

KIC 009913798

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})
009913798-01	OBS	7254.01	2.143439	133.497880	138336.2	4.085	6088.9	3201.9	0.70	4817	37.00	269.93
009913798-02	OBS	No	2.143436	132.426926	22824.1	4.003	1415.7	1425.4	0.70	4817	14.30	269.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009913798-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009913798-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

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

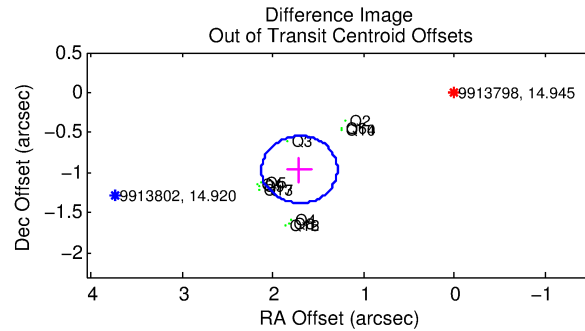
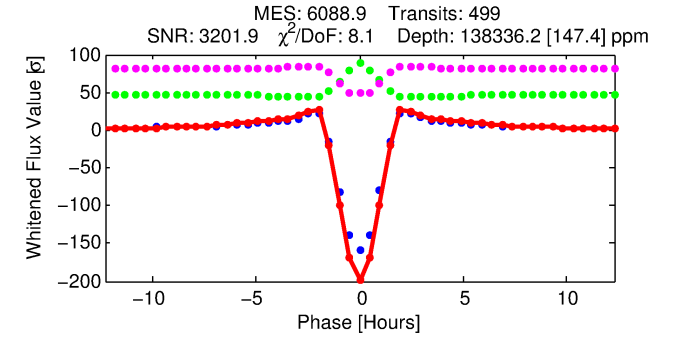
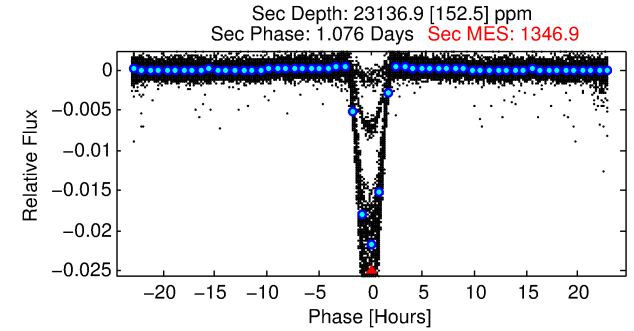
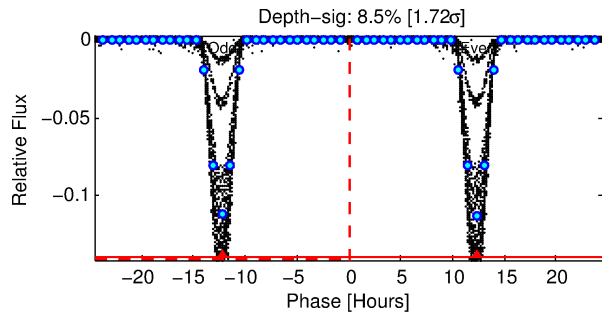
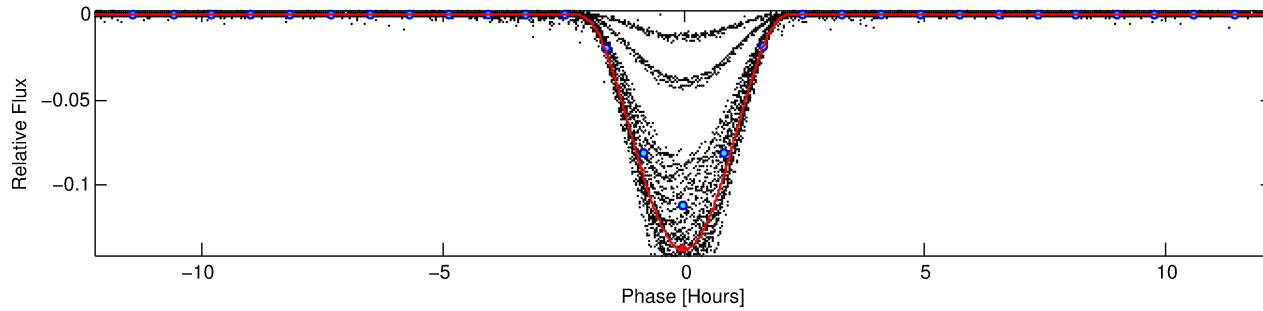
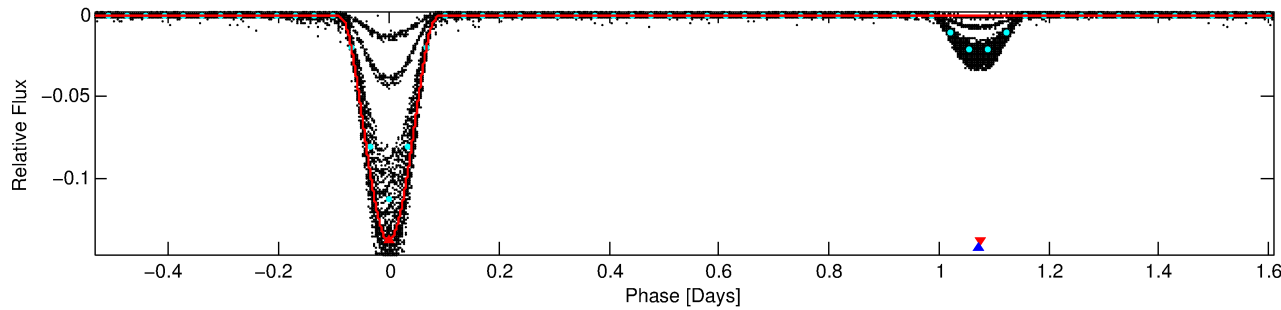
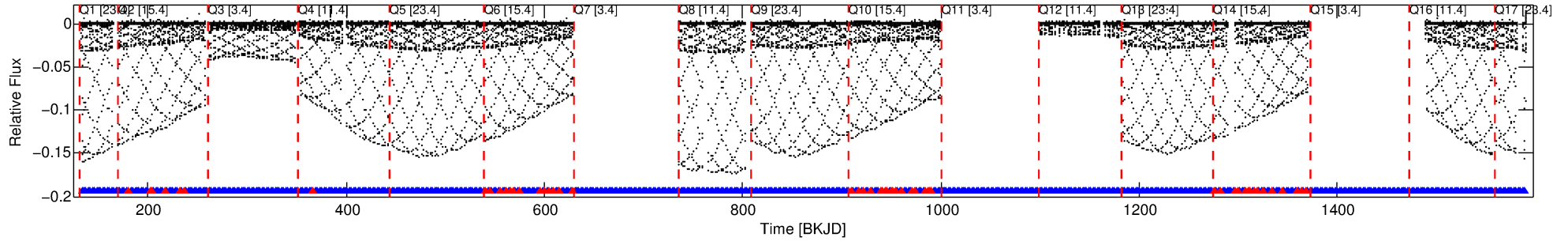
Ephemeris Match Information For 009913798-01

No Significant Match Found

DV One-Page Summary

KIC: 9913798 Candidate: 1 of 2 Period: 2.143 d
KOI: K07254.01 Corr: 0.990

Kp: 14.94 R*: 0.70 Rs Teff: 4817.0 K Logg: 4.62 Fe/H: -0.060



DV Fit Results:

Period = 2.14344 [0.00000] d
Epoch = 133.4979 [0.0000] BKJD
Rp/R* = 0.4844 [0.0510]
a/R* = 4.97 [0.05]
b = 0.86 [0.07]
Seff = 269.93 [43.64]
Teff = 1034 [42] K
Rp = 37.00 [5.37] Re
a = 0.0296 [0.0023] AU
Ag = 8.14 [1.93] [3.70σ]
Teffp = 2699 [163] K [9.88σ]

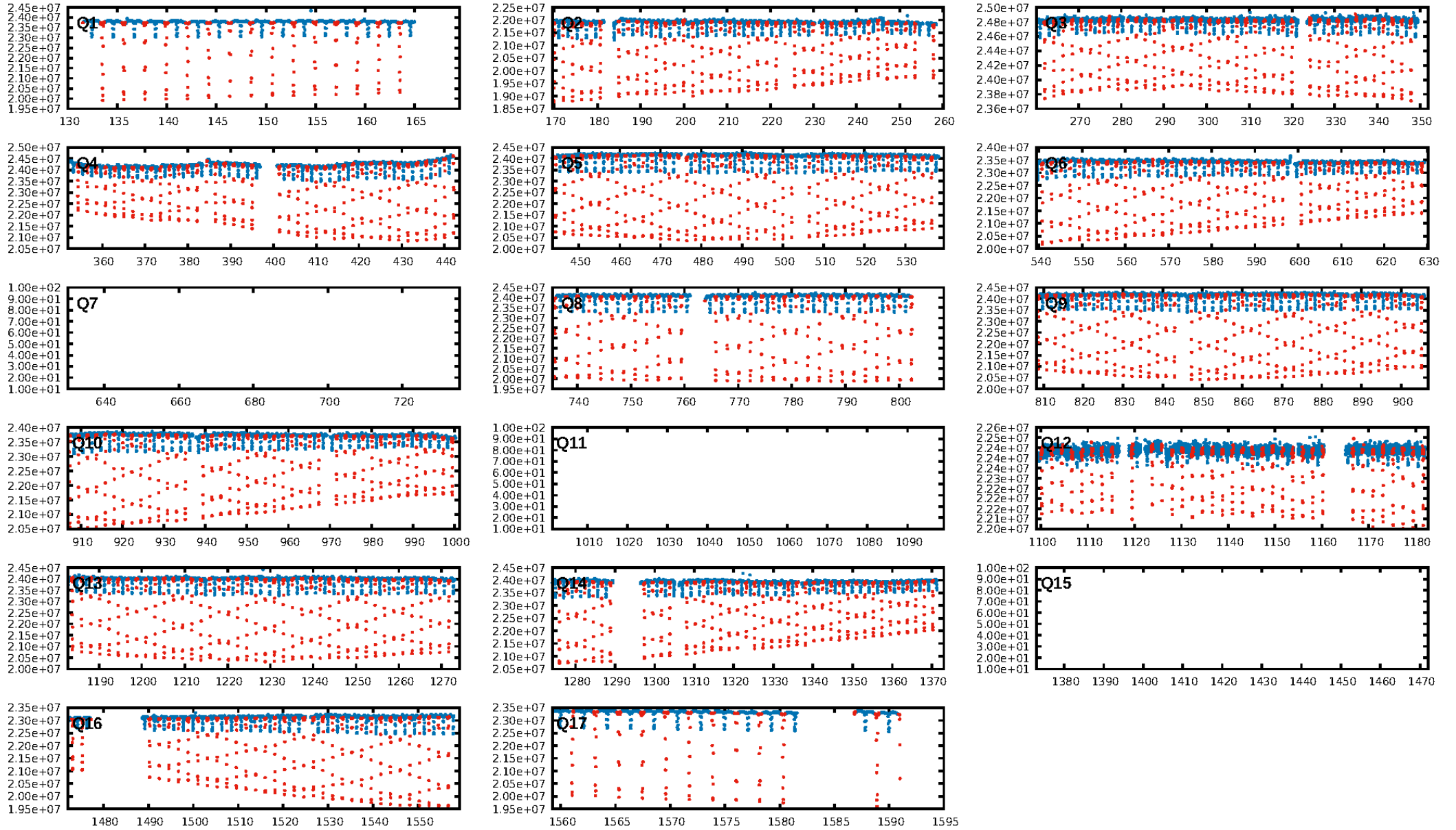
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.89 [418/471]
GhostDiagnostic-chr: 0.3532
Centroid-sig: 0.0%
Centroid-so: 3.618 arcsec [3038.78σ]
OotOffset-rm: 1.957 arcsec [14.06σ]
KicOffset-rm: 3.877 arcsec [56.23σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

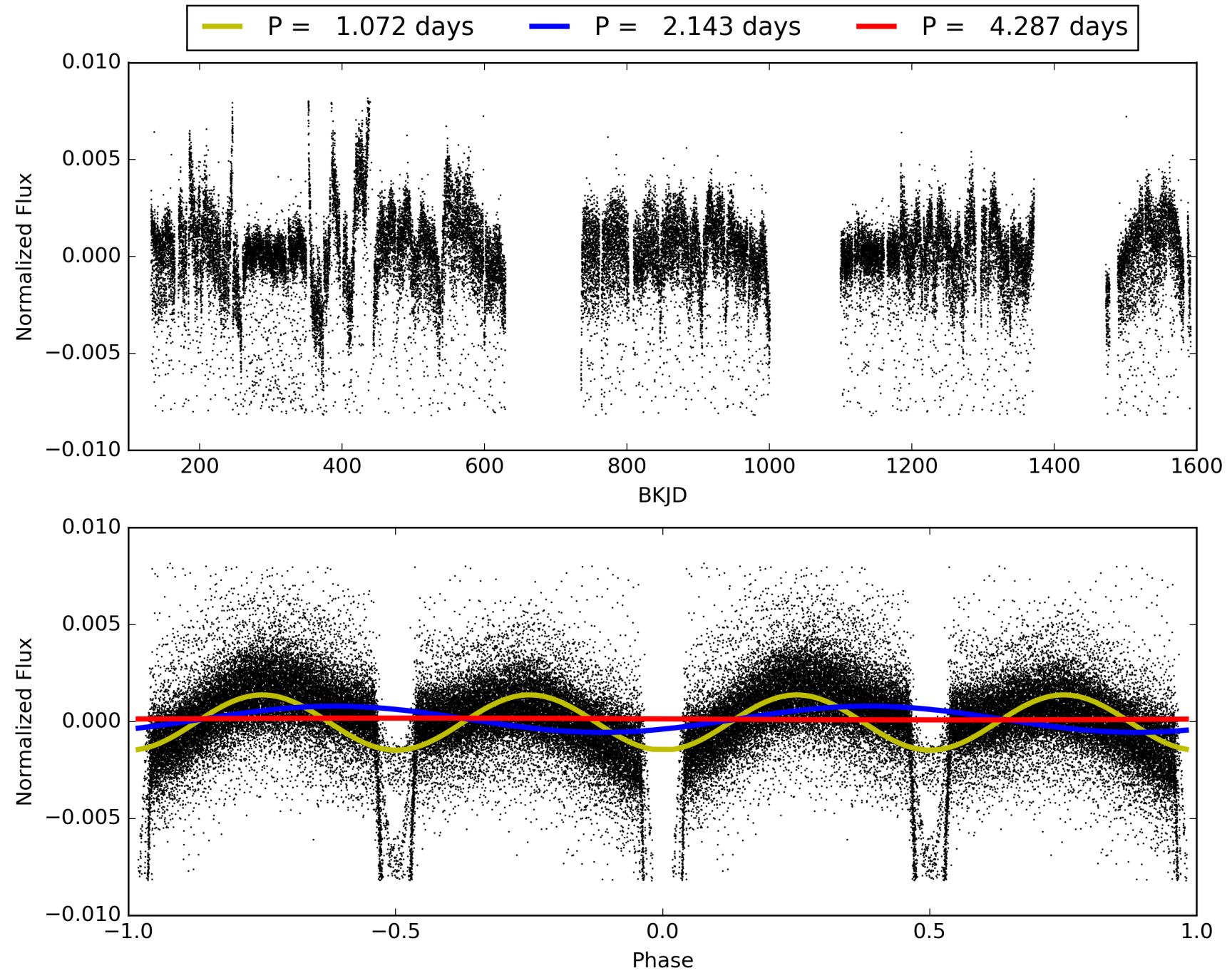
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009913798-01, PDC Light Curves

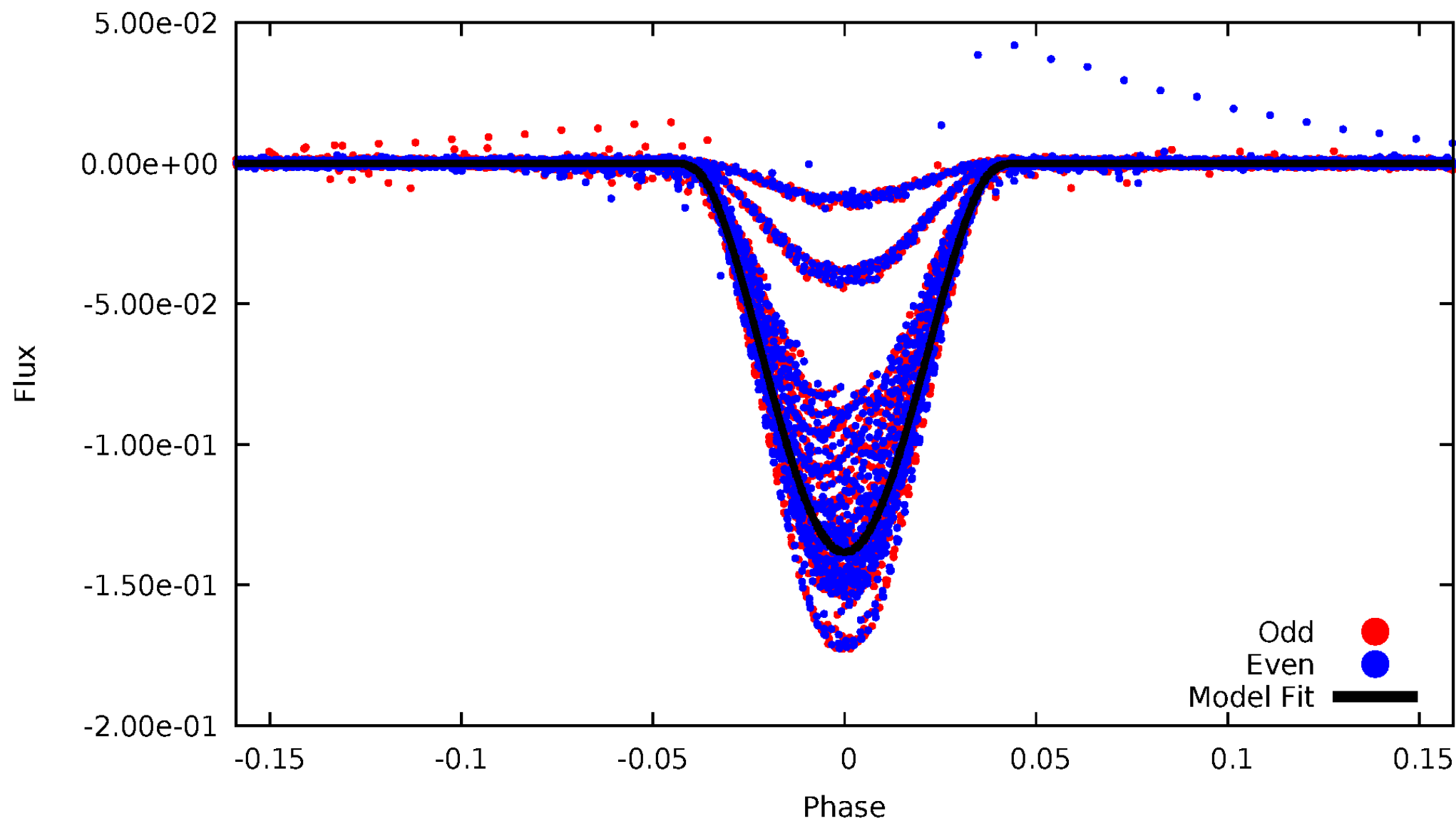


TCE 009913798-01



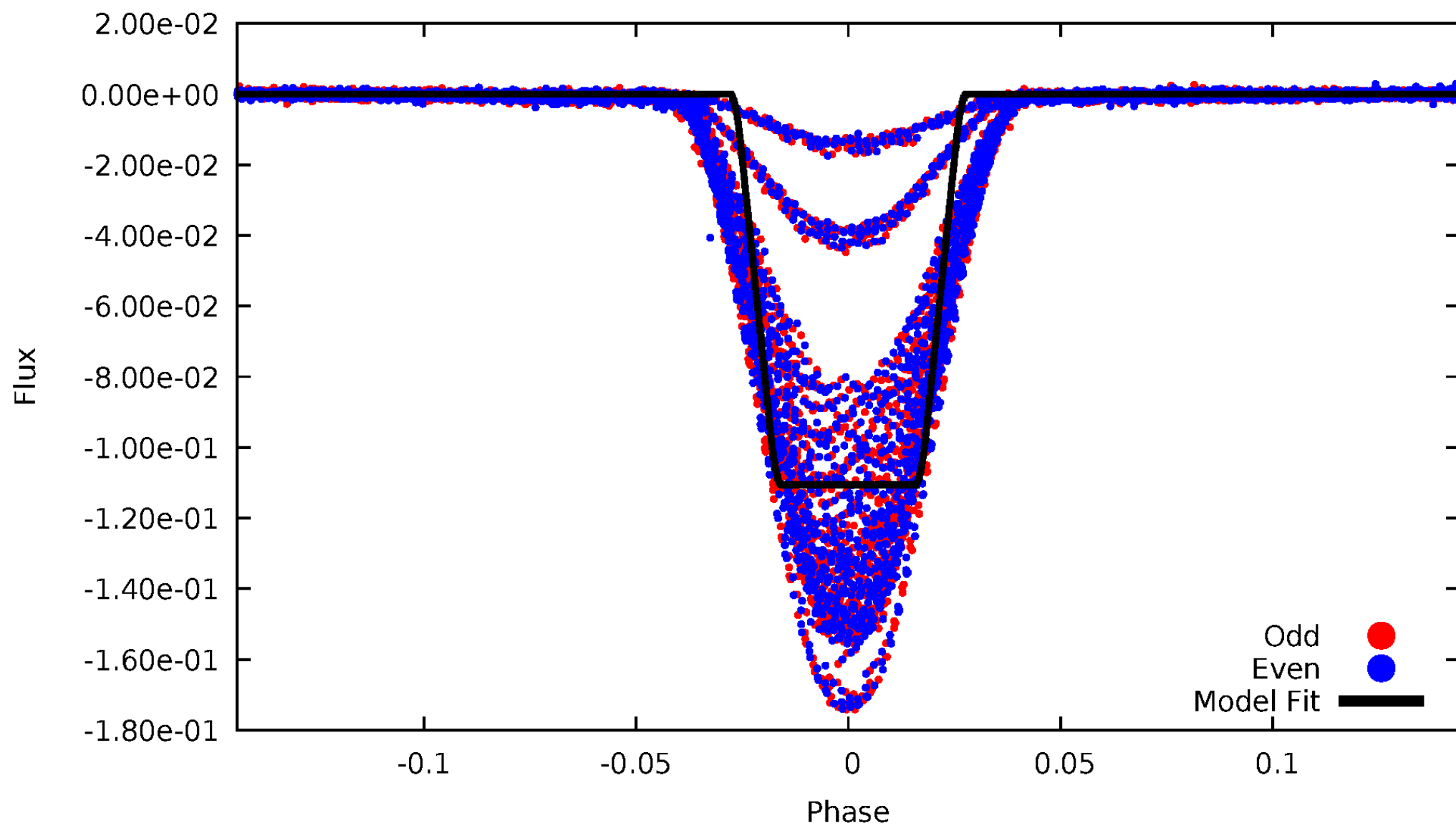
DV Odd/Even

TCE 009913798-01



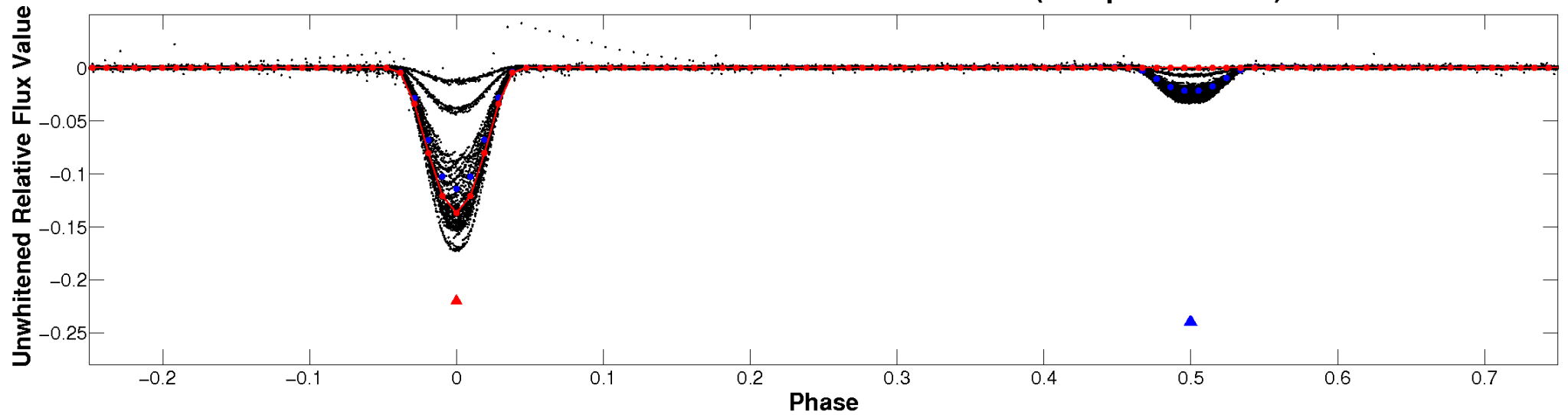
ALT Odd/Even

TCE 009913798-01

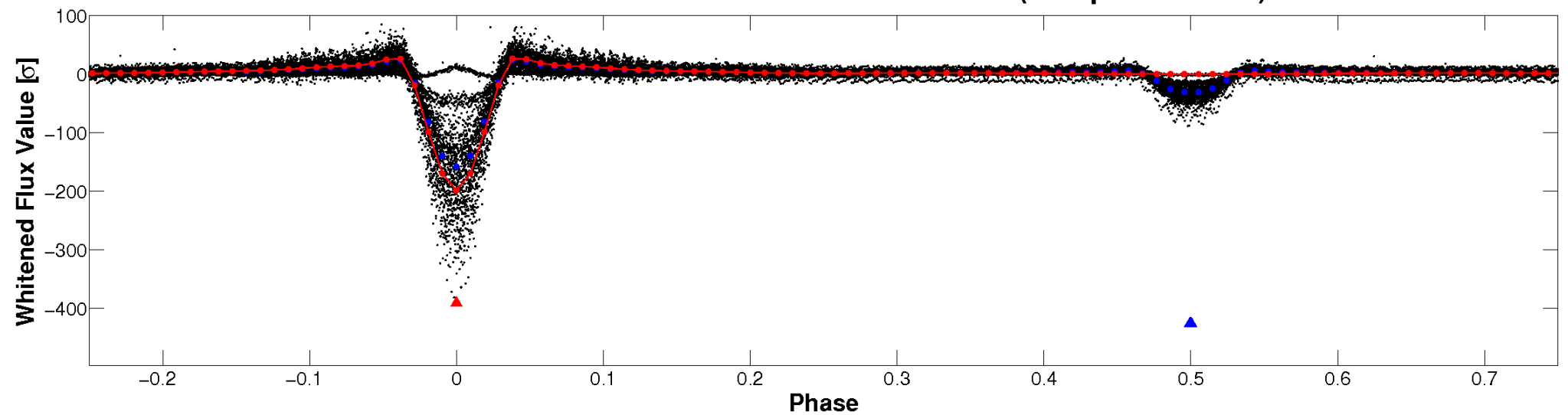


Non-Whitened Vs. Whitened Light Curve

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

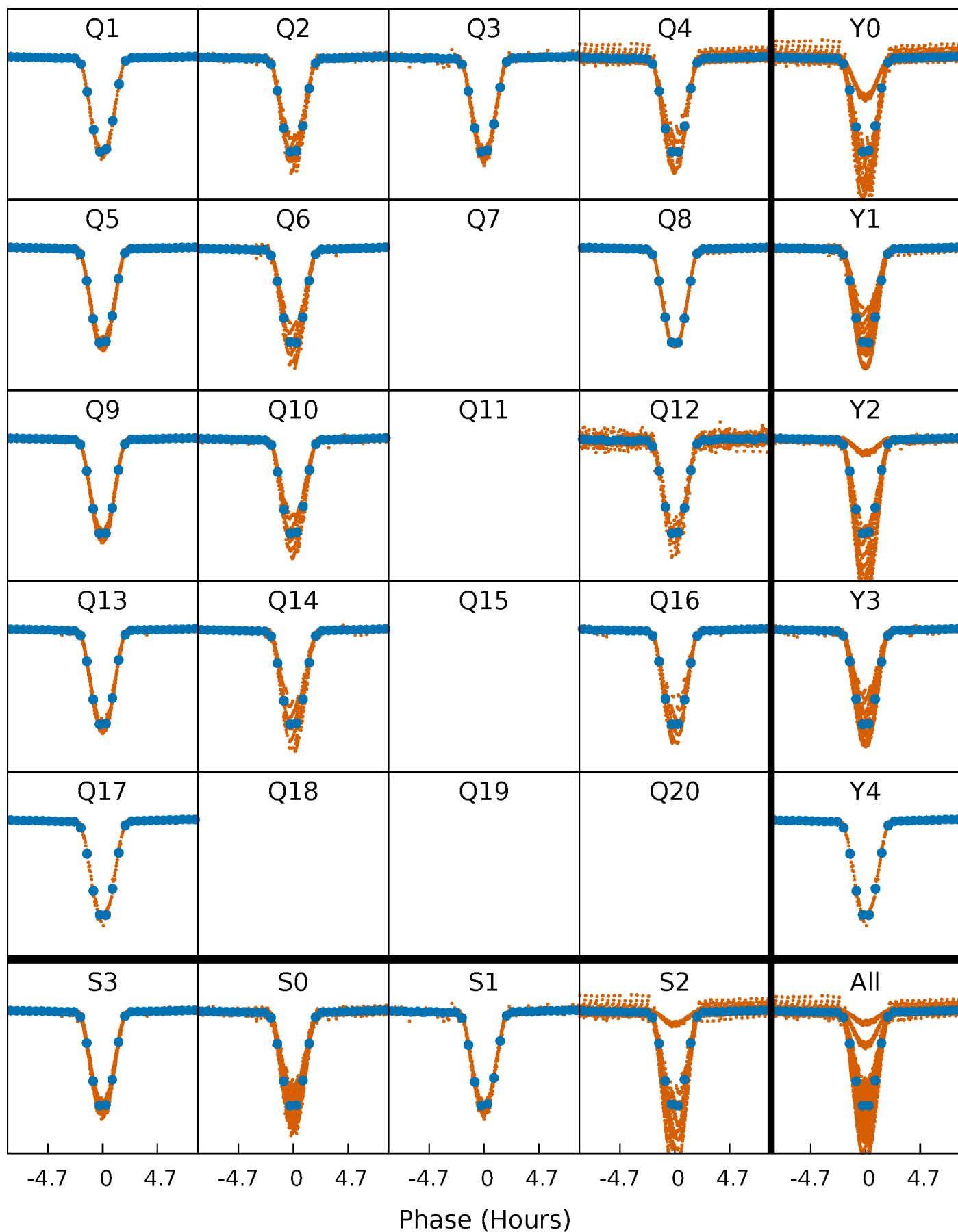


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



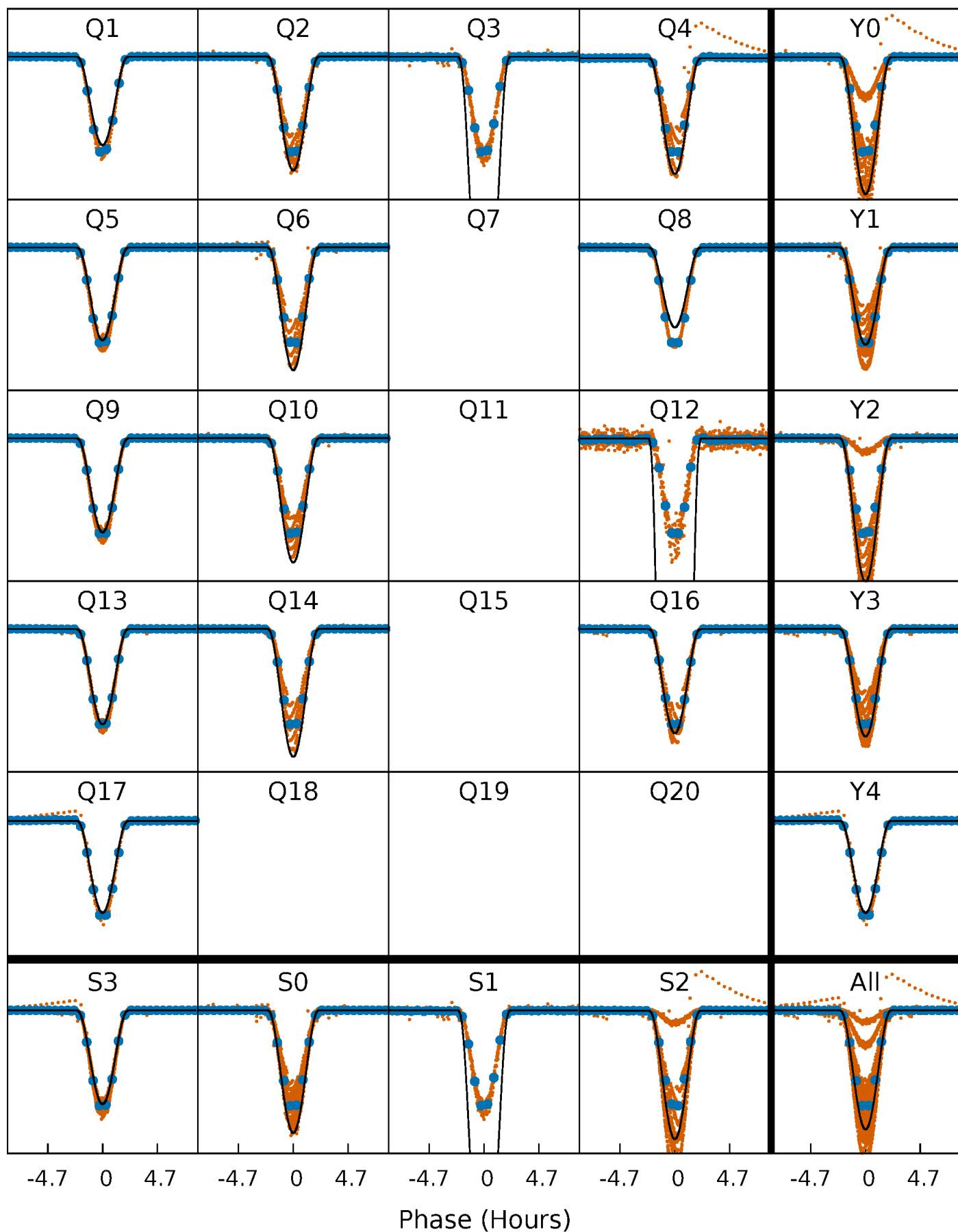
PDC Quarter-Phased Transit Curves

TCE 009913798-01 P= 2.143439 Days $T_0=133.497880$ (BKJD)



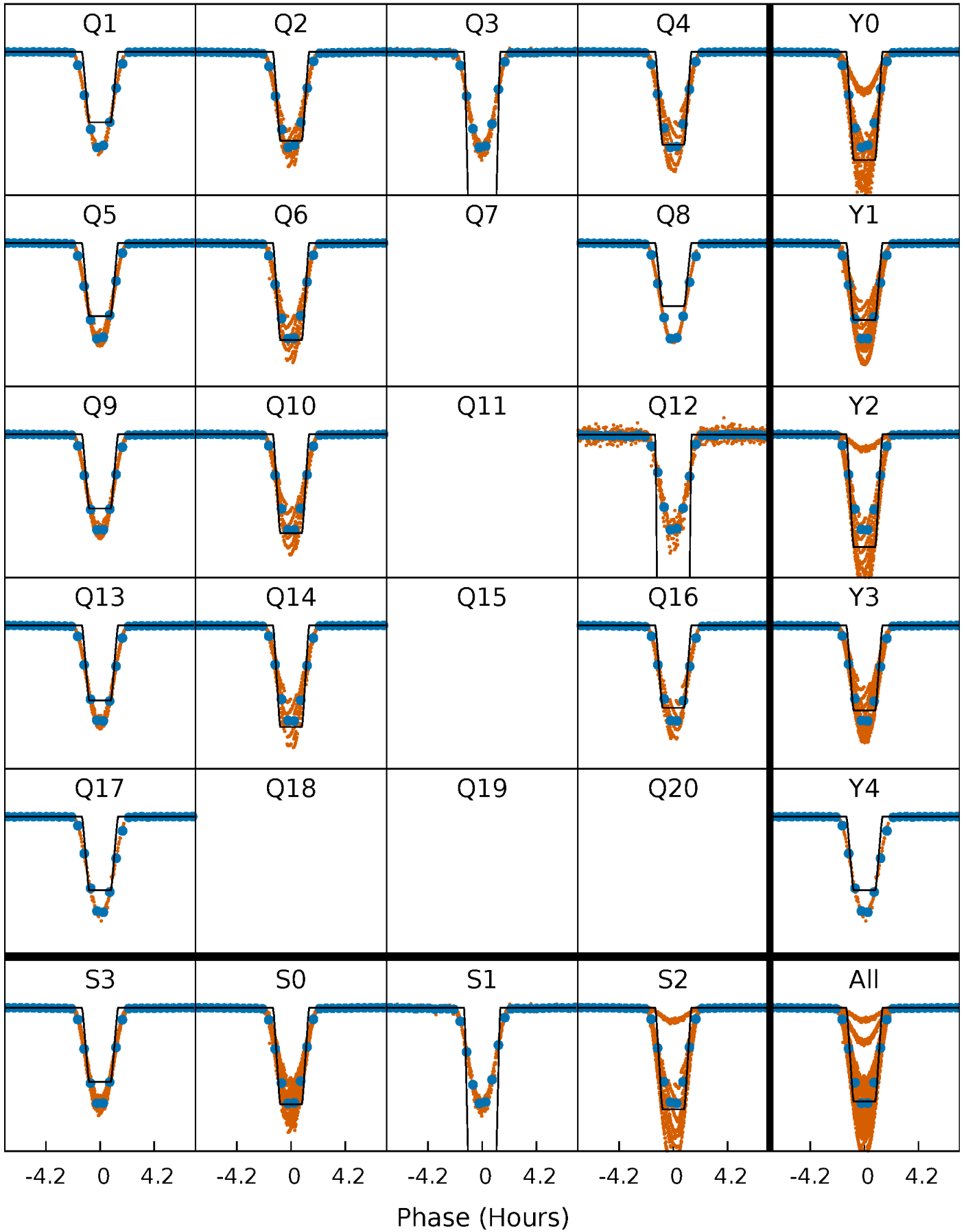
DV Quarter-Phased Transit Curves

TCE 009913798-01 P= 2.143439 Days $T_0=133.497880$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

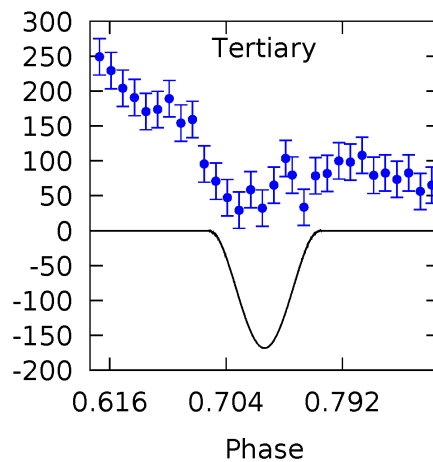
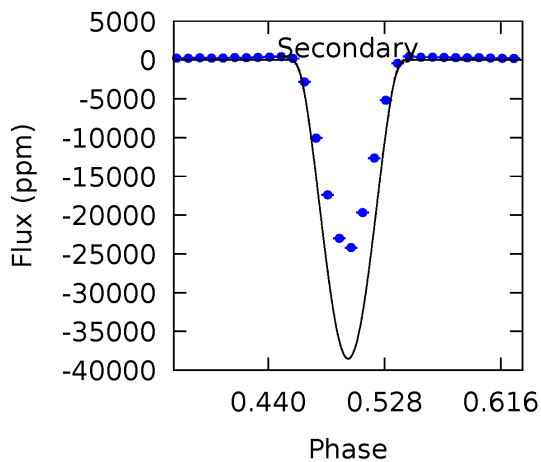
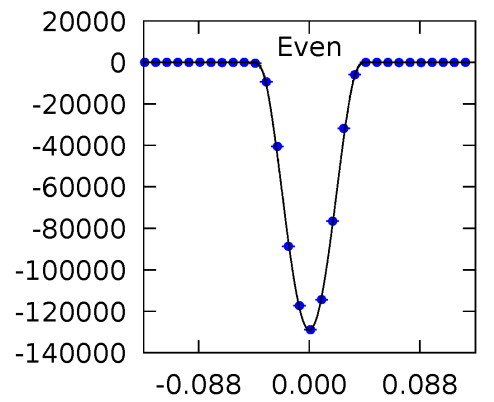
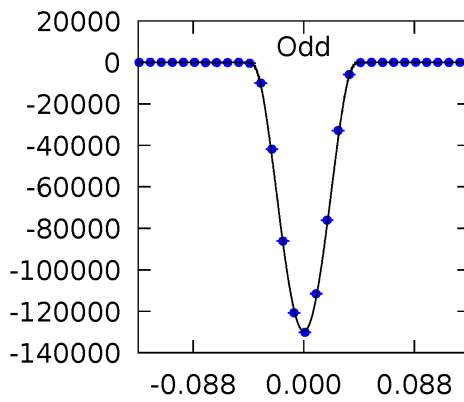
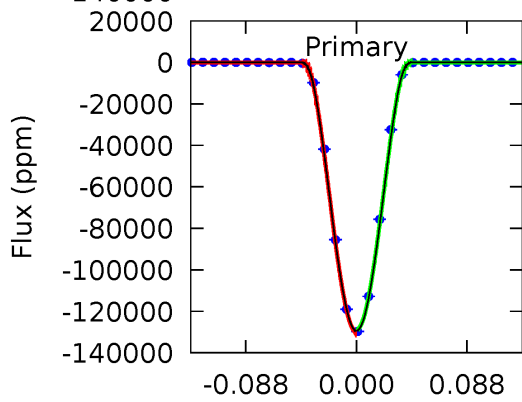
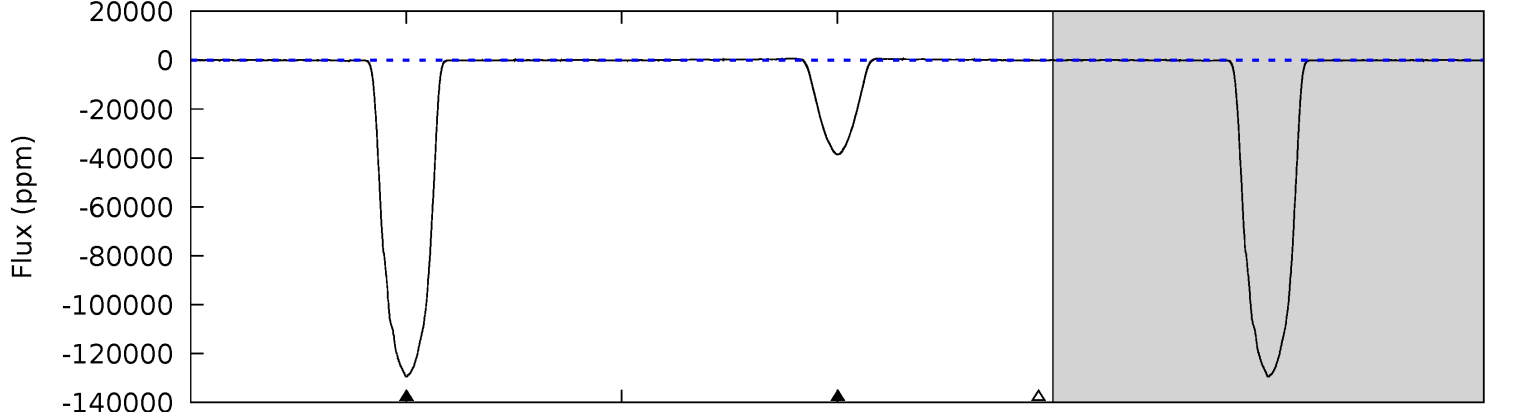
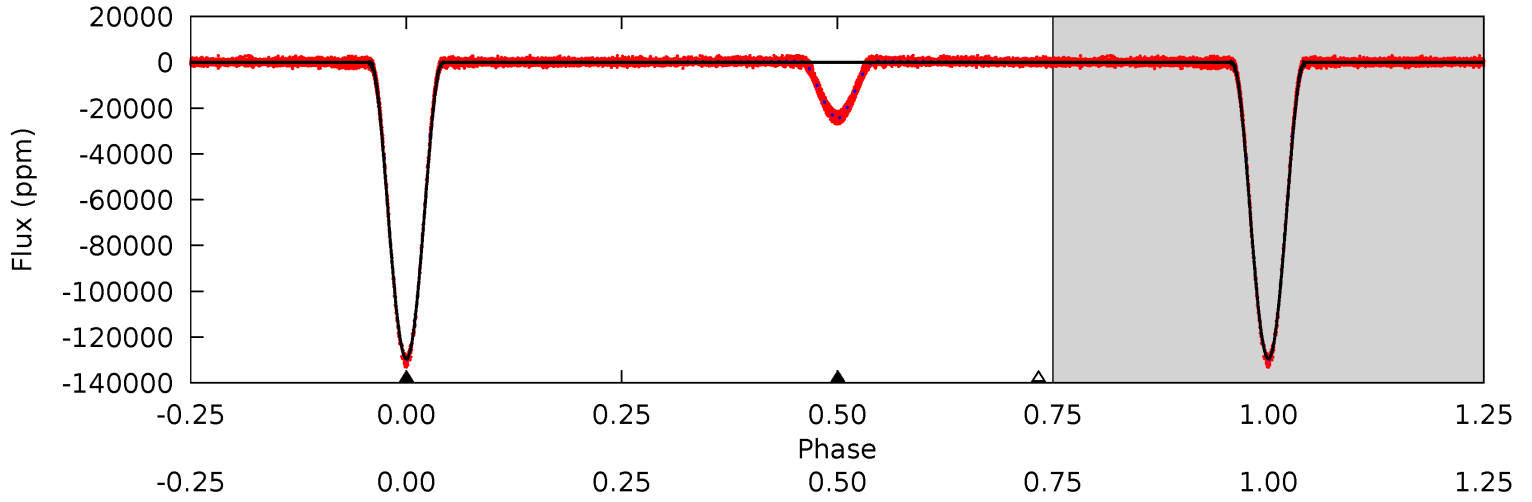
TCE 009913798-01 P= 2.143436 Days $T_0=133.498919$ (BKJD)



DV Model-Shift Uniqueness Test

009913798-01, P = 2.143439 Days, E = 131.354441 Days

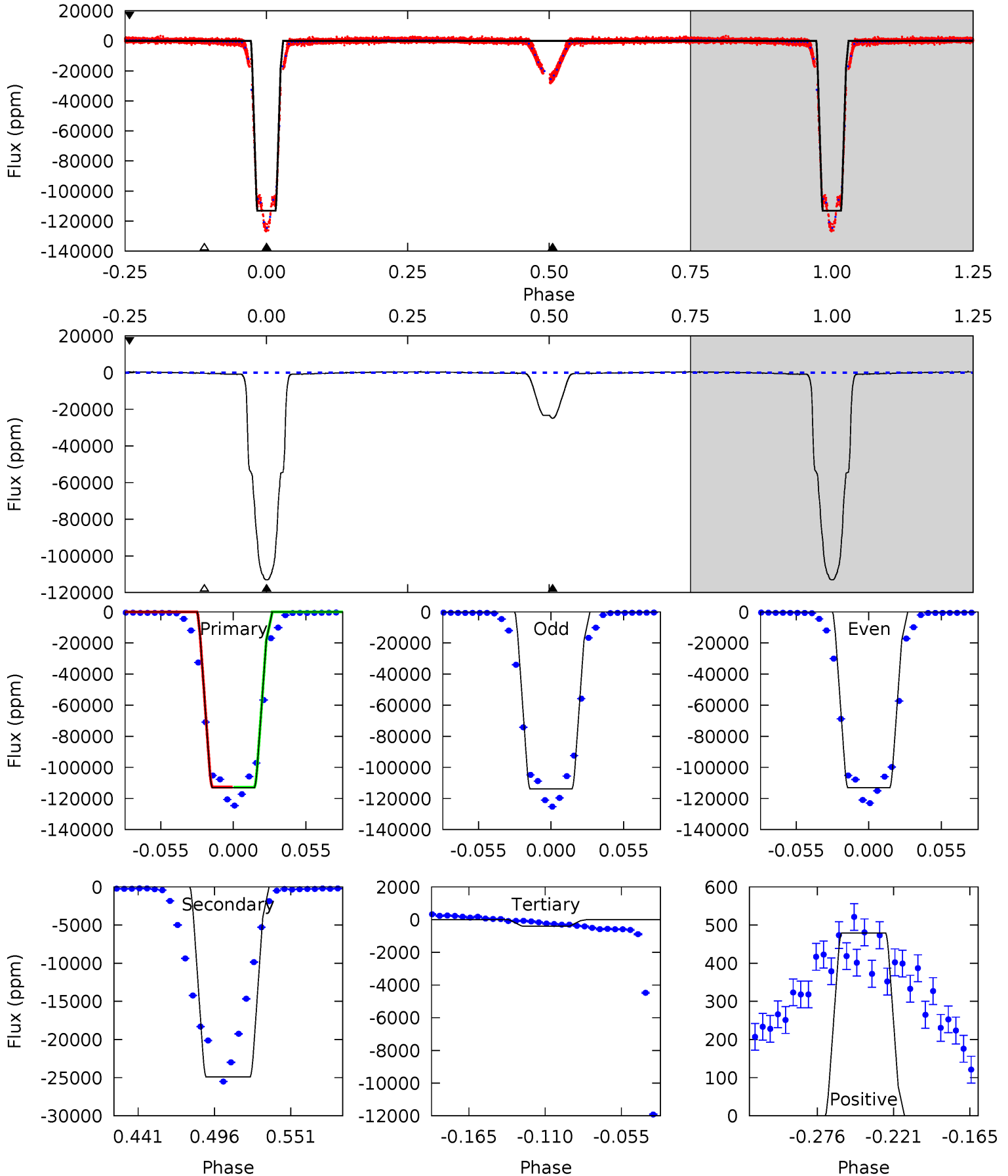
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8208	2443	10.7	0	4.59	1.71	8.19	8197	8208	2432	2443	20.7	0.89	0.01	0



Alt Model-Shift Uniqueness Test

009913798-01, P = 2.143436 Days, E = 131.355483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2827	622.4	10.3	12.0	4.69	1.92	8.31	2817	2815	612.1	610.4	9.05	0.89	0.00	0



Stellar Parameters For KIC 009913798

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4817^{+144}_{-144}	$4.624^{+0.028}_{-0.056}$	$-0.060^{+0.300}_{-0.300}$	$0.700^{+0.070}_{-0.051}$	$0.767^{+0.053}_{-0.079}$	$3.152^{+0.430}_{-0.620}$
	+3%/-3%	+1%/-1%	+500%/-500%	+10%/-7%	+7%/-10%	+14%/-20%
Source	PHO1	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 009913798-01 / KOI 7254.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-38519 ± 16	$37.55^{+4.39}_{-4.40}$	1458^{+46}_{-53}	3491^{+166}_{-128}	14^{+4}_{-3}
Alt.	-24892 ± 40	$25.72^{+4.65}_{-4.23}$	1452^{+53}_{-49}	3672^{+244}_{-209}	19^{+8}_{-5}

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

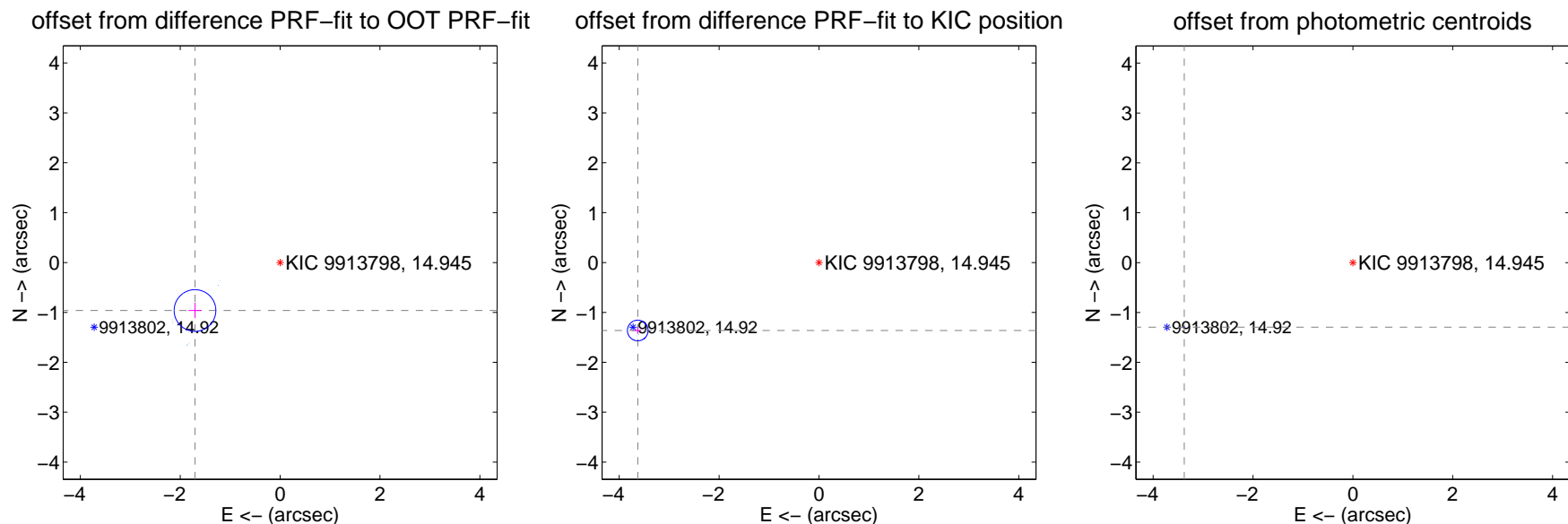
DV Centroid Data

Supplemental centroid analysis for 009913798-01. Kepler magnitude: 14.95. Transit SNR 3201.87

There are 14 quarters with good PRF difference image offsets

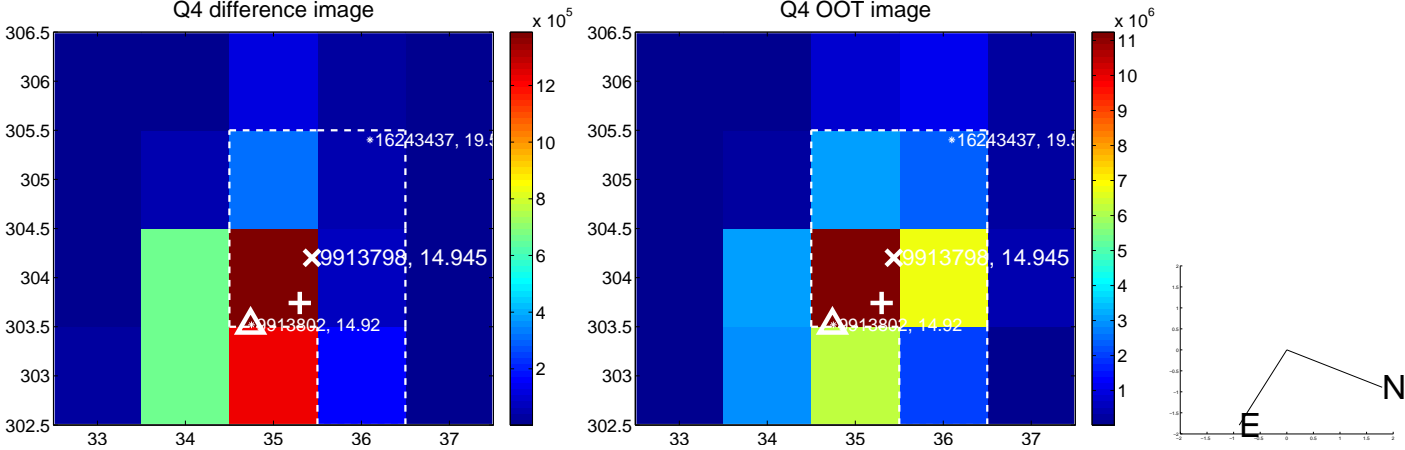
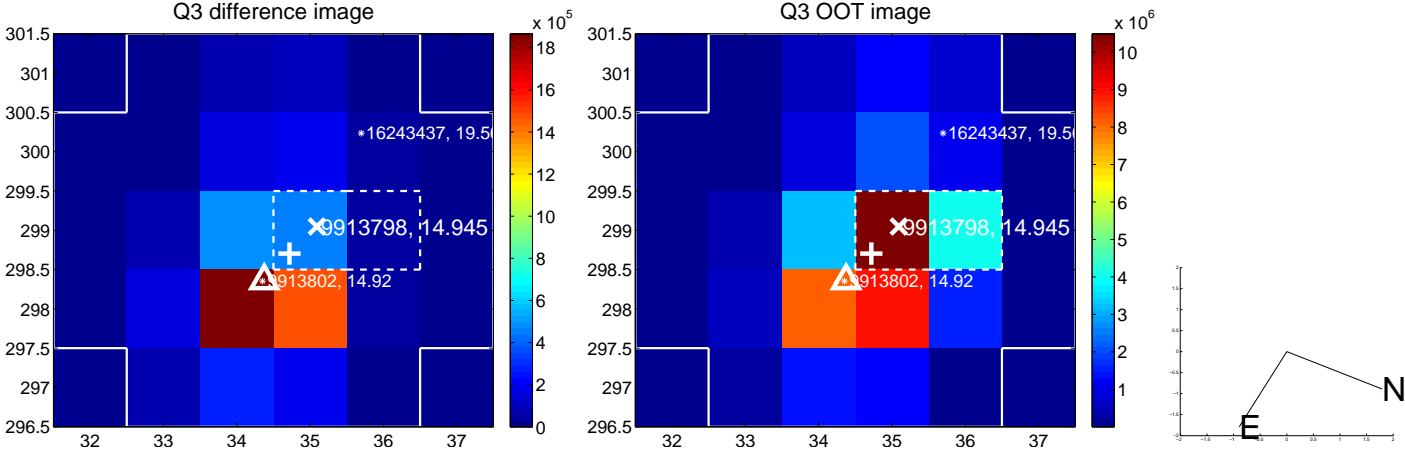
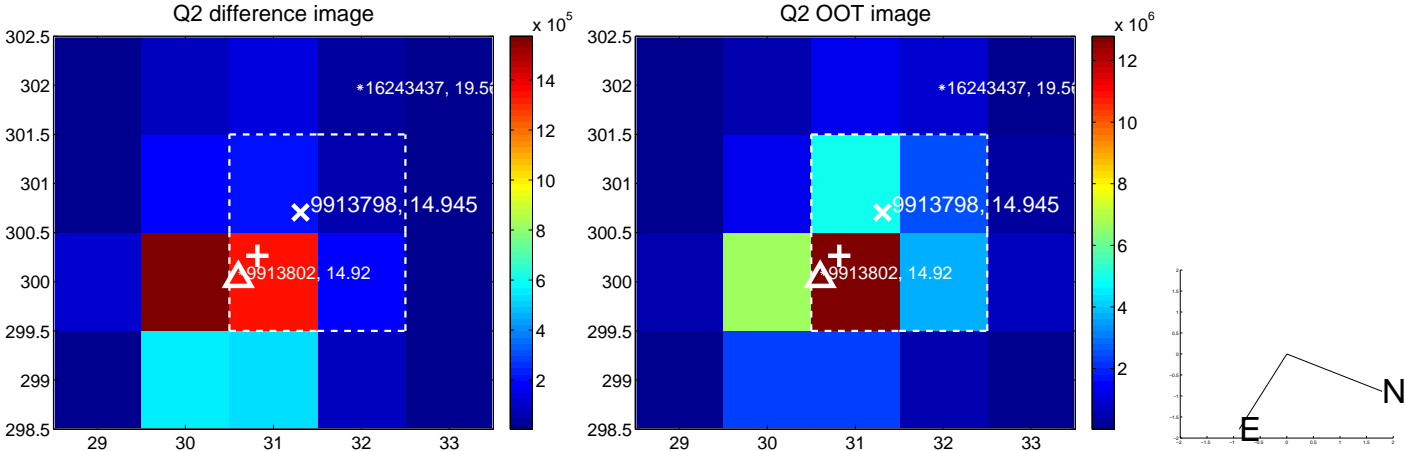
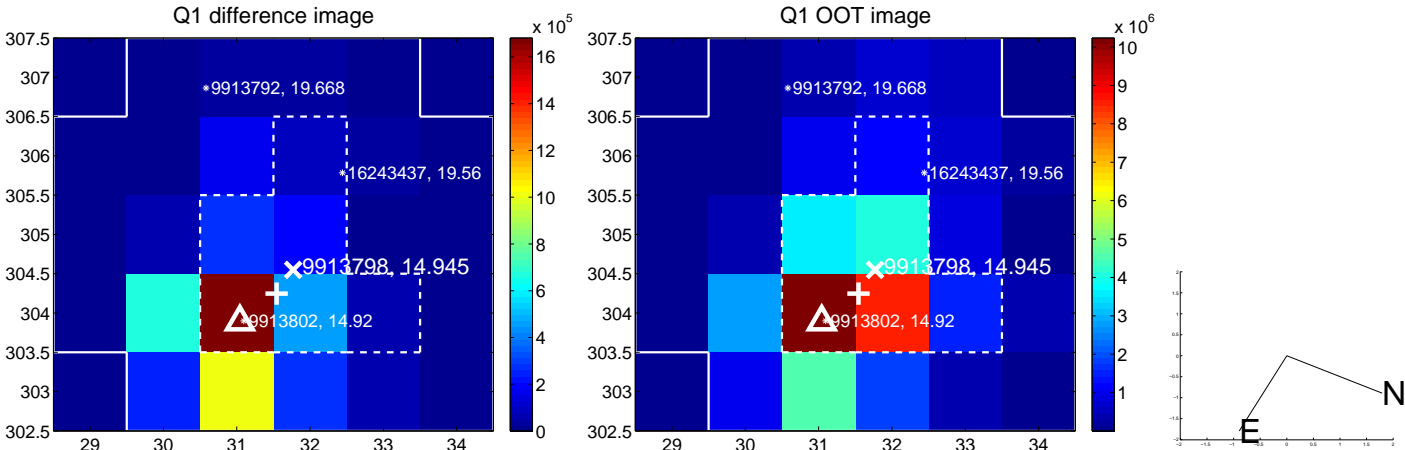
The direct PRF centroid is offset from the target star catalog position by about 1.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.957 ± 0.139	14.06	1.705 ± 0.134	-0.961 ± 0.155
PRF-fit source offset from KIC position	3.877 ± 0.069	56.23	3.630 ± 0.069	-1.362 ± 0.069
photometric centroid source offset	3.62 ± 0.00	3038.77	3.38 ± 0.00	-1.29 ± 0.00

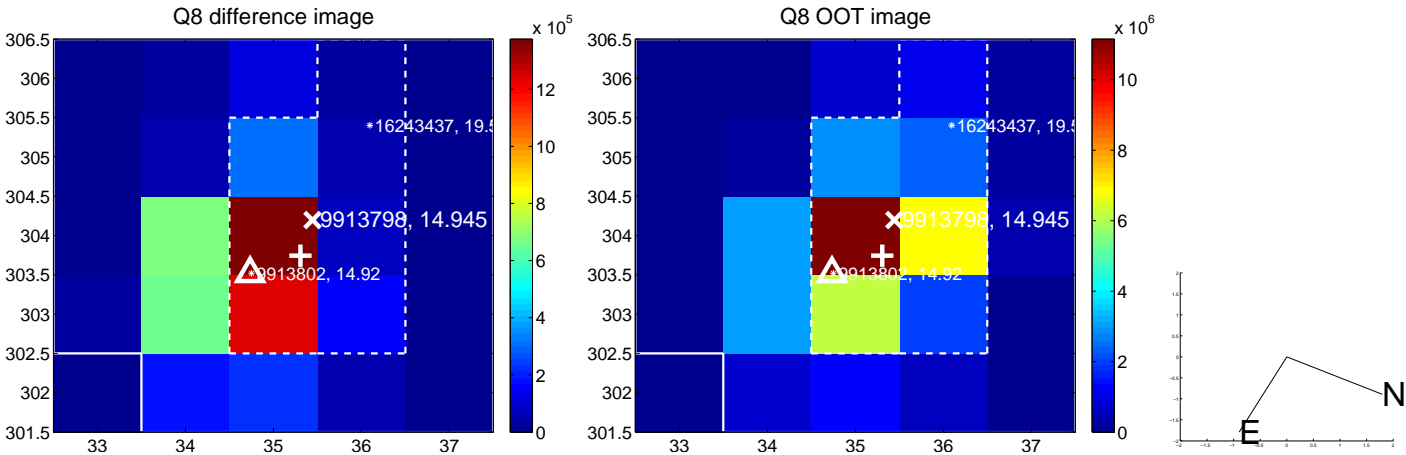
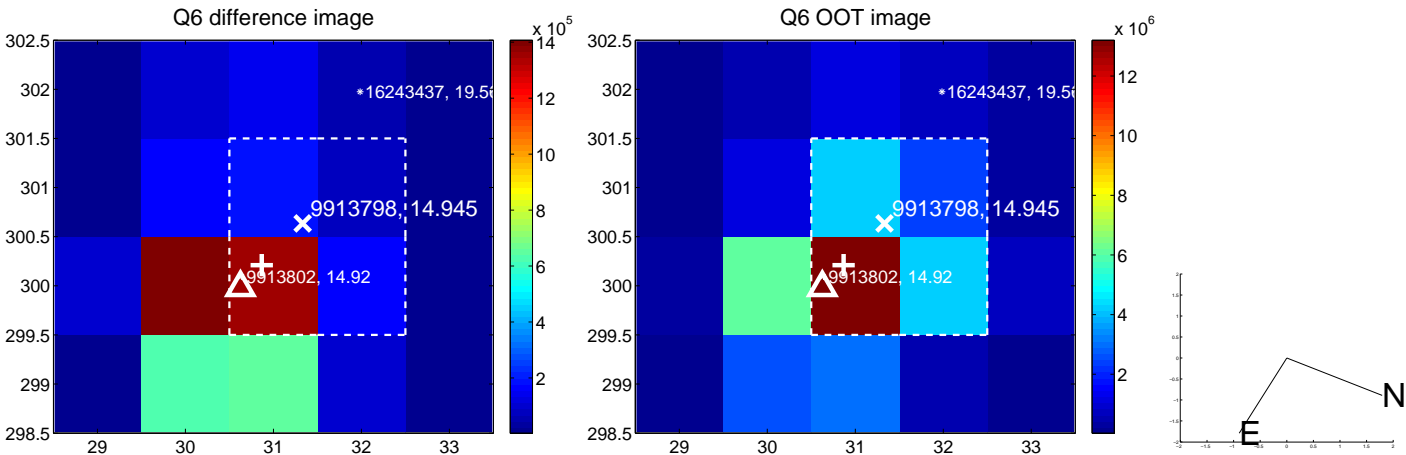
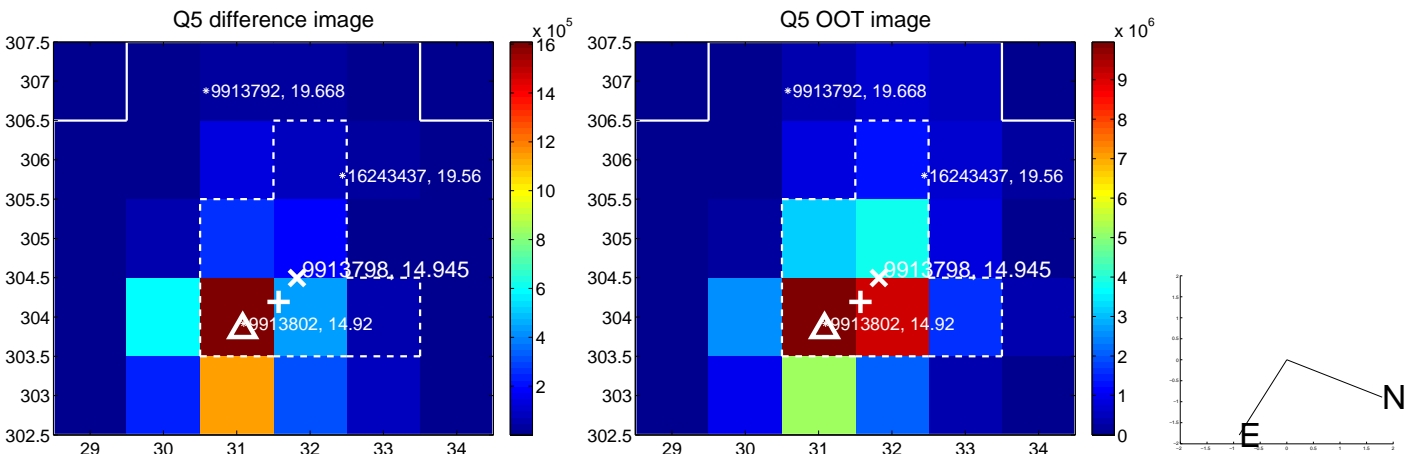


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

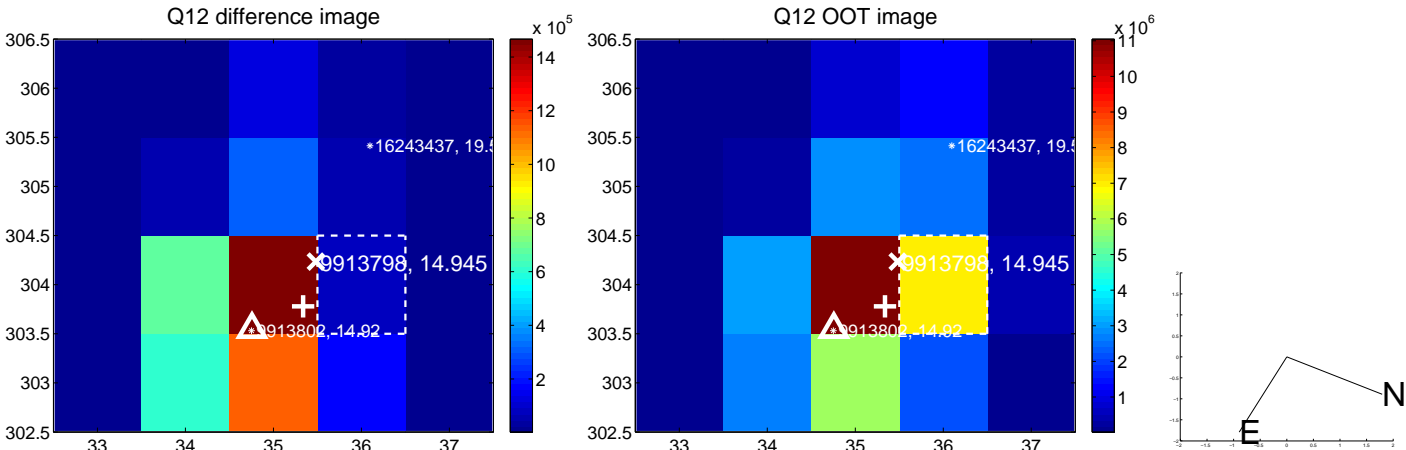
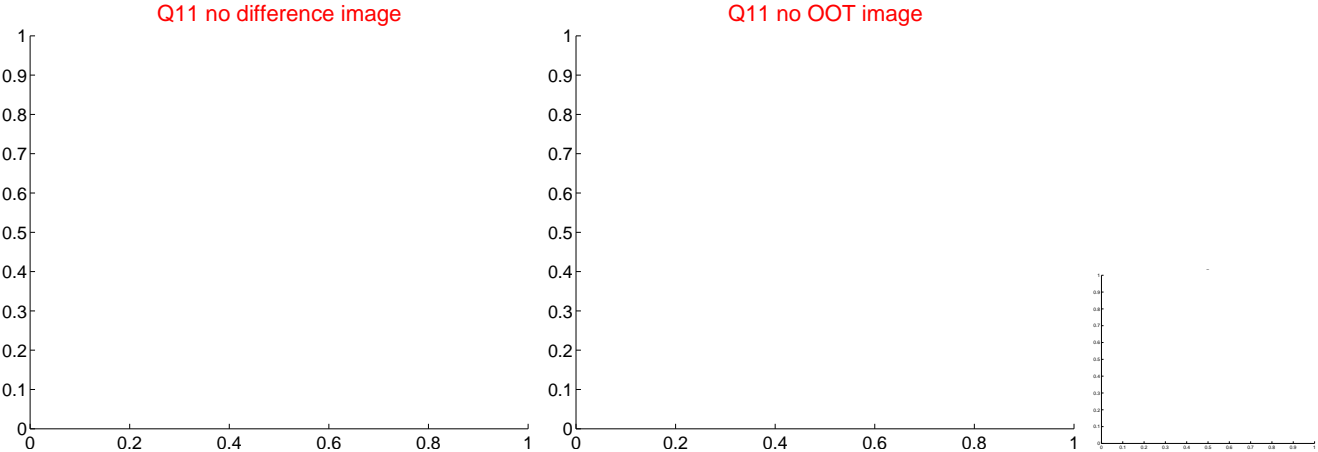
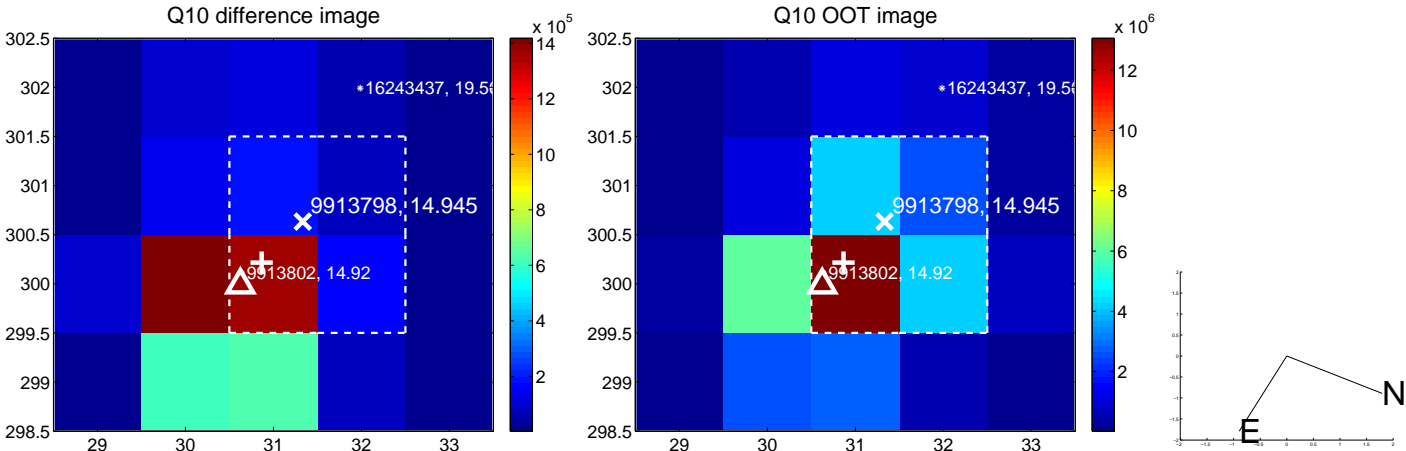
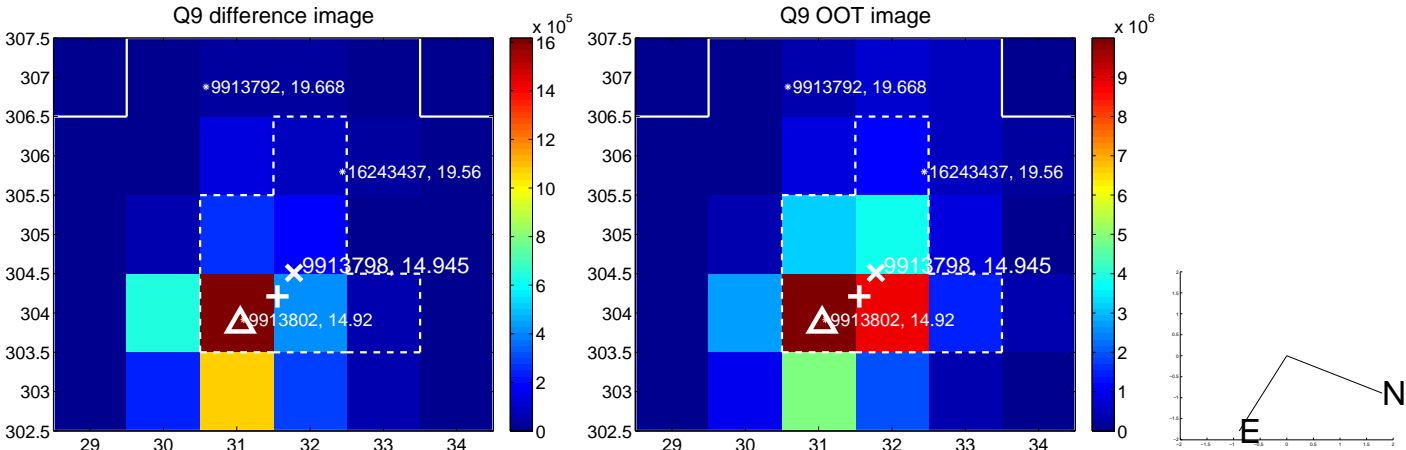
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



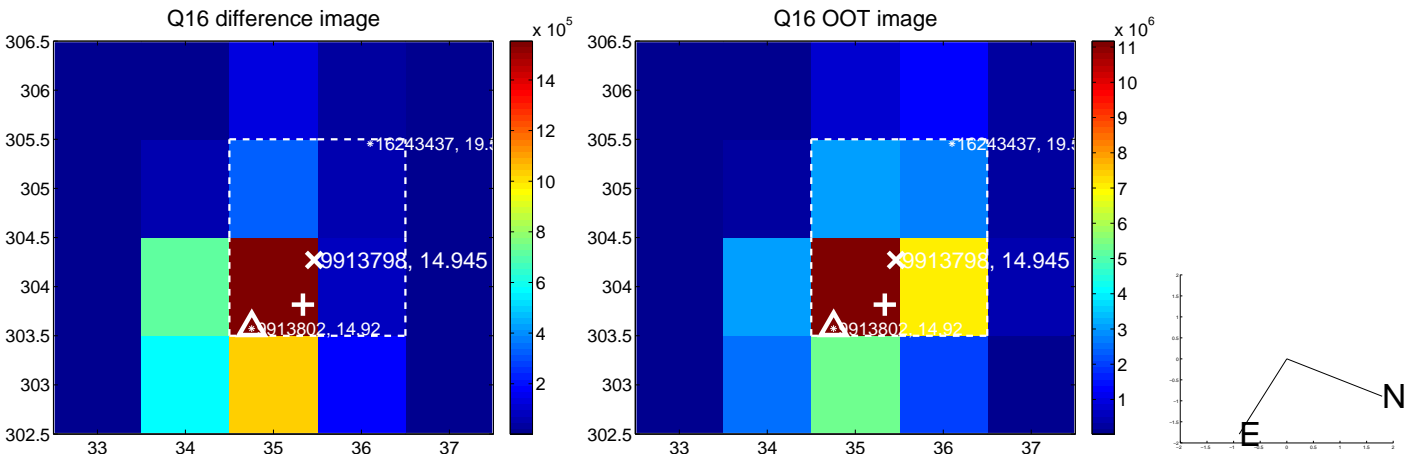
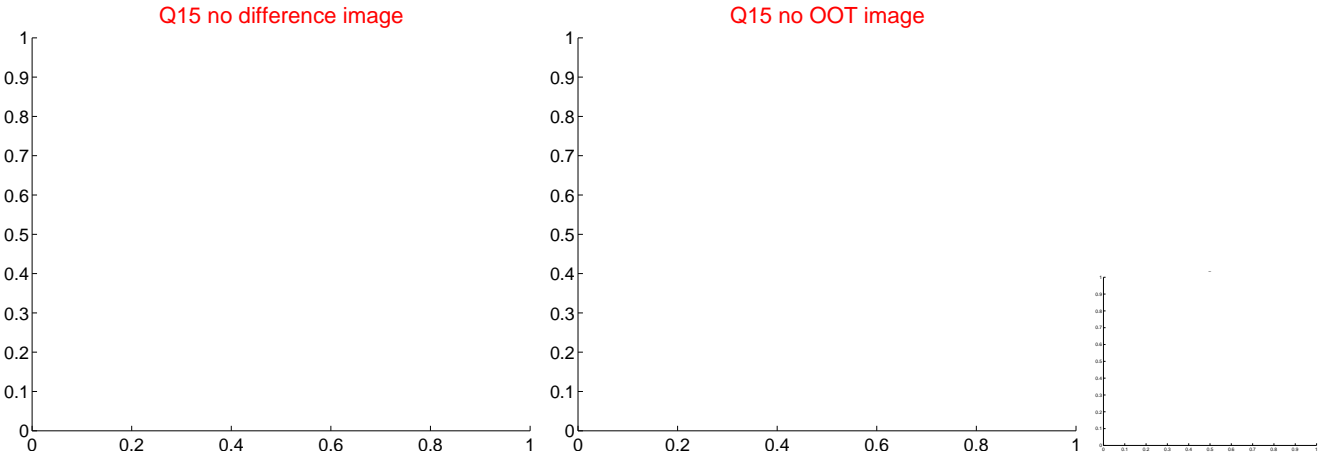
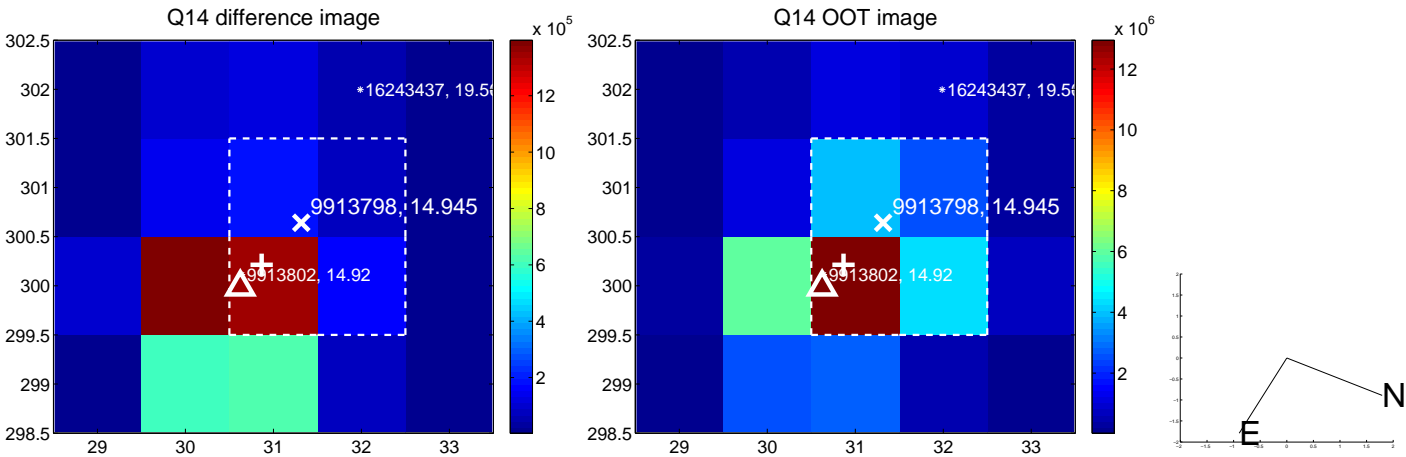
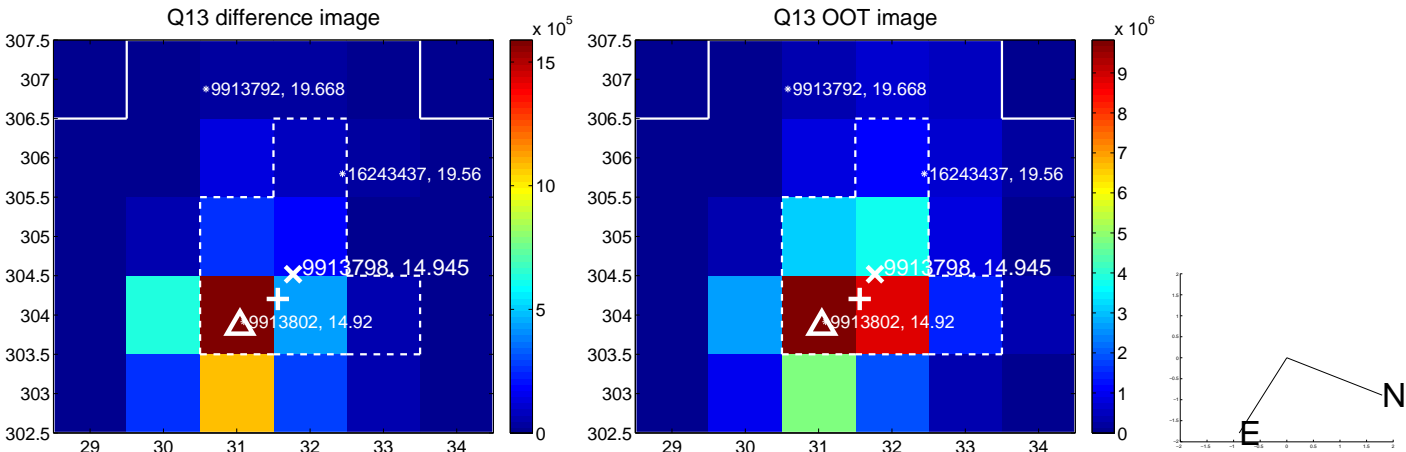
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



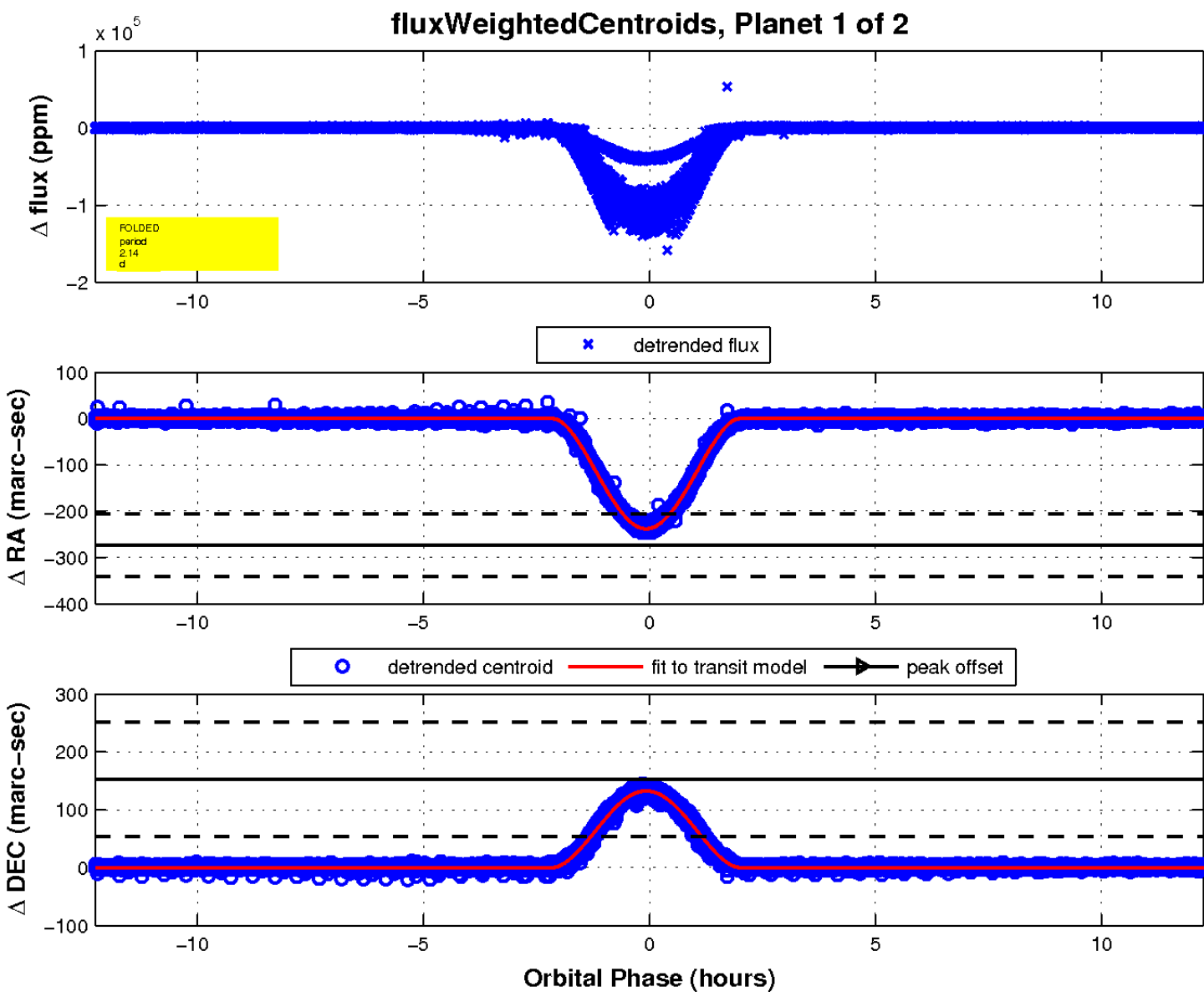
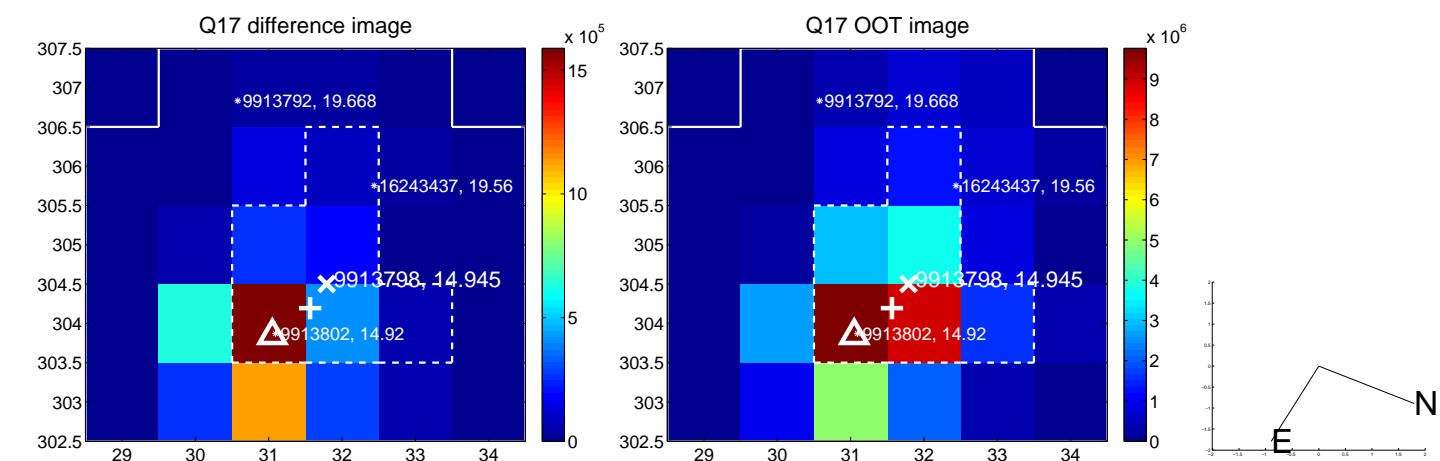
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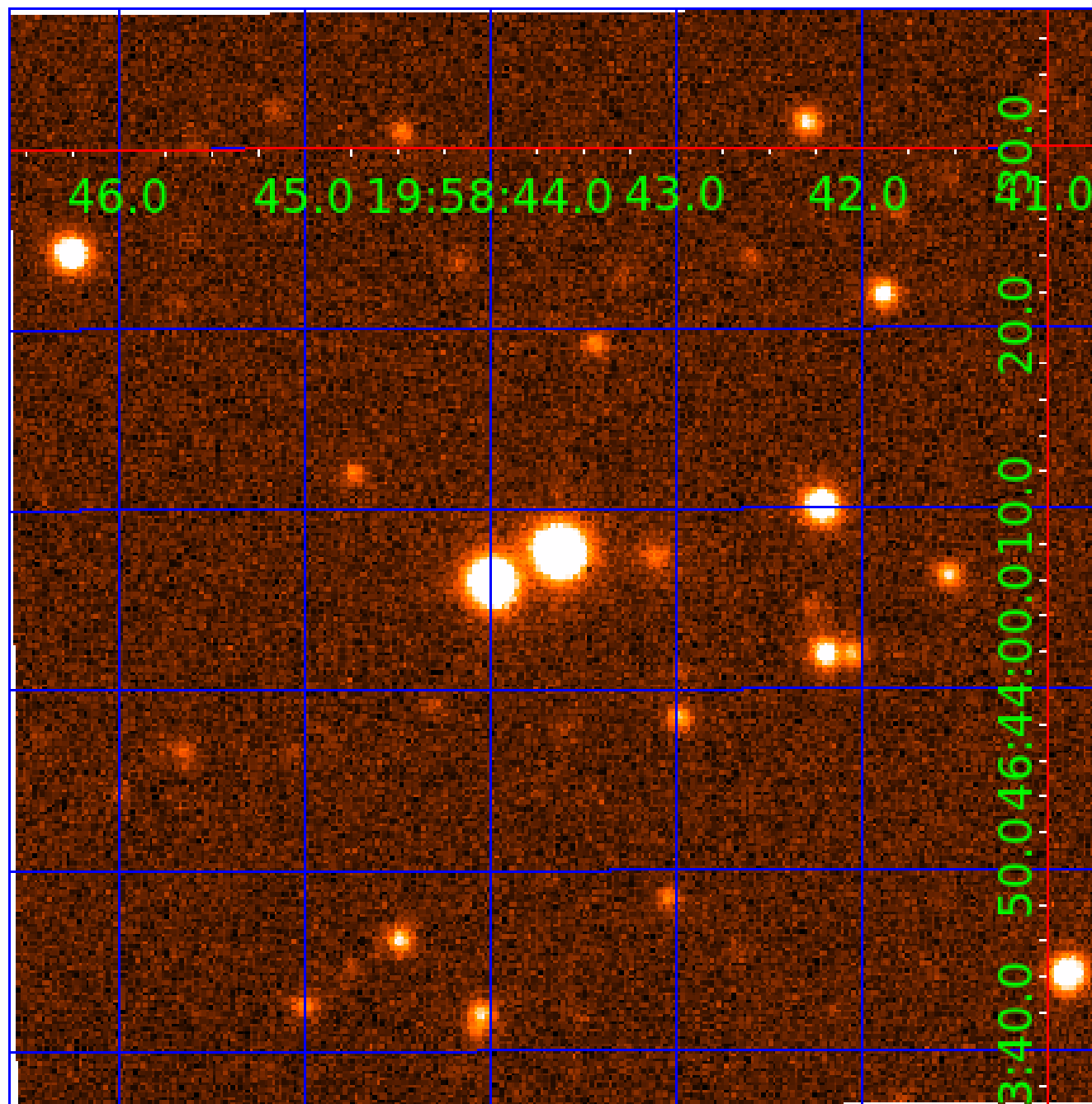


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009913798

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})
009913798-01	OBS	7254.01	2.143439	133.497880	138336.2	4.085	6088.9	3201.9	0.70	4817	37.00	269.93
009913798-02	OBS	No	2.143436	132.426926	22824.1	4.003	1415.7	1425.4	0.70	4817	14.30	269.93

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009913798-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_KIC_POS
009913798-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_NOFITS

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

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

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

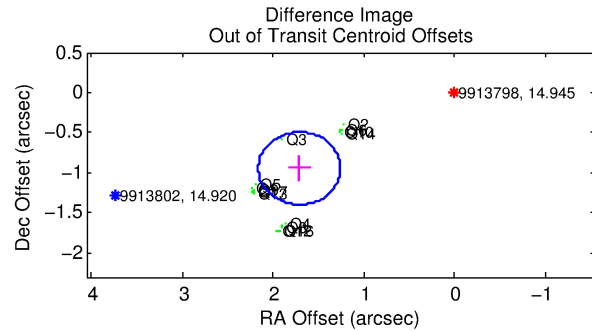
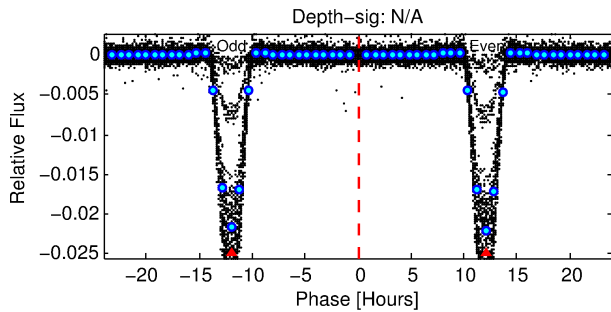
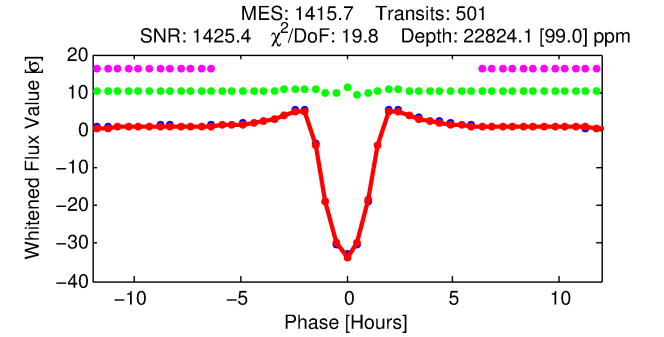
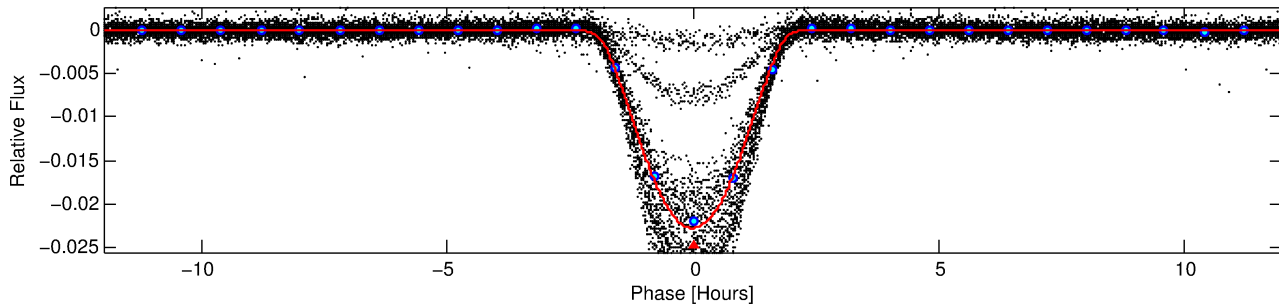
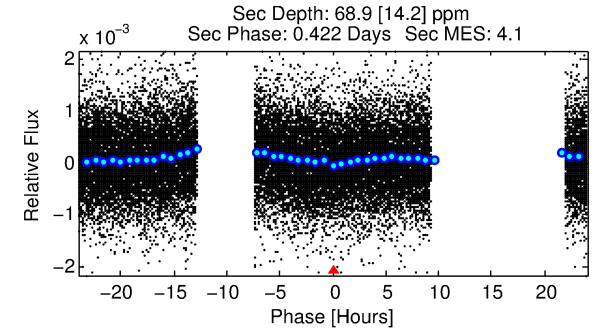
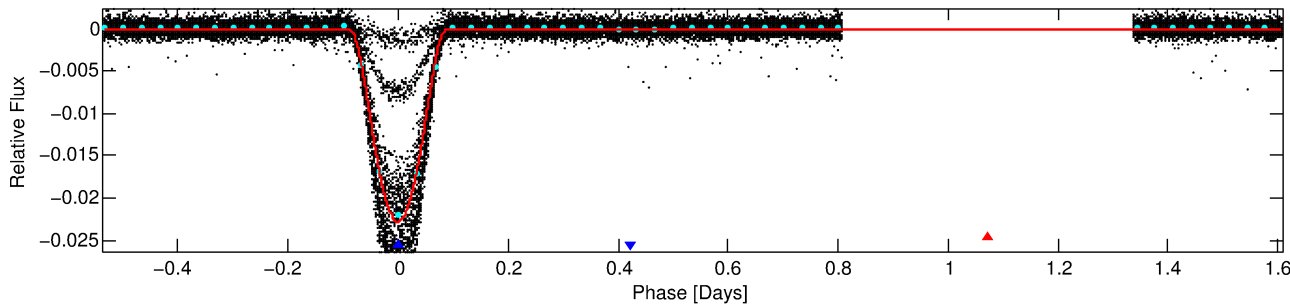
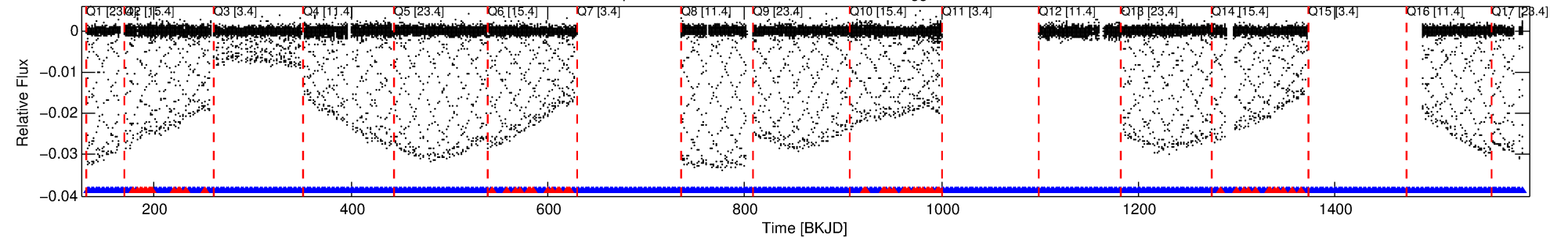
Ephemeris Match Information For 009913798-02

No Significant Match Found

DV One-Page Summary

KIC: 9913798 Candidate: 2 of 2 Period: 2.143 d
KOI: K07254 Corr: No Ephemeris Match

Kp: 14.94 R*: 0.70 Rs Teff: 4817.0 K Logg: 4.62 Fe/H: -0.060



DV Fit Results:

Period = 2.14344 [0.00000] d
Epoch = 132.4269 [0.0002] BKJD
Rp/R* = 0.1872 [0.0084]
a/R* = 3.32 [0.03]
b = 0.90 [0.02]
Seff = 269.93 [43.64]
Teff = 1034 [42] K
Rp = 14.30 [1.57] Re
a = 0.0296 [0.0023] AU
Ag = 0.16 [0.04] [-20.65σ]
Teffp = 1014 [65] K [-0.25σ]

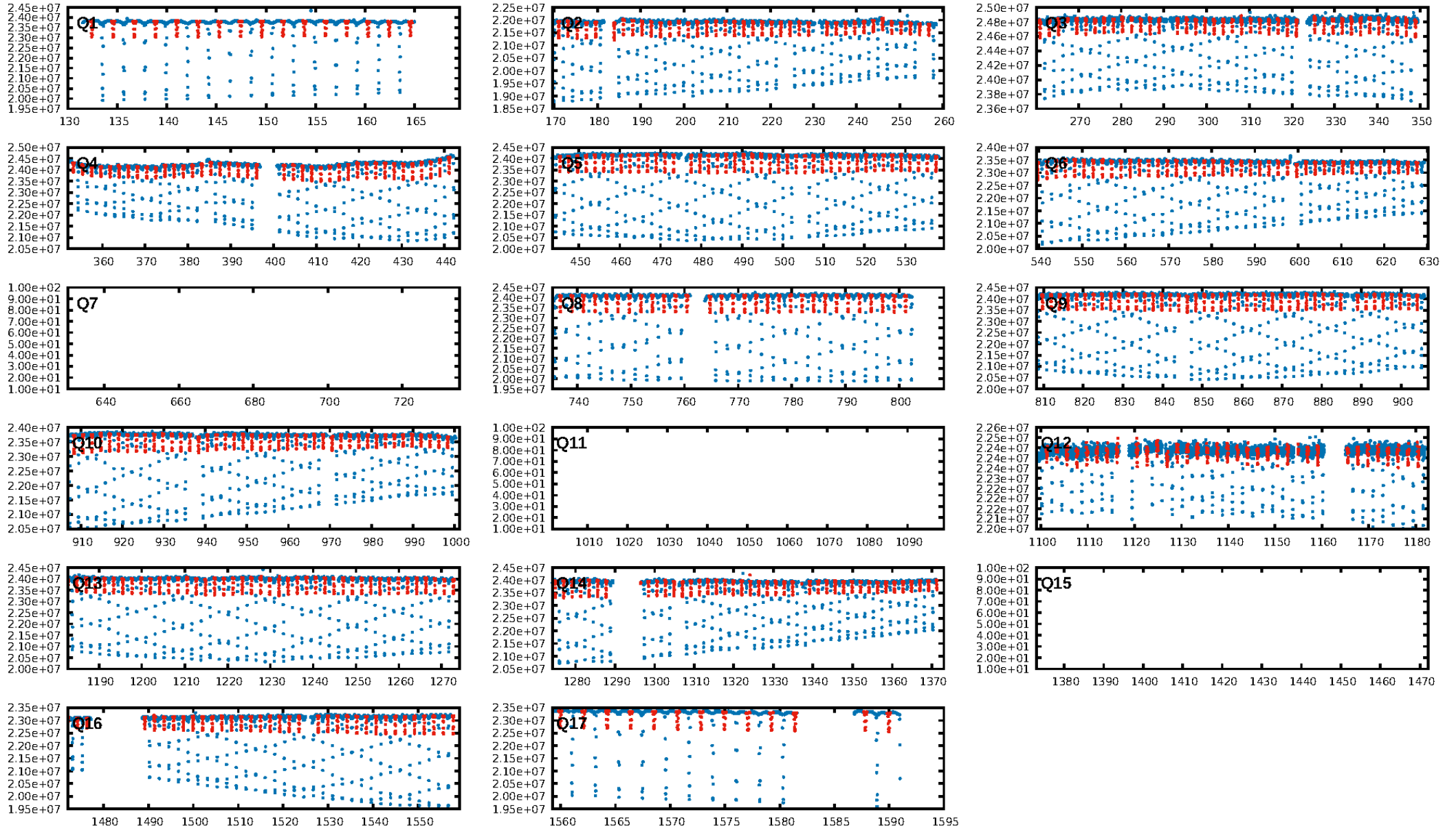
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.88 [414/472]
GhostDiagnostic-chr: 0.4439
Centroid-sig: 0.0%
Centroid-so: 3.937 arcsec [592.58σ]
OotOffset-rm: 1.952 arcsec [12.99σ]
KicOffset-rm: 3.932 arcsec [55.98σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
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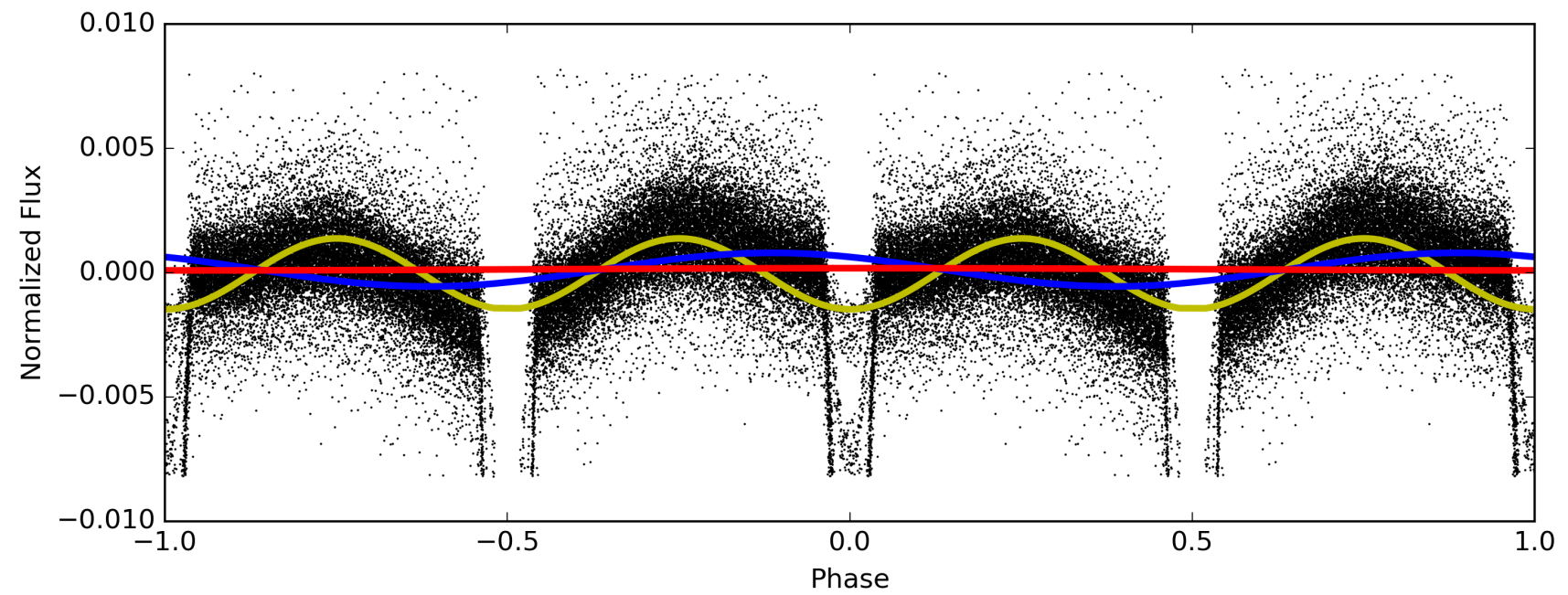
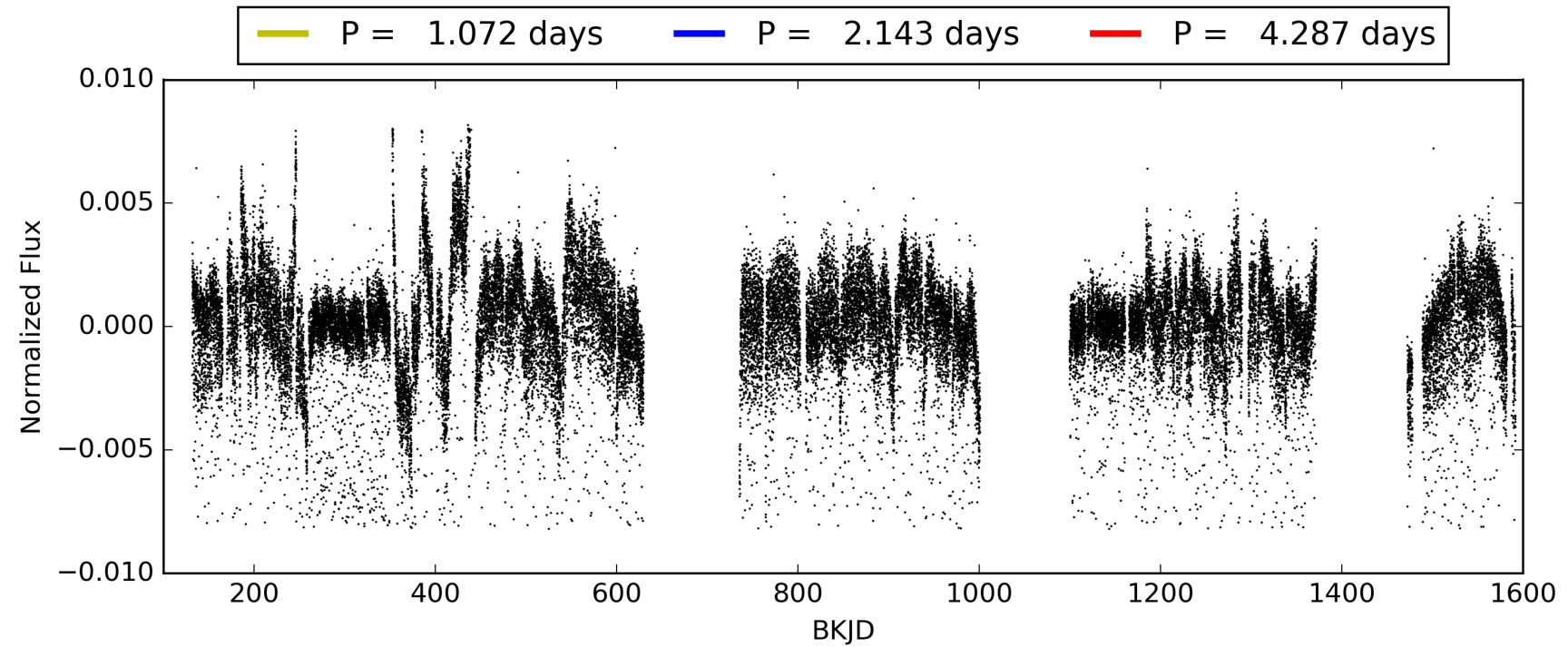
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009913798-02, PDC Light Curves

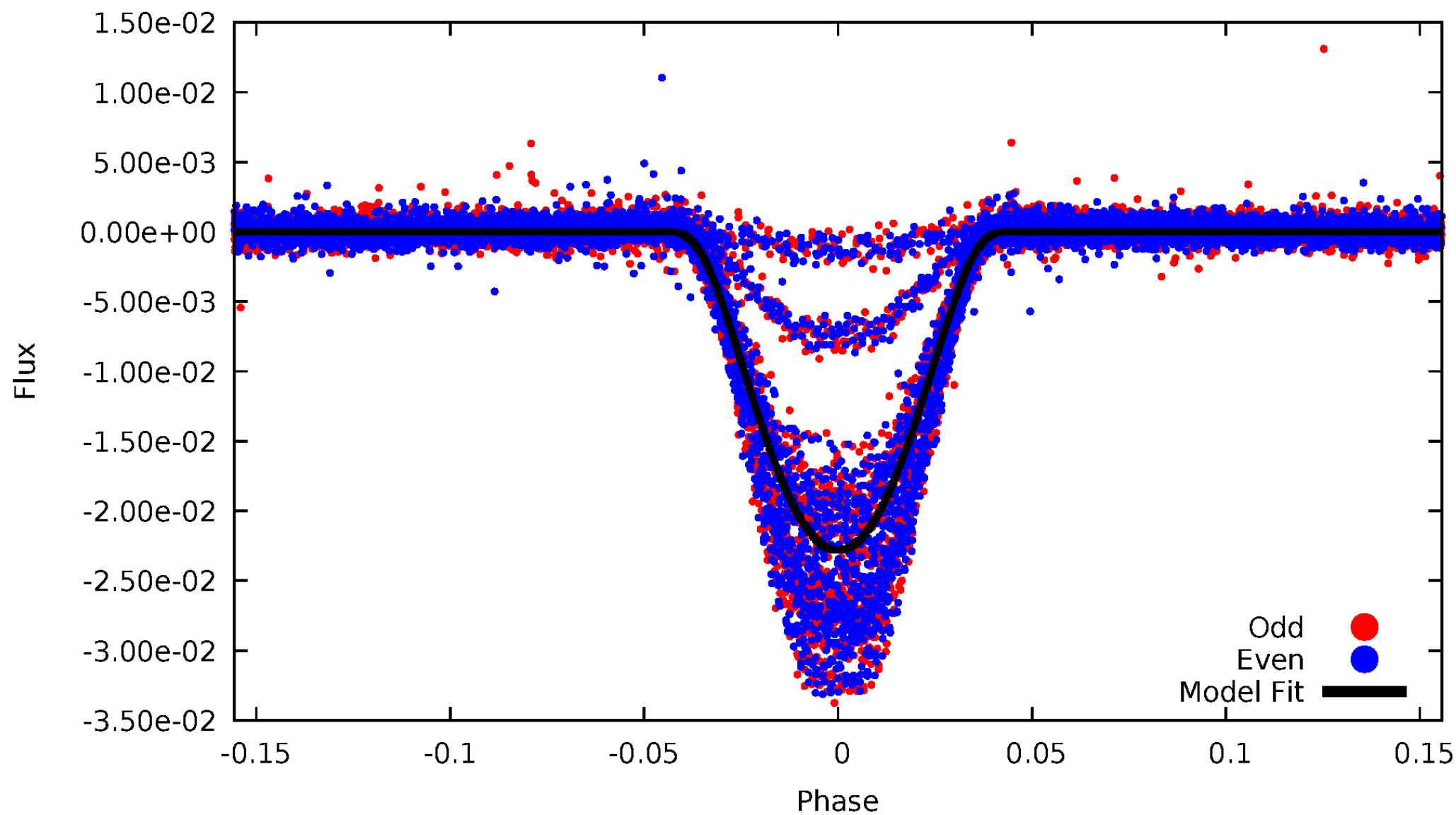


TCE 009913798-02



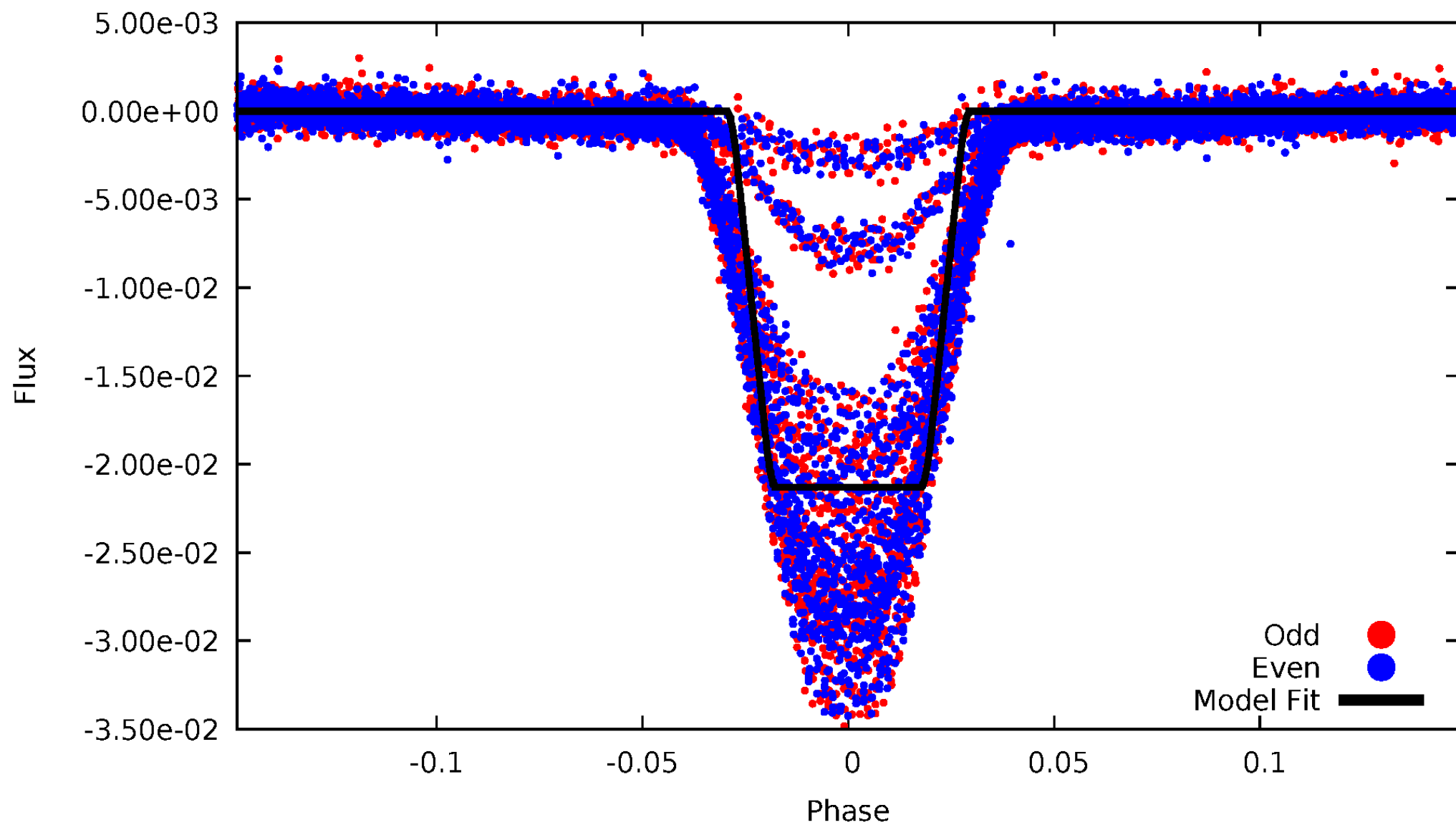
DV Odd/Even

TCE 009913798-02



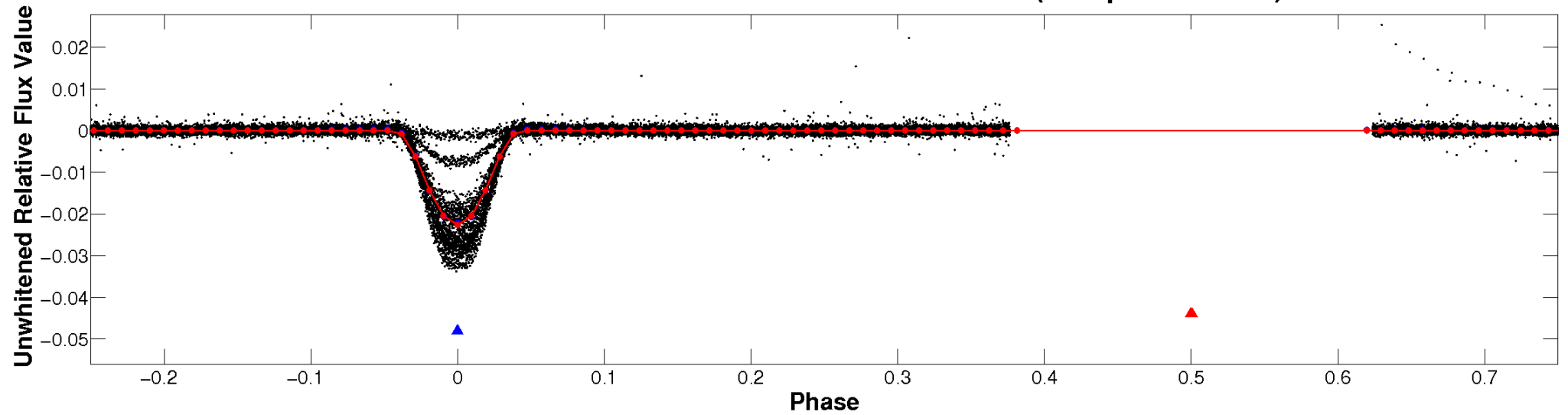
ALT Odd/Even

TCE 009913798-02

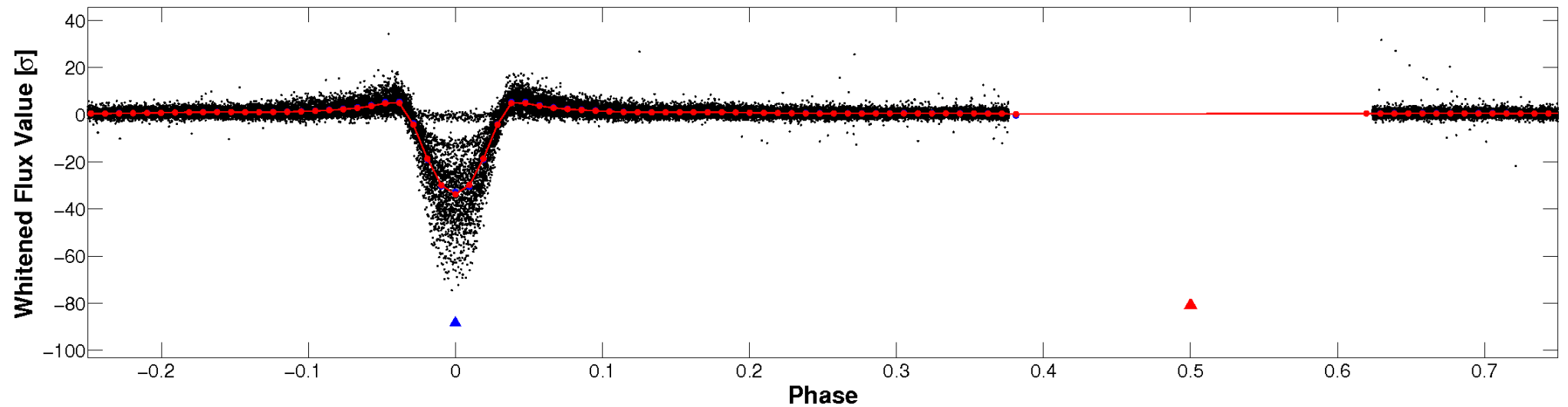


Non-Whitened Vs. Whitened Light Curve

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

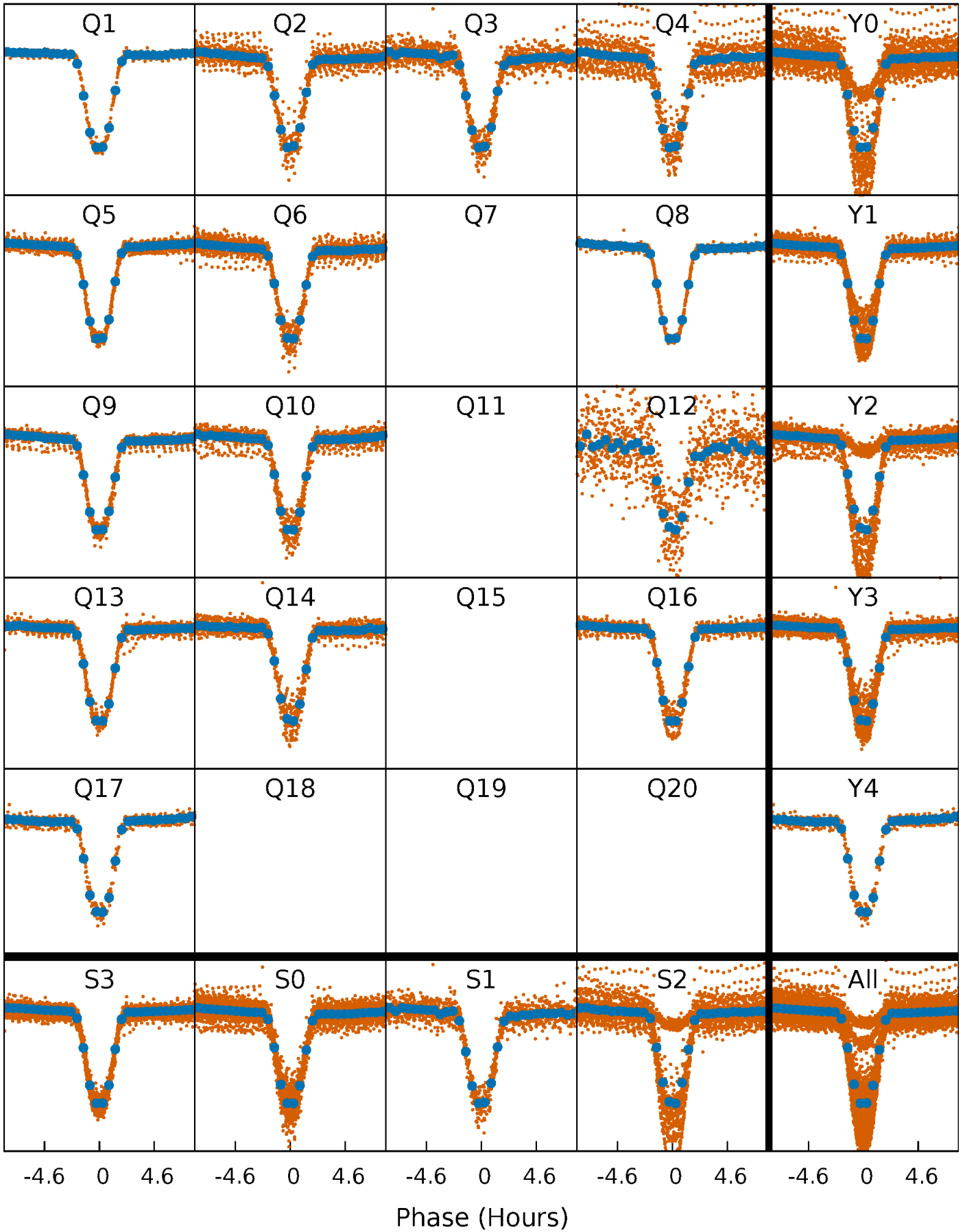


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



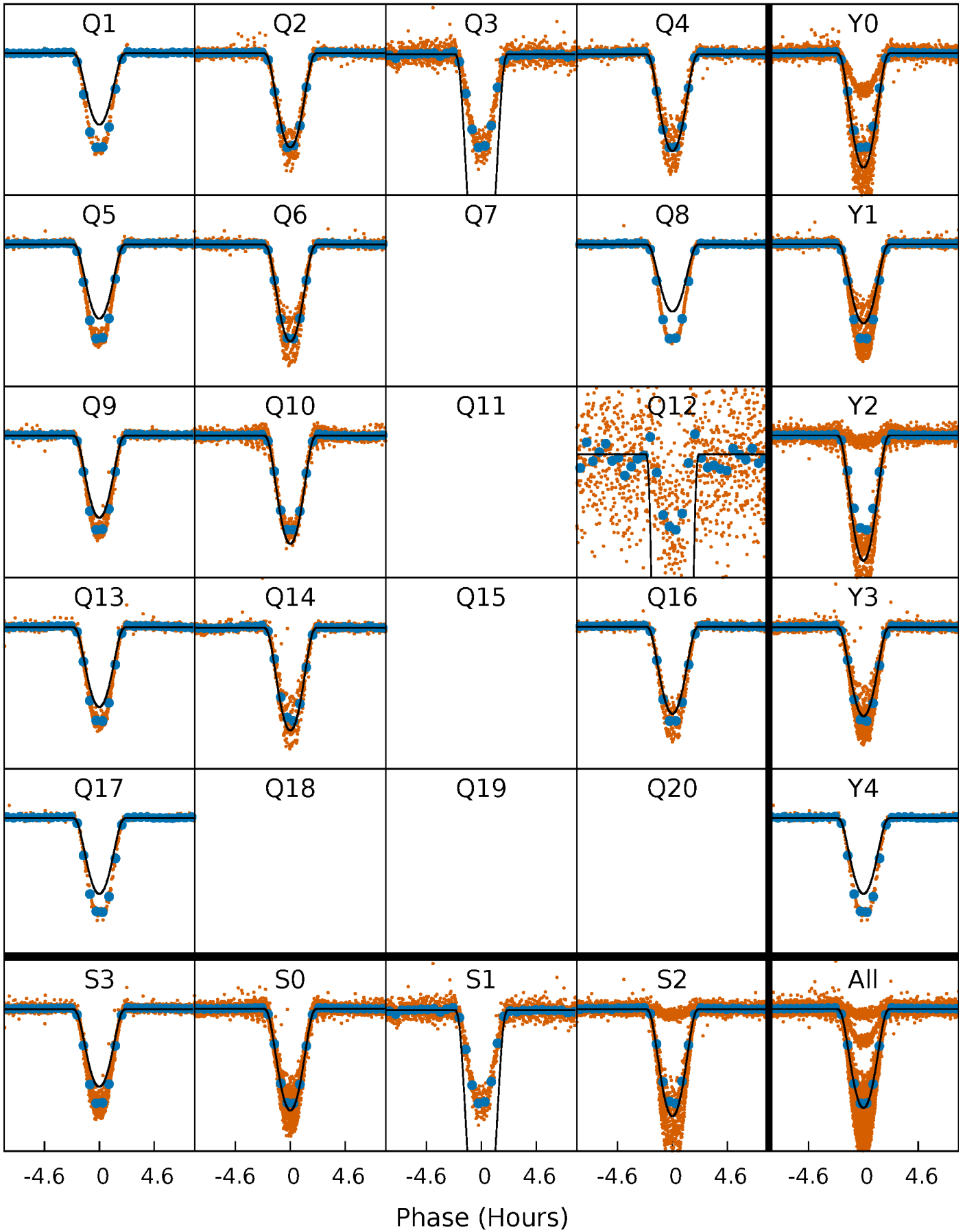
PDC Quarter-Phased Transit Curves

TCE 009913798-02 P= 2.143436 Days $T_0=132.426926$ (BKJD)



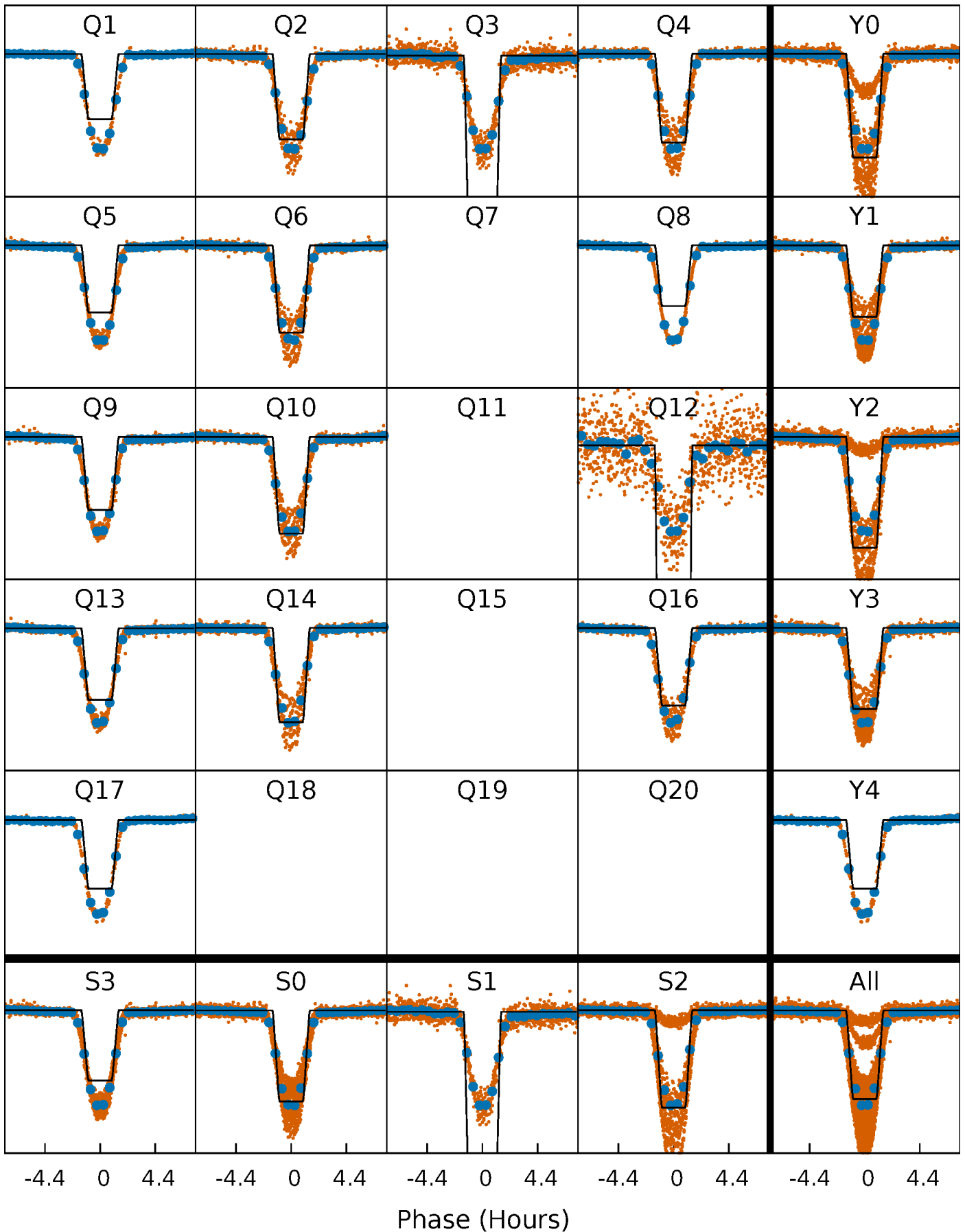
DV Quarter-Phased Transit Curves

TCE 009913798-02 P= 2.143436 Days $T_0=132.426926$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

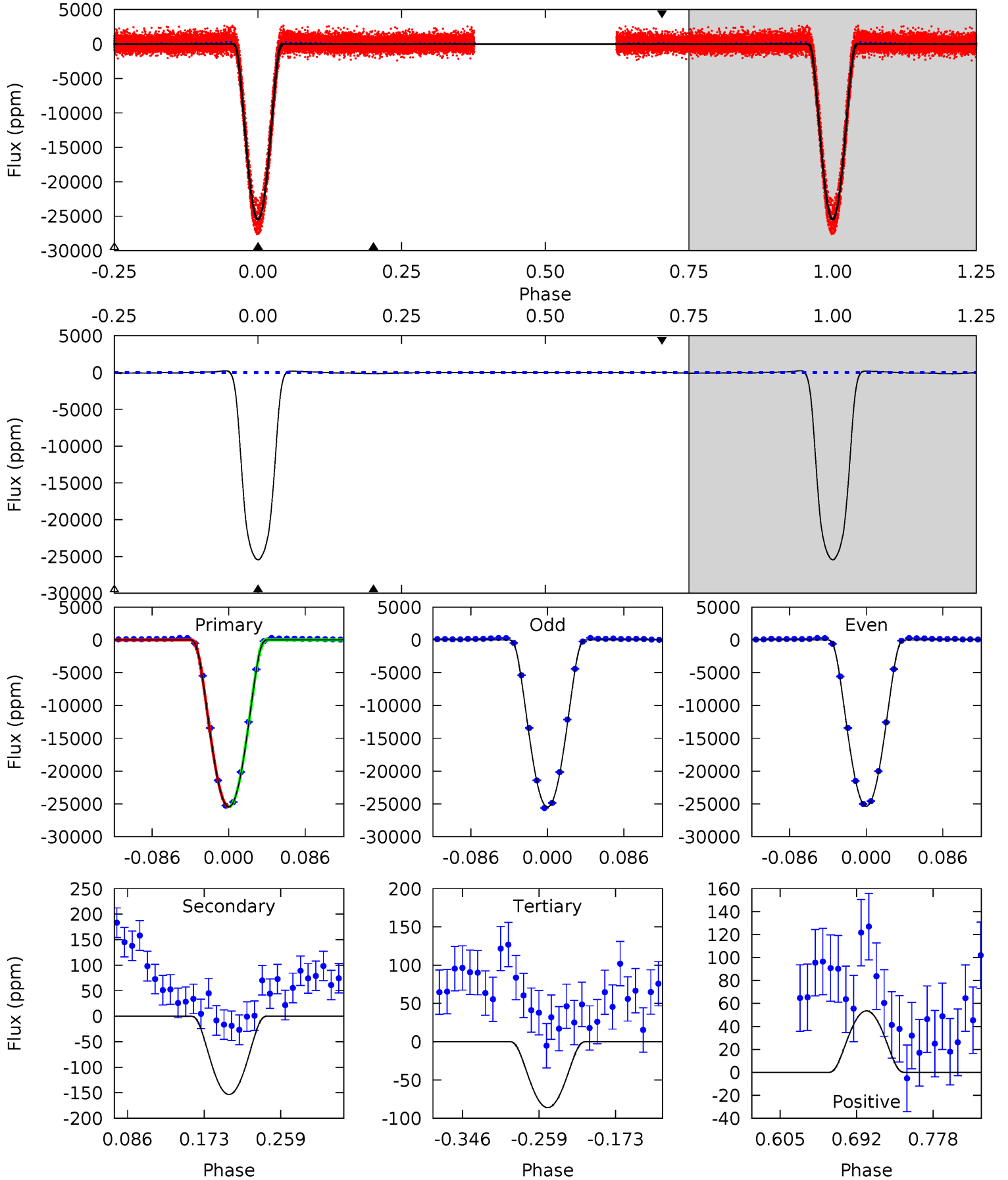
TCE 009913798-02 P= 2.143450 Days $T_0=132.423128$ (BKJD)



DV Model-Shift Uniqueness Test

009913798-02, P = 2.143436 Days, E = 130.283490 Days

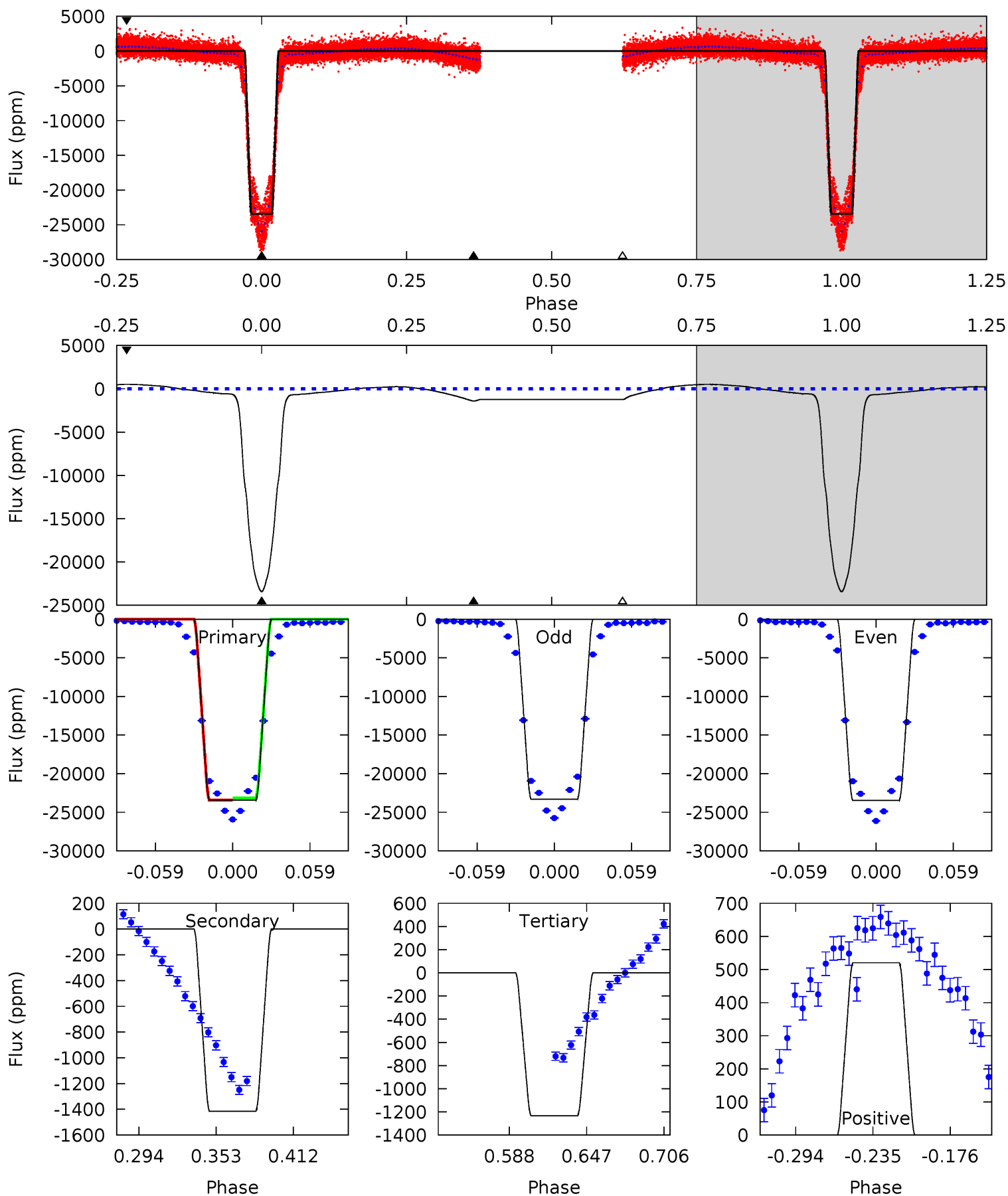
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2277	13.7	7.70	4.79	4.60	1.71	3.83	2269	2272	6.01	8.93	5.26	0.90	0.01	0



Alt Model-Shift Uniqueness Test

009913798-02, P = 2.143450 Days, E = 130.279678 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1261	76.2	66.5	28.0	4.67	1.89	20.2	1195	1233	9.71	48.2	4.97	0.89	0.02	0



Stellar Parameters For KIC 009913798

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4817^{+144}_{-144}	$4.624^{+0.028}_{-0.056}$	$-0.060^{+0.300}_{-0.300}$	$0.700^{+0.070}_{-0.051}$	$0.767^{+0.053}_{-0.079}$	$3.152^{+0.430}_{-0.620}$
	+3%/-3%	+1%/-1%	+500%/-500%	+10%/-7%	+7%/-10%	+14%/-20%
Source	PHO1	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 009913798-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-153 ± 11	$14.48^{+0.91}_{-0.92}$	1455^{+51}_{-52}	1788^{+116}_{-249}	$0.352^{+0.050}_{-0.043}$
Alt.	-1415 ± 19	$11.35^{+0.90}_{-0.81}$	1453^{+55}_{-49}	3012^{+82}_{-79}	$5.323^{+0.753}_{-0.723}$

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

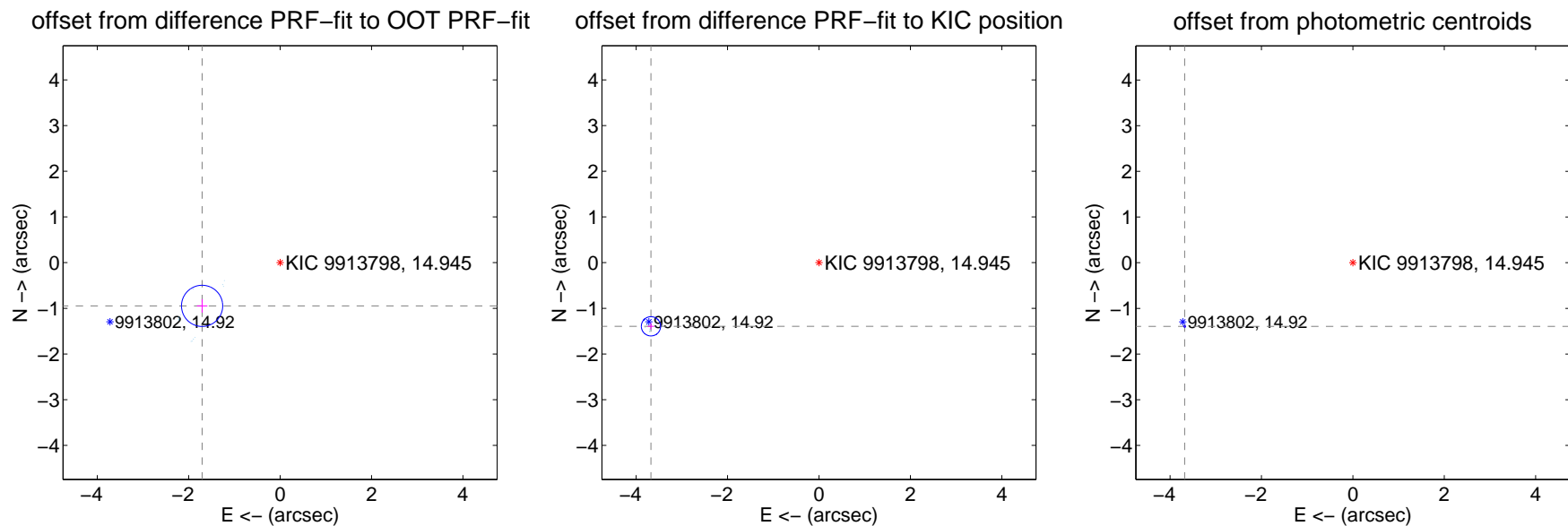
DV Centroid Data

Supplemental centroid analysis for 009913798-02. Kepler magnitude: 14.95. Transit SNR 1425.38

There are 14 quarters with good PRF difference image offsets

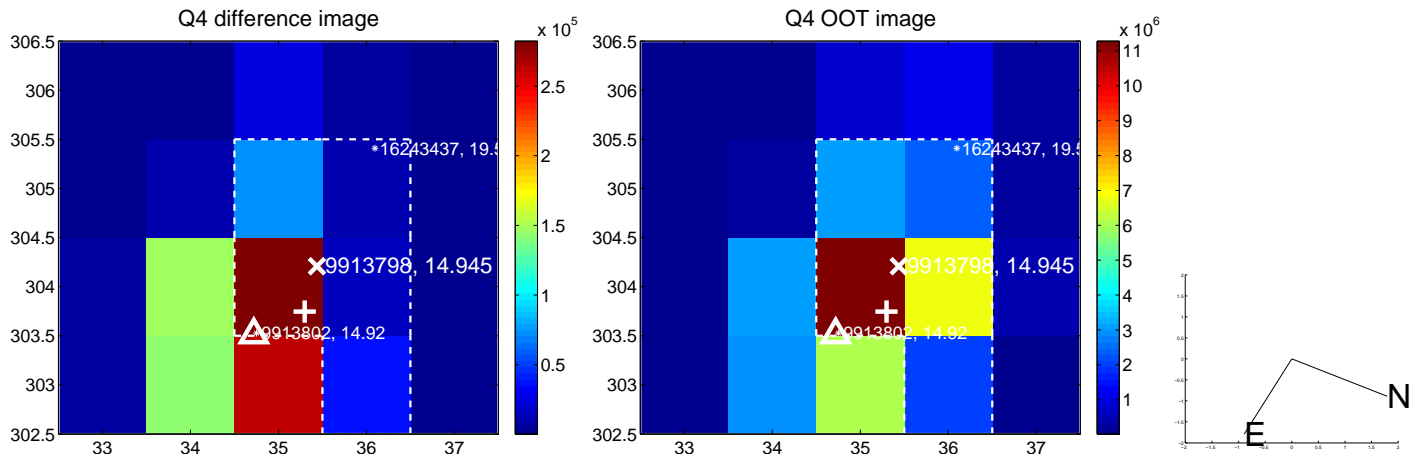
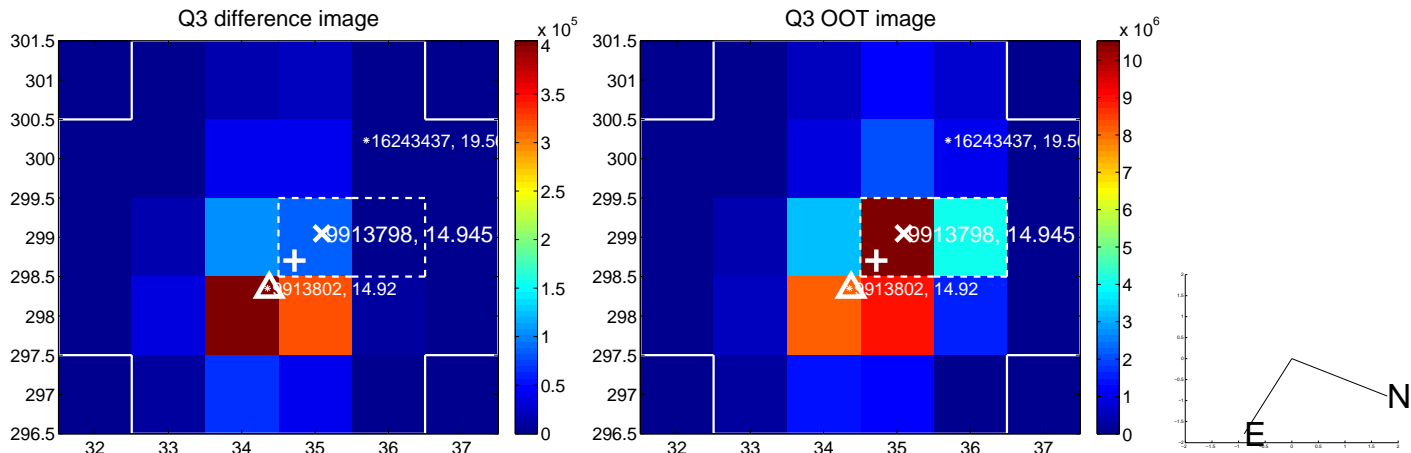
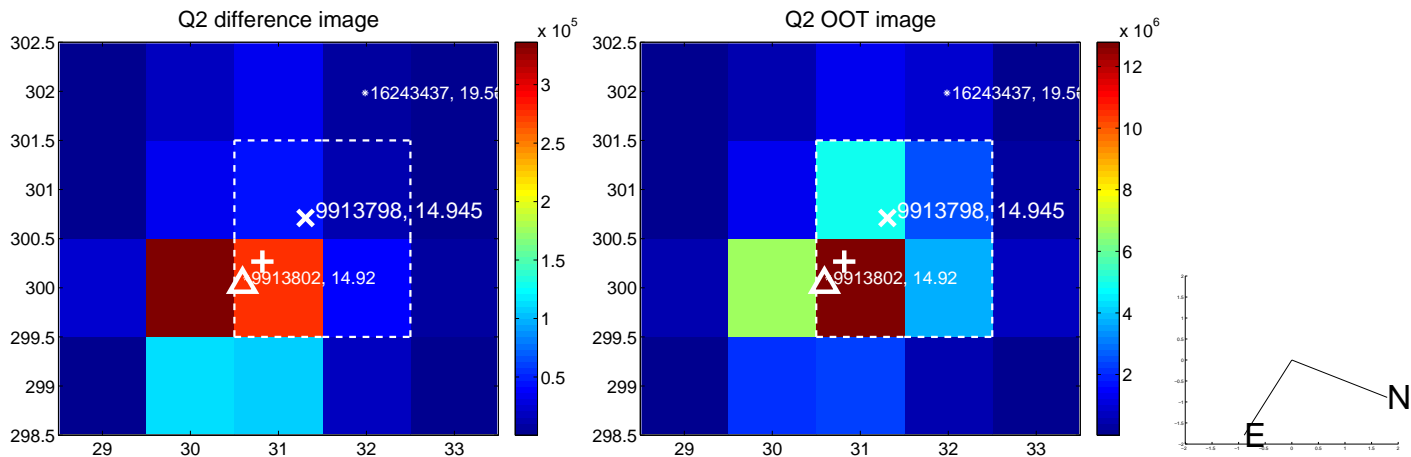
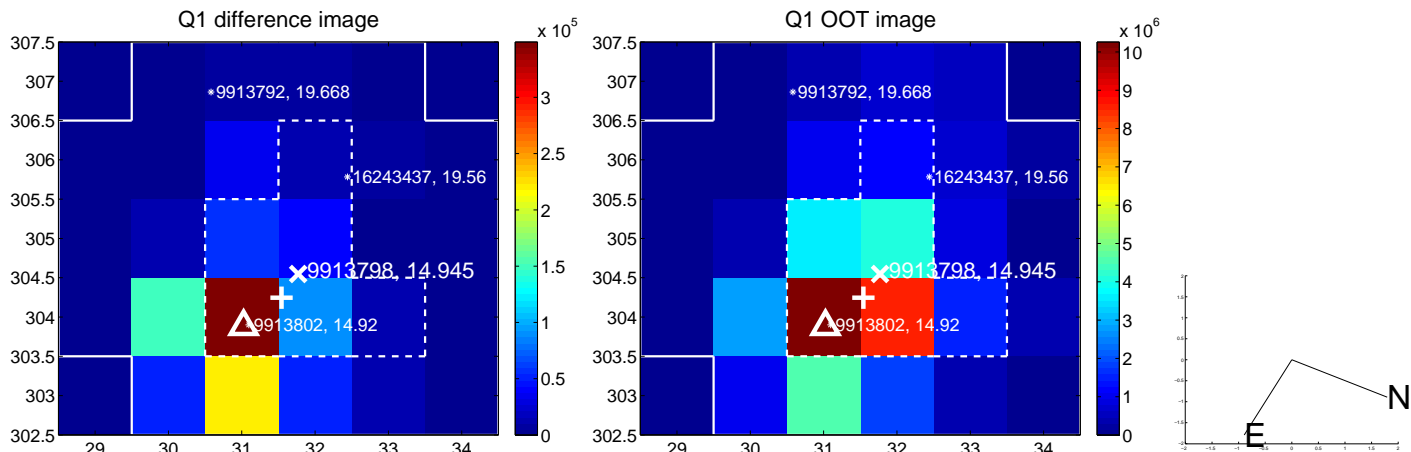
The direct PRF centroid is offset from the target star catalog position by about 1.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.952 ± 0.150	12.99	1.707 ± 0.115	-0.946 ± 0.148
PRF-fit source offset from KIC position	3.932 ± 0.070	55.98	3.677 ± 0.070	-1.394 ± 0.069
photometric centroid source offset	3.94 ± 0.01	592.58	3.68 ± 0.01	-1.40 ± 0.01

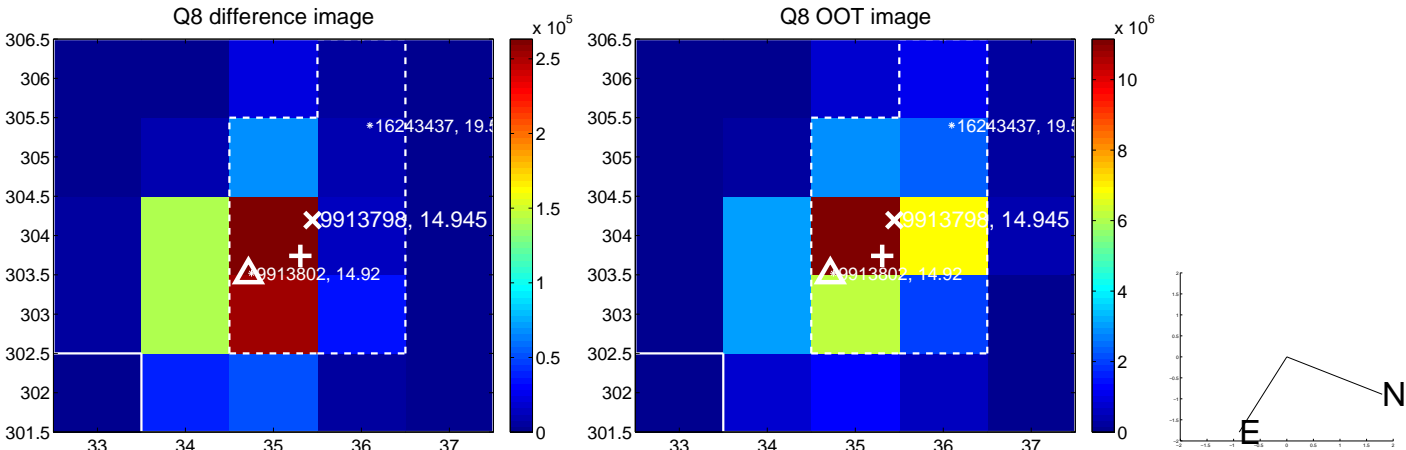
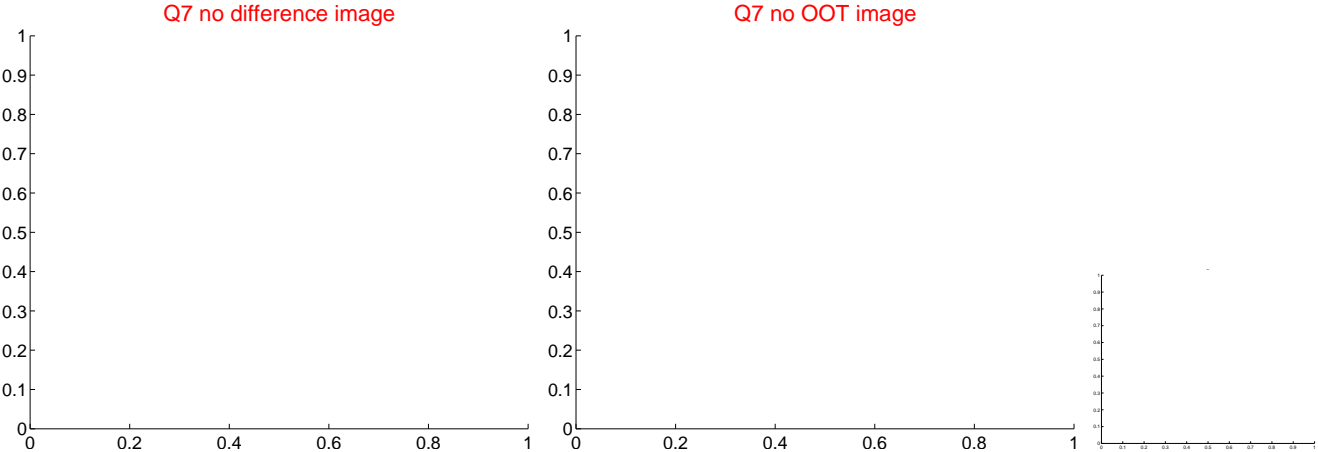
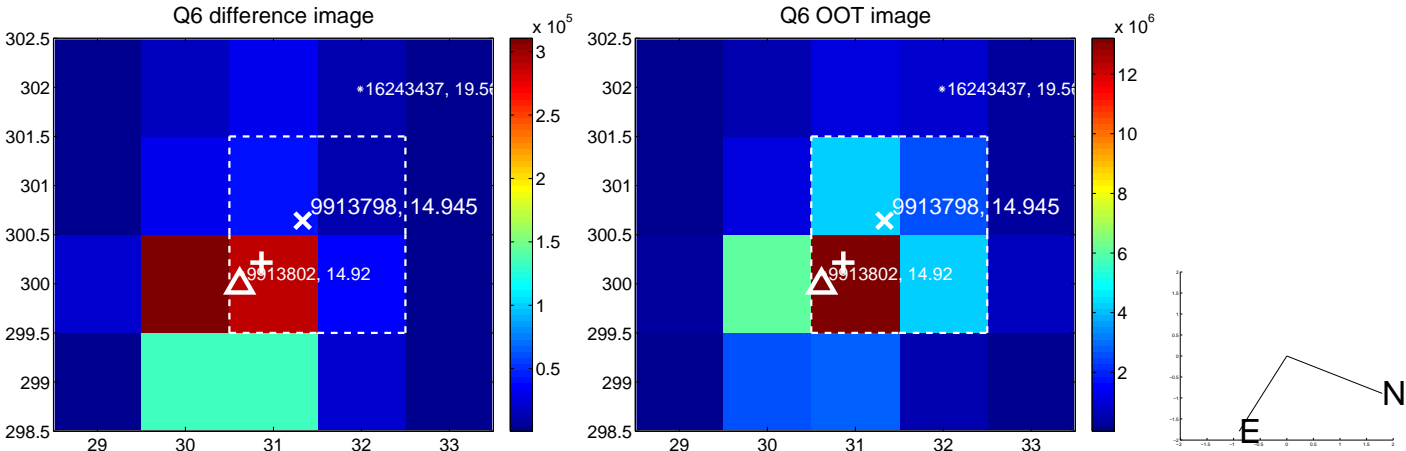
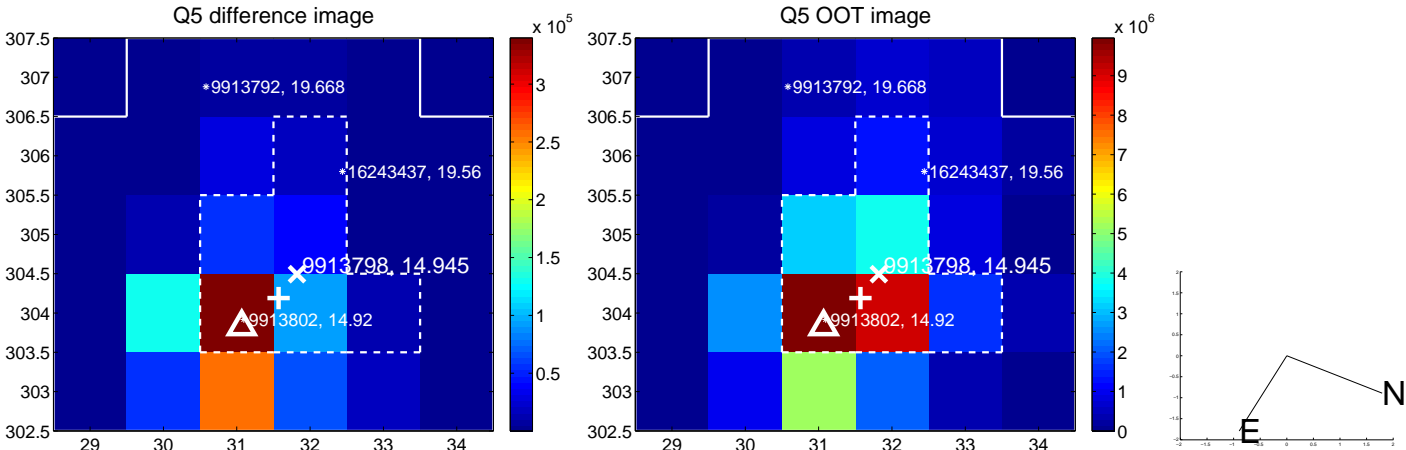


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

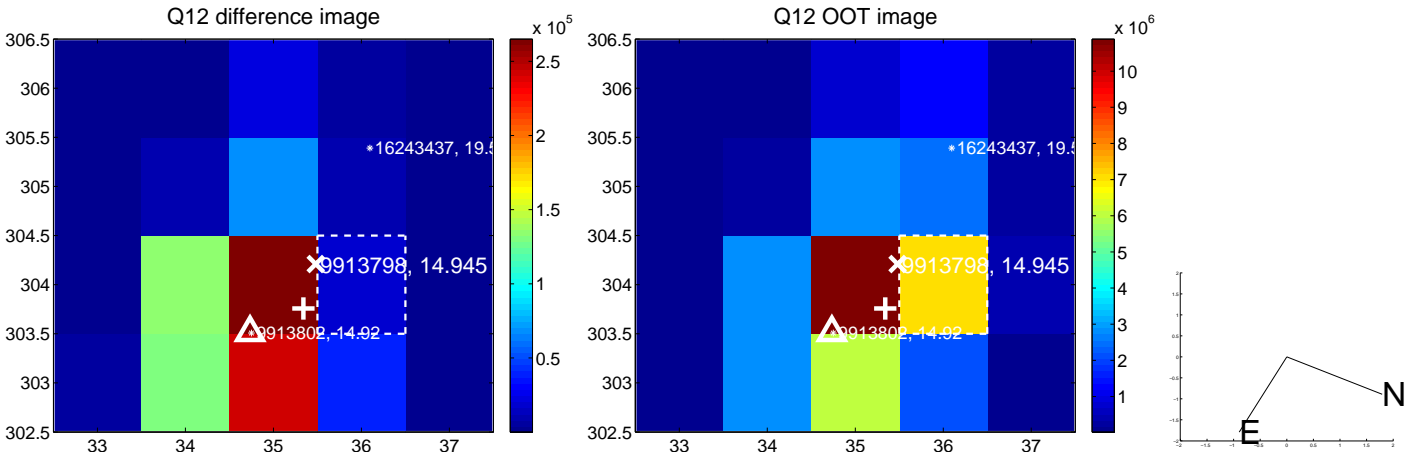
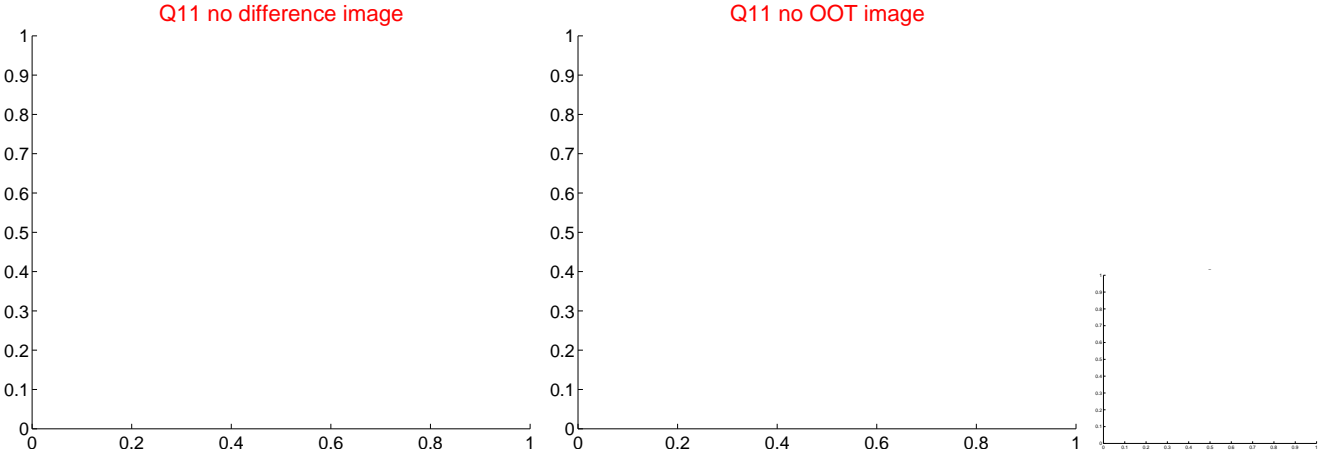
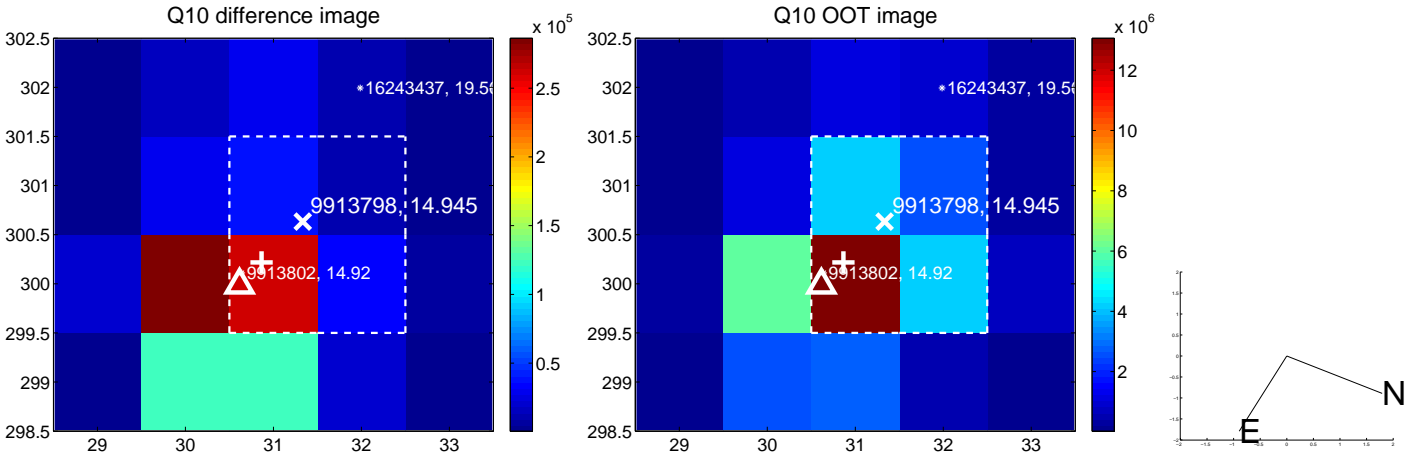
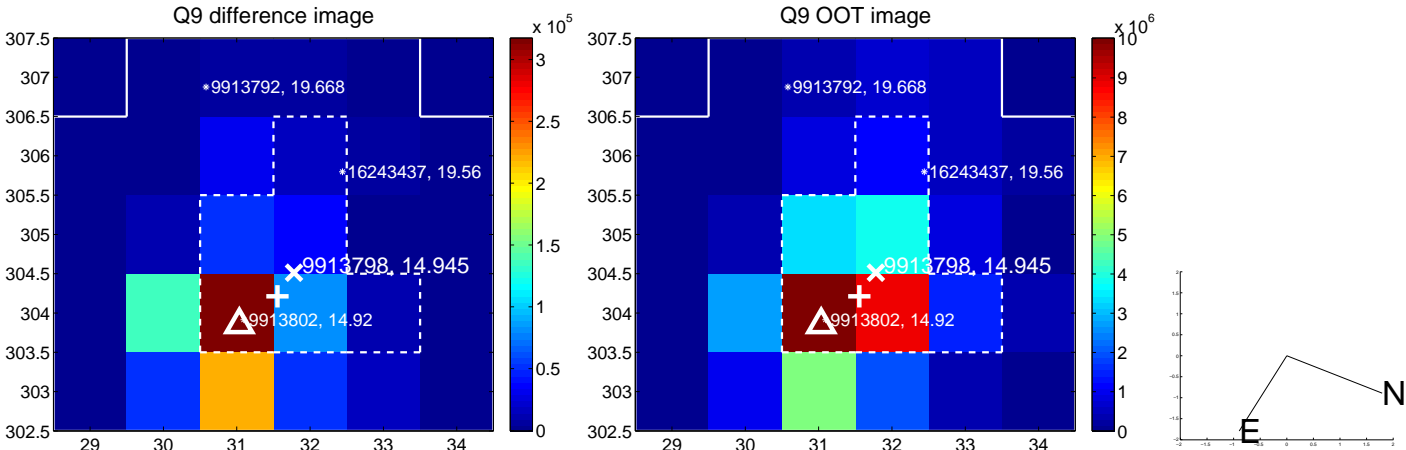
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



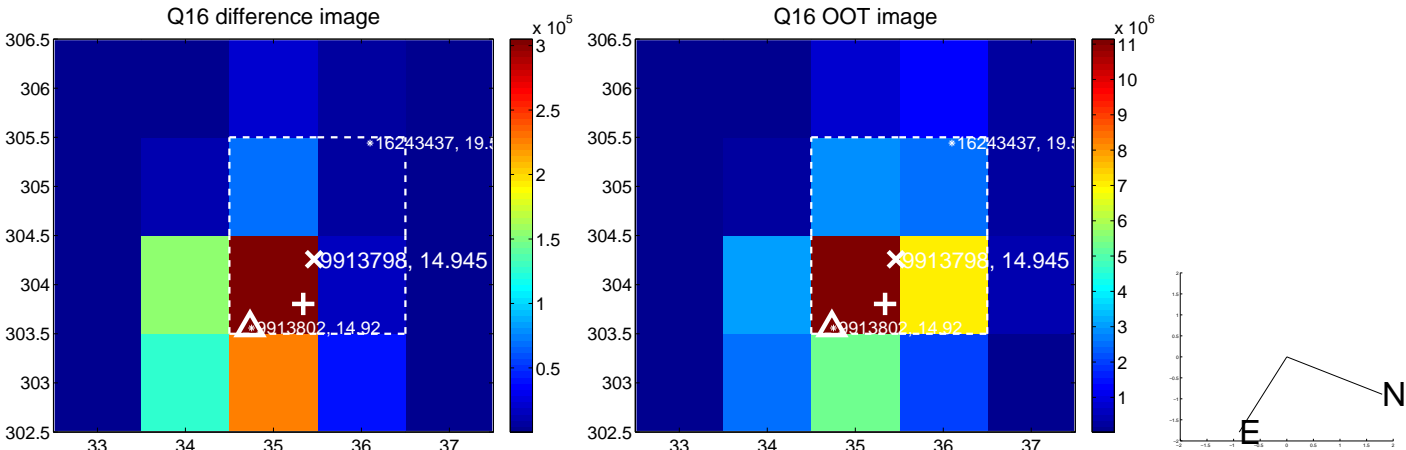
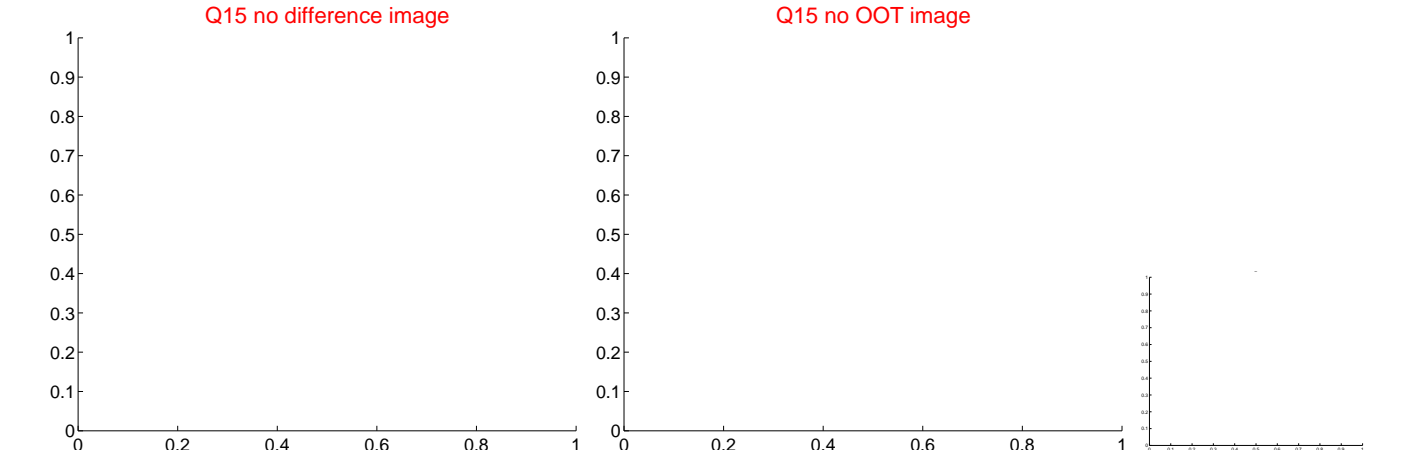
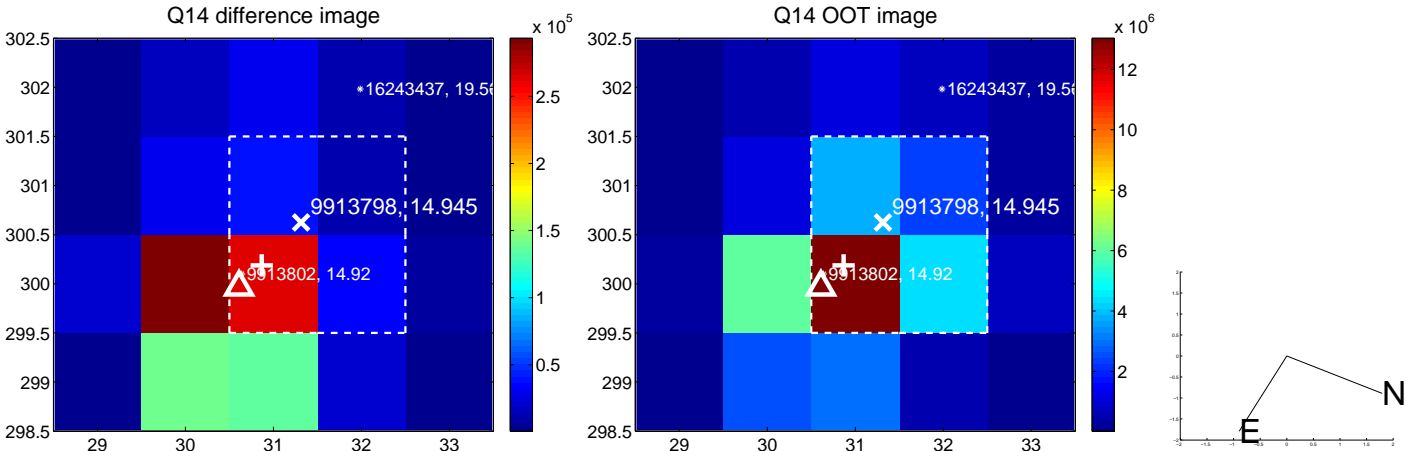
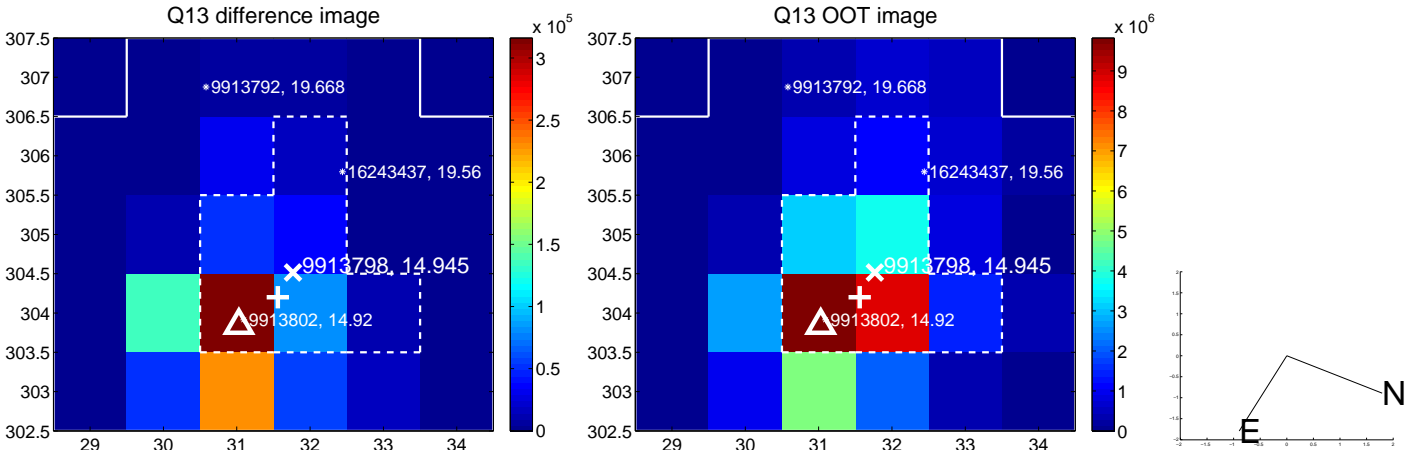
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



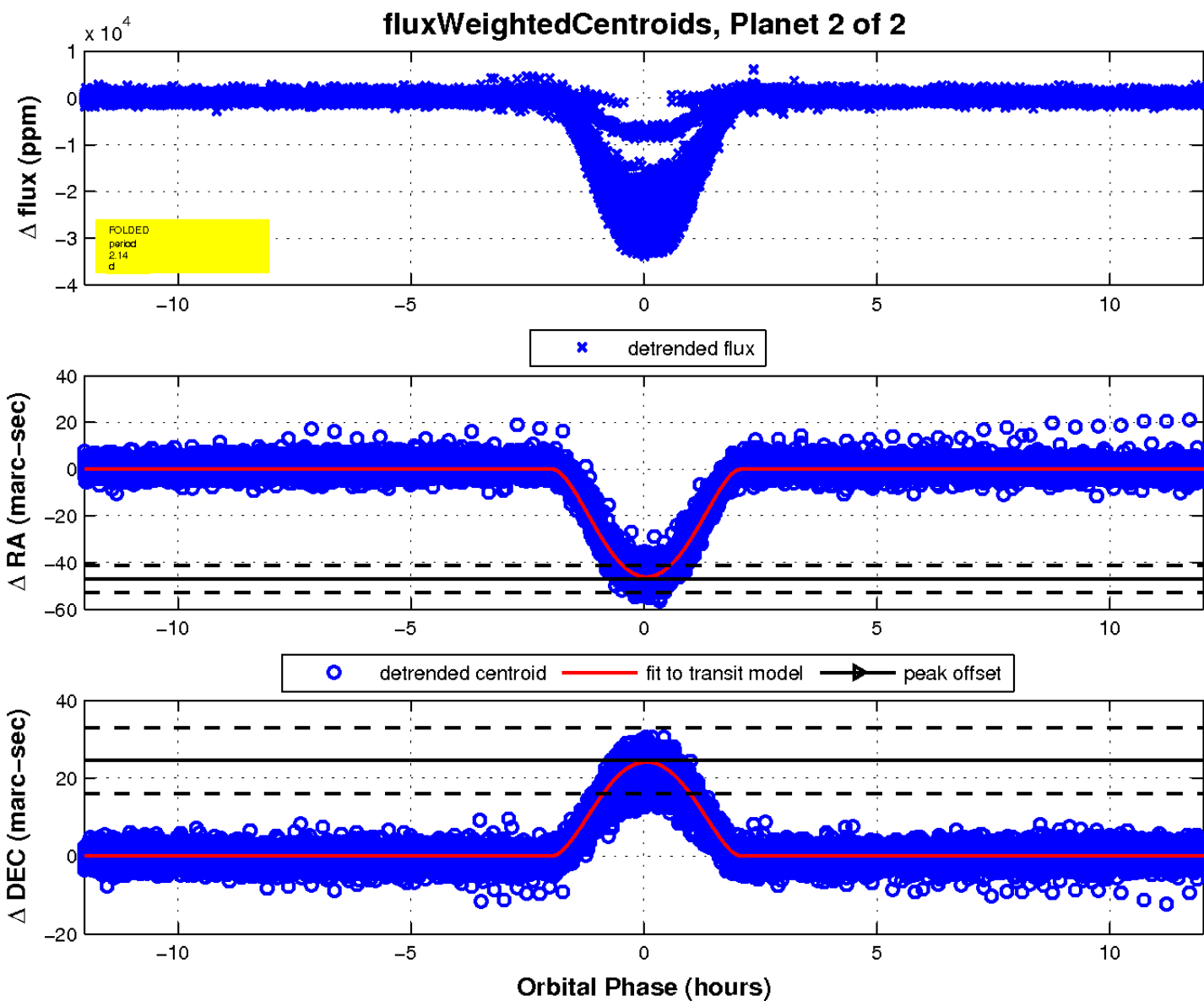
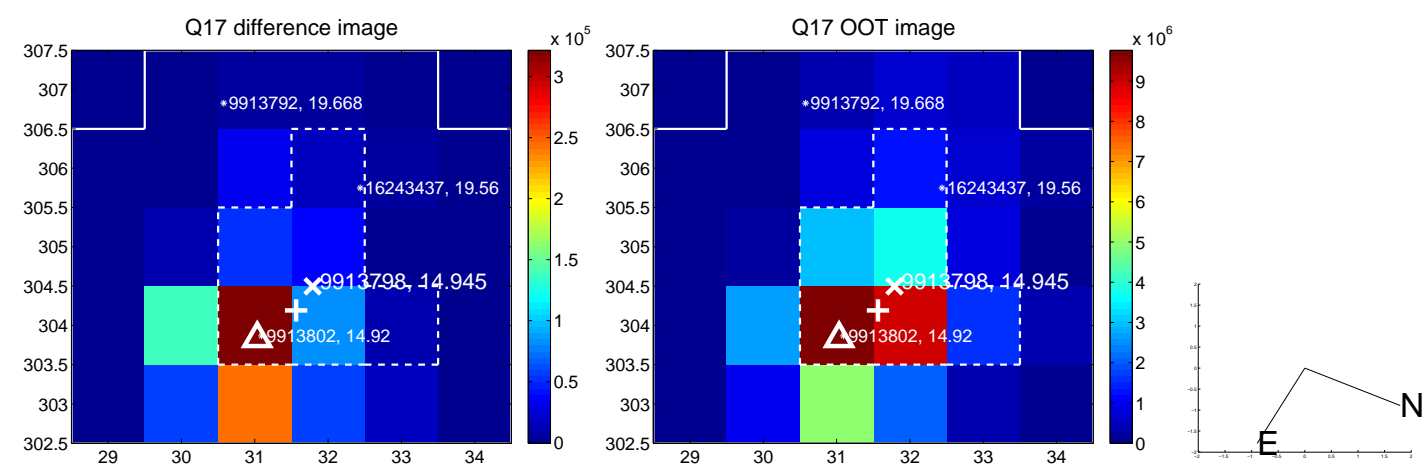
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

