

KIC 005643492

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})
005643492-01	OBS	6015.01	41.865435	161.176268	4304.7	6.679	133.7	119.2	0.79	6063	9.38	14.82
005643492-02	OBS	No	41.865443	146.202045	1563.1	9.465	43.6	47.1	0.79	6063	5.77	14.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005643492-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
005643492-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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 005643492-01

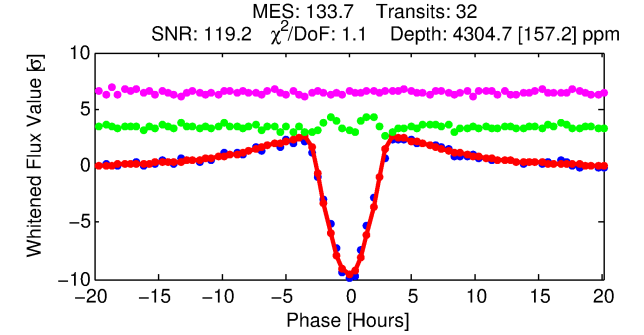
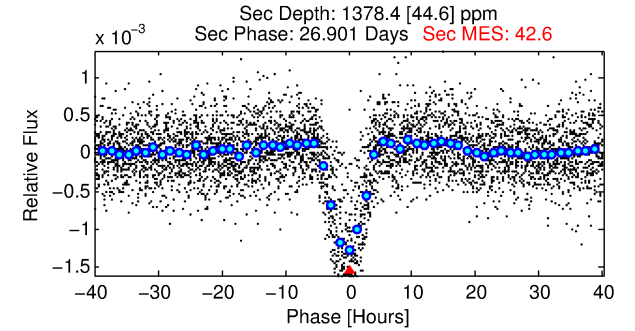
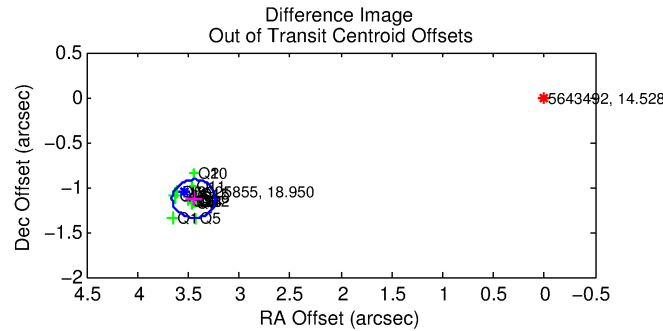
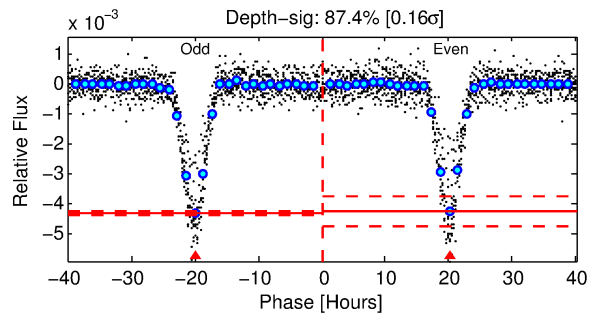
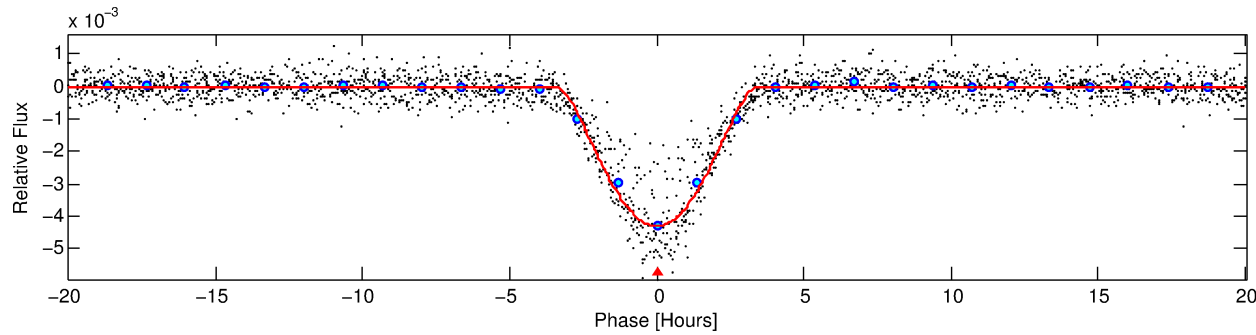
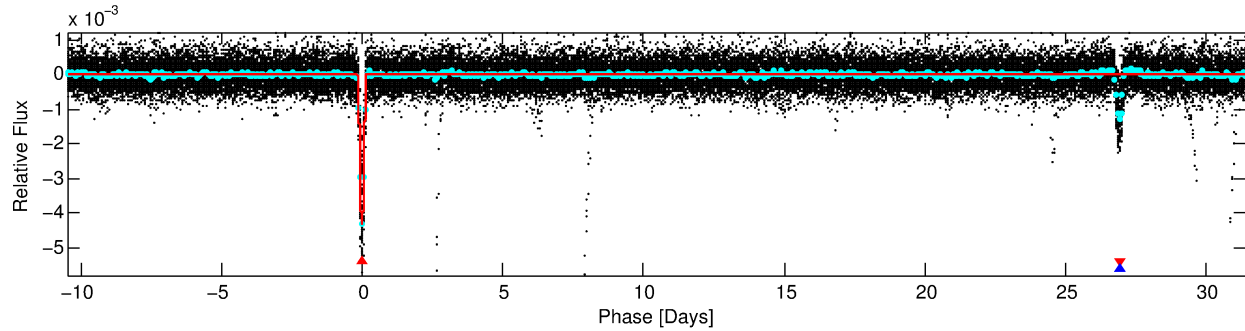
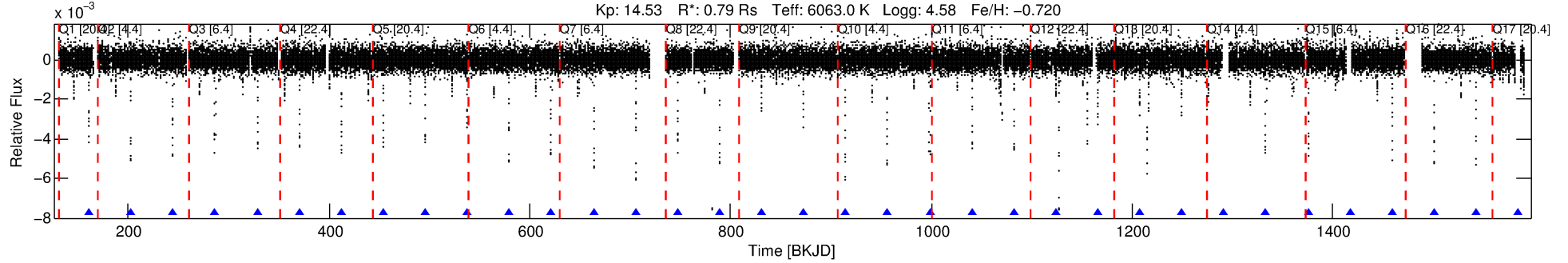
No Significant Match Found

DV One-Page Summary

KIC: 5643492 Candidate: 1 of 2 Period: 41.865 d

KOI: K06015.01 Corr: 0.988

Kp: 14.53 R*: 0.79 Rs Teff: 6063.0 K Logg: 4.58 Fe/H: -0.720



DV Fit Results:

Period = 41.86543 [0.00006] d
Epoch = 161.1763 [0.0011] BKJD
Rp/R* = 0.1091 [0.0345]
a/R* = 23.01 [1.41]
b = 1.00 [0.05]
Seff = 14.82 [4.97]
Teq = 500 [42] K
Rp = 9.38 [3.71] Re
a = 0.2252 [0.0469] AU
Ag = 437.09 [308.62] [1.41σ]
Teff = 3537 [570] K [5.32σ]

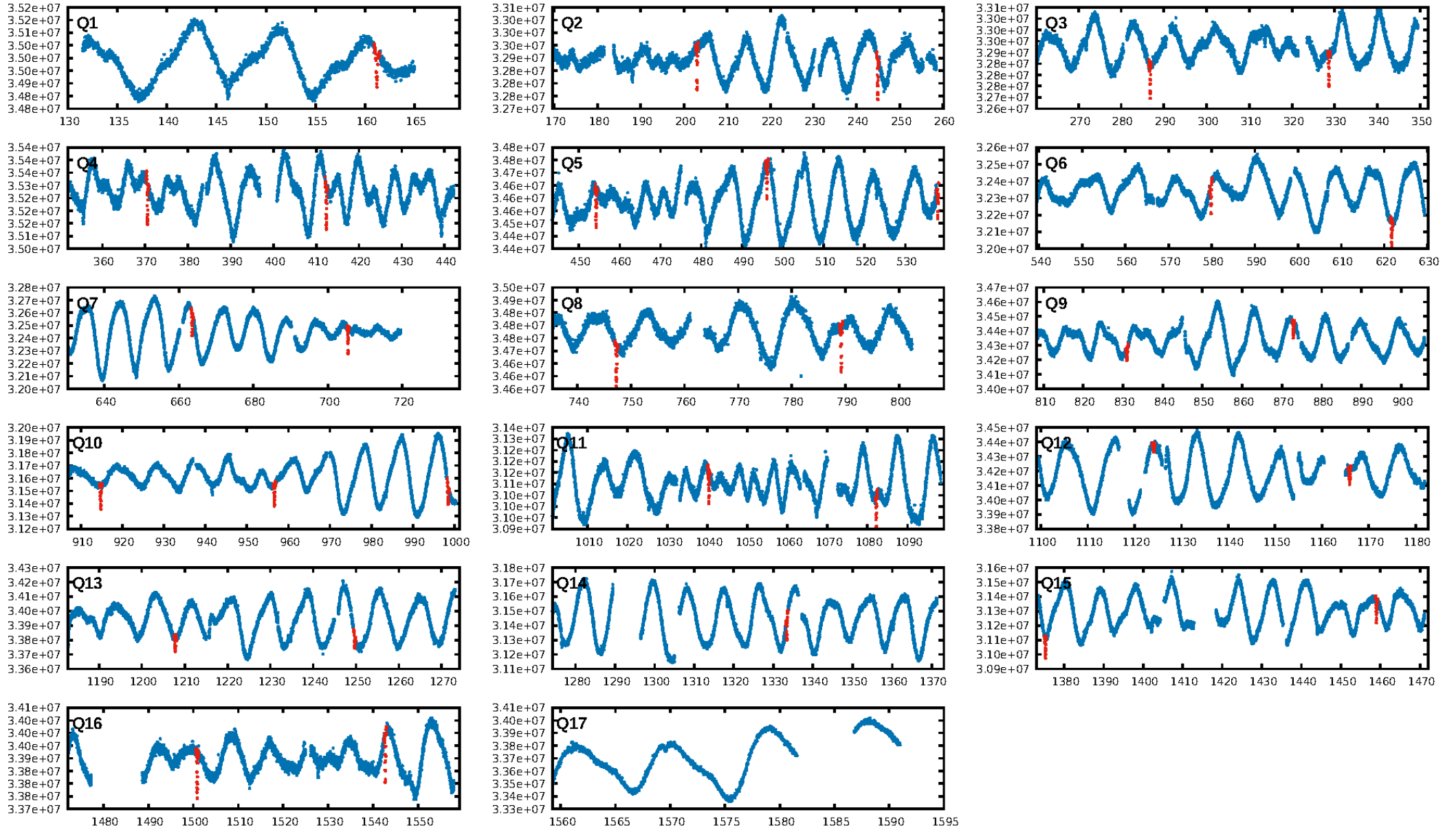
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 93.5%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [31/31]
GhostDiagnostic-chr: 0.7625
Centroid-sig: 0.0%
Centroid-so: 4.467 arcsec [54.13σ]
OotOffset-rm: 3.624 arcsec [51.13σ]
KicOffset-rm: 3.633 arcsec [49.21σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

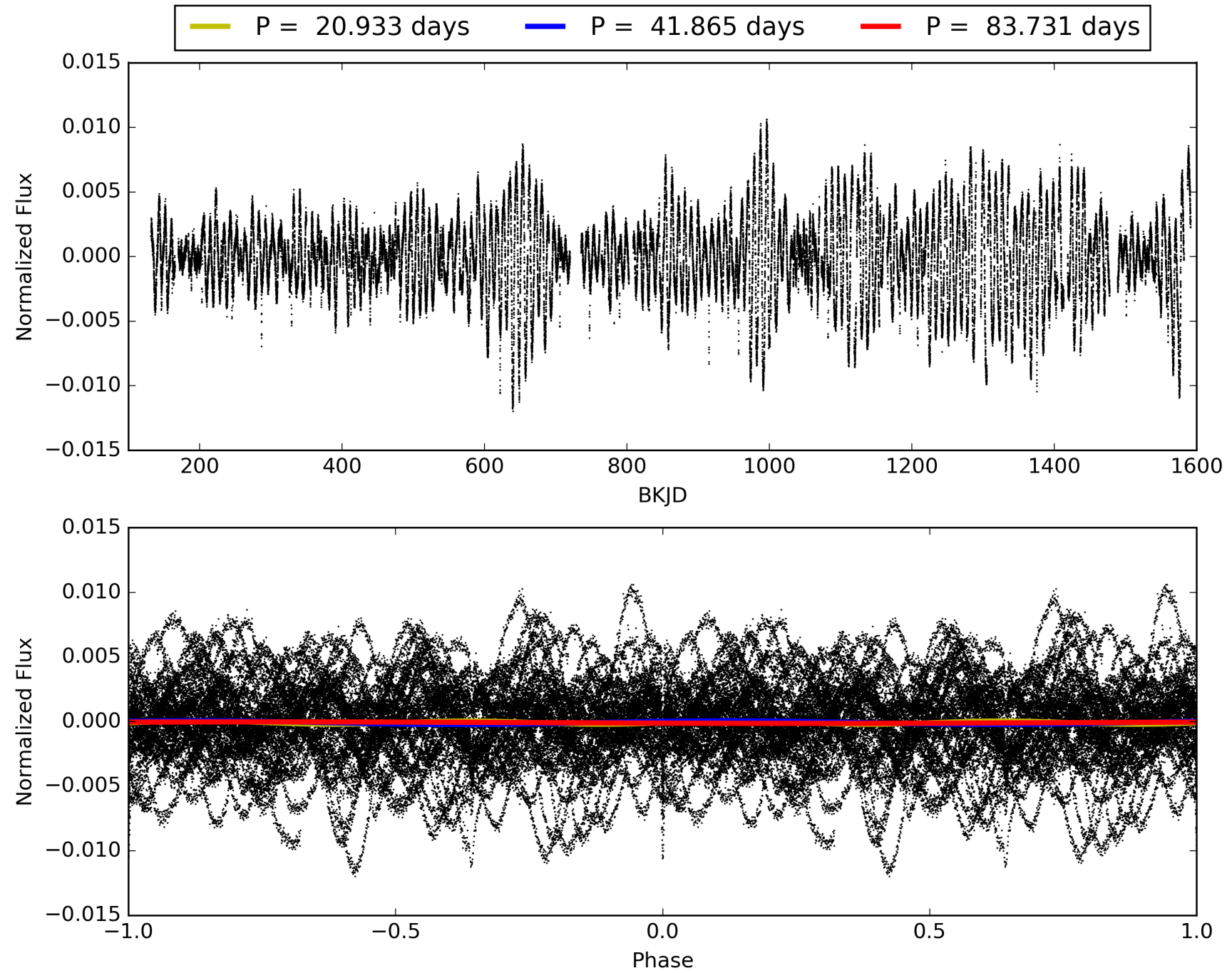
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:57:54 Z

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

TCE 005643492-01, PDC Light Curves

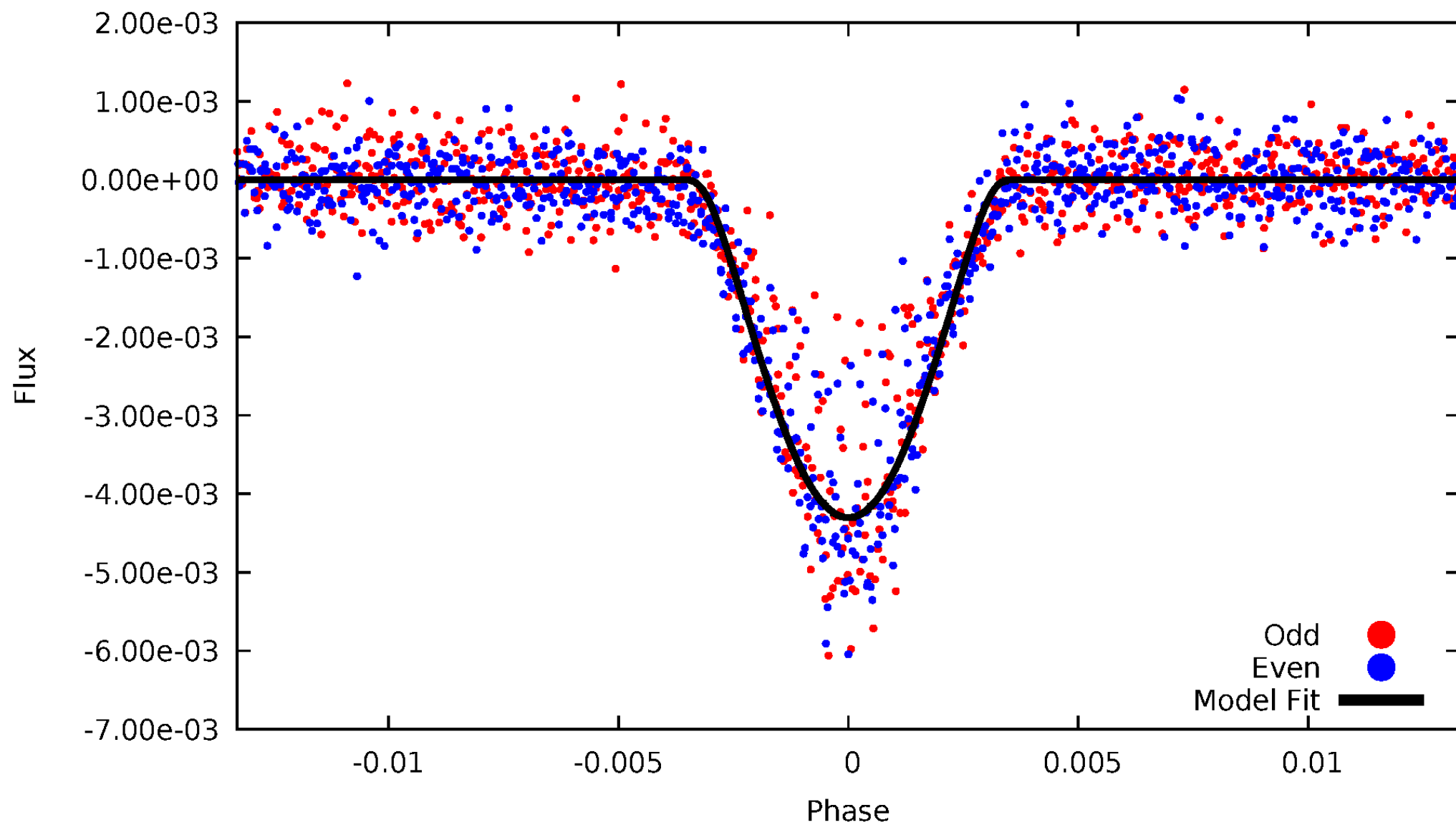


TCE 005643492-01



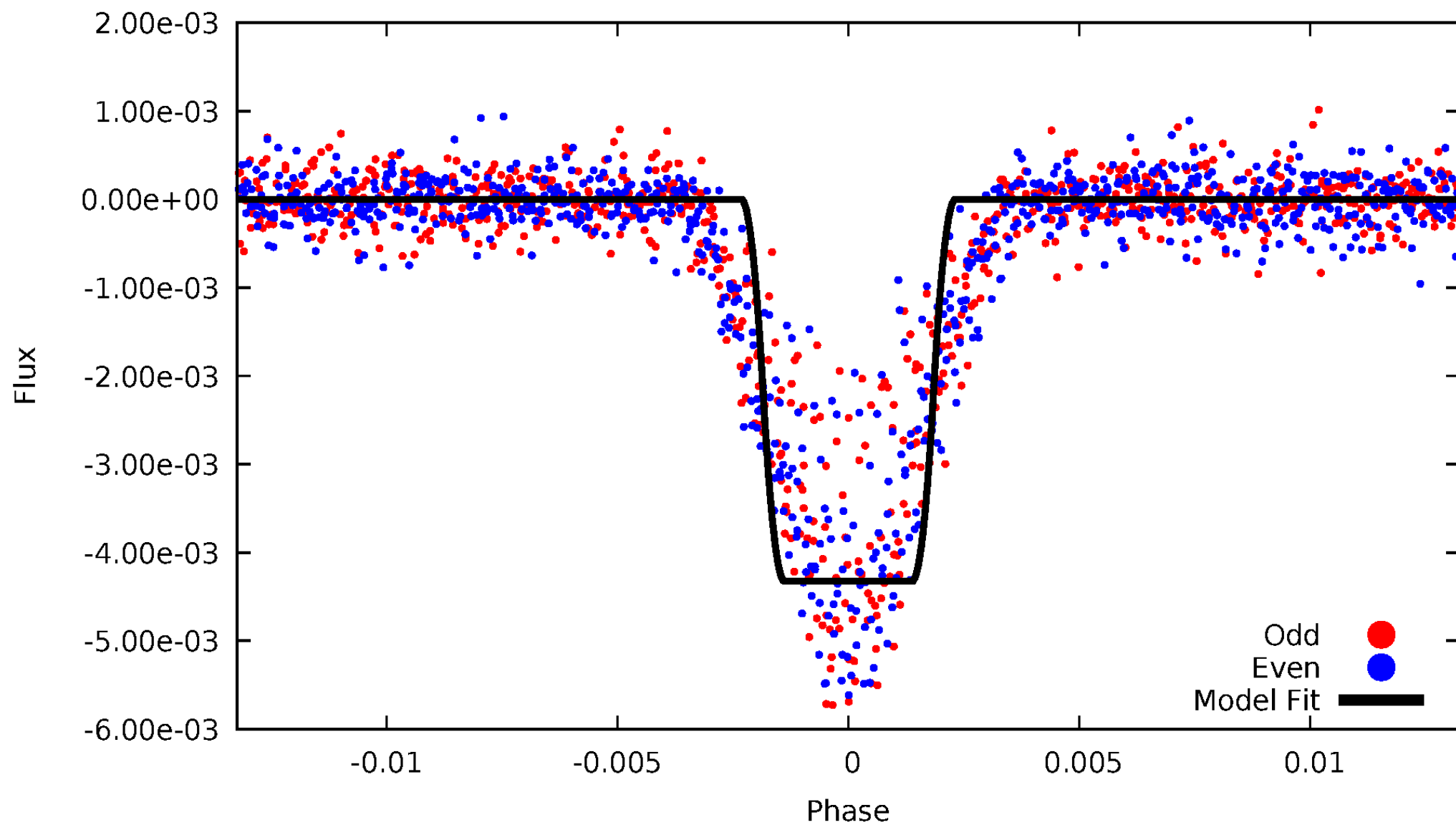
DV Odd/Even

TCE 005643492-01



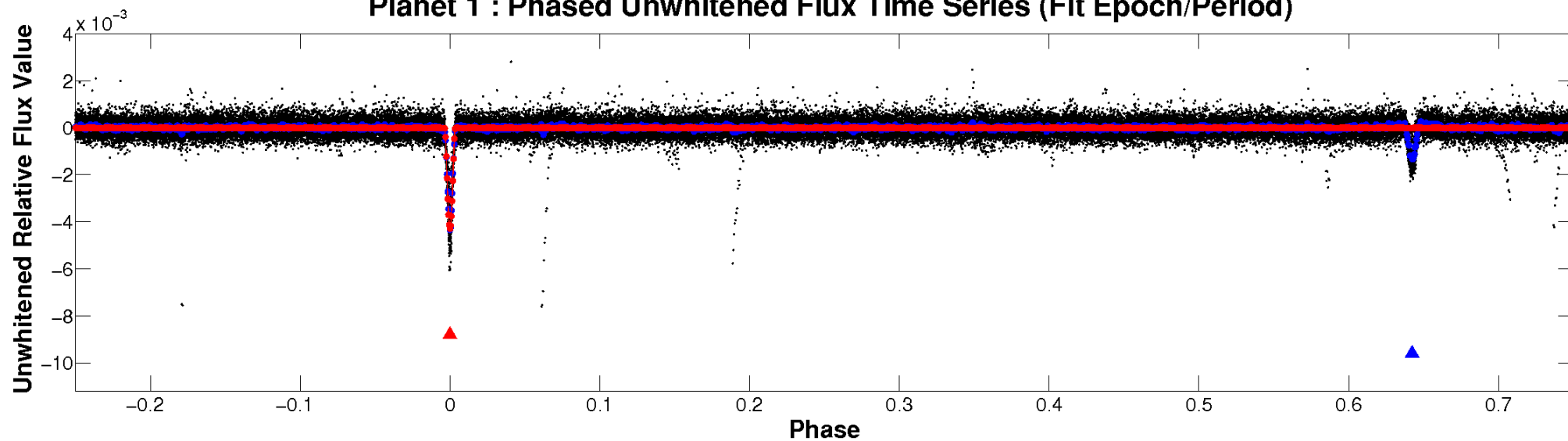
ALT Odd/Even

TCE 005643492-01

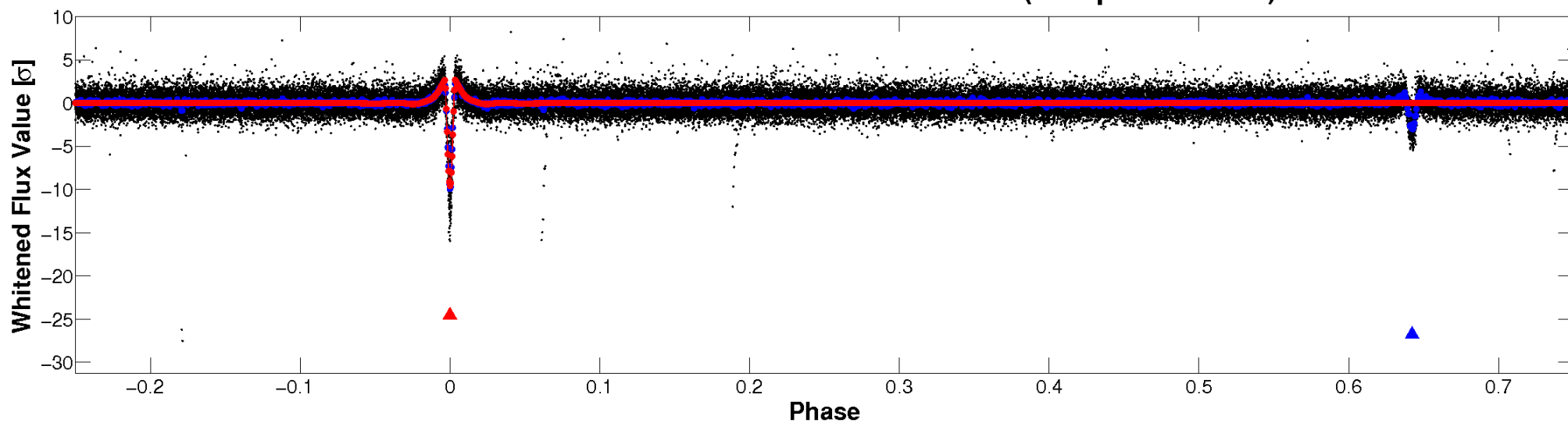


Non-Whitened Vs. Whitened Light Curve

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

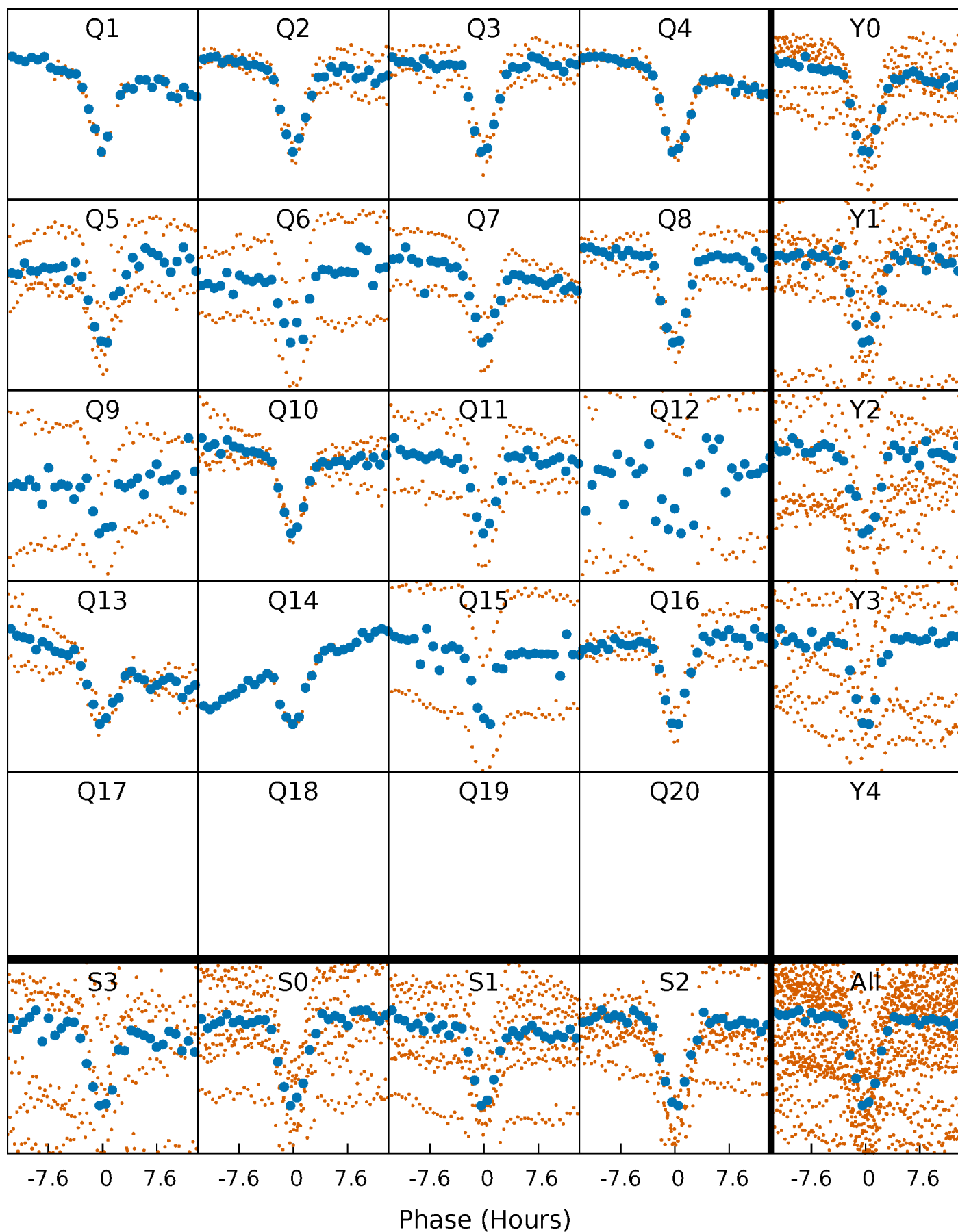


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



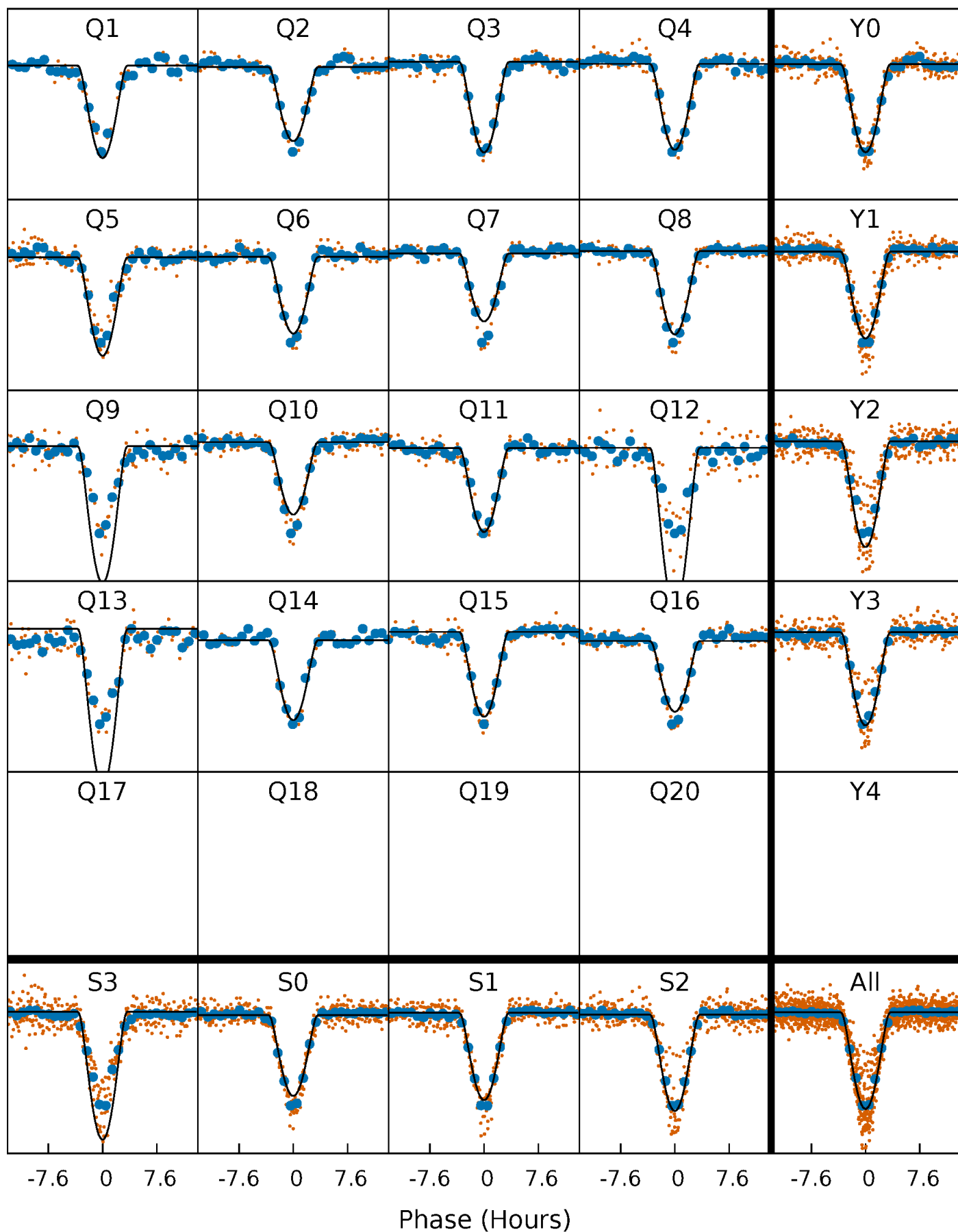
PDC Quarter-Phased Transit Curves

TCE 005643492-01 P= 41.865435 Days $T_0=161.176268$ (BKJD)



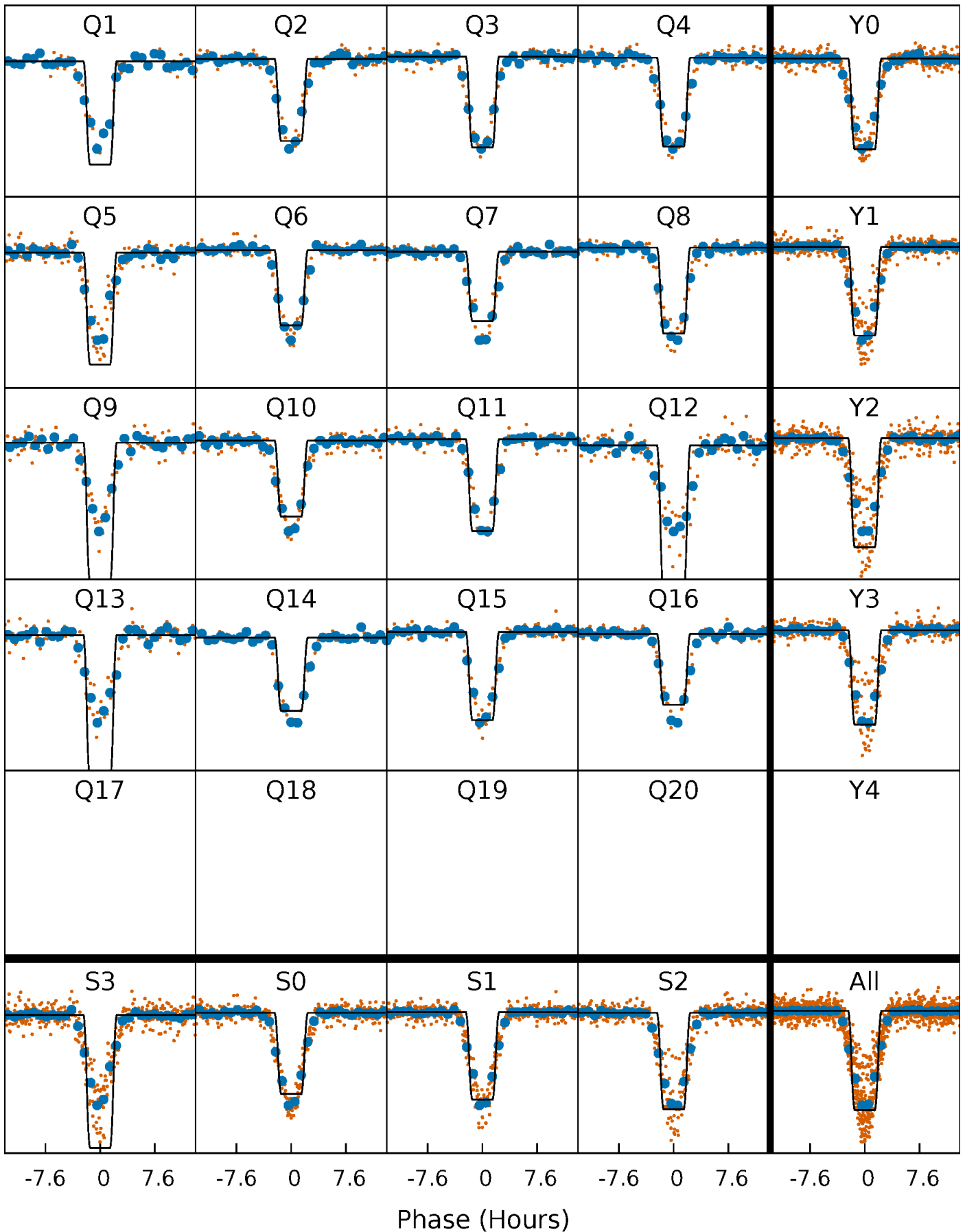
DV Quarter-Phased Transit Curves

TCE 005643492-01 P= 41.865435 Days $T_0=161.176268$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

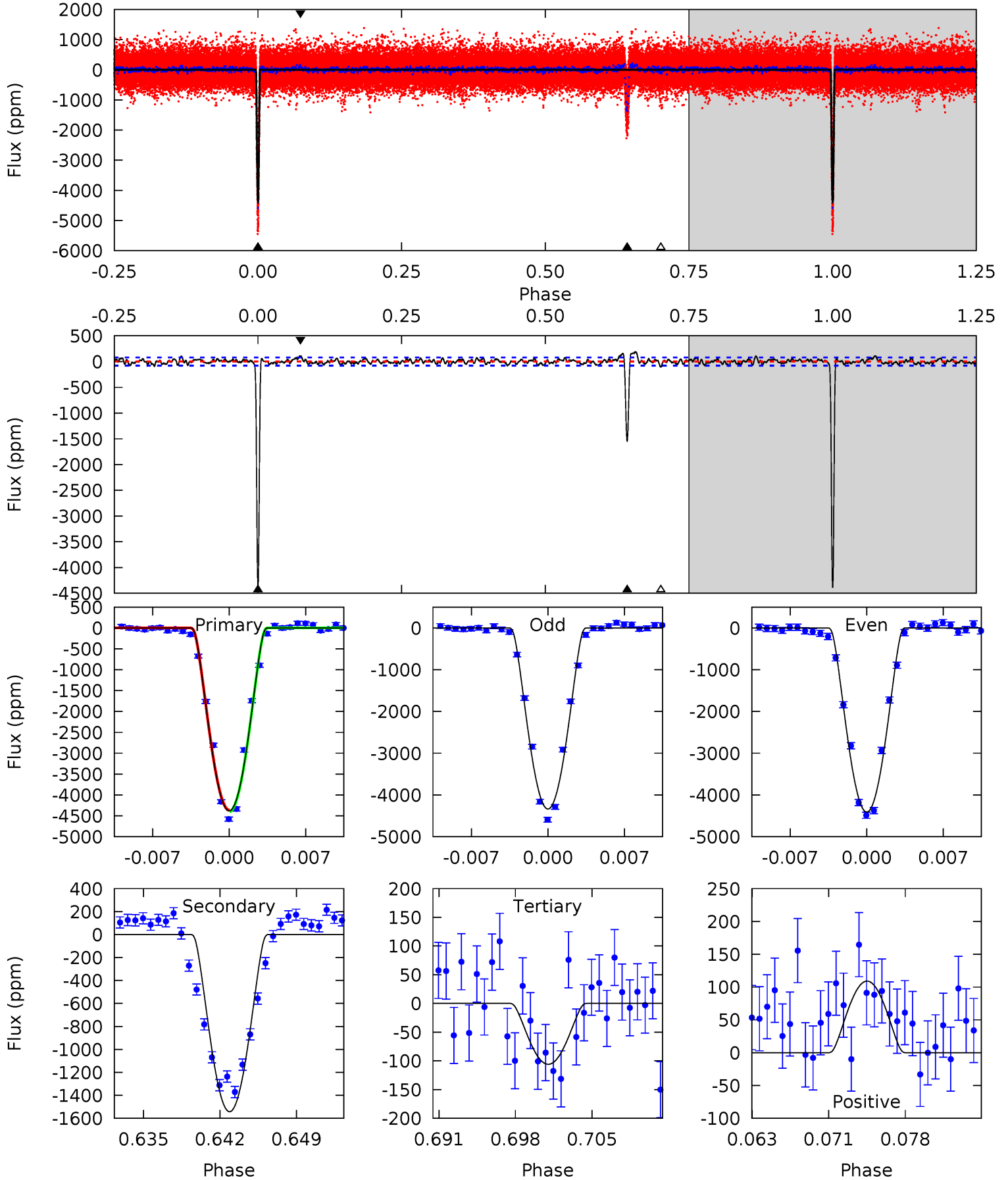
TCE 005643492-01 P= 41.865005 Days $T_0=161.183848$ (BKJD)



DV Model-Shift Uniqueness Test

005643492-01, P = 41.865435 Days, E = 119.310833 Days

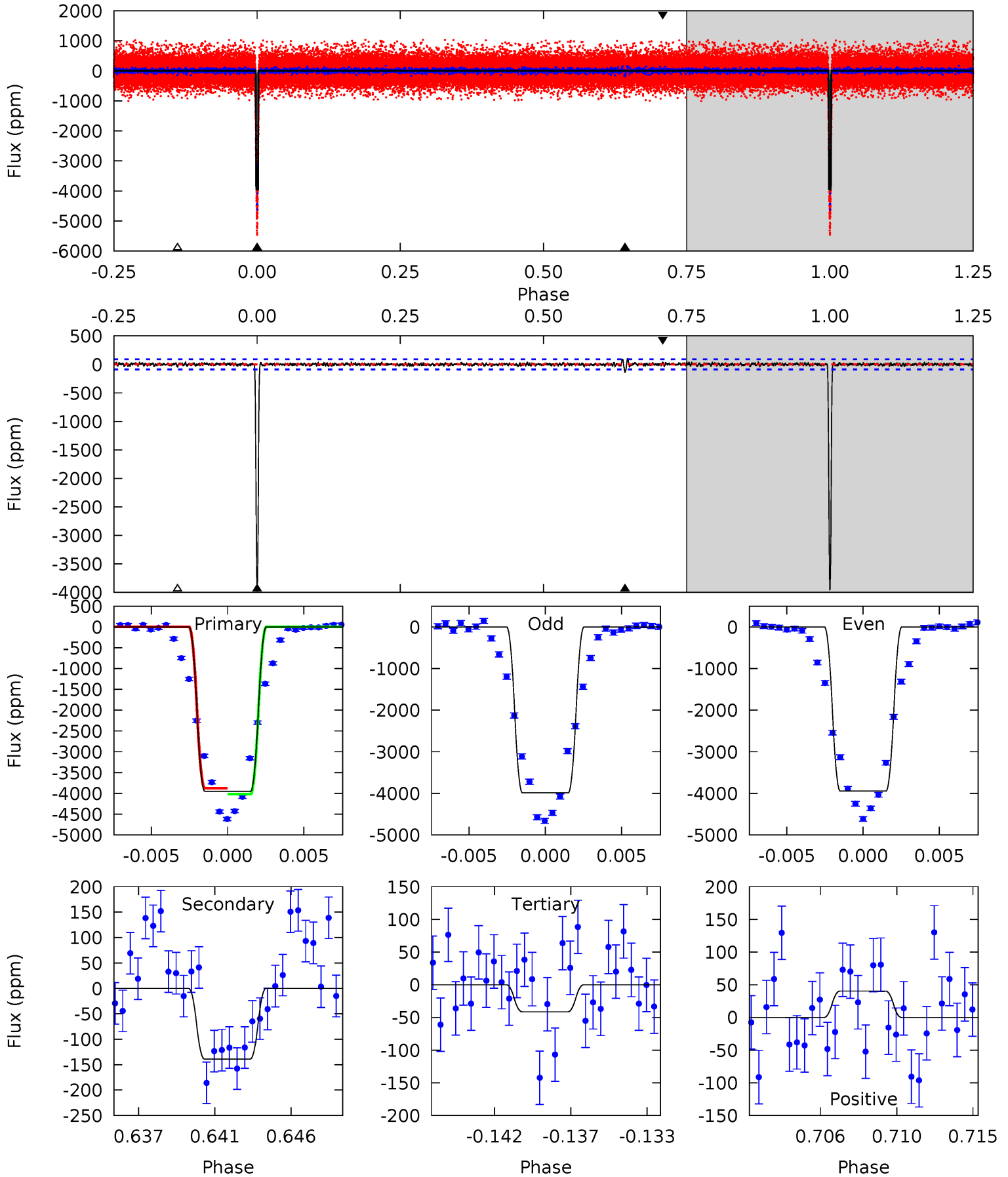
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
280.7	98.8	6.79	6.98	5.09	2.69	2.49	273.9	273.7	92.0	91.8	2.38	0.93	0.04	0



Alt Model-Shift Uniqueness Test

005643492-01, P = 41.865005 Days, E = 119.318843 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
228.1	8.02	2.39	2.33	5.17	2.84	0.75	225.7	225.8	5.63	5.69	1.24	0.96	0.03	4.09



Stellar Parameters For KIC 005643492

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6063^{+164}_{-182}	$4.584^{+0.033}_{-0.176}$	$-0.720^{+0.250}_{-0.300}$	$0.788^{+0.187}_{-0.062}$	$0.874^{+0.072}_{-0.099}$	$2.515^{+0.420}_{-1.154}$
	+3%/-3%	+1%/-4%	+35%/-42%	+24%/-8%	+8%/-11%	+17%/-46%
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 005643492-01 / KOI 6015.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1542 ± 16	$9.83^{+3.42}_{-3.18}$	716^{+43}_{-31}	3984^{+584}_{-380}	436^{+520}_{-190}
Alt.	-139 ± 17	$5.84^{+3.30}_{-2.91}$	713^{+46}_{-29}	3163^{+753}_{-359}	110^{+335}_{-64}

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 $A_{obs} \gg 1.0$

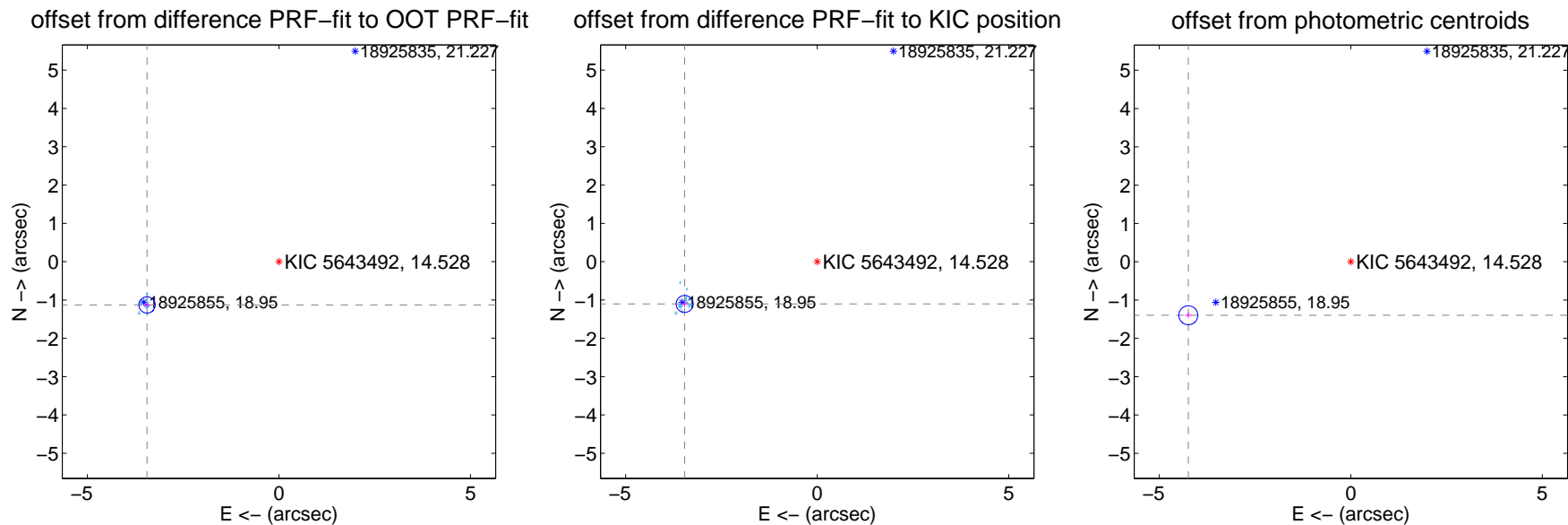
DV Centroid Data

Supplemental centroid analysis for 005643492-01. Kepler magnitude: 14.53. Transit SNR 119.25

There are 16 quarters with good PRF difference image offsets

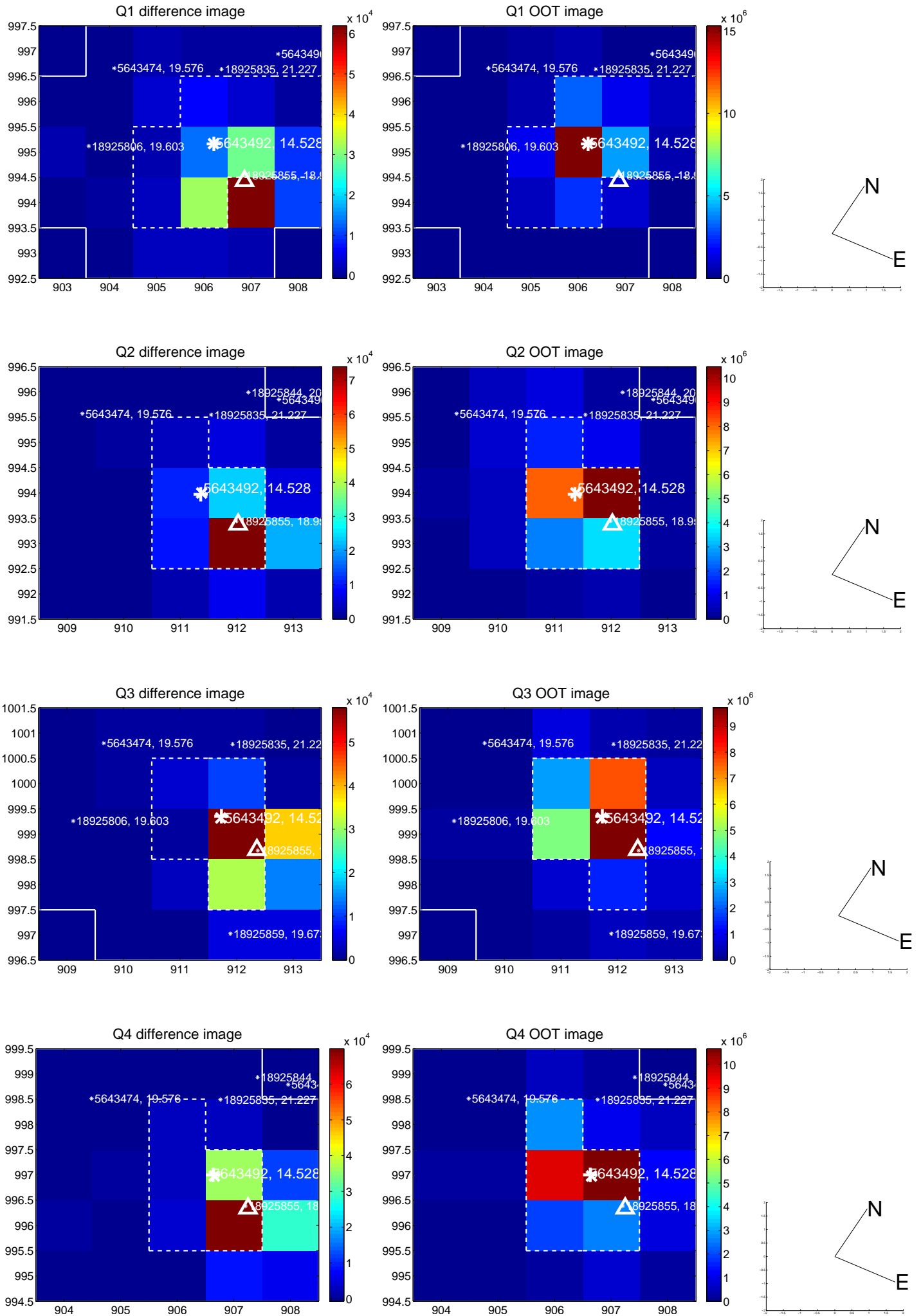
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.624 ± 0.071	51.13	3.444 ± 0.069	-1.128 ± 0.076
PRF-fit source offset from KIC position	3.633 ± 0.074	49.21	3.462 ± 0.072	-1.102 ± 0.082
photometric centroid source offset	4.47 ± 0.08	54.13	4.24 ± 0.08	-1.40 ± 0.07

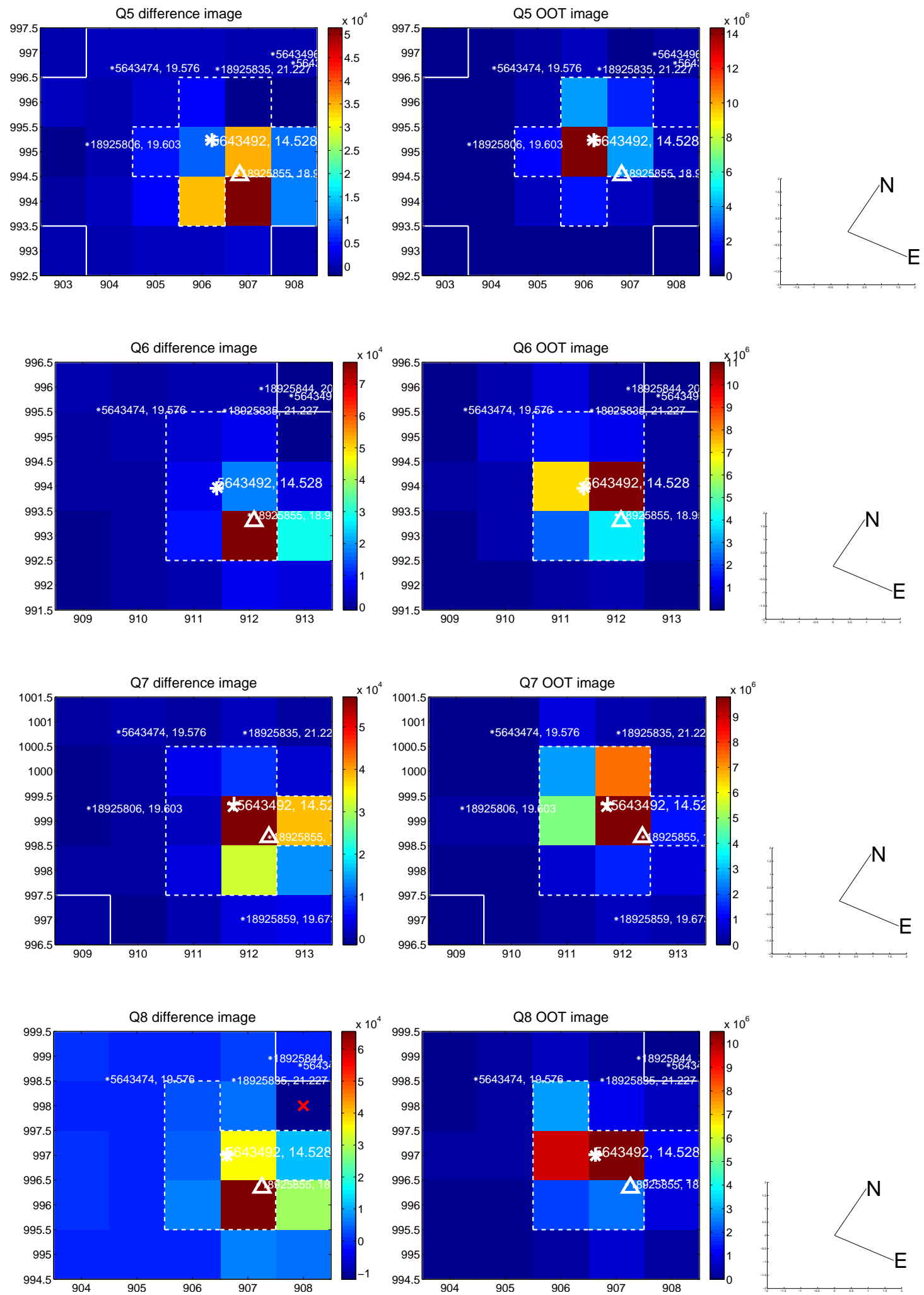


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

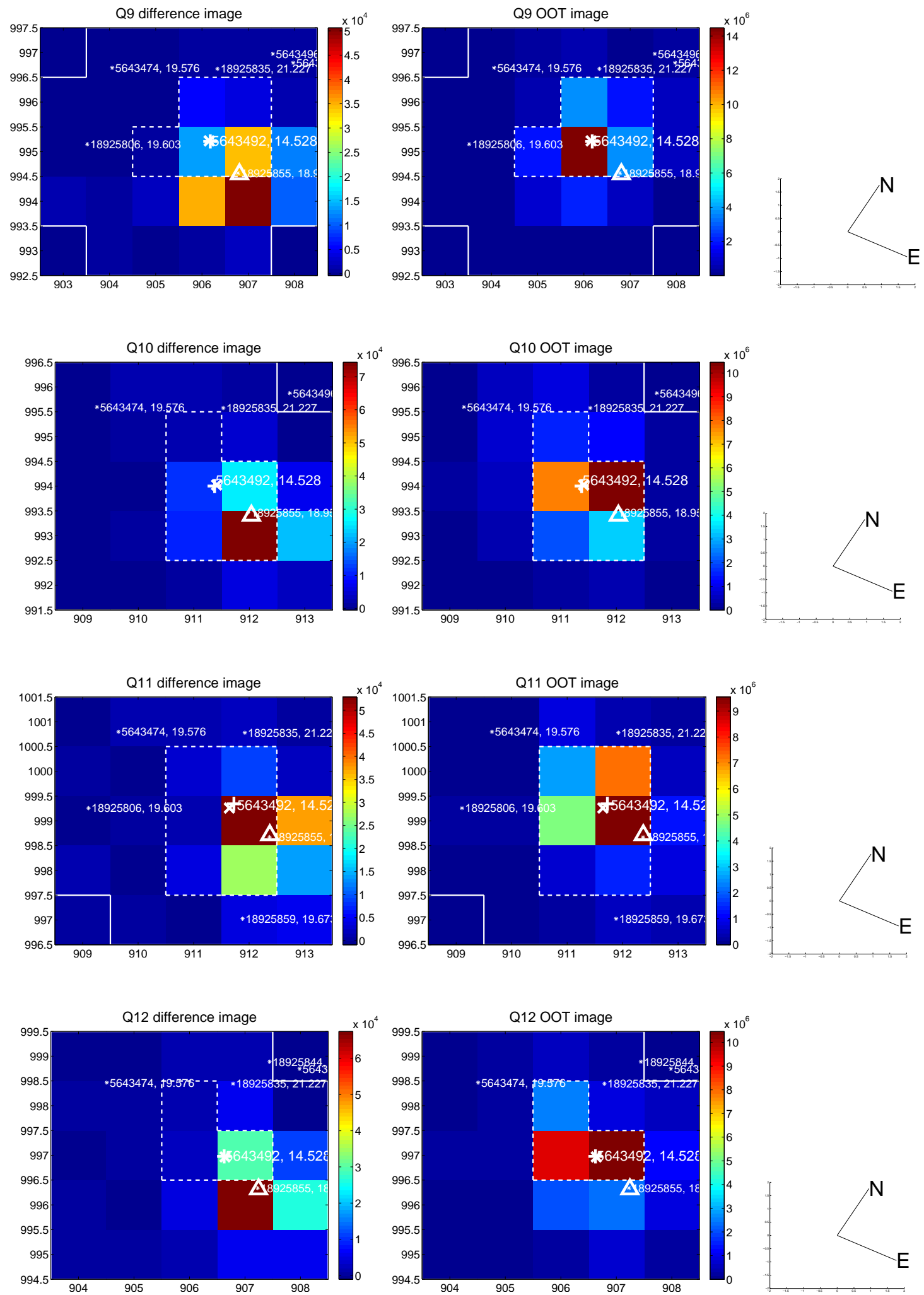
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



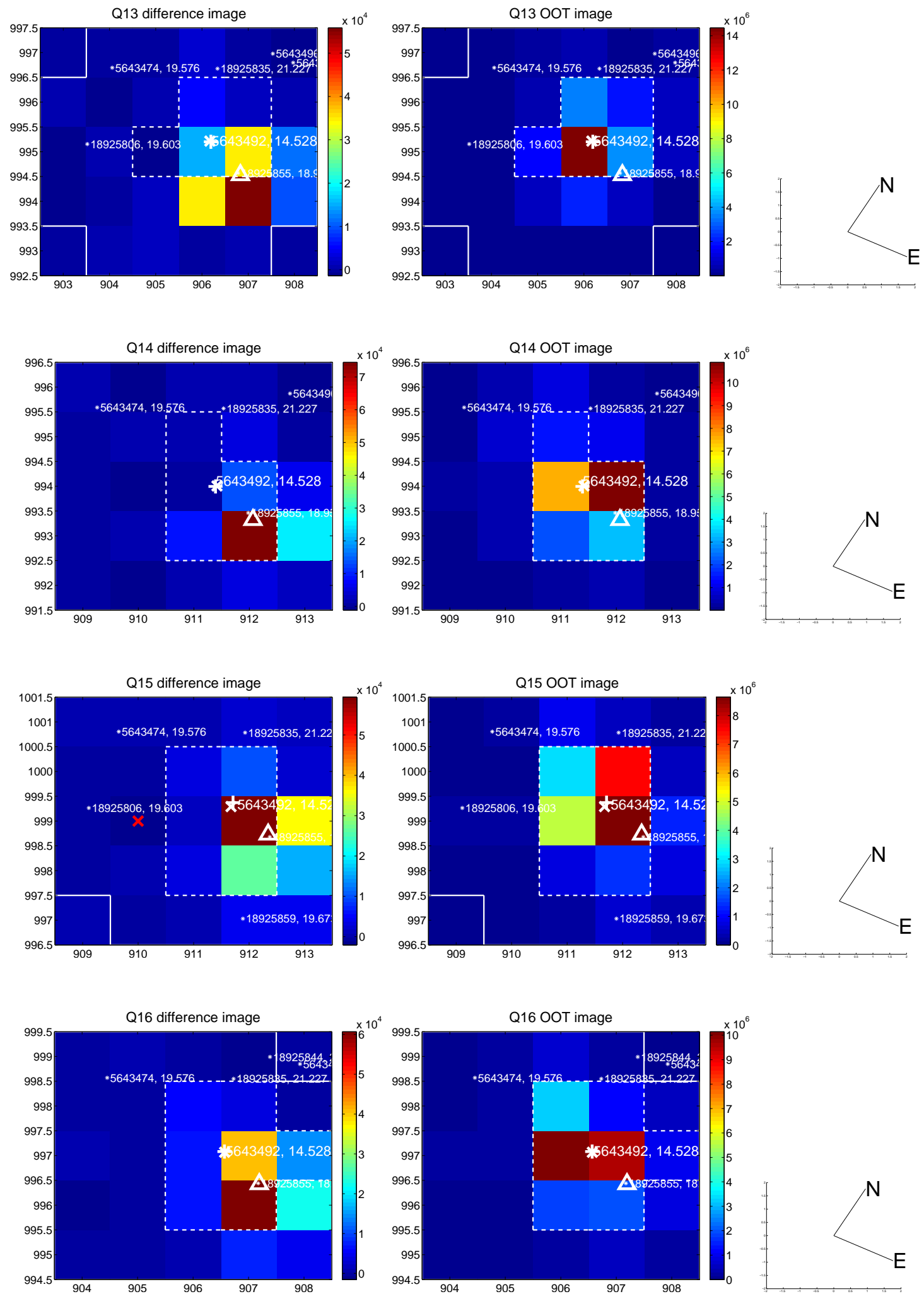
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



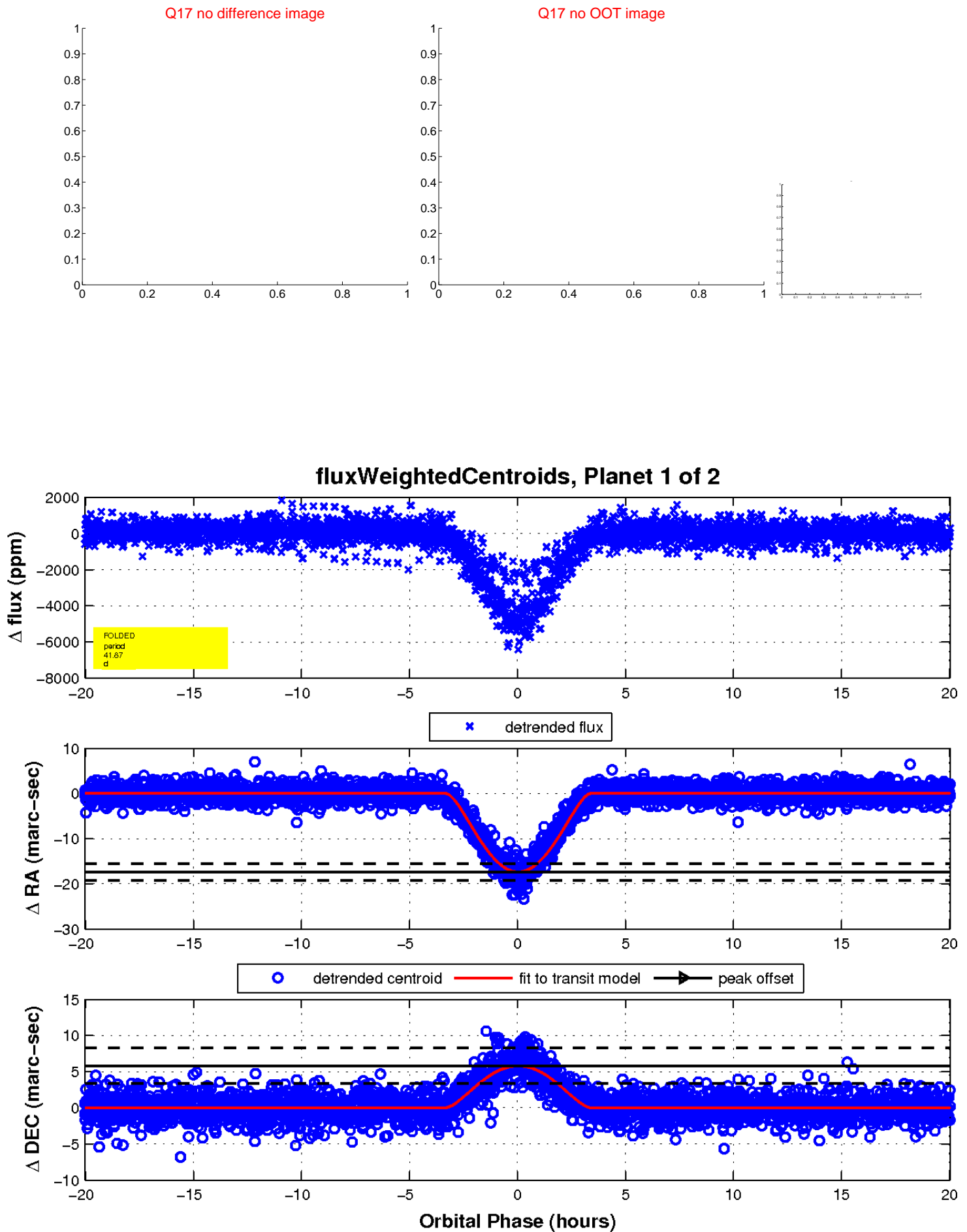
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

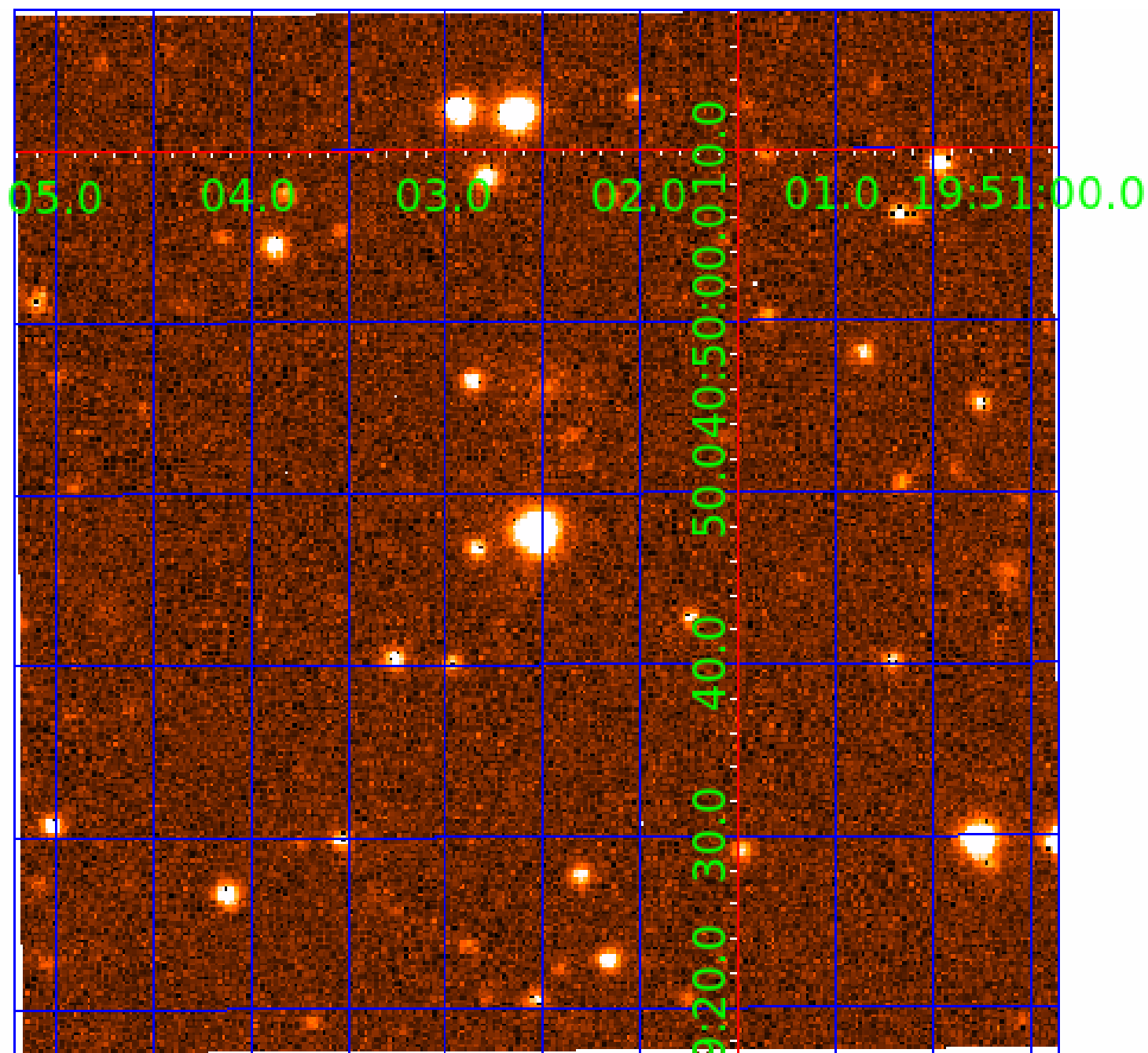


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005643492

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})
005643492-01	OBS	6015.01	41.865435	161.176268	4304.7	6.679	133.7	119.2	0.79	6063	9.38	14.82
005643492-02	OBS	No	41.865443	146.202045	1563.1	9.465	43.6	47.1	0.79	6063	5.77	14.82

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005643492-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
005643492-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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.

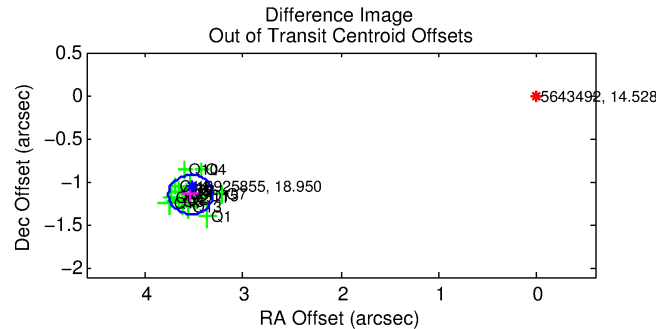
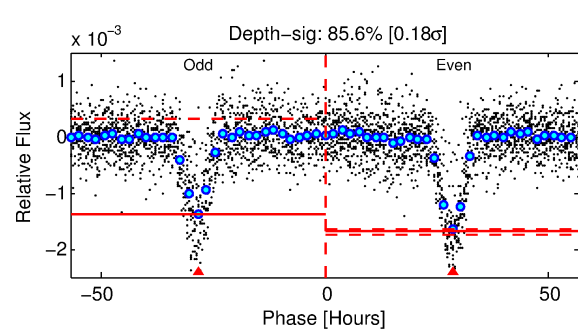
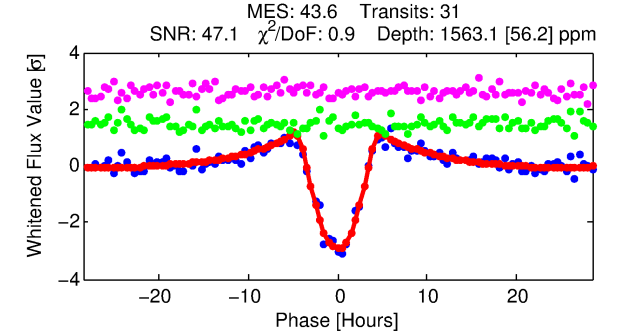
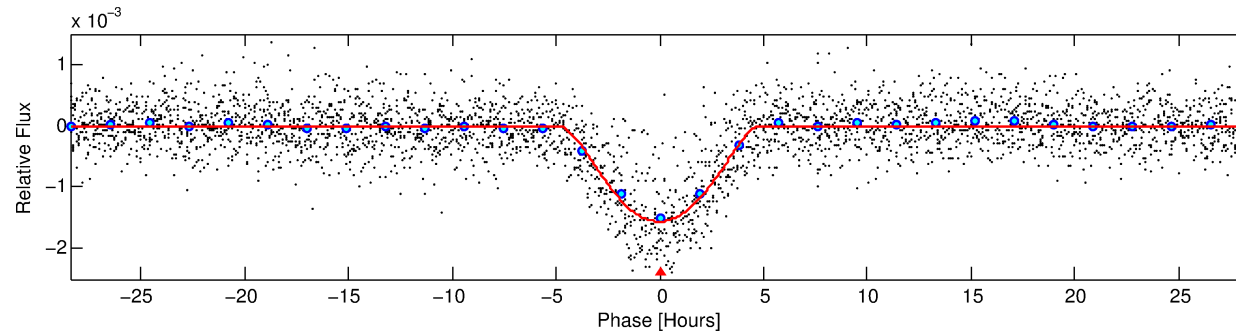
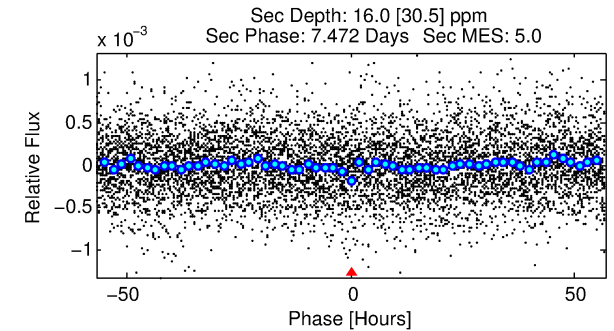
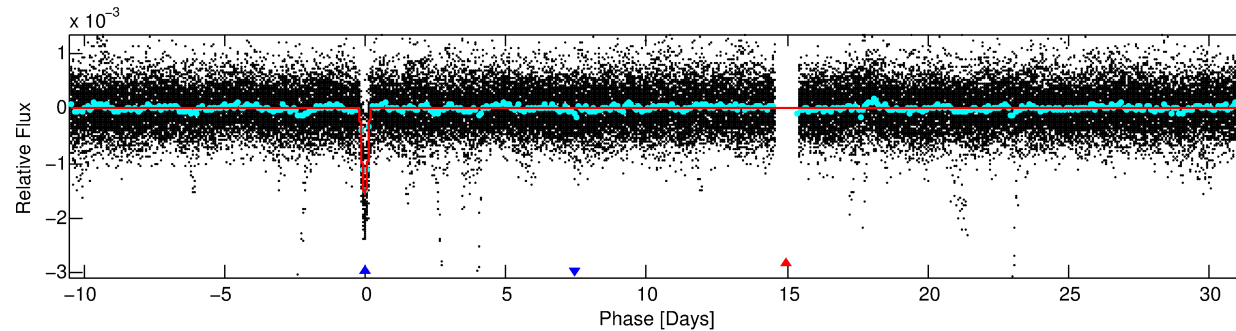
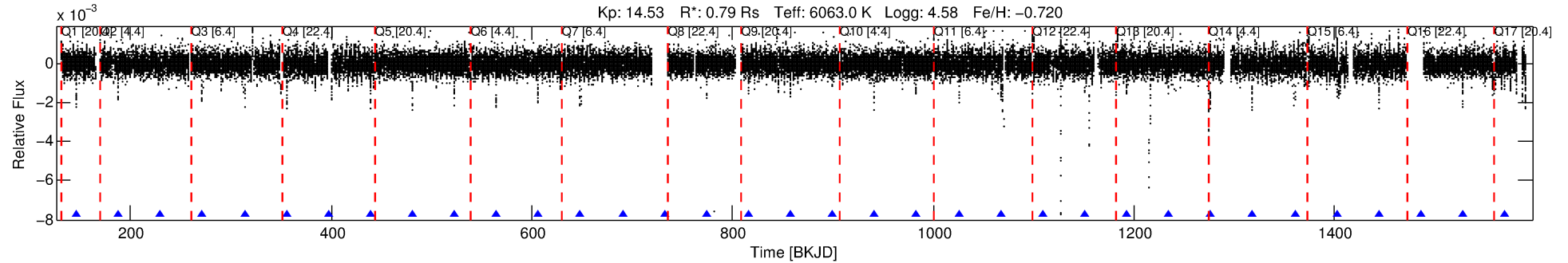
Ephemeris Match Information For 005643492-02

No Significant Match Found

DV One-Page Summary

KIC: 5643492 Candidate: 2 of 2 Period: 41.865 d
KOI: K06015 Corr: No Ephemeris Match

Kp: 14.53 R*: 0.79 Rs Teff: 6063.0 K Logg: 4.58 Fe/H: -0.720



DV Fit Results:

Period = 41.86544 [0.00018] d
Epoch = 146.2020 [0.0035] BKJD
Rp/R* = 0.0671 [0.0357]
a/R* = 12.72 [1.55]
b = 1.00 [0.05]
Seff = 14.82 [4.97]
Teq = 500 [42] K
Rp = 5.77 [3.36] Re
a = 0.2252 [0.0469] AU
Ag = 13.39 [29.53] [0.42σ]
Teff = 1480 [809] K [1.21σ]

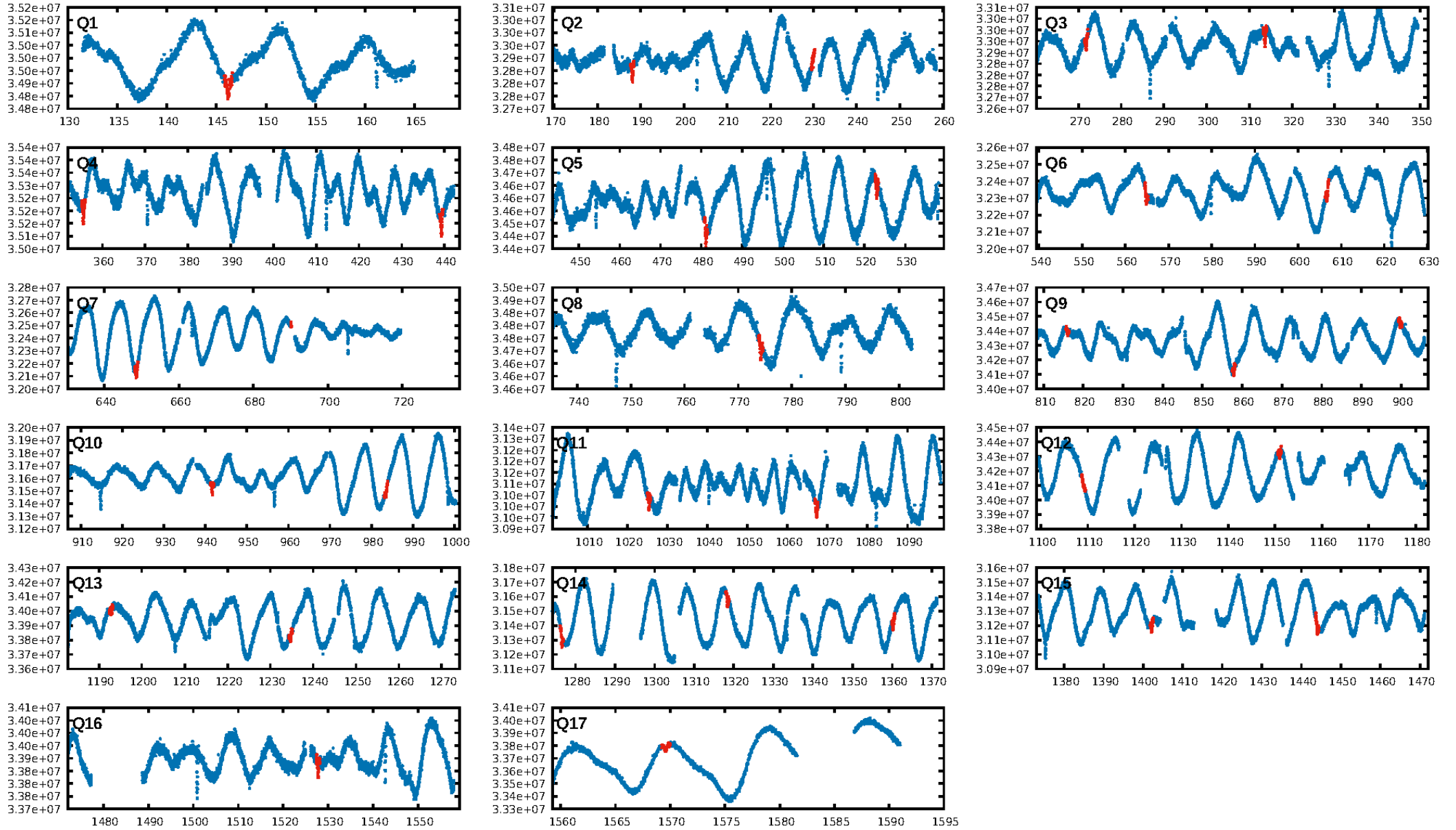
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 2.52e-200
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: 0.5211
Centroid-sig: 0.0%
Centroid-so: 4.820 arcsec [24.45σ]
OotOffset-rm: 3.716 arcsec [49.13σ]
KicOffset-rm: 3.707 arcsec [45.13σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

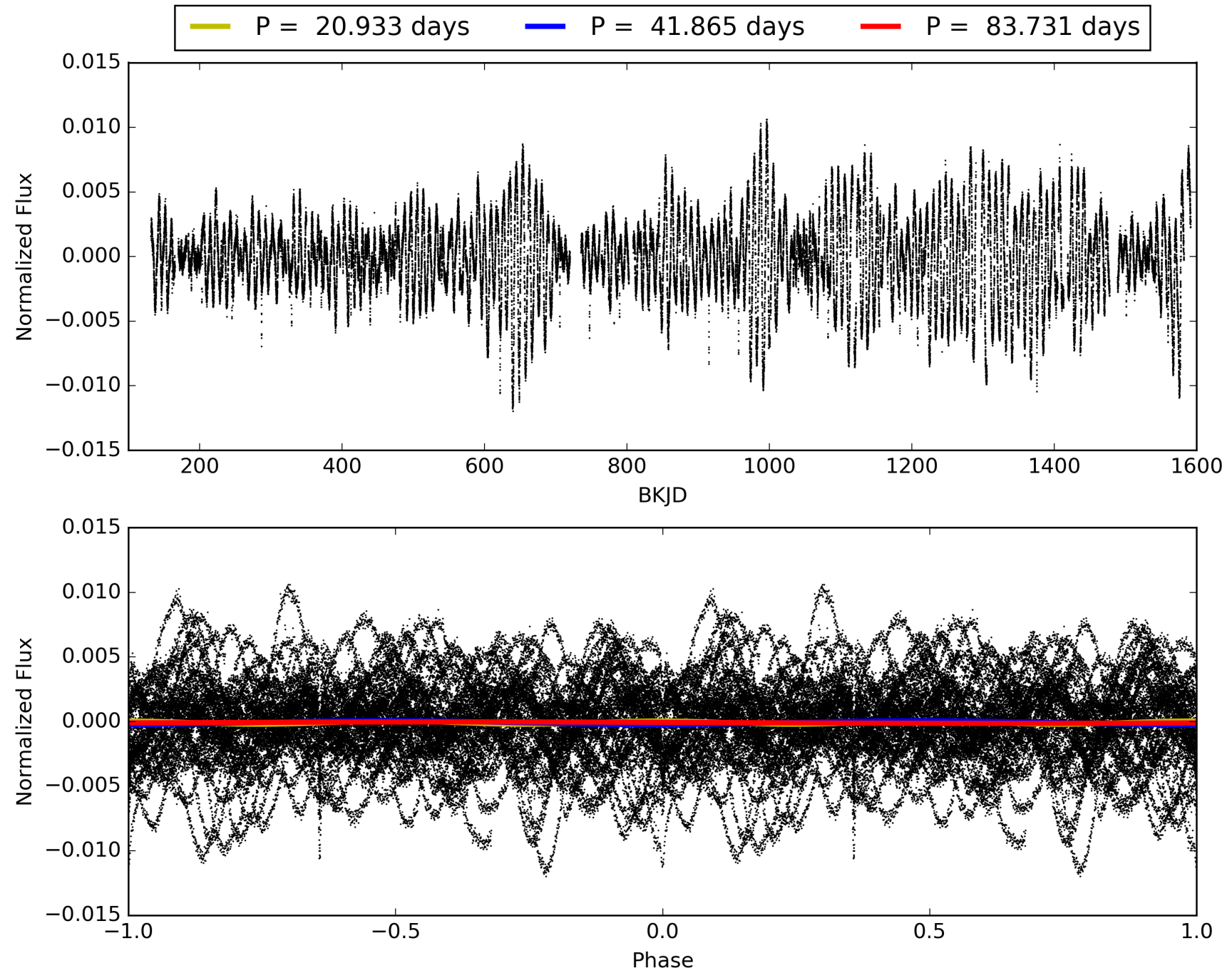
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:58:01 Z

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

TCE 005643492-02, PDC Light Curves

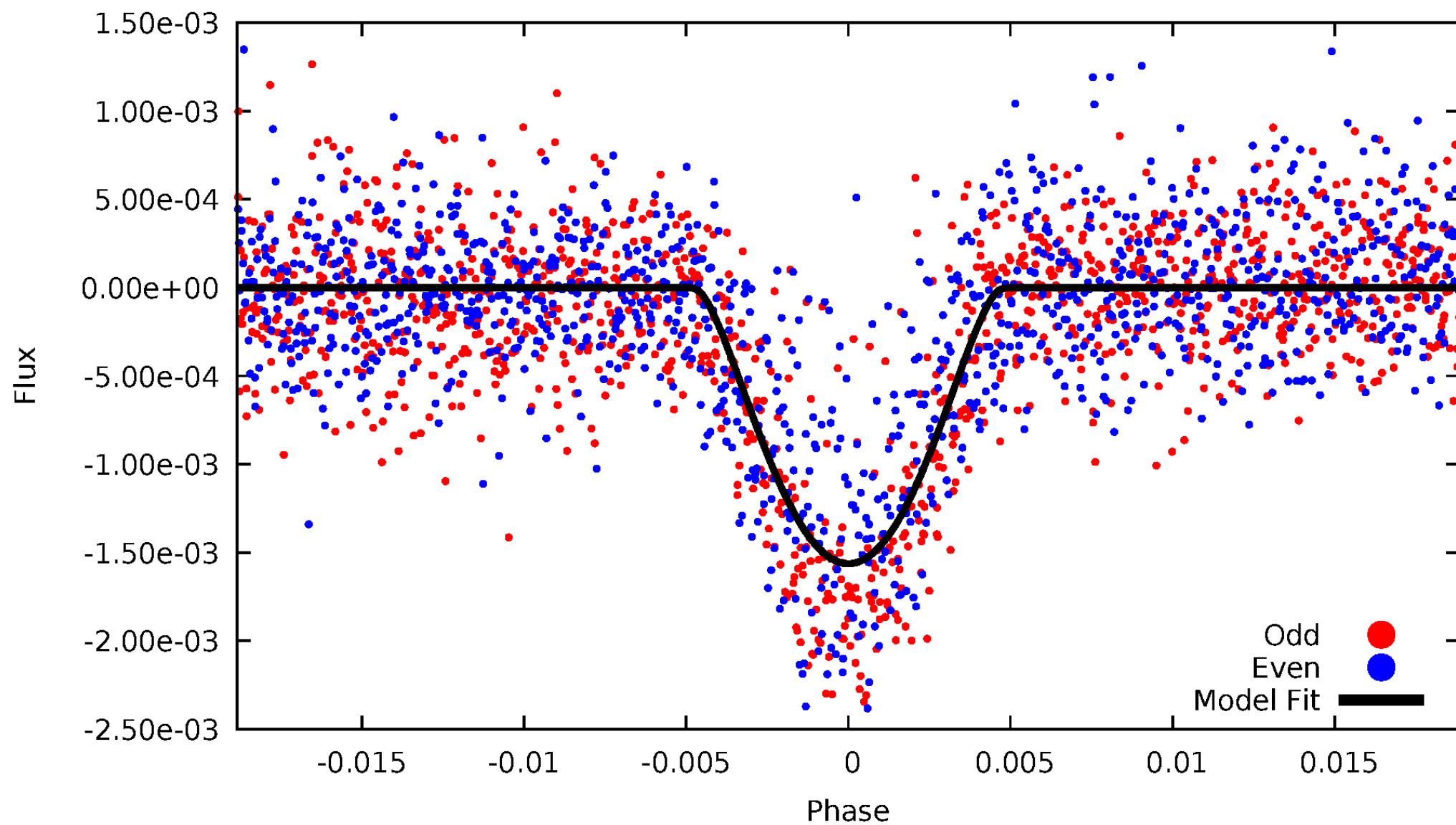


TCE 005643492-02



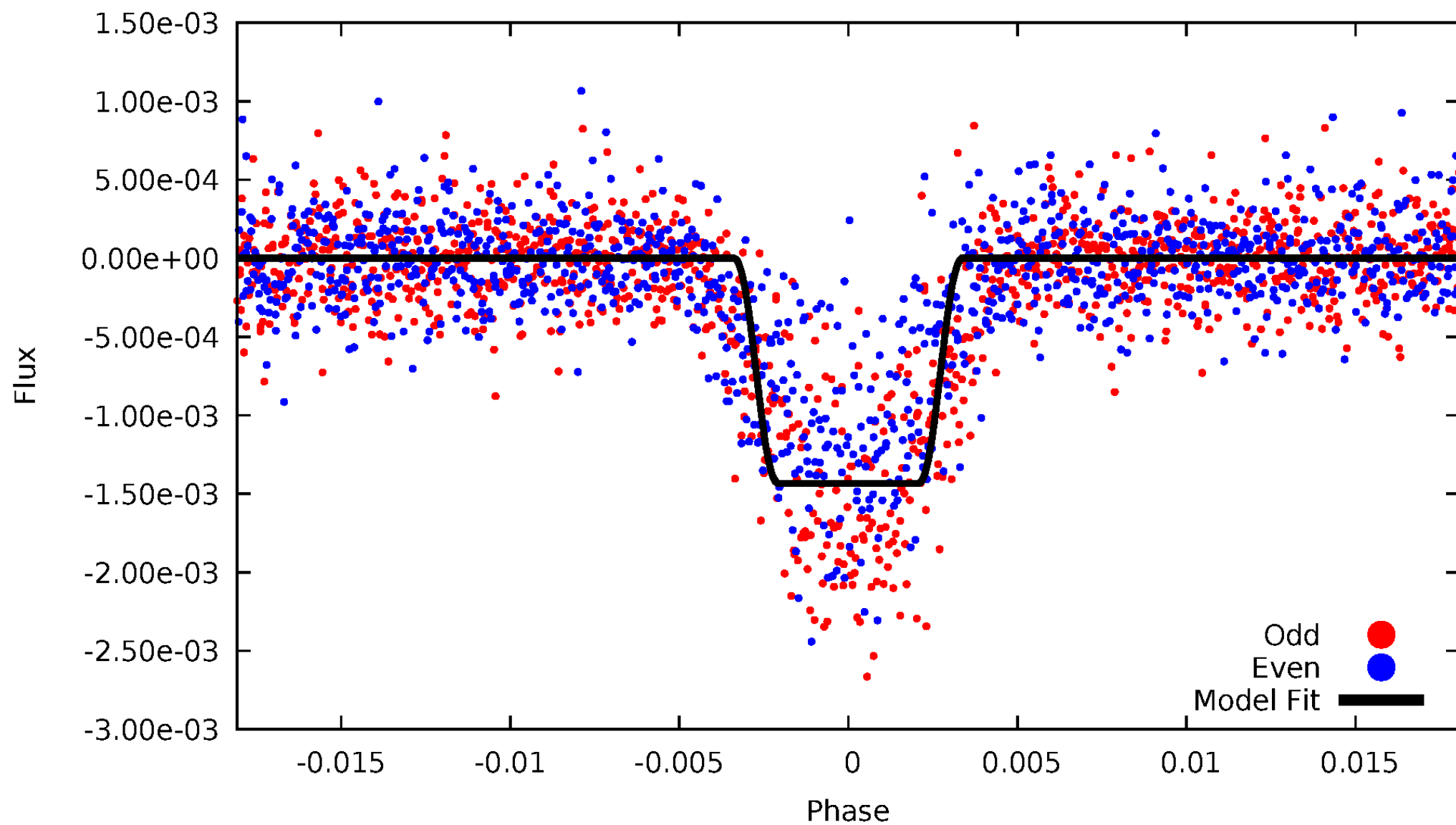
DV Odd/Even

TCE 005643492-02



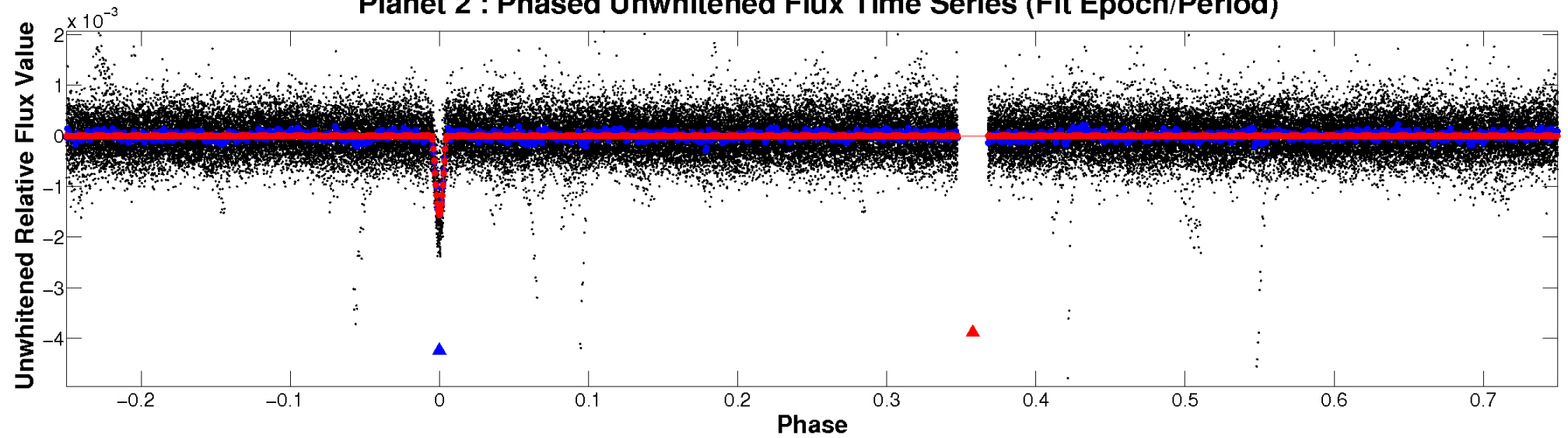
ALT Odd/Even

TCE 005643492-02

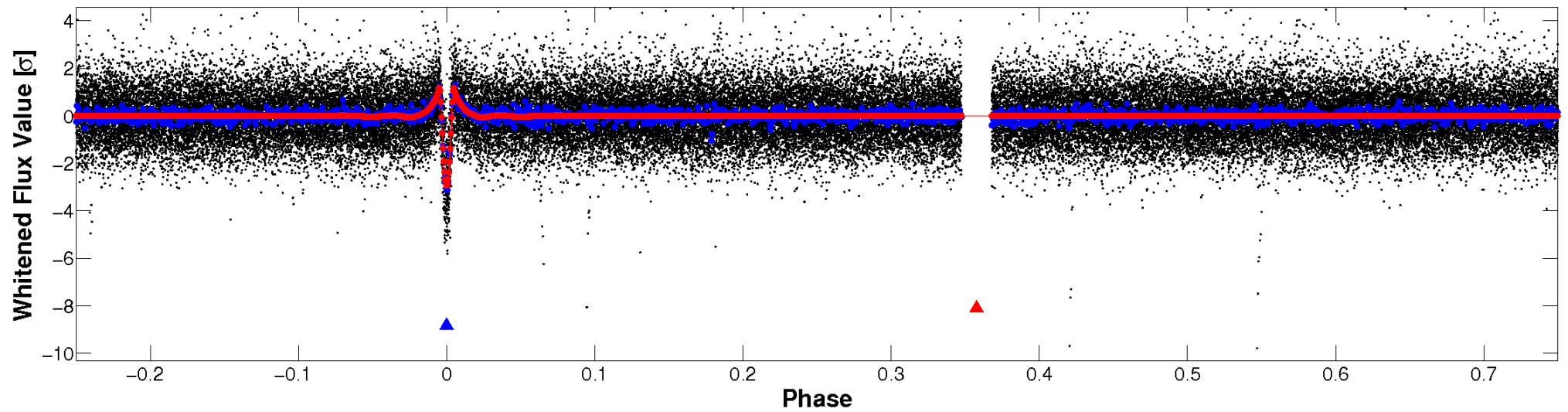


Non-Whitened Vs. Whitened Light Curve

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

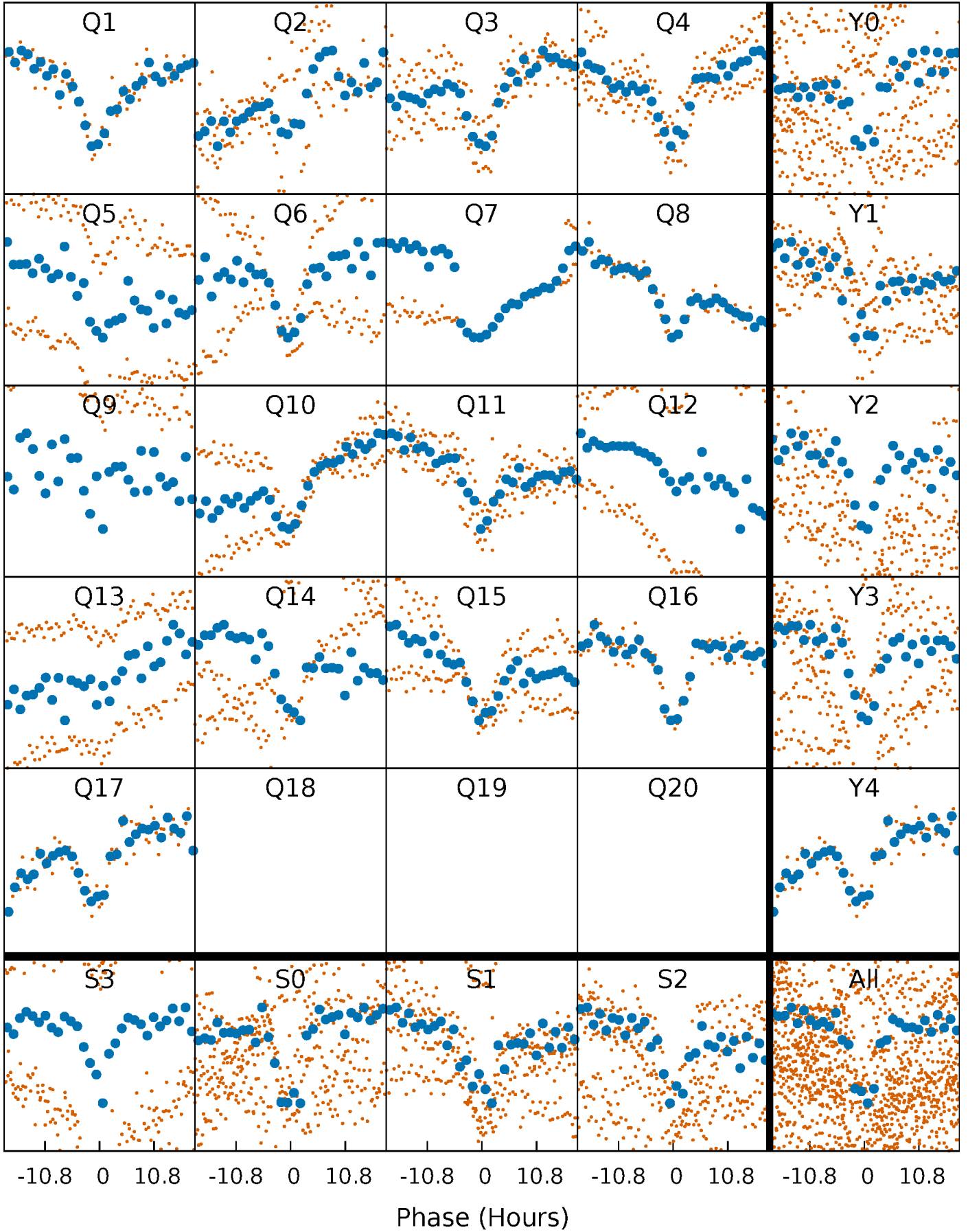


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



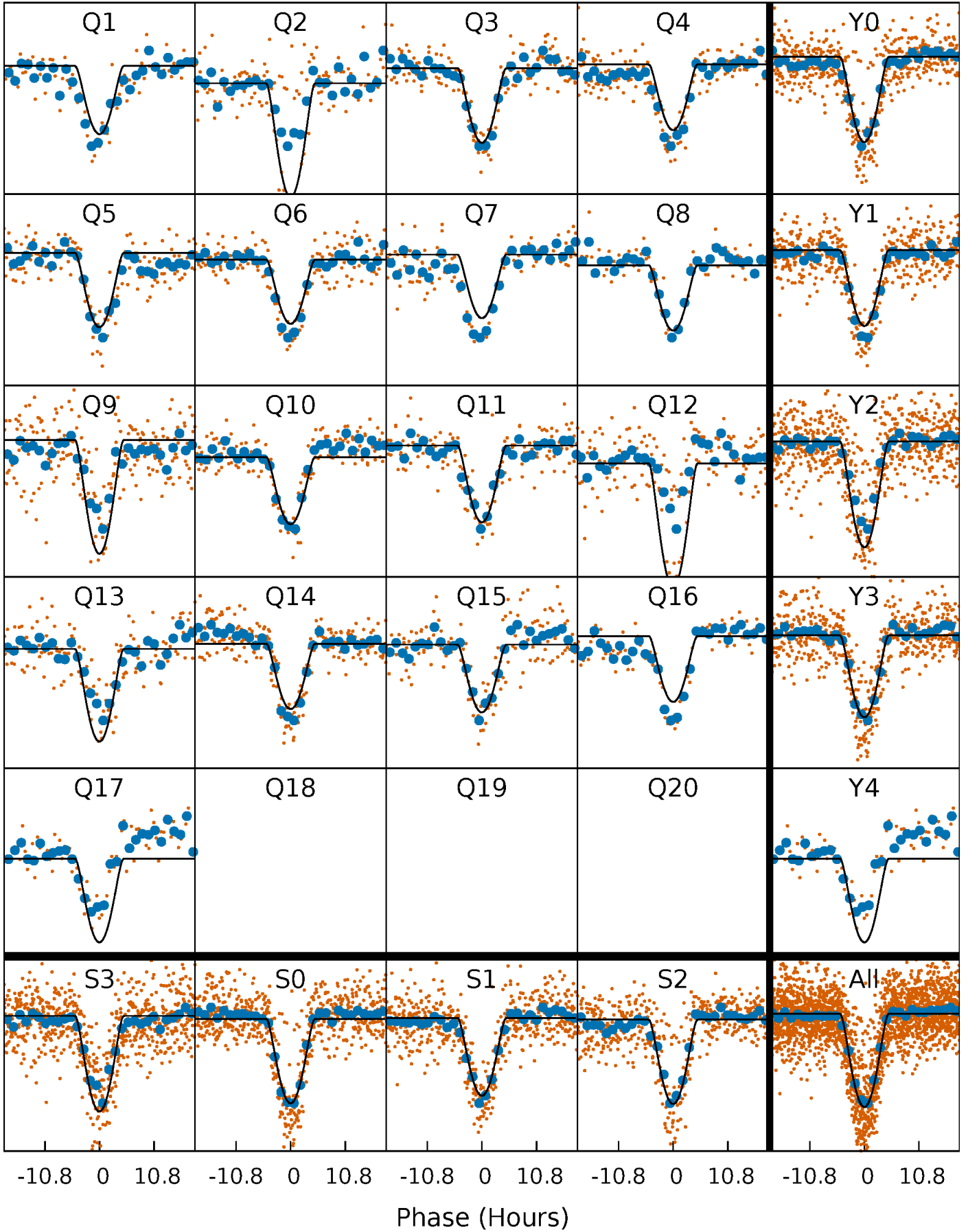
PDC Quarter-Phased Transit Curves

TCE 005643492-02 $P = 41.865443$ Days $T_0 = 146.202045$ (BKJD)



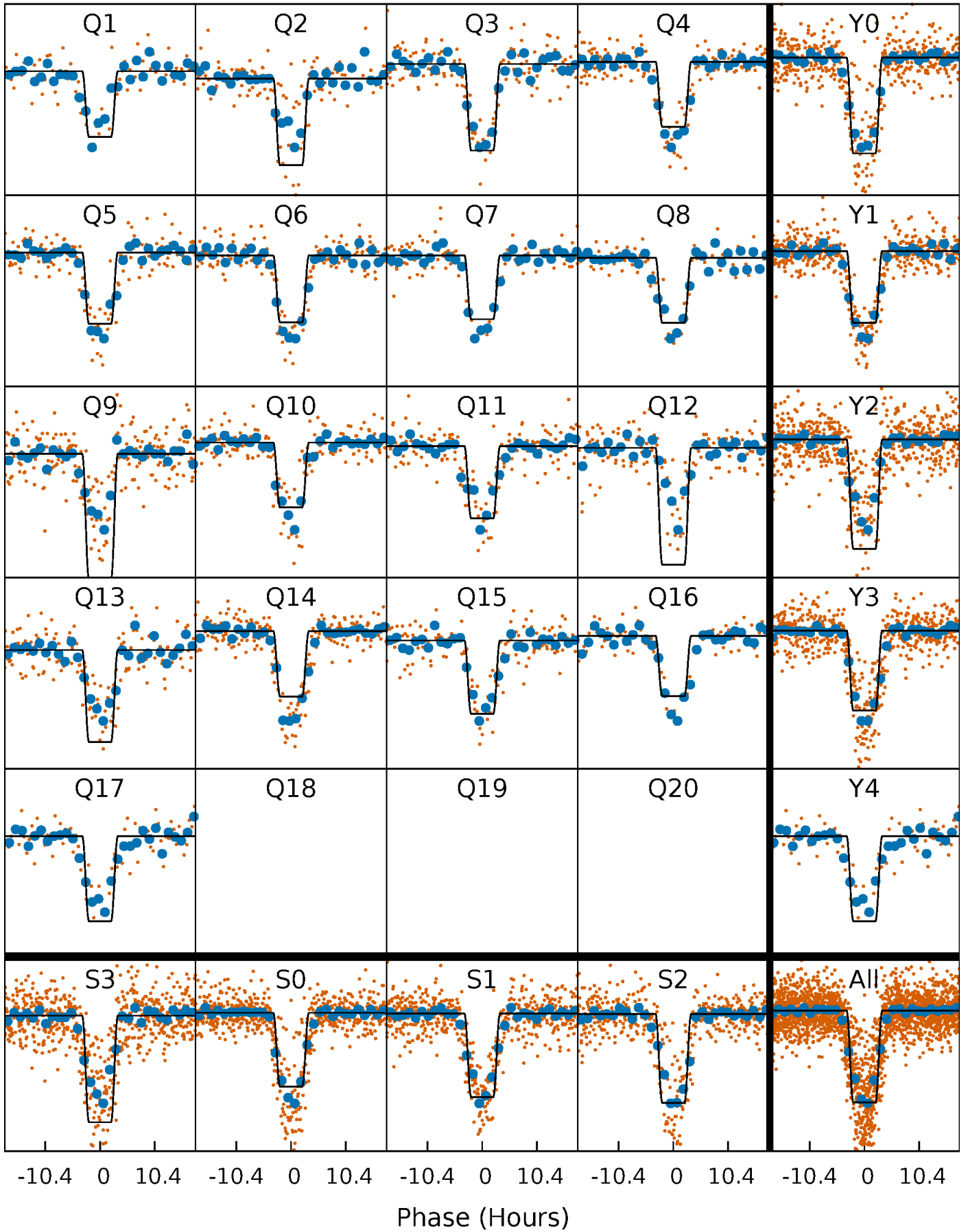
DV Quarter-Phased Transit Curves

TCE 005643492-02 $P = 41.865443$ Days $T_0 = 146.202045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

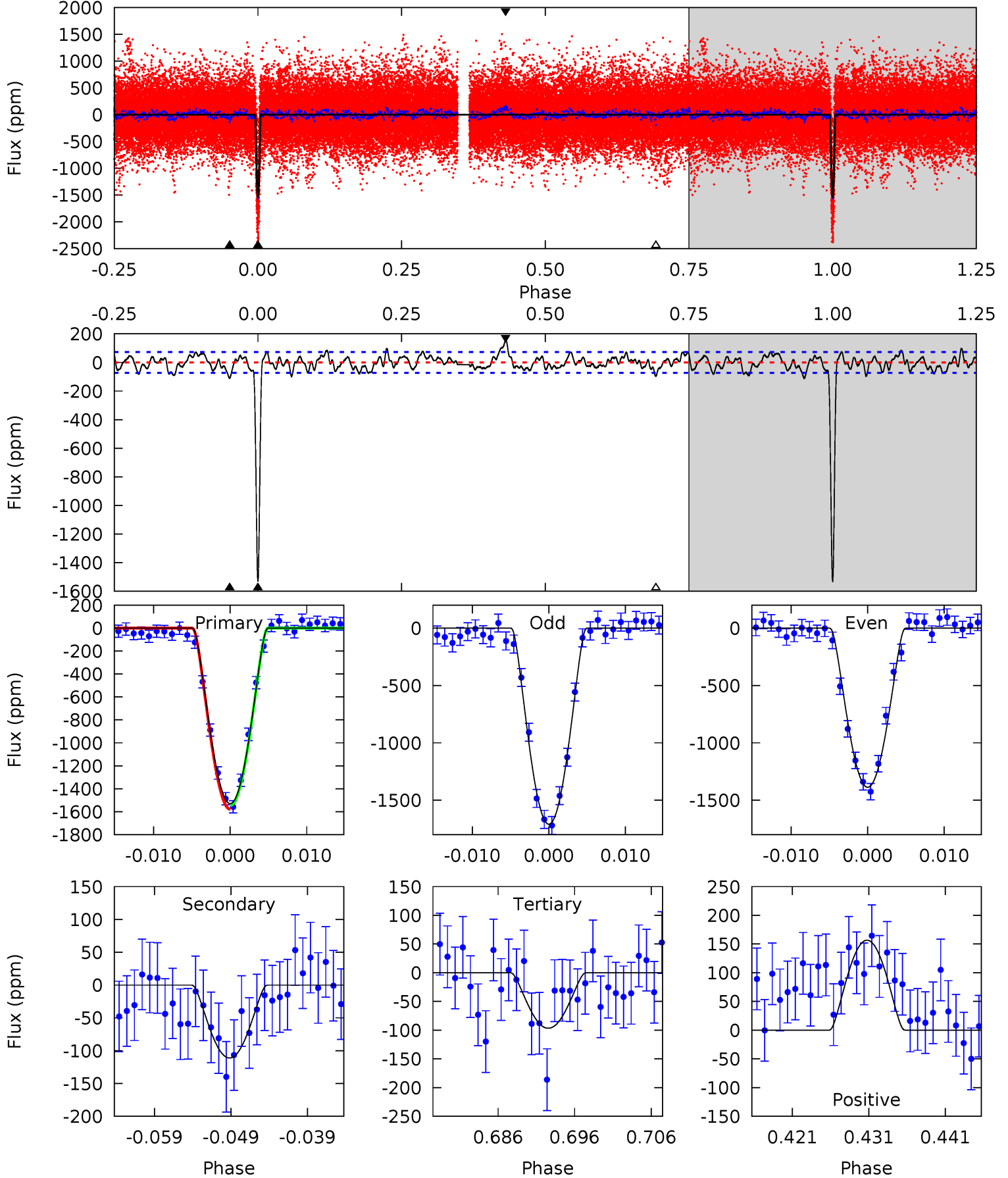
TCE 005643492-02 $P = 41.864753$ Days $T_0 = 146.212250$ (BKJD)



DV Model-Shift Uniqueness Test

005643492-02, P = 41.865443 Days, E = 104.336602 Days

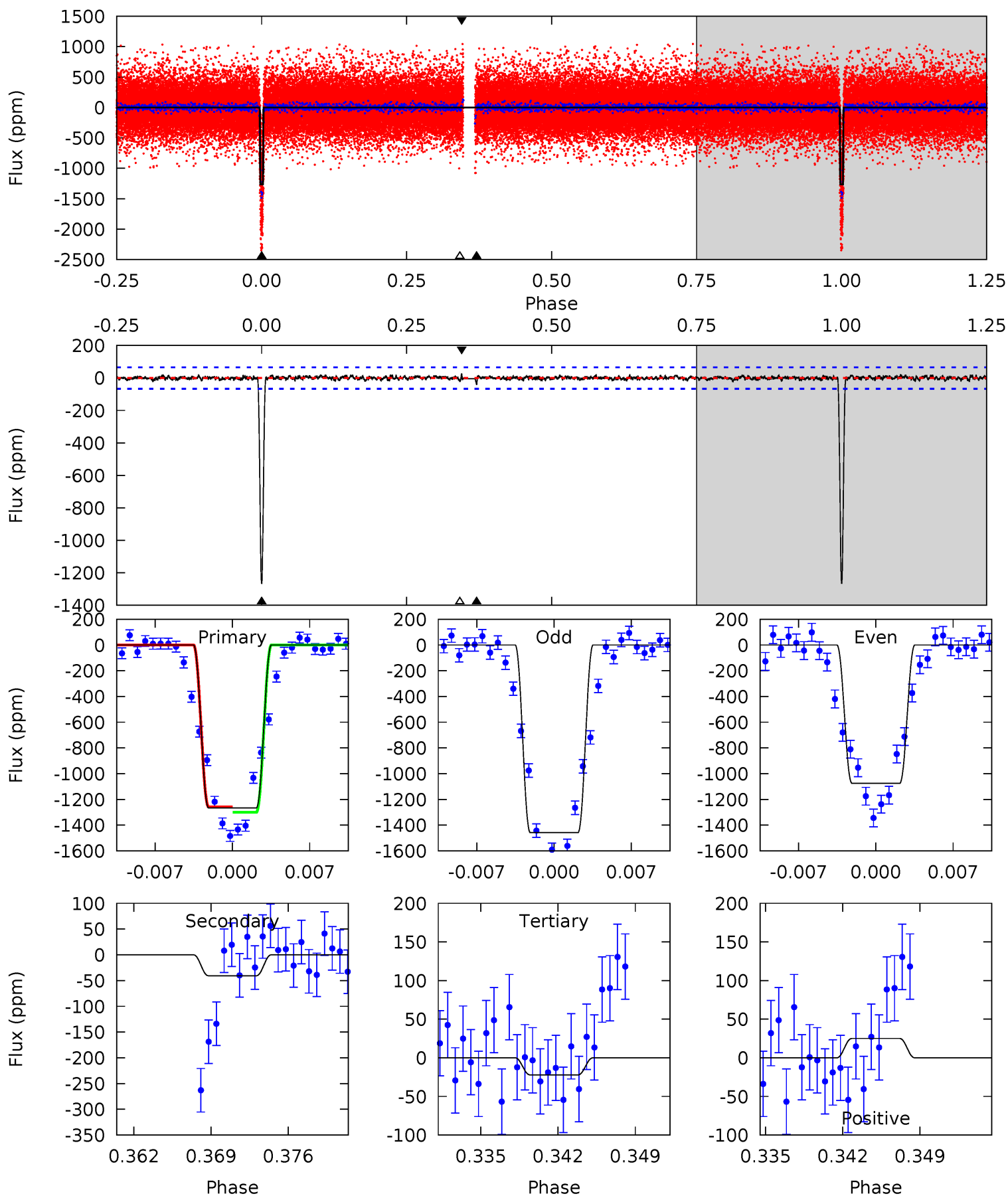
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.8	7.69	6.69	10.8	5.03	2.58	2.75	99.1	95.0	1.00	-3.15	11.1	0.88	0.09	1.09



Alt Model-Shift Uniqueness Test

005643492-02, P = 41.864753 Days, E = 104.347497 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
97.9	3.14	1.71	1.93	5.10	2.71	0.53	96.1	95.9	1.43	1.21	14.8	0.93	0.02	1.58



Stellar Parameters For KIC 005643492

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6063^{+164}_{-182}	$4.584^{+0.033}_{-0.176}$	$-0.720^{+0.250}_{-0.300}$	$0.788^{+0.187}_{-0.062}$	$0.874^{+0.072}_{-0.099}$	$2.515^{+0.420}_{-1.154}$
	+3%/-3%	+1%/-4%	+35%/-42%	+24%/-8%	+8%/-11%	+17%/-46%
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 005643492-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-111 ± 14	$6.37^{+3.20}_{-3.20}$	714^{+40}_{-29}	3015^{+698}_{-322}	76^{+230}_{-43}
Alt.	-41 ± 13	$3.92^{+3.16}_{-2.41}$	714^{+46}_{-30}	2999^{+1090}_{-459}	75^{+434}_{-54}

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

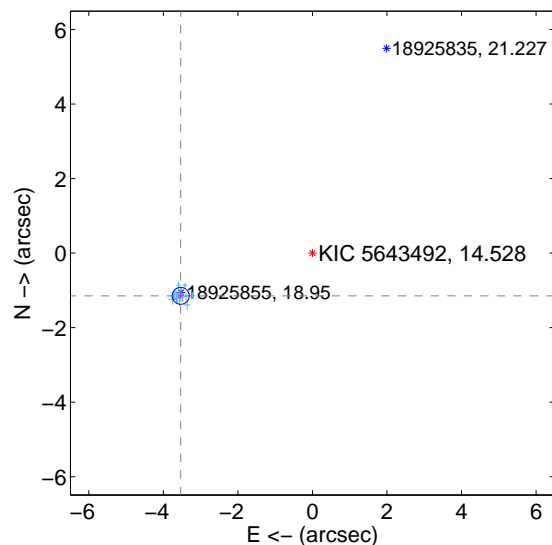
Supplemental centroid analysis for 005643492-02. Kepler magnitude: 14.53. Transit SNR 47.10

There are 16 quarters with good PRF difference image offsets

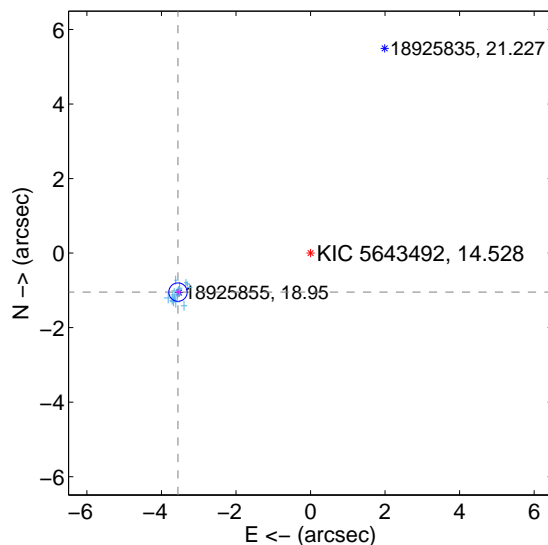
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.716 ± 0.076	49.13	3.534 ± 0.076	-1.146 ± 0.071
PRF-fit source offset from KIC position	3.707 ± 0.082	45.13	3.556 ± 0.079	-1.047 ± 0.080
photometric centroid source offset	4.82 ± 0.20	24.45	4.54 ± 0.20	-1.61 ± 0.17

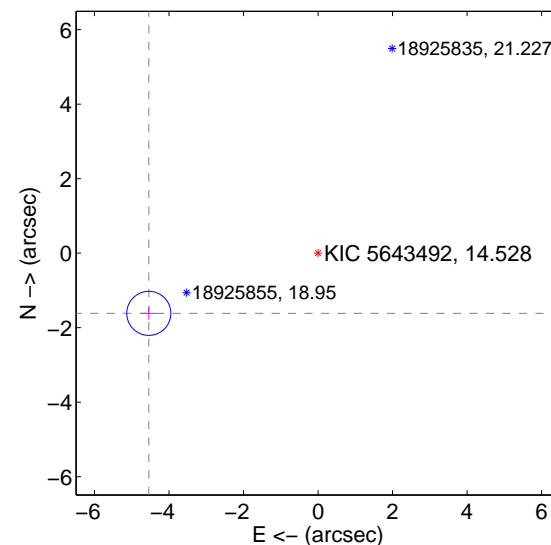
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

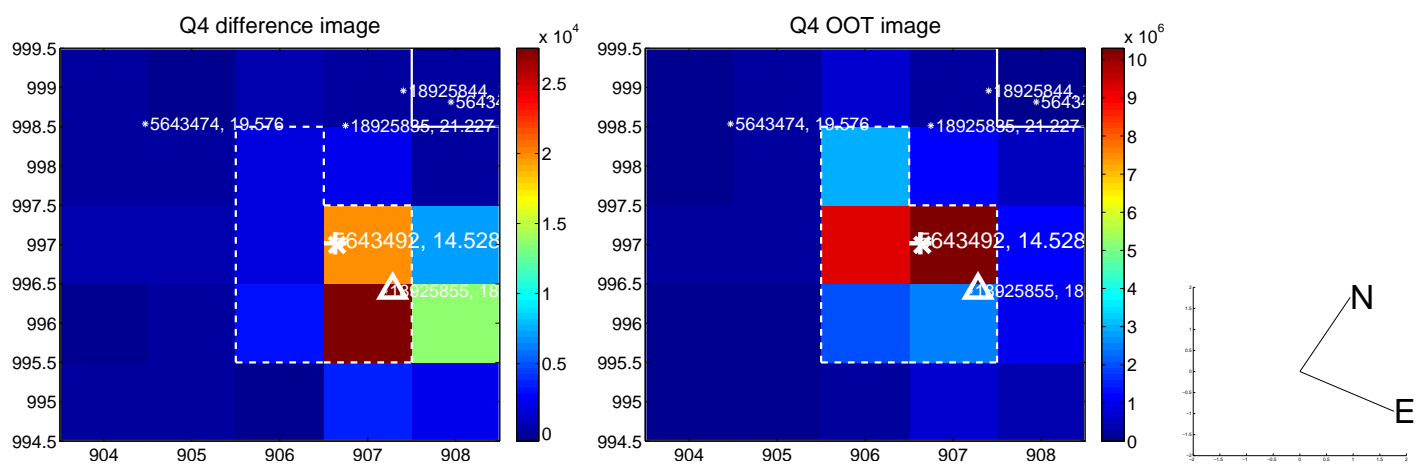
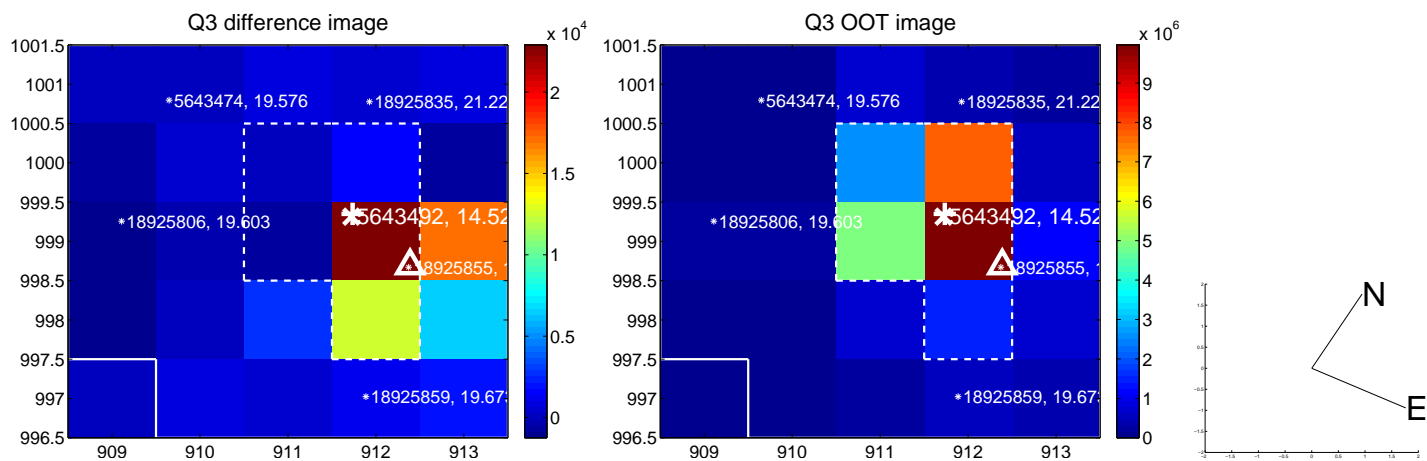
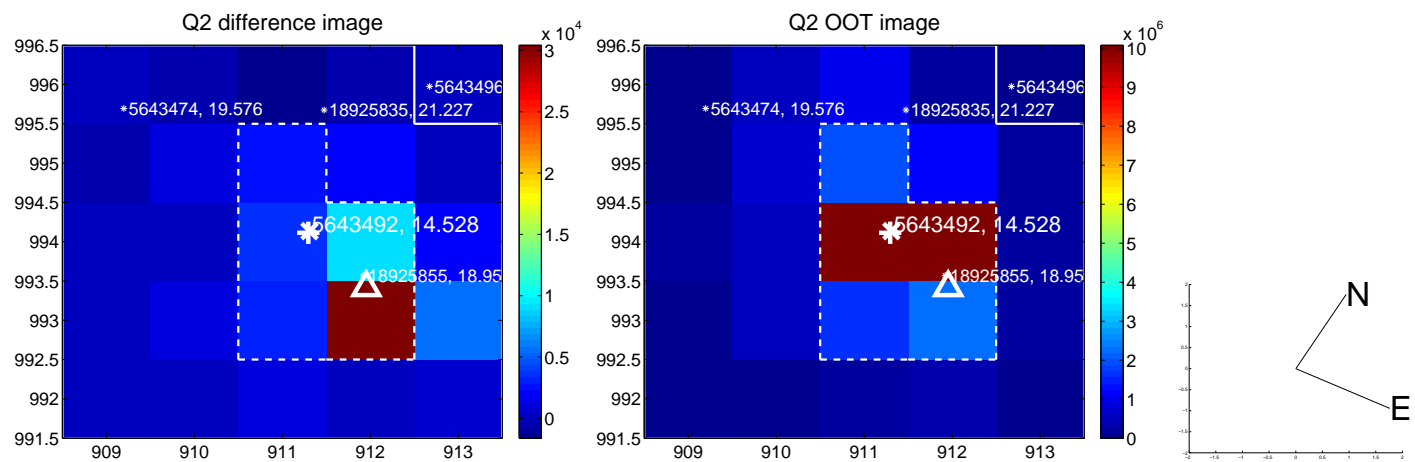
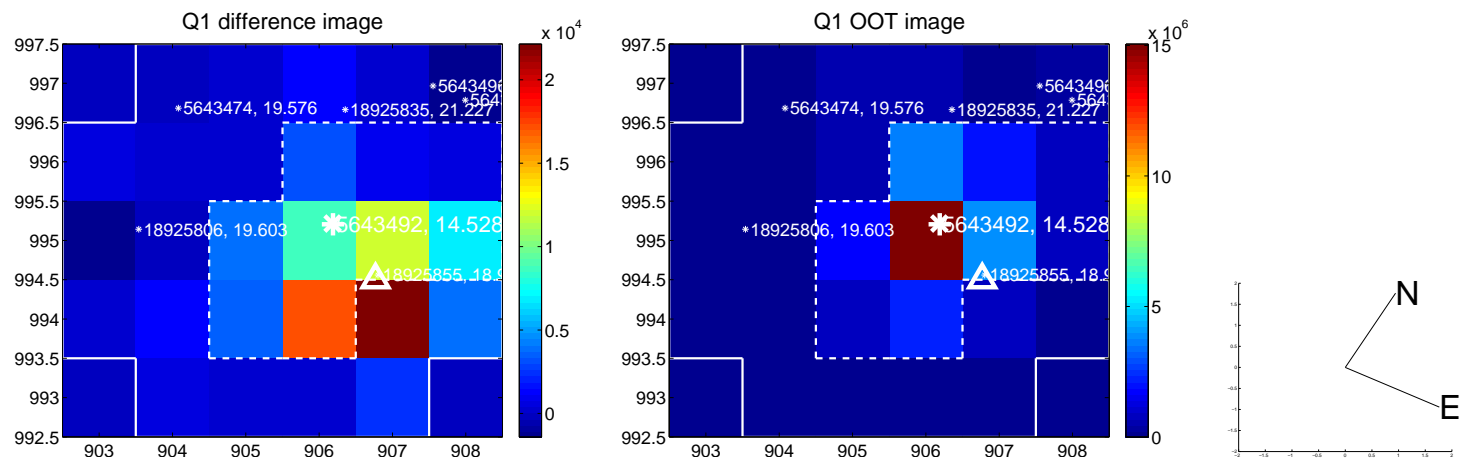


offset from photometric centroids

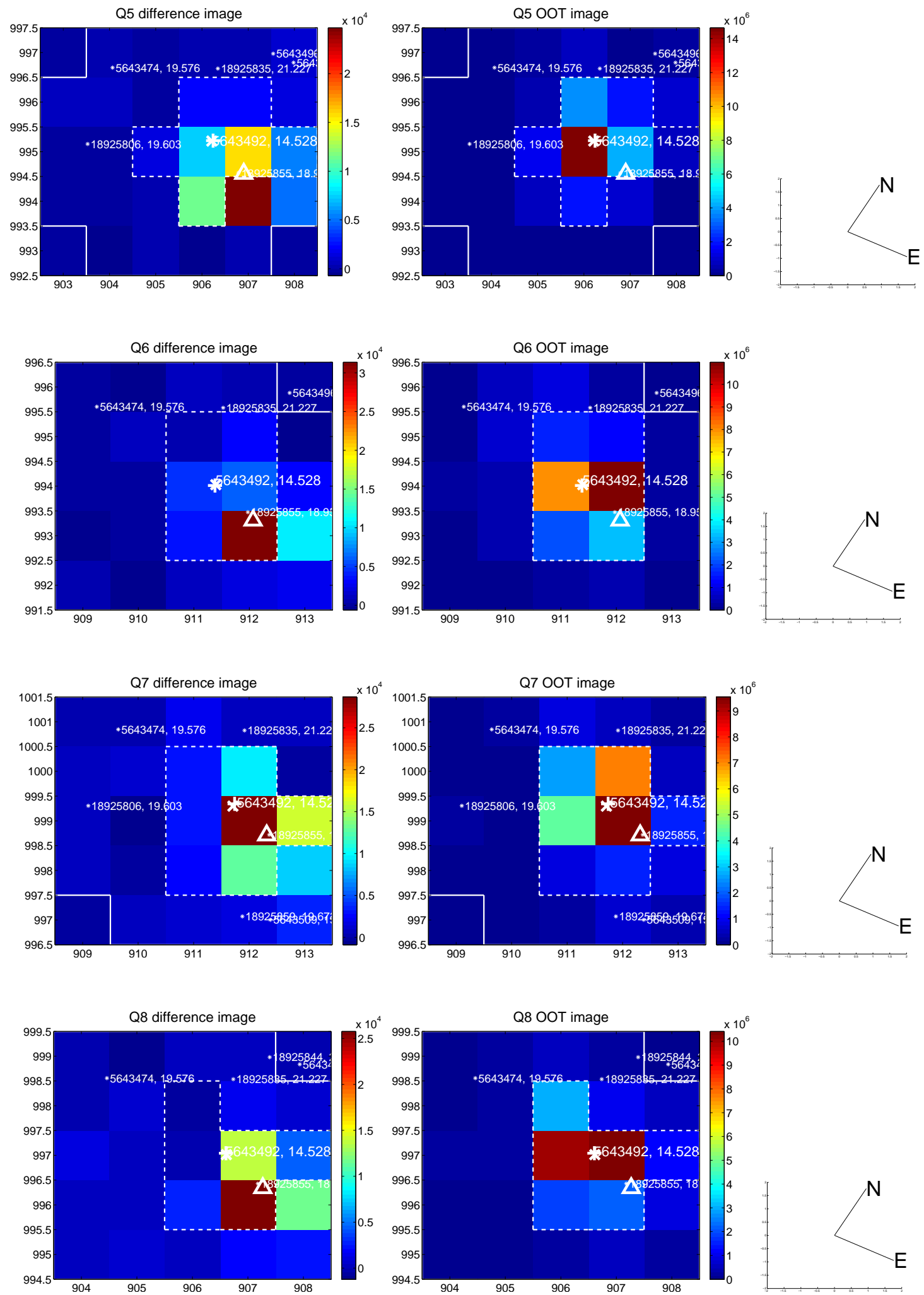


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

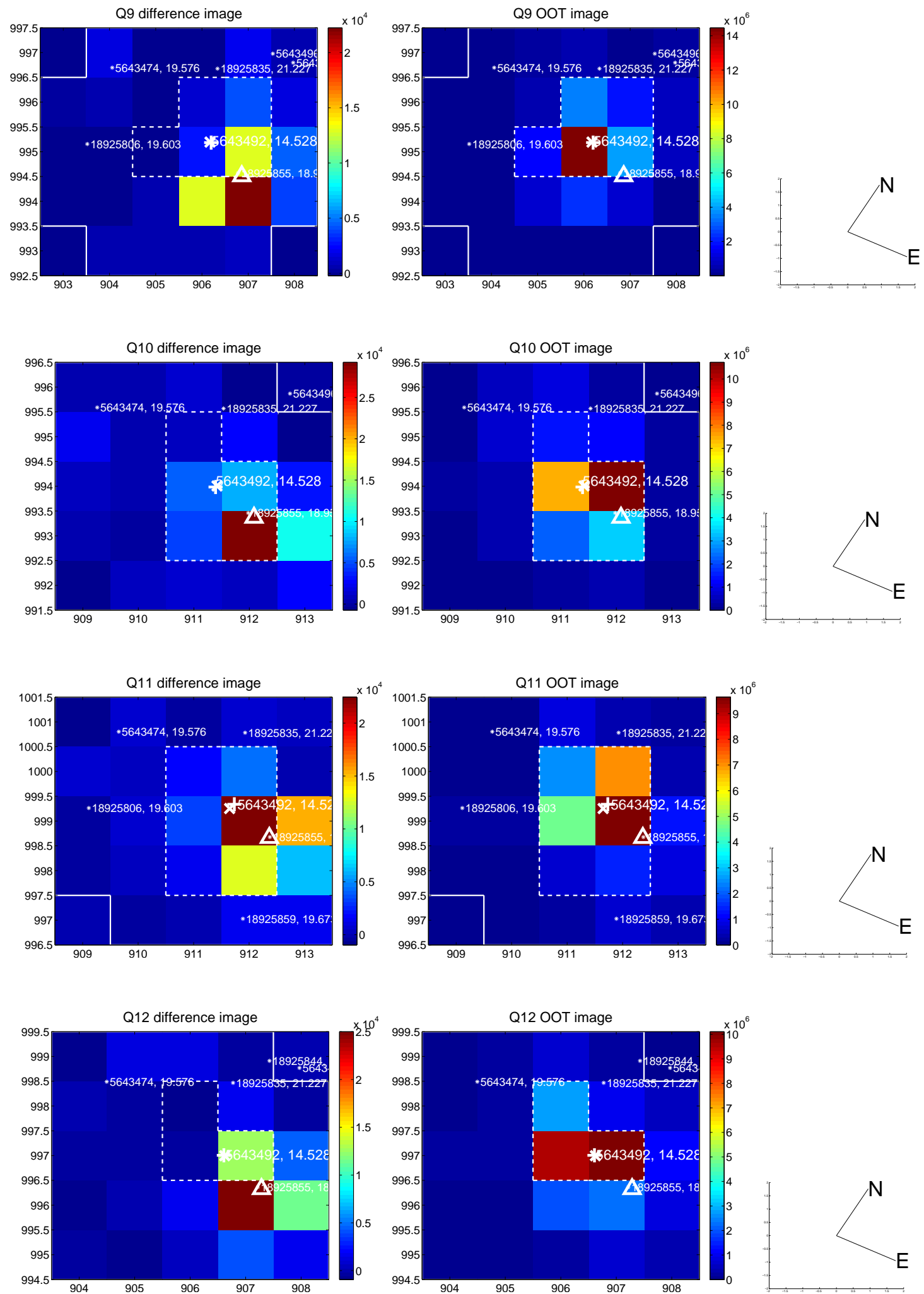
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



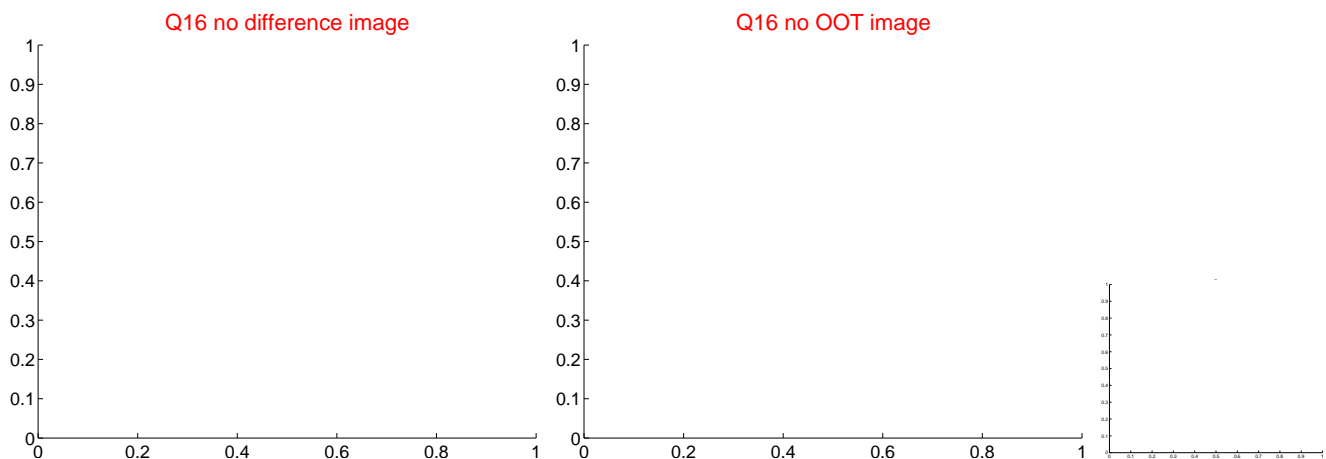
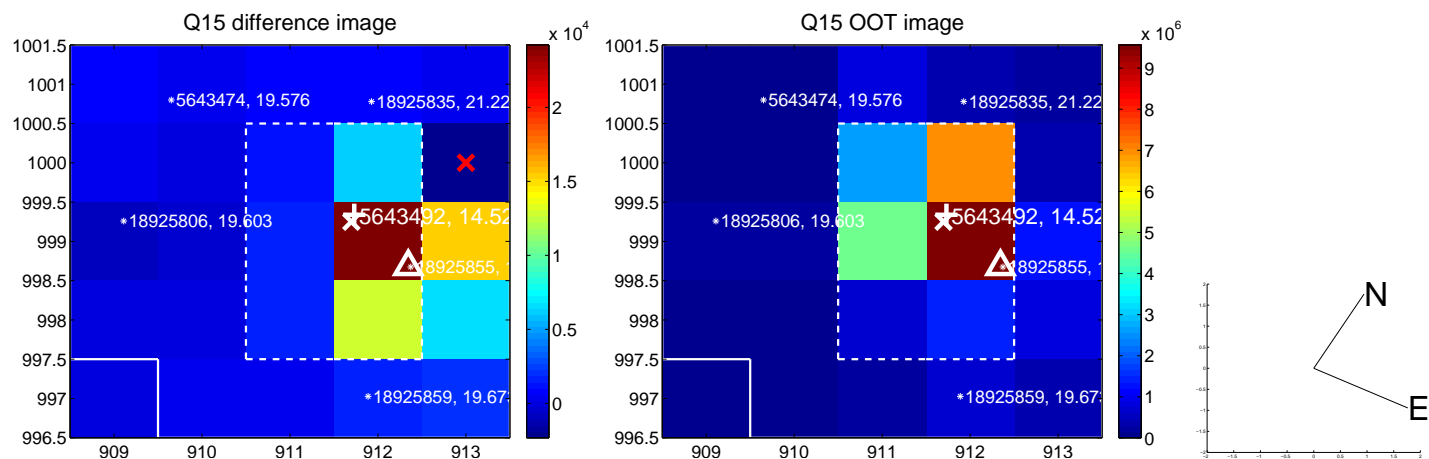
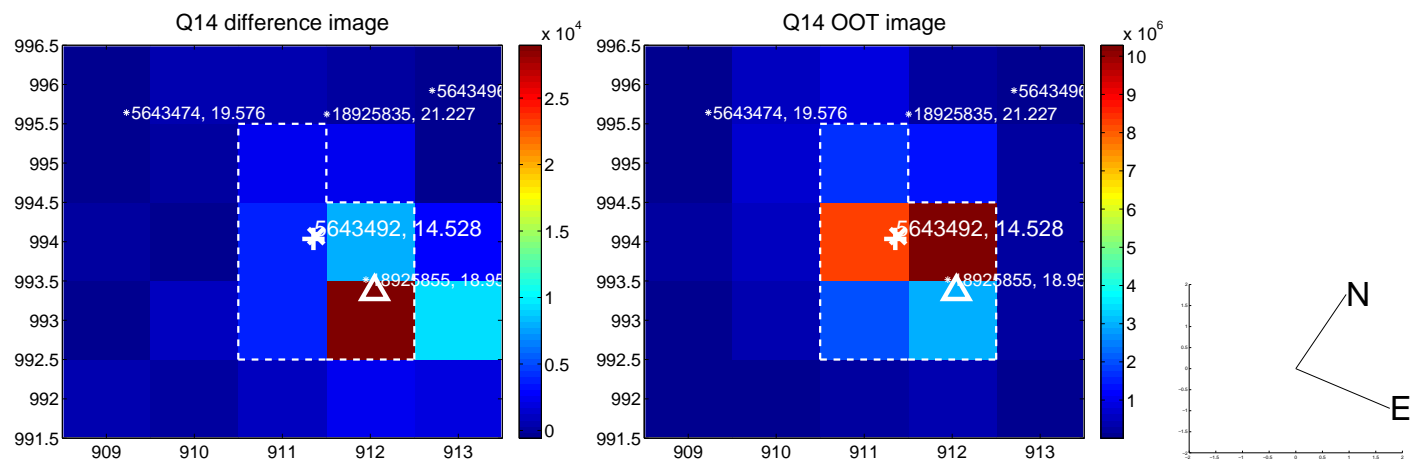
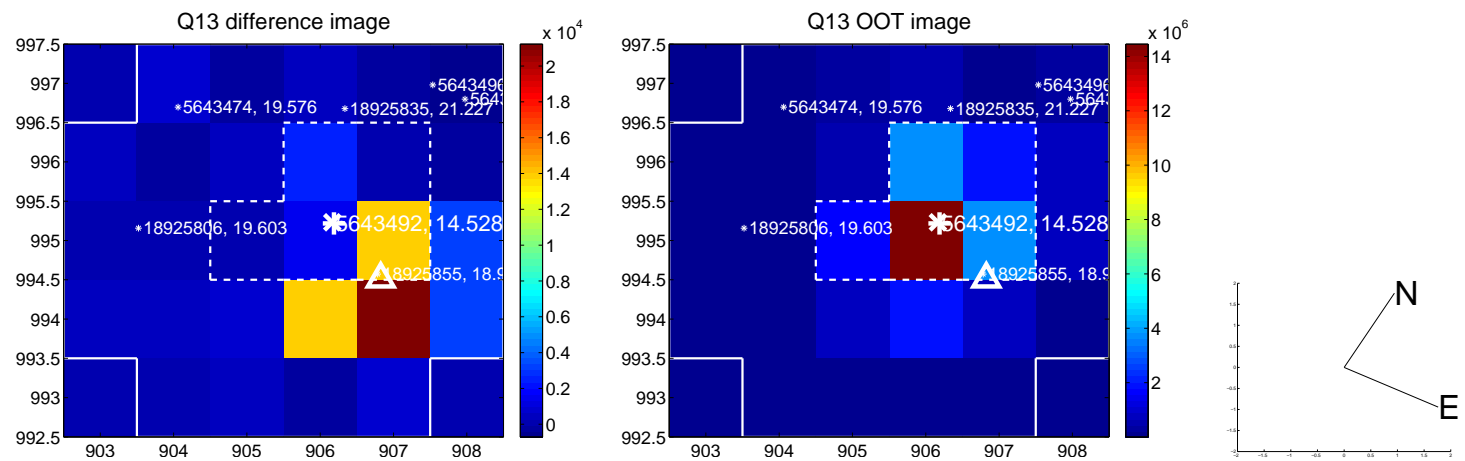
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



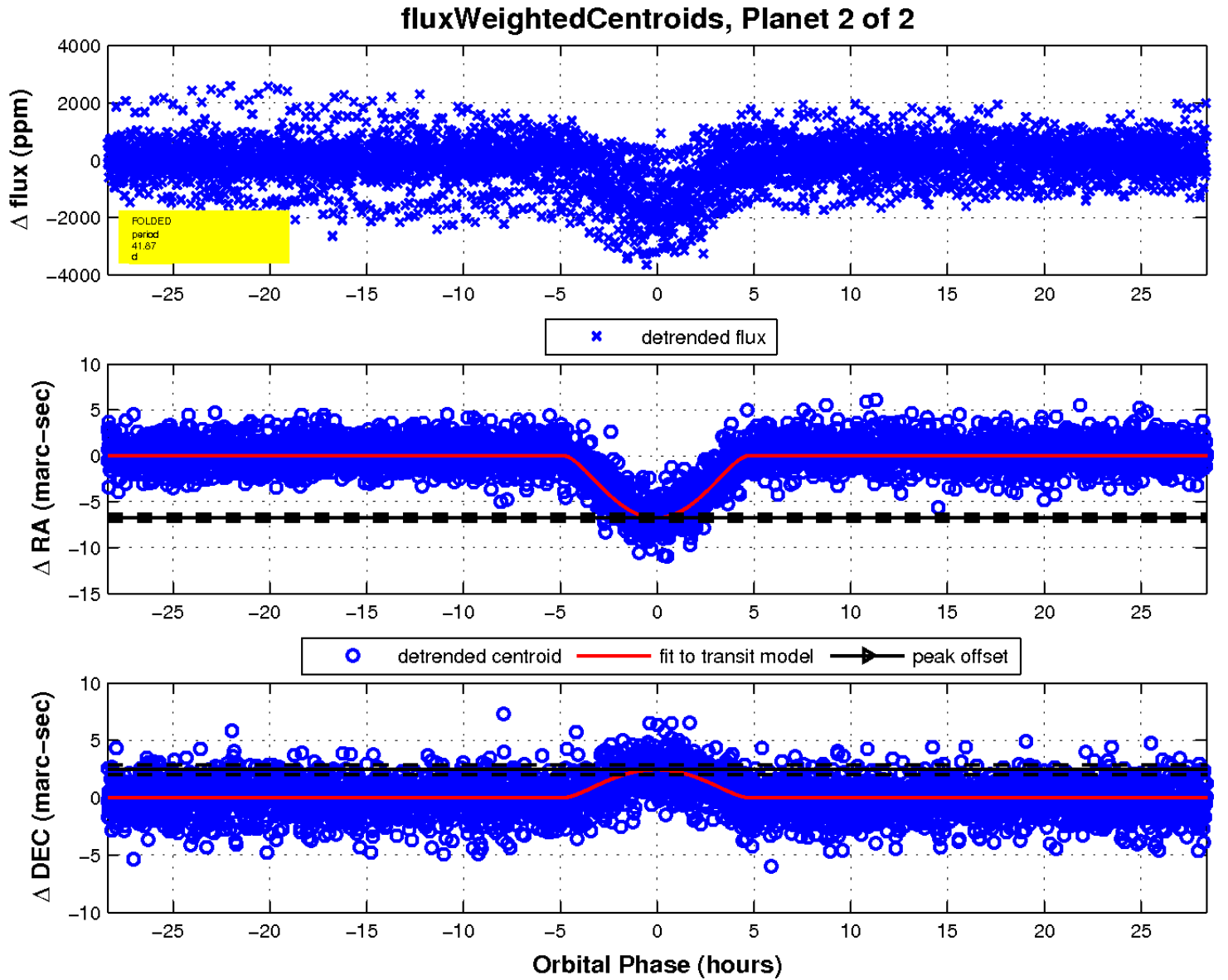
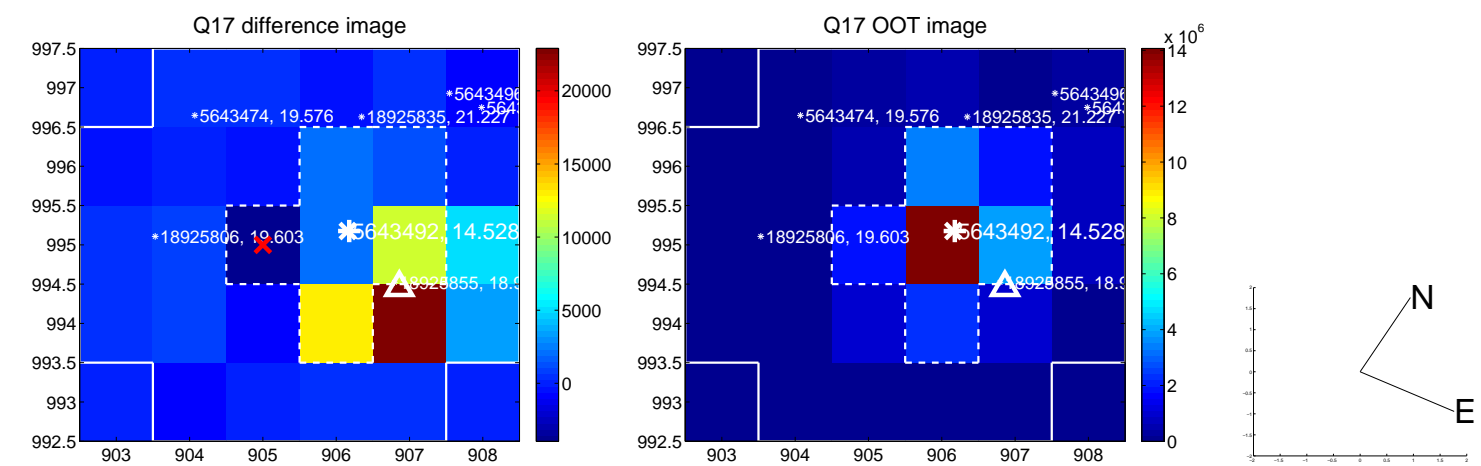
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

