

KIC 009001468

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})
009001468-01	OBS	7120.01	17.329966	142.727256	252253.3	8.453	5939.2	4216.6	0.68	5079	45.62	21.37
009001468-02	OBS	No	17.329983	148.105665	67023.7	3.021	1483.0	1177.0	0.68	5079	26.63	21.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009001468-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009001468-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

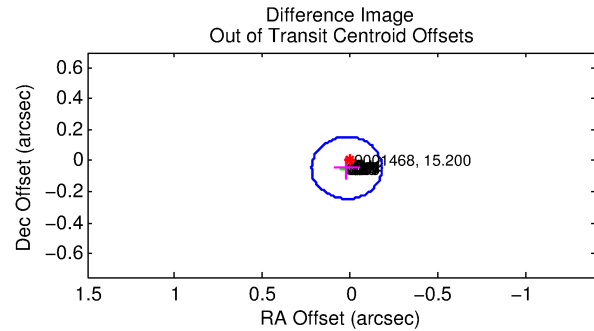
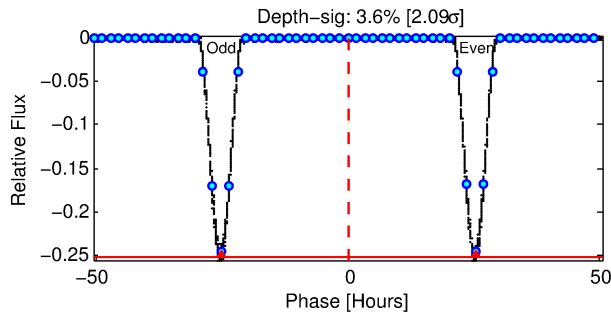
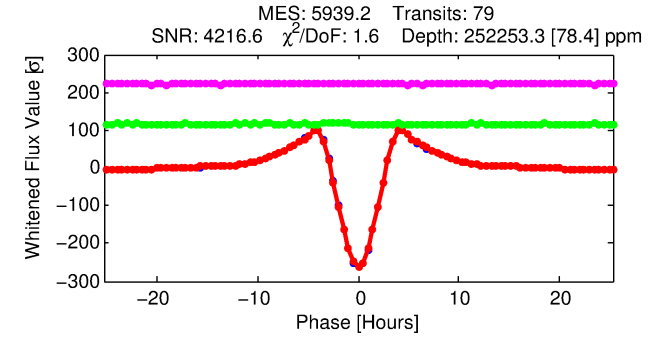
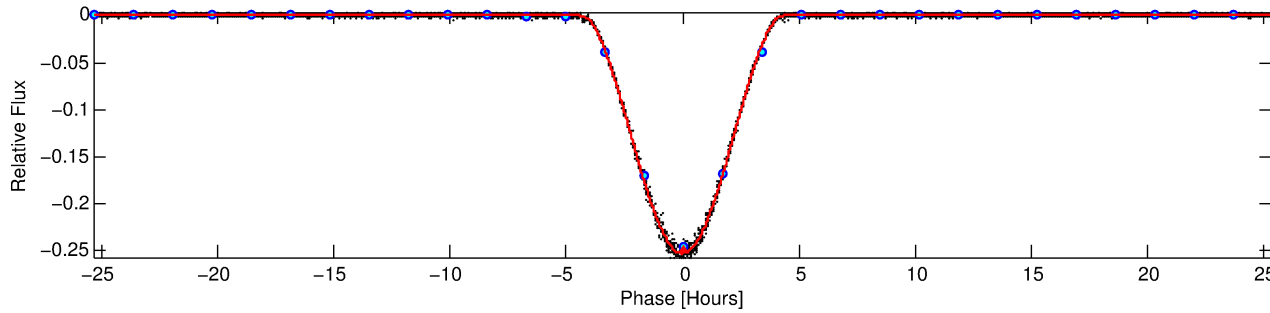
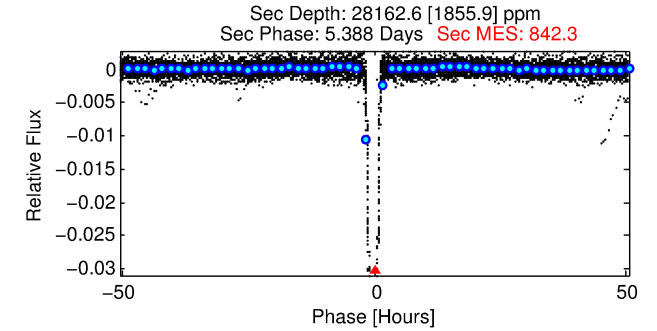
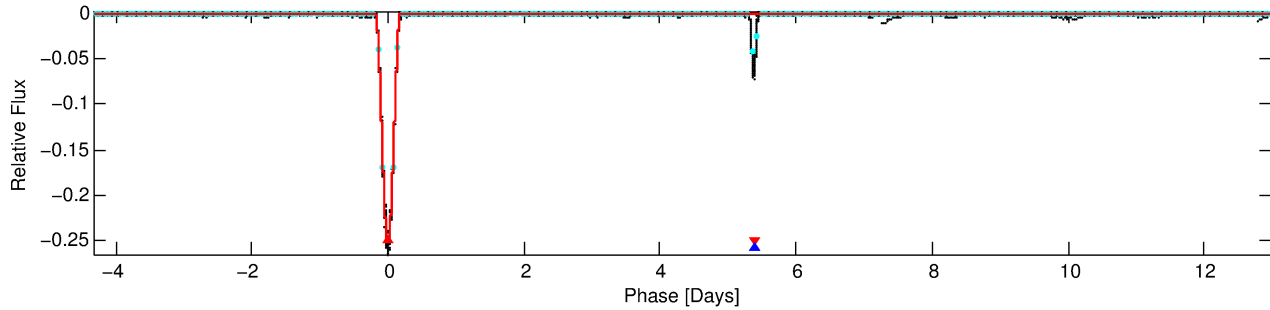
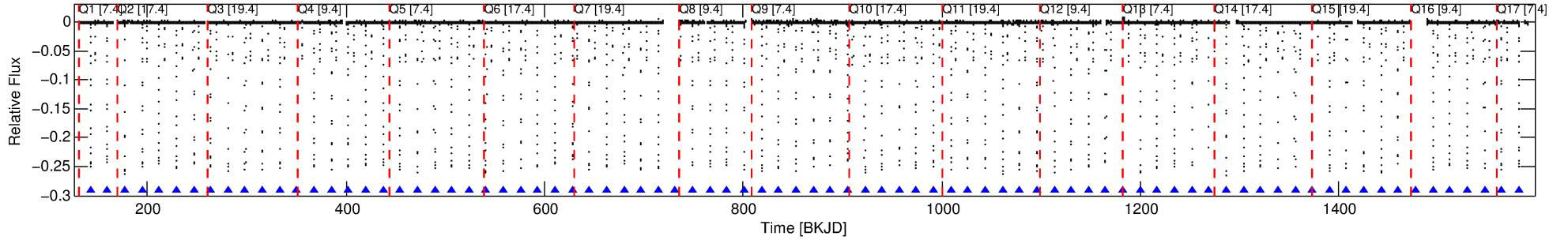
Ephemeris Match Information For 009001468-01

No Significant Match Found

DV One-Page Summary

KIC: 9001468 Candidate: 1 of 2 Period: 17.330 d
KOI: K07120.01 Corr: 0.999

Kp: 15.20 R*: 0.68 Rs Teff: 5079.0 K Logg: 4.59 Fe/H: -0.560



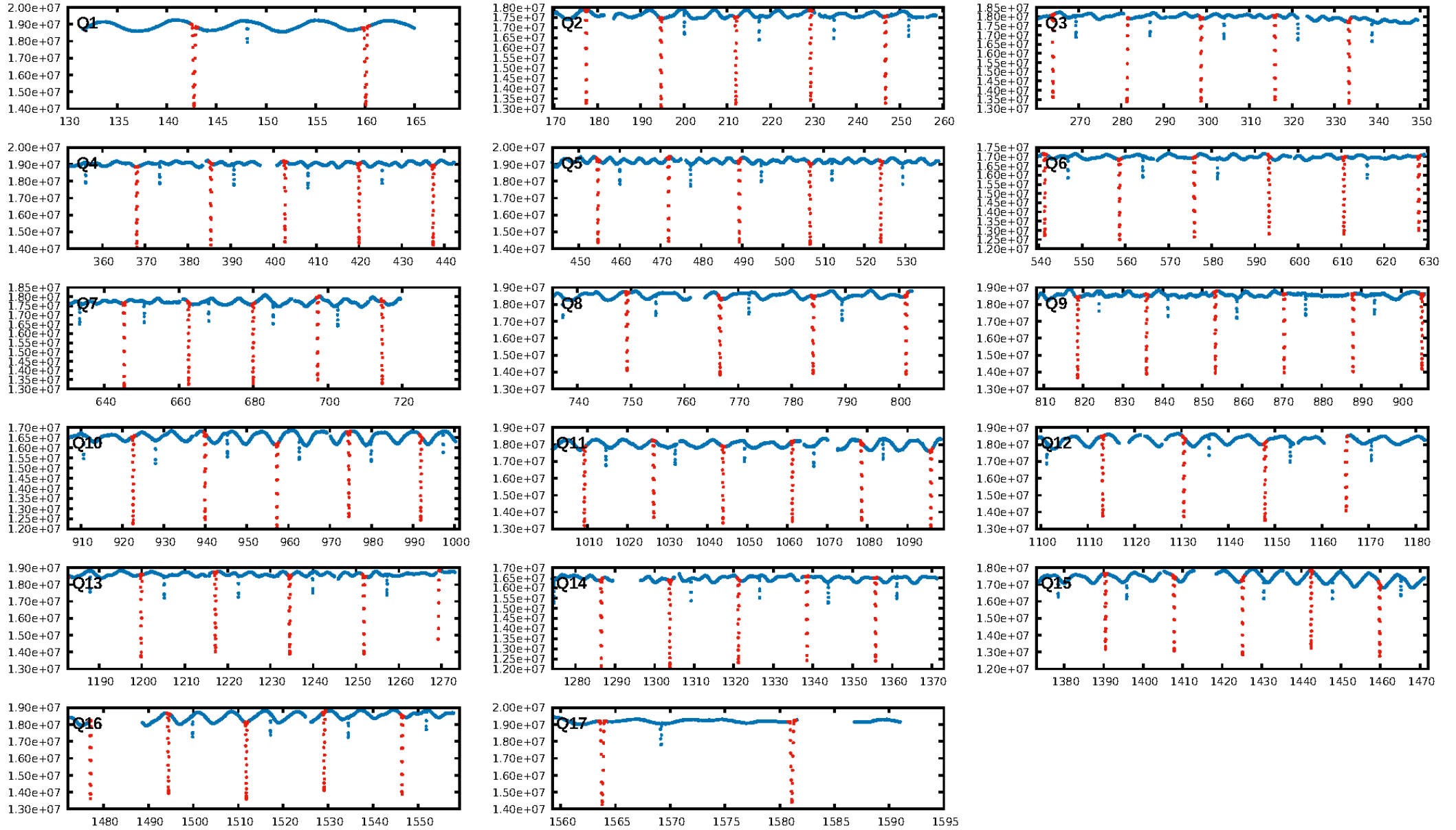
DV Fit Results:

Period = 17.32997 [0.00000] d
Epoch = 142.7273 [0.0000] BKJD
Rp/R* = 0.6120 [0.0075]
a/R* = 22.21 [0.05]
b = 0.77 [0.01]
Seff = 21.37 [3.90]
Teq = 548 [25] K
Rp = 45.62 [4.38] Re
a = 0.1141 [0.0096] AU
Ag = 96.89 [14.10] [6.80σ]
Teffp = 2660 [99] K [20.73σ]

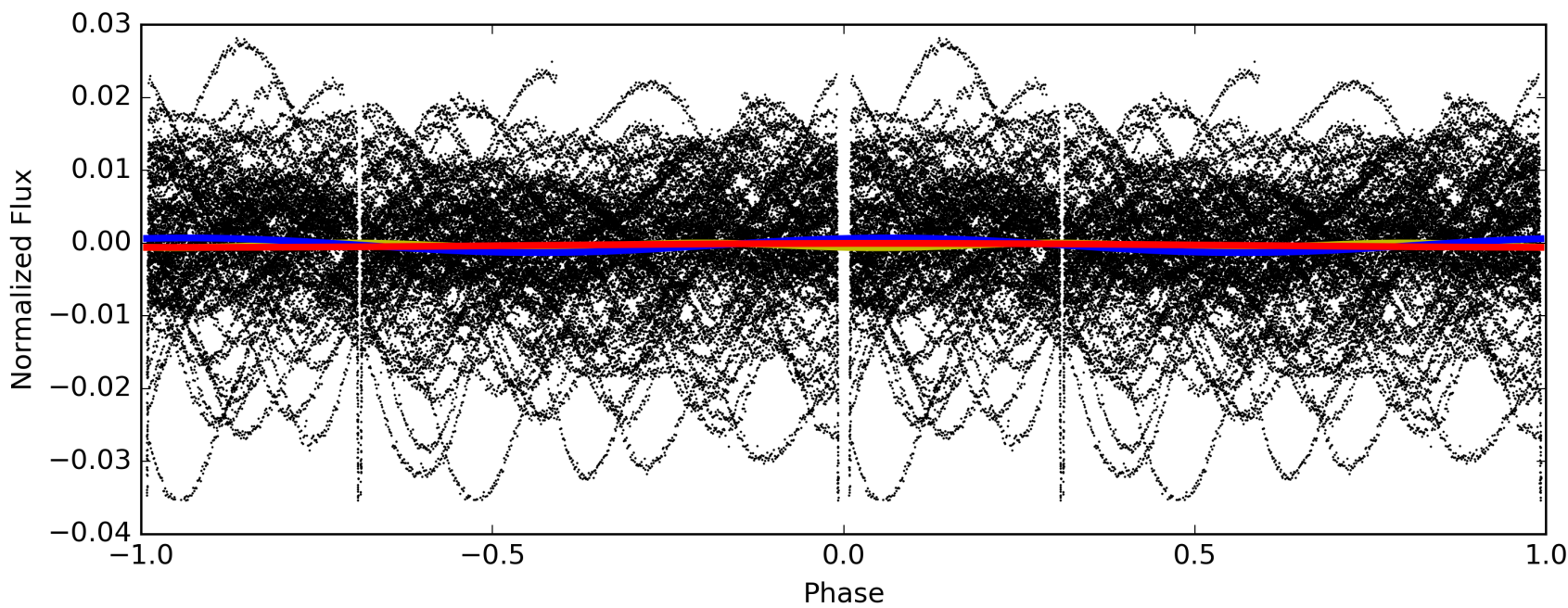
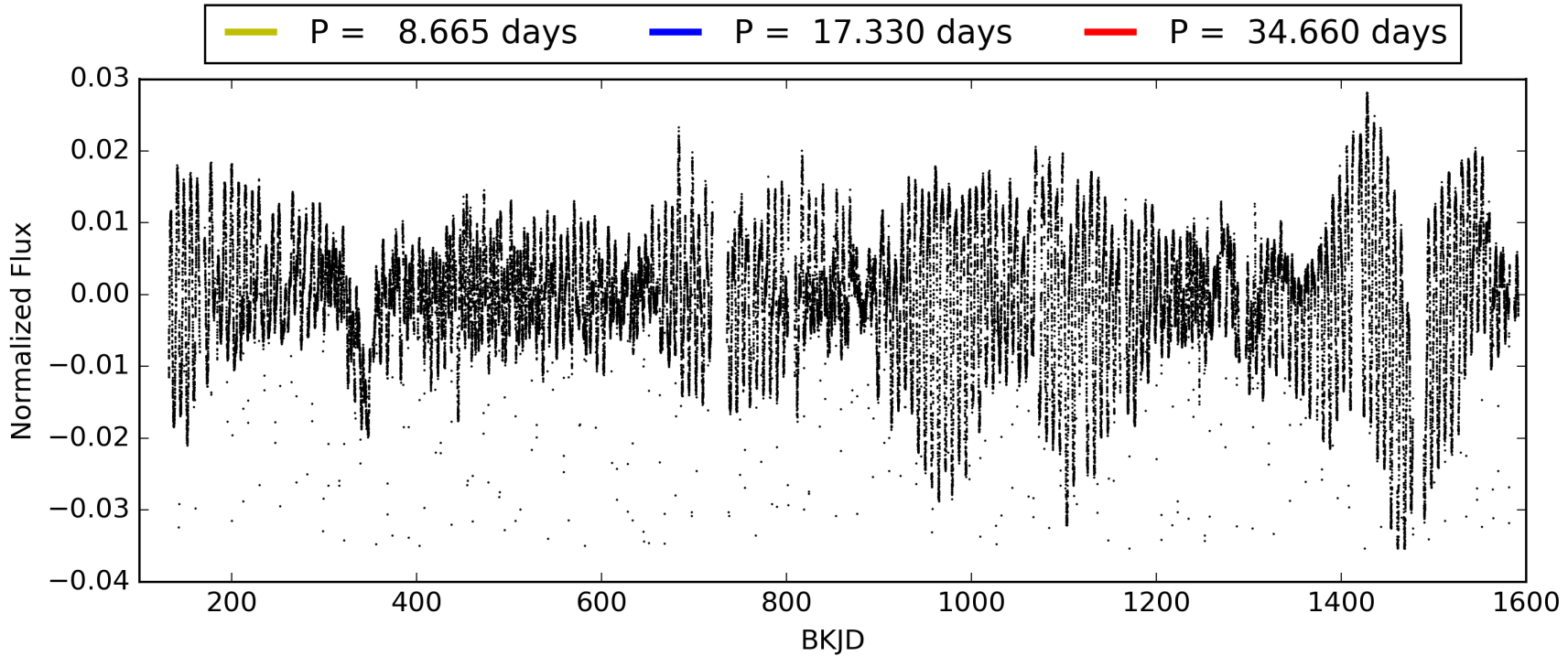
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 93.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [75/75]
GhostDiagnostic-chr: 1.912
Centroid-sig: 0.0%
Centroid-so: 0.108 arcsec [72.70σ]
OotOffset-rm: 0.050 arcsec [0.75σ]
KicOffset-rm: 0.101 arcsec [1.27σ]
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 009001468-01, PDC Light Curves

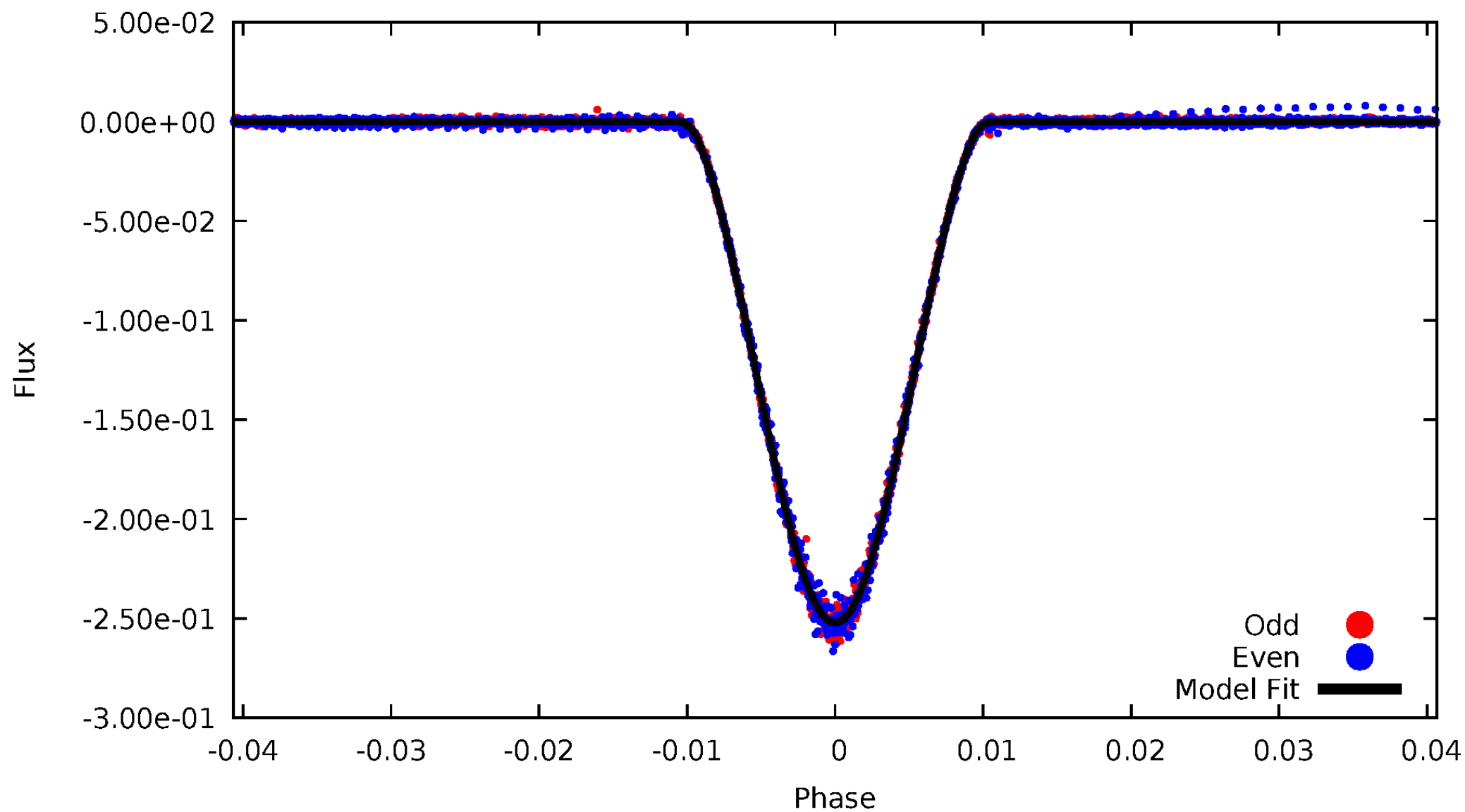


TCE 009001468-01



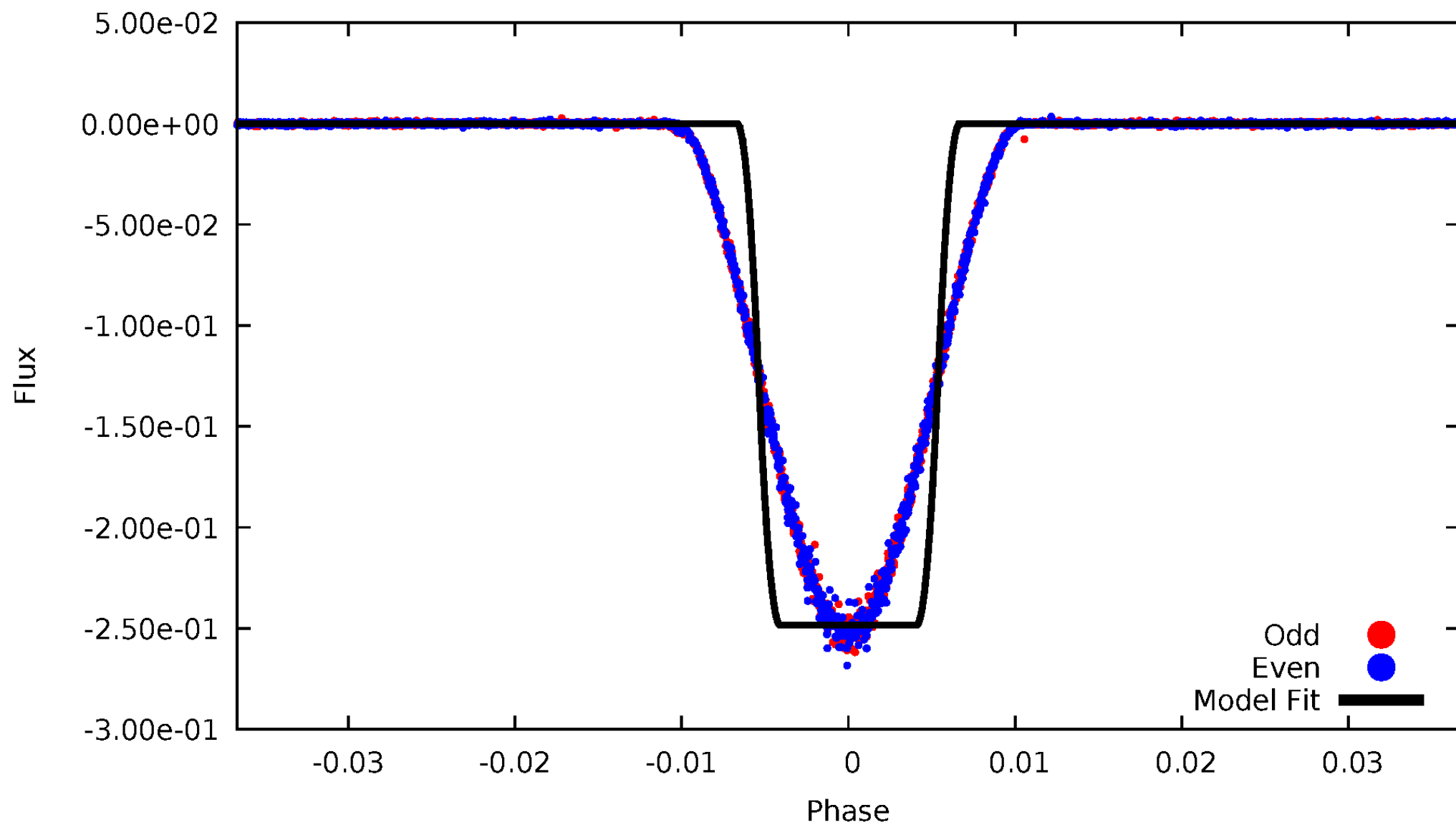
DV Odd/Even

TCE 009001468-01



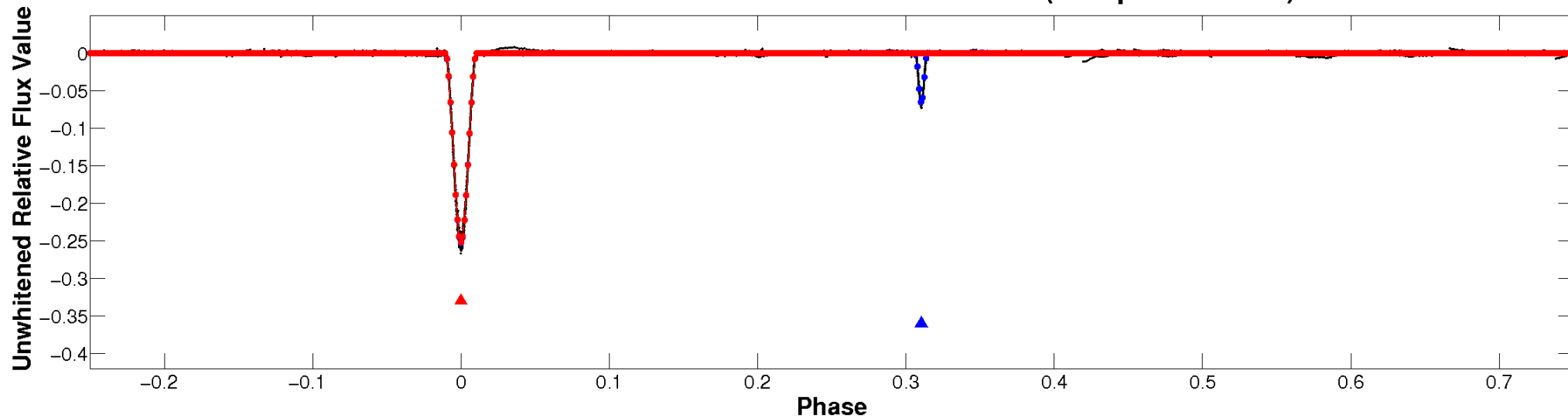
ALT Odd/Even

TCE 009001468-01

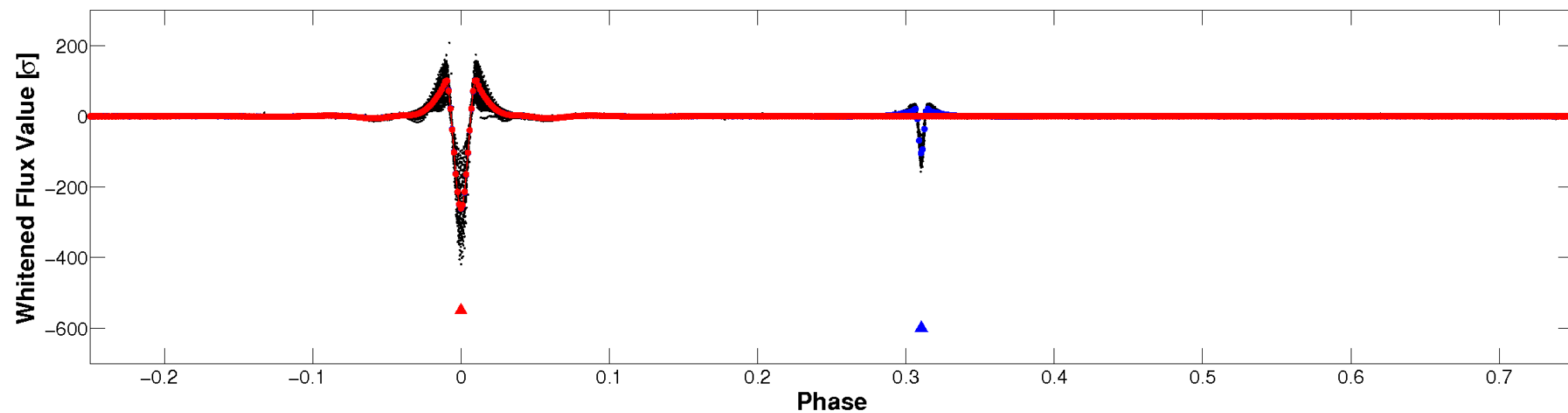


Non-Whitened Vs. Whitened Light Curve

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

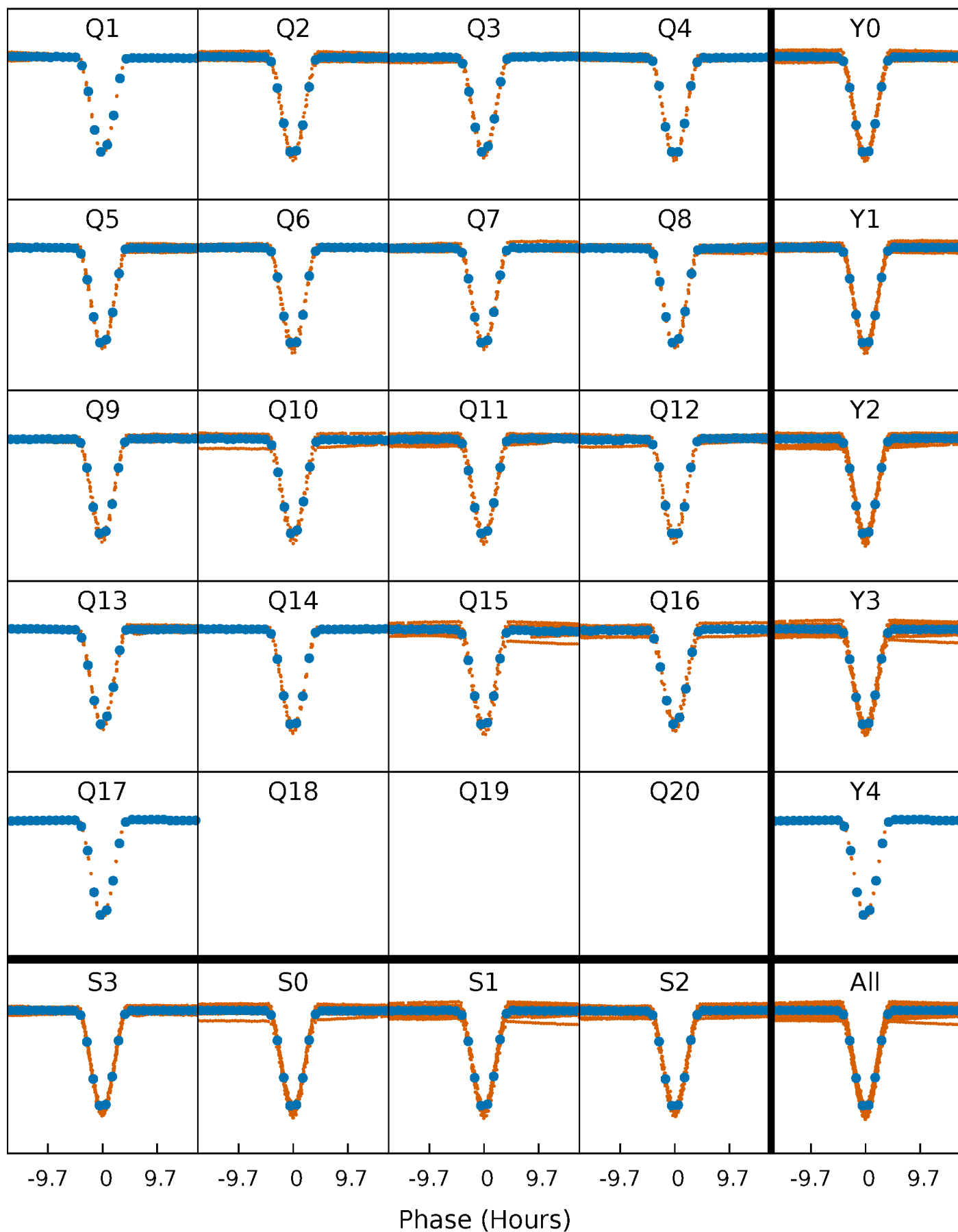


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



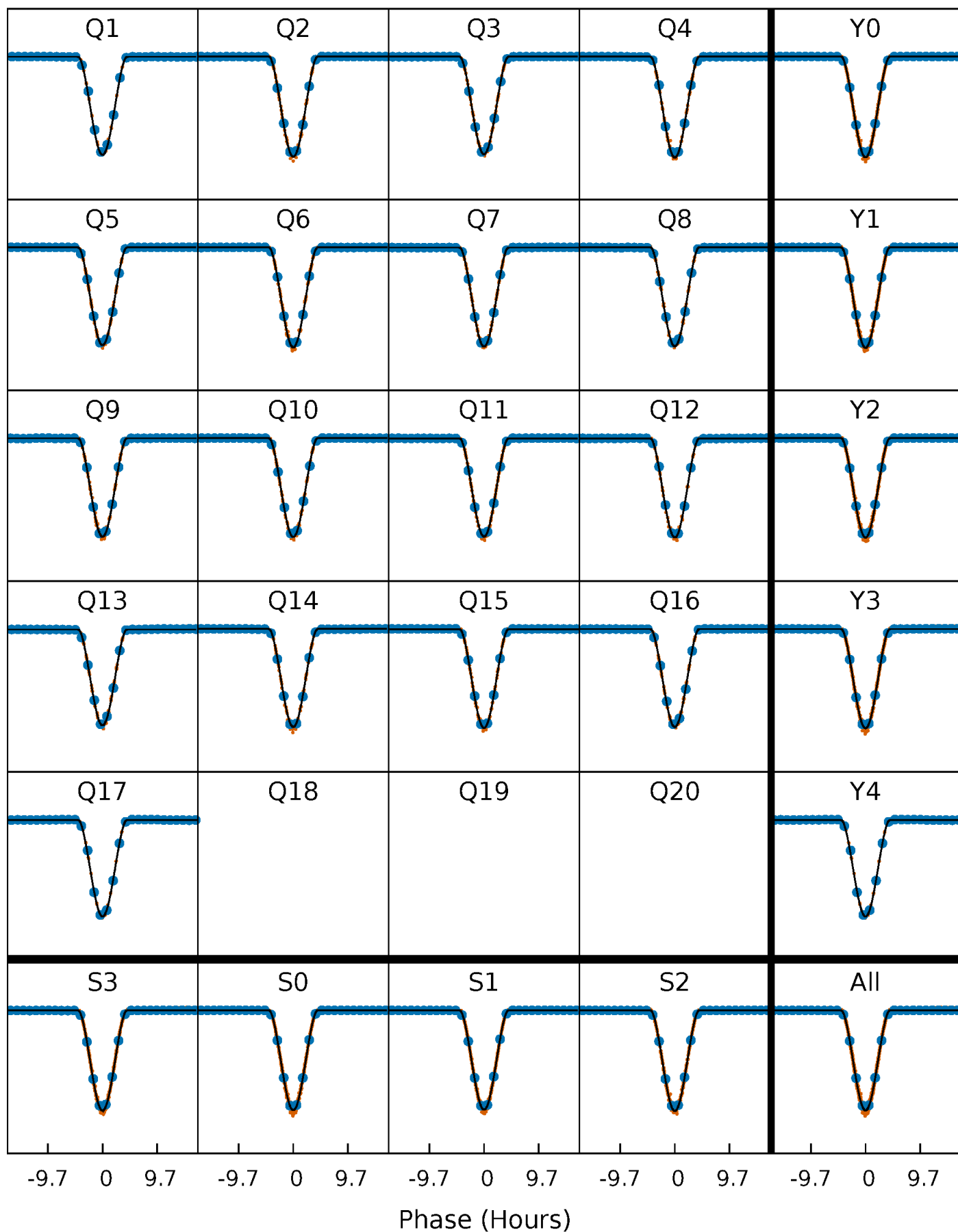
PDC Quarter-Phased Transit Curves

TCE 009001468-01 P= 17.329966 Days $T_0=142.727256$ (BKJD)



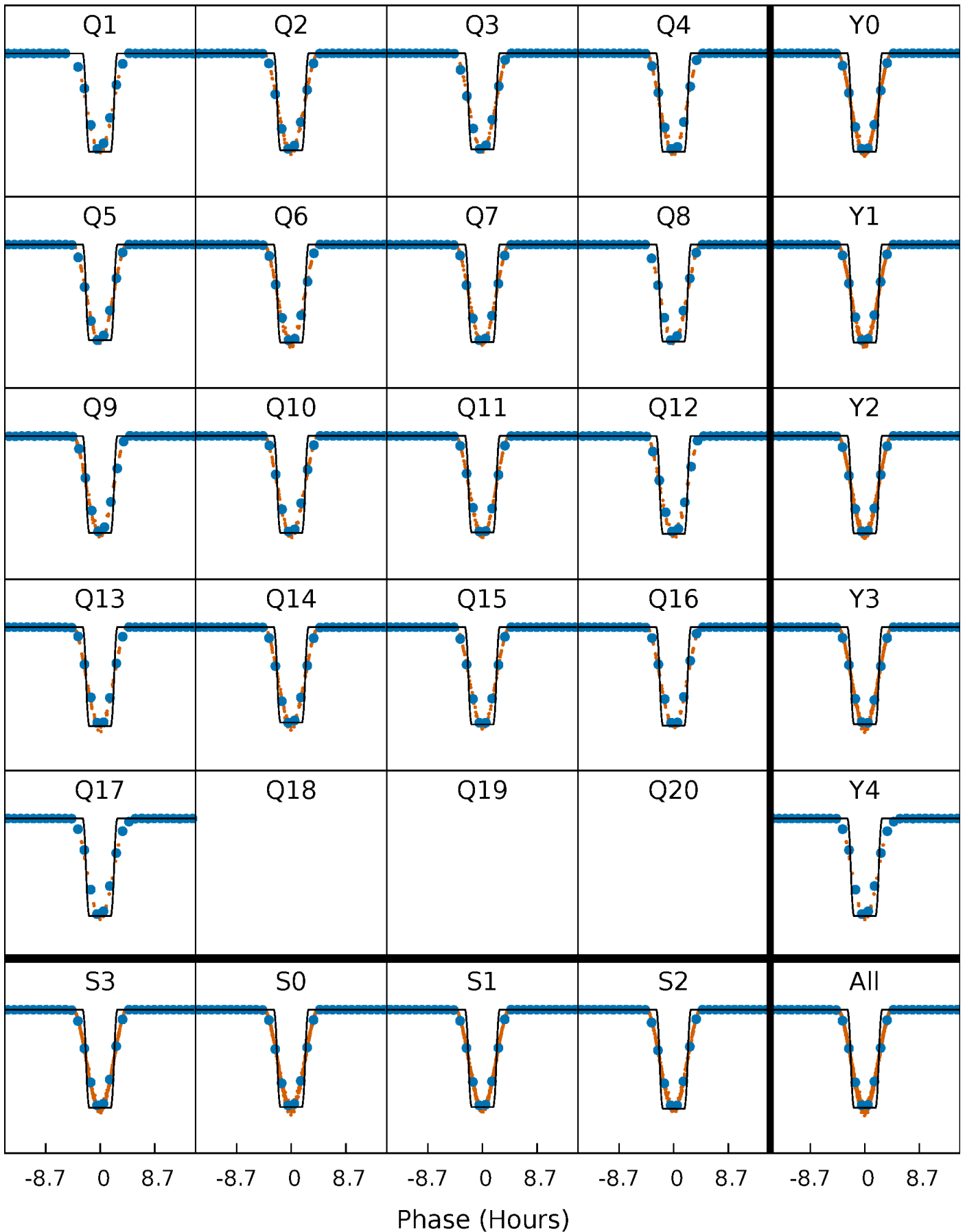
DV Quarter-Phased Transit Curves

TCE 009001468-01 P= 17.329966 Days $T_0=142.727256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

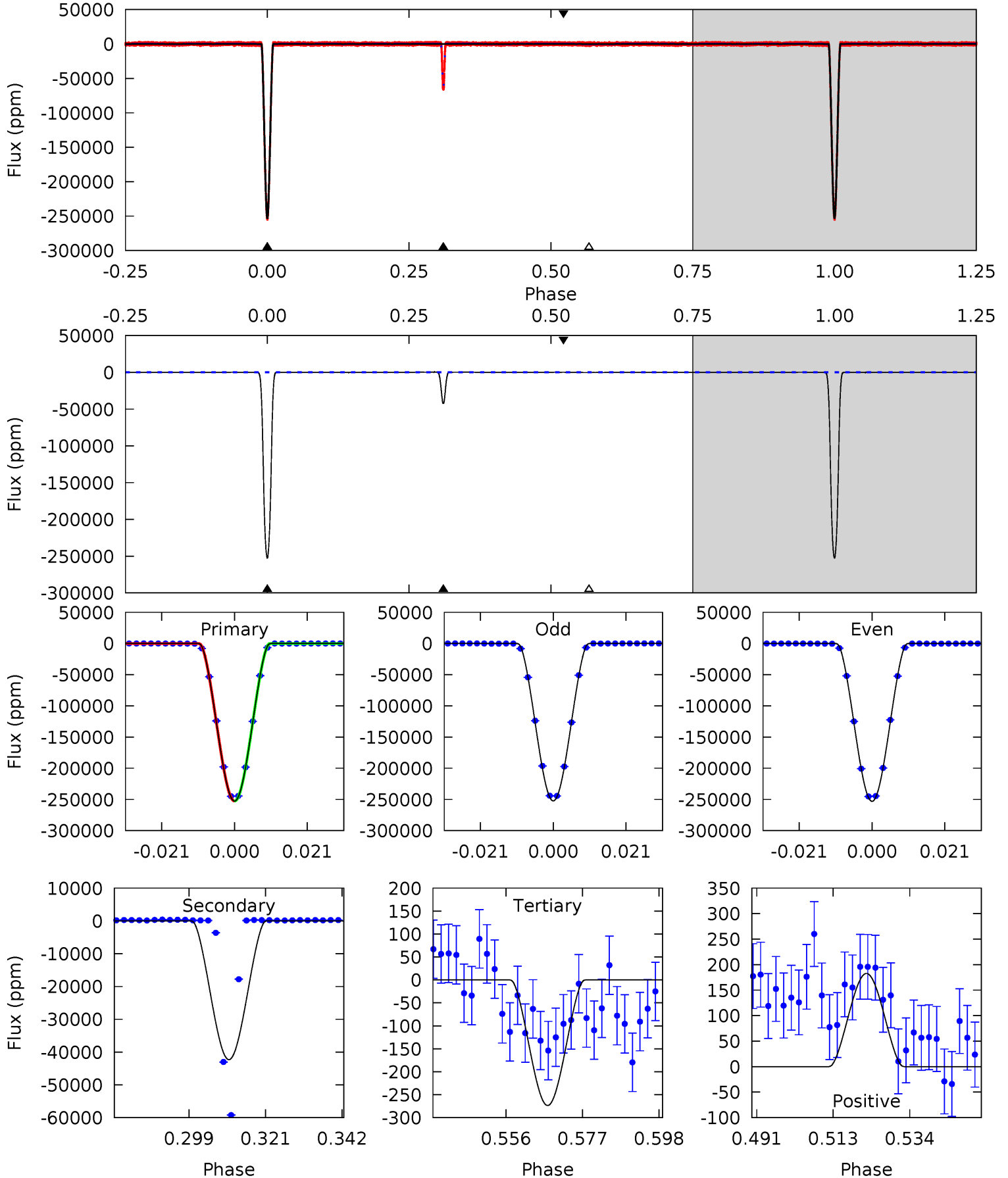
TCE 009001468-01 P= 17.329922 Days $T_0=142.729090$ (BKJD)



DV Model-Shift Uniqueness Test

009001468-01, P = 17.329966 Days, E = 125.397290 Days

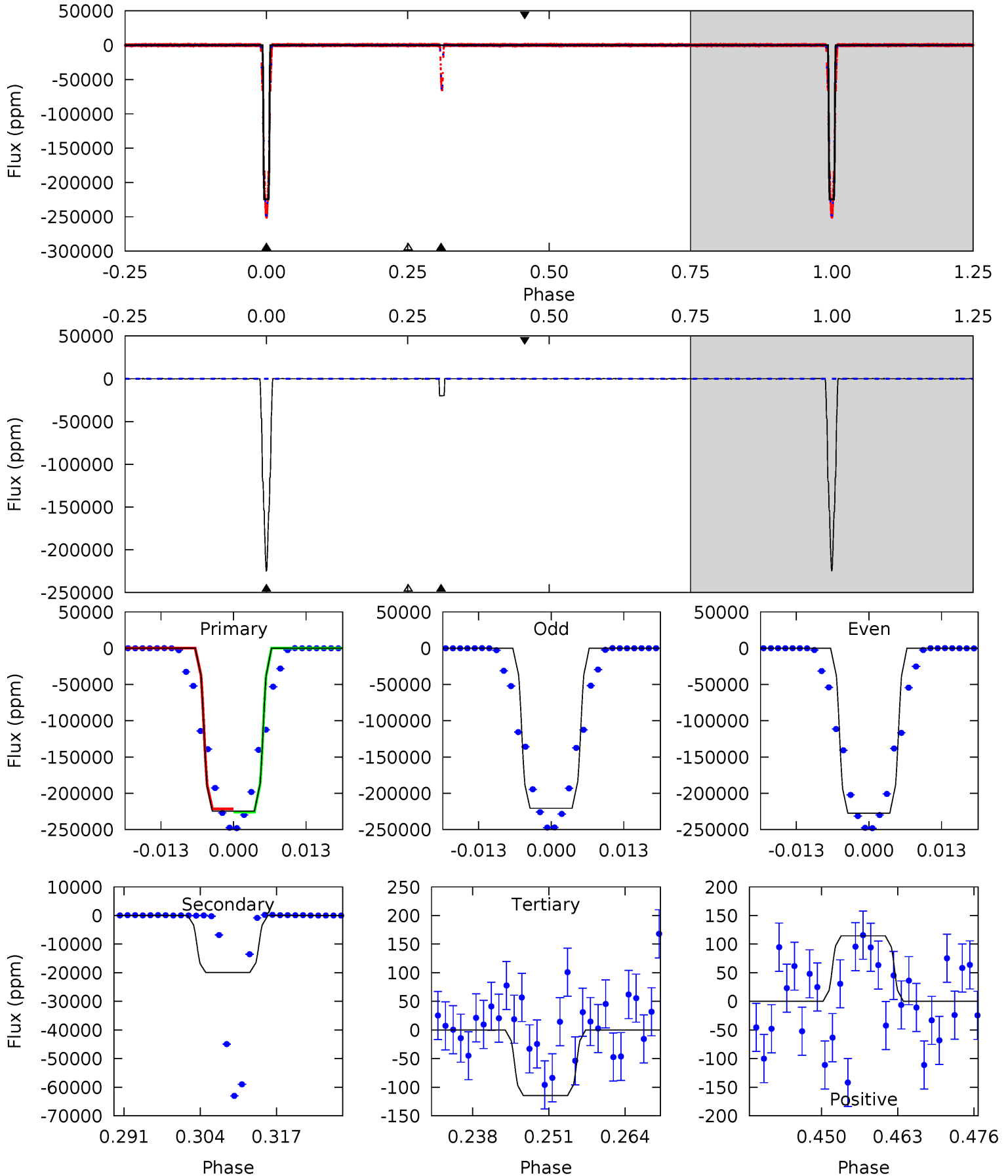
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10762	1803	11.7	7.78	4.88	2.30	5.29	10751	10755	1791	1795	15.1	1.00	0.00	0.13



Alt Model-Shift Uniqueness Test

009001468-01, P = 17.329922 Days, E = 125.399168 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7221	639.0	3.69	3.68	4.97	2.48	1.19	7217	7217	635.3	635.3	109.4	1.00	0.00	16.8



Stellar Parameters For KIC 009001468

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5079^{+166}_{-151}	$4.588^{+0.072}_{-0.048}$	$-0.560^{+0.350}_{-0.300}$	$0.683^{+0.065}_{-0.065}$	$0.659^{+0.085}_{-0.036}$	$2.914^{+0.877}_{-0.522}$
	+3%/-3%	+2%/-1%	+62%/-54%	+10%/-10%	+13%/-5%	+30%/-18%
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 009001468-01 / KOI 7120.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-42315 ± 23	$45.72^{+2.70}_{-2.61}$	765^{+30}_{-28}	3445^{+84}_{-77}	153^{+16}_{-13}
Alt.	-19873 ± 31	$37.19^{+2.22}_{-1.99}$	763^{+31}_{-27}	3250^{+76}_{-76}	106^{+11}_{-9}

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 $A_{obs} \gg 1.0$

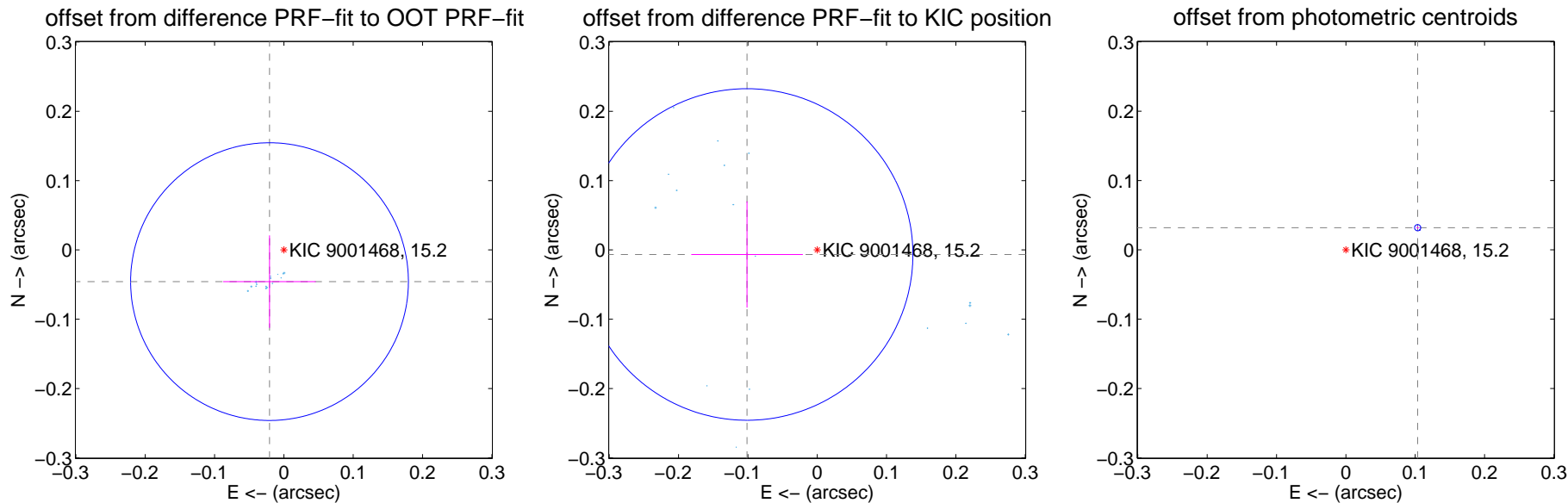
DV Centroid Data

Supplemental centroid analysis for 009001468-01. Kepler magnitude: 15.20. Transit SNR 4216.62

There are 17 quarters with good PRF difference image offsets

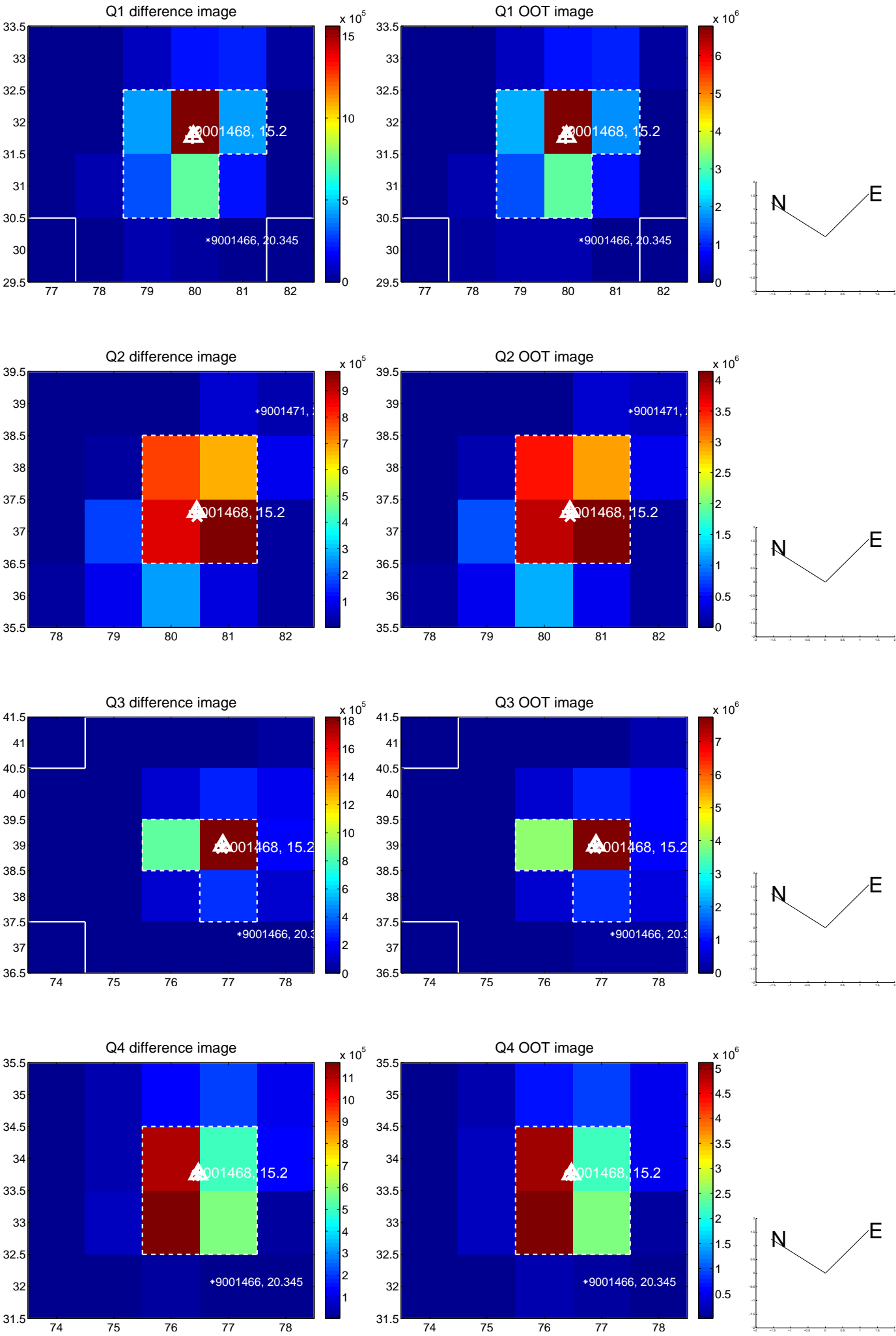
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.067	0.75	0.021 ± 0.067	-0.046 ± 0.067
PRF-fit source offset from KIC position	0.101 ± 0.080	1.27	0.101 ± 0.081	-0.007 ± 0.077
photometric centroid source offset	0.11 ± 0.00	72.70	-0.10 ± 0.00	0.03 ± 0.00

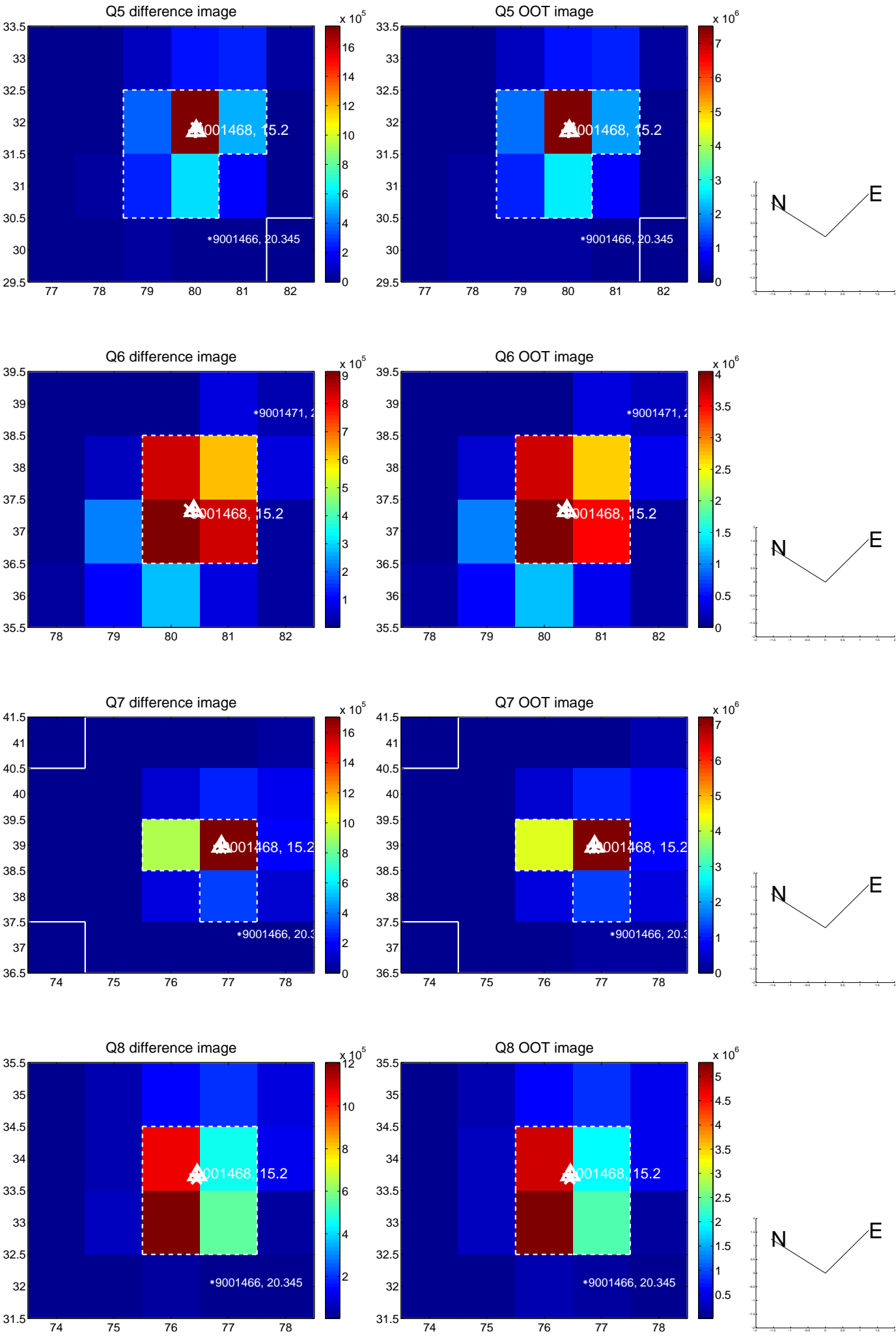


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

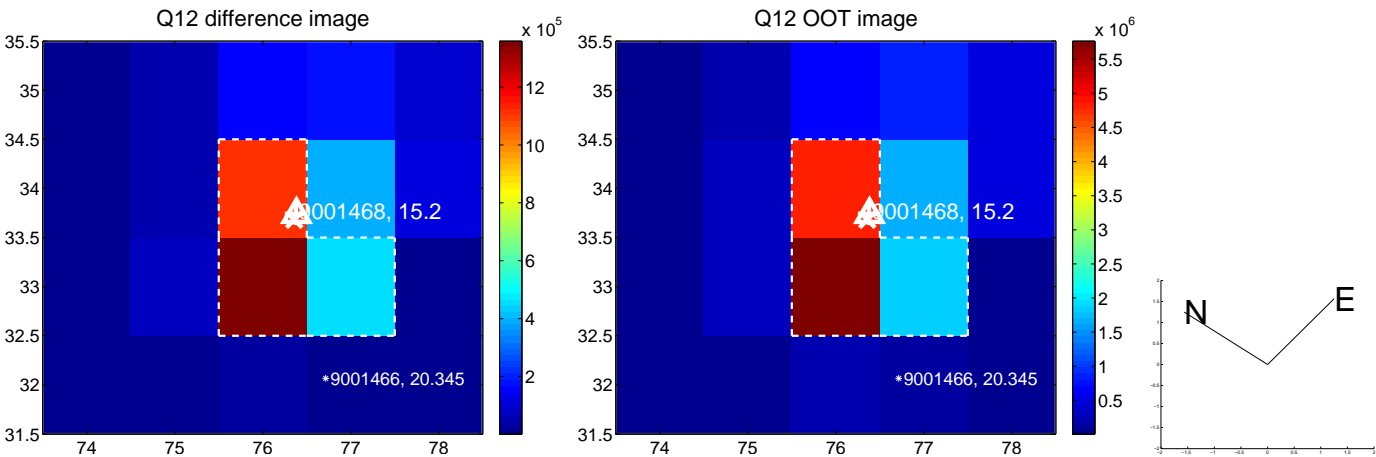
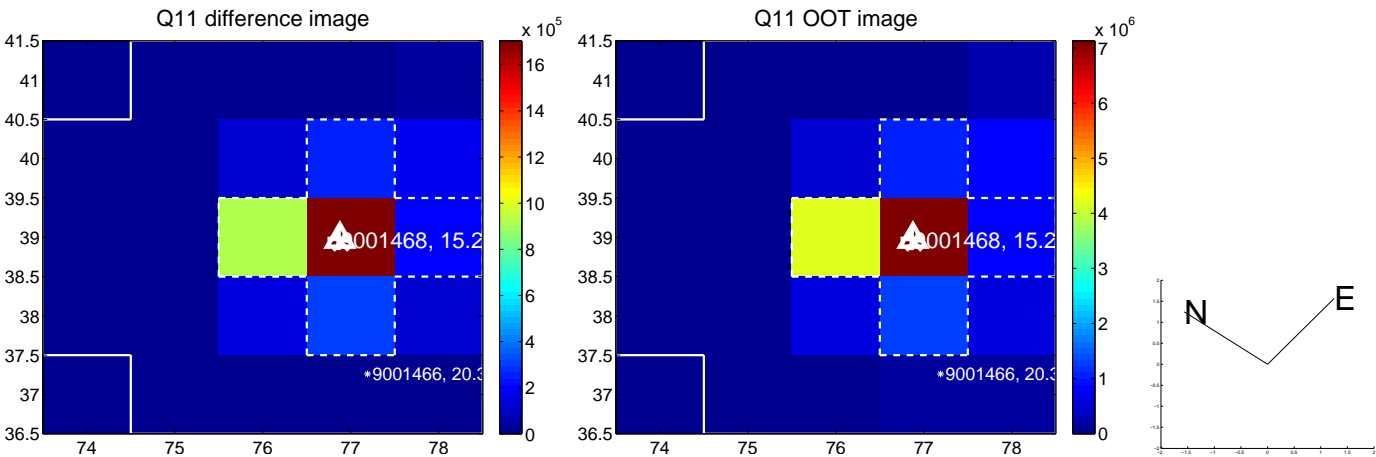
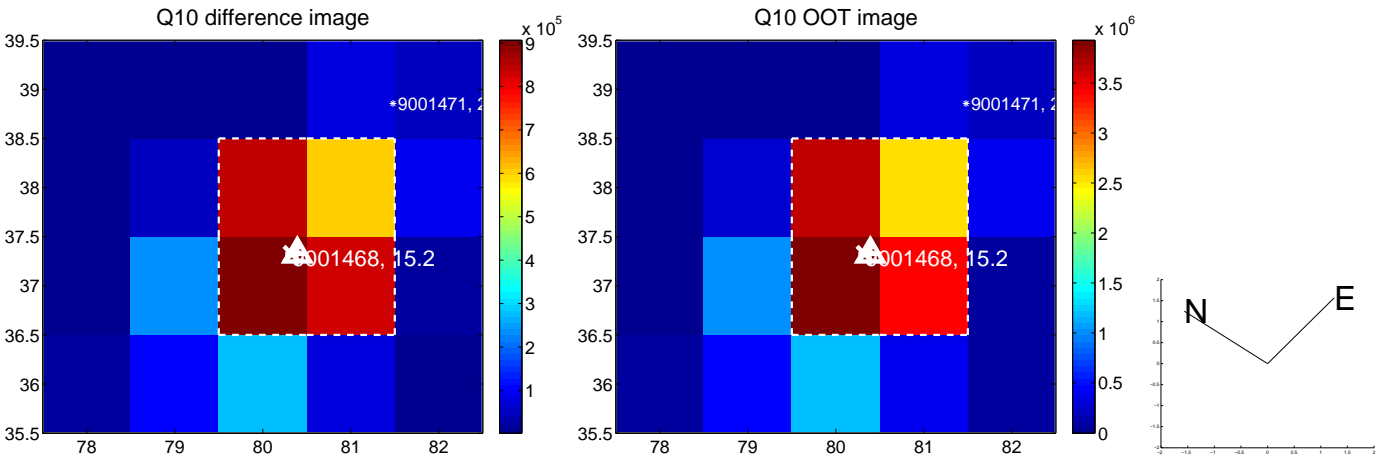
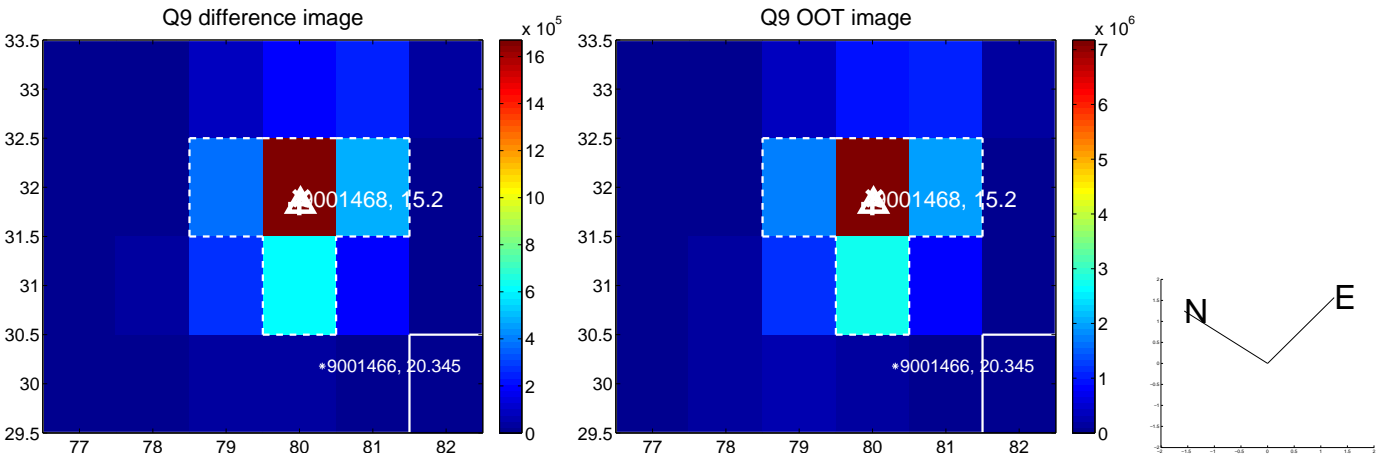
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



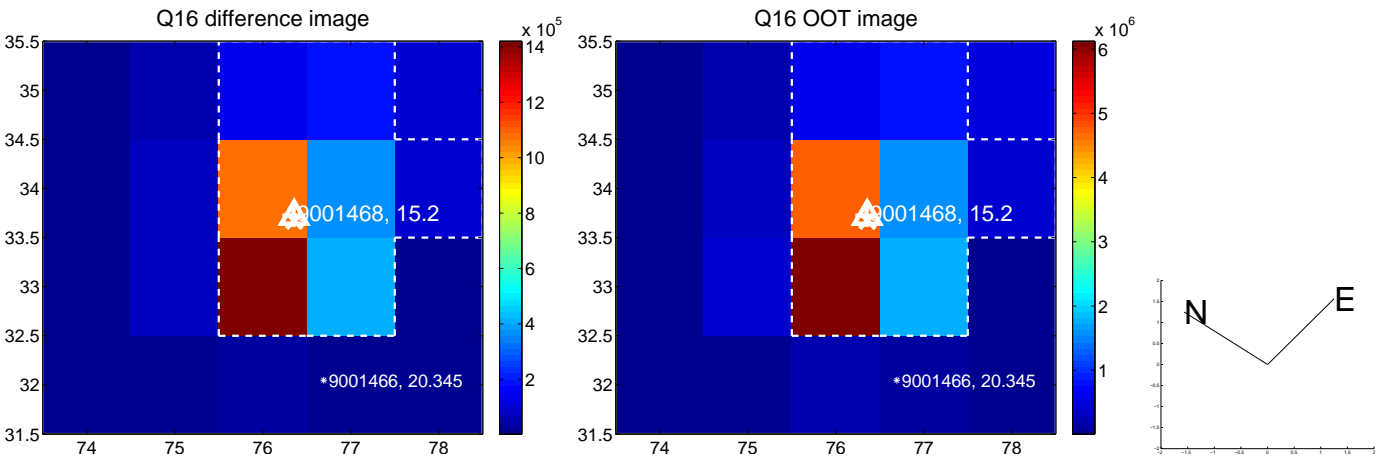
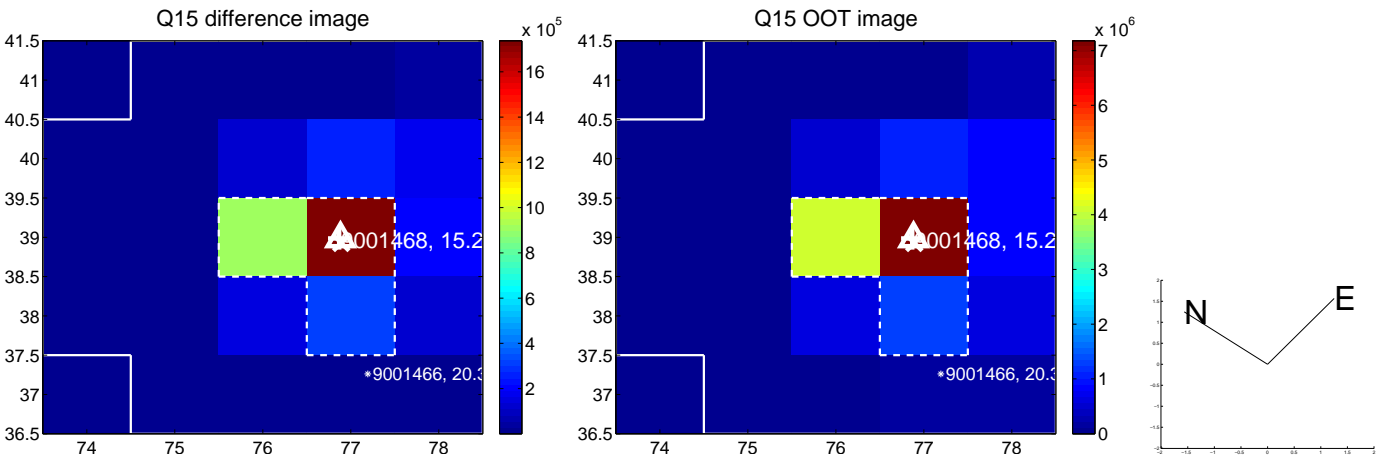
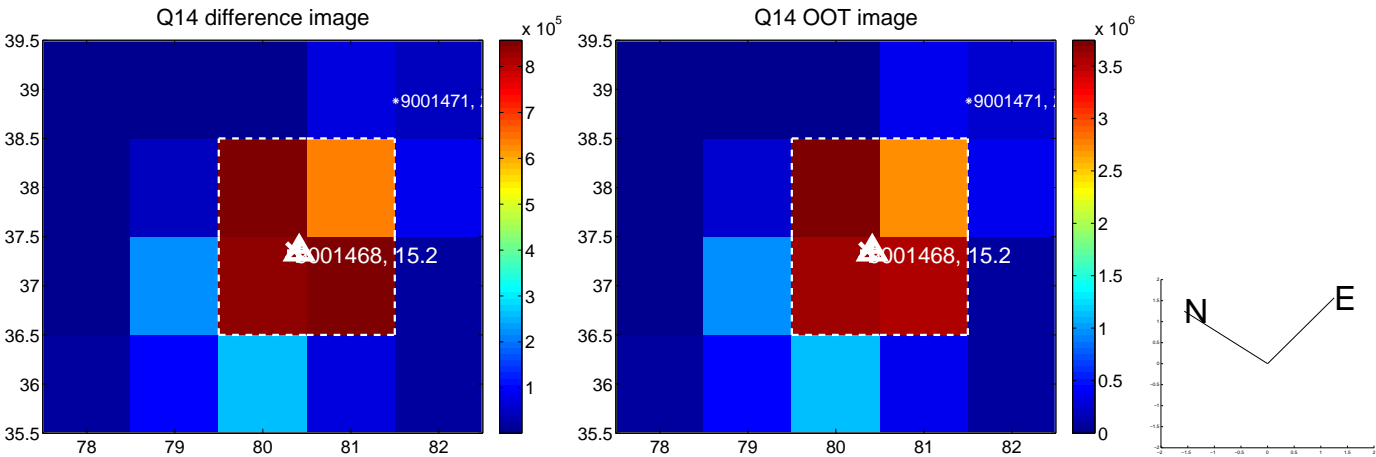
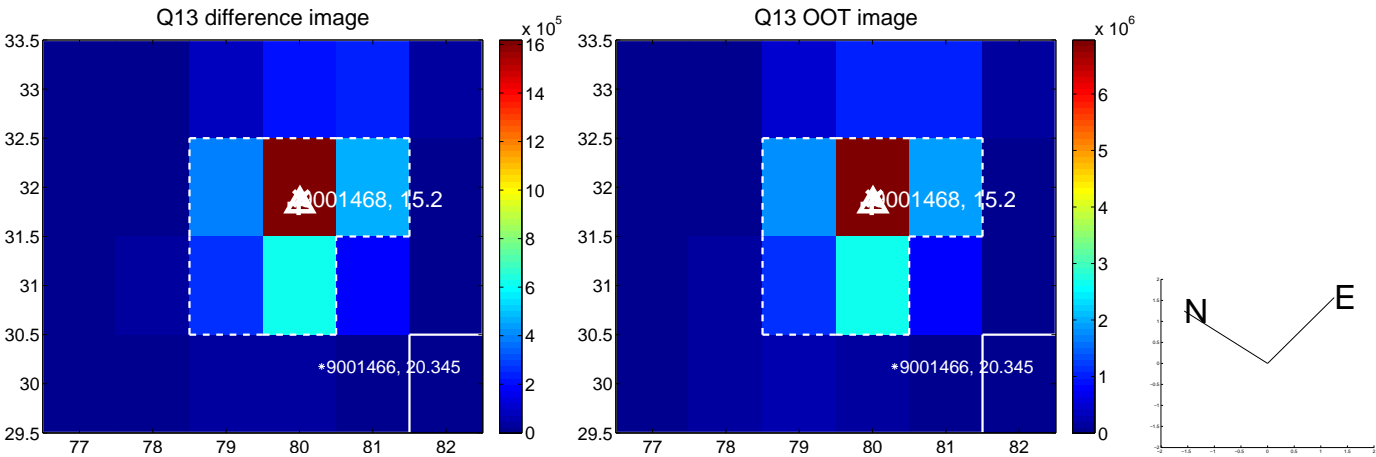
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



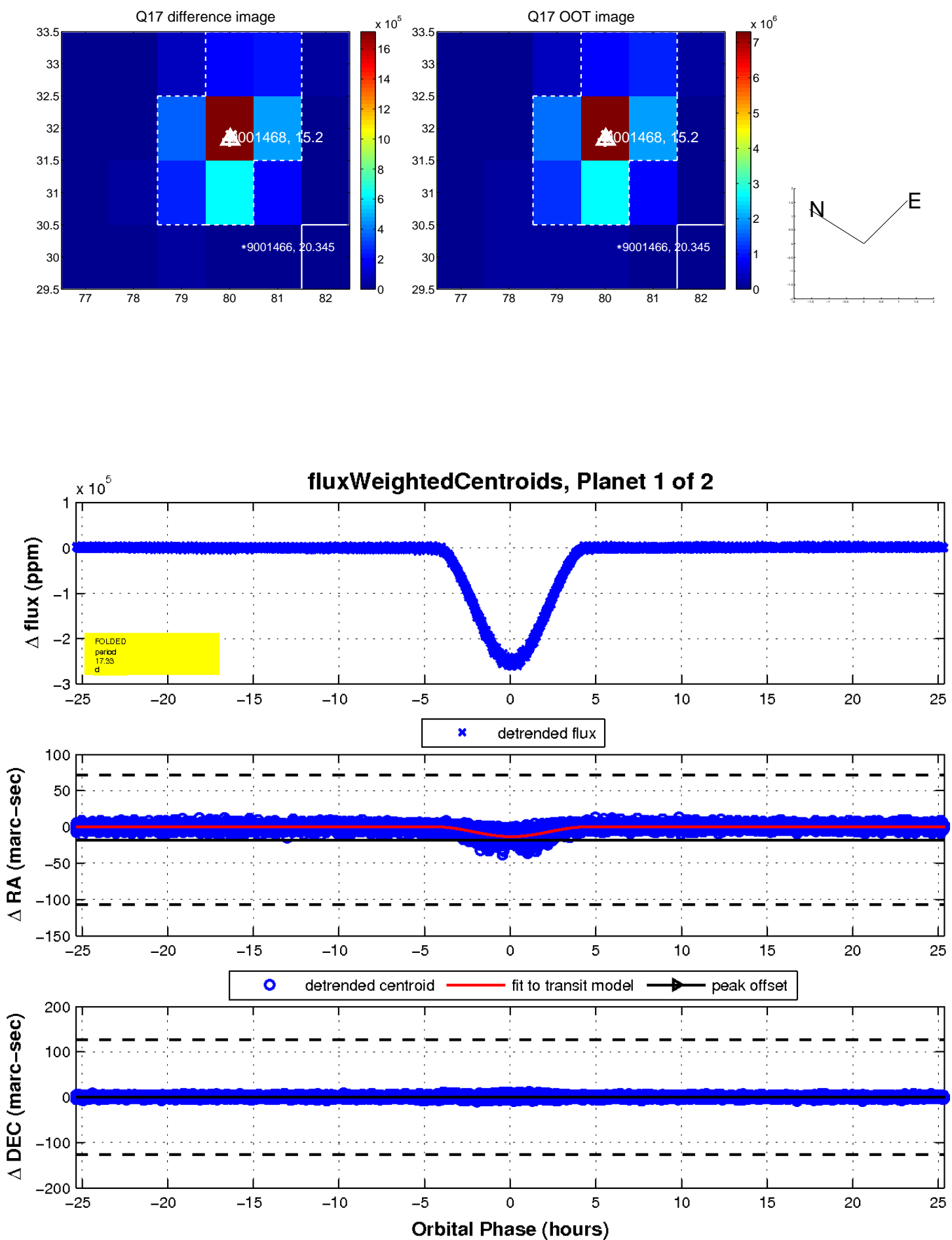
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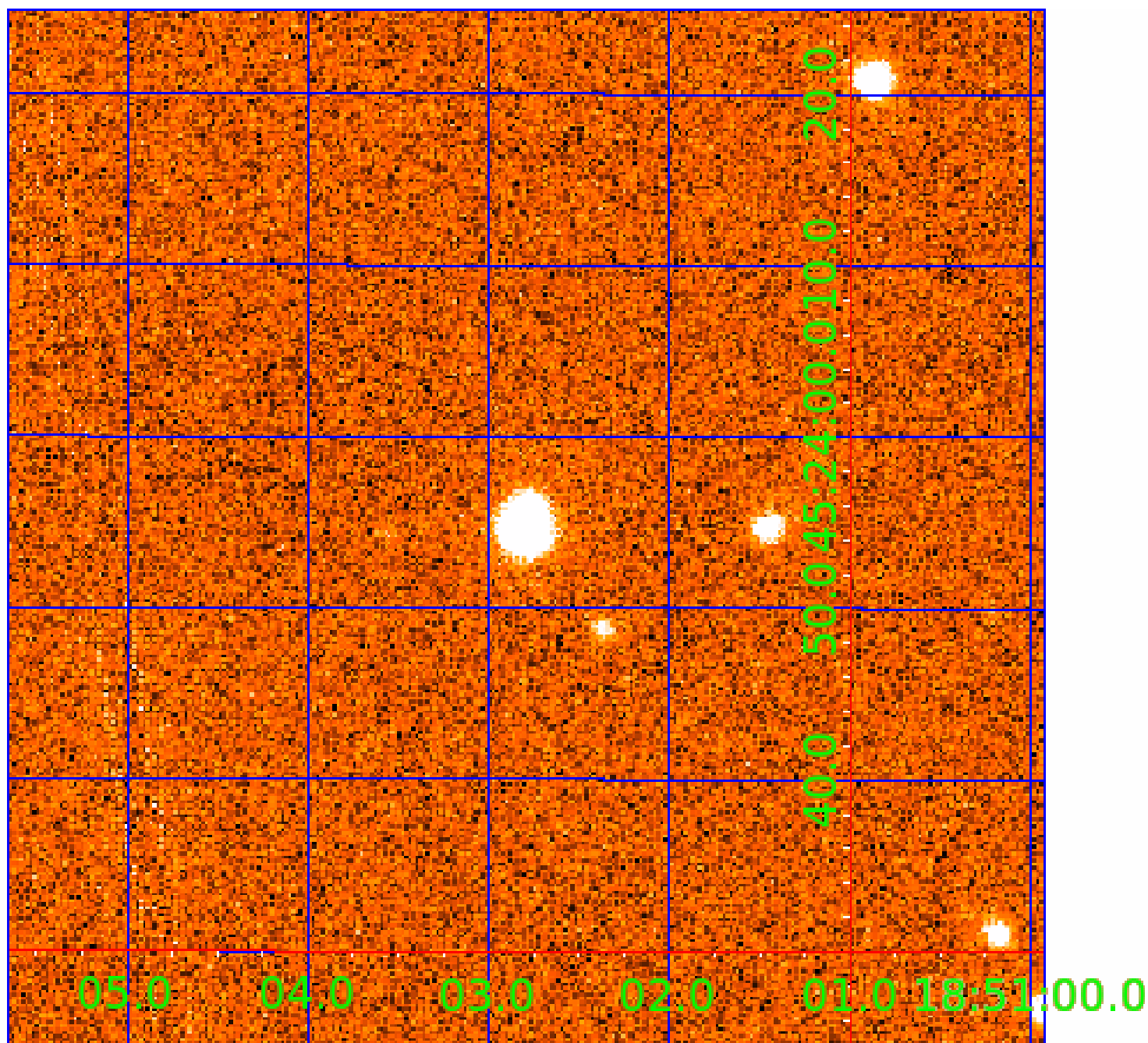


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009001468

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})
009001468-01	OBS	7120.01	17.329966	142.727256	252253.3	8.453	5939.2	4216.6	0.68	5079	45.62	21.37
009001468-02	OBS	No	17.329983	148.105665	67023.7	3.021	1483.0	1177.0	0.68	5079	26.63	21.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009001468-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009001468-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

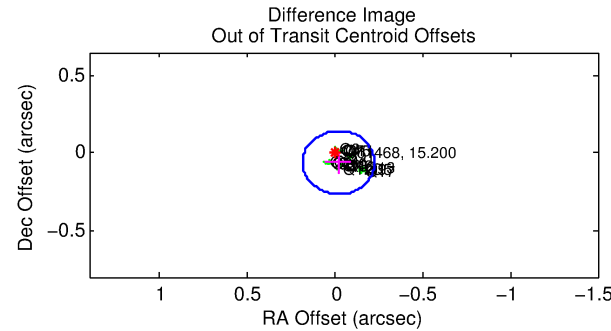
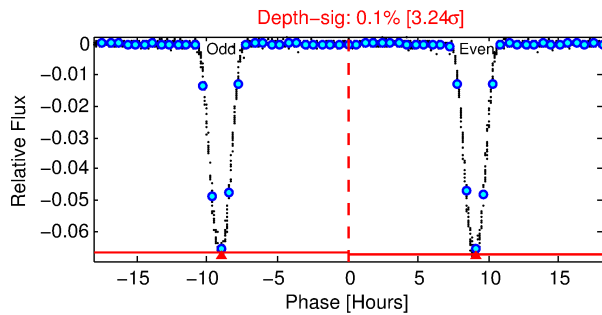
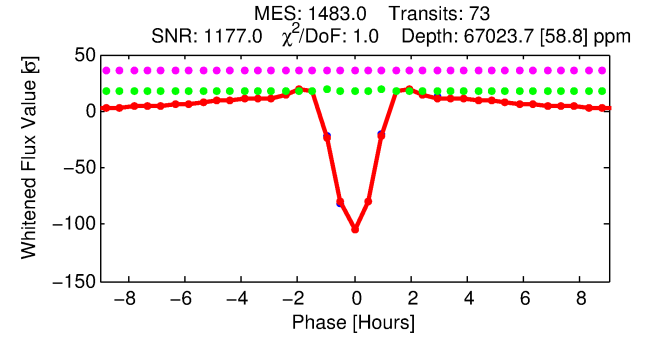
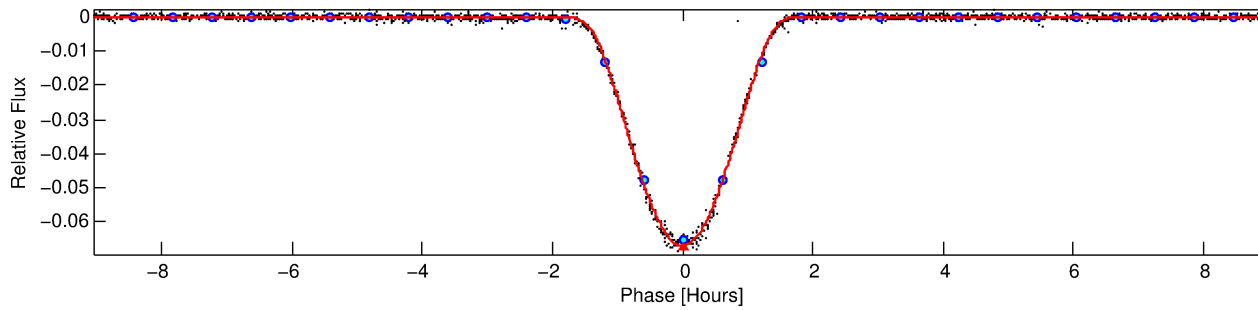
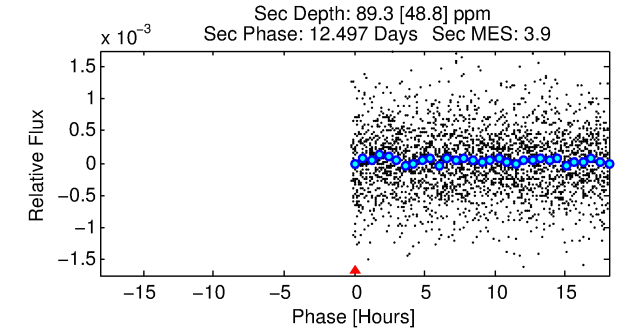
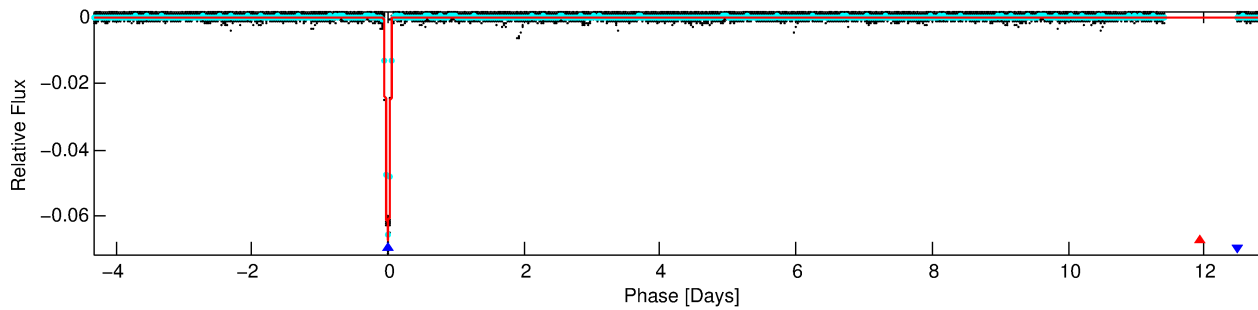
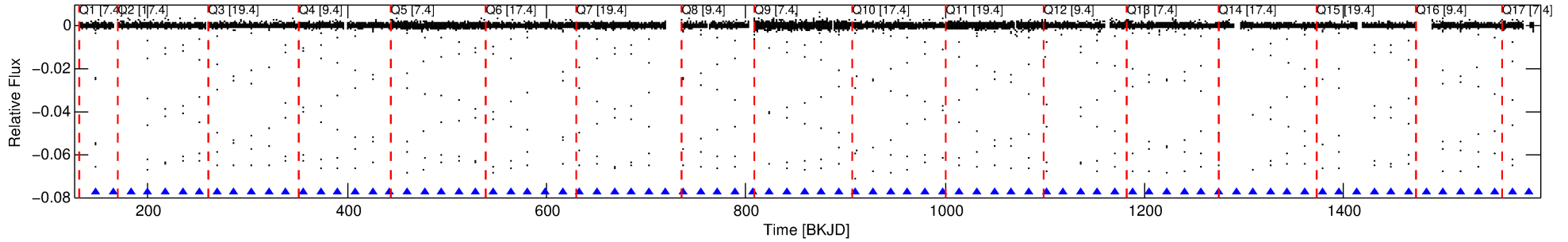
Ephemeris Match Information For 009001468-02

No Significant Match Found

DV One-Page Summary

KIC: 9001468 Candidate: 2 of 2 Period: 17.330 d
KOI: K07120 Corr: No Ephemeris Match

Kp: 15.20 R*: 0.68 Rs Teff: 5079.0 K Logg: 4.59 Fe/H: -0.560



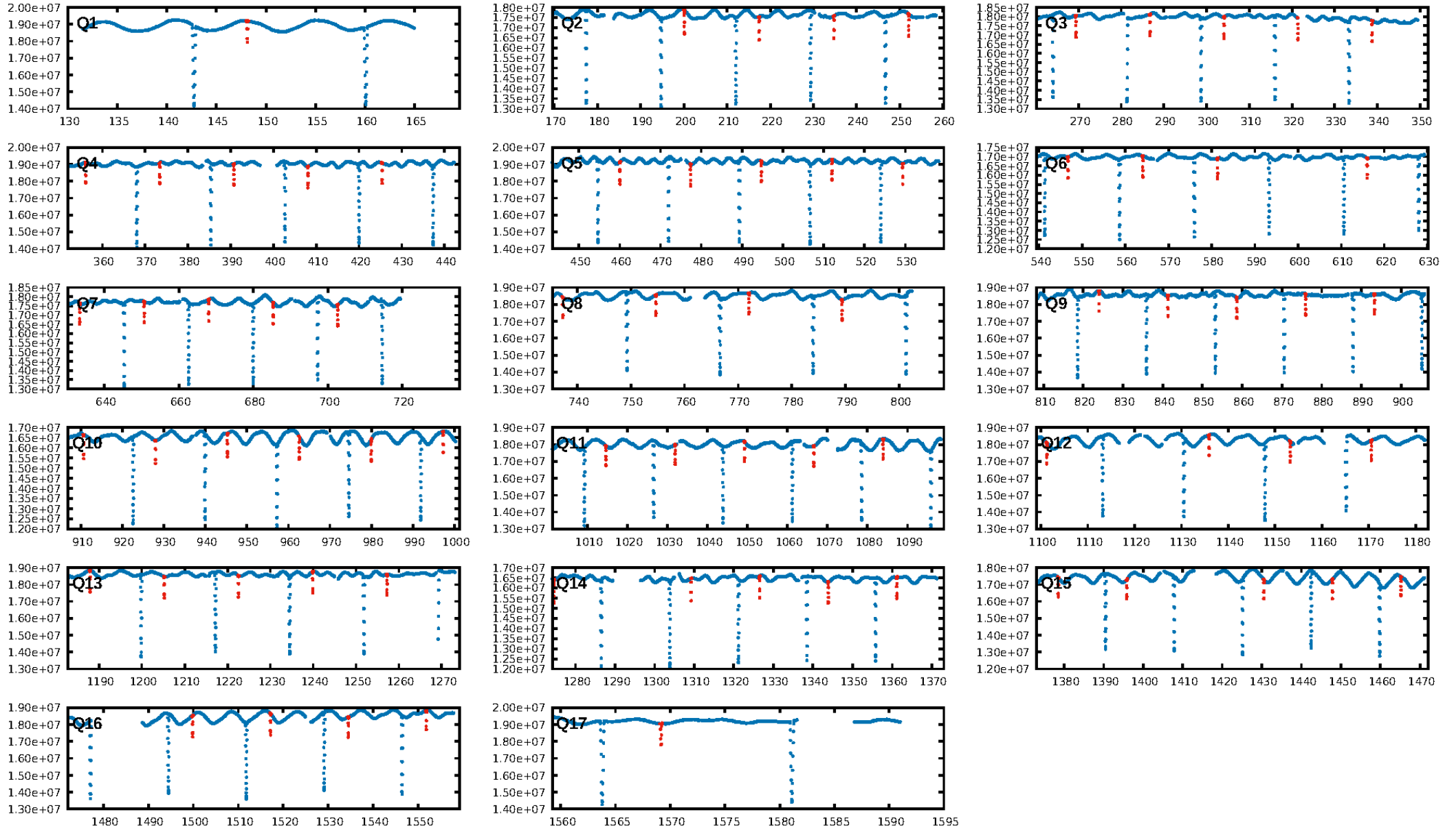
DV Fit Results:

Period = 17.32998 [0.00000] d
Epoch = 148.1057 [0.0000] BKJD
Rp/R* = 0.3573 [0.0196]
a/R* = 43.62 [0.06]
b = 0.92 [0.03]
Seff = 21.37 [3.90]
Teq = 548 [25] K
Rp = 26.63 [2.93] Re
a = 0.1141 [0.0096] AU
Ag = 0.90 [0.52] [-0.19σ]
Teffp = 826 [118] K [2.30σ]

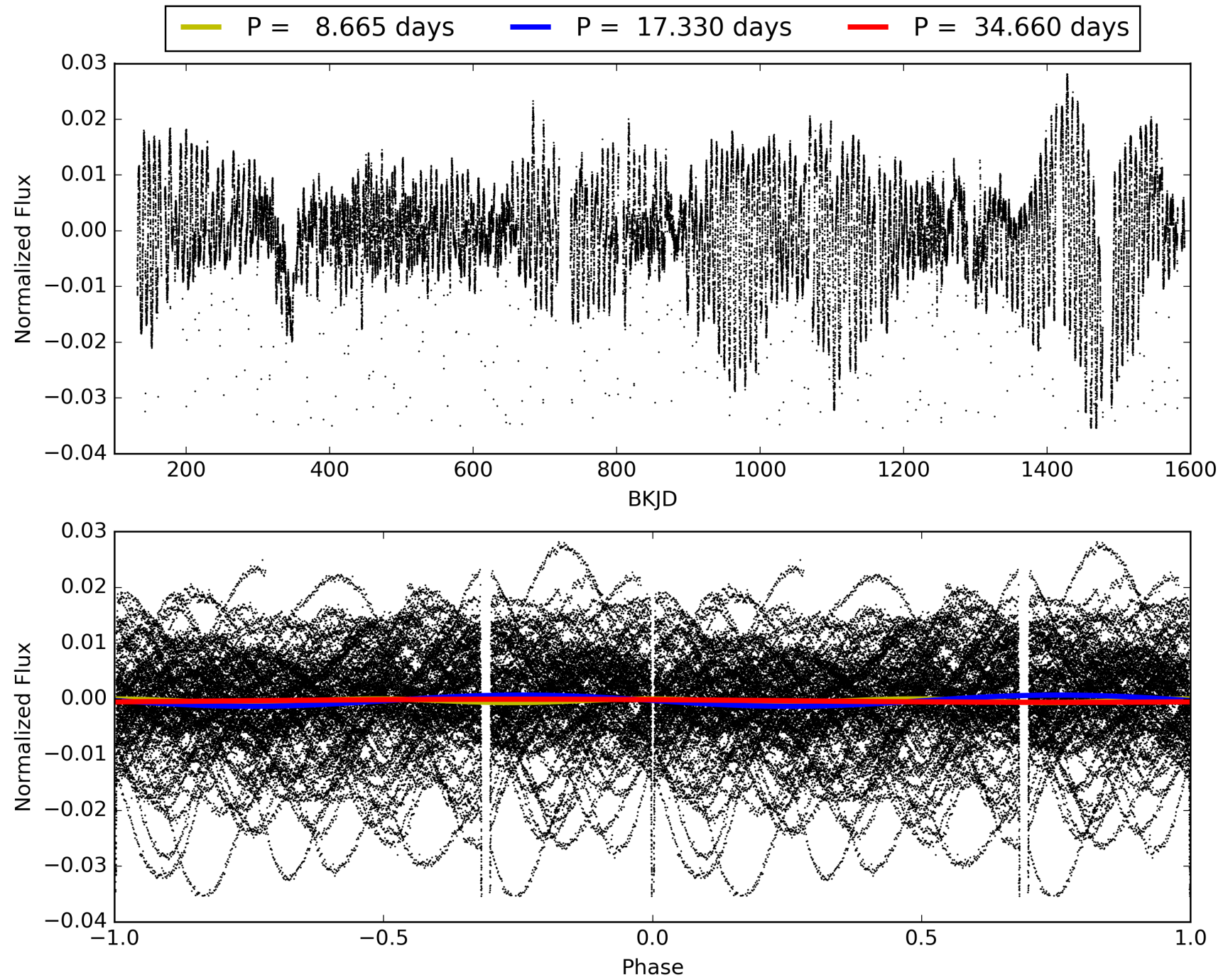
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [71/71]
GhostDiagnostic-chr: 2.054
Centroid-sig: 0.0%
Centroid-so: 0.142 arcsec [18.71σ]
OotOffset-rm: 0.066 arcsec [0.97σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.088 arcsec [0.99σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009001468-02, PDC Light Curves

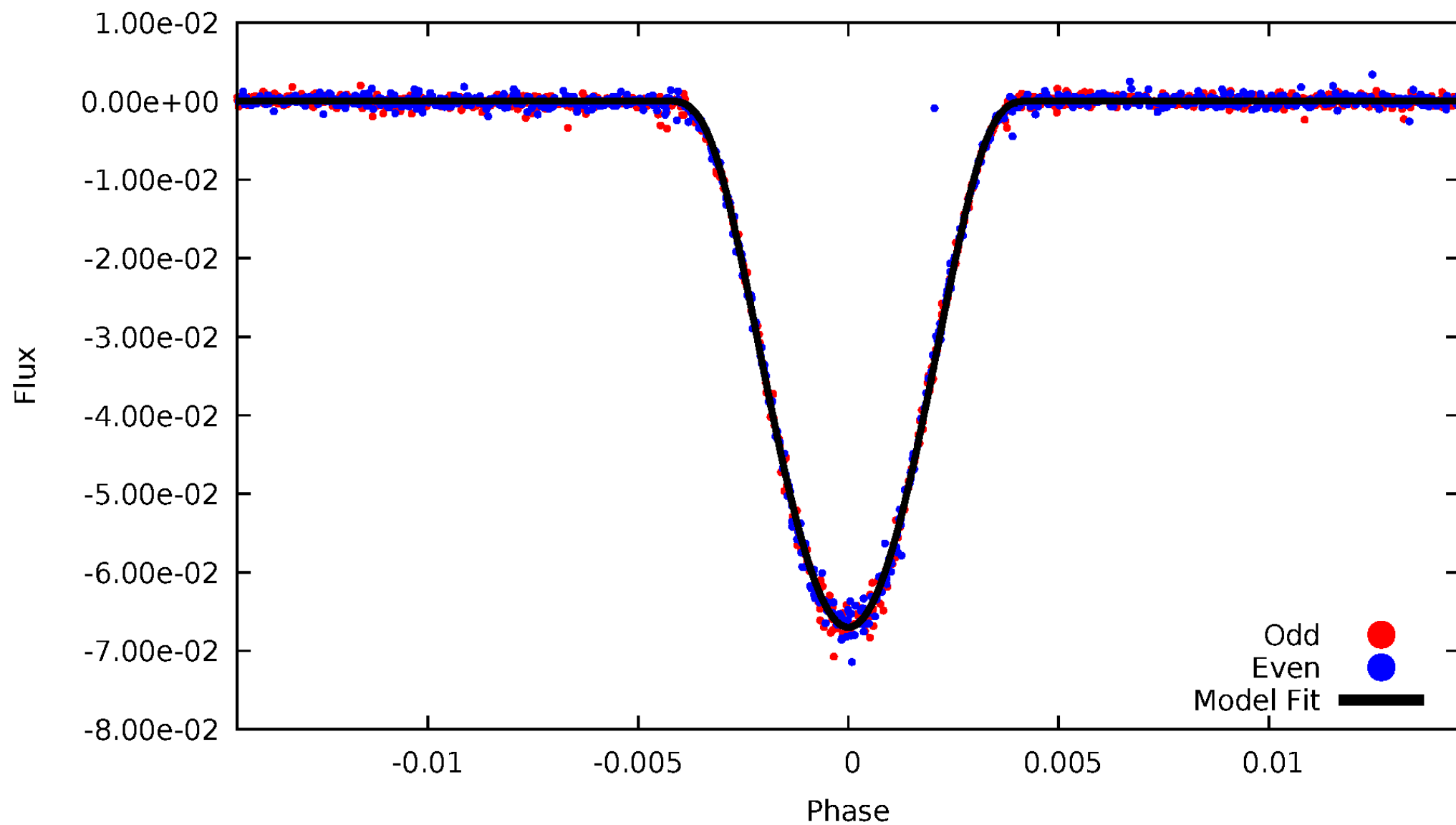


TCE 009001468-02



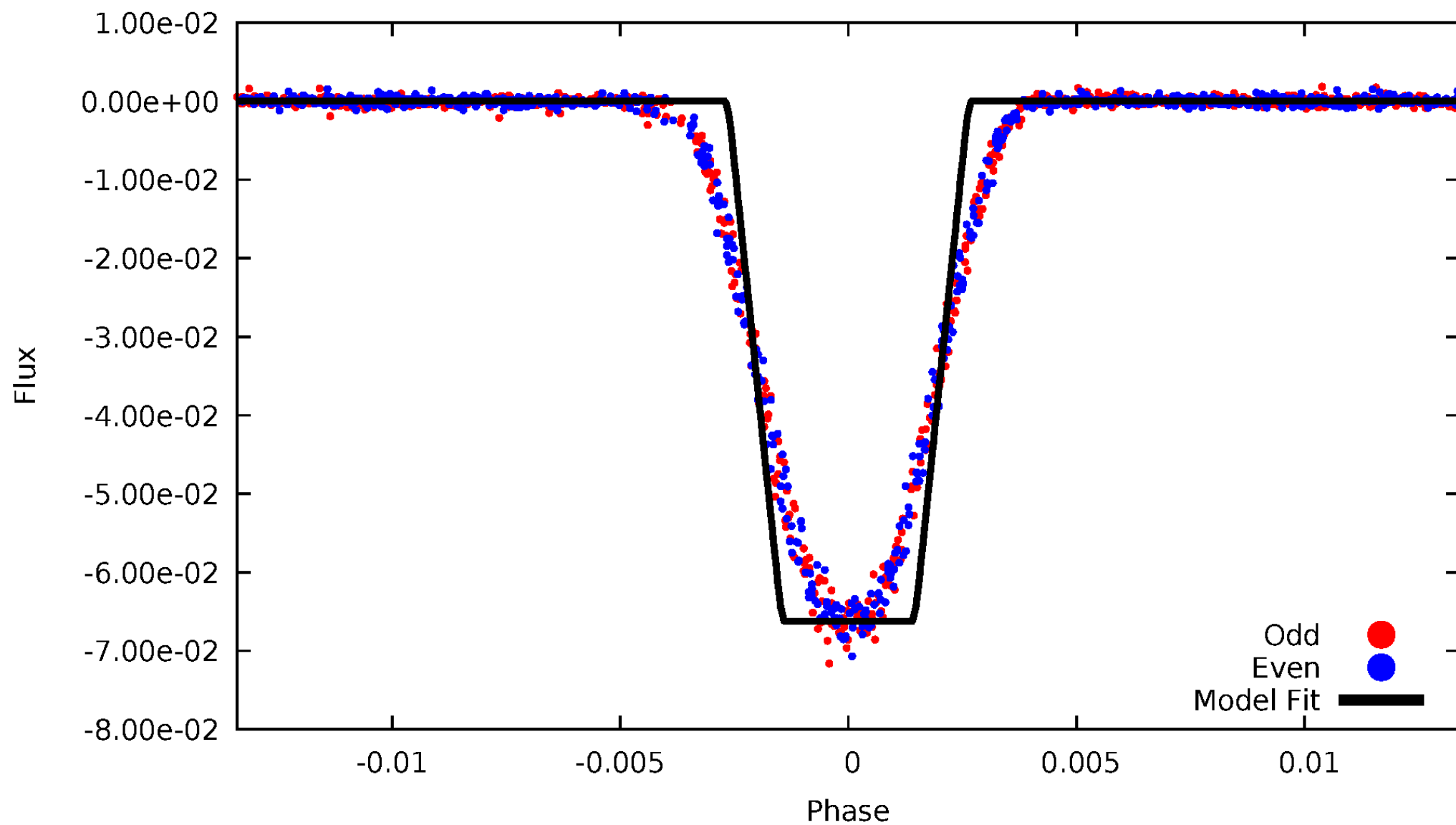
DV Odd/Even

TCE 009001468-02



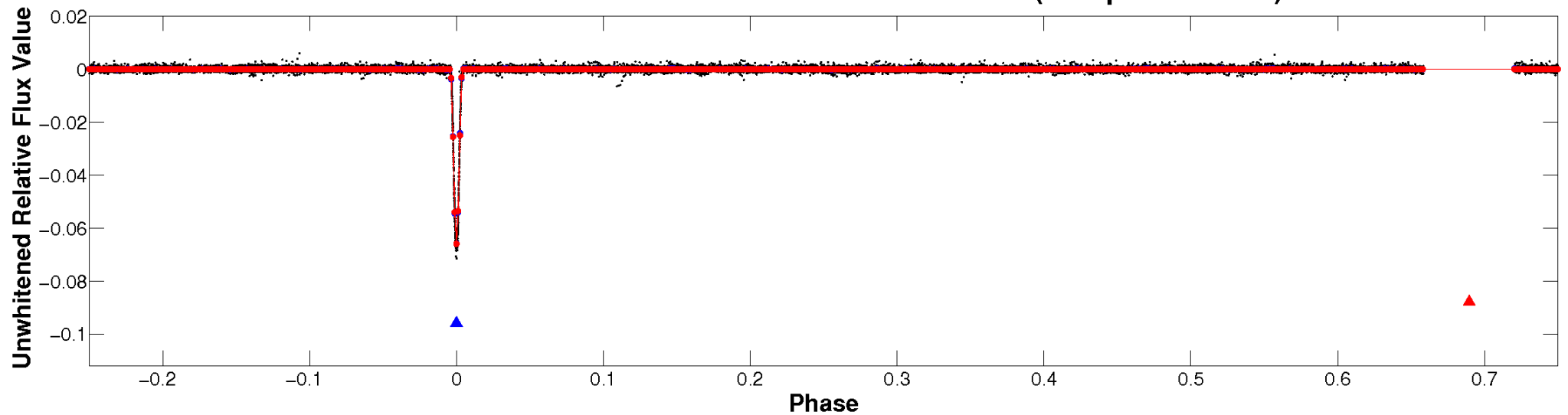
ALT Odd/Even

TCE 009001468-02

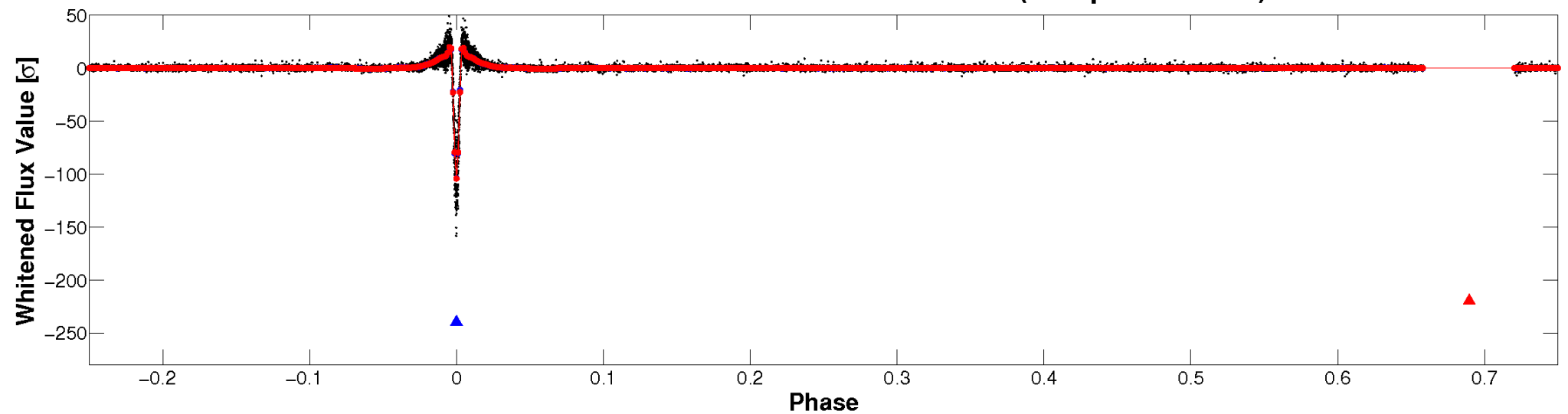


Non-Whitened Vs. Whitened Light Curve

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

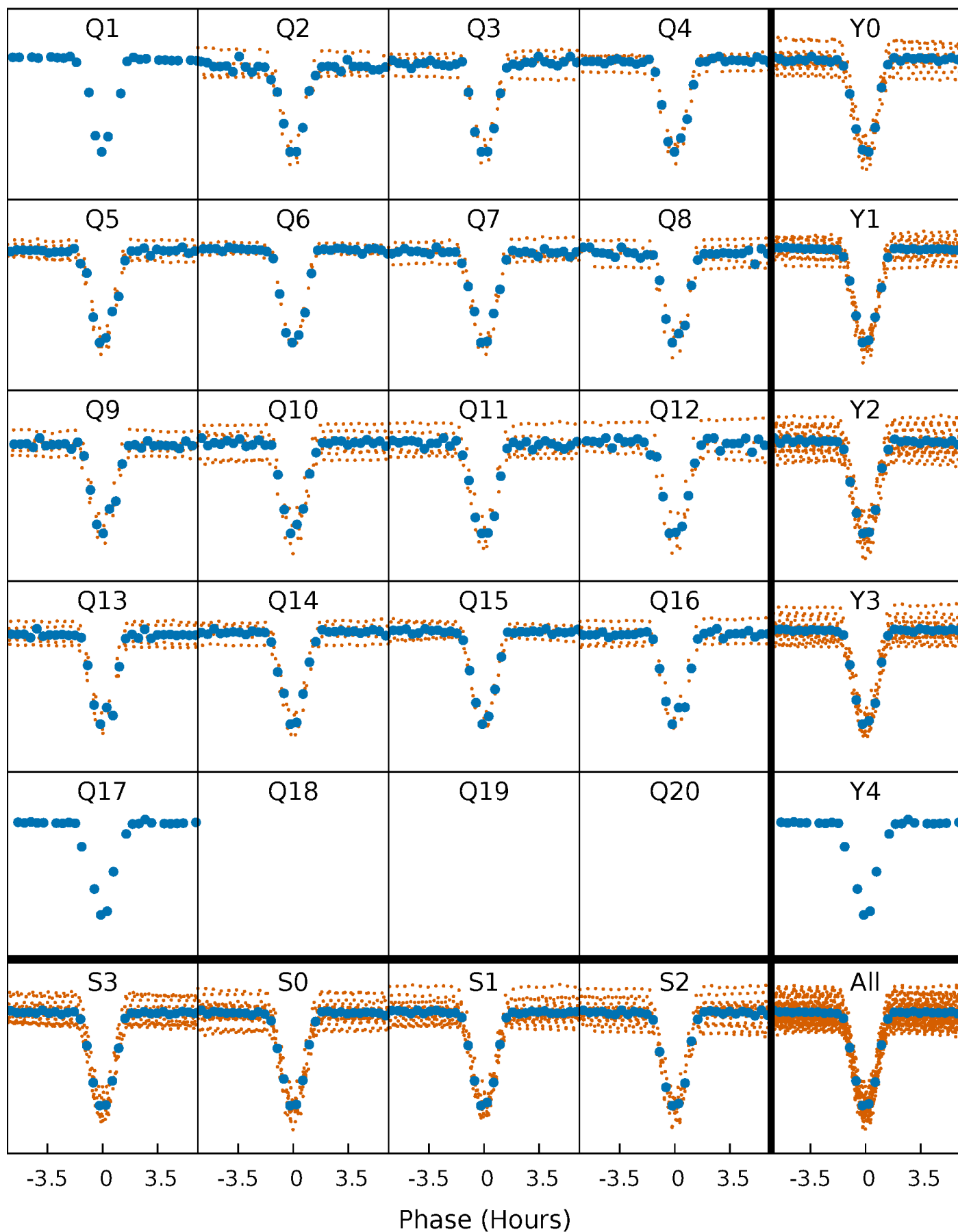


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



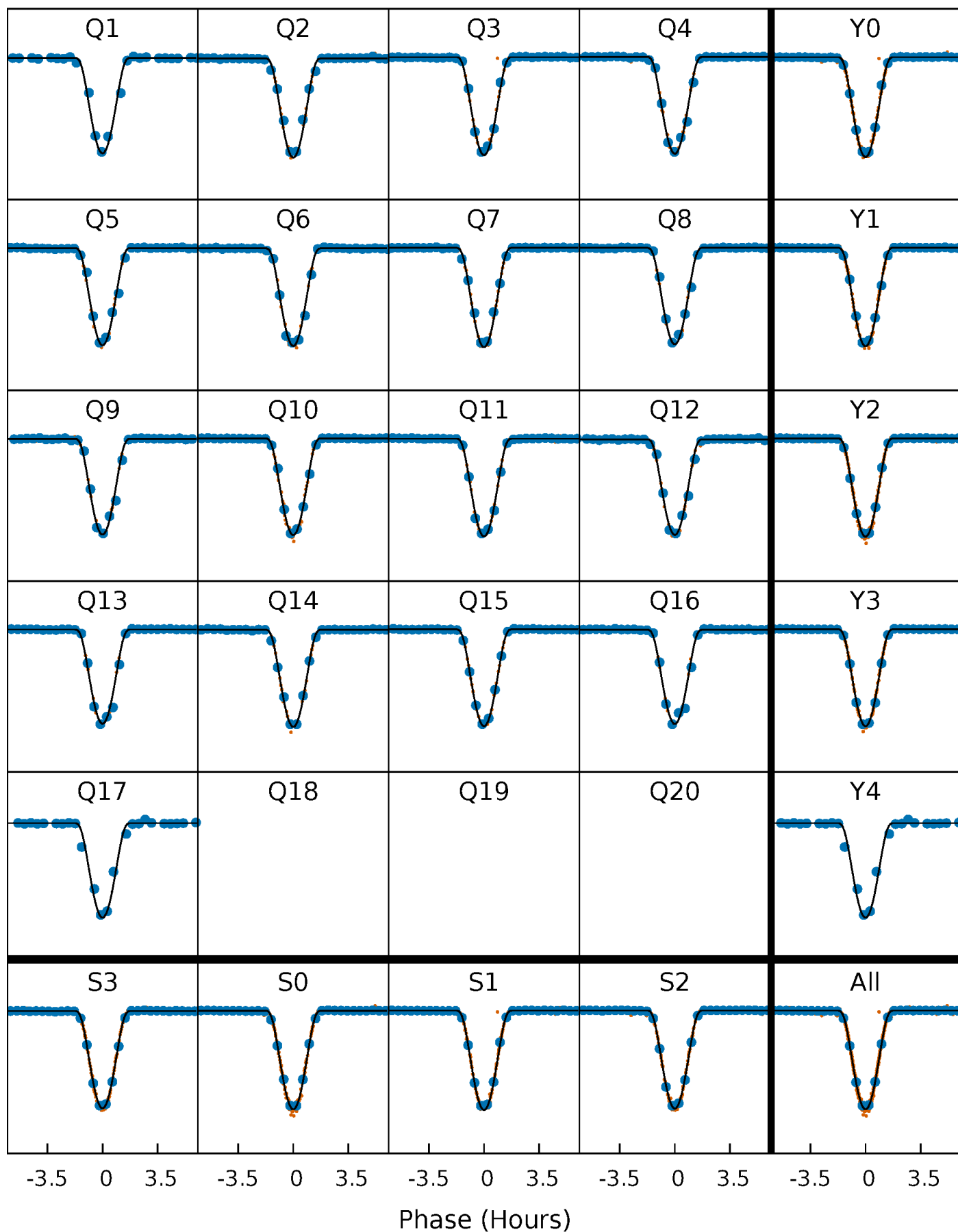
PDC Quarter-Phased Transit Curves

TCE 009001468-02 P= 17.329983 Days $T_0=148.105665$ (BKJD)



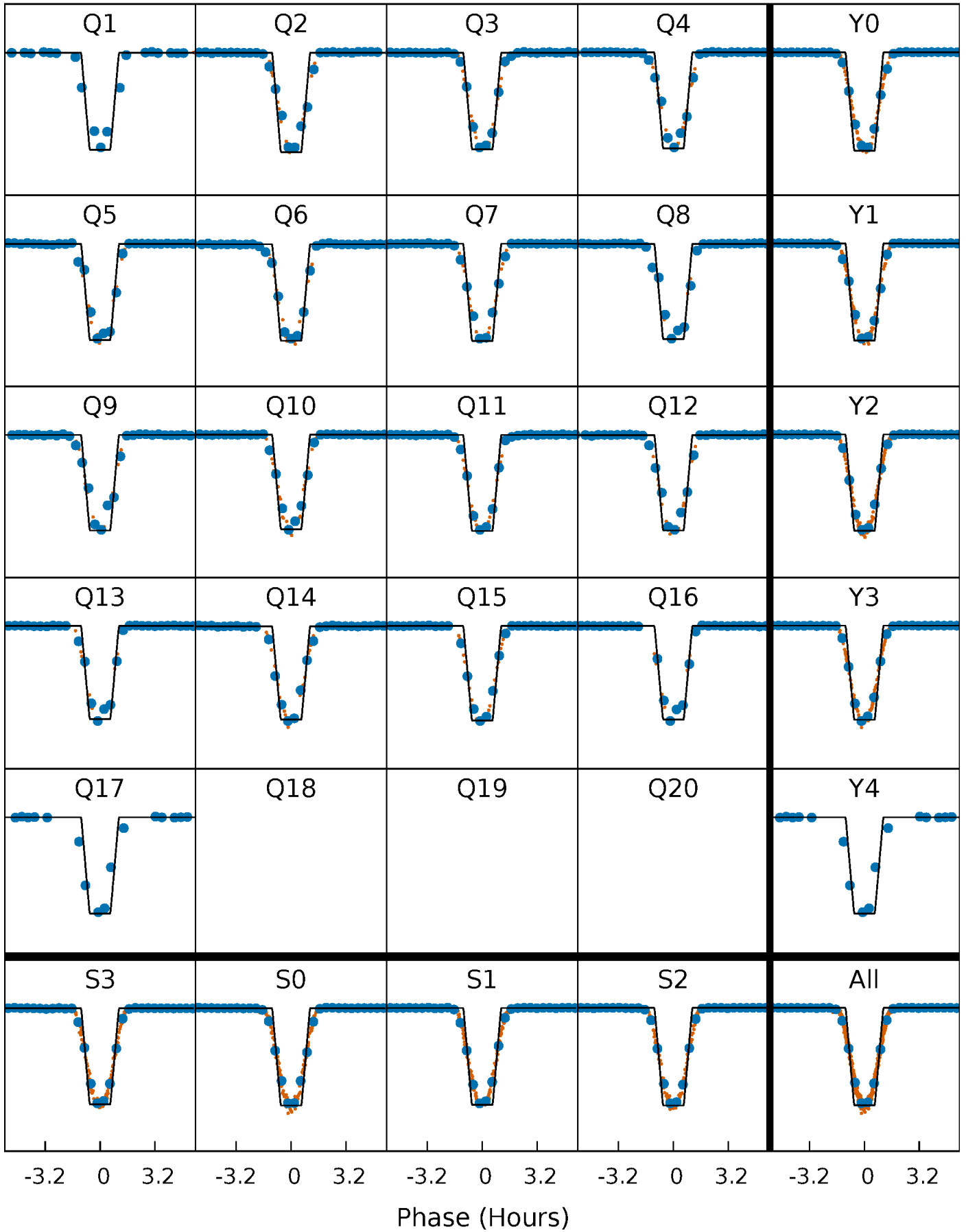
DV Quarter-Phased Transit Curves

TCE 009001468-02 P= 17.329983 Days $T_0=148.105665$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

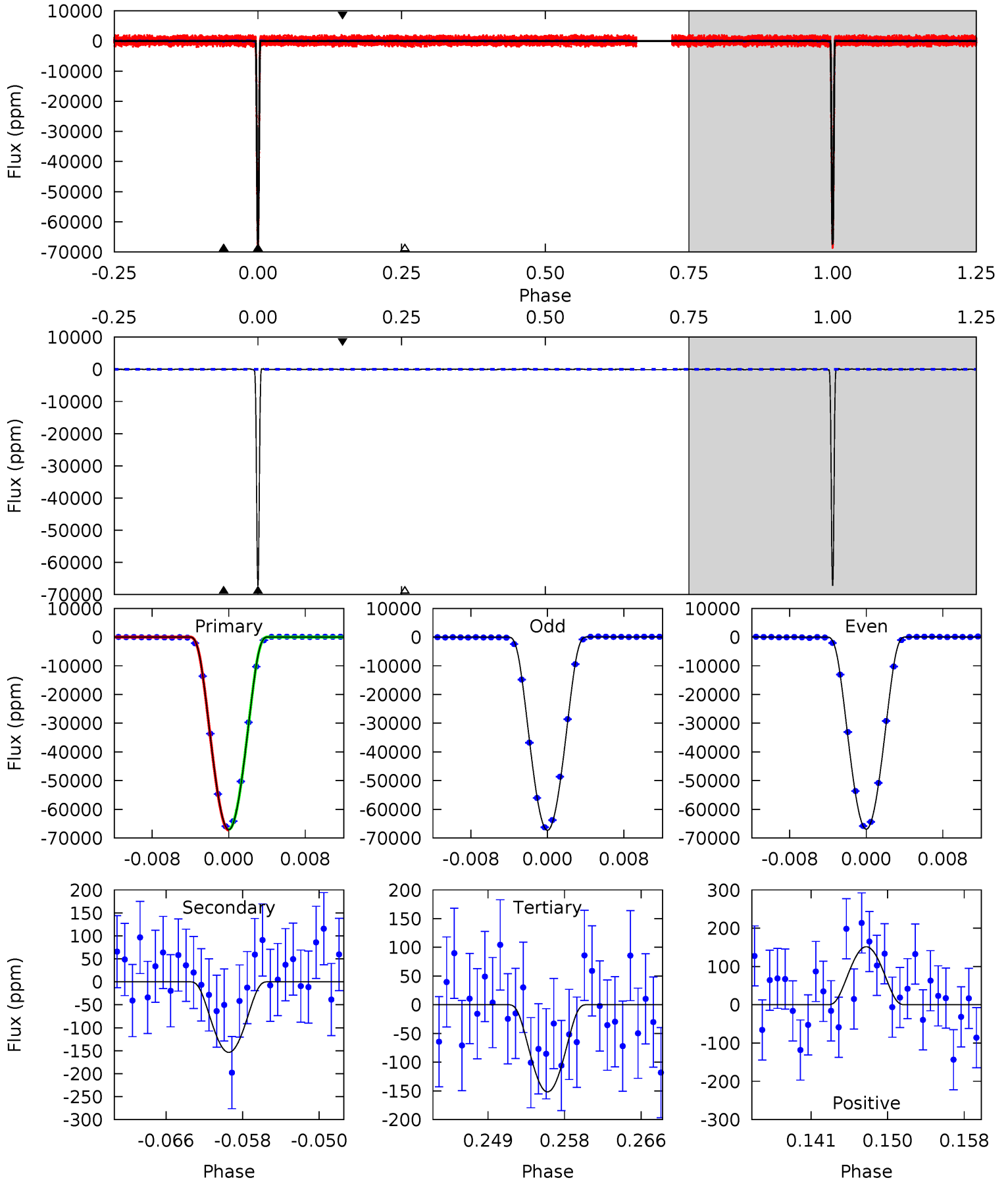
TCE 009001468-02 P= 17.330044 Days $T_0=148.103004$ (BKJD)



DV Model-Shift Uniqueness Test

009001468-02, P = 17.329983 Days, E = 130.775682 Days

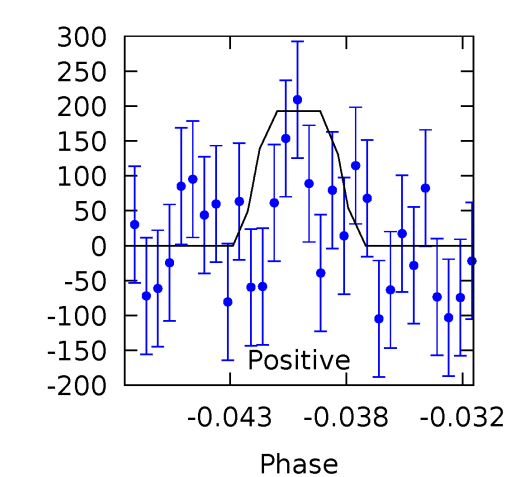
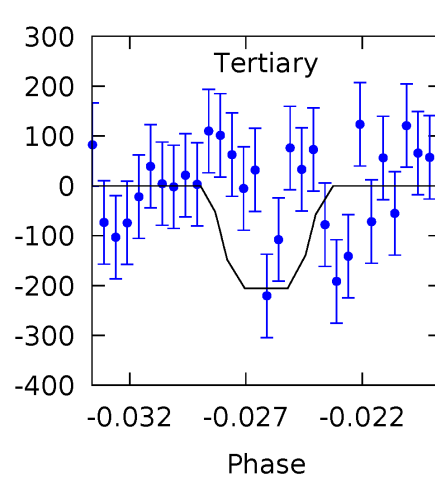
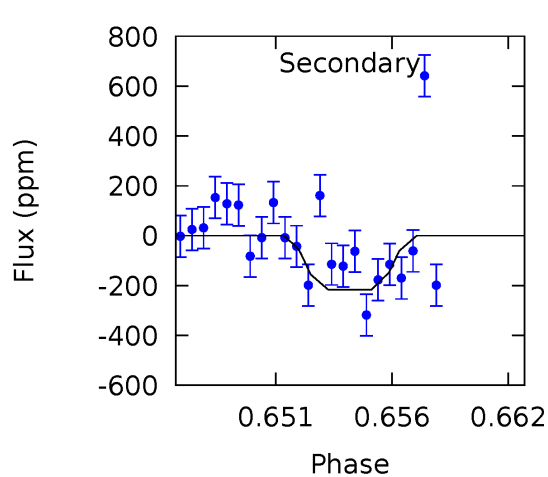
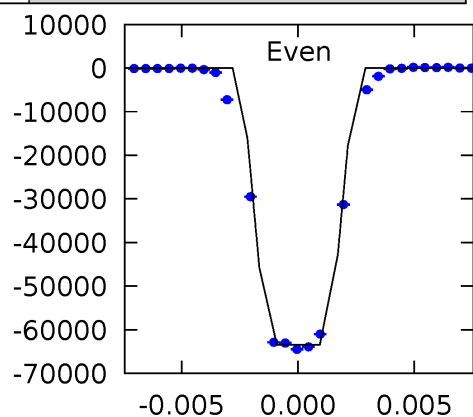
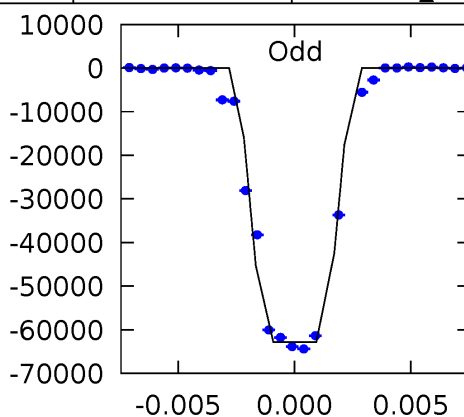
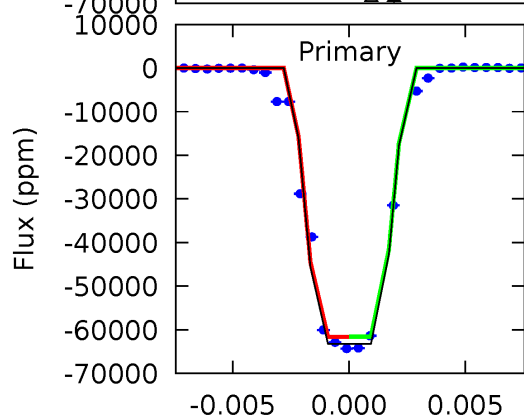
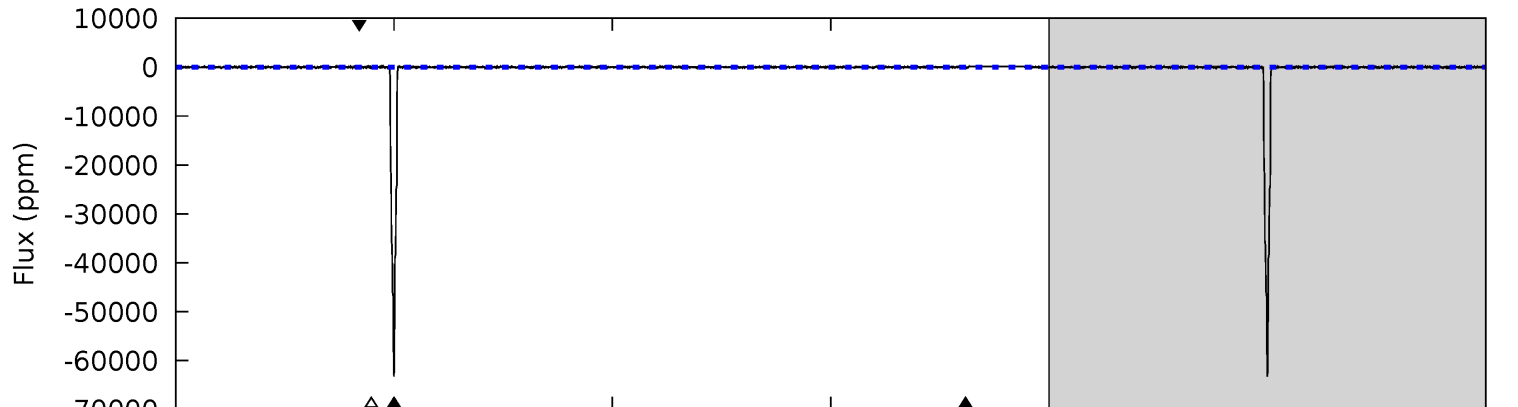
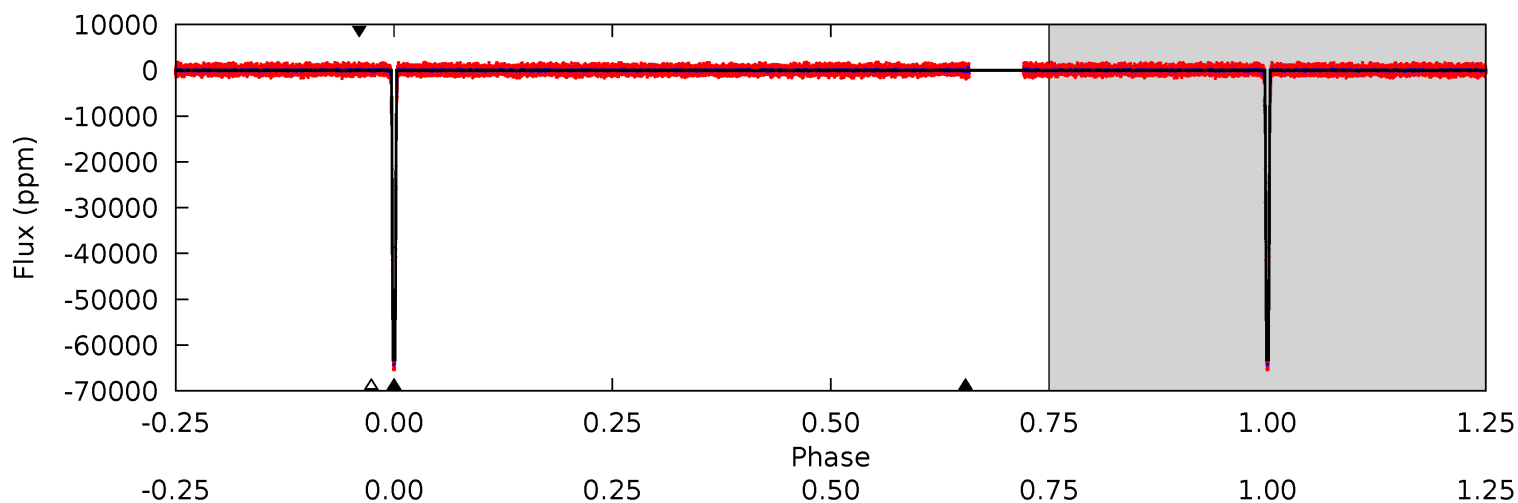
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2864	6.56	6.47	6.47	5.06	2.64	2.15	2858	2858	0.08	0.08	8.36	1.00	0.00	0



Alt Model-Shift Uniqueness Test

009001468-02, P = 17.330044 Days, E = 130.772960 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1374	4.71	4.46	4.18	5.14	2.78	1.15	1369	1370	0.25	0.53	6.70	1.00	0.00	0



Stellar Parameters For KIC 009001468

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5079^{+166}_{-151}	$4.588^{+0.072}_{-0.048}$	$-0.560^{+0.350}_{-0.300}$	$0.683^{+0.065}_{-0.065}$	$0.659^{+0.085}_{-0.036}$	$2.914^{+0.877}_{-0.522}$
	+3%/-3%	+2%/-1%	+62%/-54%	+10%/-10%	+13%/-5%	+30%/-18%
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 009001468-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-154 ± 23	$26.80^{+2.00}_{-2.14}$	764^{+30}_{-29}	1907^{+51}_{-55}	$1.587^{+0.344}_{-0.326}$
Alt.	-217 ± 46	$19.24^{+1.77}_{-1.85}$	764^{+31}_{-30}	2141^{+80}_{-72}	$4.237^{+1.314}_{-1.103}$

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 $A_{obs} \gg 1.0$

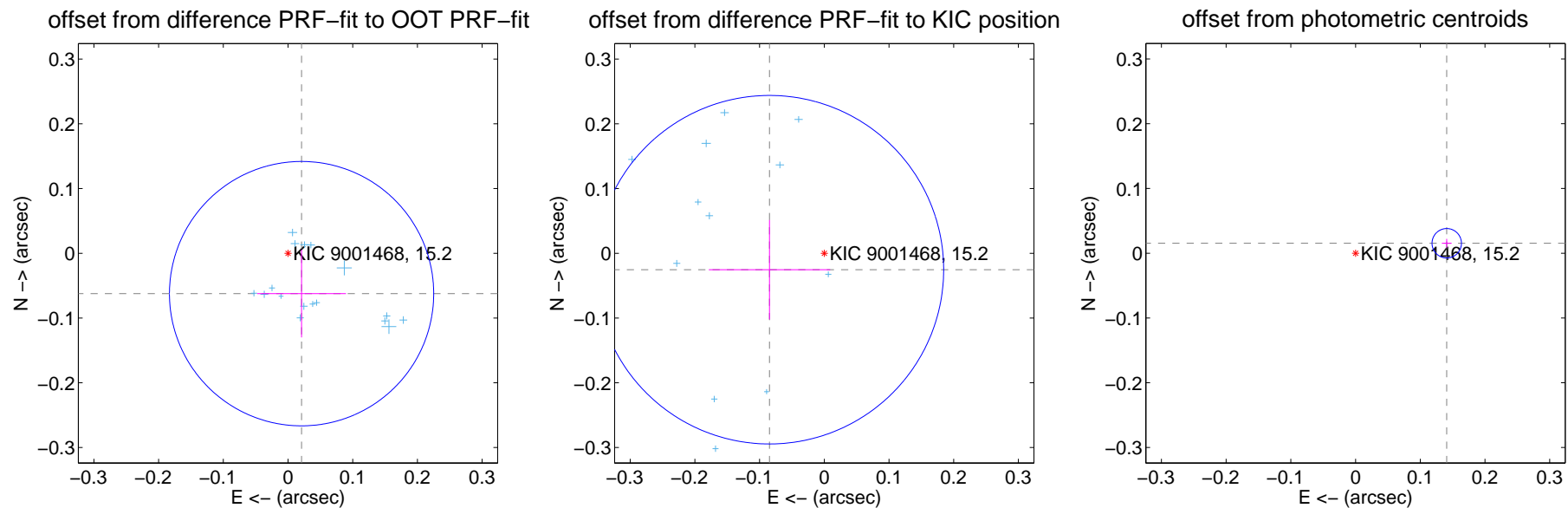
DV Centroid Data

Supplemental centroid analysis for 009001468-02. Kepler magnitude: 15.20. Transit SNR 1177.03

There are 17 quarters with good PRF difference image offsets

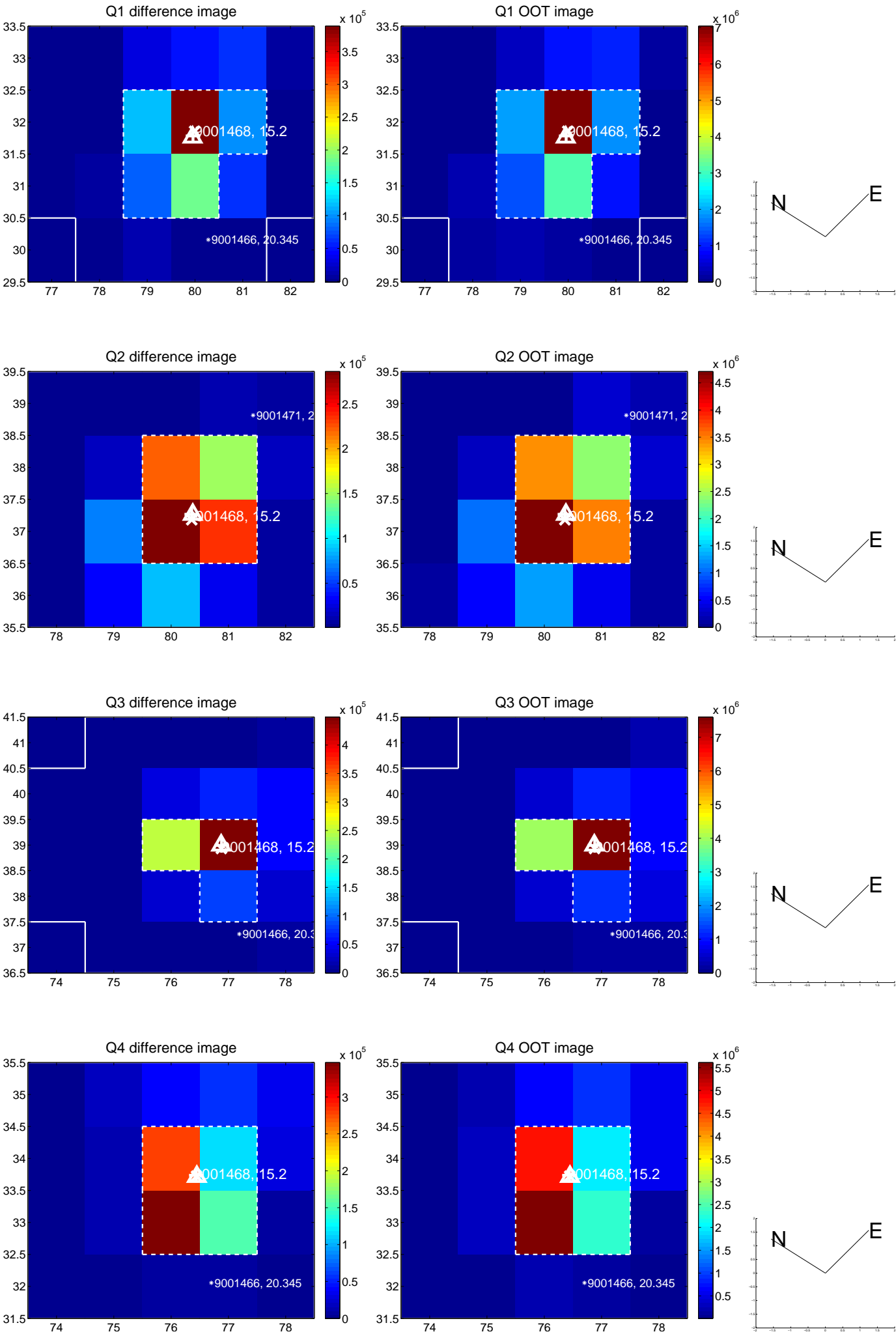
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.066 ± 0.068	0.97	-0.021 ± 0.069	-0.062 ± 0.068
PRF-fit source offset from KIC position	0.088 ± 0.090	0.99	0.085 ± 0.094	-0.025 ± 0.077
photometric centroid source offset	0.14 ± 0.01	18.71	-0.14 ± 0.01	0.02 ± 0.01

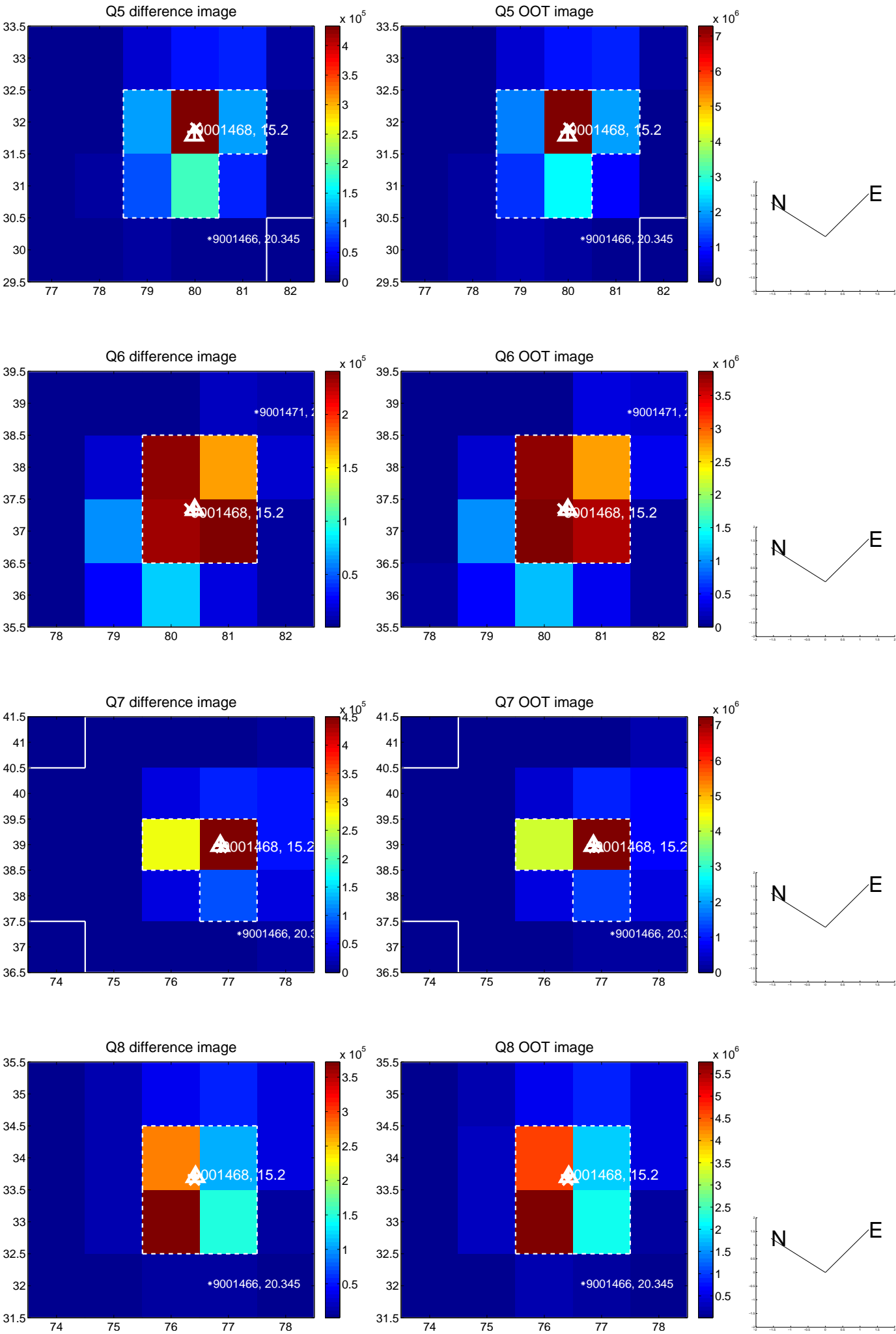


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

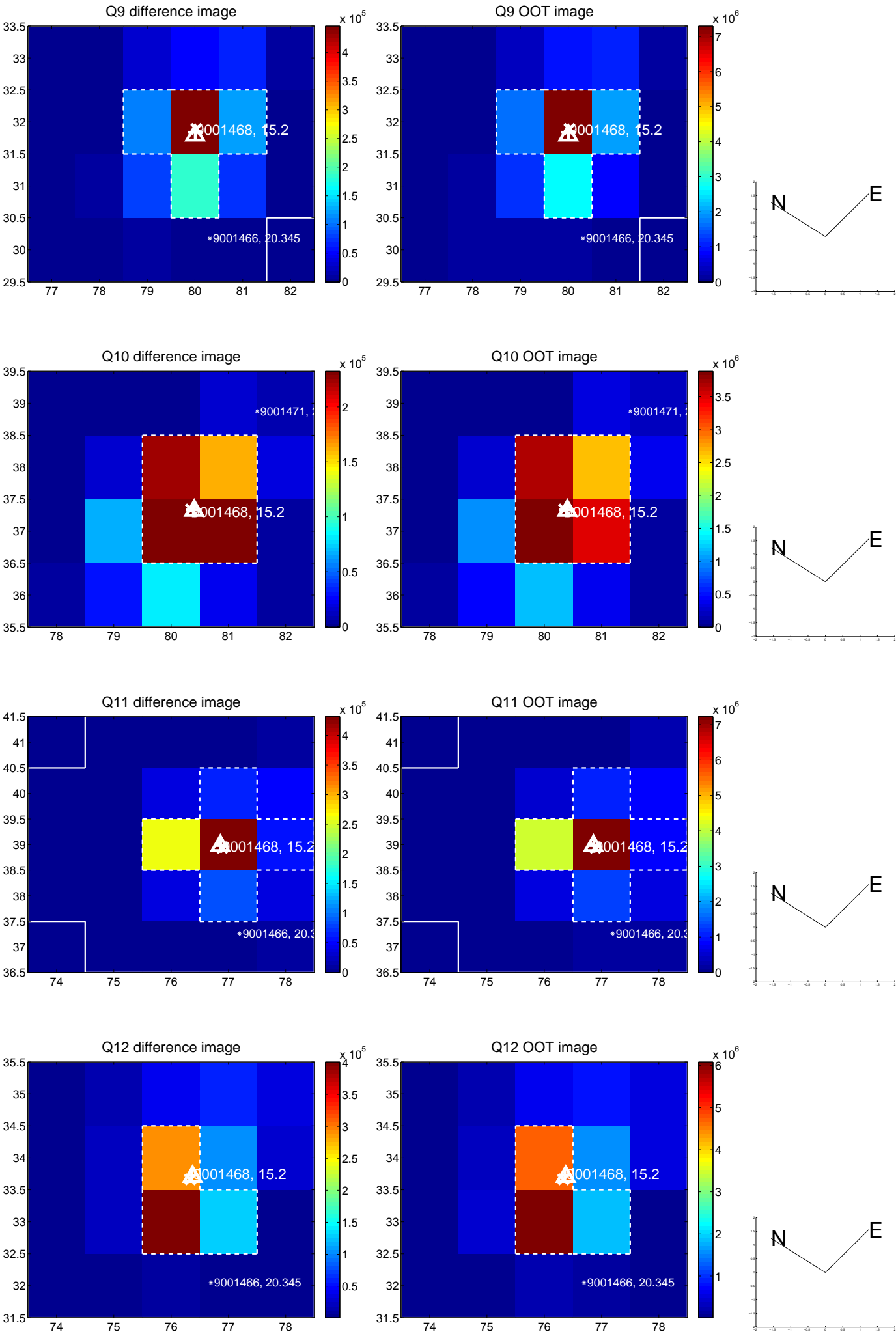
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



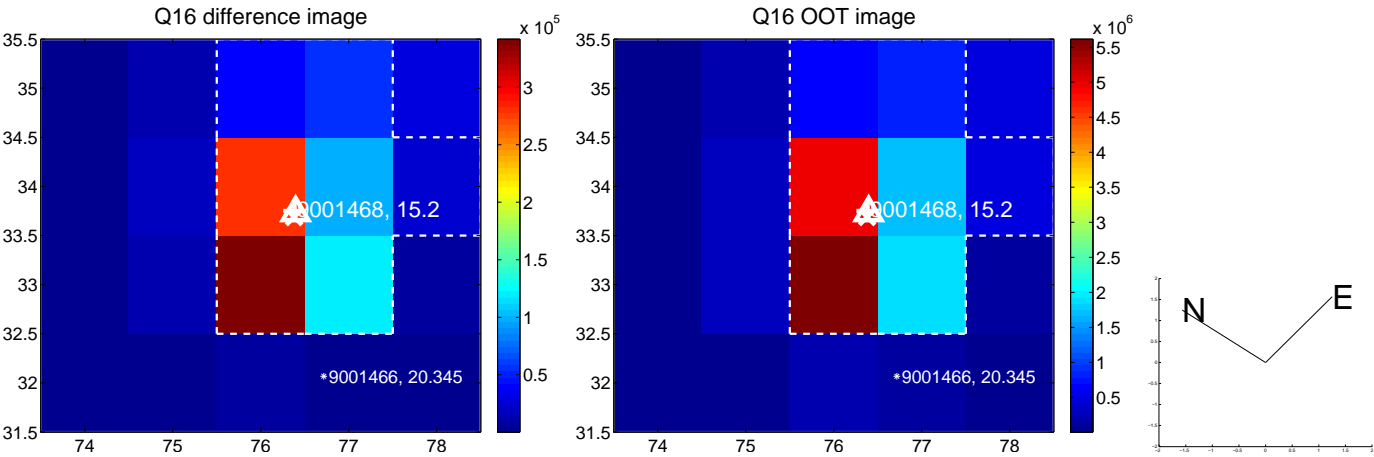
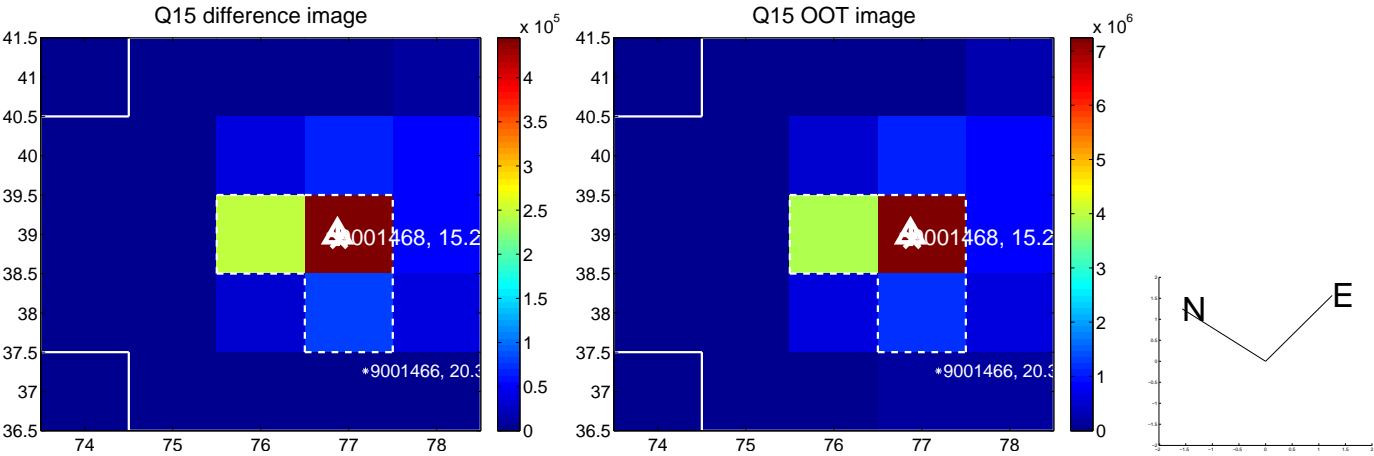
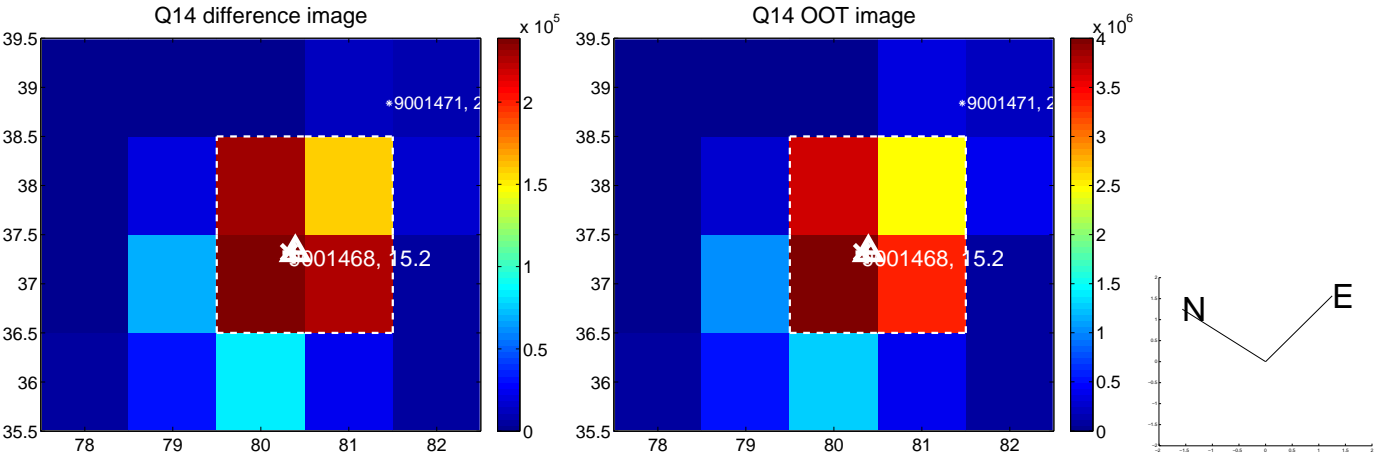
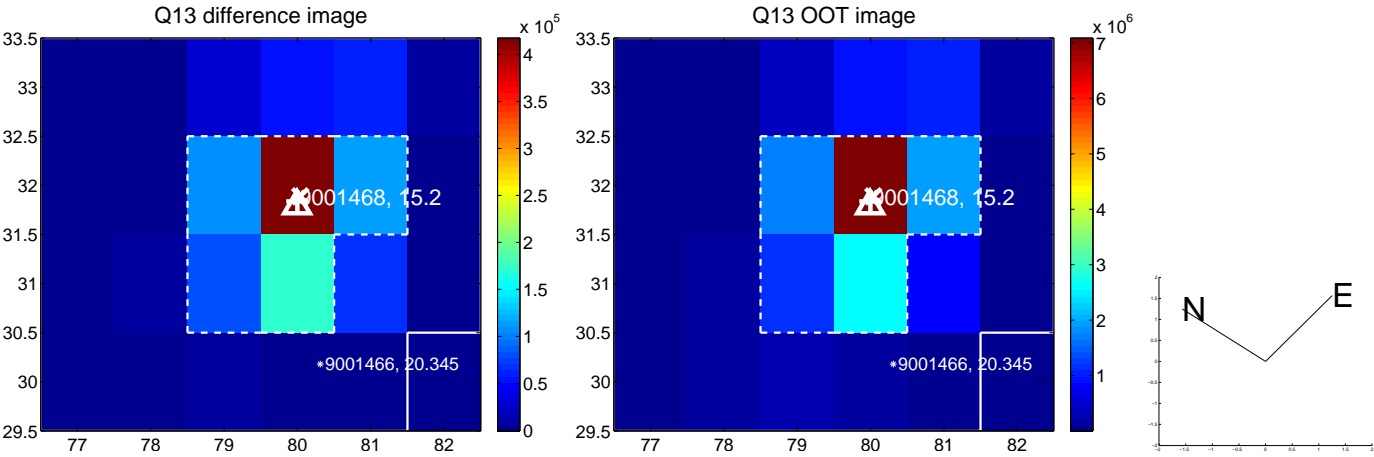
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



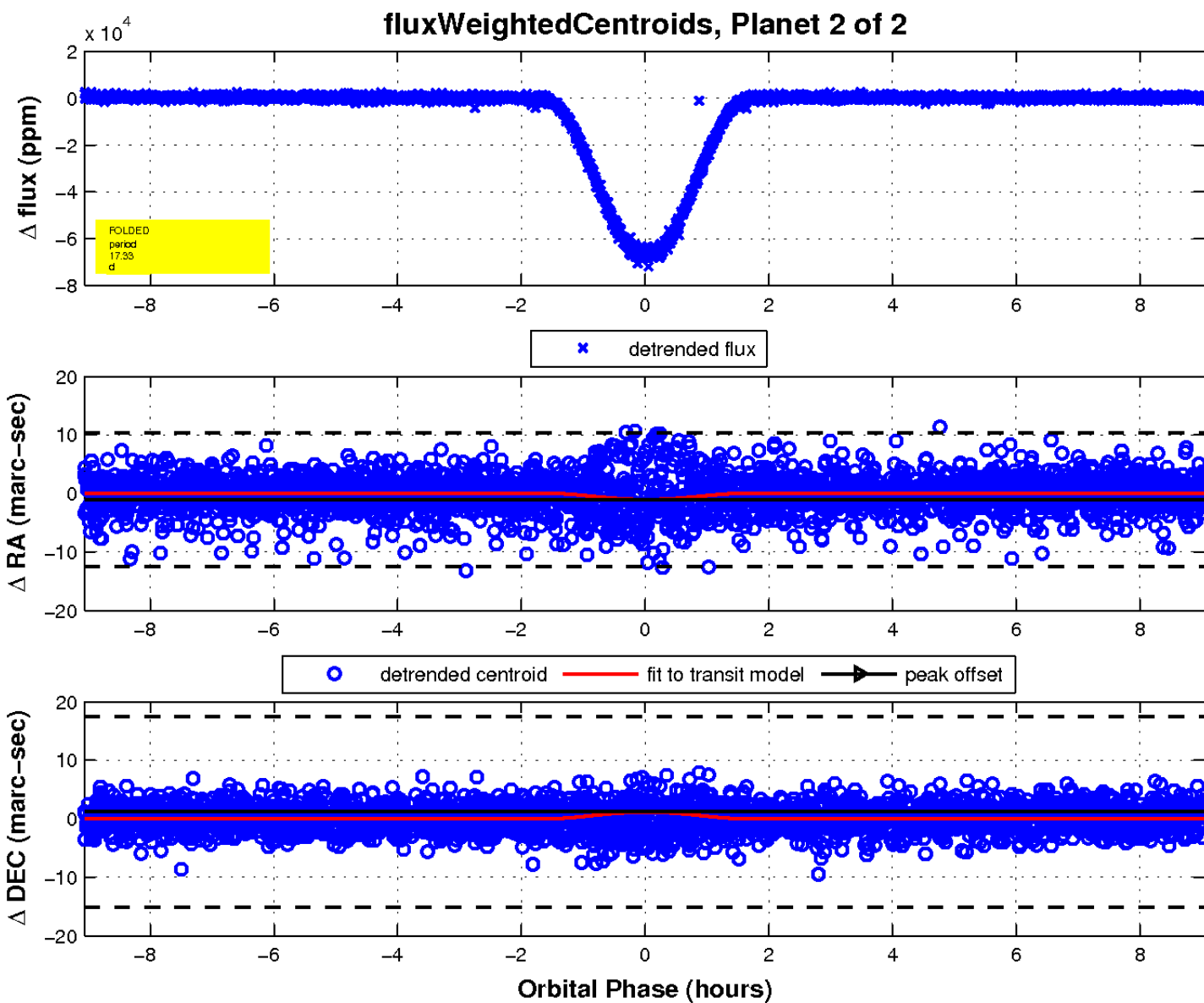
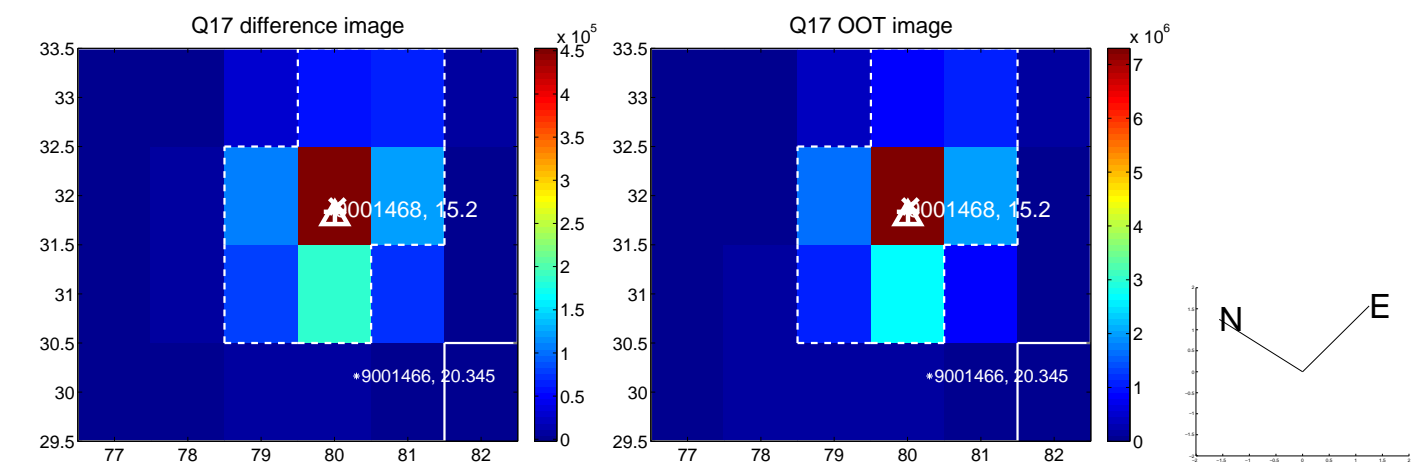
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

