

KIC 007537945

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})
007537945-01	OBS	6039.01	2.143829	132.677339	7751.6	4.044	584.6	396.9	0.93	5885	14.81	1006.66
007537945-02	OBS	No	2.143824	131.606939	7302.1	4.053	746.5	411.6	0.93	5885	14.40	1006.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007537945-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
007537945-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST

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.

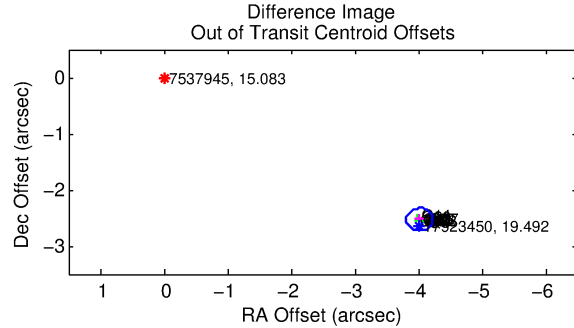
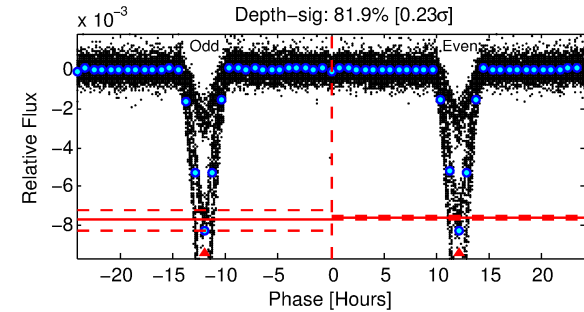
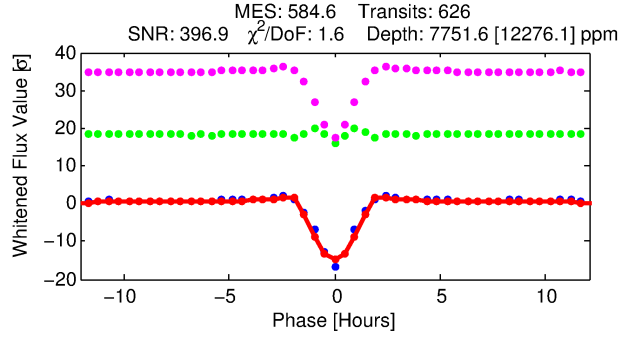
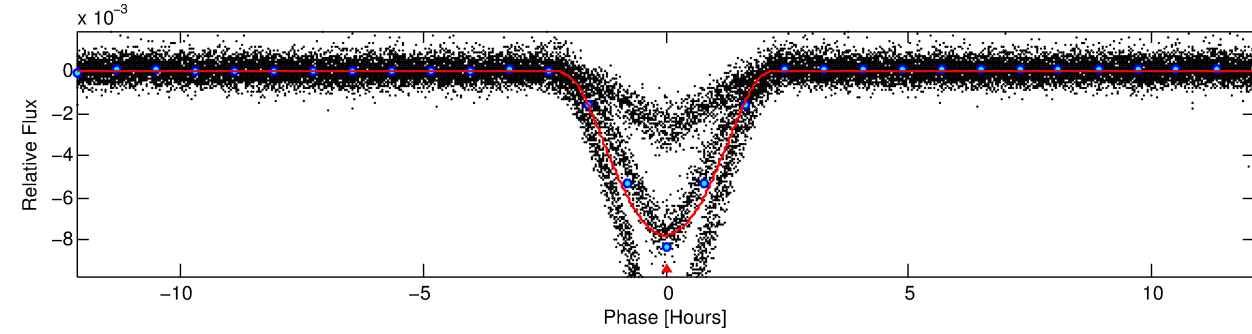
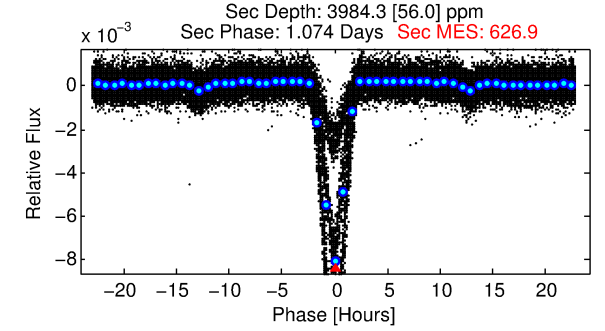
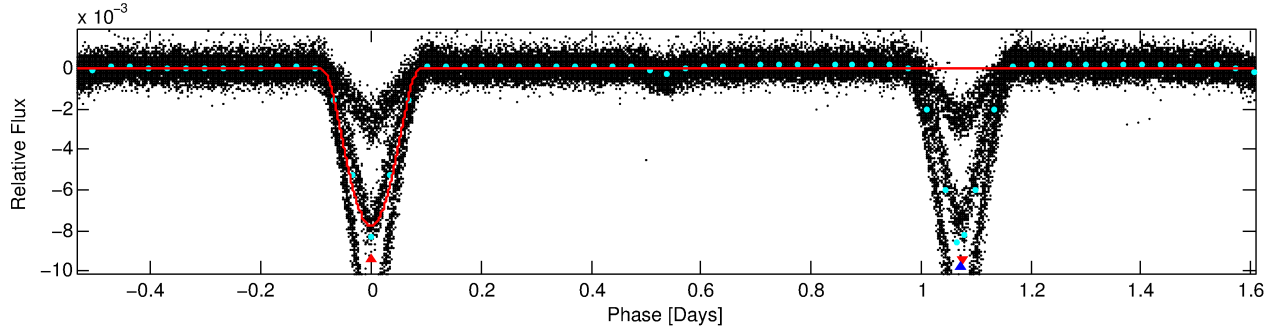
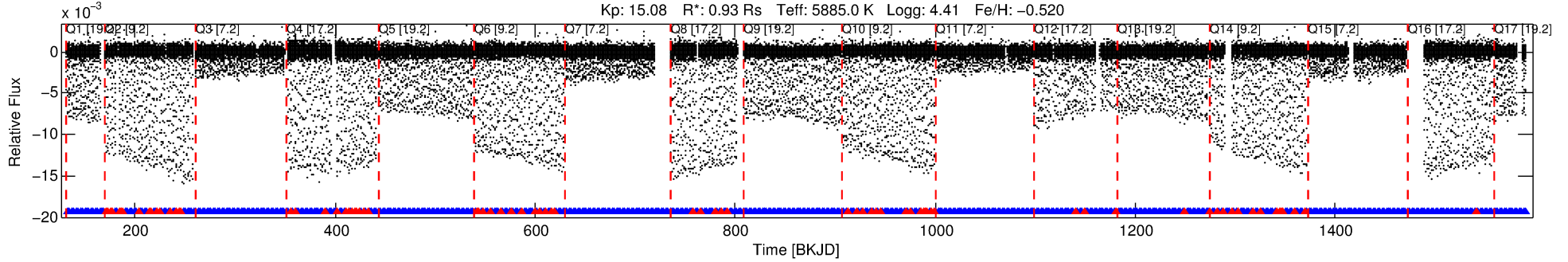
Ephemeris Match Information For 007537945-01

No Significant Match Found

DV One-Page Summary

KIC: 7537945 Candidate: 1 of 2 Period: 2.144 d
KOI: K06039 Corr: No Ephemeris Match

Kp: 15.08 R*: 0.93 Rs Teff: 5885.0 K Logg: 4.41 Fe/H: -0.520



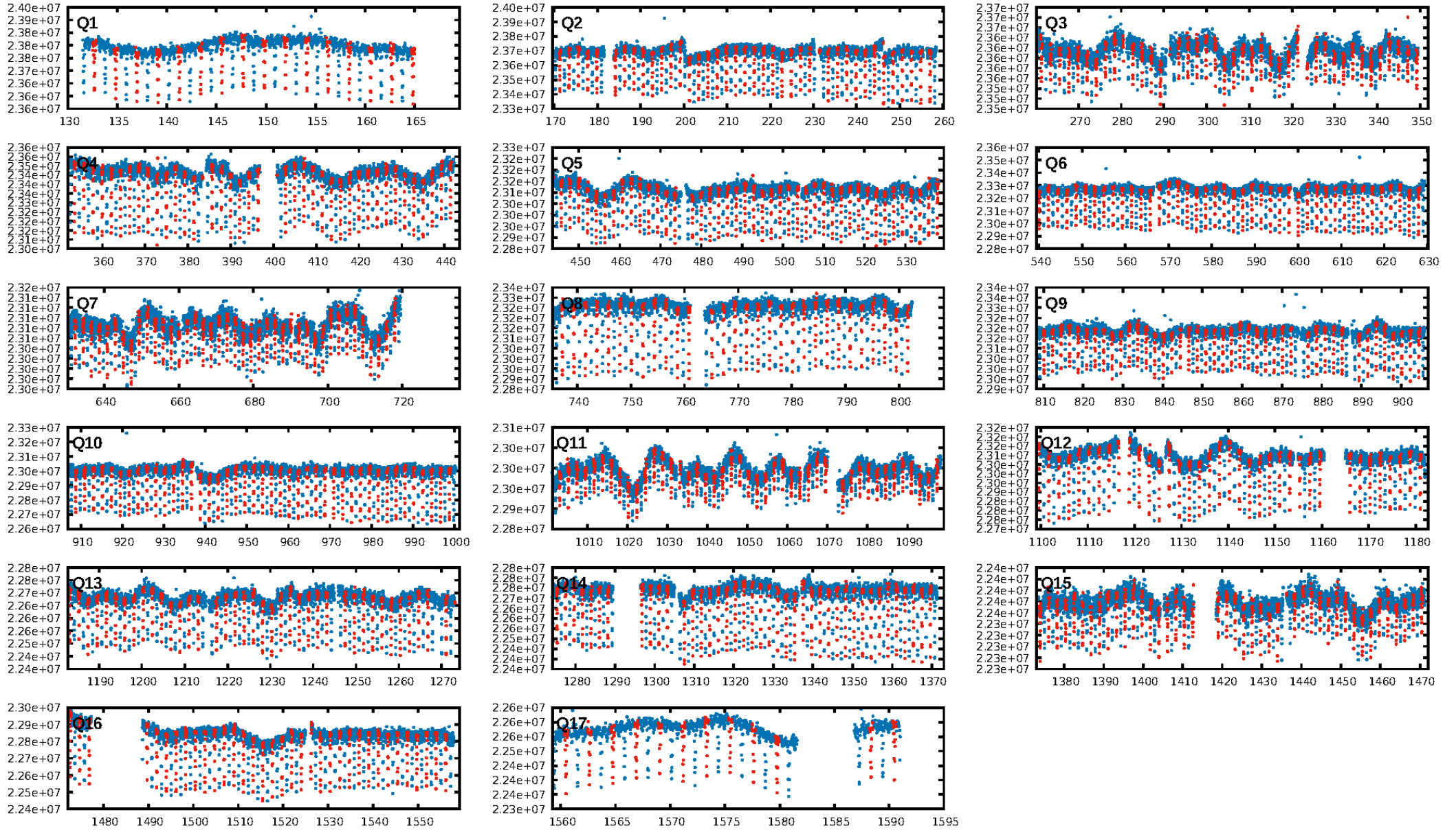
DV Fit Results:

Period = 2.14383 [0.00000] d
Epoch = 132.6773 [0.0001] BKJD
Rp/R* = 0.1455 [0.0134]
a/R* = 2.49 [0.02]
b = 1.00 [0.17]
Seff = 1006.66 [344.87]
Teq = 1436 [123] K
Rp = 14.81 [4.08] Re
a = 0.0305 [0.0067] AU
Ag = 9.29 [3.43] [2.41σ]
Teff = 3876 [213] K [9.91σ]

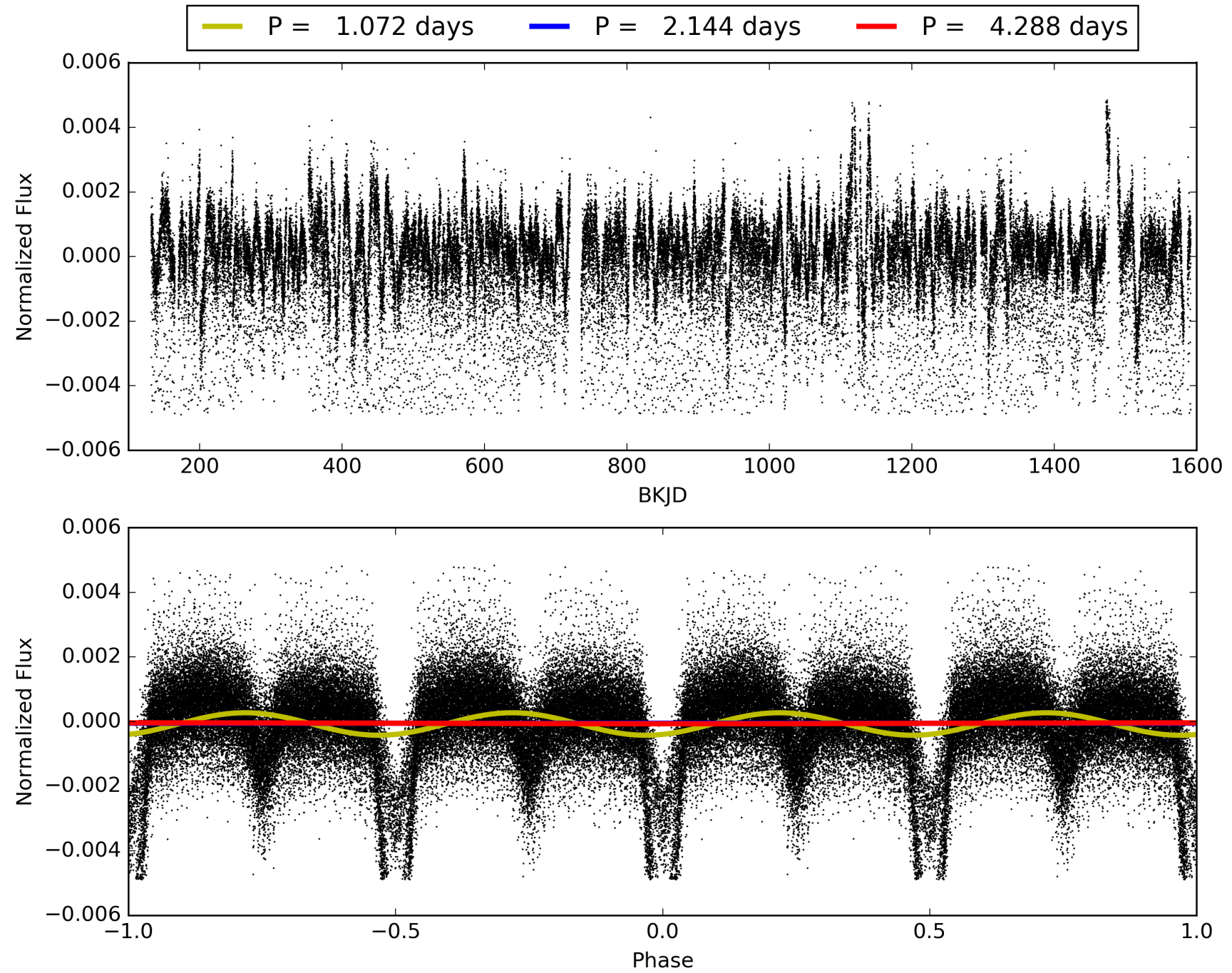
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.87 [521/598]
GhostDiagnostic-chr: 0.03624
Centroid-sig: N/A
Centroid-so: 12.491 arcsec [536.62σ]
OotOffset-rm: 4.749 arcsec [70.27σ]
KicOffset-rm: 4.911 arcsec [71.50σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007537945-01, PDC Light Curves

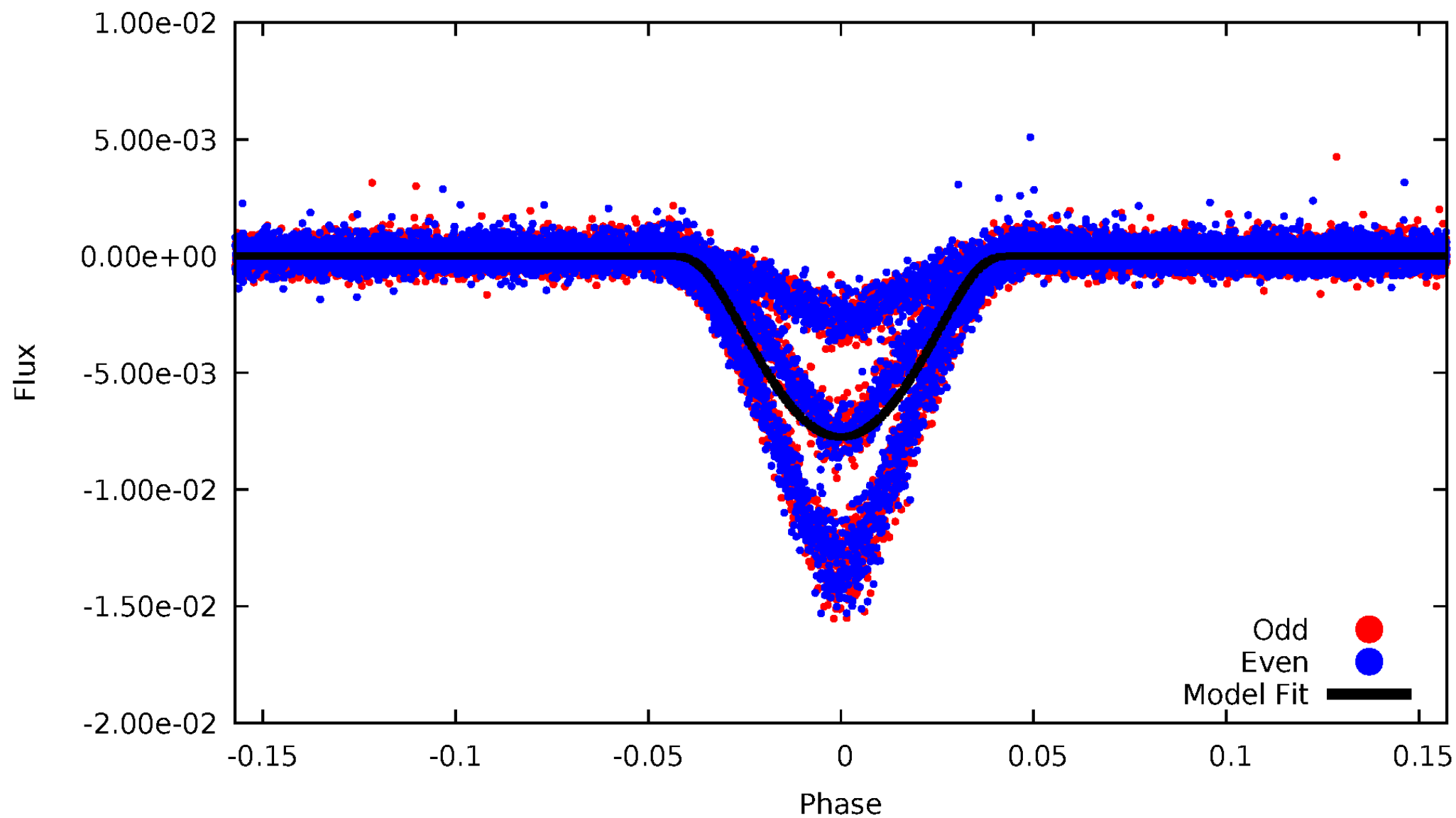


TCE 007537945-01



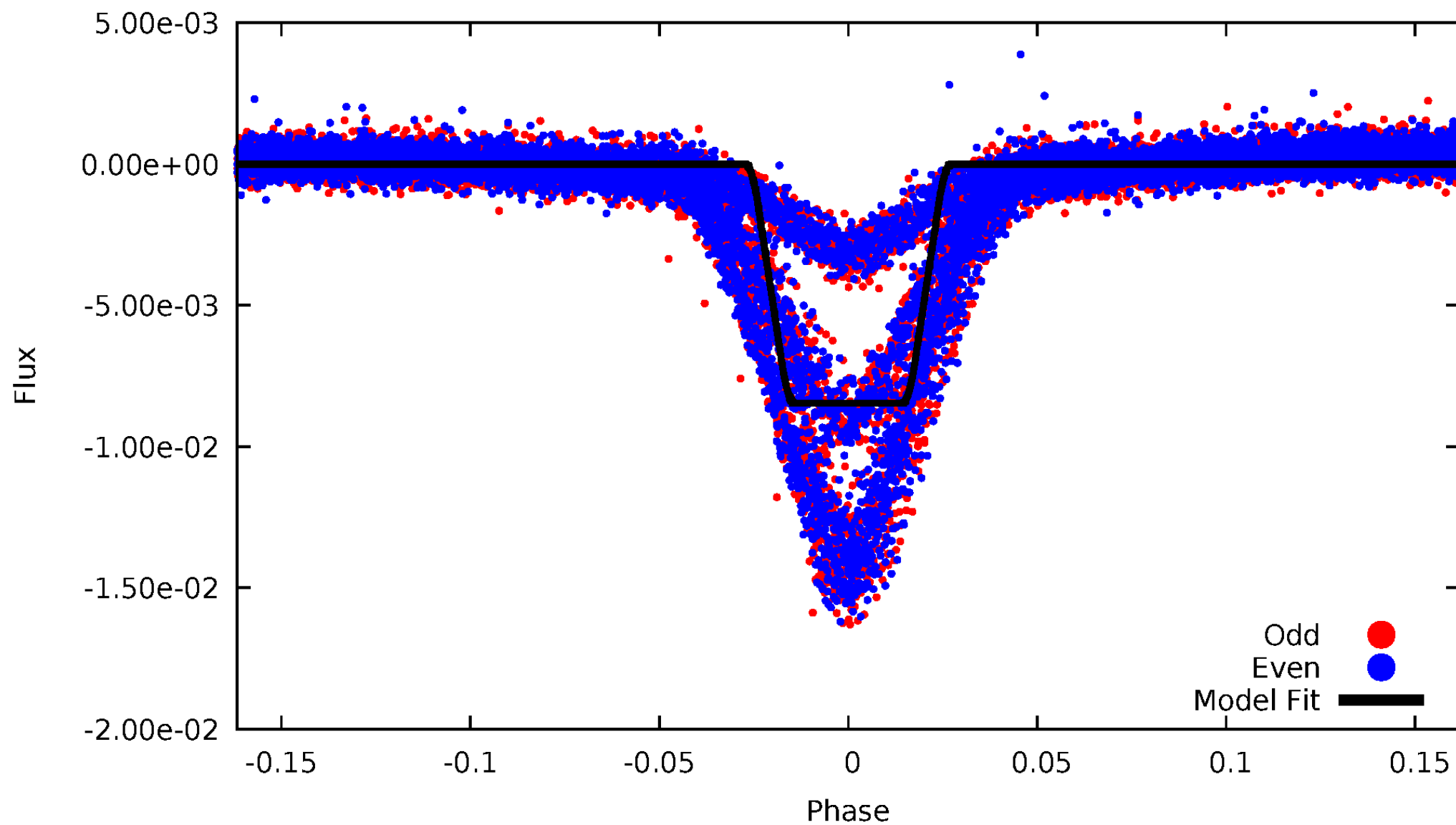
DV Odd/Even

TCE 007537945-01



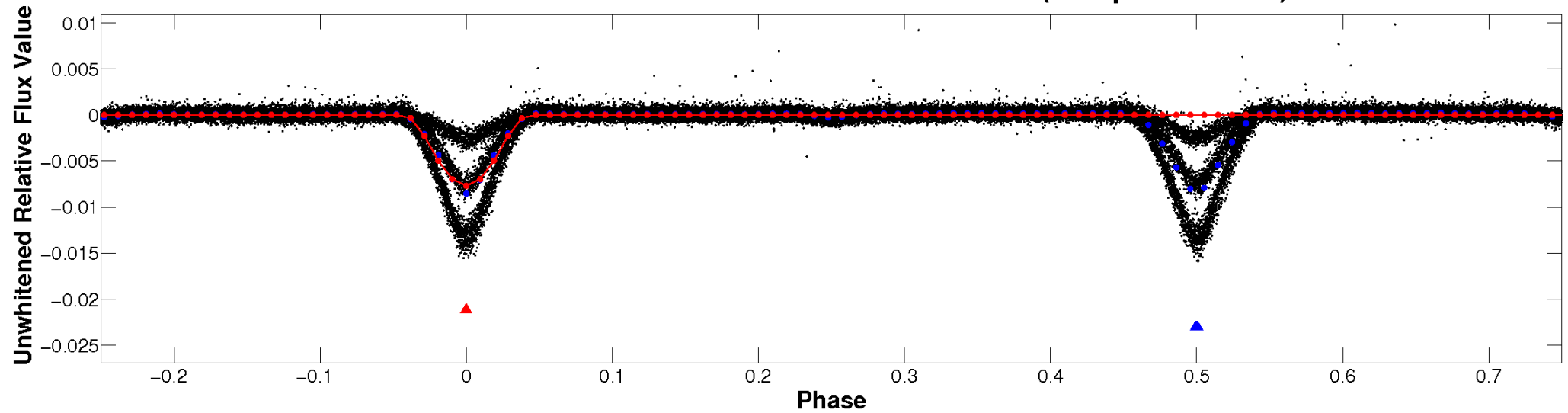
ALT Odd/Even

TCE 007537945-01

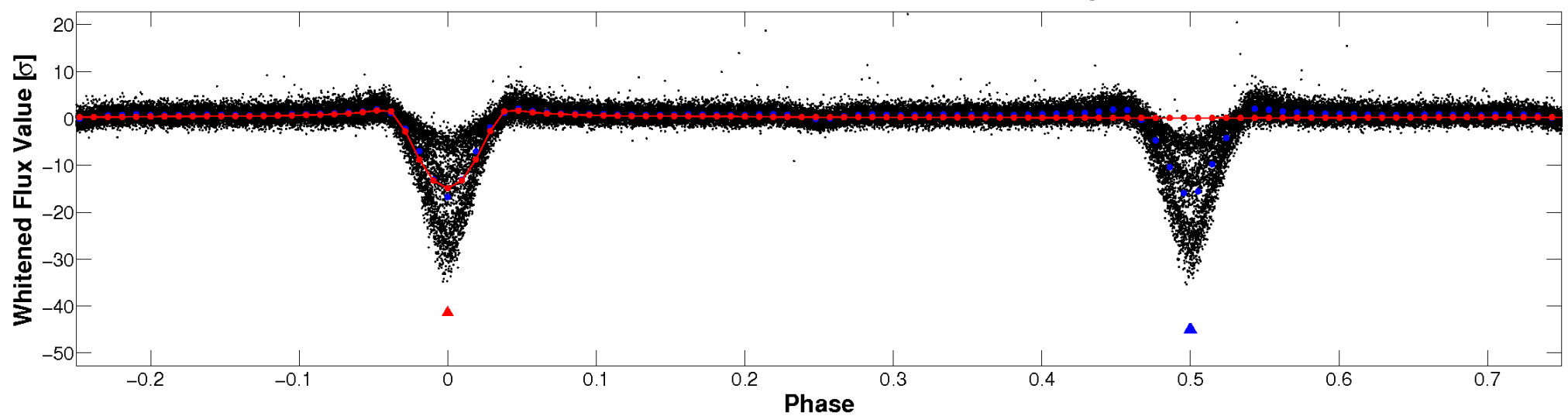


Non-Whitened Vs. Whitened Light Curve

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

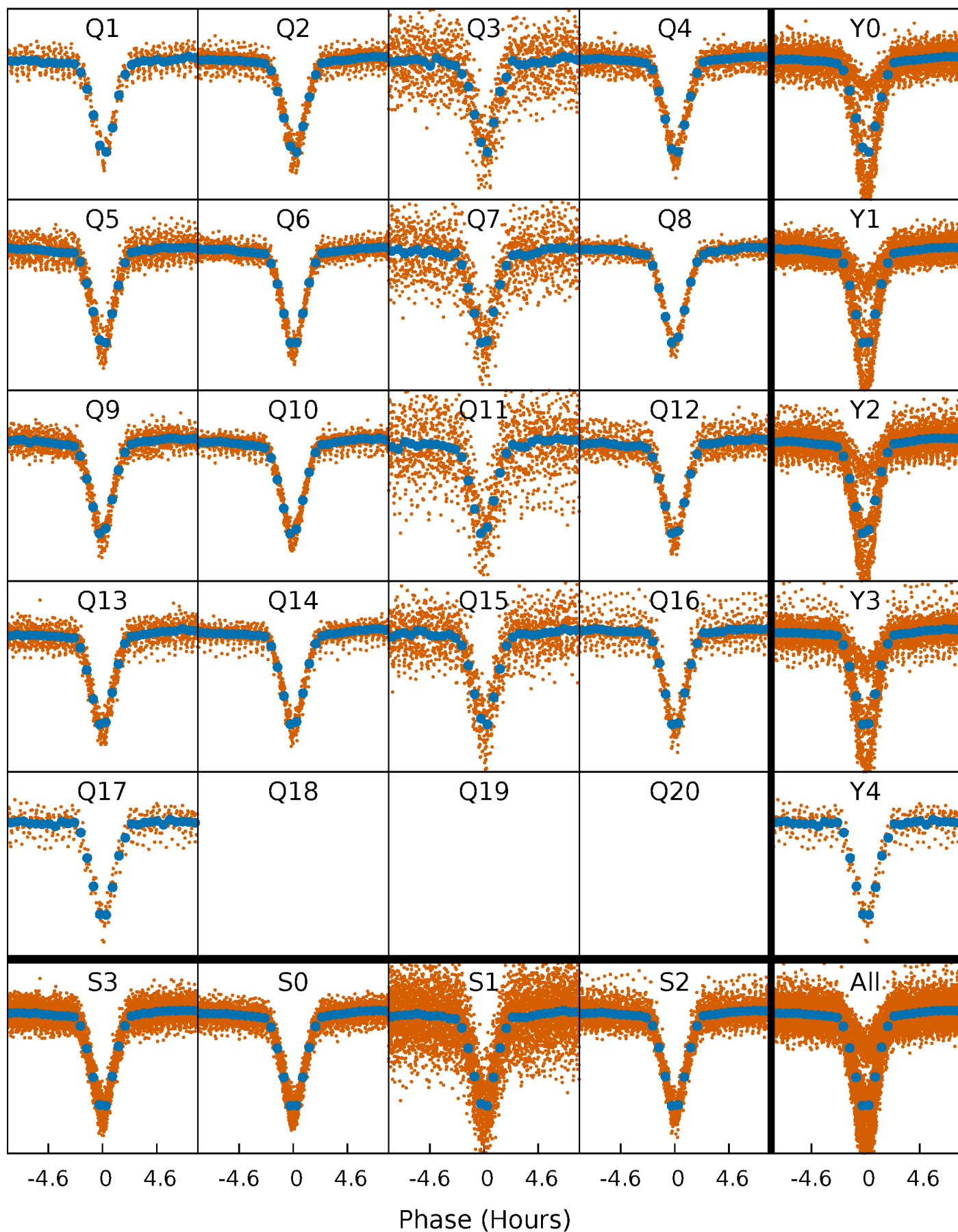


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



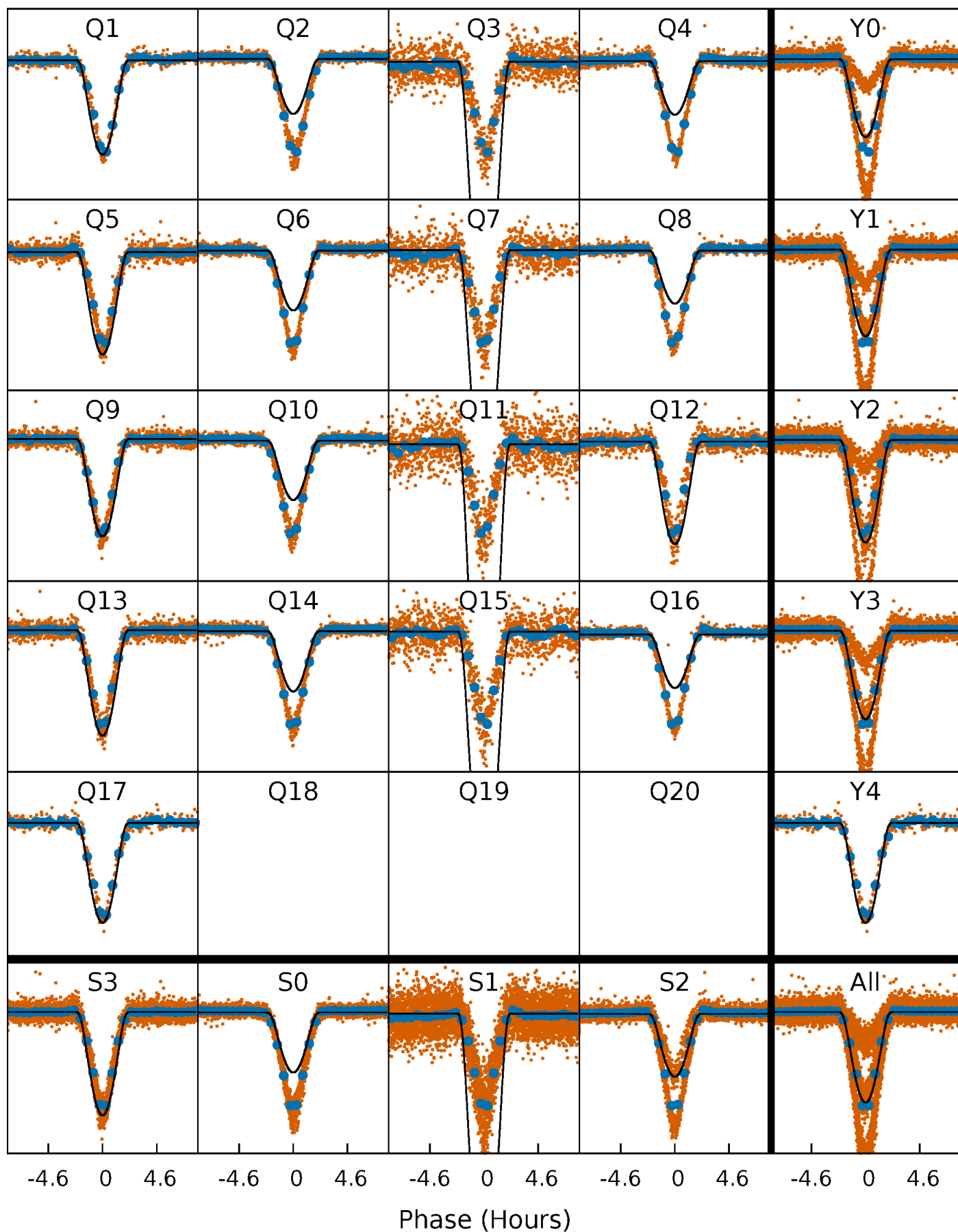
PDC Quarter-Phased Transit Curves

TCE 007537945-01 P= 2.143829 Days $T_0=132.677339$ (BKJD)



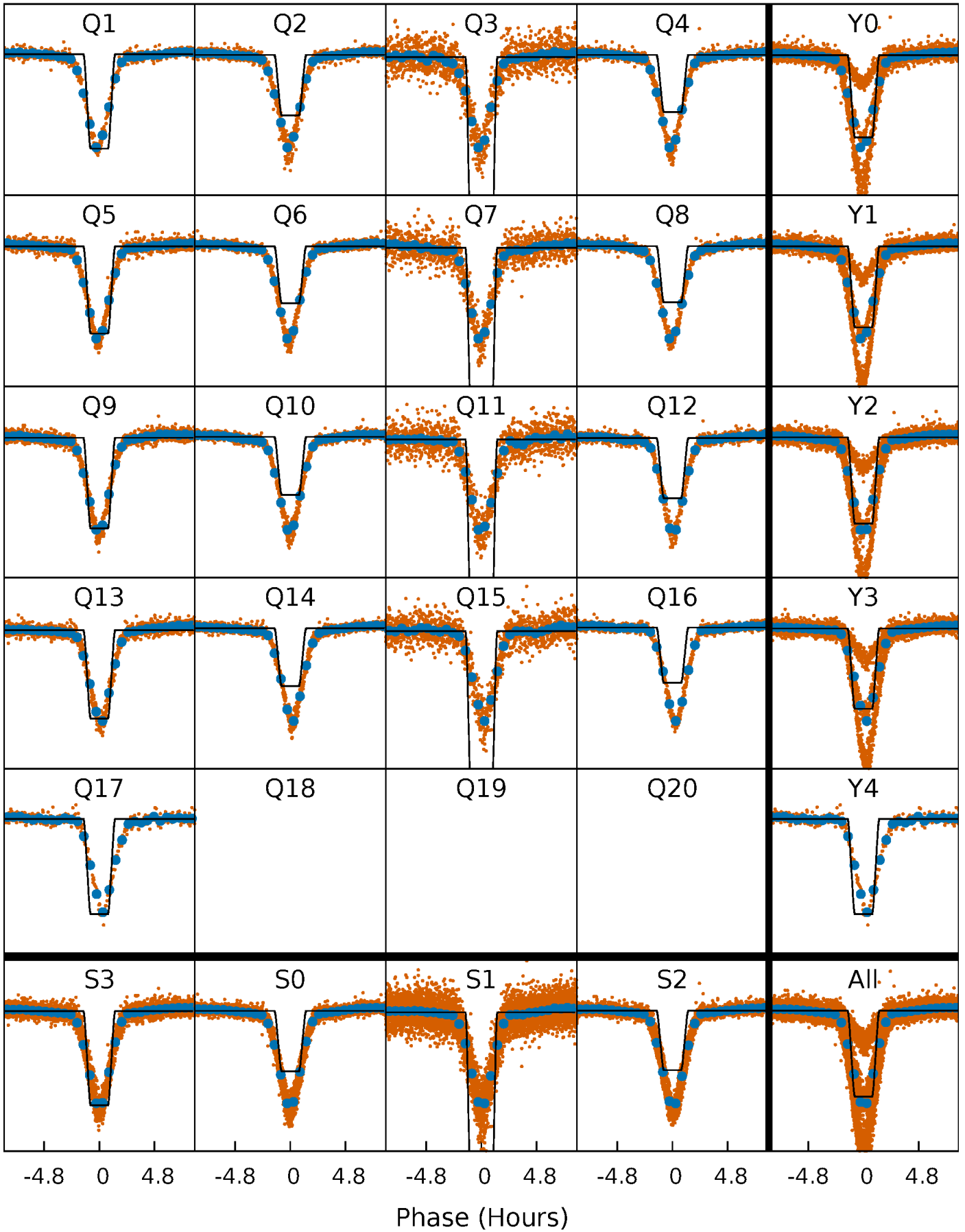
DV Quarter-Phased Transit Curves

TCE 007537945-01 P= 2.143829 Days $T_0=132.677339$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

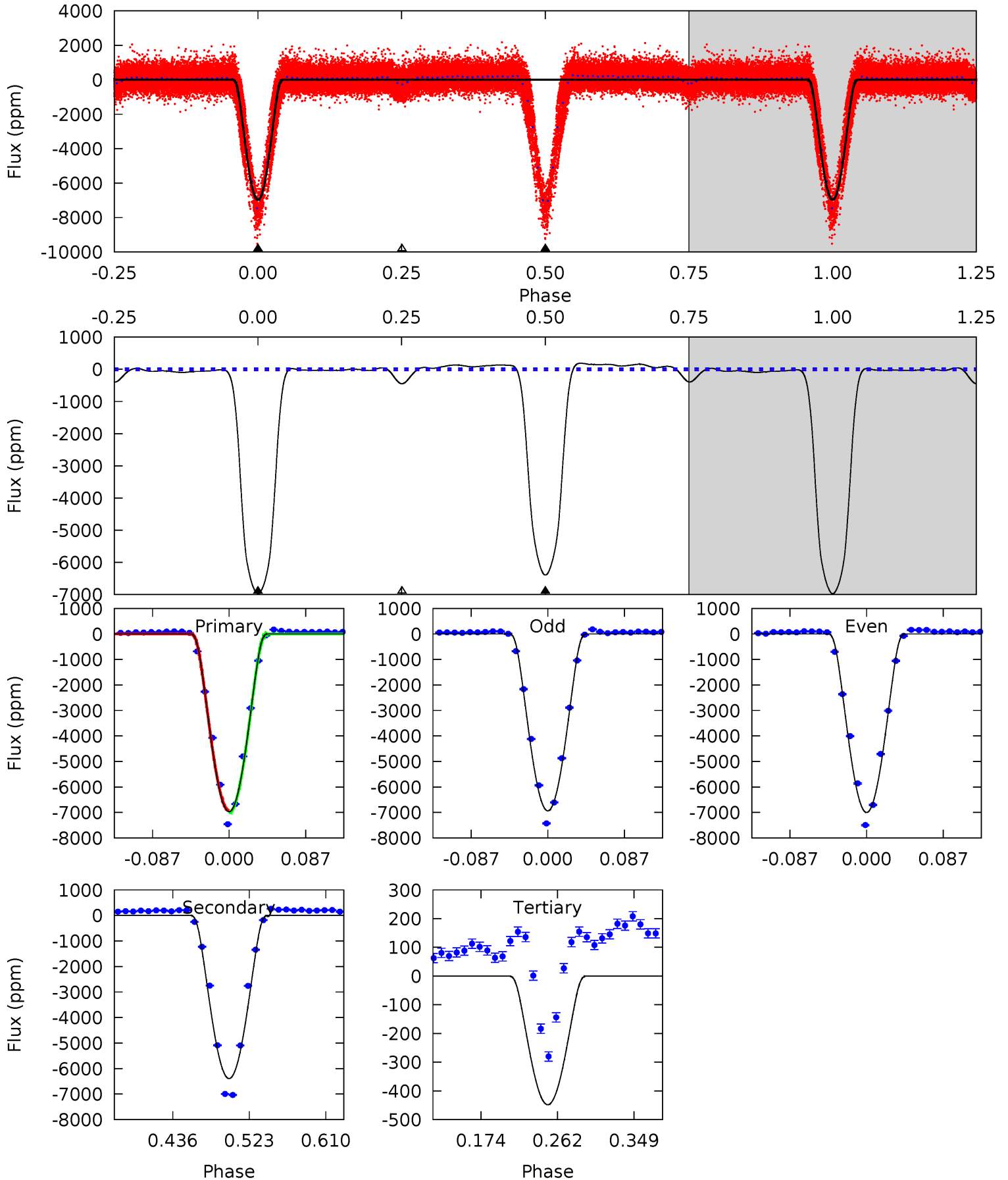
TCE 007537945-01 P= 2.143796 Days $T_0=132.688682$ (BKJD)



DV Model-Shift Uniqueness Test

007537945-01, P = 2.143829 Days, E = 130.533510 Days

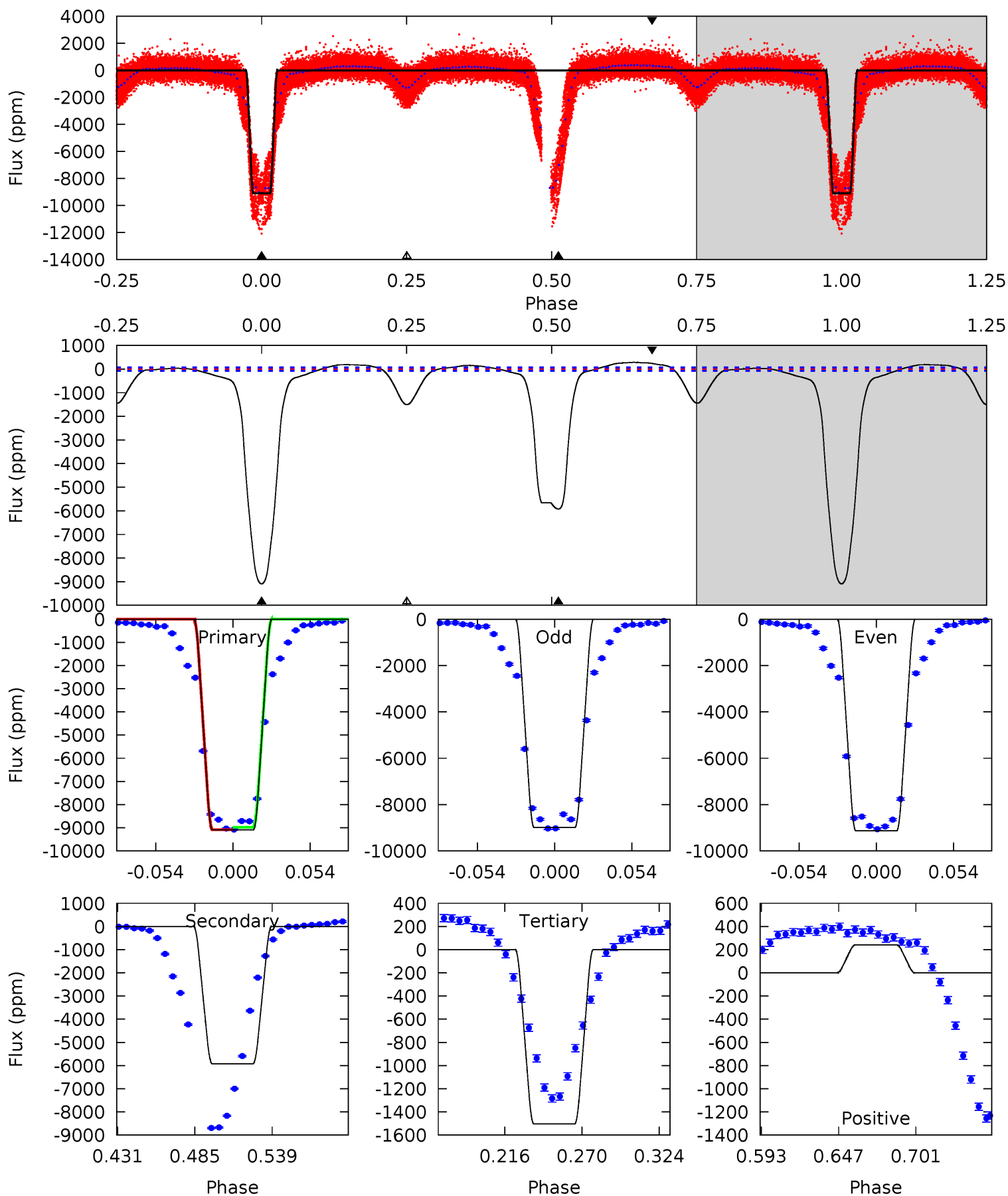
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
971.3	890.9	62.5	0	4.59	1.71	18.4	908.8	971.3	828.5	890.9	4.58	1.10	0.03	5.69



Alt Model-Shift Uniqueness Test

007537945-01, P = 2.143796 Days, E = 130.544886 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
646.1	420.9	106.8	17.1	4.69	1.93	30.1	539.3	629.0	314.1	403.7	5.09	0.99	0.03	0



Stellar Parameters For KIC 007537945

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5885^{+177}_{-177}	$4.413^{+0.144}_{-0.176}$	$-0.520^{+0.300}_{-0.300}$	$0.933^{+0.242}_{-0.162}$	$0.821^{+0.114}_{-0.061}$	$1.424^{+0.943}_{-0.701}$
	+3%/-3%	+3%/-4%	+58%/-58%	+26%/-17%	+14%/-7%	+66%/-49%
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 007537945-01 / KOI 6039.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-6392 ± 7	$15.03^{+2.75}_{-2.11}$	2021^{+149}_{-126}	4536^{+215}_{-197}	15^{+5}_{-4}
Alt.	-5923 ± 14	$9.54^{+1.86}_{-1.65}$	2018^{+138}_{-124}	5394^{+451}_{-367}	34^{+15}_{-10}

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

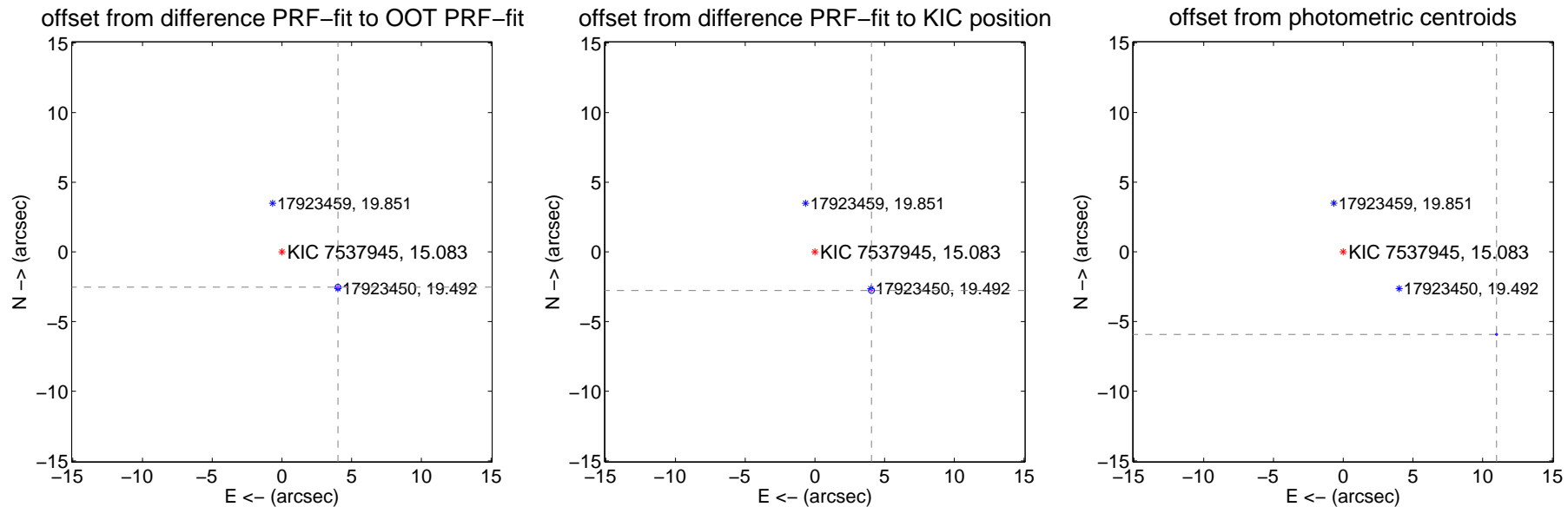
DV Centroid Data

Supplemental centroid analysis for 007537945-01. Kepler magnitude: 15.08. Transit SNR 396.86

There are 17 quarters with good PRF difference image offsets

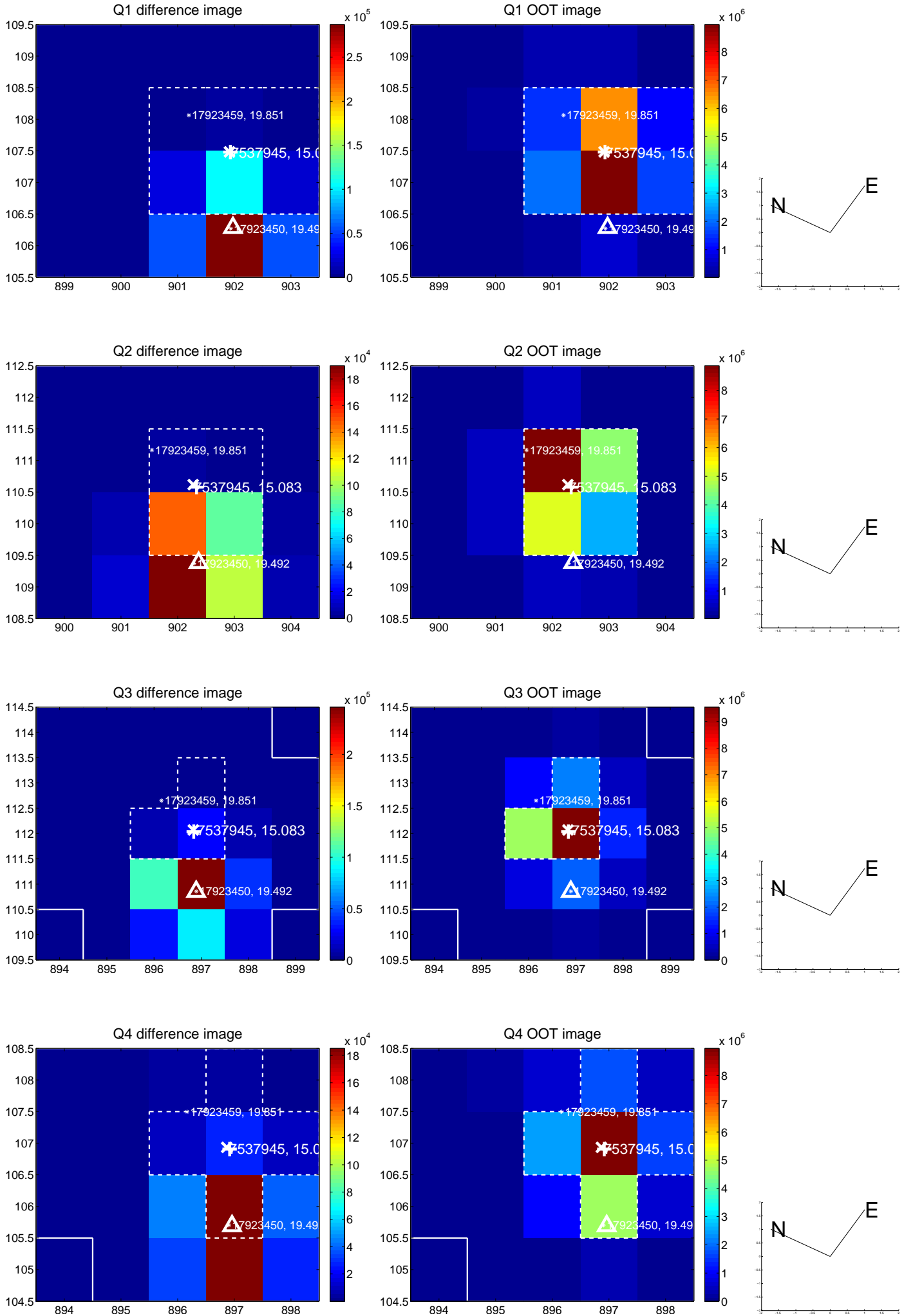
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.749 ± 0.068	70.27	-4.019 ± 0.067	-2.530 ± 0.067
PRF-fit source offset from KIC position	4.911 ± 0.069	71.50	-4.054 ± 0.067	-2.772 ± 0.072
photometric centroid source offset	12.49 ± 0.02	536.62	-11.00 ± 0.02	-5.92 ± 0.02

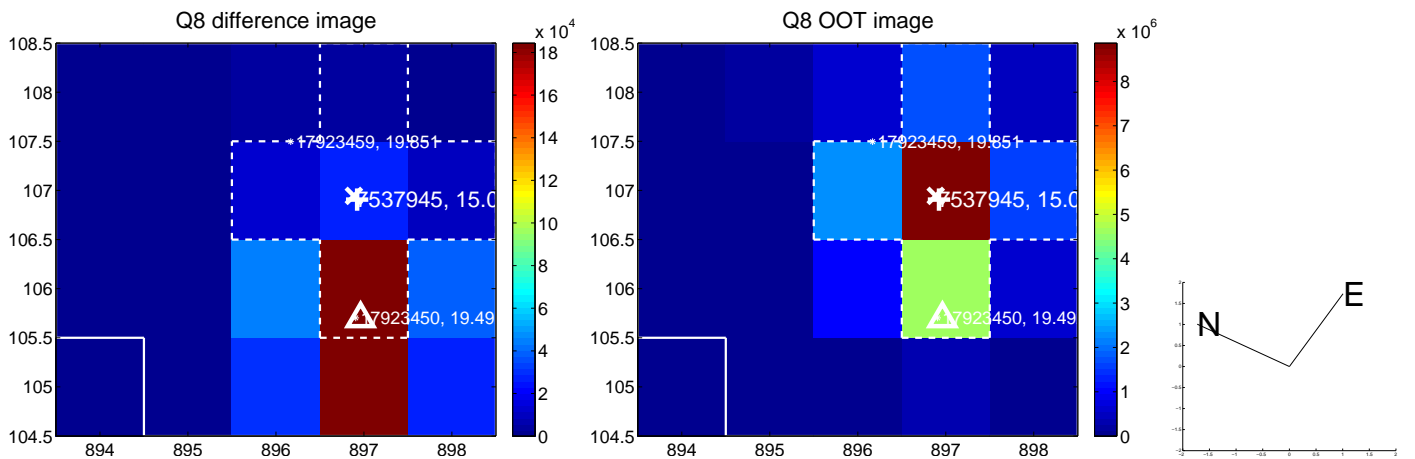
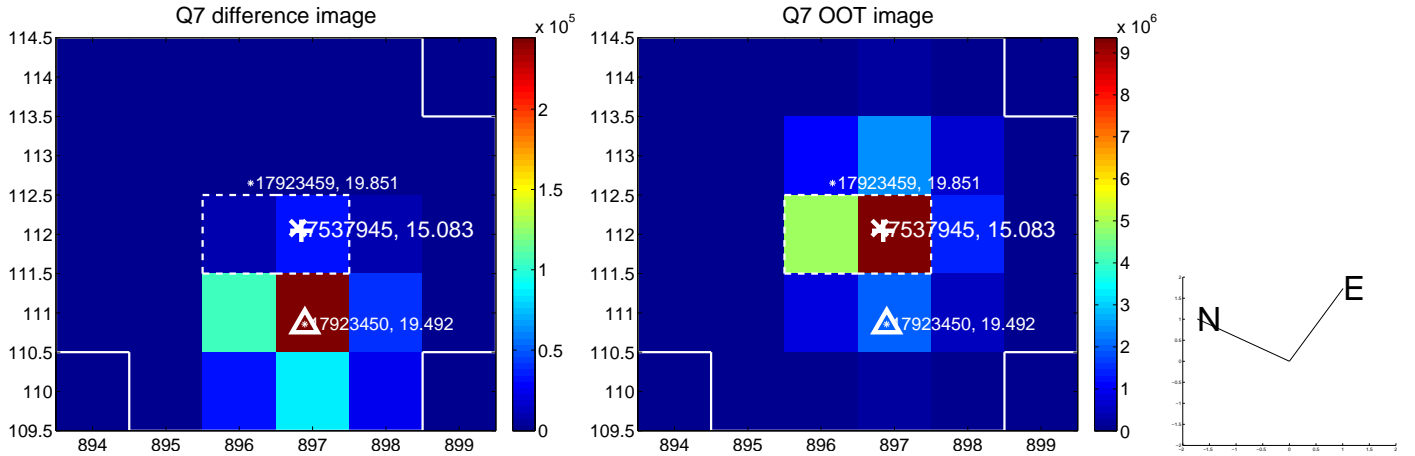
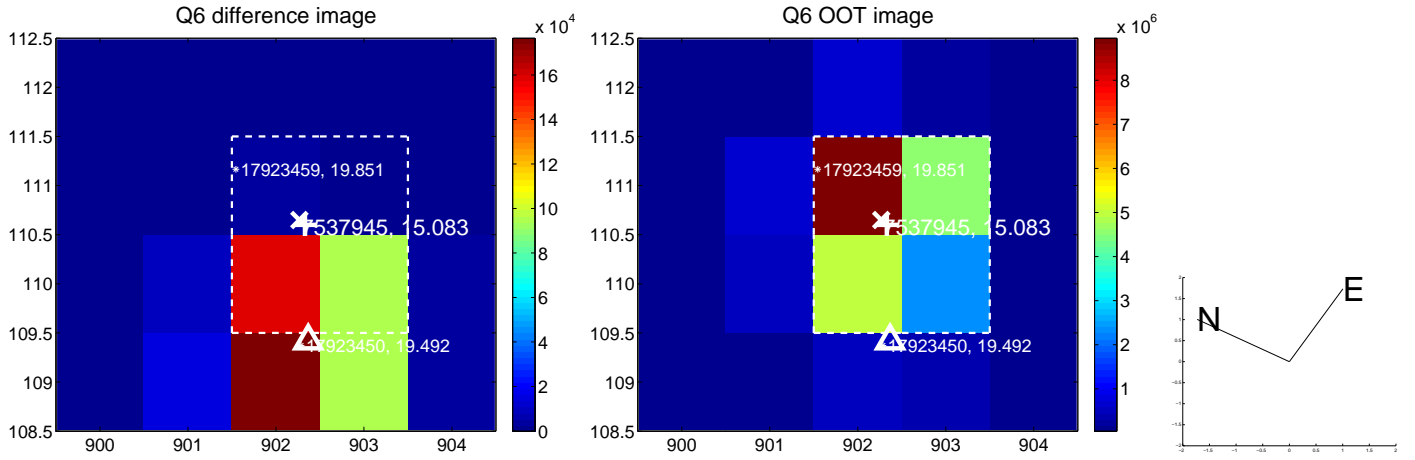
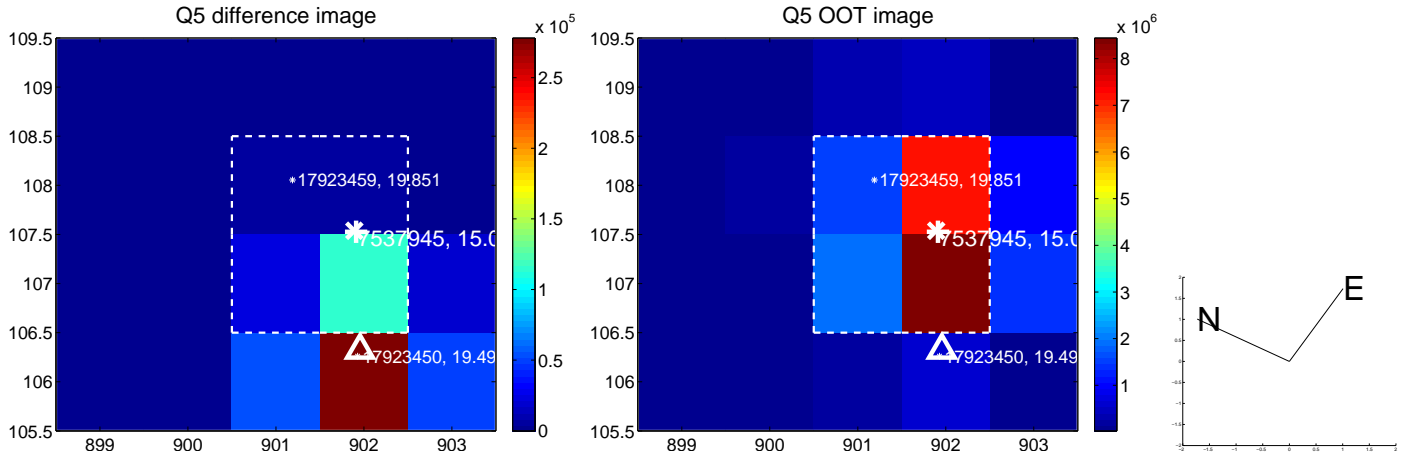


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

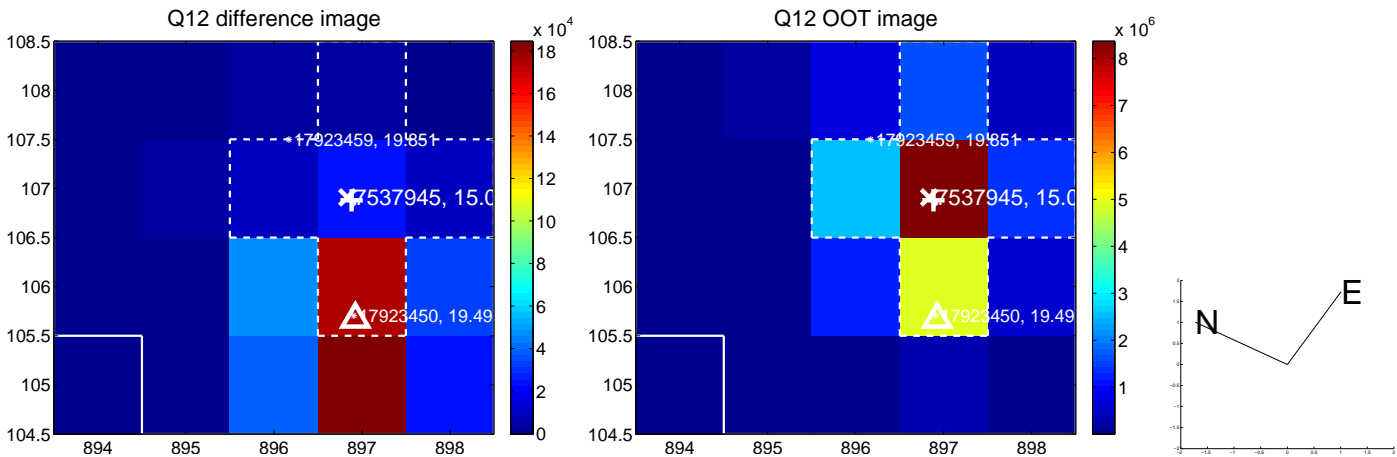
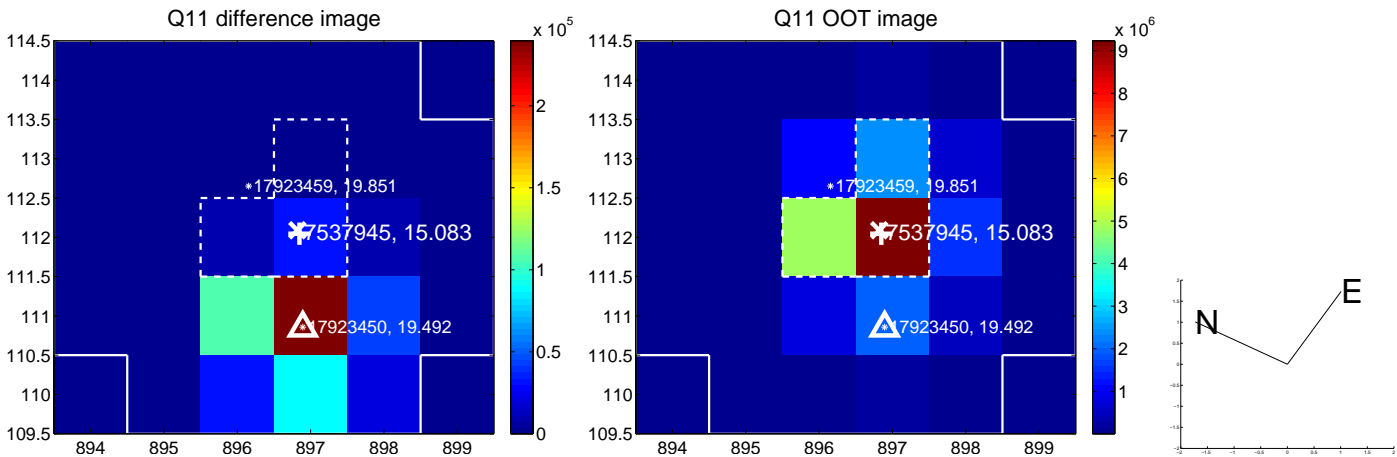
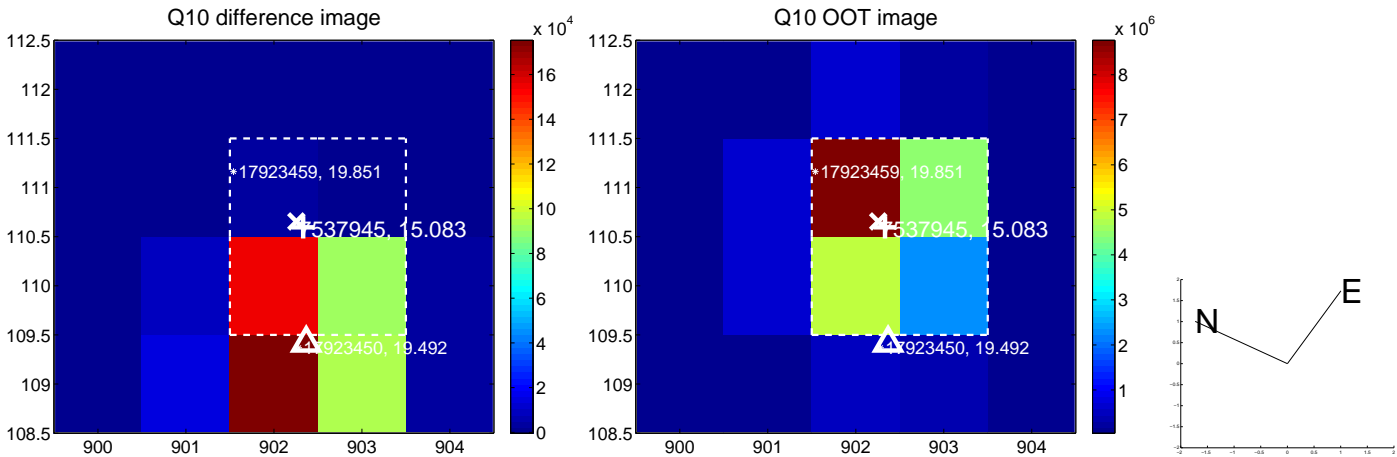
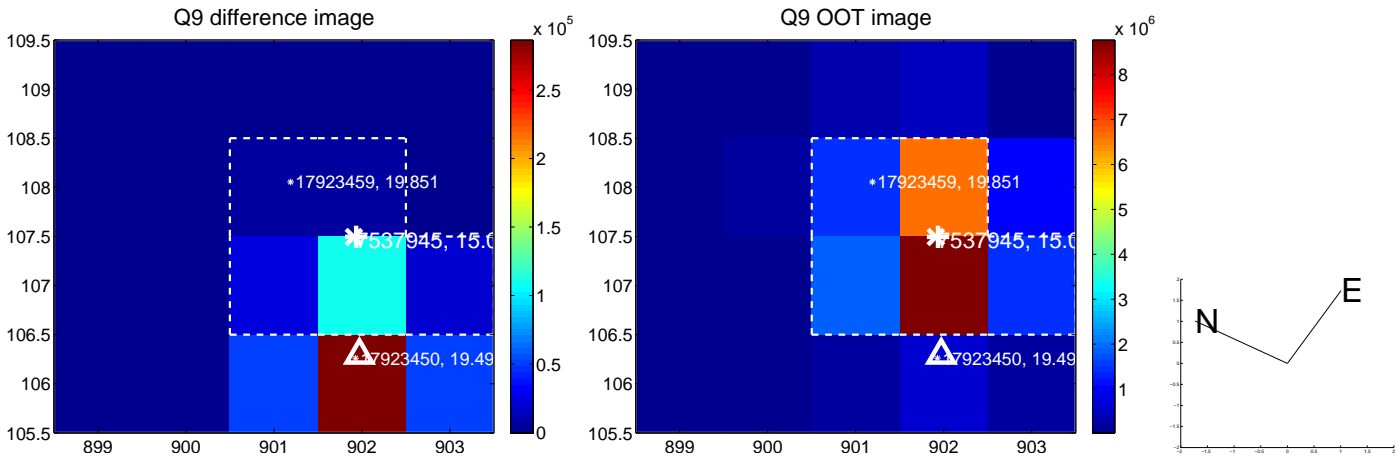
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



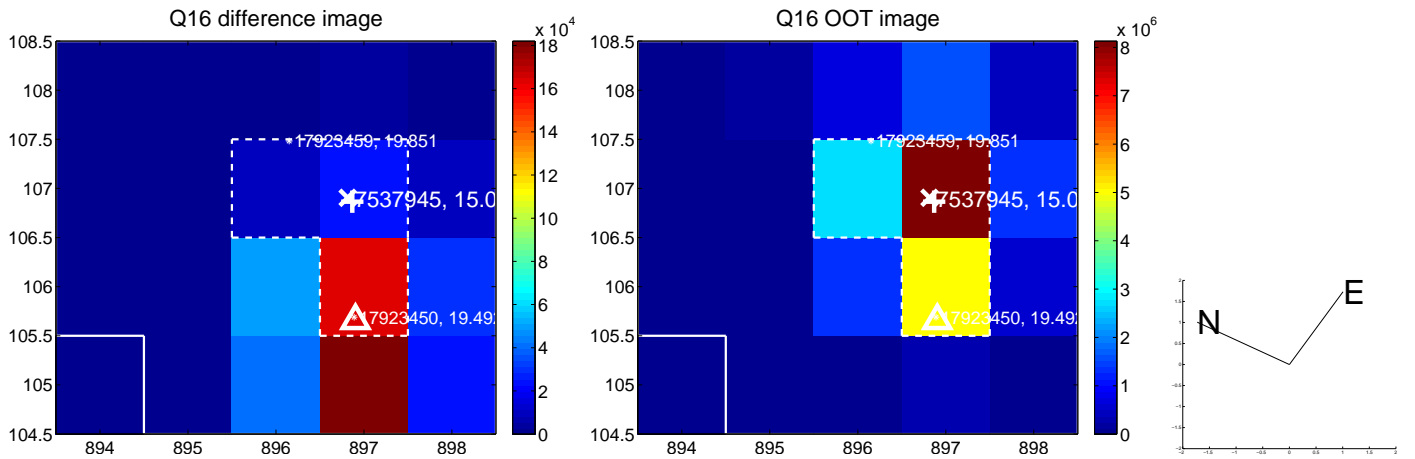
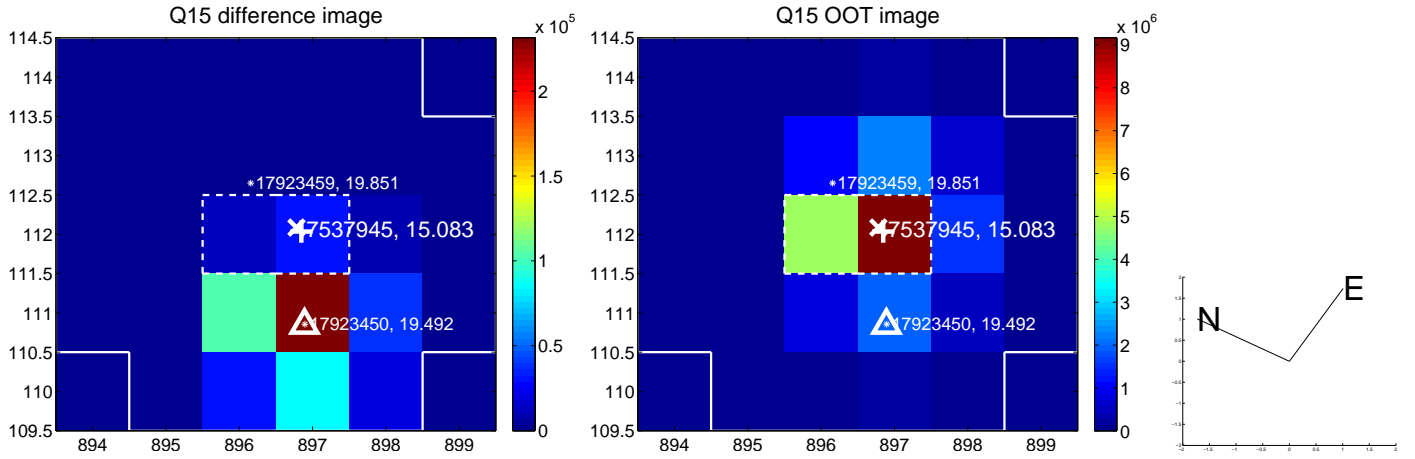
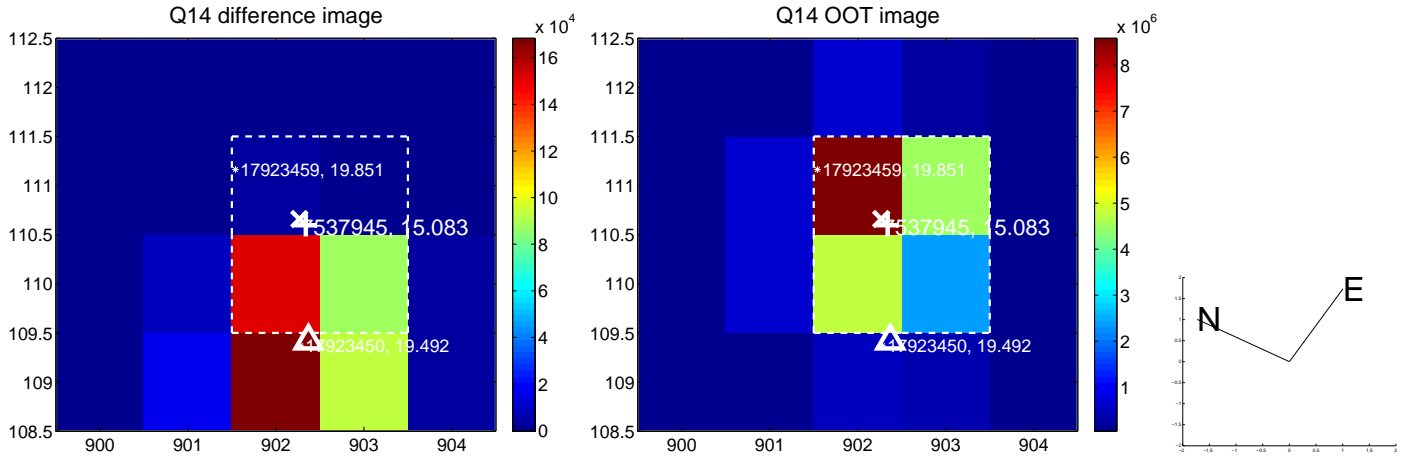
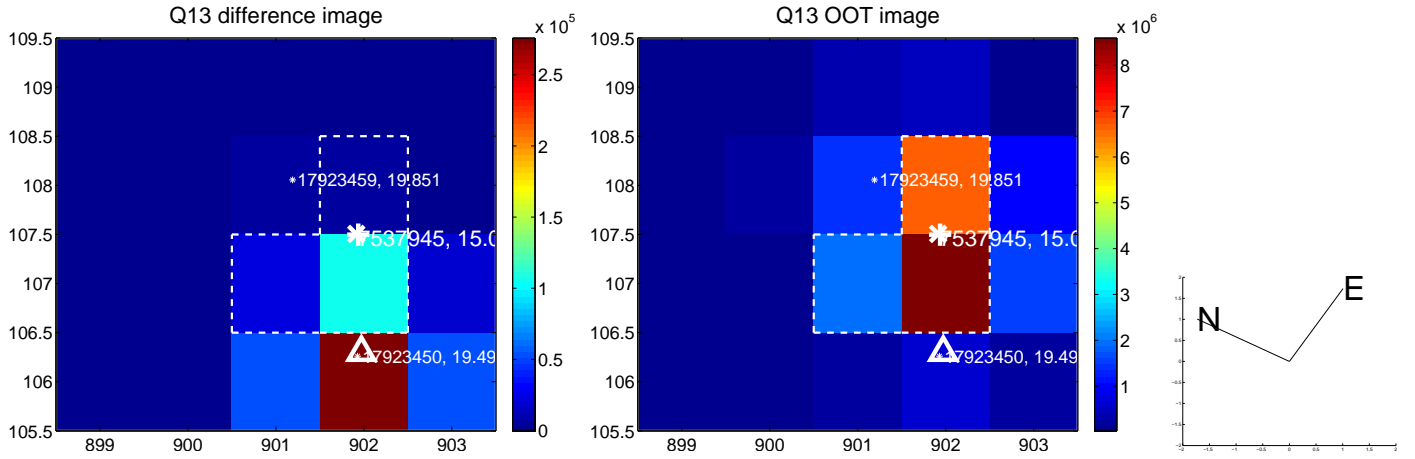
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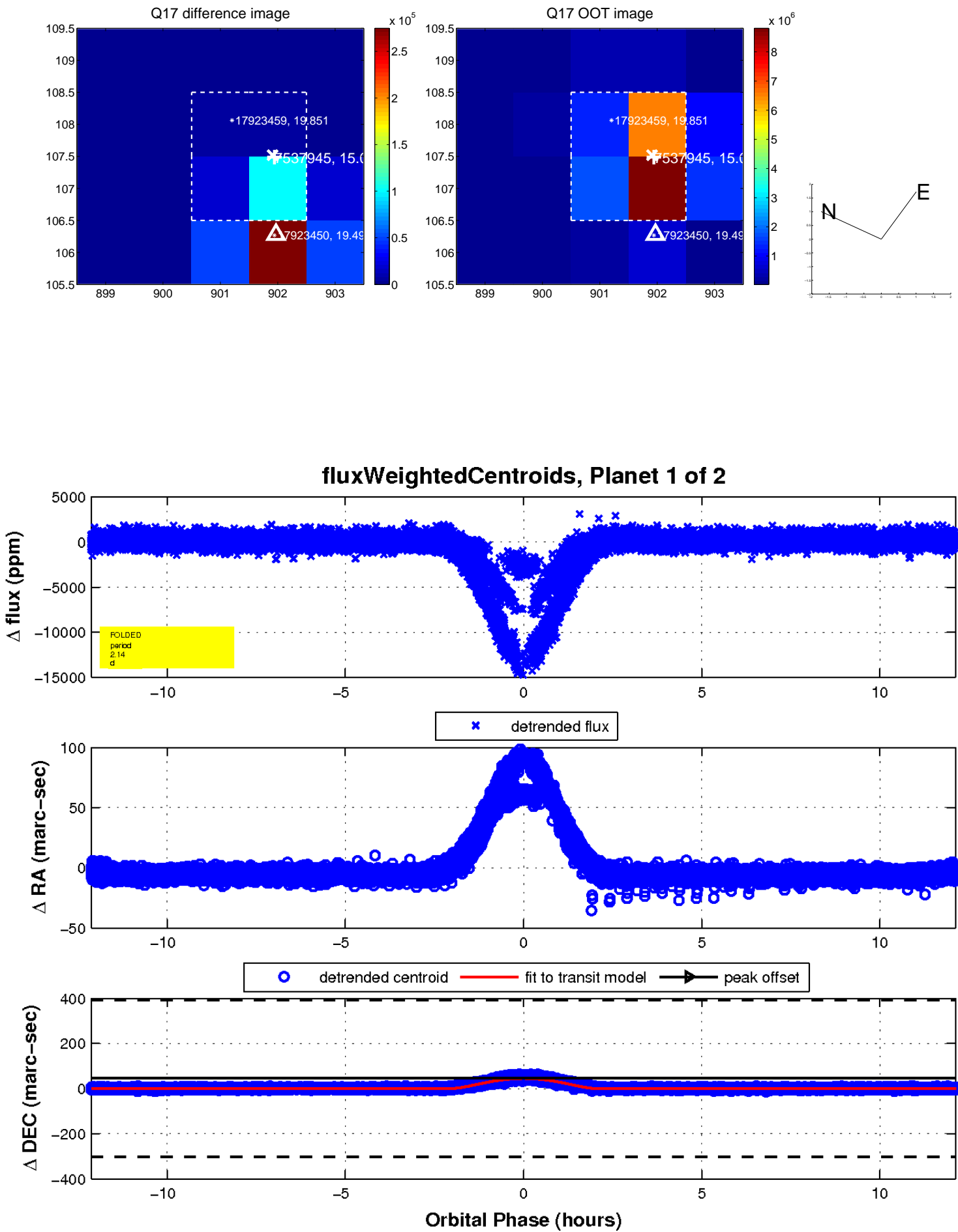
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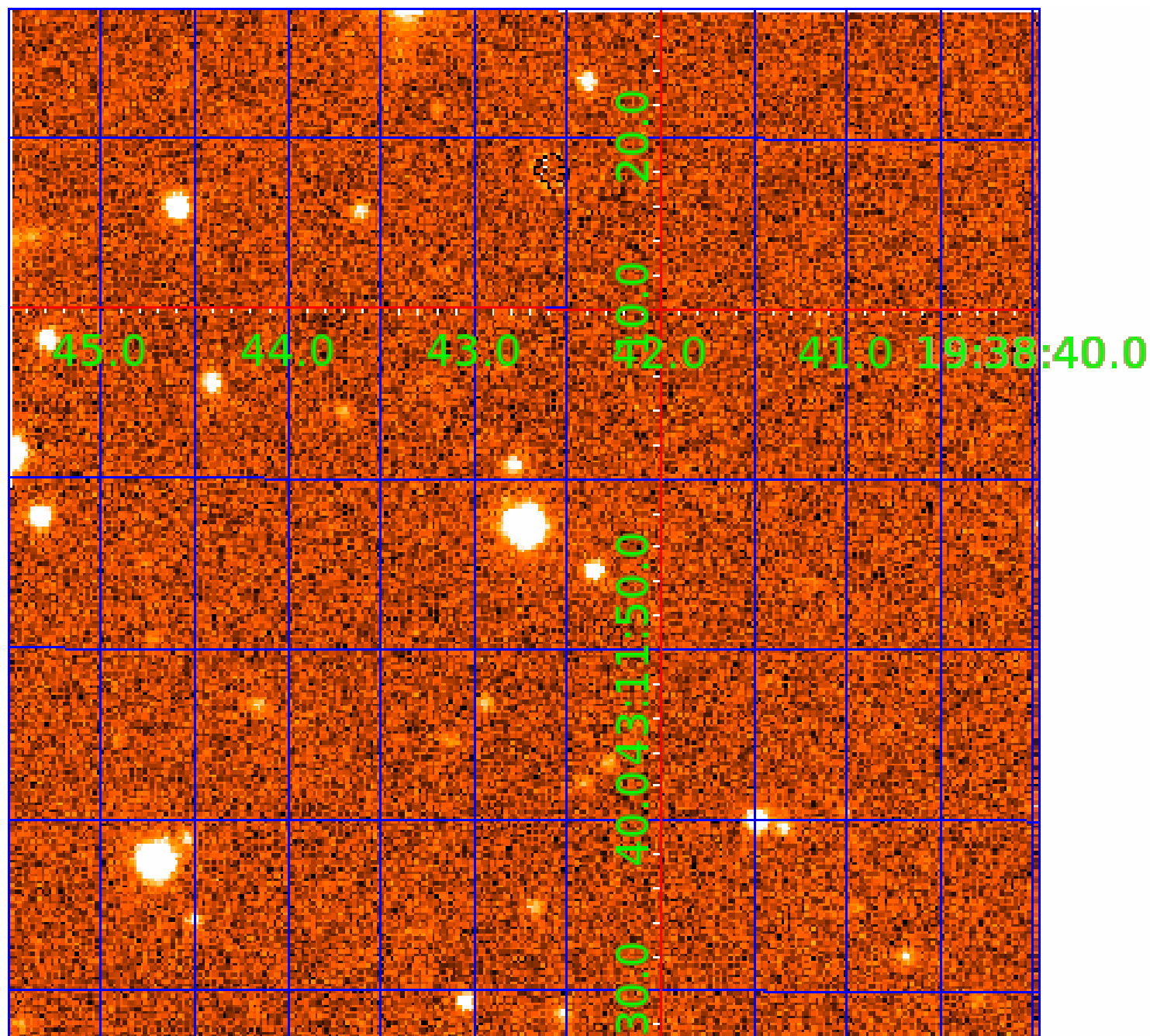


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007537945

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})
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007537945-02	OBS	No	2.143824	131.606939	7302.1	4.053	746.5	411.6	0.93	5885	14.40	1006.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007537945-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST

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.

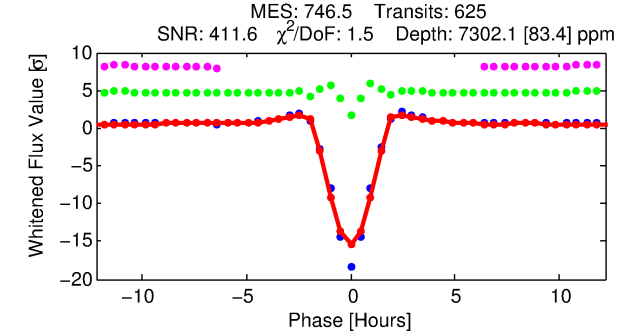
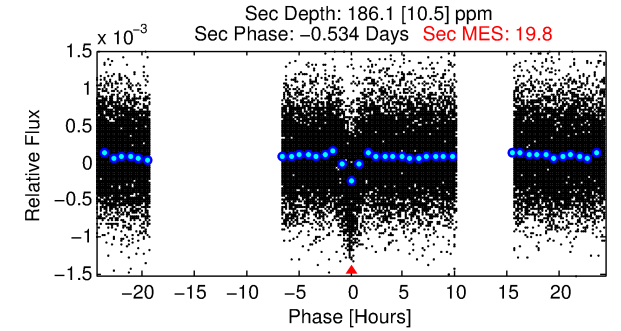
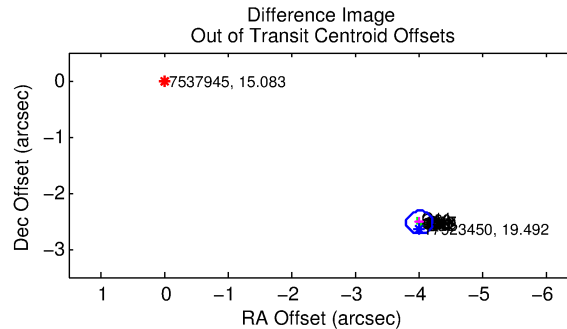
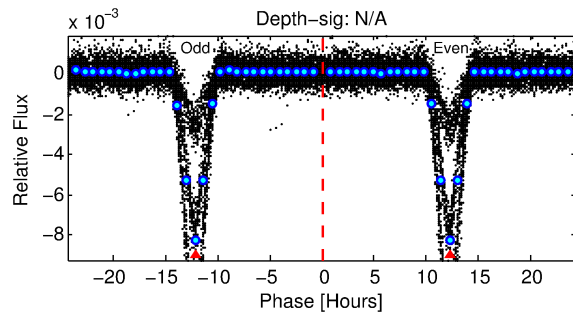
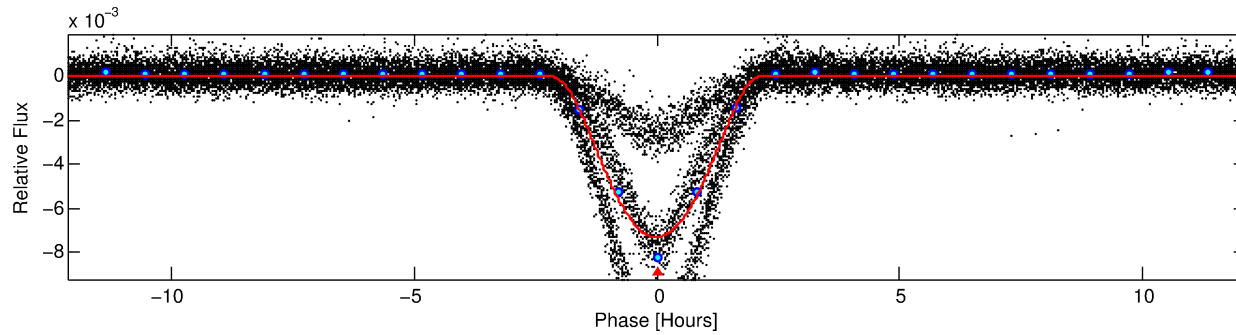
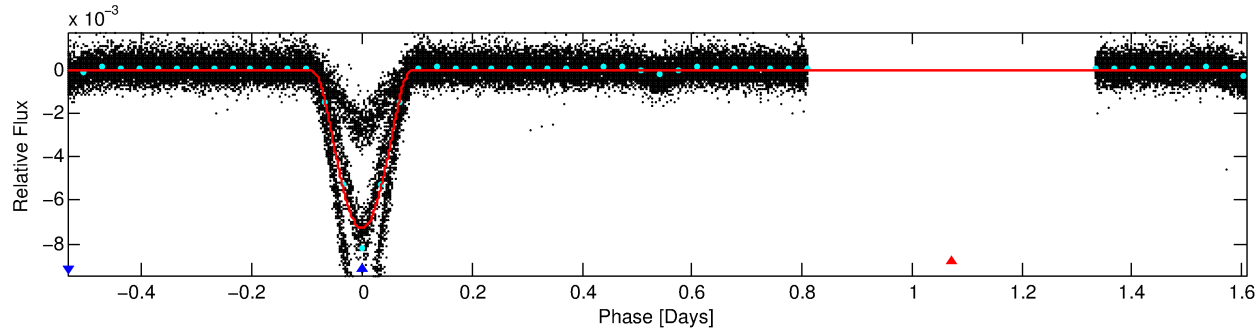
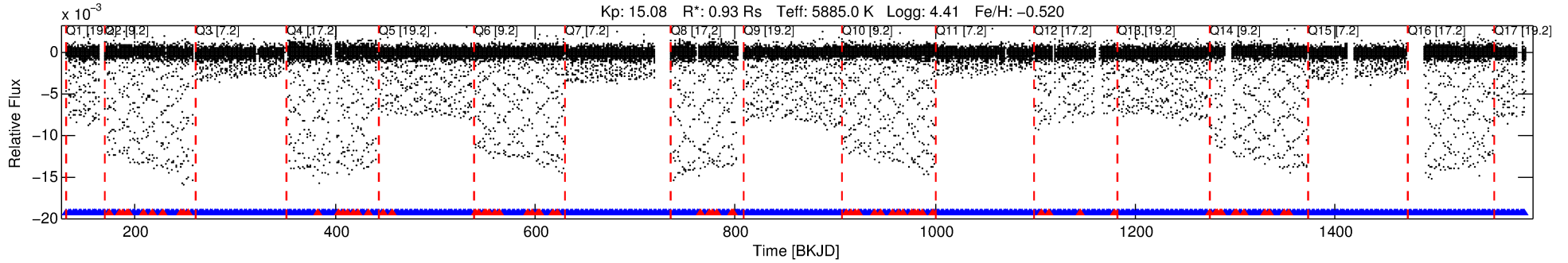
Ephemeris Match Information For 007537945-02

No Significant Match Found

DV One-Page Summary

KIC: 7537945 Candidate: 2 of 2 Period: 2.144 d
KOI: K06039 Corr: No Ephemeris Match

Kp: 15.08 R*: 0.93 Rs Teff: 5885.0 K Logg: 4.41 Fe/H: -0.520



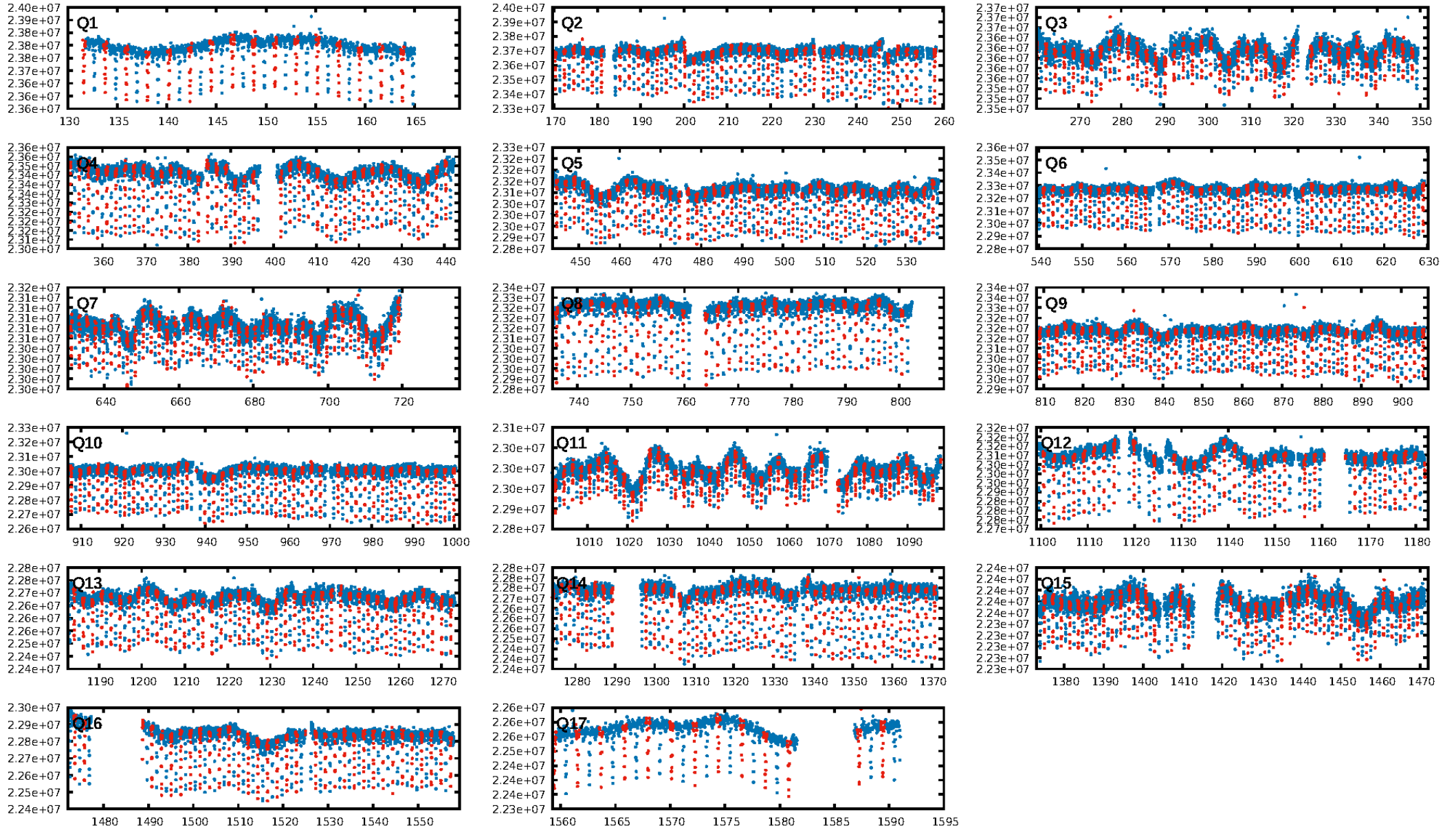
DV Fit Results:

Period = 2.14382 [0.00000] d
Epoch = 131.6069 [0.0001] BKJD
Rp/R* = 0.1414 [0.0129]
a/R* = 2.46 [0.02]
b = 1.00 [0.02]
Seff = 1006.66 [344.87]
Teq = 1436 [123] K
Rp = 14.40 [3.96] Re
a = 0.0305 [0.0067] AU
Ag = 0.46 [0.17] [-3.16σ]
Teff = 1828 [103] K [2.44σ]

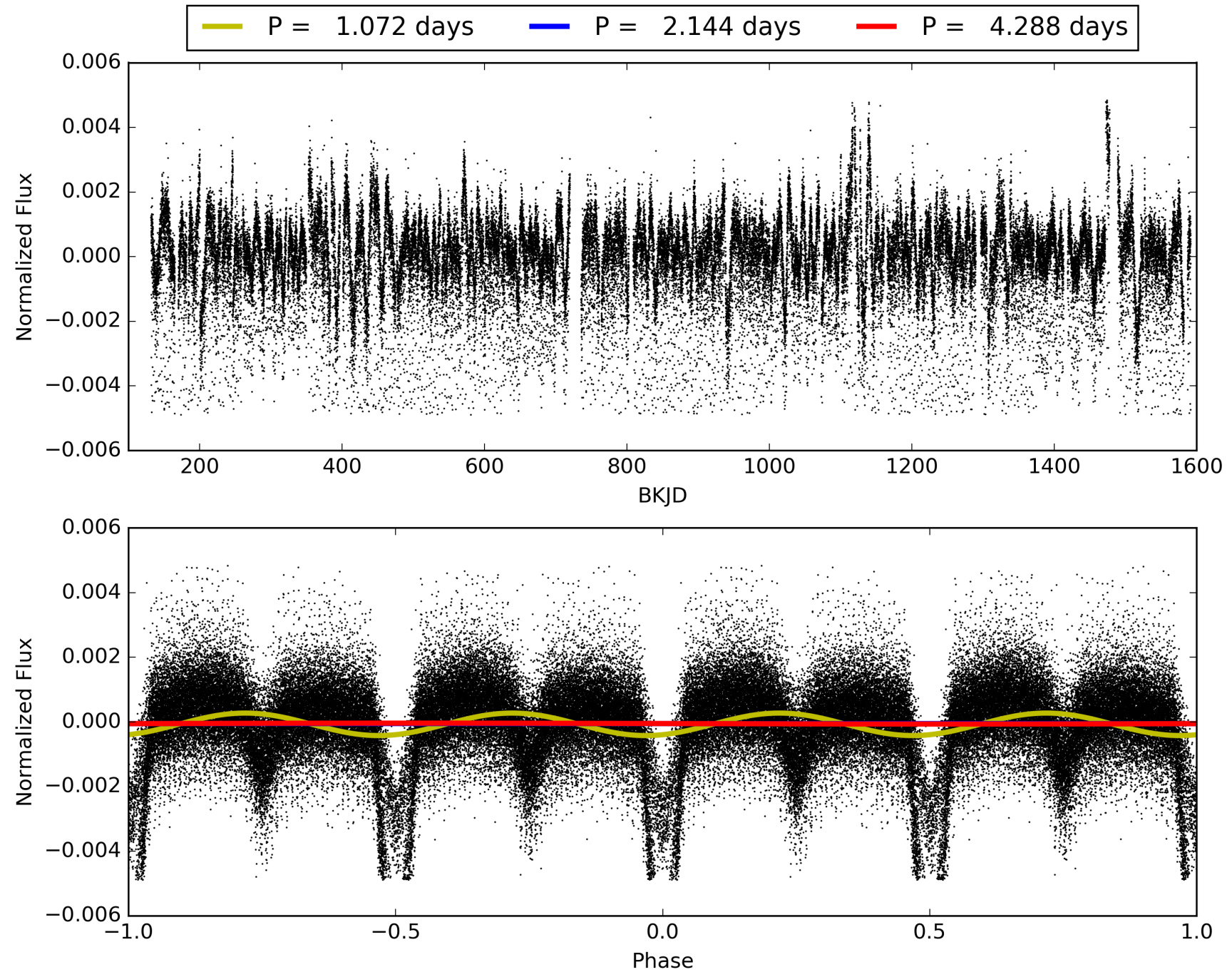
DV Diagnostic Results:

ShortPeriod-sig: N/A
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ModelChiSquare2-sig: N/A
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Bootstrap-pfa: N/A
RollingBand-fgt: 0.88 [527/596]
GhostDiagnostic-chr: 0.05163
Centroid-sig: N/A
Centroid-so: 12.891 arcsec [520.83σ]
OotOffset-rm: 4.748 arcsec [70.24σ]
KicOffset-rm: 4.912 arcsec [71.64σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007537945-02, PDC Light Curves

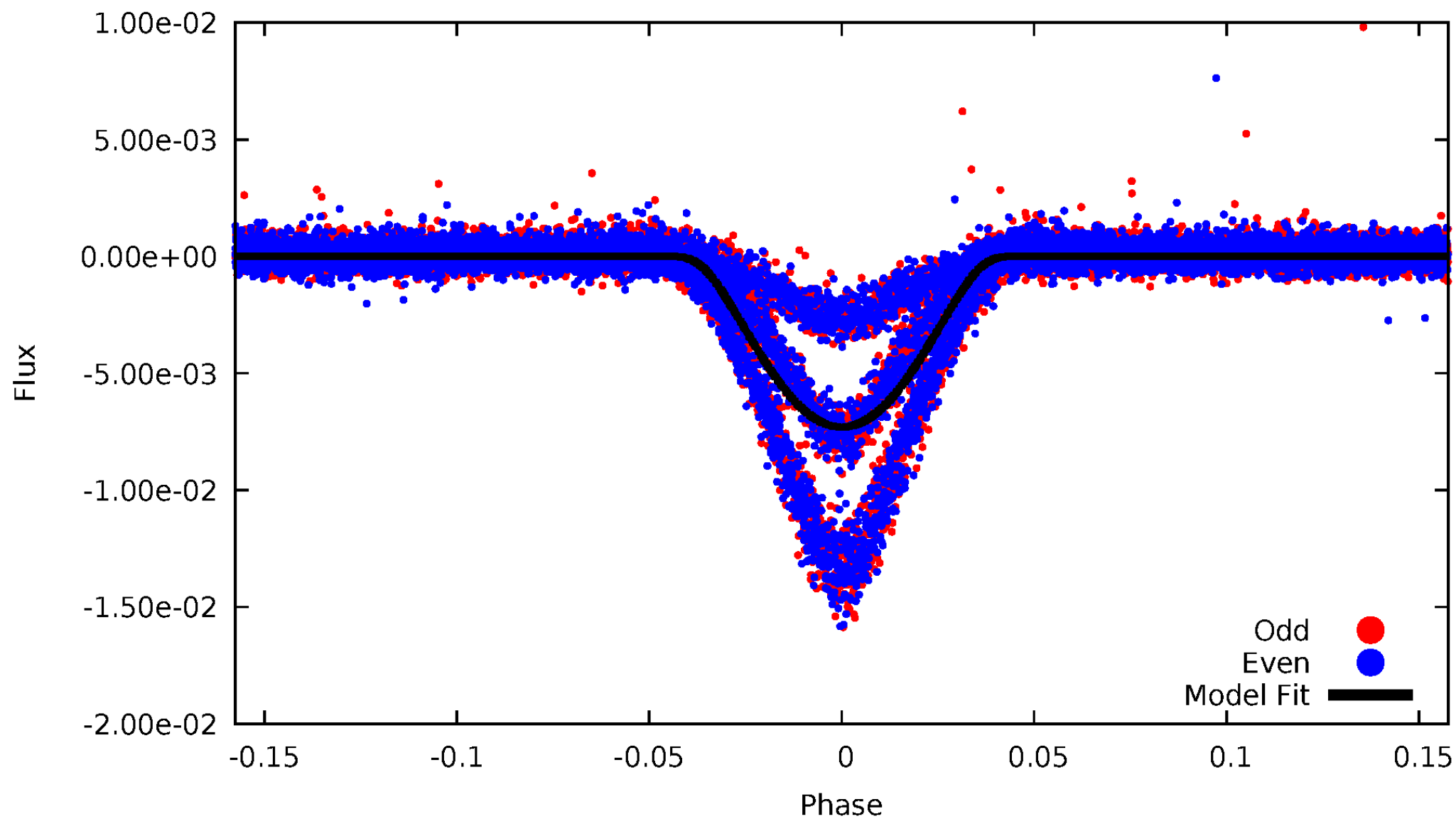


TCE 007537945-02



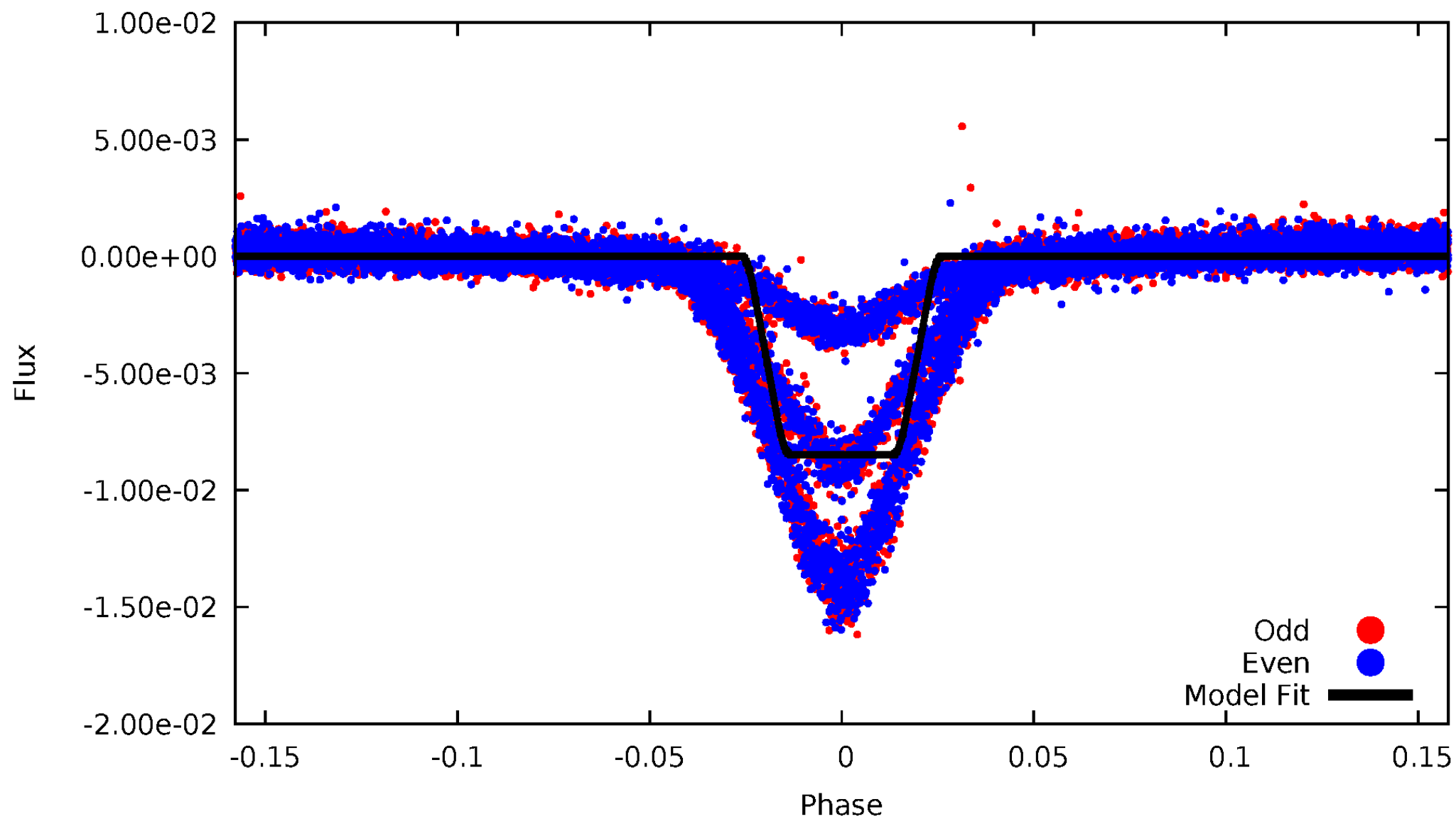
DV Odd/Even

TCE 007537945-02



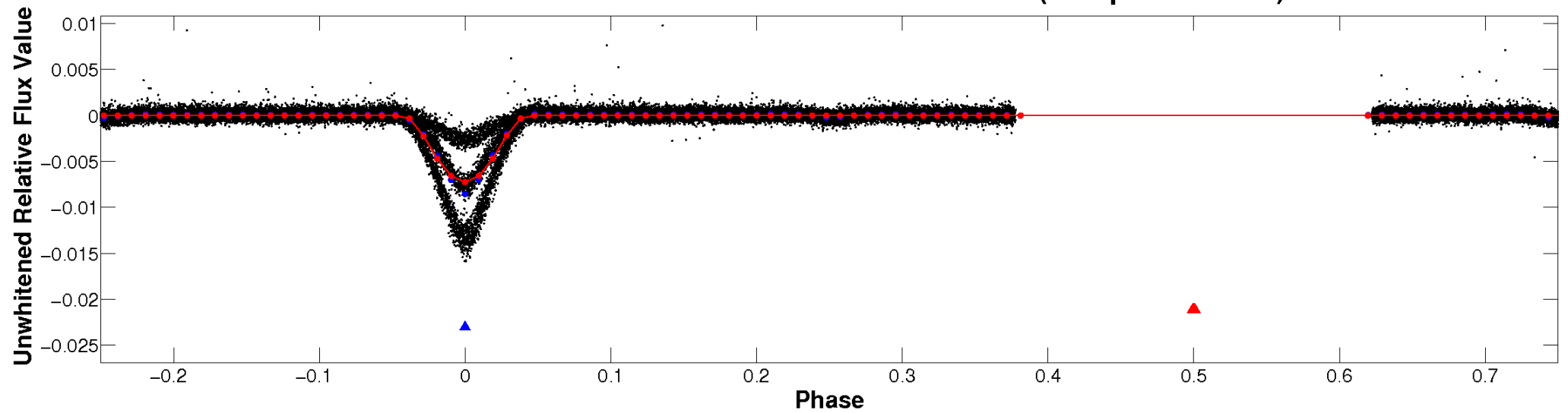
ALT Odd/Even

TCE 007537945-02

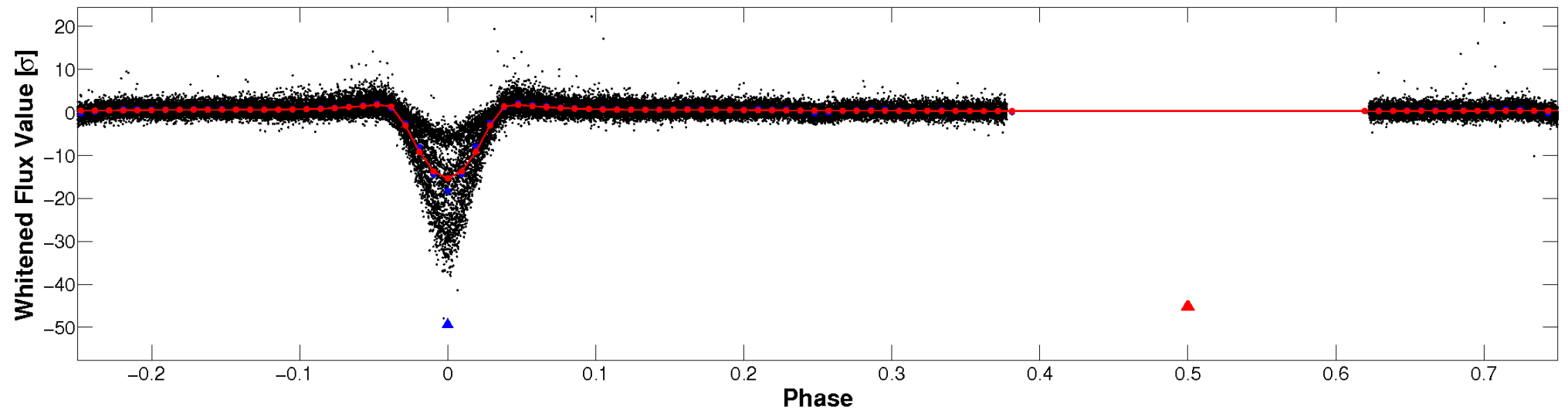


Non-Whitened Vs. Whitened Light Curve

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

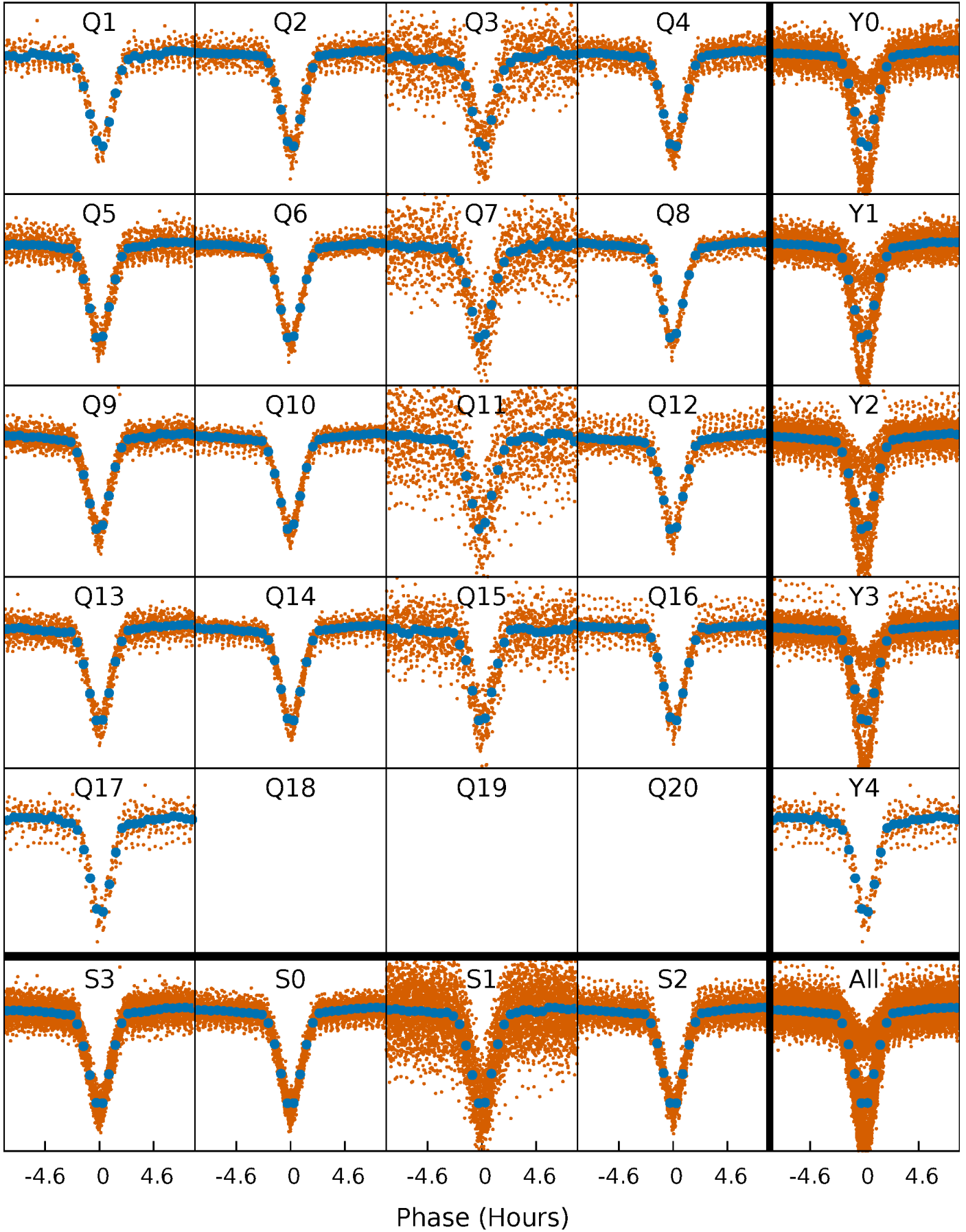


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



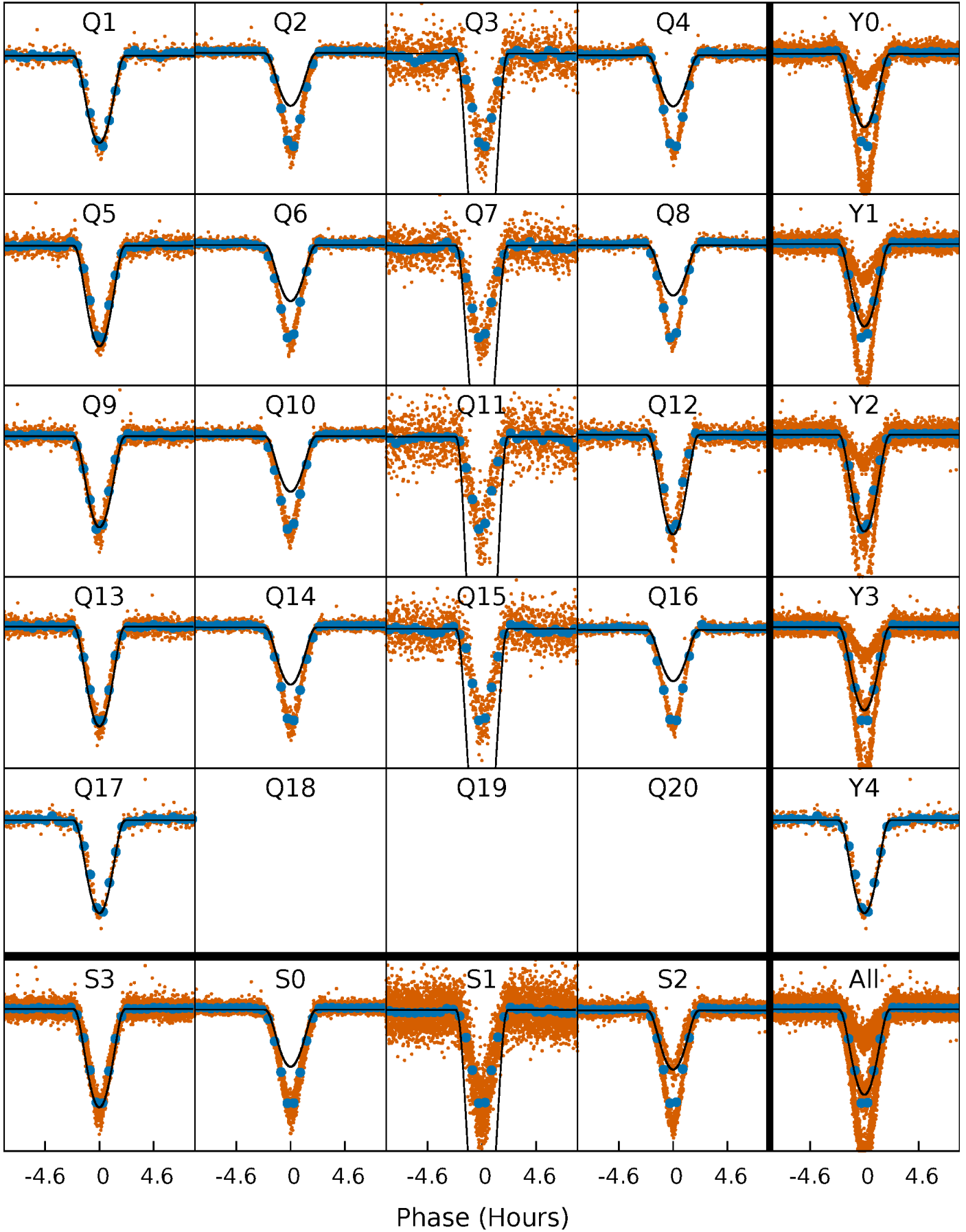
PDC Quarter-Phased Transit Curves

TCE 007537945-02 P= 2.143824 Days $T_0=131.606939$ (BKJD)



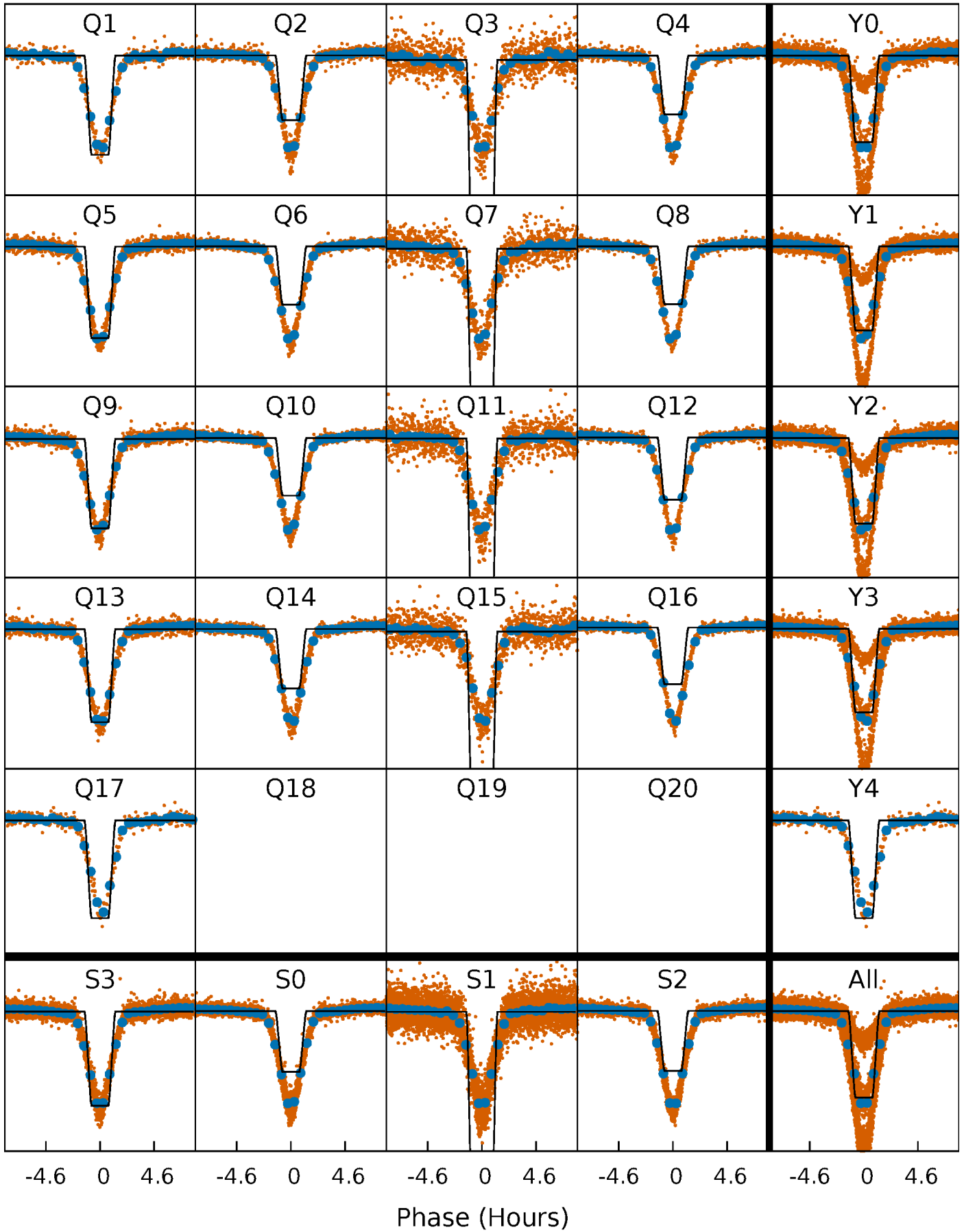
DV Quarter-Phased Transit Curves

TCE 007537945-02 P= 2.143824 Days $T_0=131.606939$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

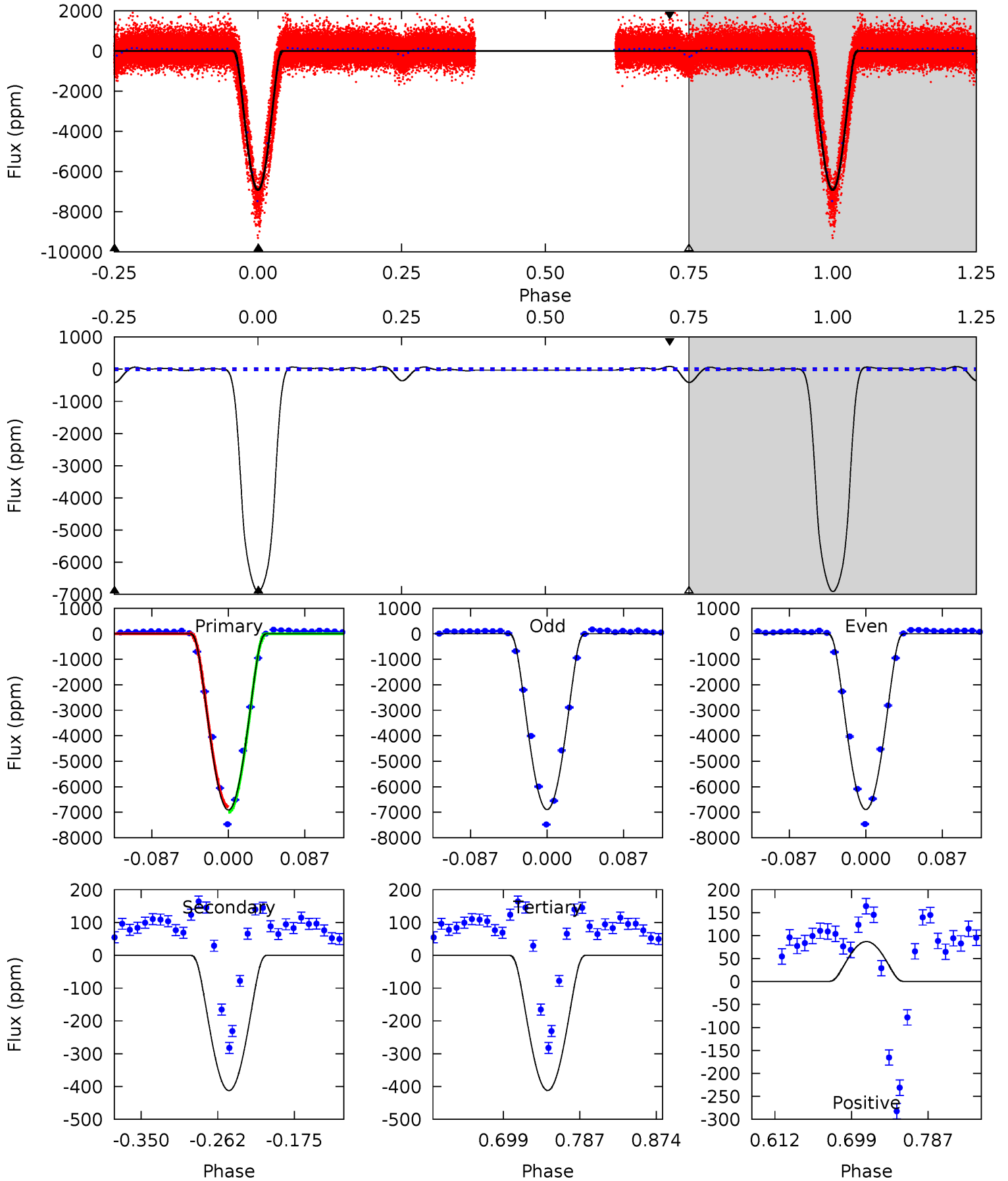
TCE 007537945-02 P= 2.143817 Days $T_0=131.609770$ (BKJD)



DV Model-Shift Uniqueness Test

007537945-02, P = 2.143824 Days, E = 129.463115 Days

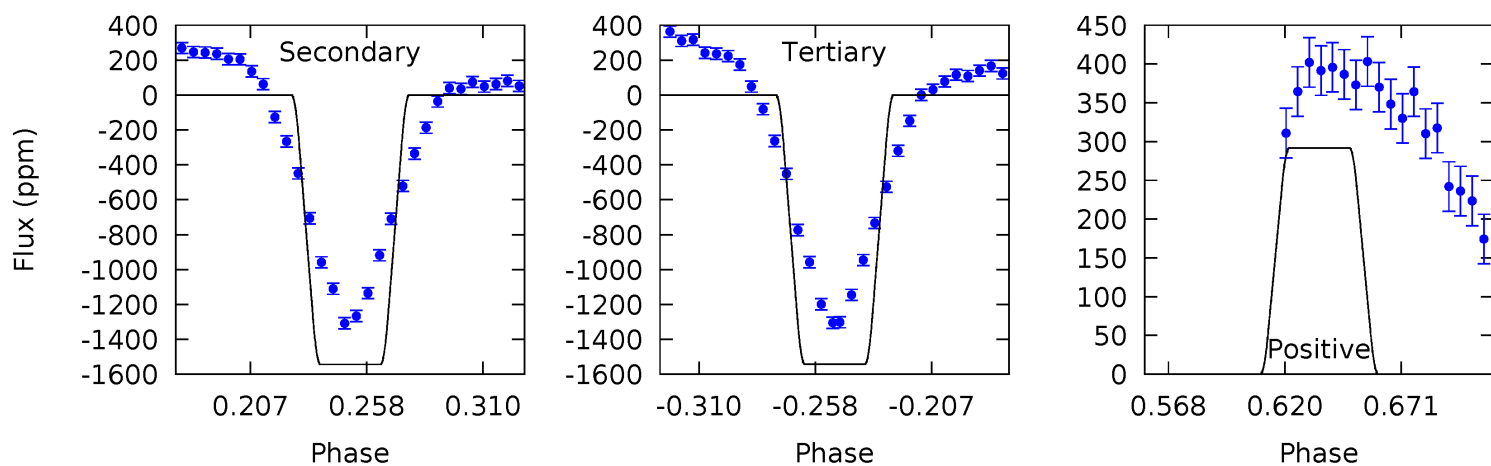
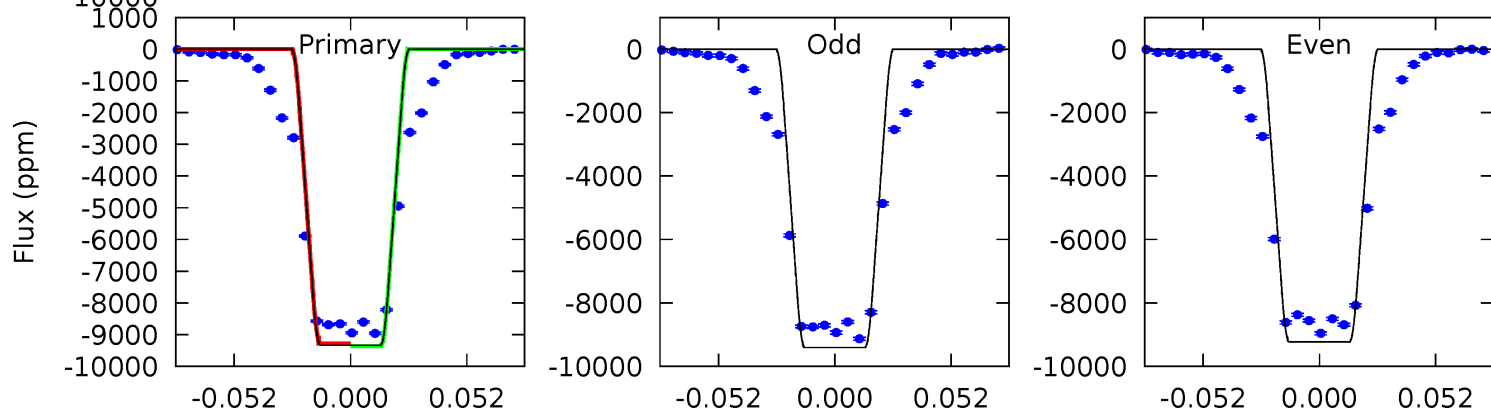
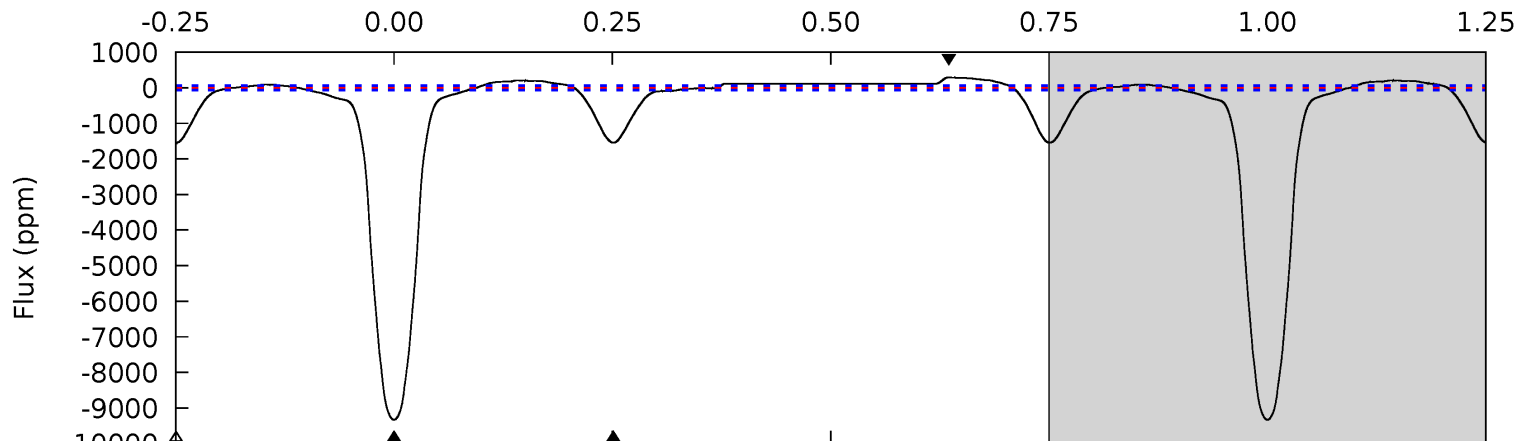
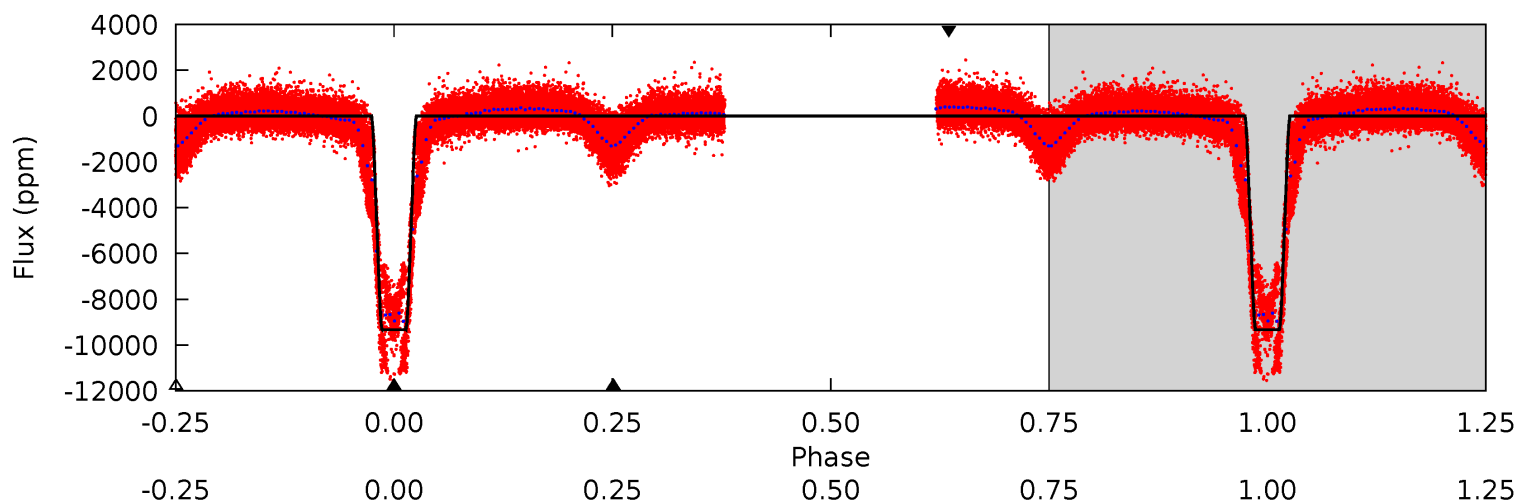
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
975.1	58.2	58.2	12.3	4.59	1.71	13.3	917.0	962.8	0.07	45.9	0.12	1.11	0.01	14.7



Alt Model-Shift Uniqueness Test

007537945-02, P = 2.143817 Days, E = 129.465953 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
675.7	111.7	111.6	21.1	4.70	1.95	28.0	564.0	654.6	0.10	90.6	6.08	1.02	0.03	0



Stellar Parameters For KIC 007537945

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5885^{+177}_{-177}	$4.413^{+0.144}_{-0.176}$	$-0.520^{+0.300}_{-0.300}$	$0.933^{+0.242}_{-0.162}$	$0.821^{+0.114}_{-0.061}$	$1.424^{+0.943}_{-0.701}$
	+3%/-3%	+3%/-4%	+58%/-58%	+26%/-17%	+14%/-7%	+66%/-49%
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 007537945-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-413 ± 7	$14.61^{+2.32}_{-2.05}$	2013^{+139}_{-119}	2782^{+117}_{-115}	$1.000^{+0.325}_{-0.254}$
Alt.	-1544 ± 14	$9.41^{+1.96}_{-1.66}$	2014^{+143}_{-118}	4107^{+277}_{-204}	$9.058^{+4.172}_{-2.884}$

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

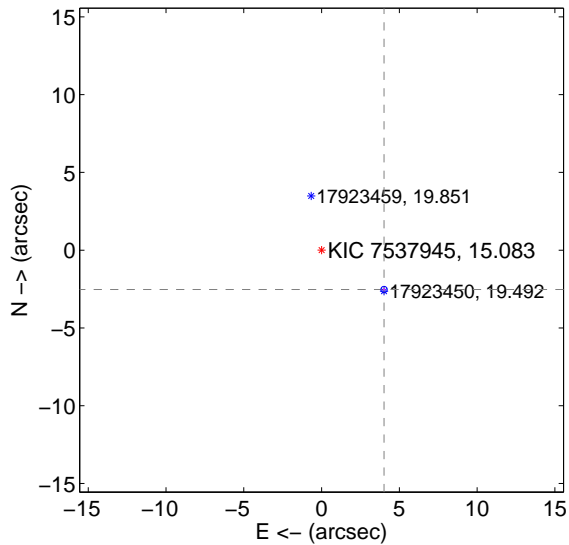
Supplemental centroid analysis for 007537945-02. Kepler magnitude: 15.08. Transit SNR 411.63

There are 17 quarters with good PRF difference image offsets

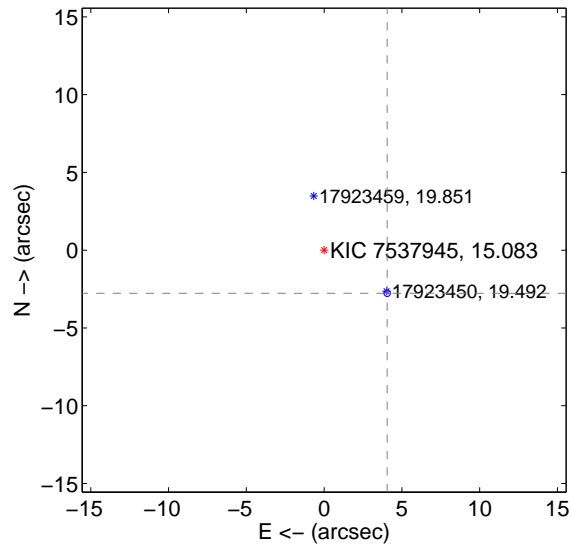
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.748 ± 0.068	70.24	-4.018 ± 0.067	-2.530 ± 0.067
PRF-fit source offset from KIC position	4.912 ± 0.069	71.64	-4.055 ± 0.067	-2.772 ± 0.070
photometric centroid source offset	12.89 ± 0.02	520.83	-11.25 ± 0.02	-6.30 ± 0.03

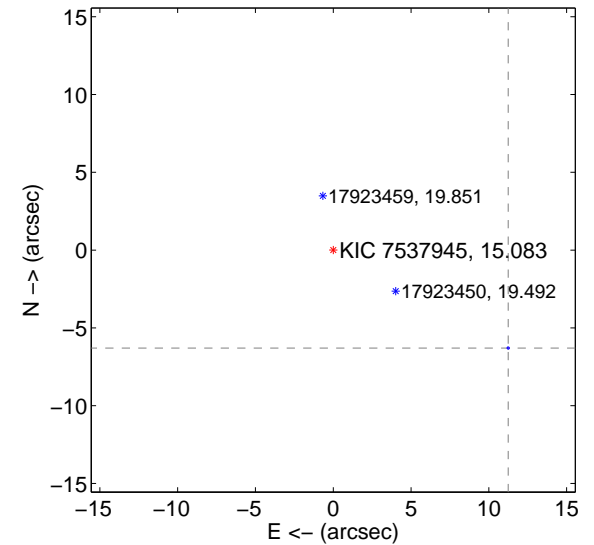
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

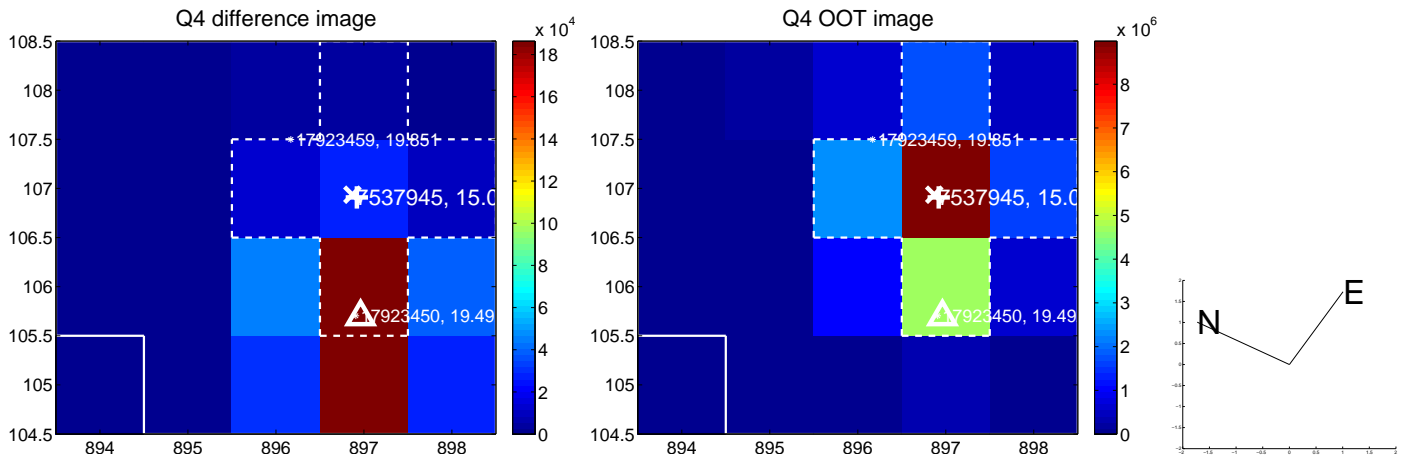
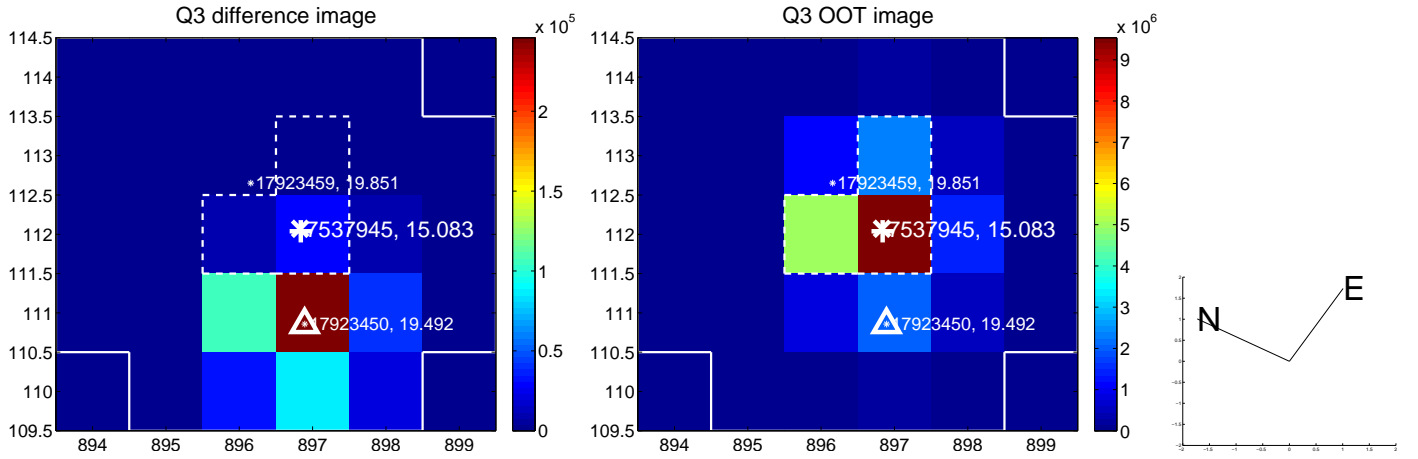
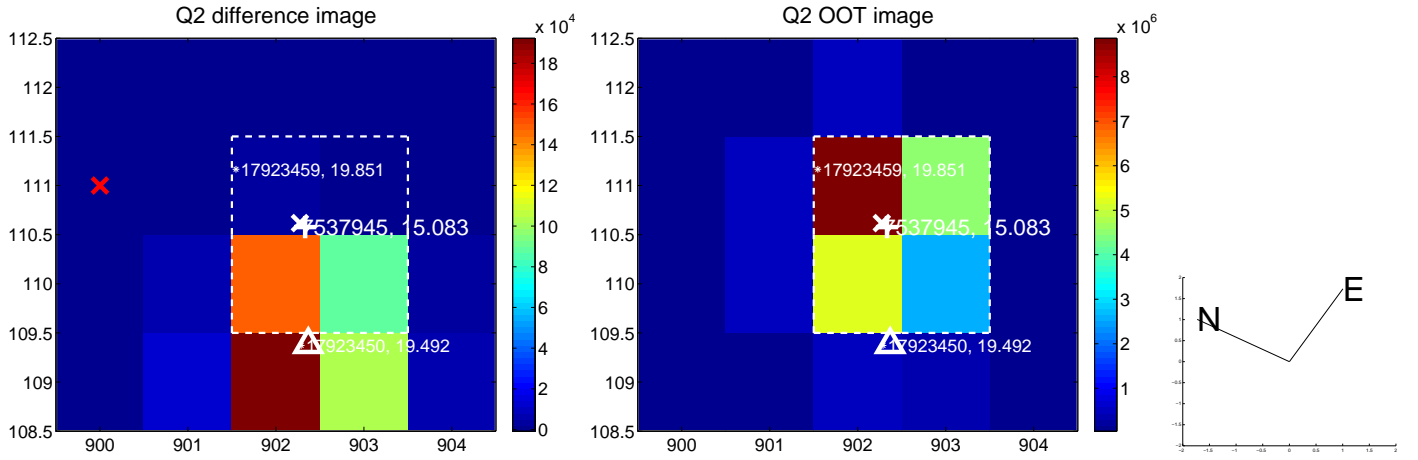
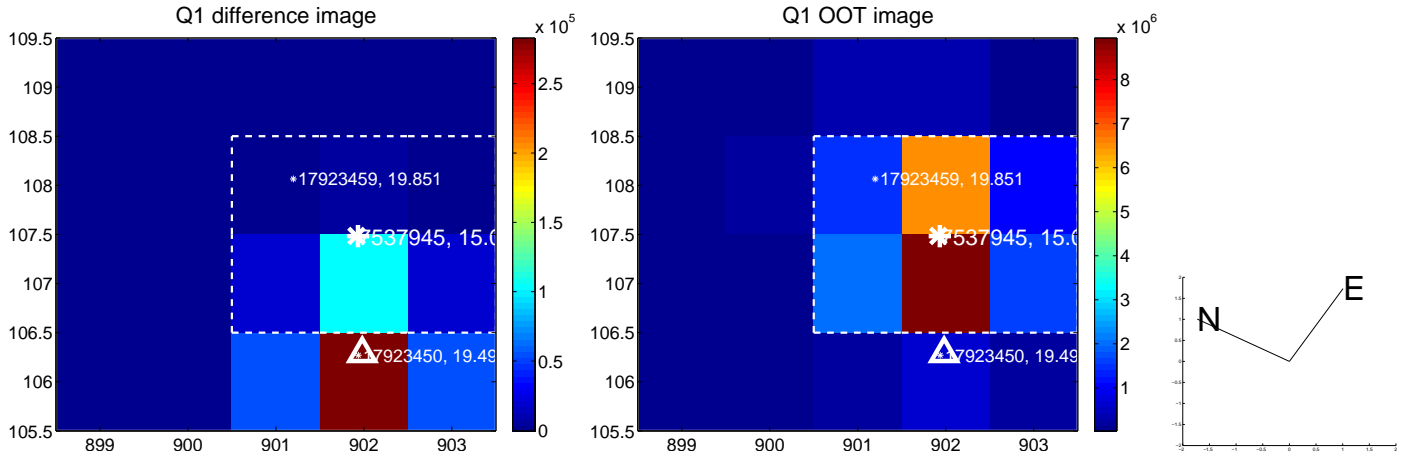


offset from photometric centroids

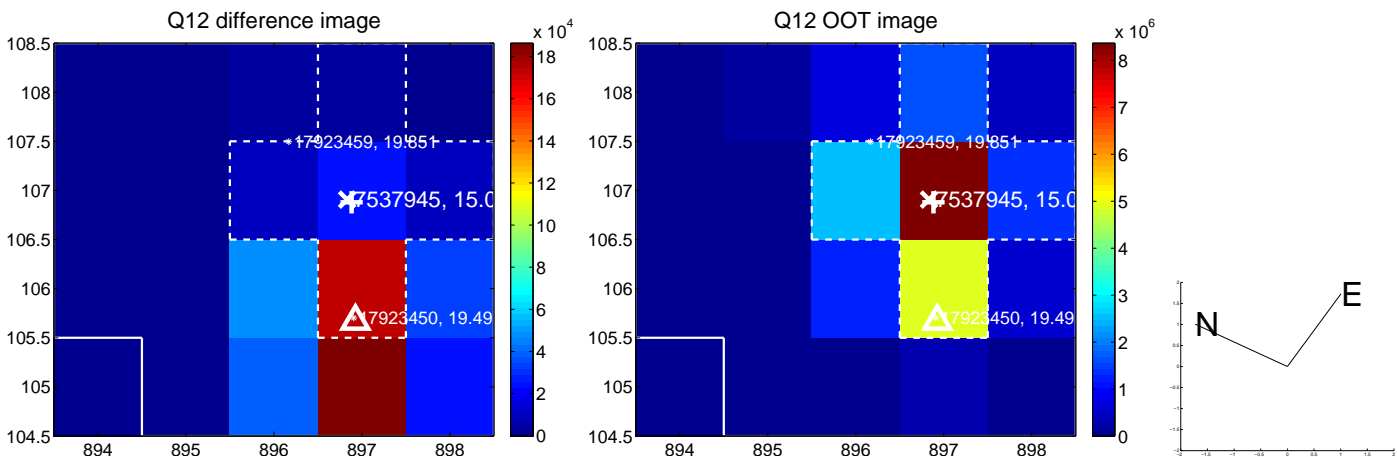
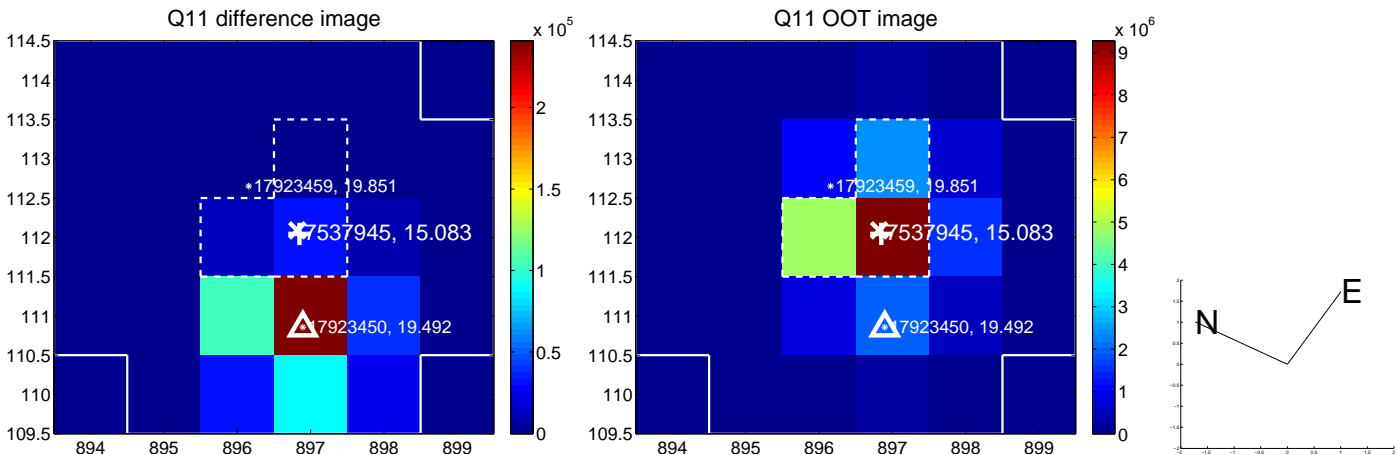
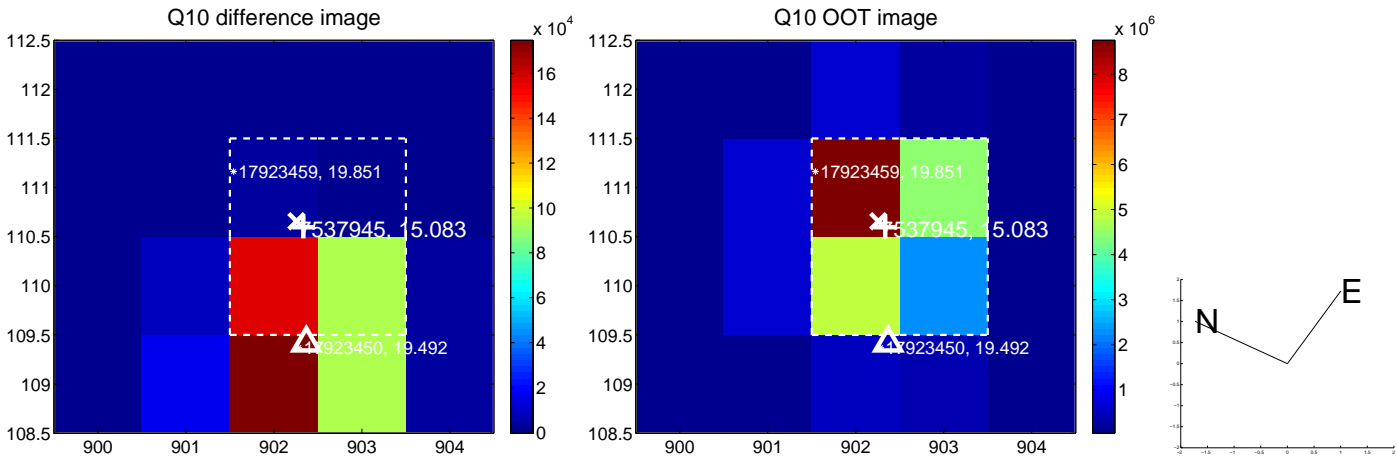
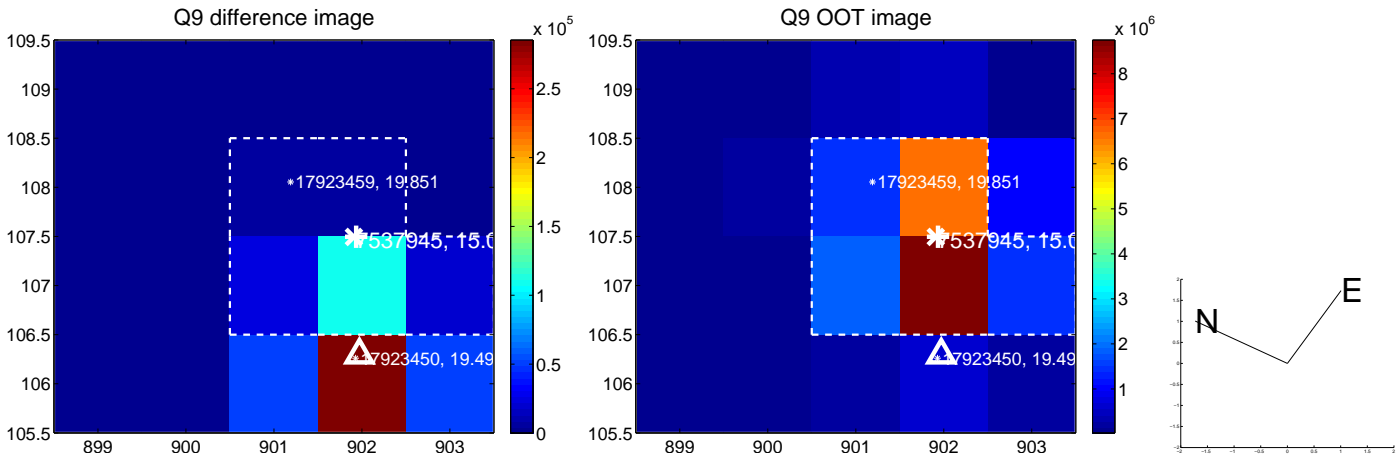


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

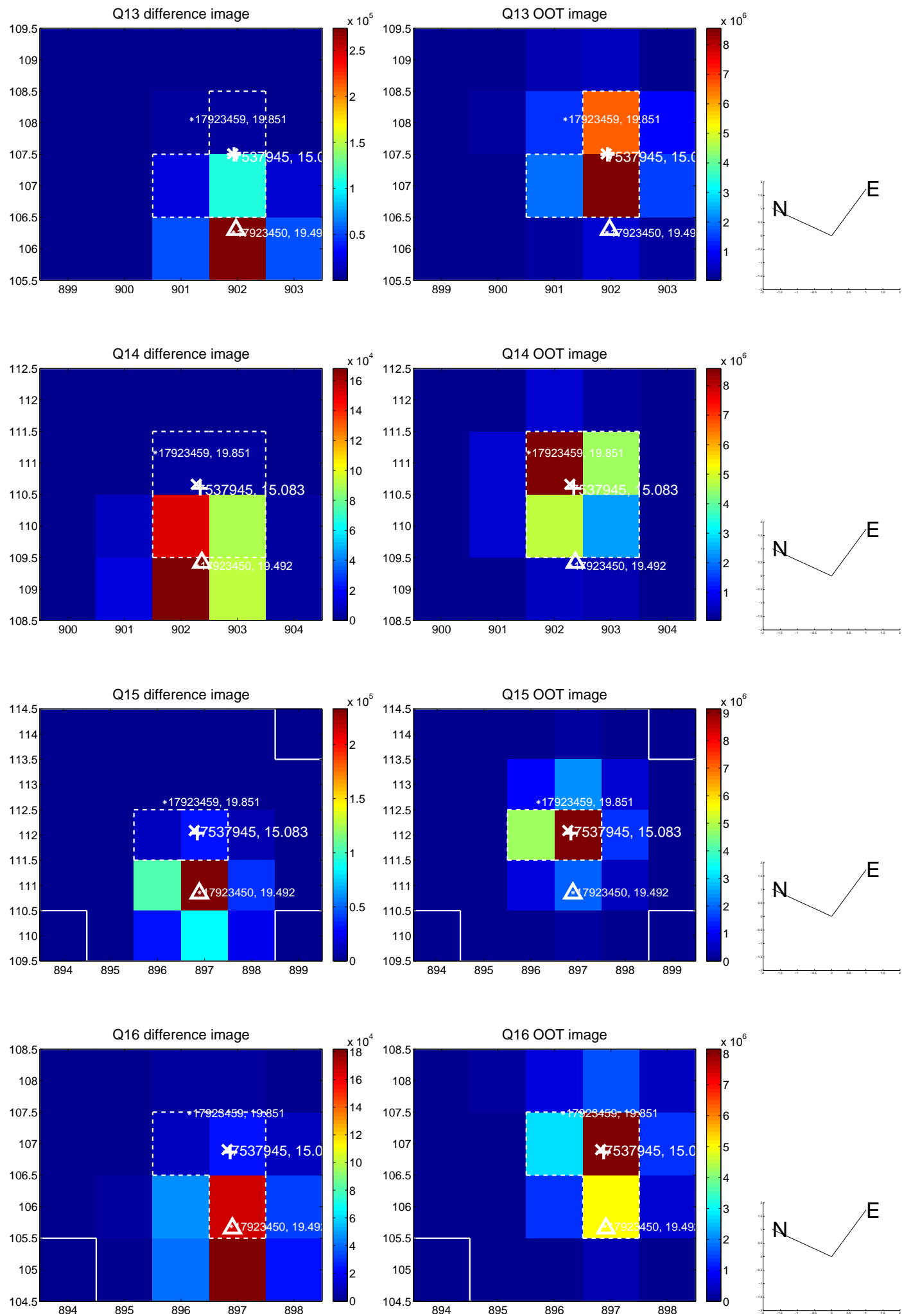
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



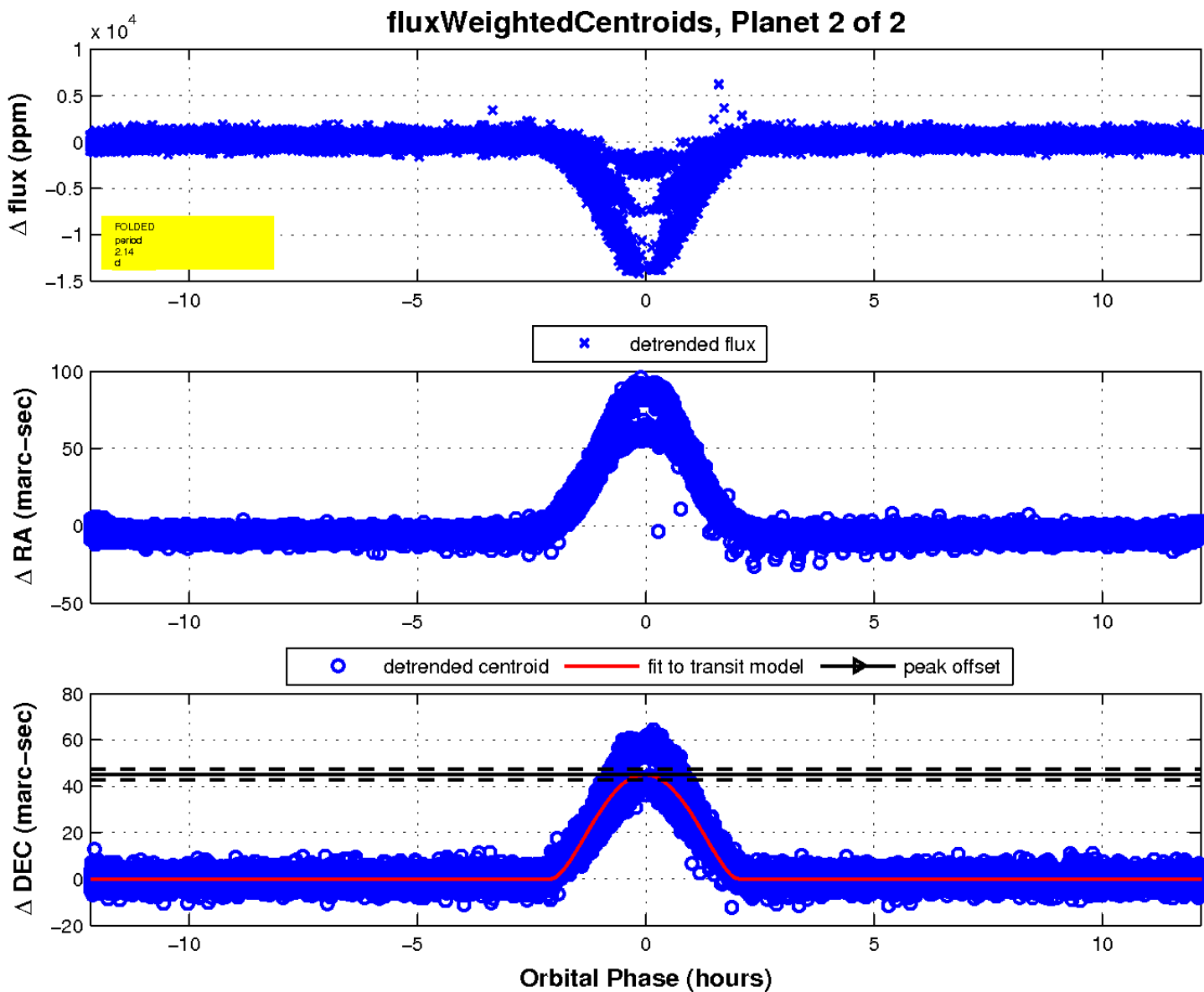
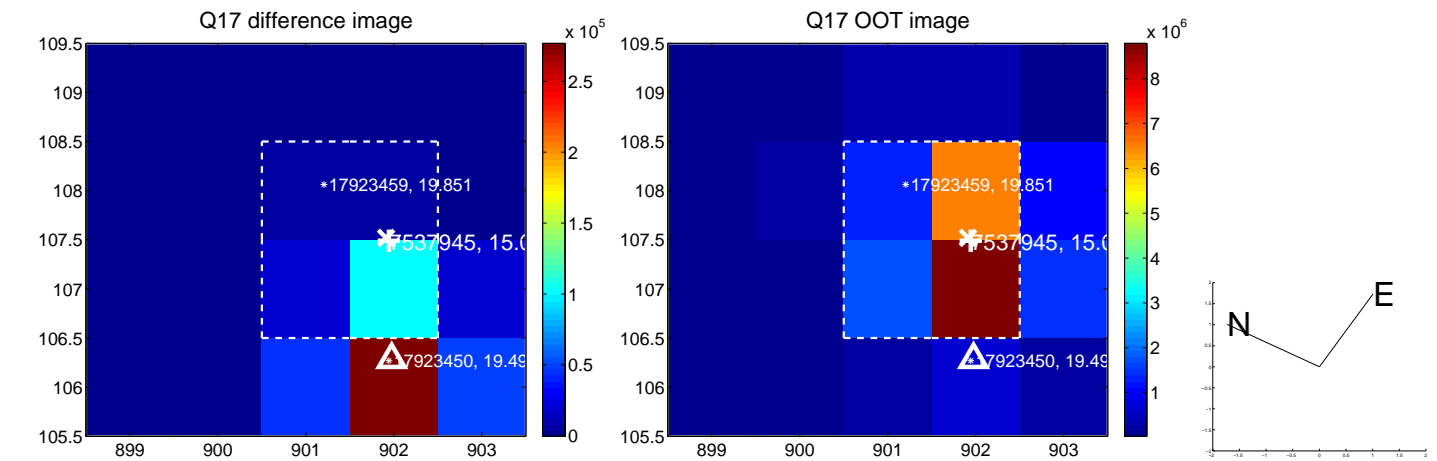
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

