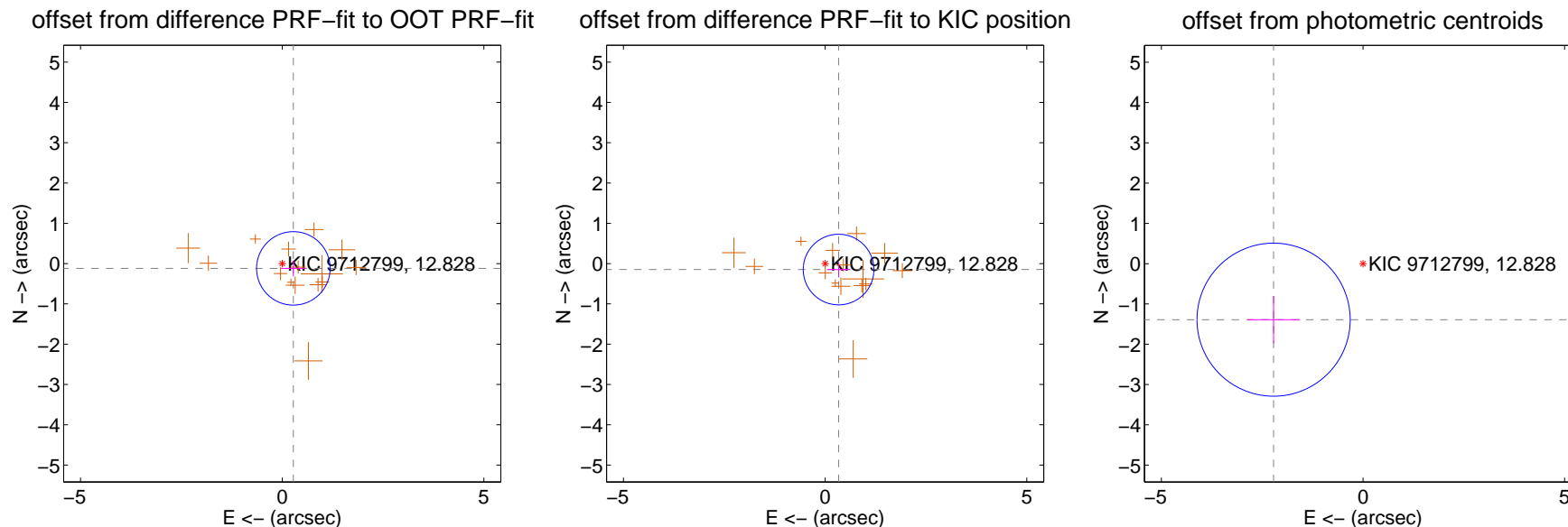
DV Centroid Data

Supplemental centroid analysis for 009712799-01. Kepler magnitude: 12.83. Transit SNR 10.22

There are 0 quarters with good PRF difference image offsets

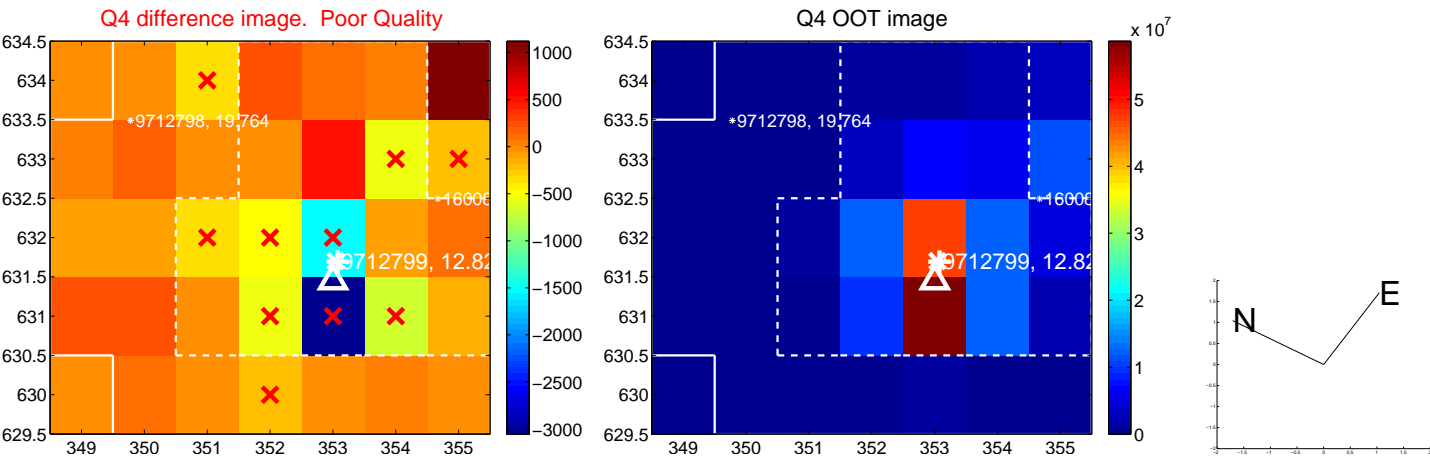
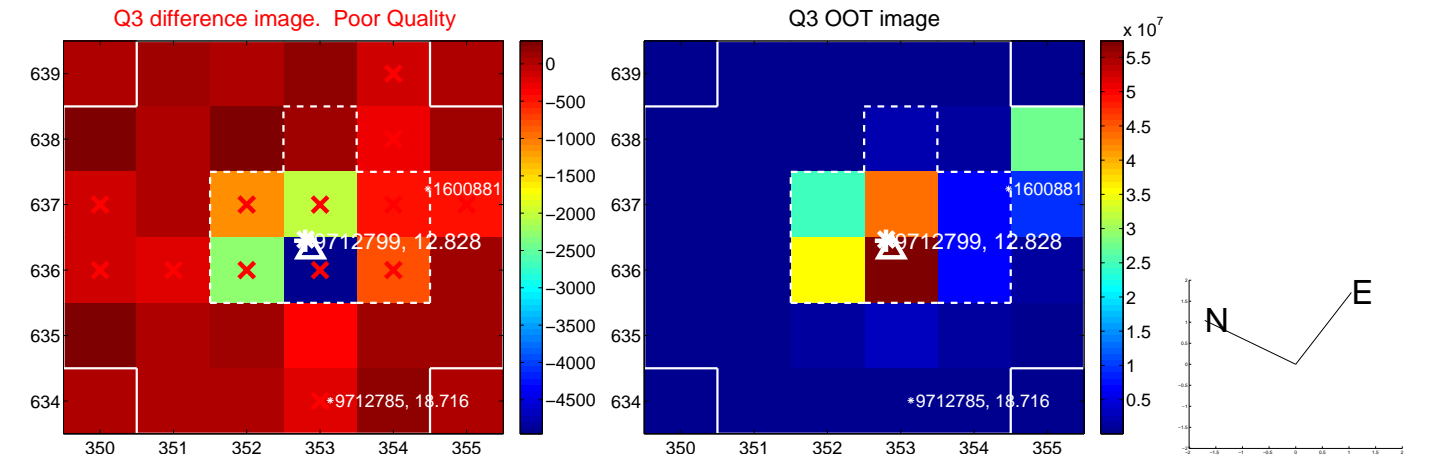
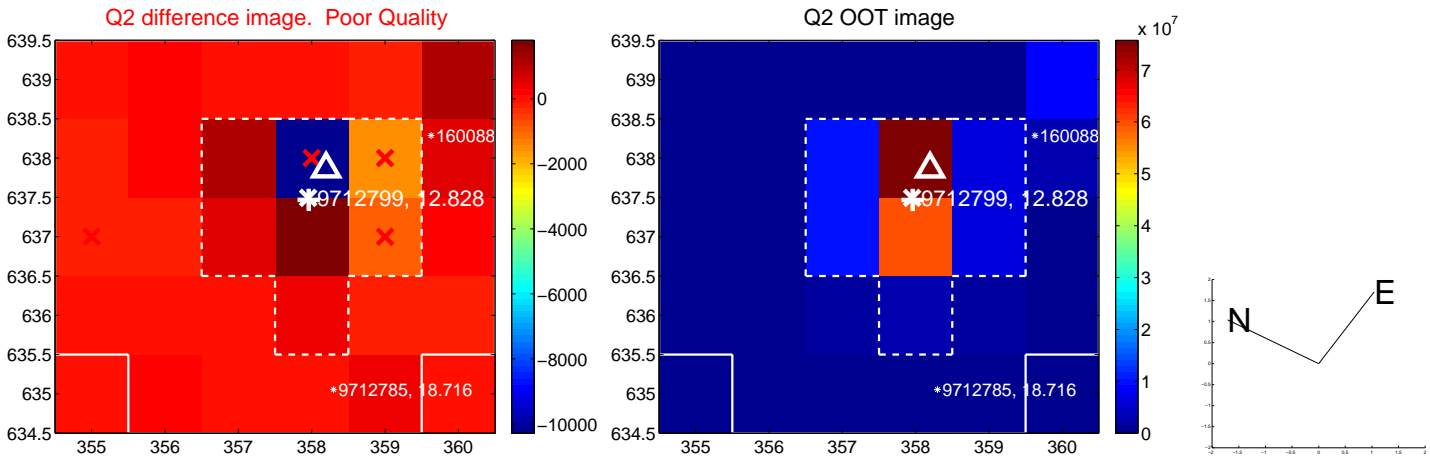
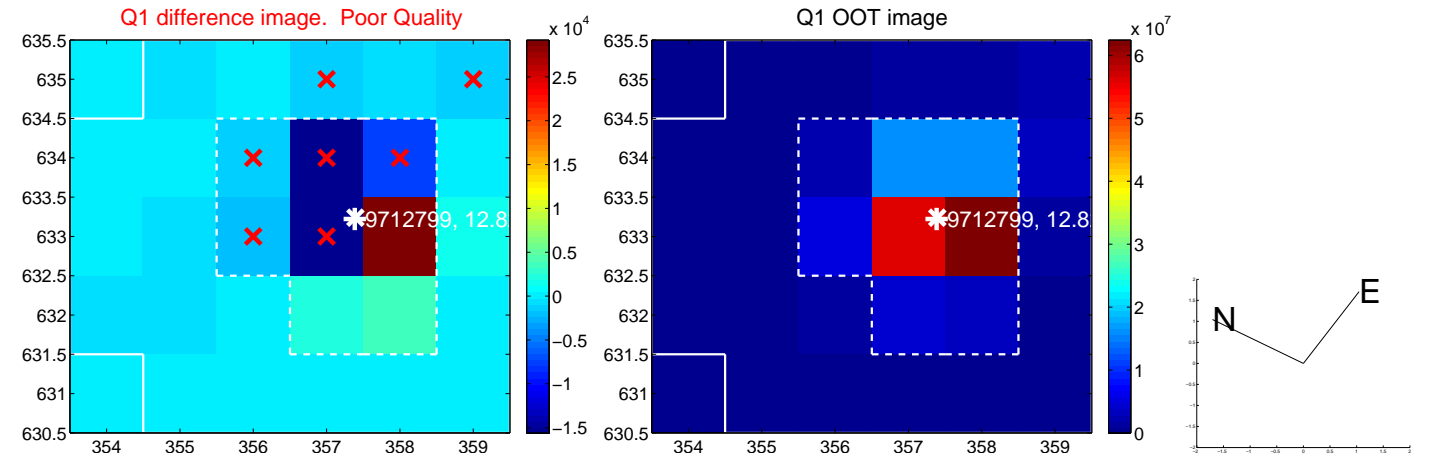
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.301 ± 0.304	0.99	-0.276 ± 0.302	-0.119 ± 0.195
PRF-fit source offset from KIC position	0.365 ± 0.292	1.25	-0.334 ± 0.290	-0.148 ± 0.194
photometric centroid source offset	2.62 ± 0.63	4.13	2.22 ± 0.65	-1.39 ± 0.59

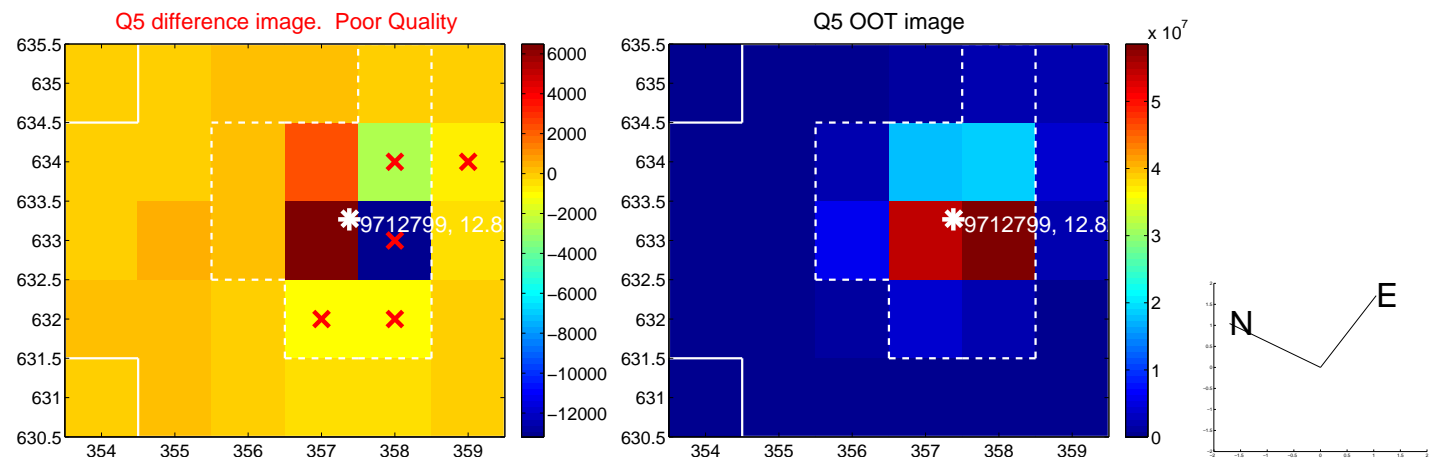


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

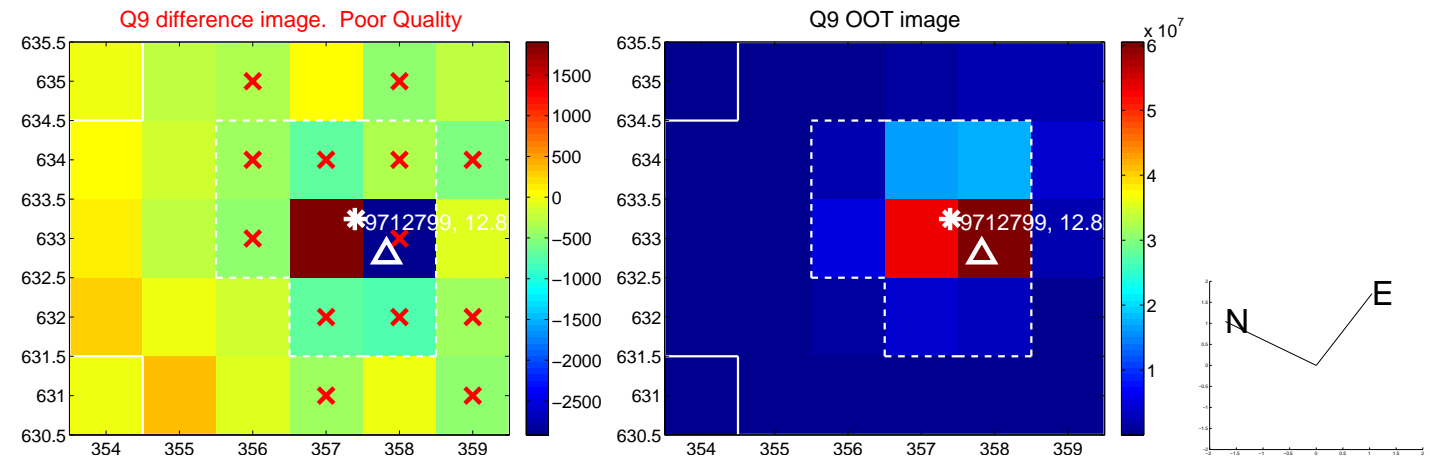
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



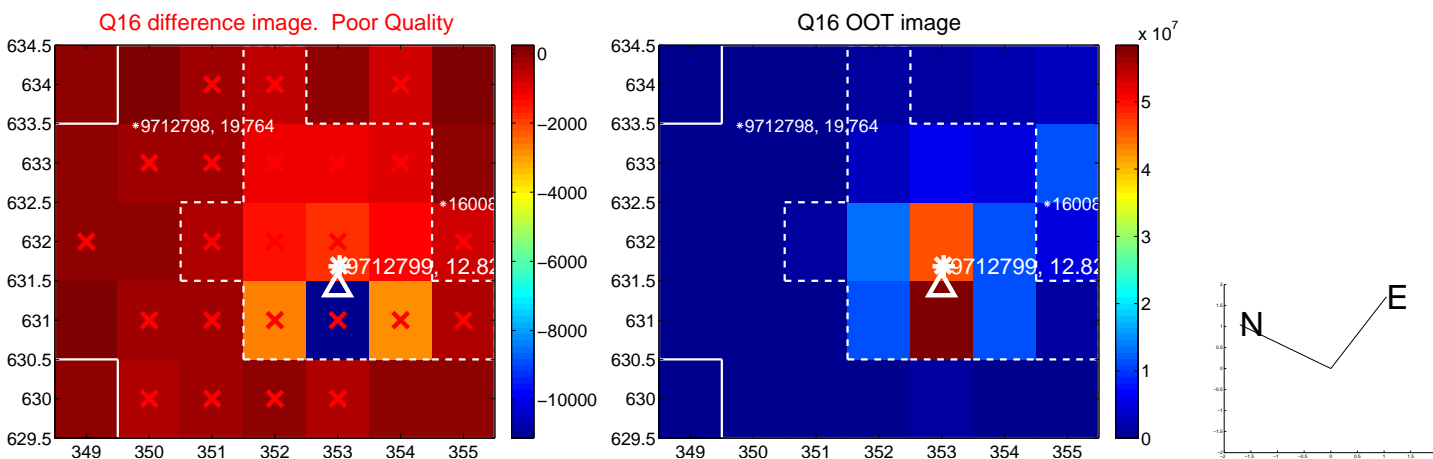
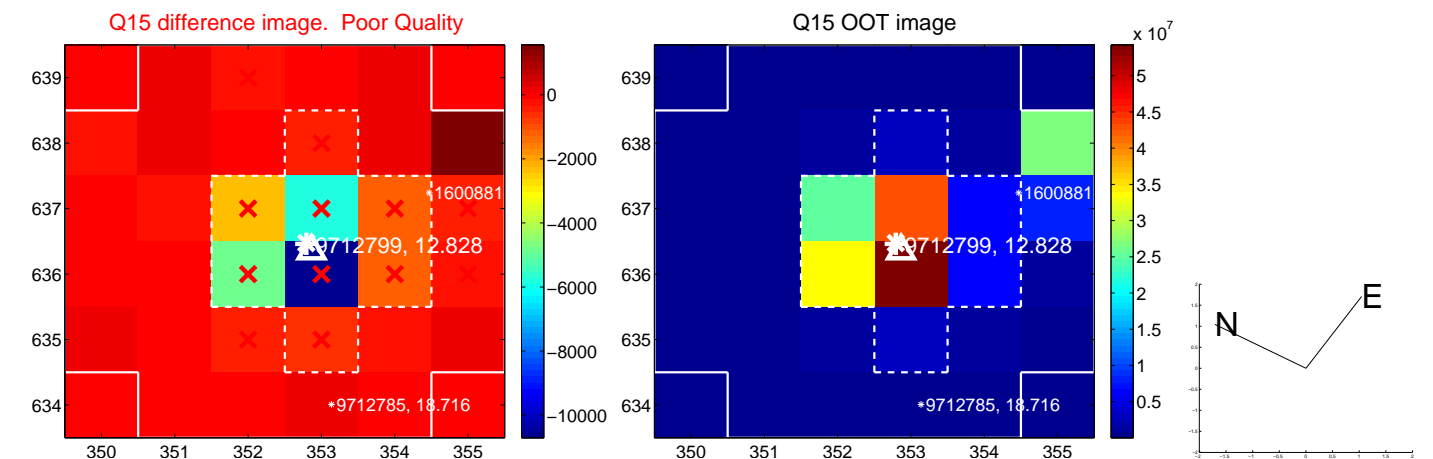
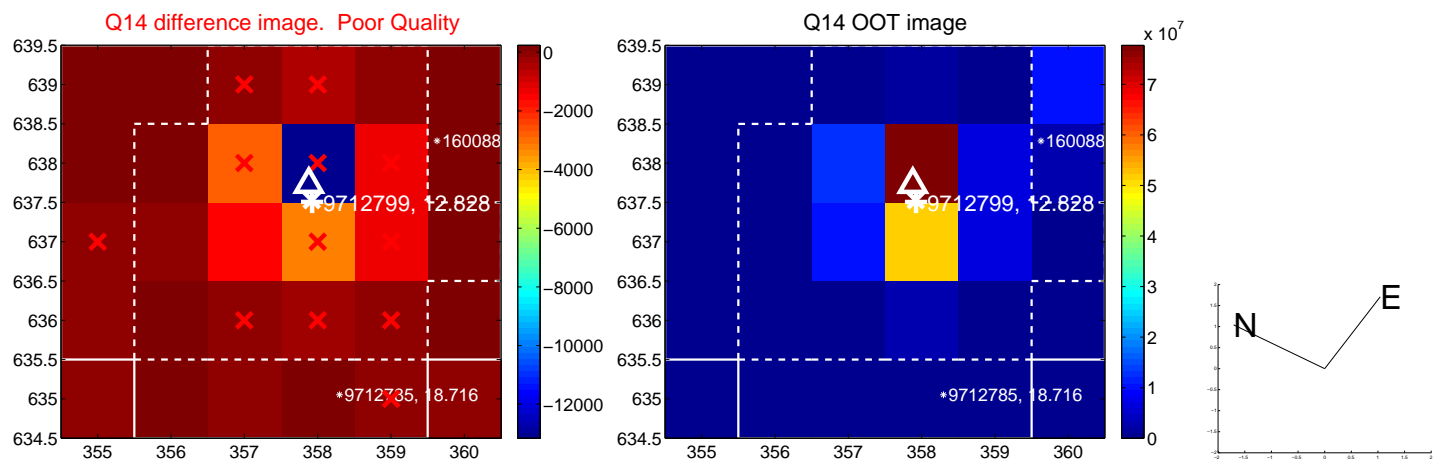
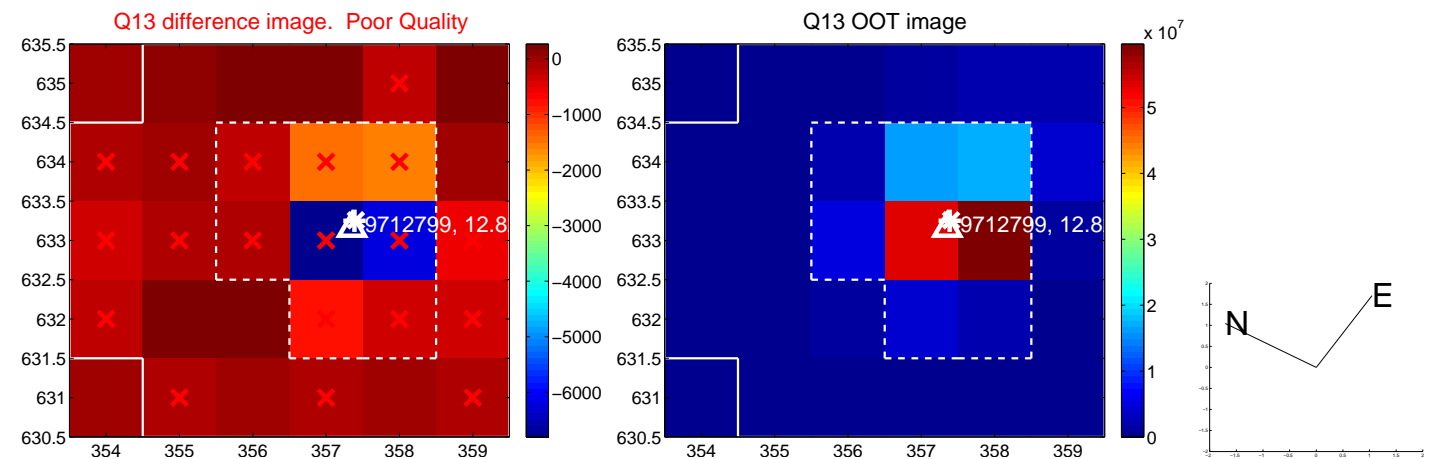
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



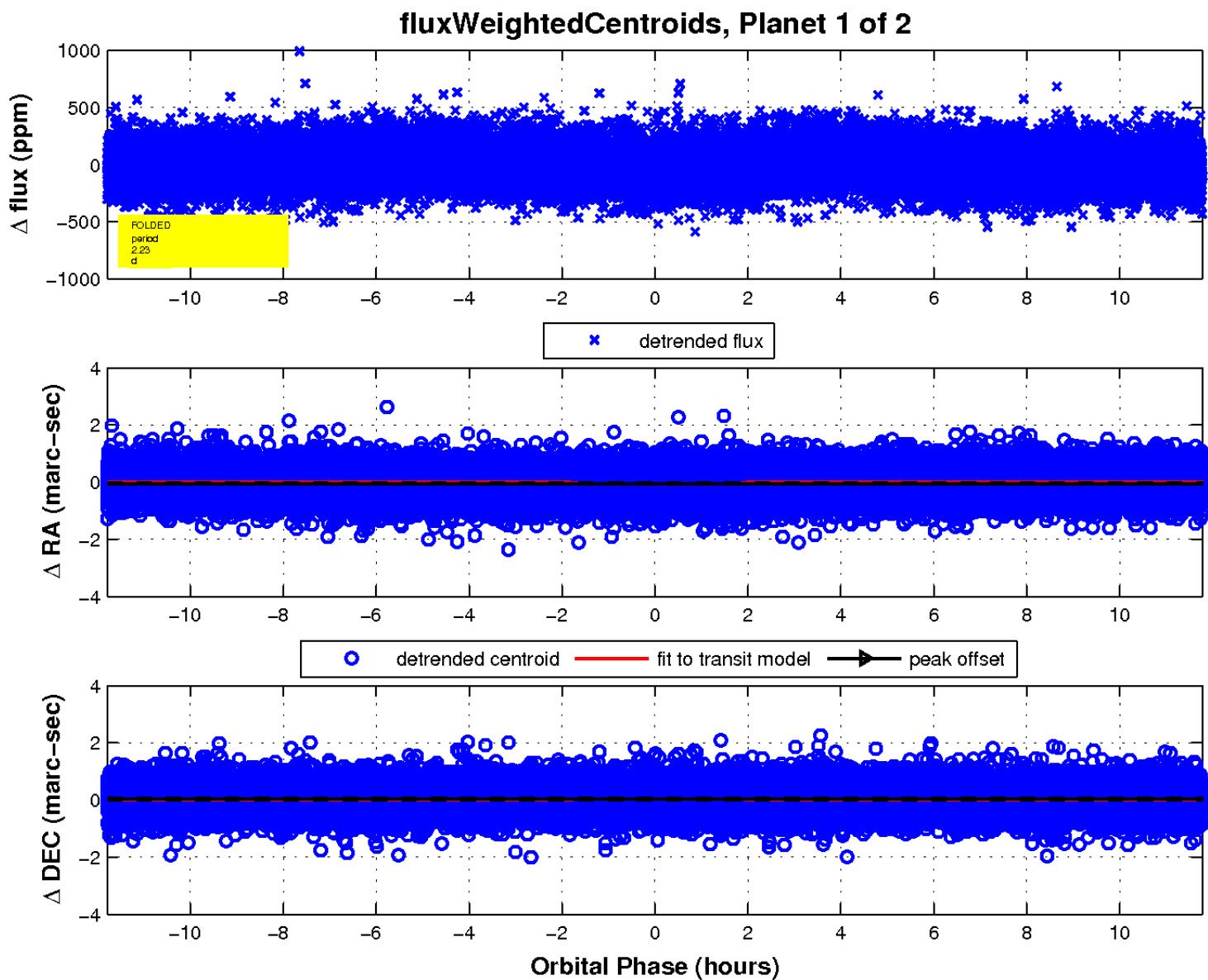
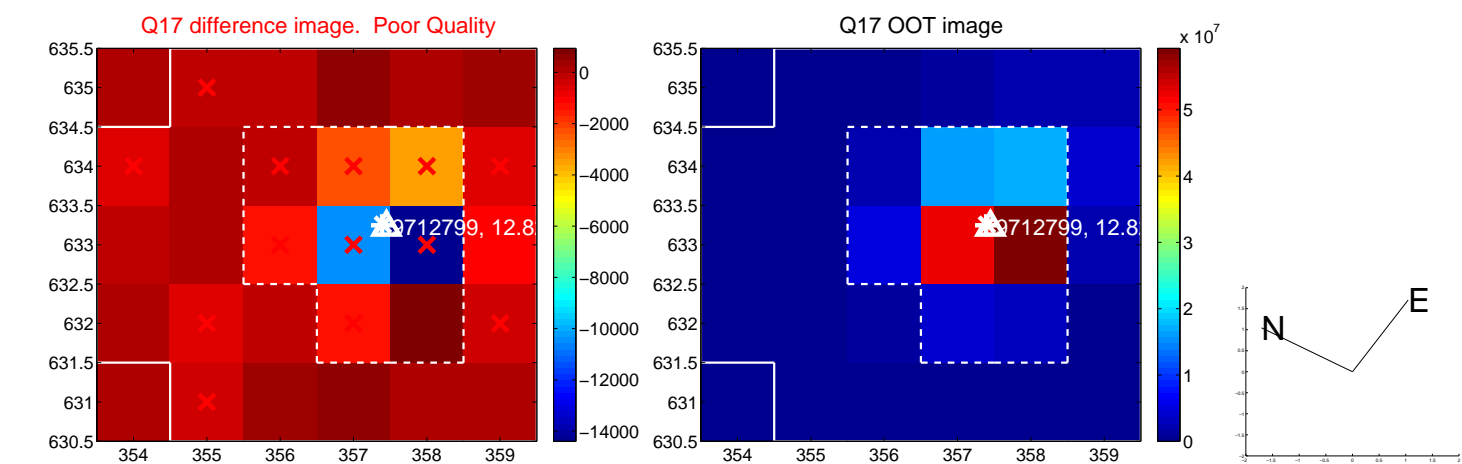
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

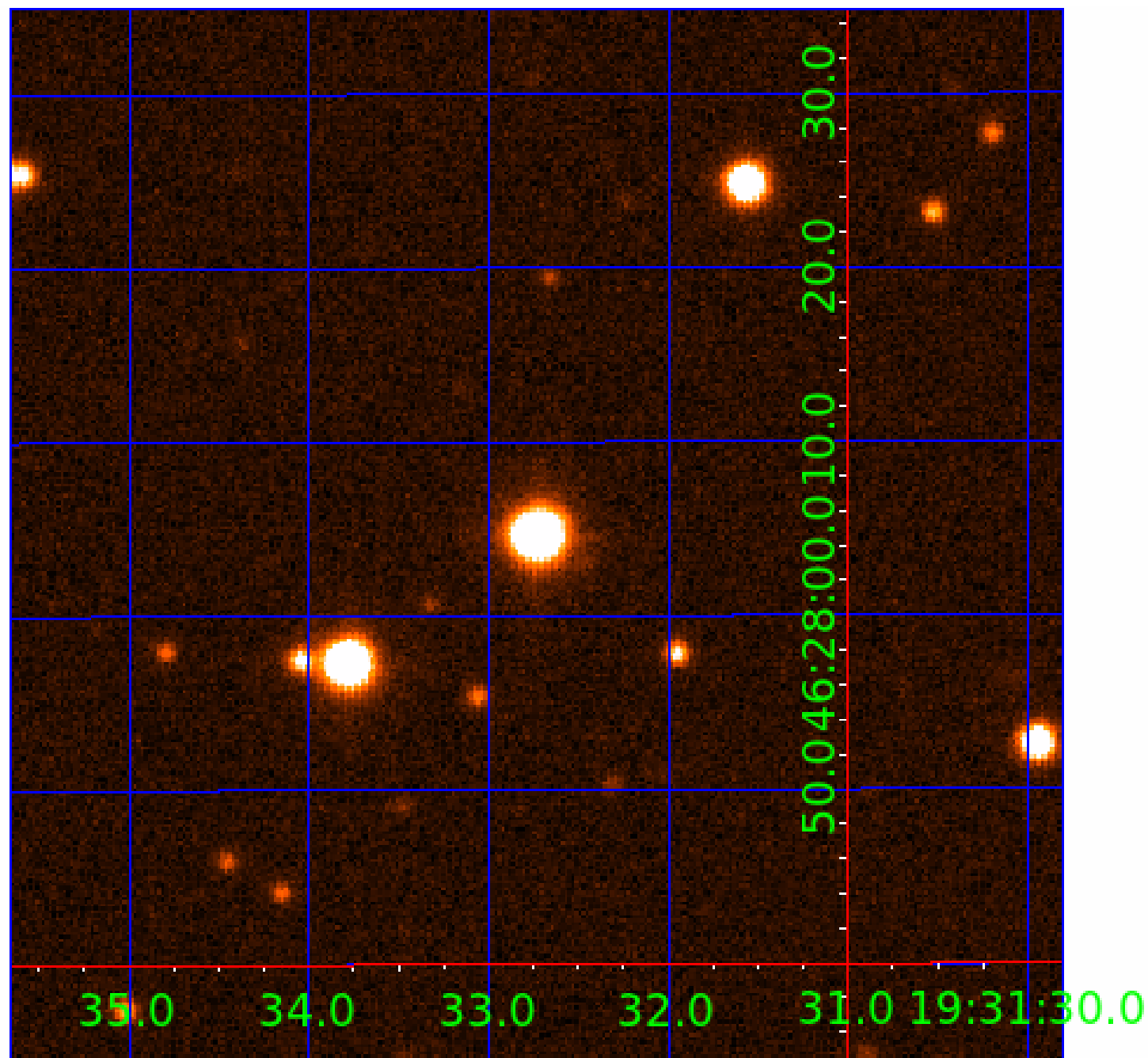


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009712799

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})
009712799-01	OBS	No	2.231968	132.264655	33.3	3.928	10.3	10.2	2.15	7182	1.44	7309.88
009712799-02	OBS	No	2.231921	131.831328	25.2	4.872	9.4	9.0	2.15	7182	1.25	7310.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009712799-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
009712799-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

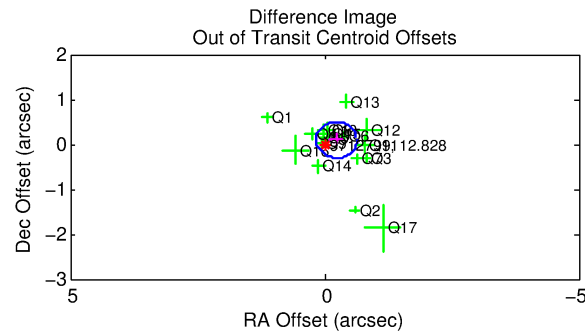
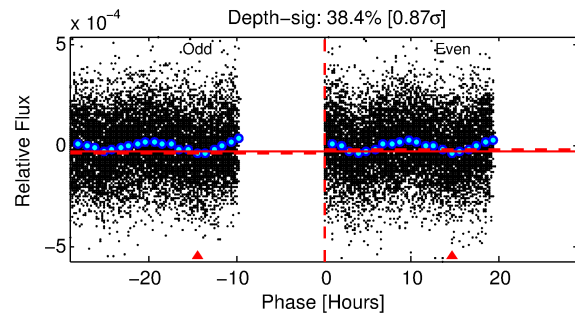
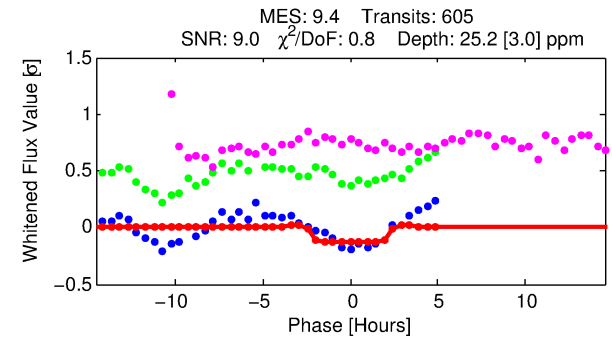
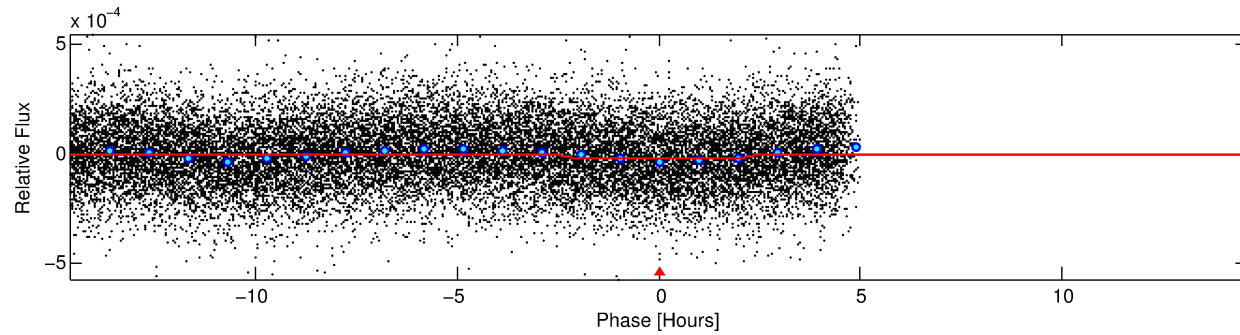
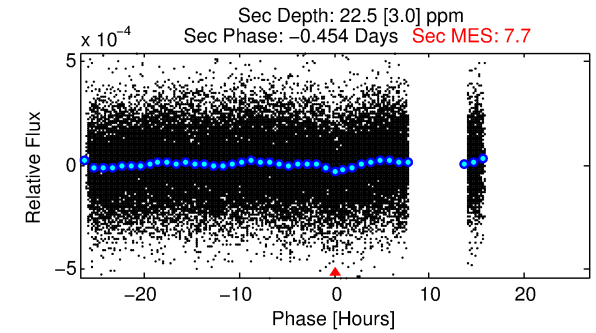
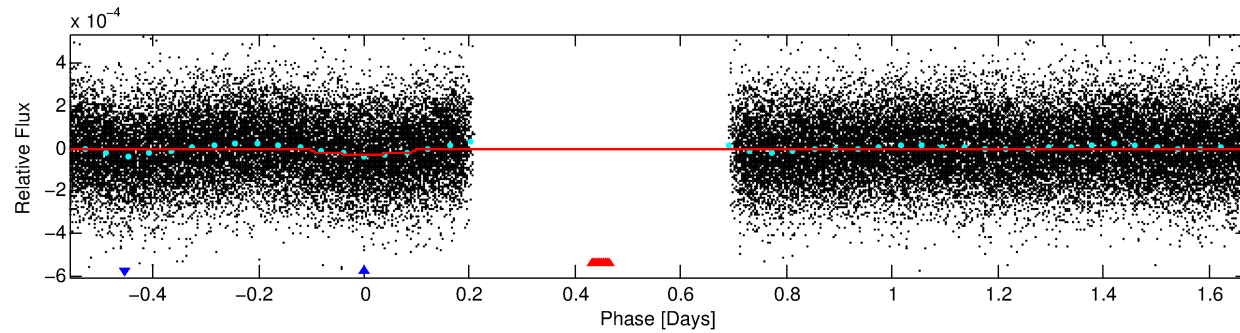
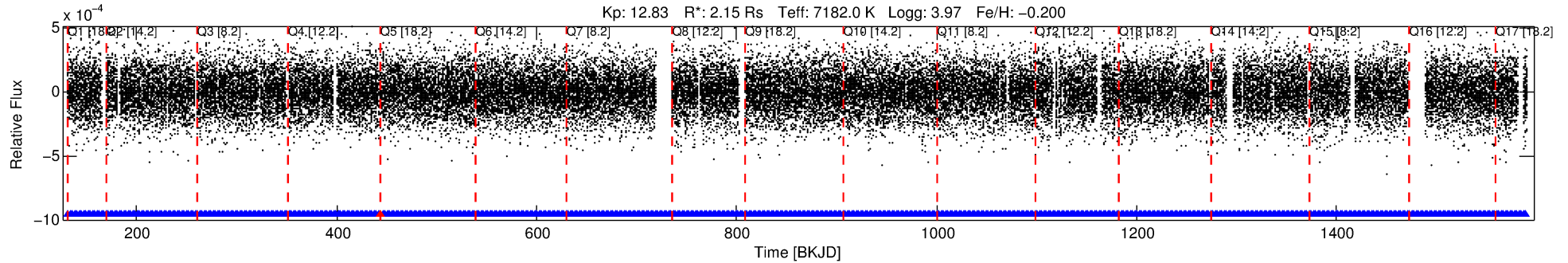
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009712799-02

No Significant Match Found

DV One-Page Summary

KIC: 9712799 Candidate: 2 of 2 Period: 2.232 d



DV Fit Results:

Period = 2.23192 [0.00002] d
Epoch = 131.8313 [0.0048] BKJD
Rp/R* = 0.0053 [0.0015]
a/R* = 1.82 [2.25]
b = 0.90 [0.37]
Seff = 7310.09 [3613.53]
Teq = 2358 [291] K
Rp = 1.25 [0.54] Re
a = 0.0387 [0.0114] AU
Ag = 11.91 [8.90] [1.23σ]
Teffp = 6772 [1042] K [4.08σ]

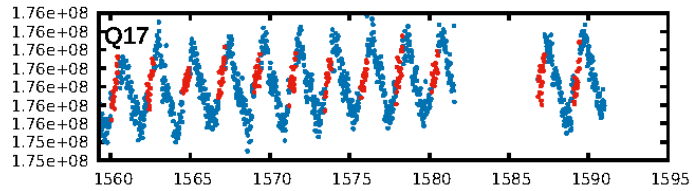
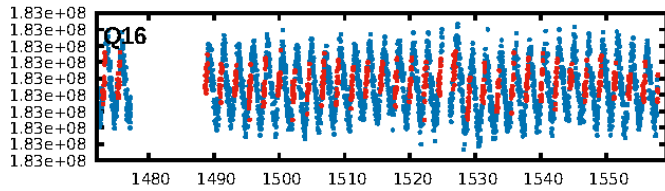
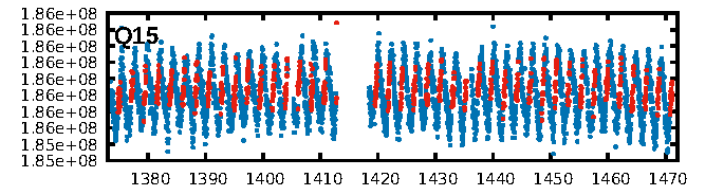
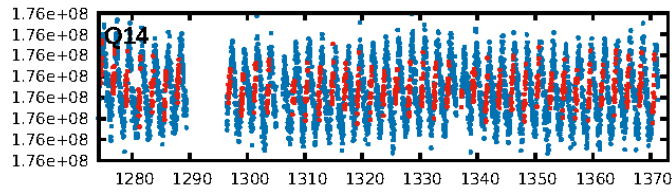
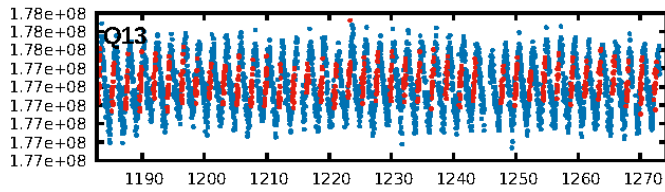
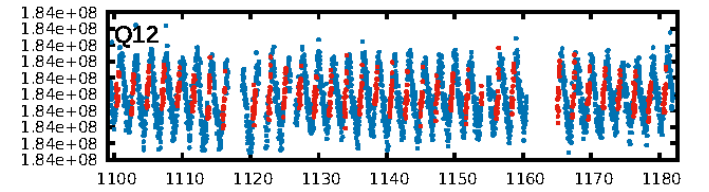
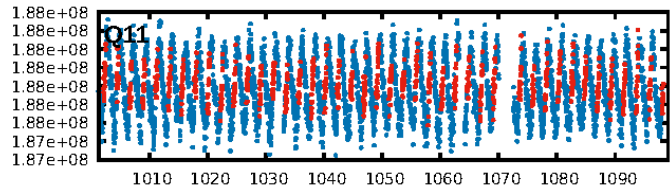
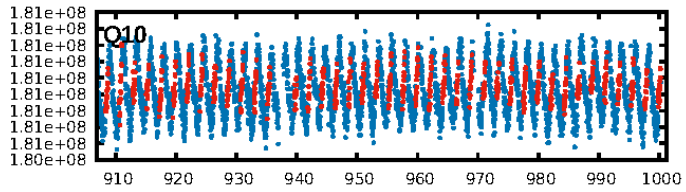
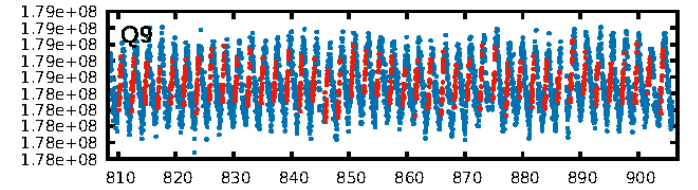
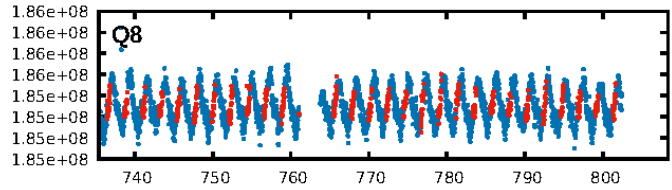
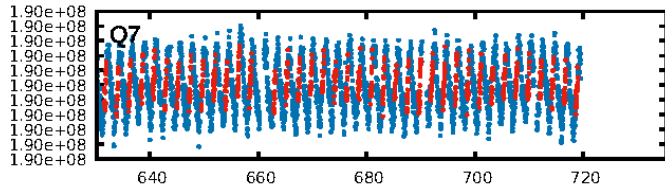
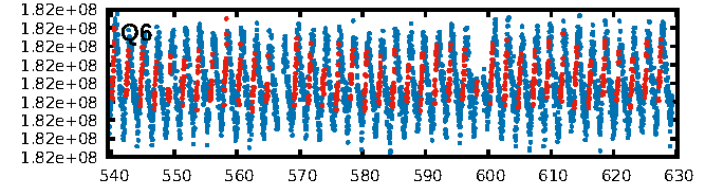
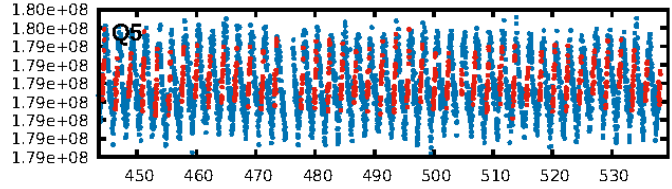
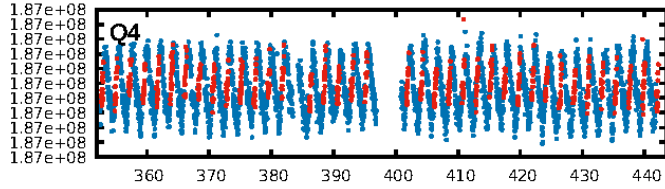
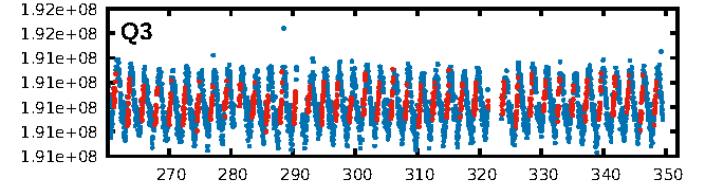
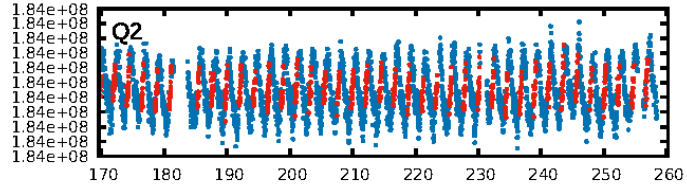
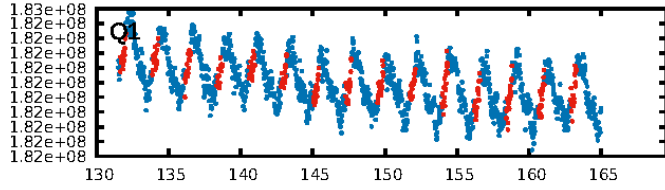
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.24e-14
RollingBand-fgt: 1.00 [577/578]
GhostDiagnostic-chr: 1.556
Centroid-sig: 0.0%
Centroid-so: 1.813 arcsec [2.50σ]
OotOffset-rm: 0.251 arcsec [1.89σ]
OotOffset-st: 4/4/4/5 [17]
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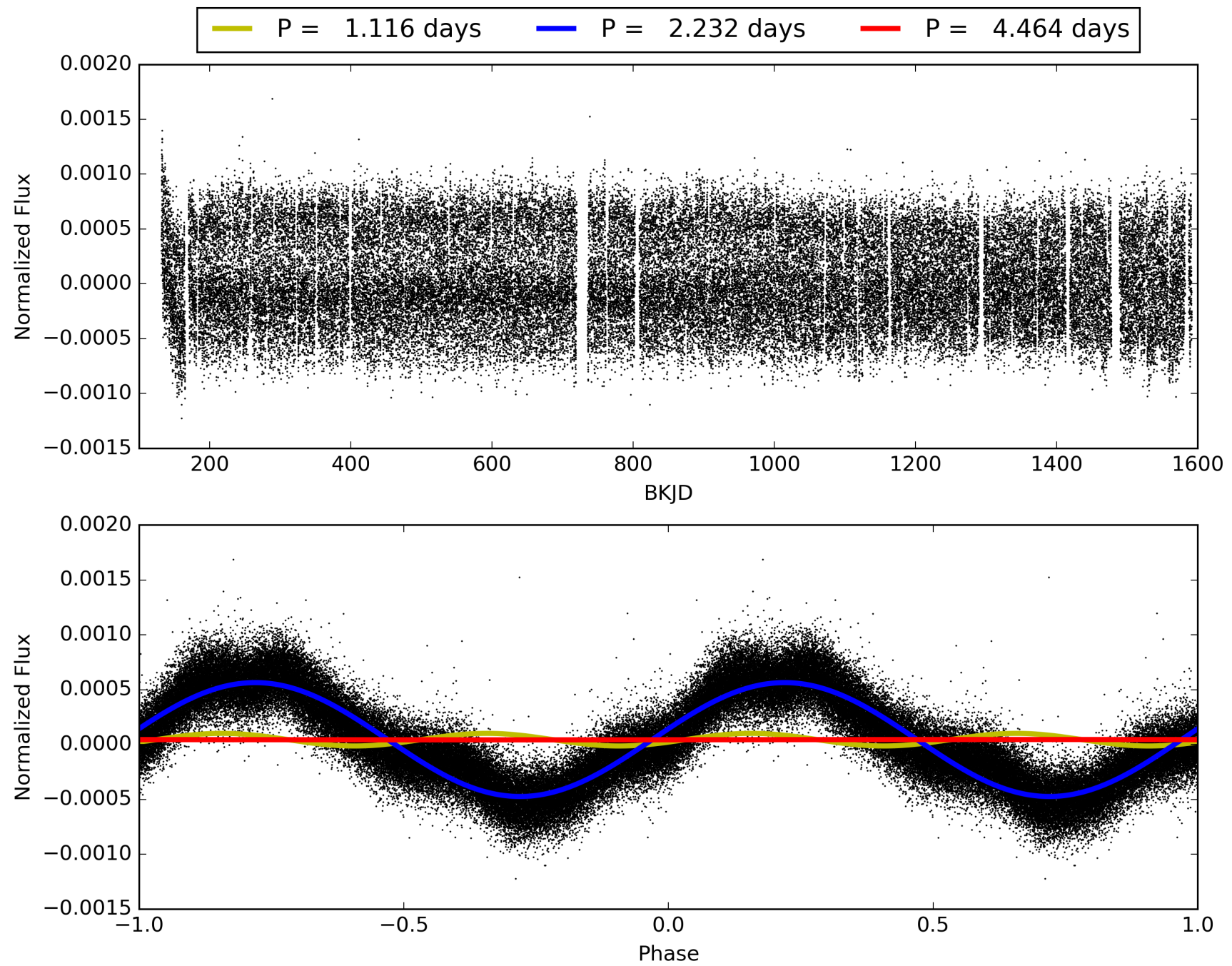
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009712799-02, PDC Light Curves

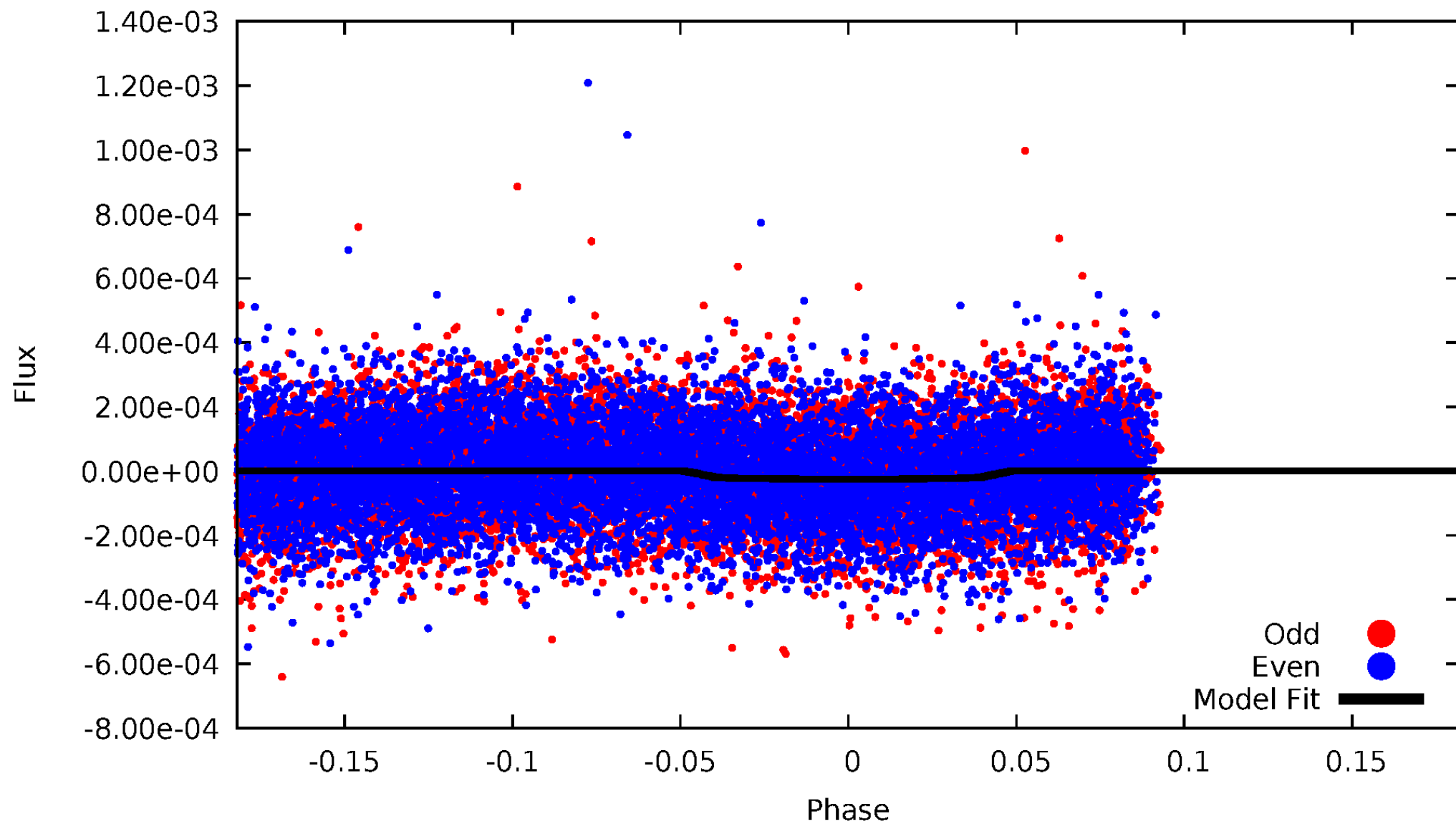


TCE 009712799-02



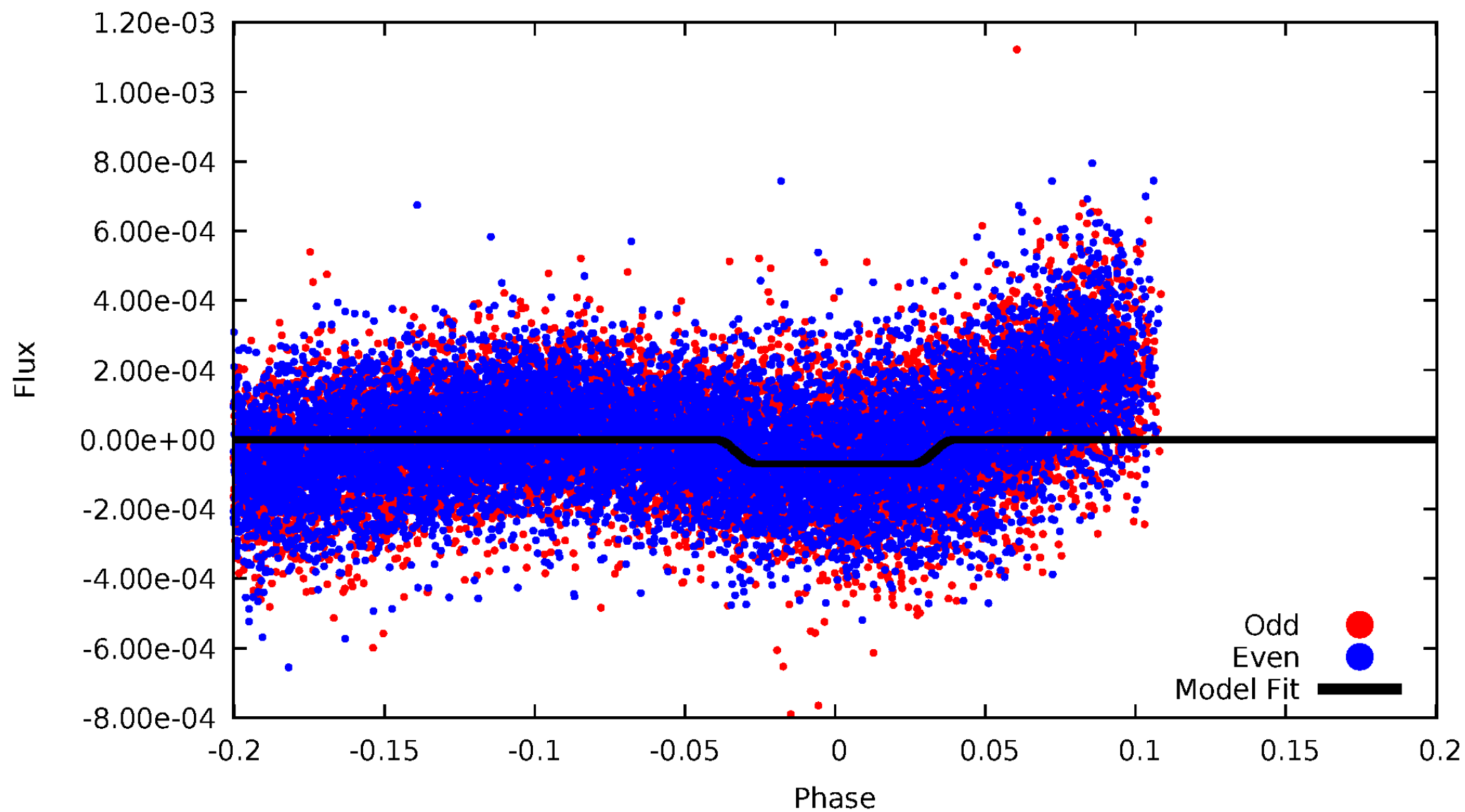
DV Odd/Even

TCE 009712799-02



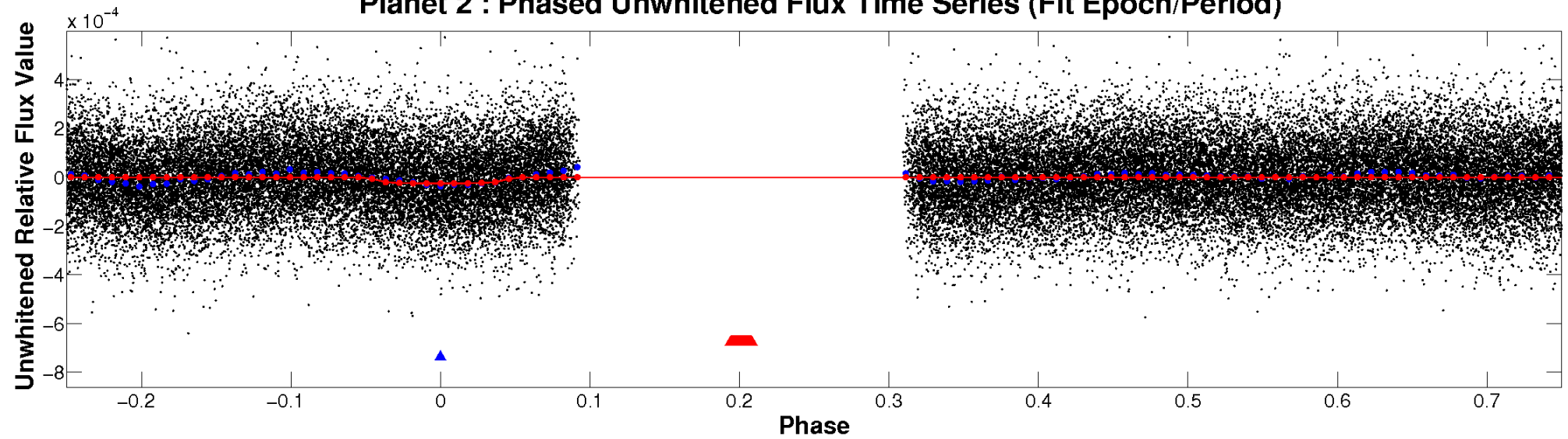
ALT Odd/Even

TCE 009712799-02

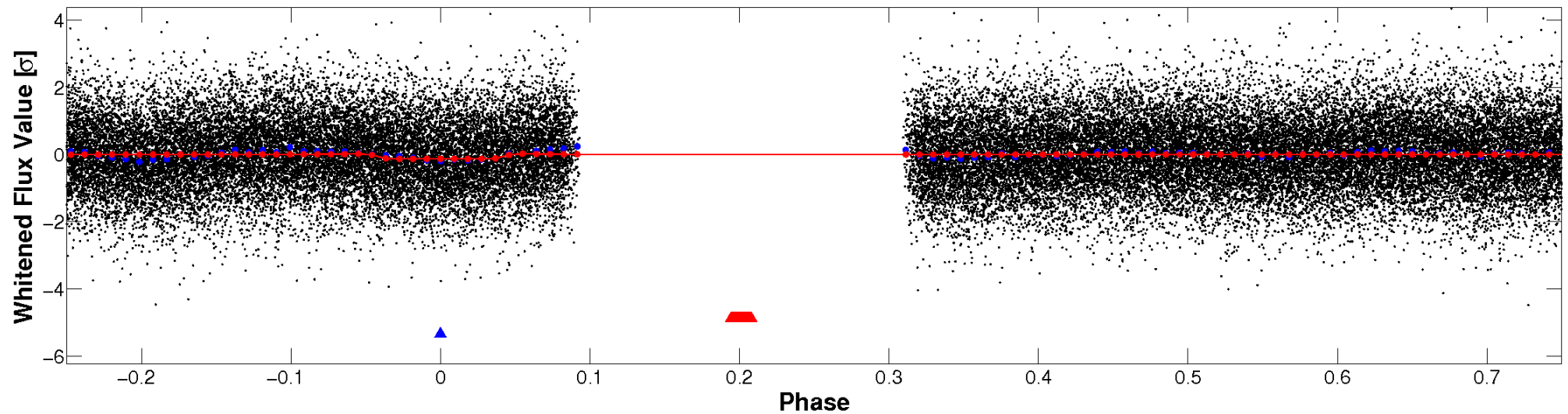


Non-Whitened Vs. Whitened Light Curve

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

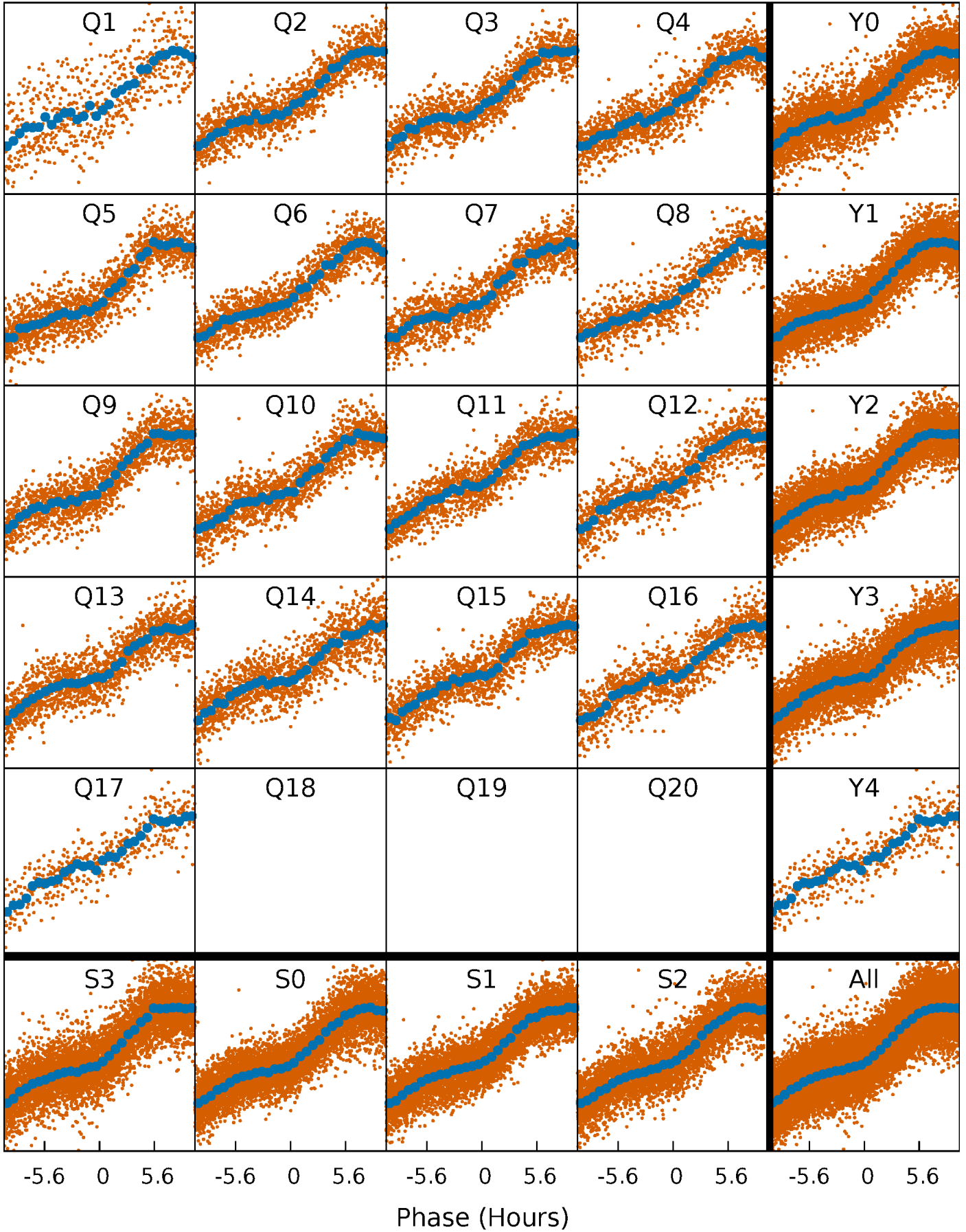


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



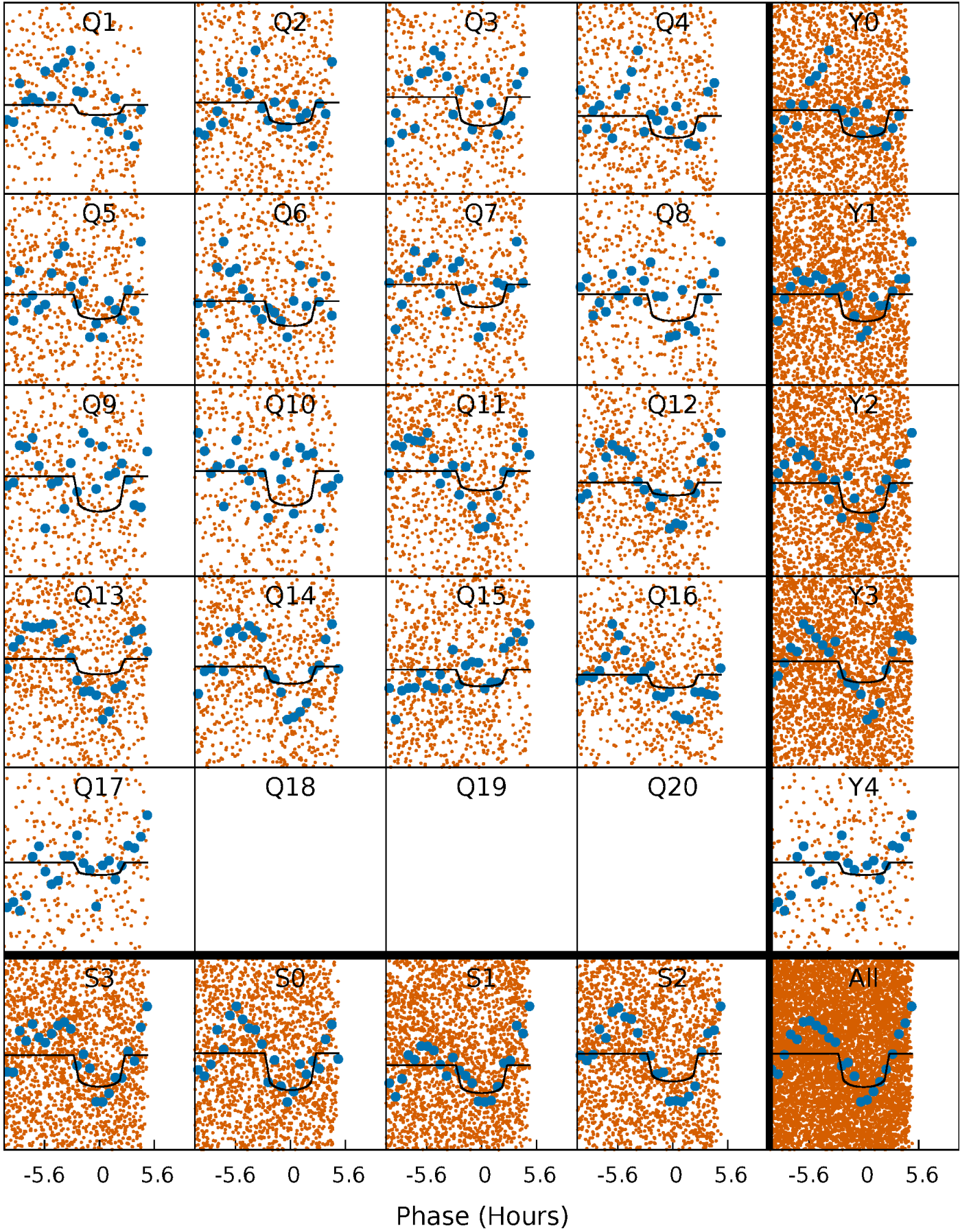
PDC Quarter-Phased Transit Curves

TCE 009712799-02 $P = 2.231921$ Days $T_0 = 131.831328$ (BKJD)



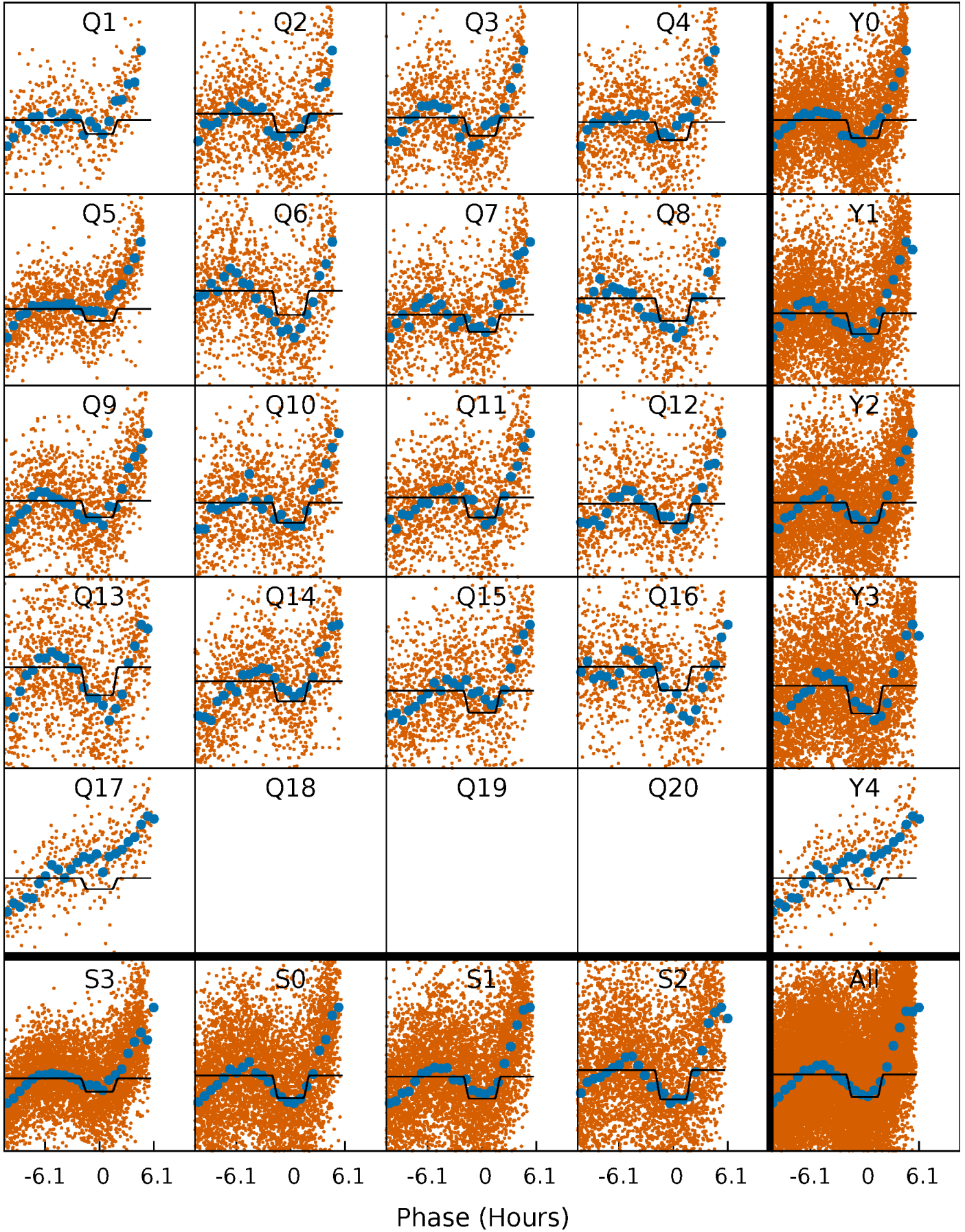
DV Quarter-Phased Transit Curves

TCE 009712799-02 P= 2.231921 Days $T_0=131.831328$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

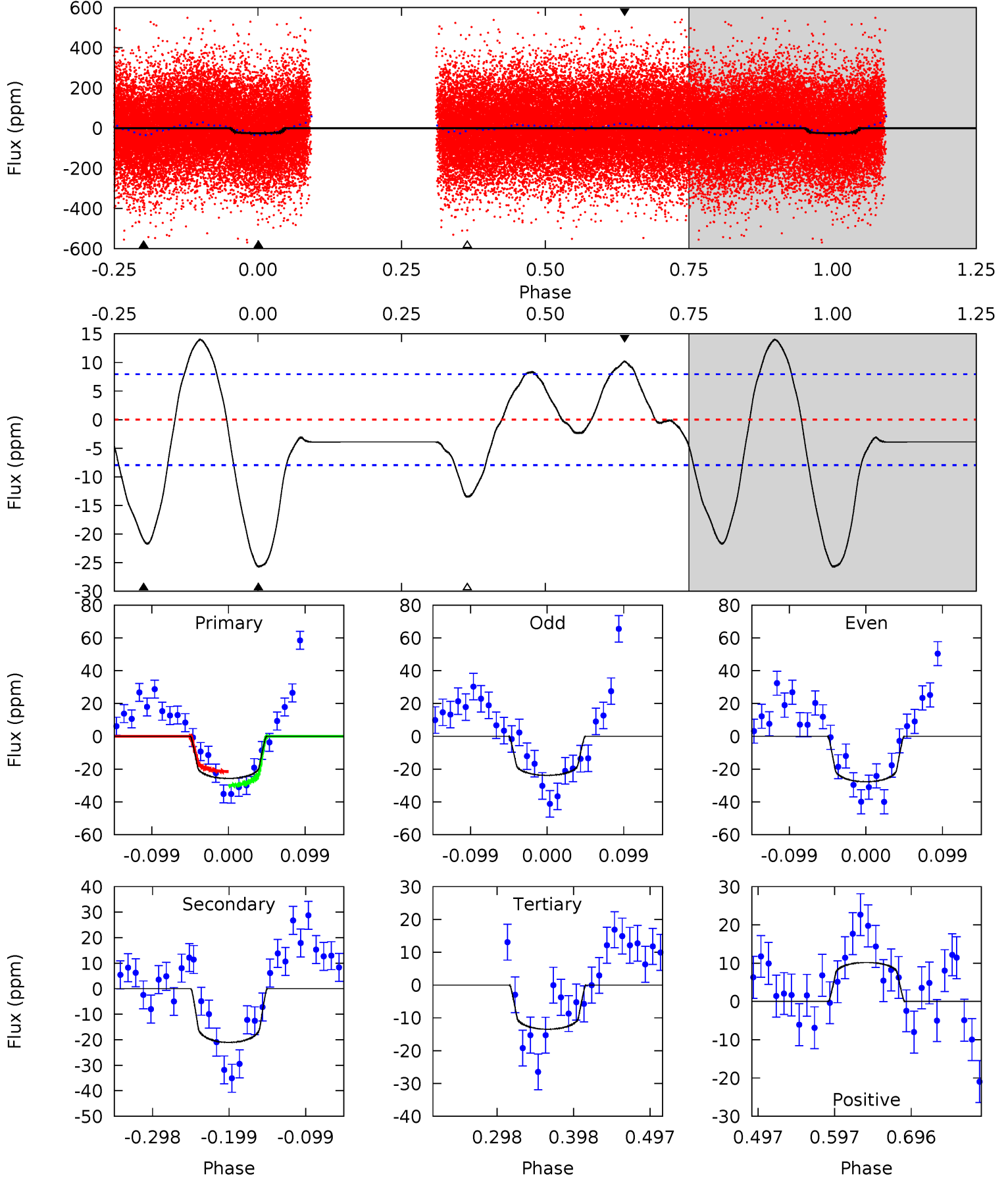
TCE 009712799-02 P= 2.231887 Days $T_0=131.817972$ (BKJD)



DV Model-Shift Uniqueness Test

009712799-02, P = 2.231921 Days, E = 129.599407 Days

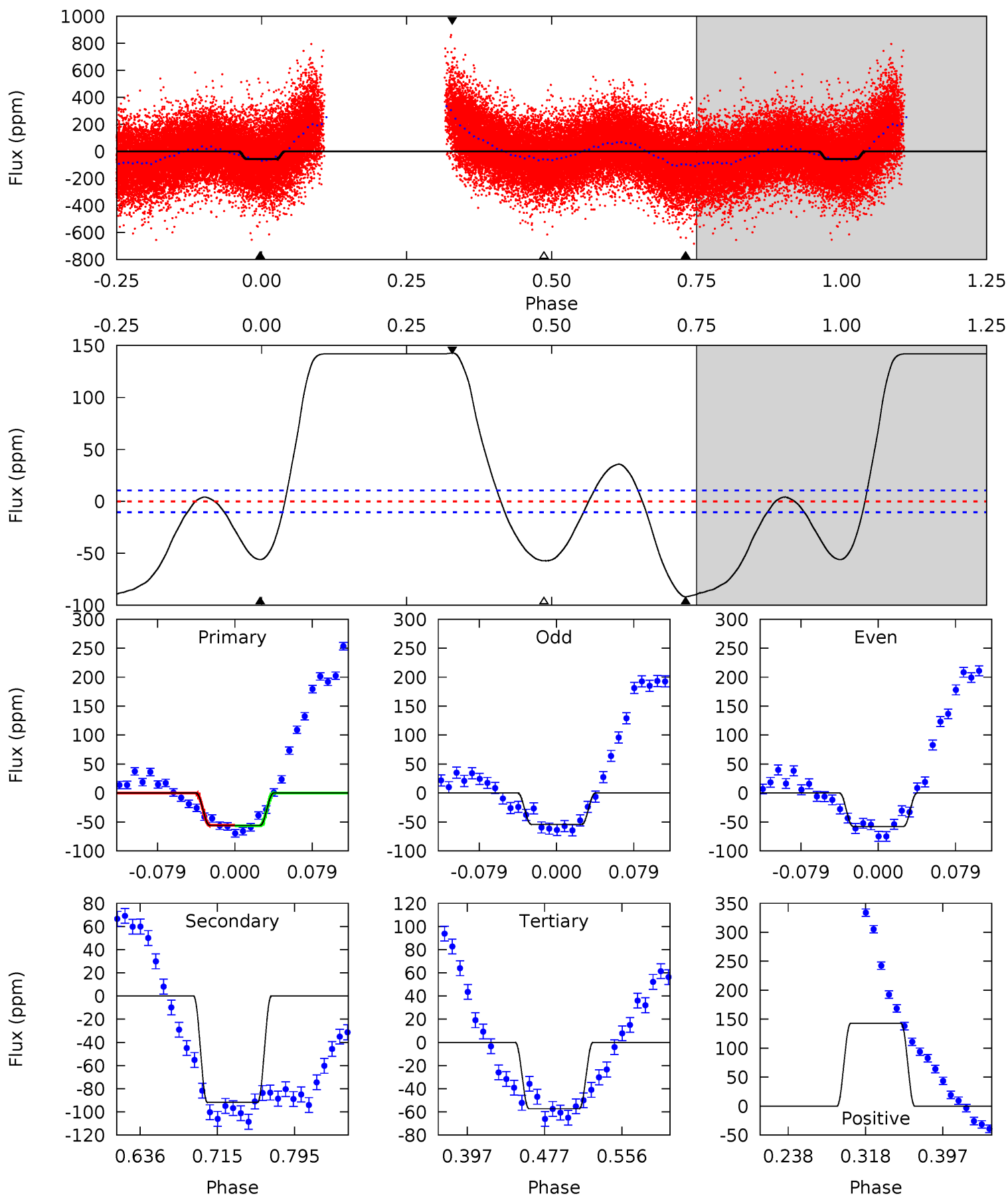
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	12.1	7.74	5.85	4.57	1.65	3.61	7.02	8.91	4.35	6.24	1.13	1.07	0.35	2.43



Alt Model-Shift Uniqueness Test

009712799-02, P = 2.231887 Days, E = 129.586085 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.7	40.5	25.3	63.1	4.61	1.75	25.7	-0.54	-38.3	15.3	-22.5	0.80	0.99	0.61	0.20



Stellar Parameters For KIC 009712799

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7182^{+224}_{-324}	$3.967^{+0.266}_{-0.164}$	$-0.200^{+0.250}_{-0.300}$	$2.145^{+0.559}_{-0.683}$	$1.553^{+0.217}_{-0.298}$	$0.222^{+0.366}_{-0.108}$
	+3%/-5%	+7%/-4%	+125%/-150%	+26%/-32%	+14%/-19%	+165%/-49%
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 009712799-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-21 ± 2	$1.20^{+0.42}_{-0.40}$	3248^{+246}_{-283}	6527^{+1482}_{-823}	12^{+15}_{-5}
Alt.	-92 ± 2	$1.90^{+0.50}_{-0.45}$	3259^{+271}_{-296}	7709^{+1073}_{-813}	21^{+14}_{-8}

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 $A_{obs} \gg 1.0$

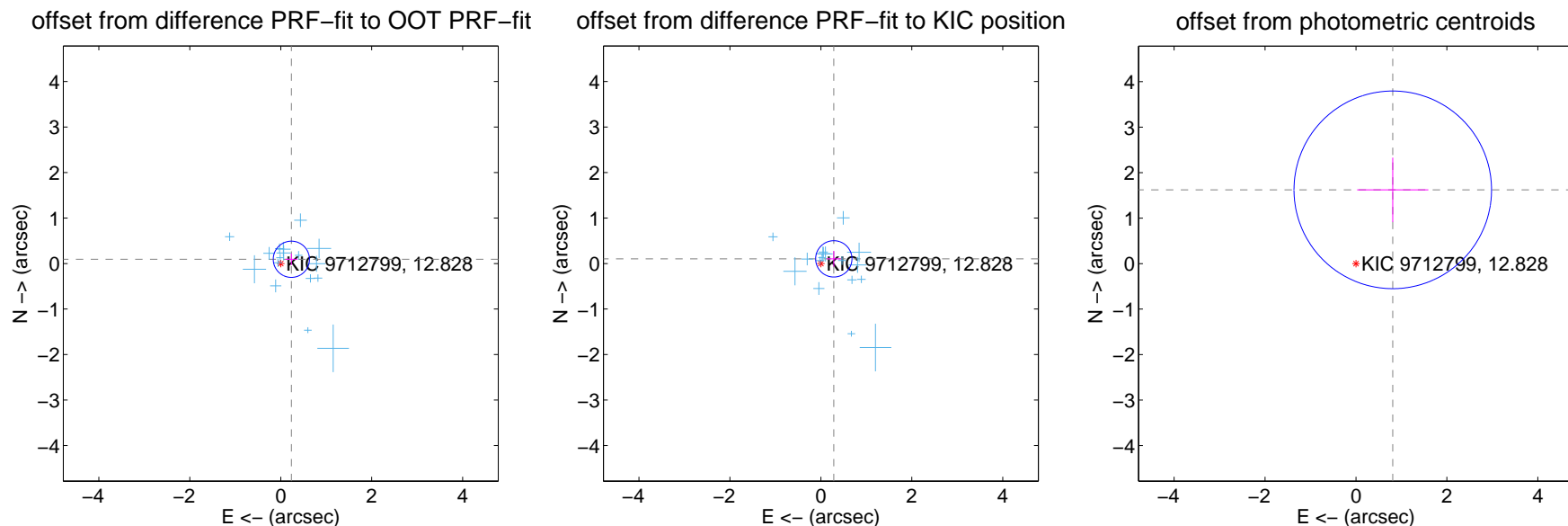
DV Centroid Data

Supplemental centroid analysis for 009712799-02. Kepler magnitude: 12.83. Transit SNR 9.02

There are 17 quarters with good PRF difference image offsets

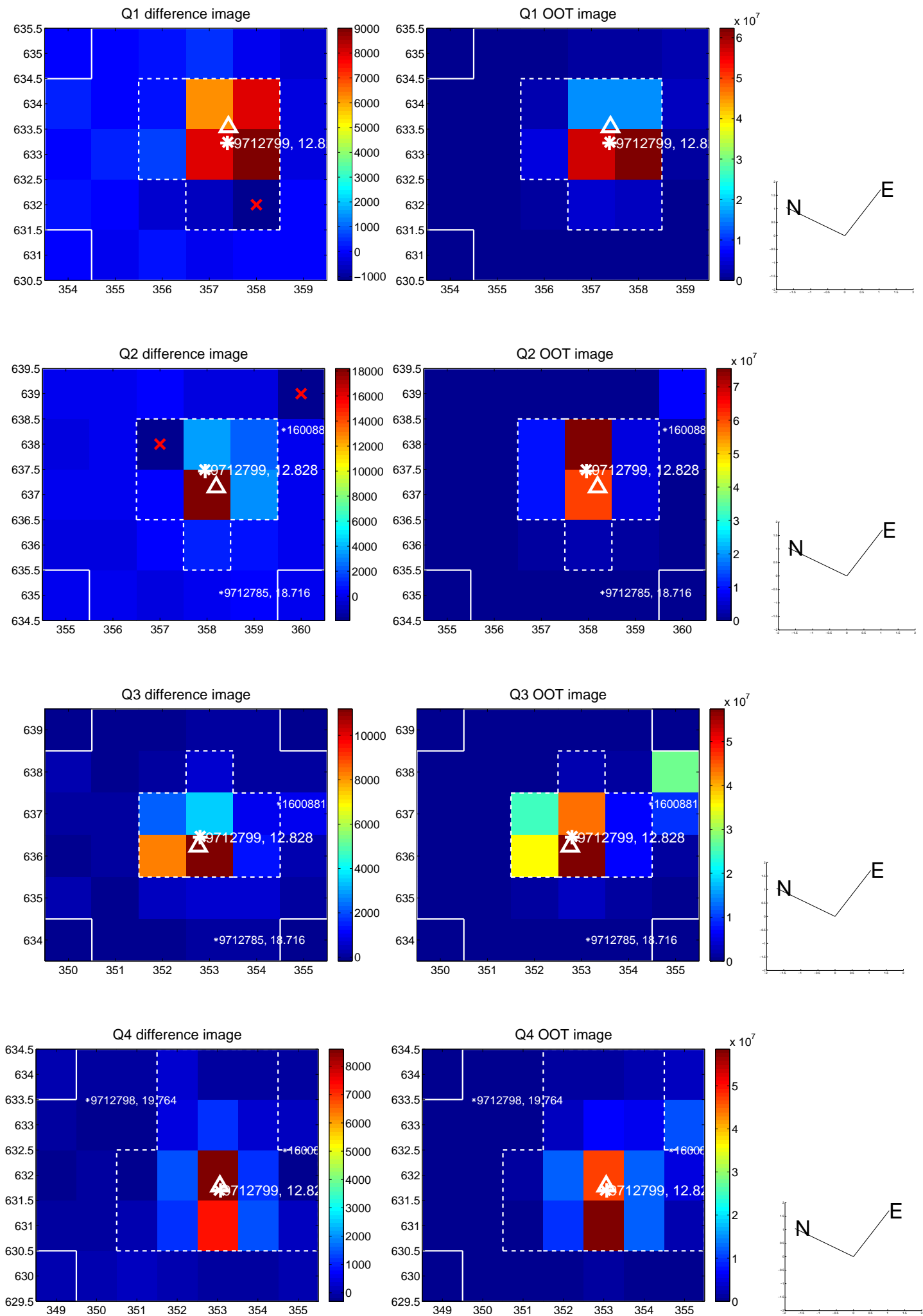
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.251 ± 0.133	1.89	-0.233 ± 0.133	0.094 ± 0.129
PRF-fit source offset from KIC position	0.303 ± 0.133	2.27	-0.284 ± 0.153	0.103 ± 0.174
photometric centroid source offset	1.81 ± 0.72	2.50	-0.81 ± 0.78	1.62 ± 0.71

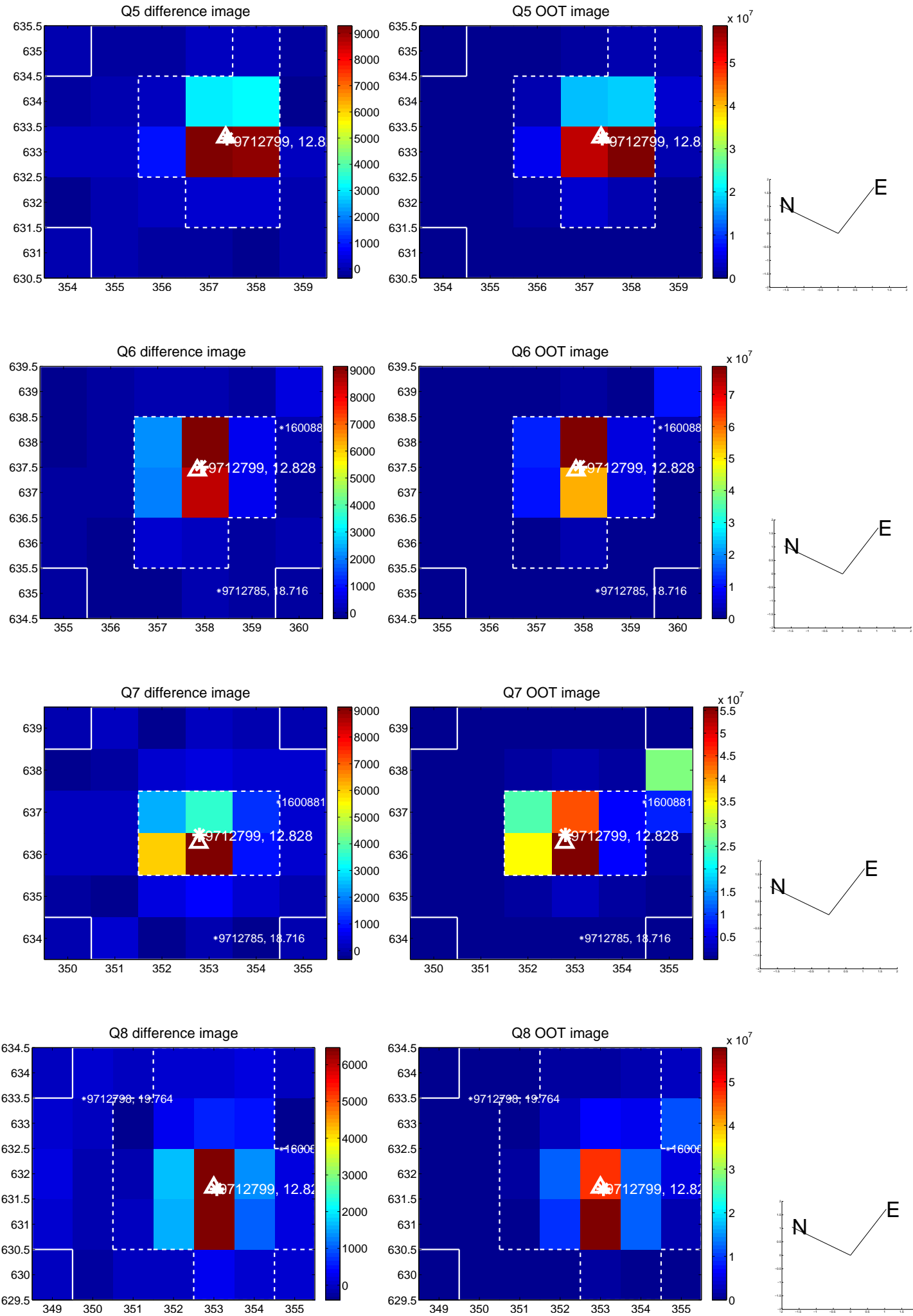


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

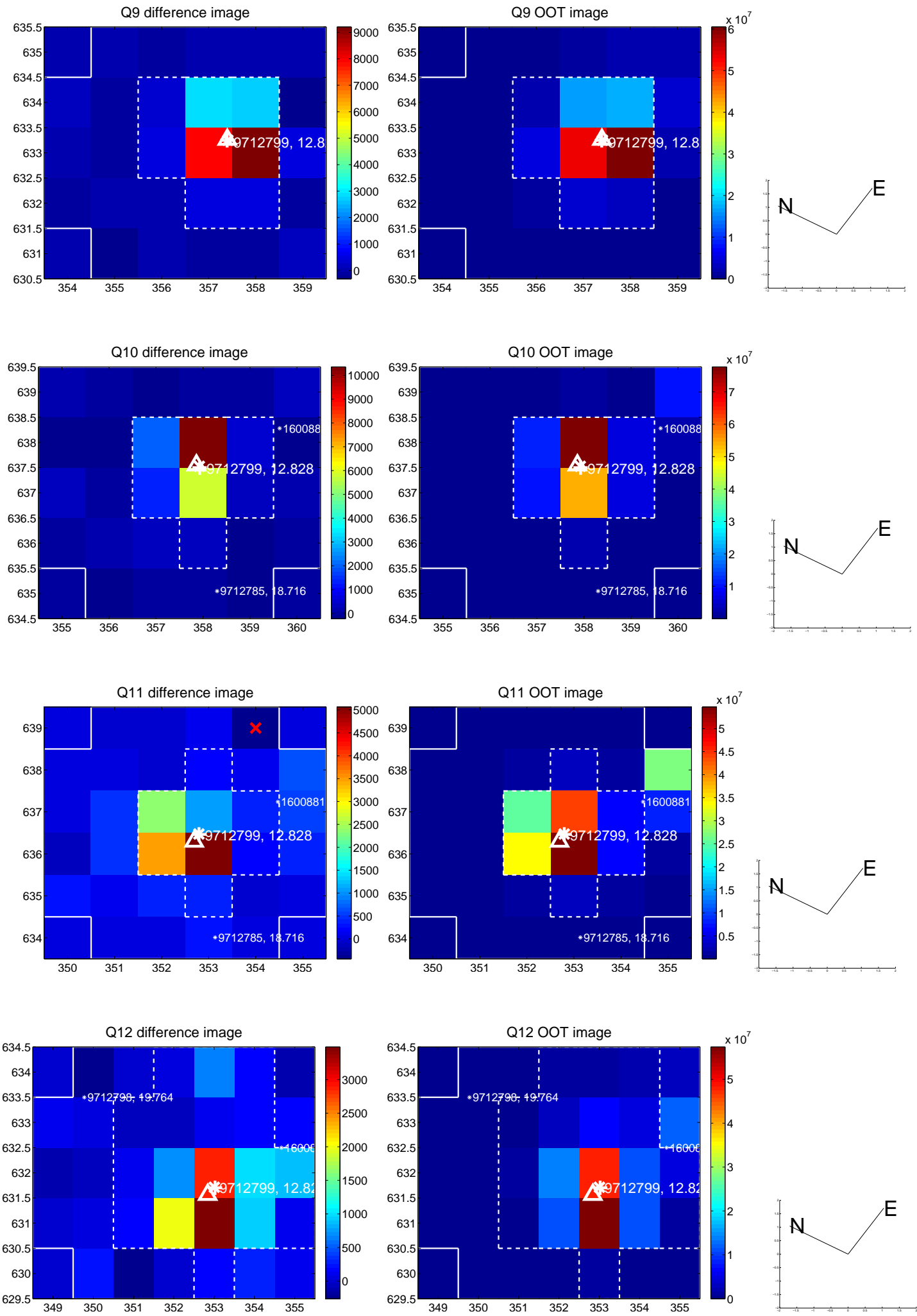
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



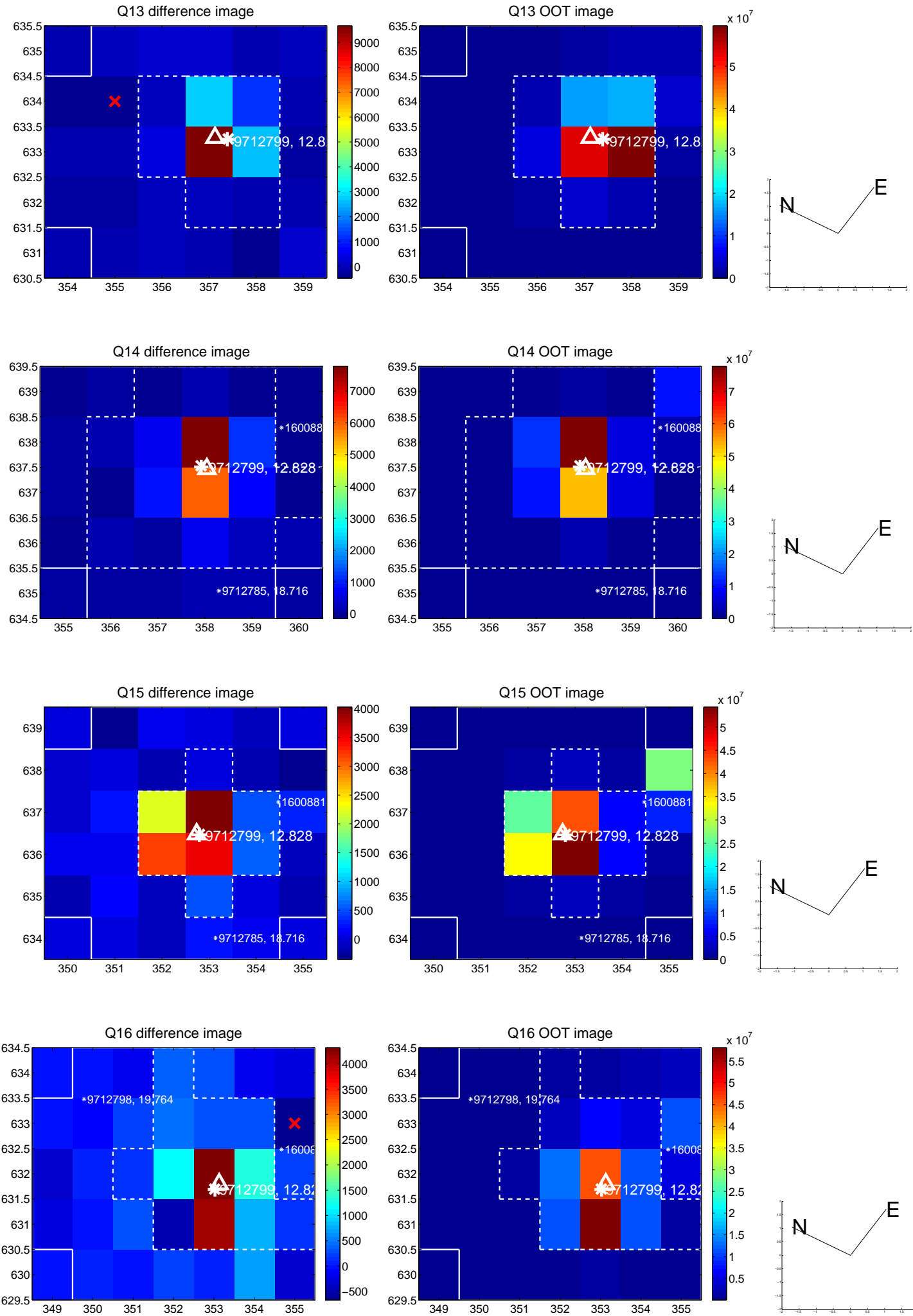
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



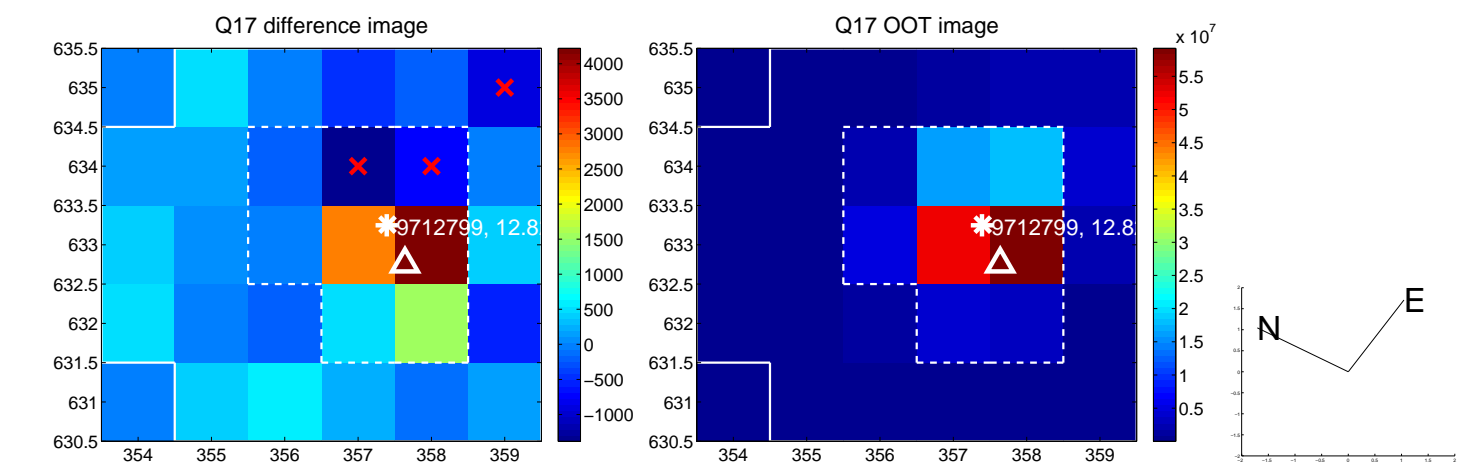
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



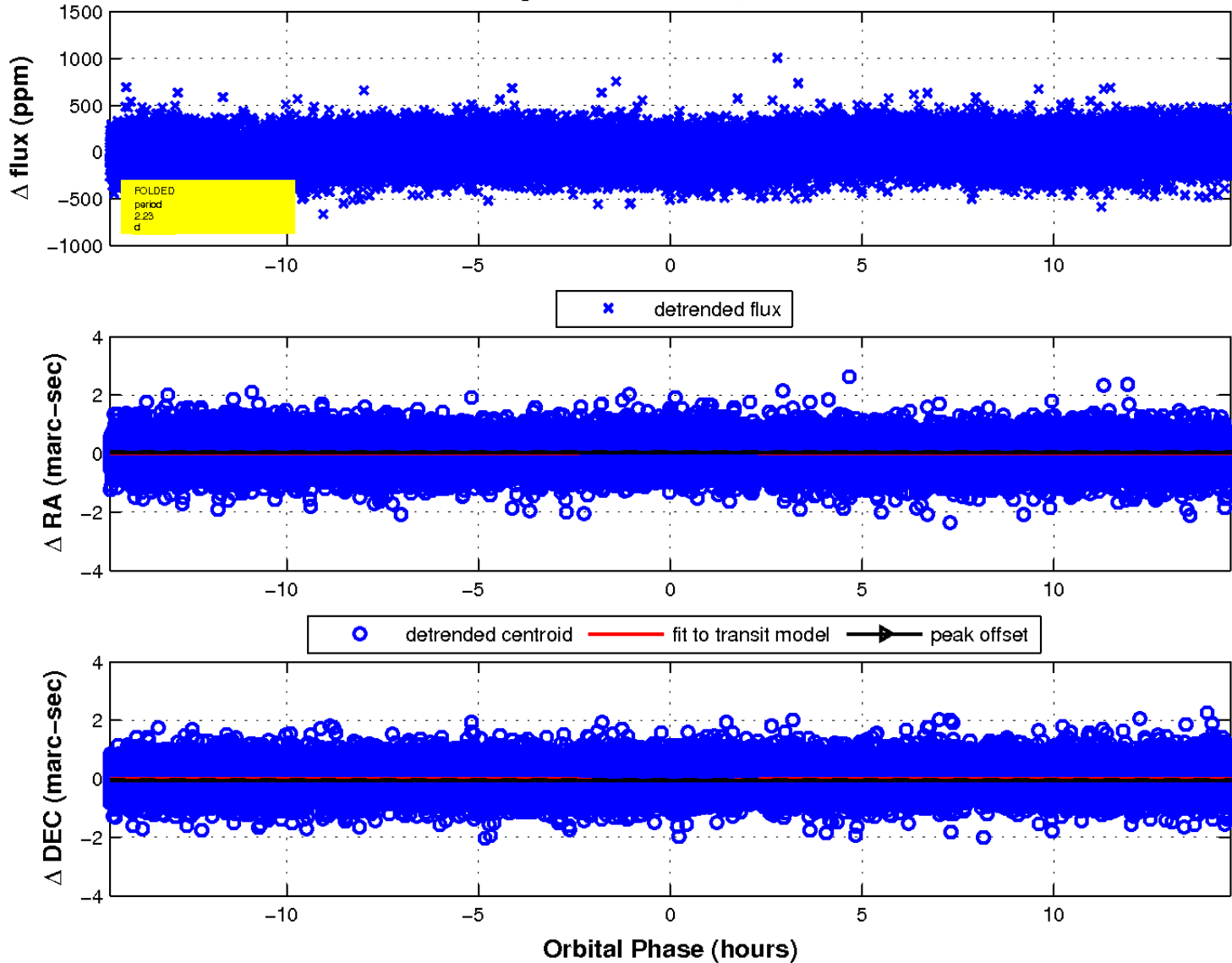
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

