

KIC 009892471

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})
009892471-01	OBS	3584.01	8.268082	135.056209	71191.1	3.469	2061.7	1811.5	0.92	5749	35.28	131.18
009892471-02	OBS	No	8.268081	139.188842	8964.0	3.312	265.5	264.5	0.92	5749	14.72	131.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009892471-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009892471-02	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.

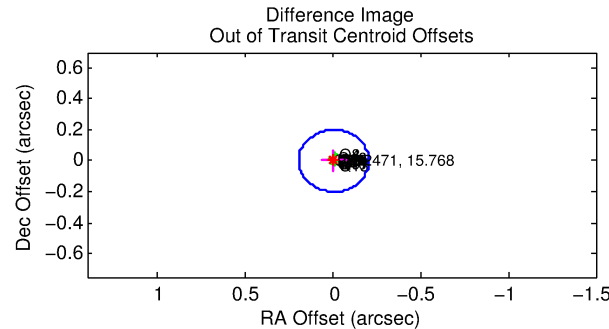
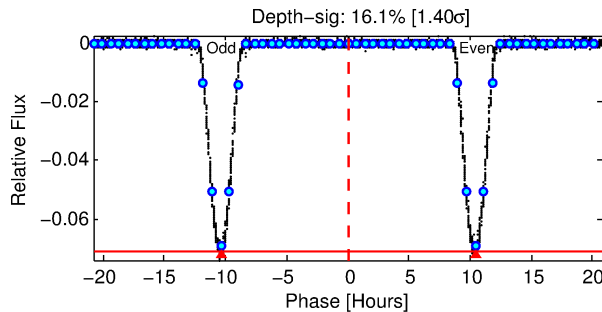
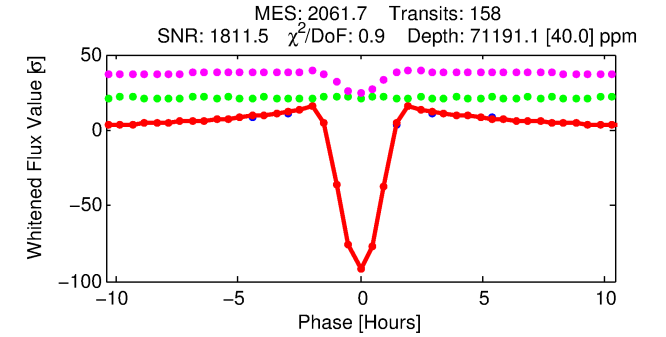
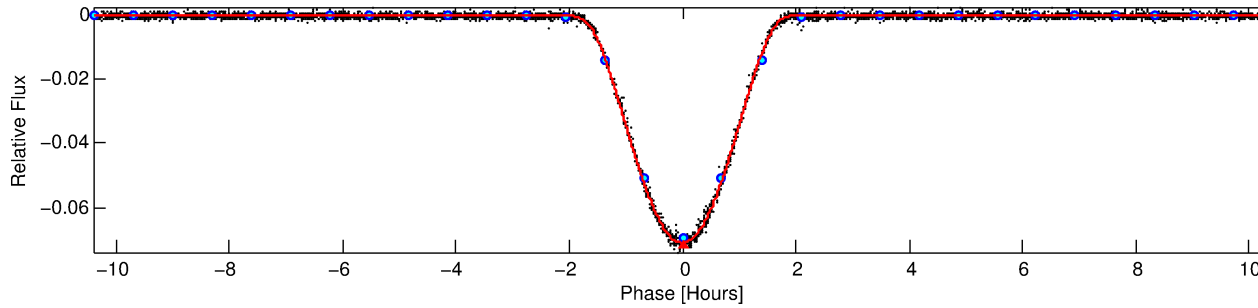
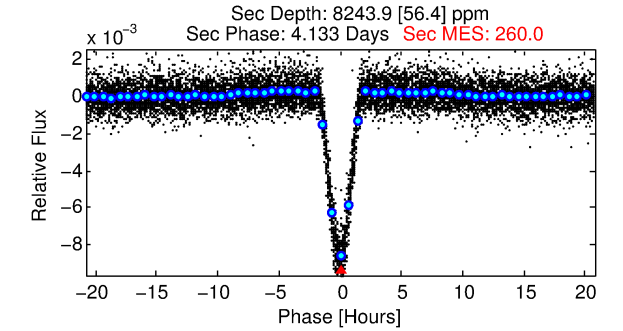
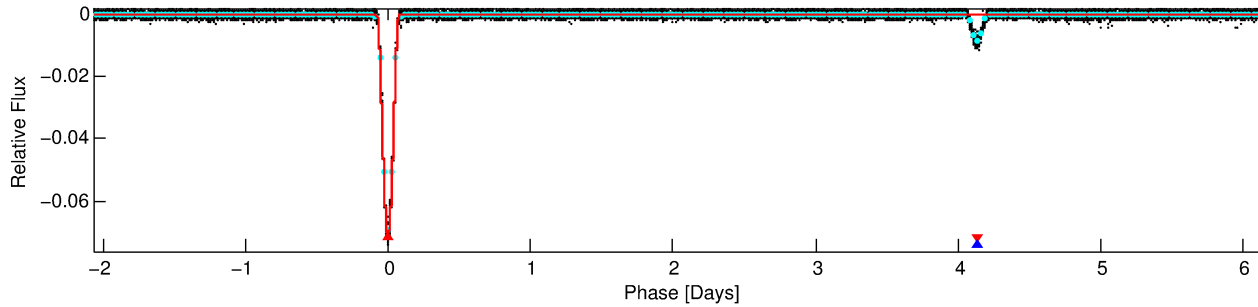
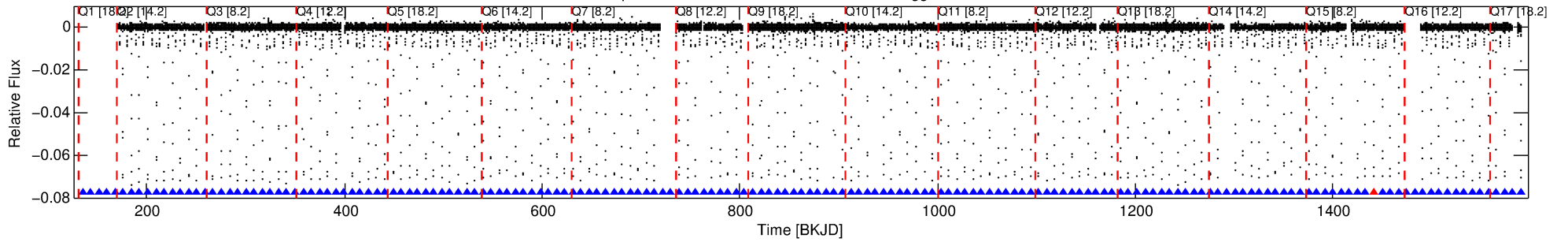
Ephemeris Match Information For 009892471-01

No Significant Match Found

DV One-Page Summary

KIC: 9892471 Candidate: 1 of 2 Period: 8.268 d
KOI: K03584.01 Corr: 0.999

Kp: 15.77 R*: 0.92 Rs Teff: 5749.0 K Logg: 4.50 Fe/H: 0.020



DV Fit Results:

Period = 8.26808 [0.00000] d
Epoch = 135.0562 [0.0000] BKJD
Rp/R* = 0.3507 [0.0089]
a/R* = 18.37 [0.02]
b = 0.90 [0.01]
Seff = 131.18 [50.92]
Teq = 863 [84] K
Rp = 35.28 [10.49] Re
a = 0.0796 [0.0199] AU
Ag = 23.11 [8.52] [2.60σ]
Teffp = 2925 [104] K [15.48σ]

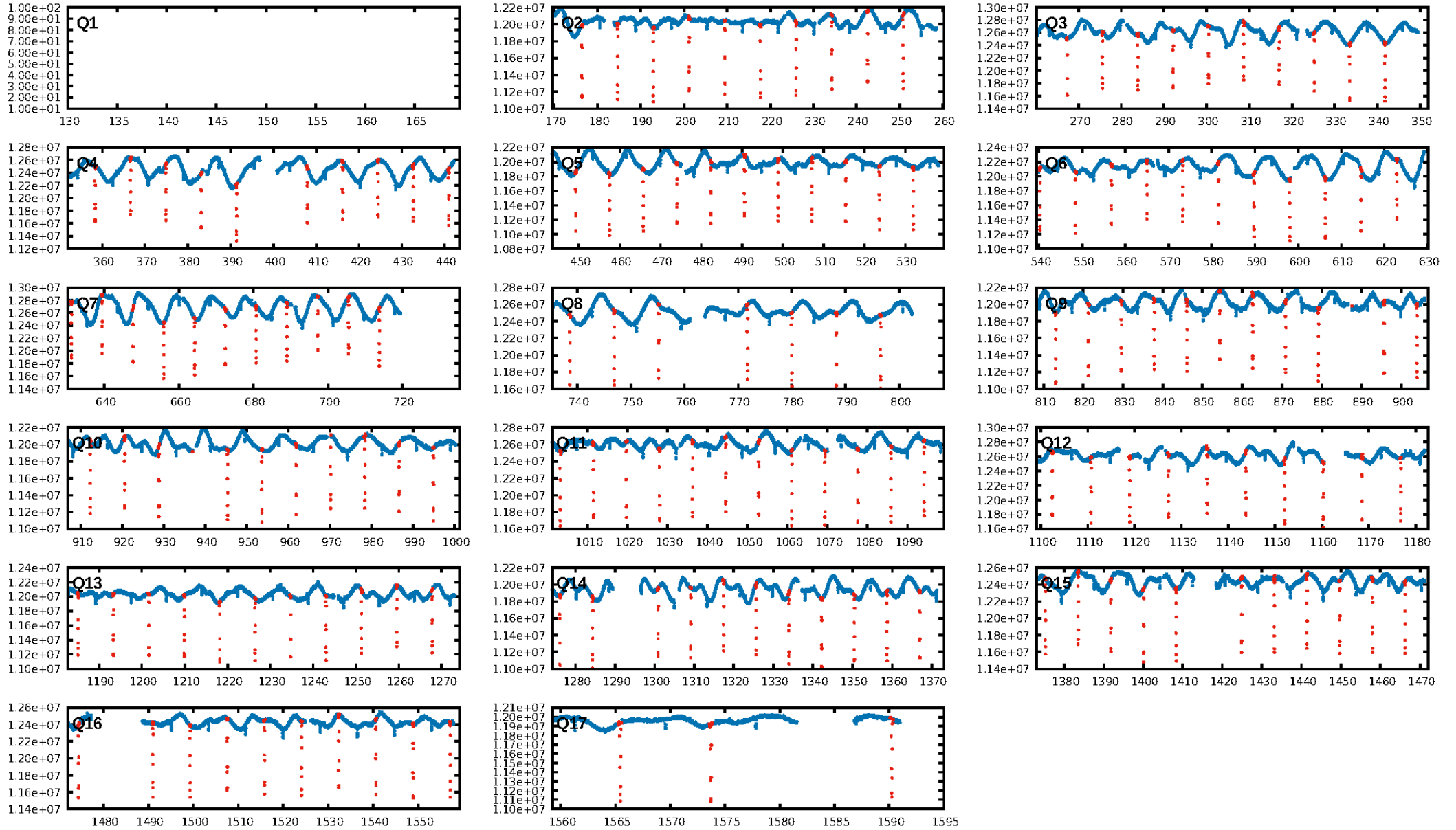
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [154/155]
GhostDiagnostic-chr: 2.644
Centroid-sig: 4.6%
Centroid-so: 0.176 arcsec [32.37σ]
OotOffset-rm: 0.006 arcsec [0.09σ]
KicOffset-rm: 0.189 arcsec [2.81σ]
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]

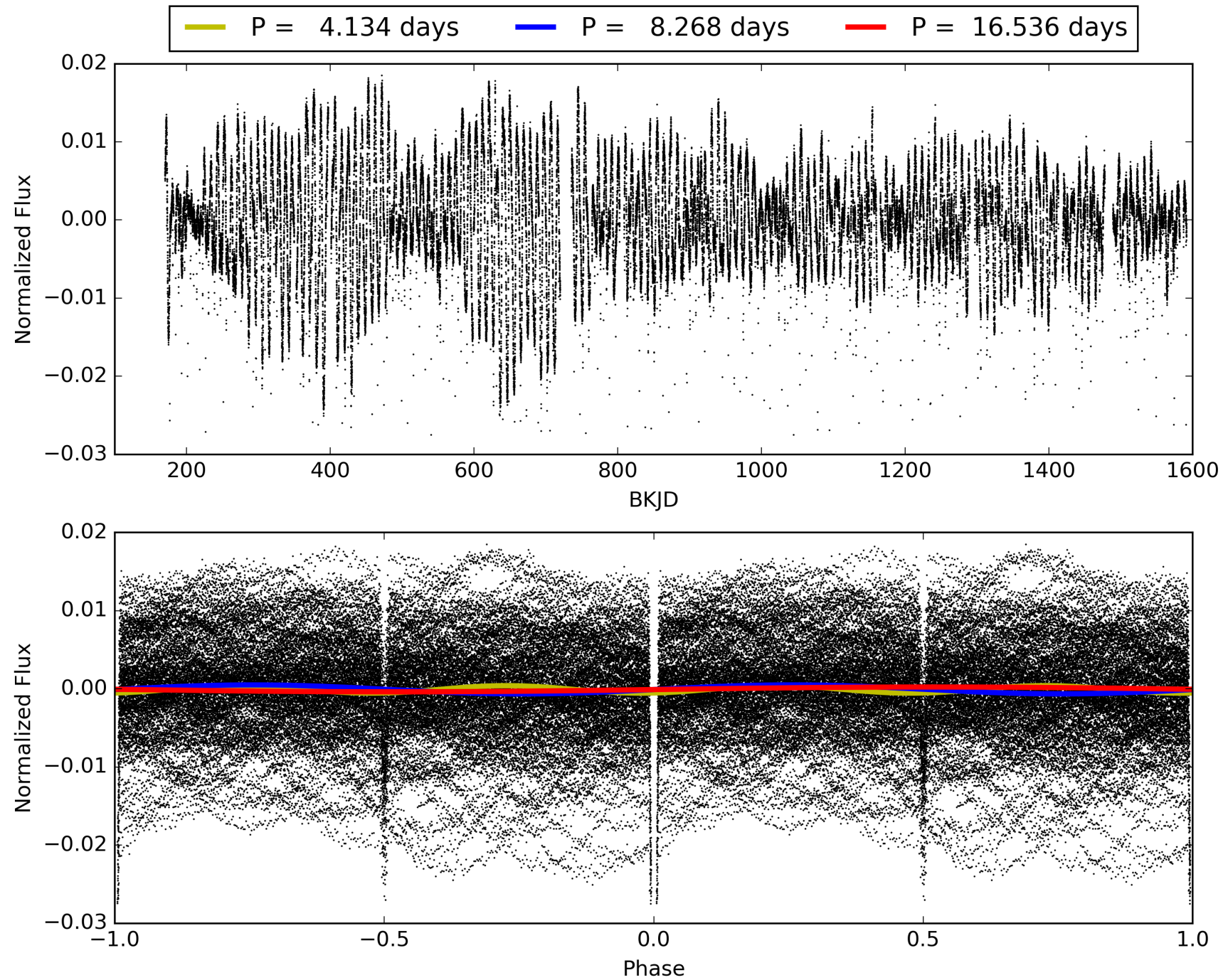
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:14:37 Z

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

TCE 009892471-01, PDC Light Curves

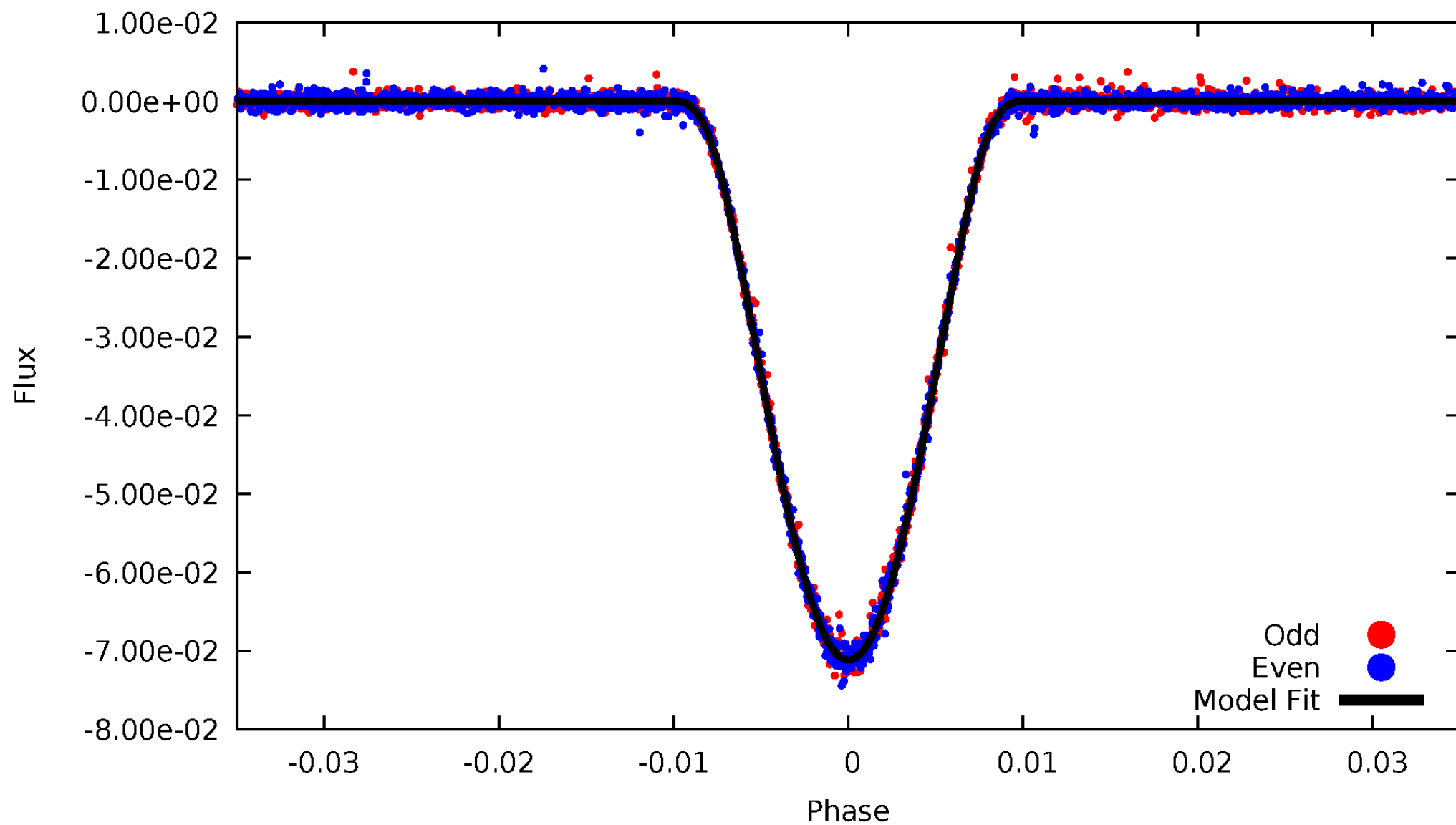


TCE 009892471-01



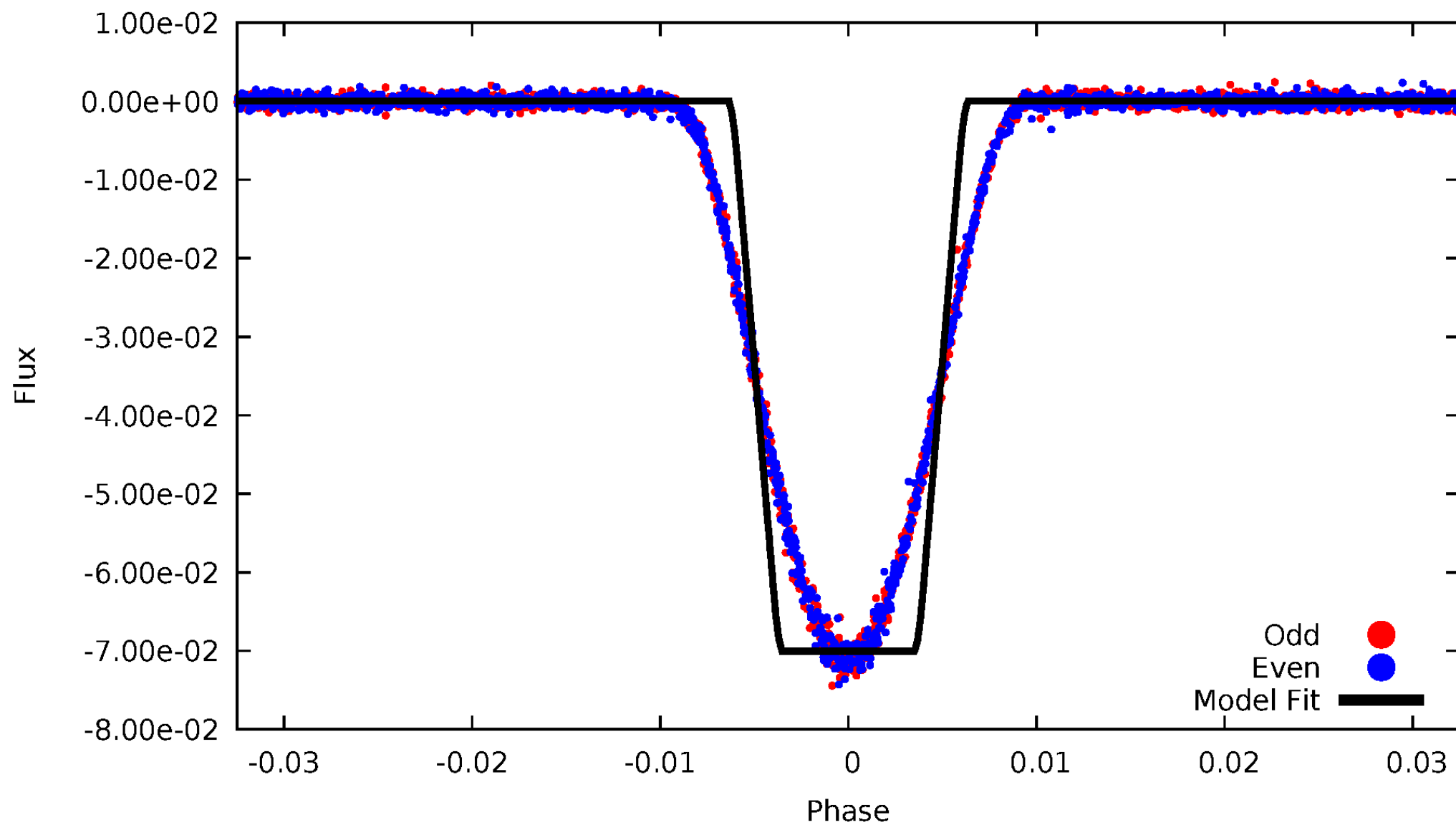
DV Odd/Even

TCE 009892471-01



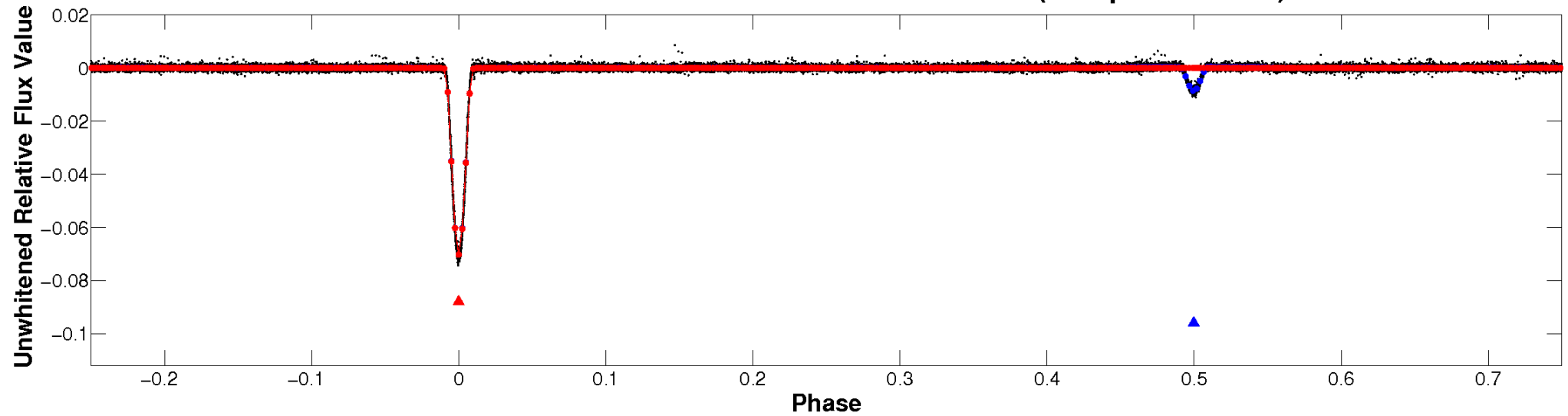
ALT Odd/Even

TCE 009892471-01

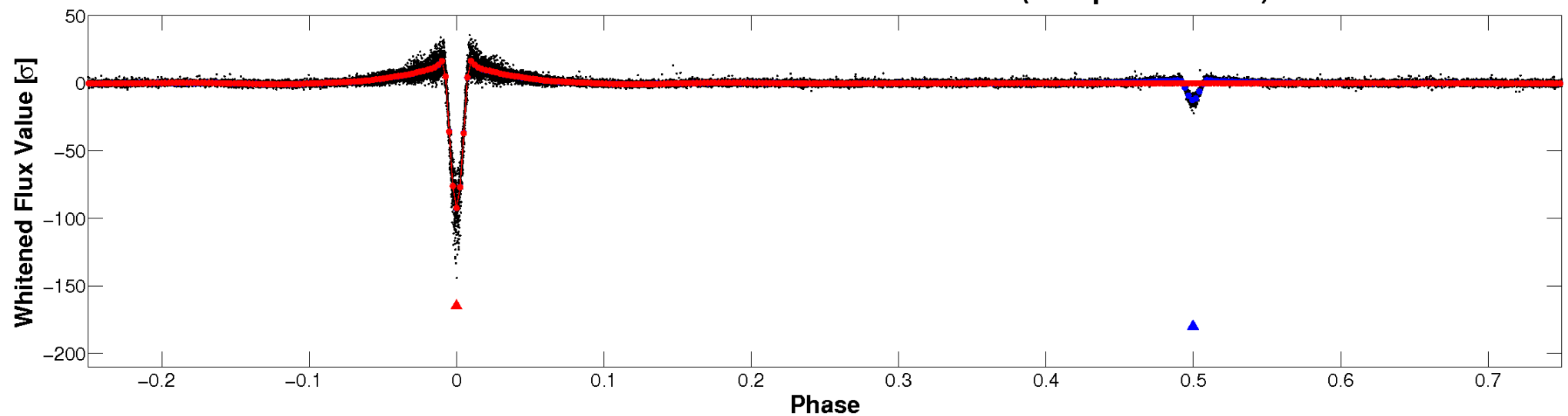


Non-Whitened Vs. Whitened Light Curve

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

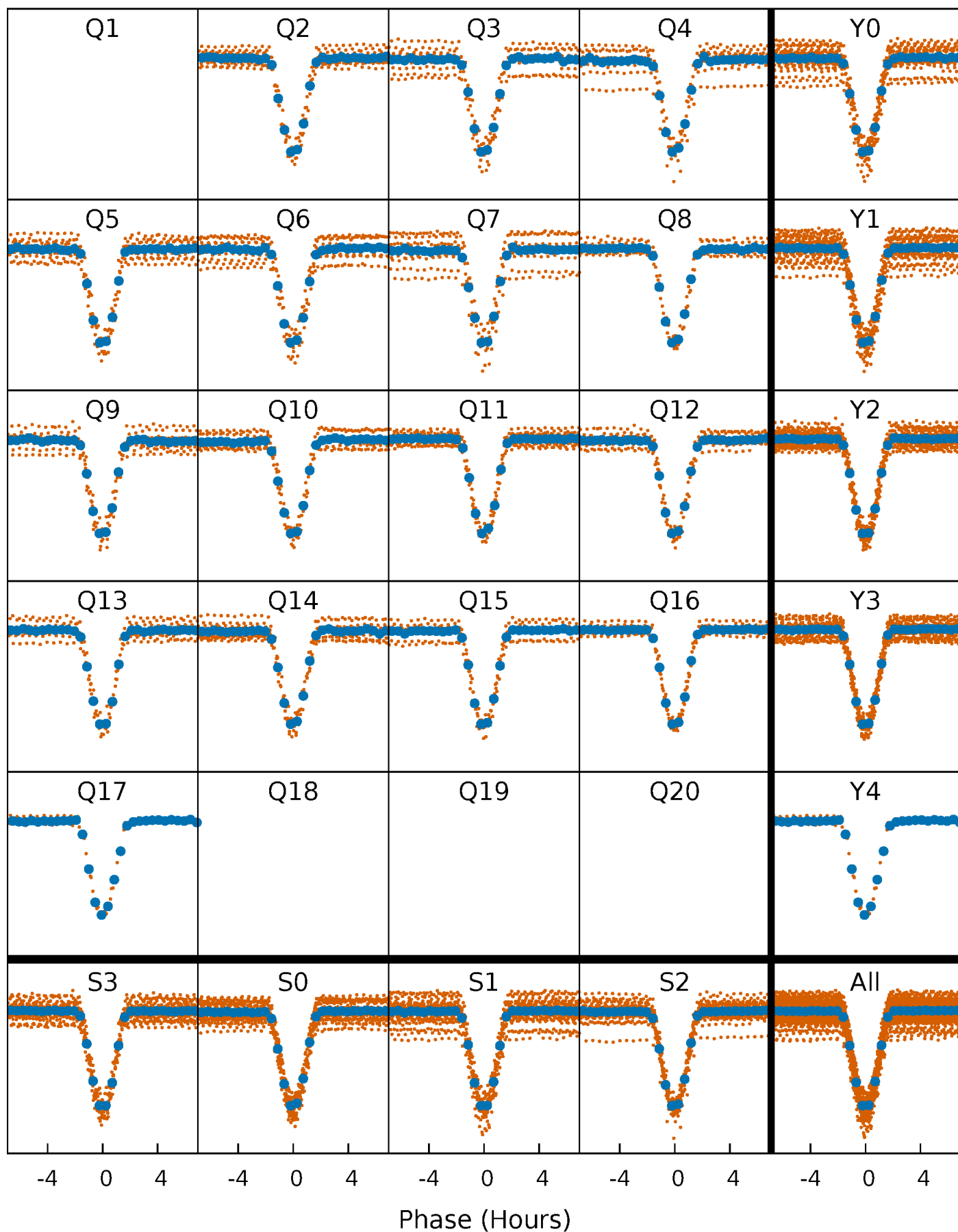


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



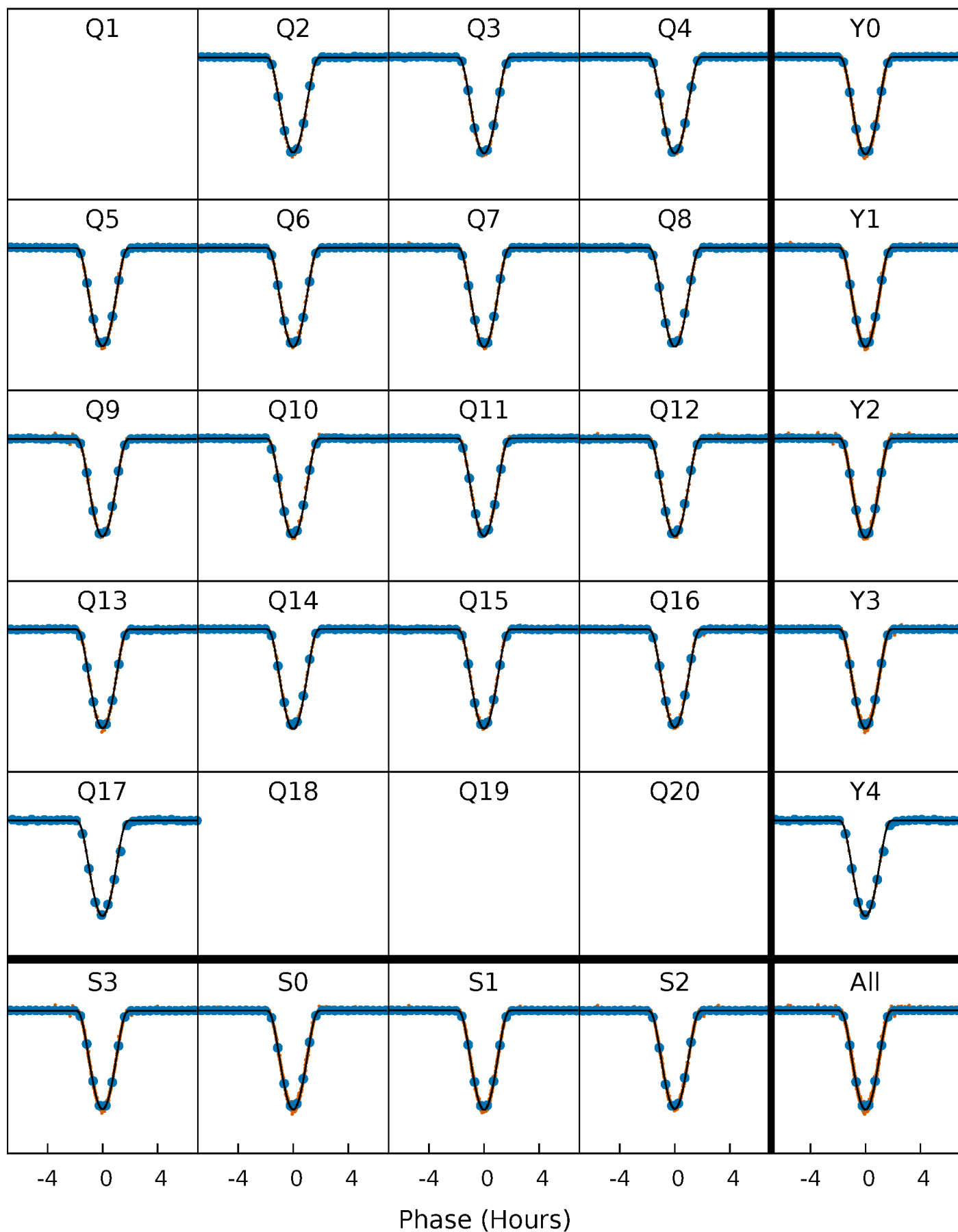
PDC Quarter-Phased Transit Curves

TCE 009892471-01 P= 8.268082 Days $T_0=135.056209$ (BKJD)



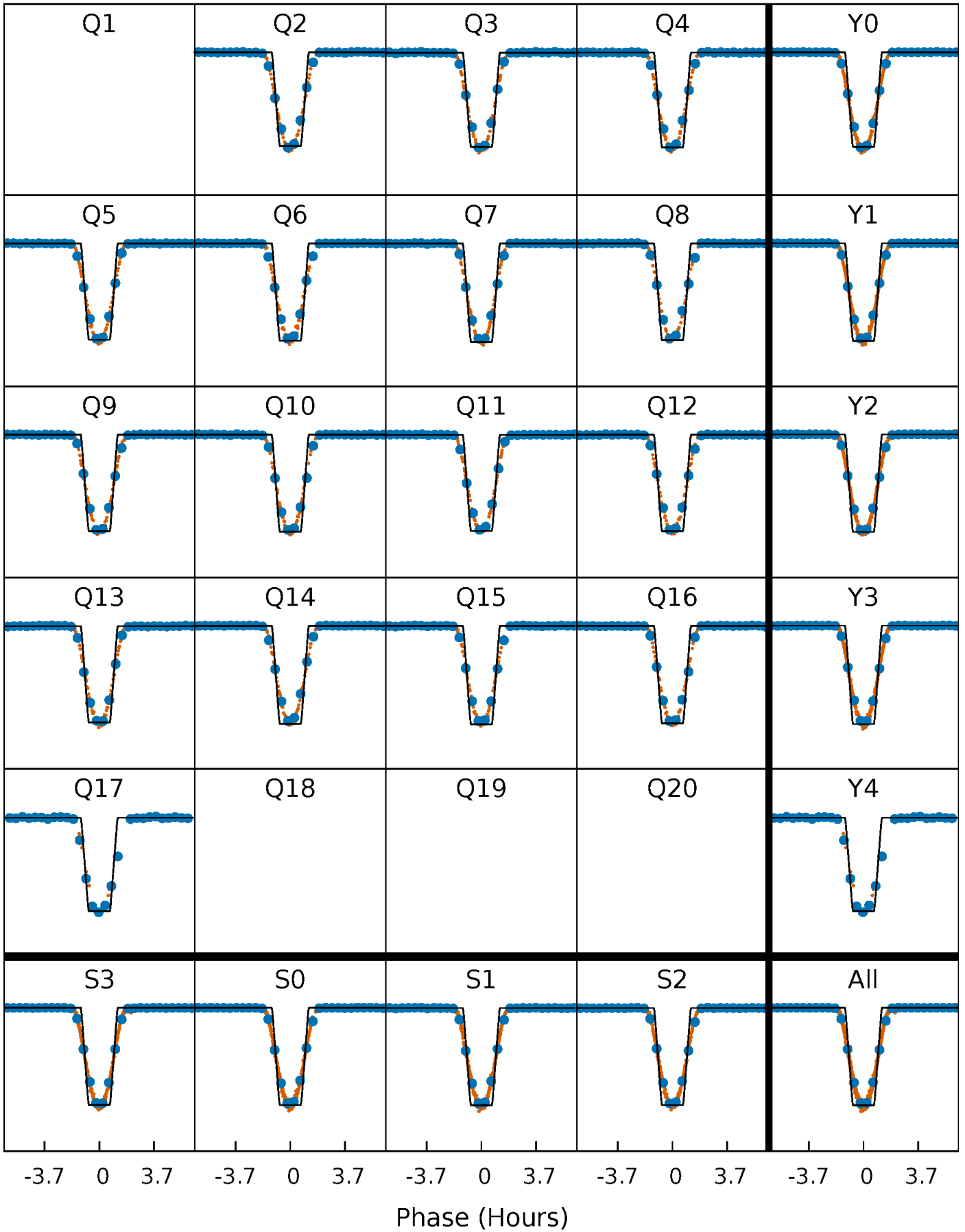
DV Quarter-Phased Transit Curves

TCE 009892471-01 P= 8.268082 Days $T_0=135.056209$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

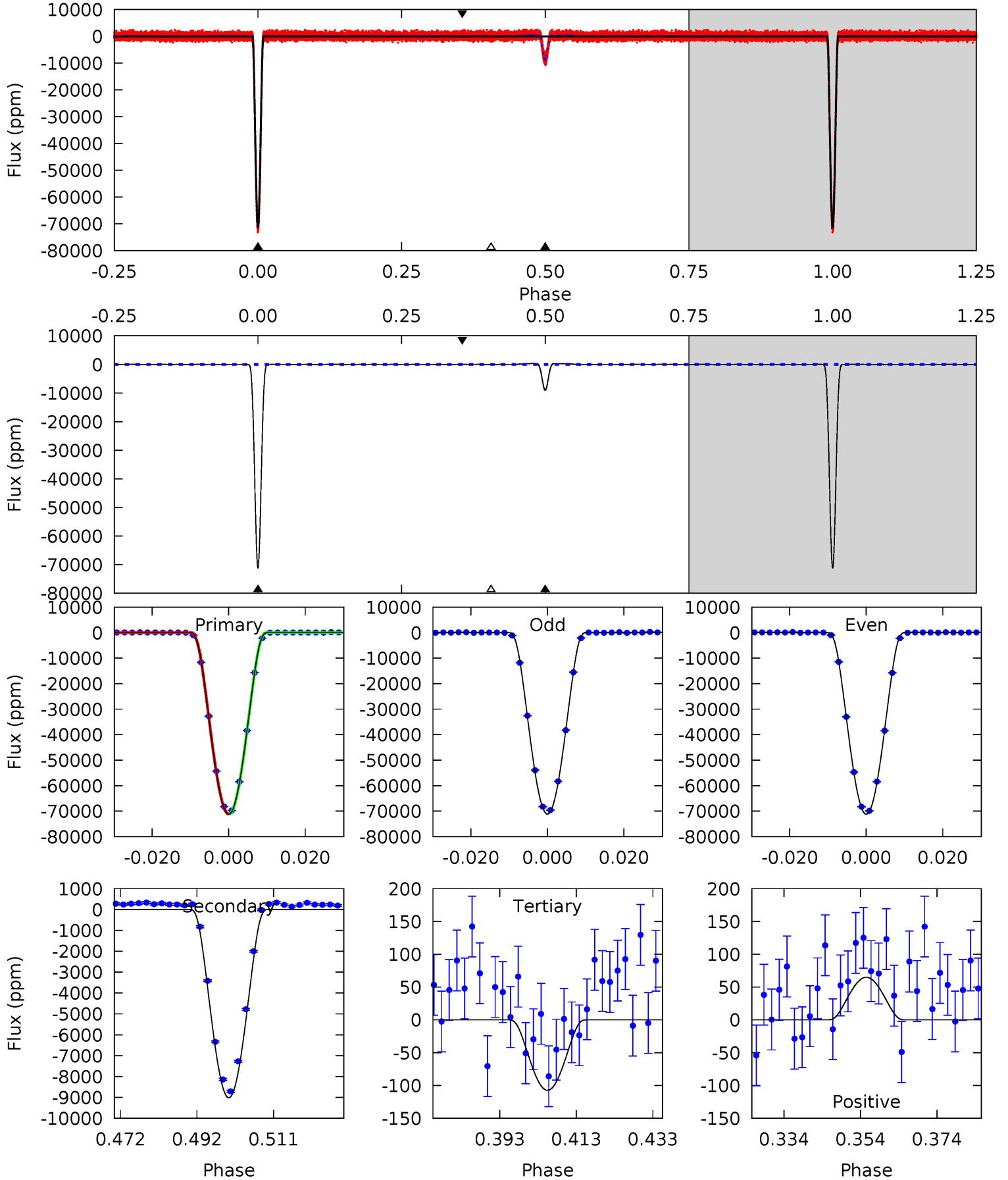
TCE 009892471-01 P= 8.268071 Days $T_0=135.057223$ (BKJD)



DV Model-Shift Uniqueness Test

009892471-01, P = 8.268082 Days, E = 135.056209 Days

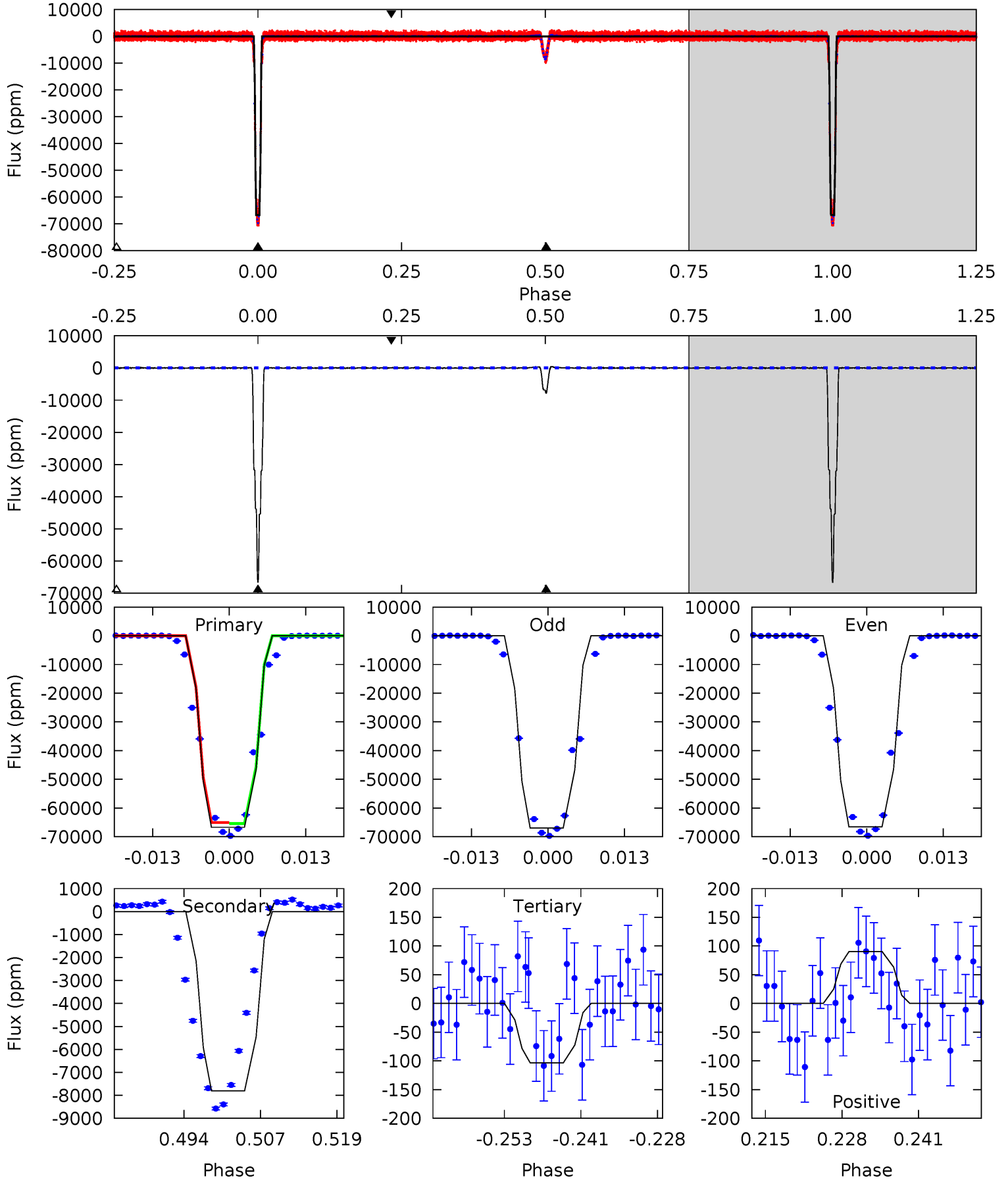
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4165	527.8	6.29	3.80	4.89	2.33	3.85	4159	4161	521.5	524.0	1.74	1.00	0.00	0.38



Alt Model-Shift Uniqueness Test

009892471-01, P = 8.268071 Days, E = 135.057223 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2245	262.9	3.49	3.05	4.98	2.49	1.67	2242	2242	259.4	259.8	5.81	1.00	0.01	4.98



Stellar Parameters For KIC 009892471

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5749^{+156}_{-190}	$4.502^{+0.050}_{-0.200}$	$0.020^{+0.250}_{-0.300}$	$0.922^{+0.273}_{-0.091}$	$0.987^{+0.114}_{-0.114}$	$1.771^{+0.464}_{-0.885}$
	+3%/-3%	+1%/-4%	+1250%/-1500%	+30%/-10%	+12%/-12%	+26%/-50%
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 009892471-01 / KOI 3584.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-9016 ± 17	$36.05^{+5.38}_{-2.66}$	1227^{+83}_{-55}	3475^{+72}_{-76}	24^{+3}_{-5}
Alt.	-7809 ± 30	$27.36^{+4.05}_{-2.17}$	1226^{+84}_{-57}	3724^{+87}_{-100}	36^{+6}_{-8}

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

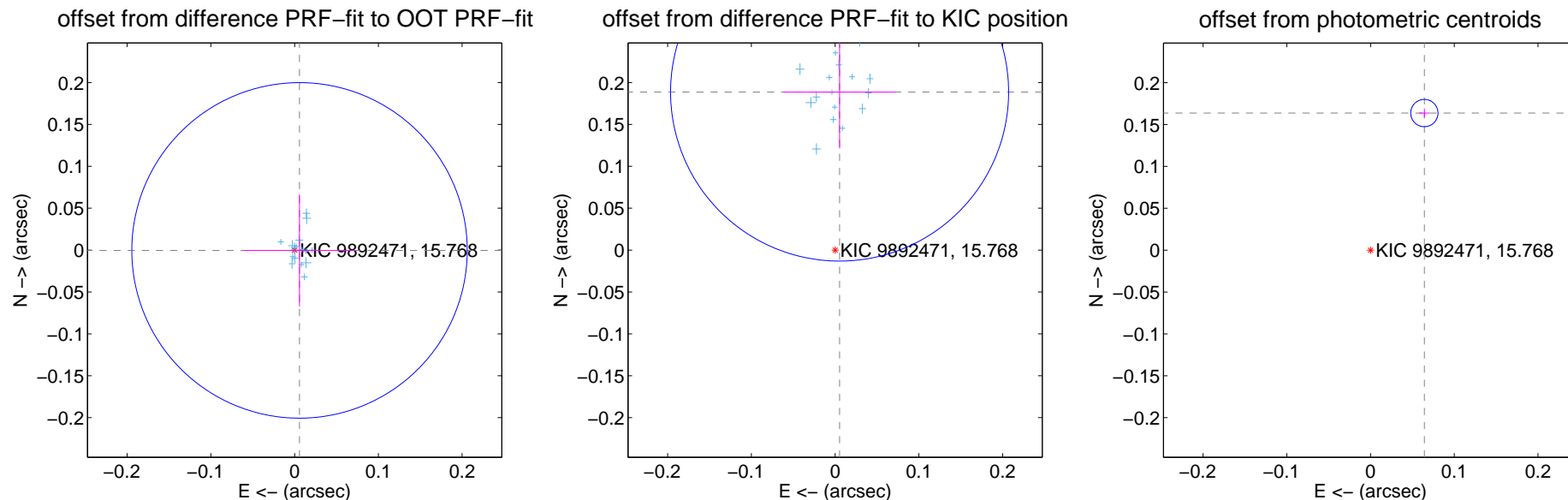
DV Centroid Data

Supplemental centroid analysis for 009892471-01. Kepler magnitude: 15.77. Transit SNR 1811.46

There are 16 quarters with good PRF difference image offsets

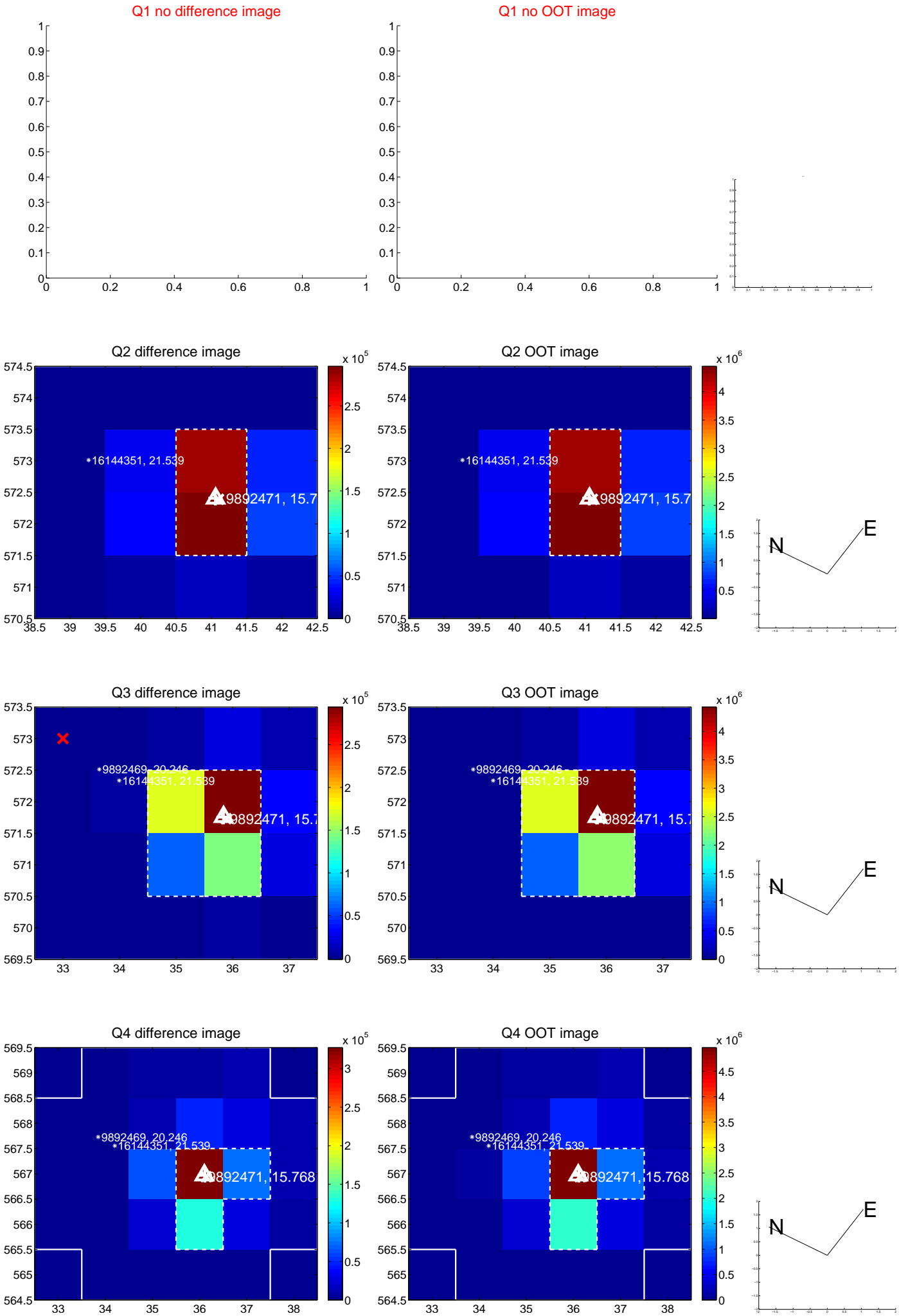
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.006 ± 0.067	0.09	-0.006 ± 0.067	-0.000 ± 0.067
PRF-fit source offset from KIC position	0.189 ± 0.067	2.81	-0.005 ± 0.067	0.189 ± 0.067
photometric centroid source offset	0.18 ± 0.01	32.37	-0.06 ± 0.01	0.16 ± 0.01

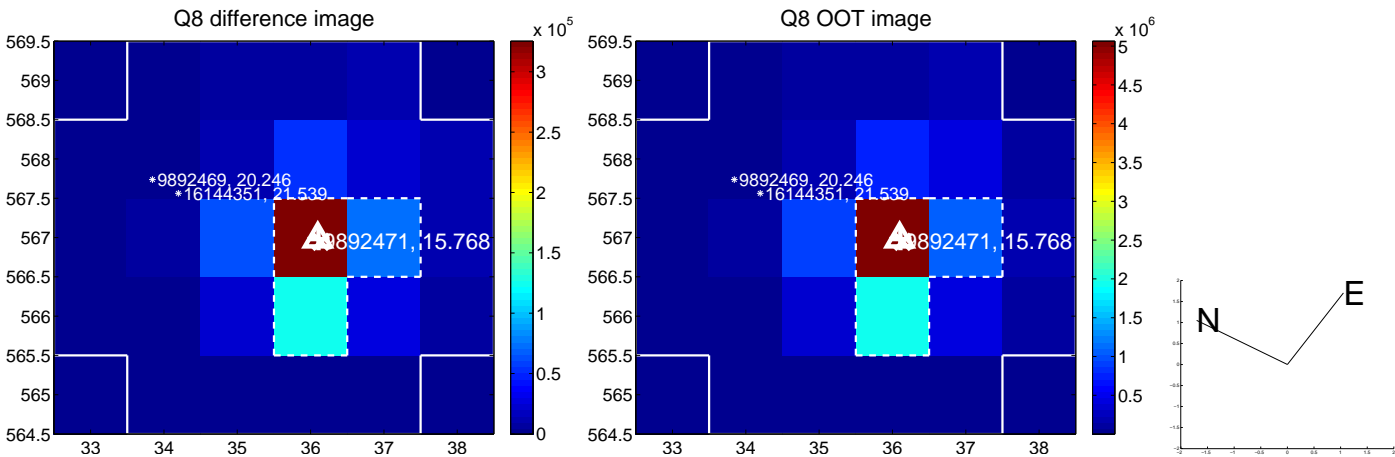
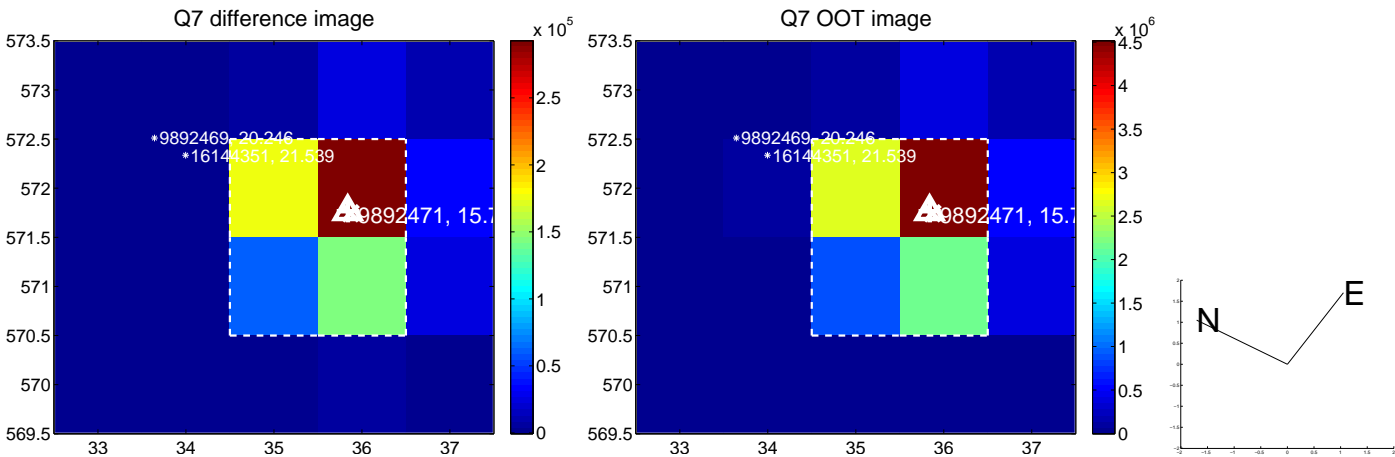
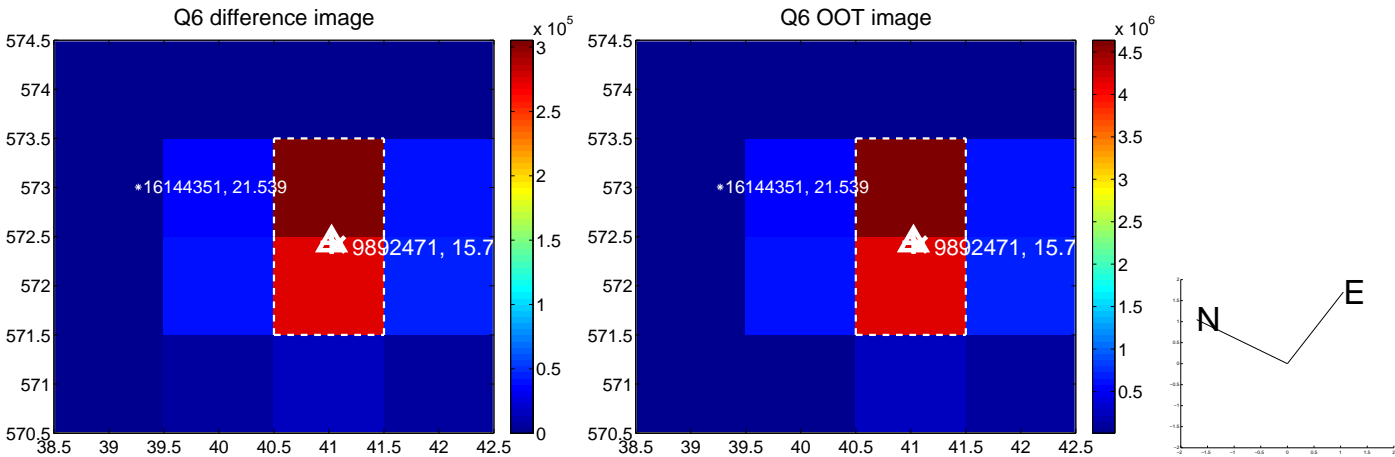
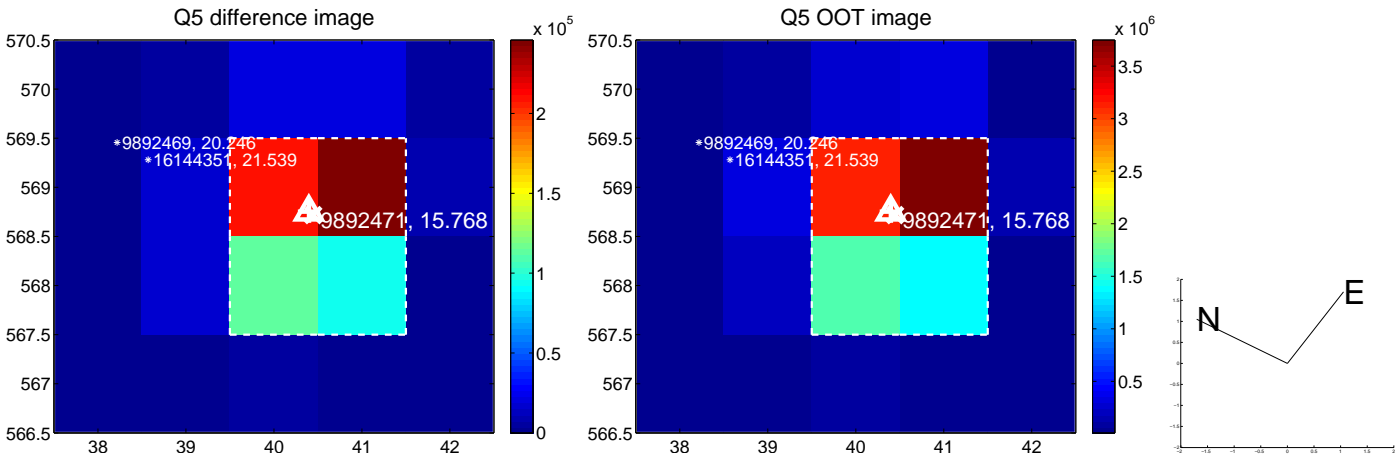


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

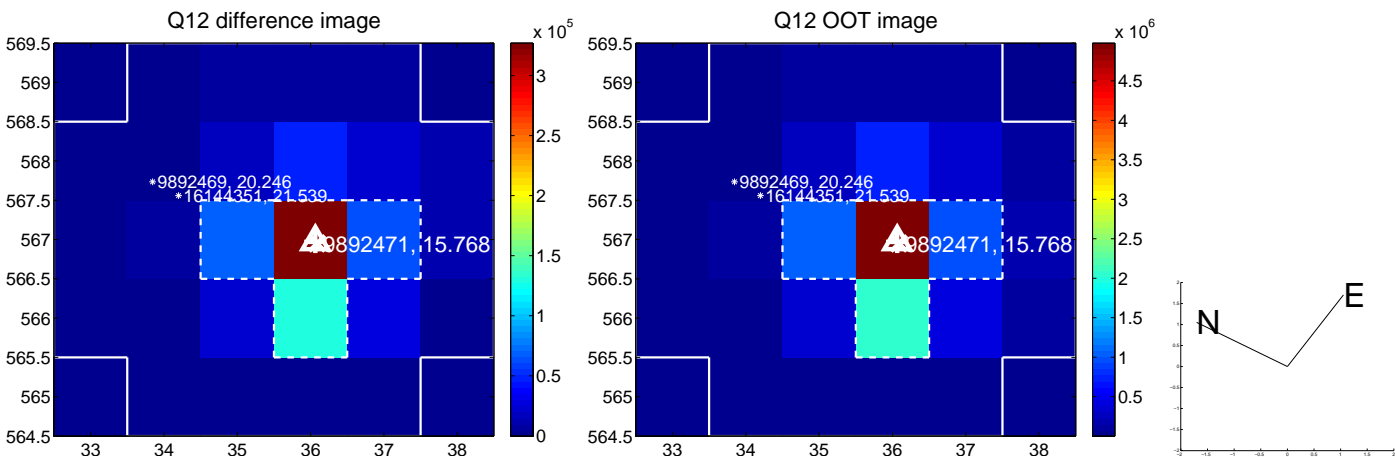
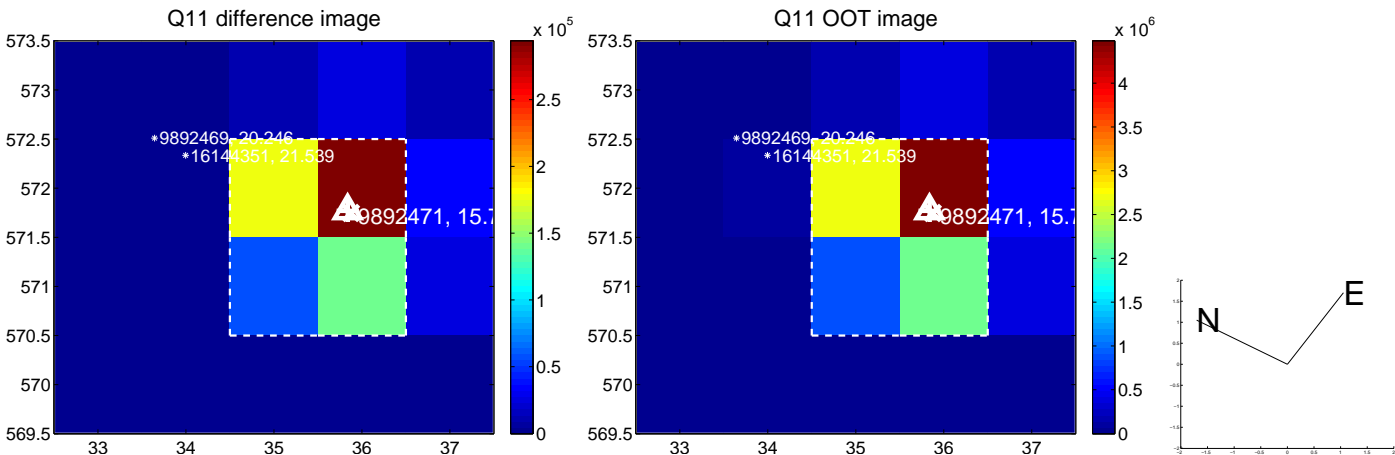
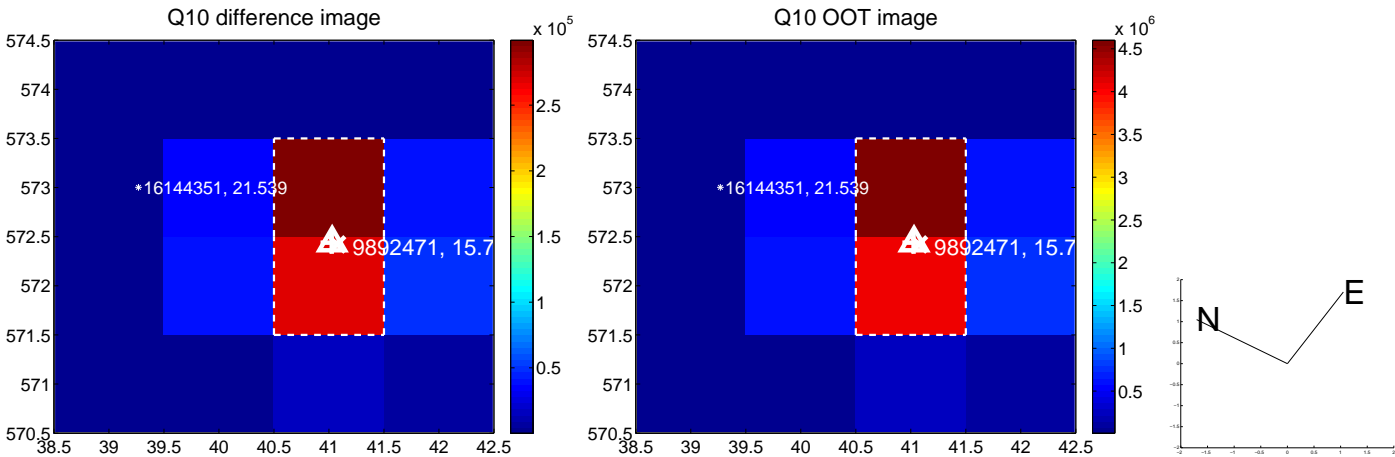
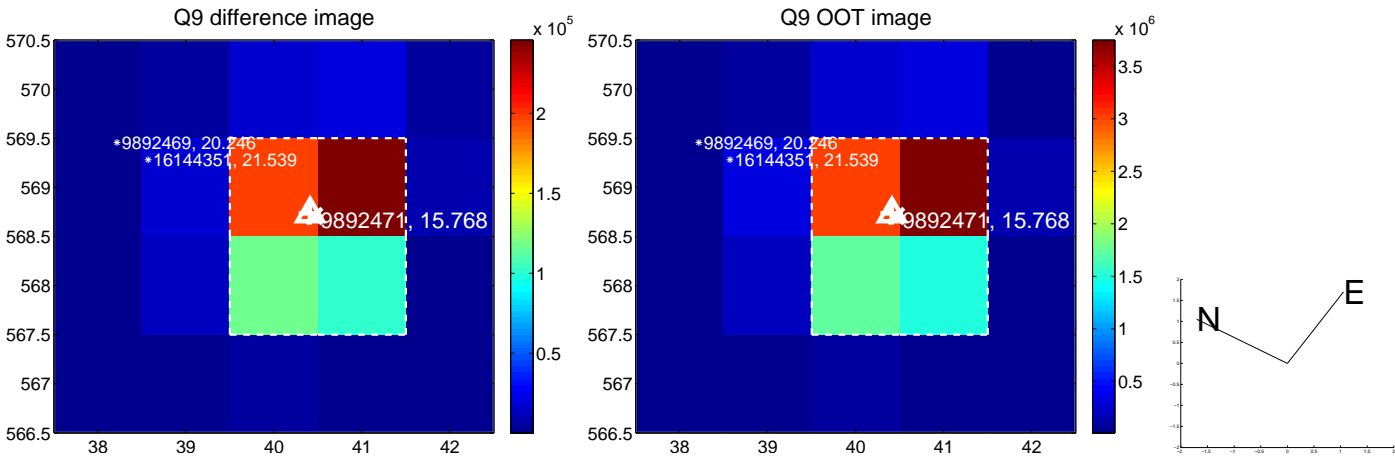
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



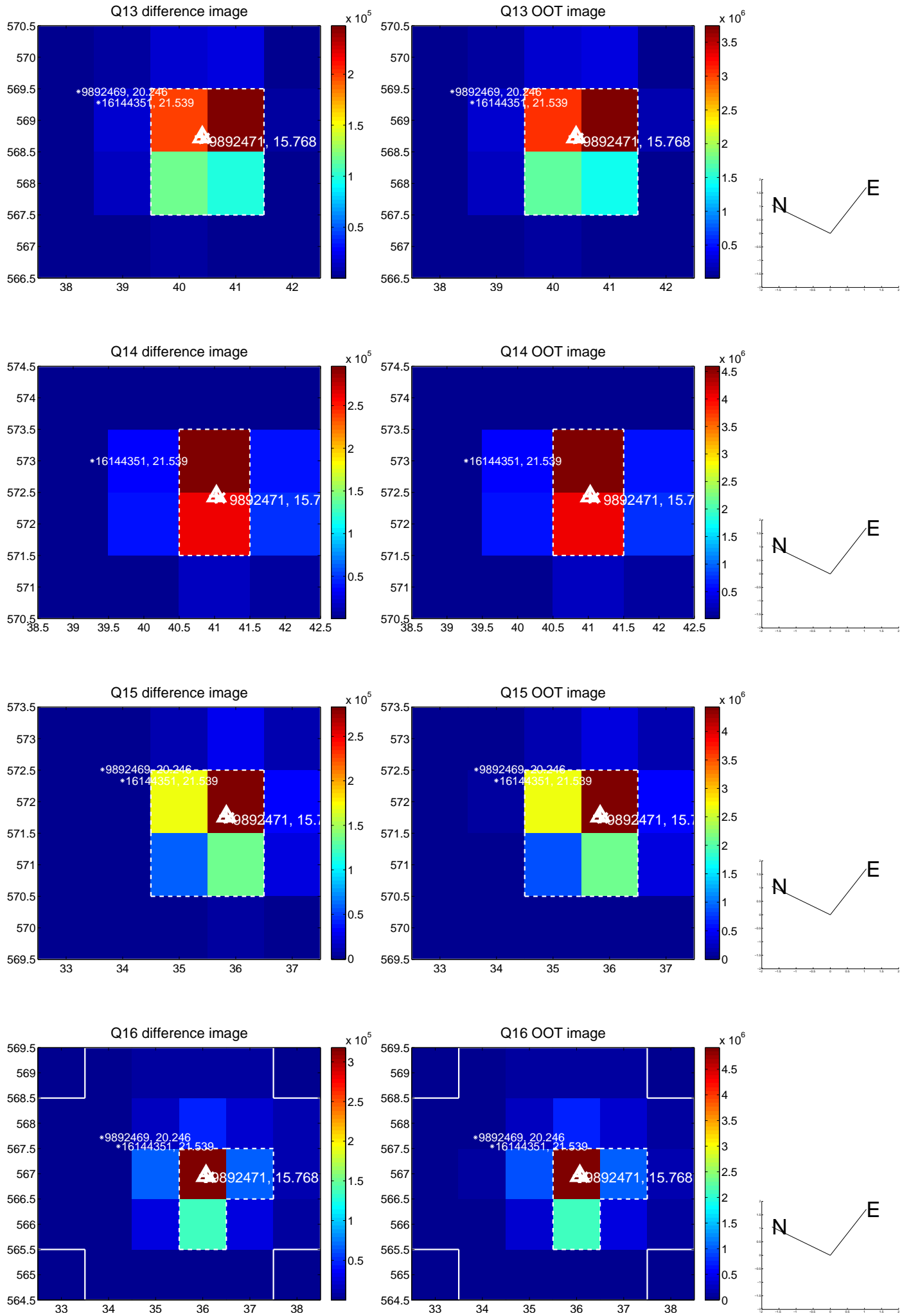
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



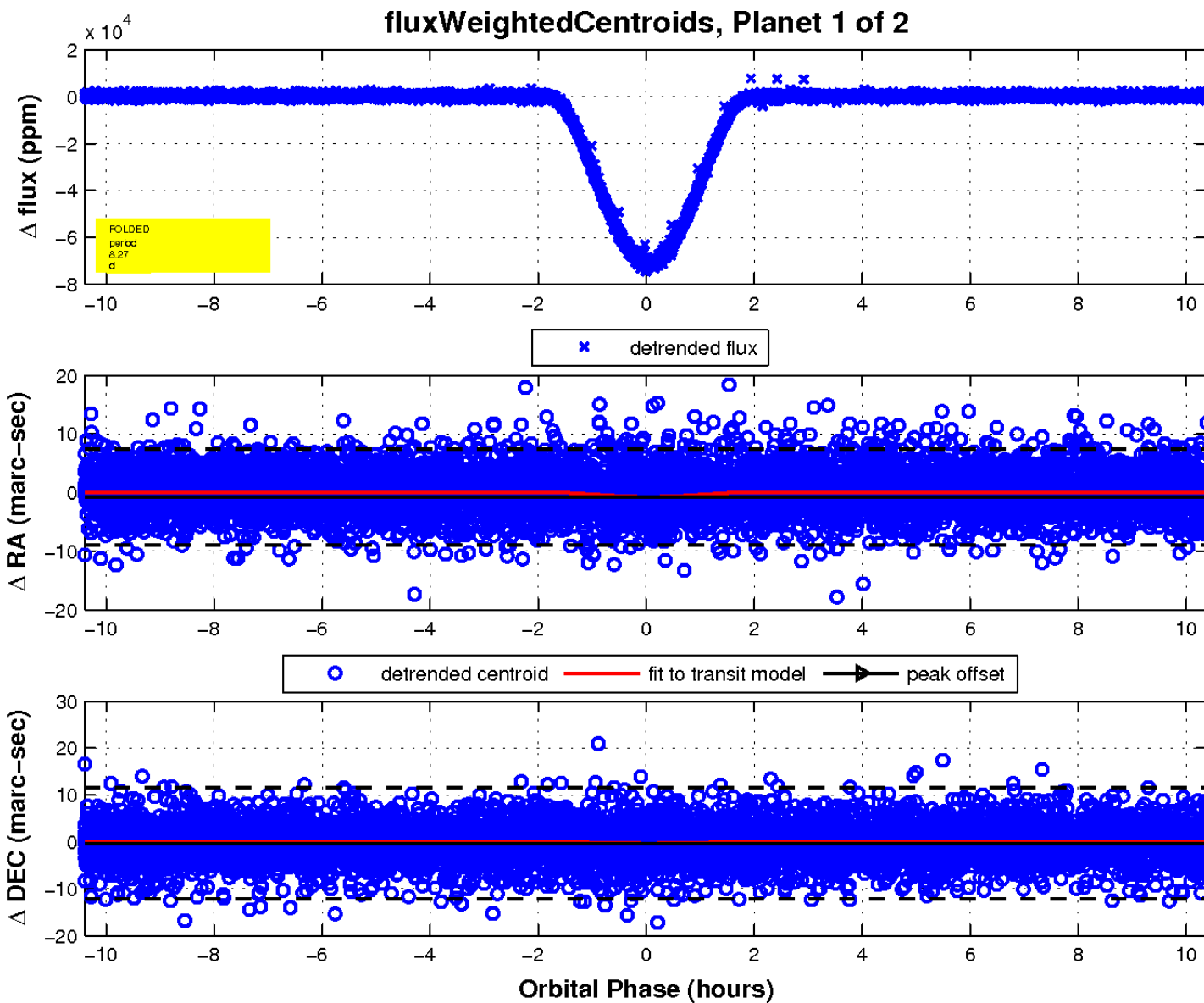
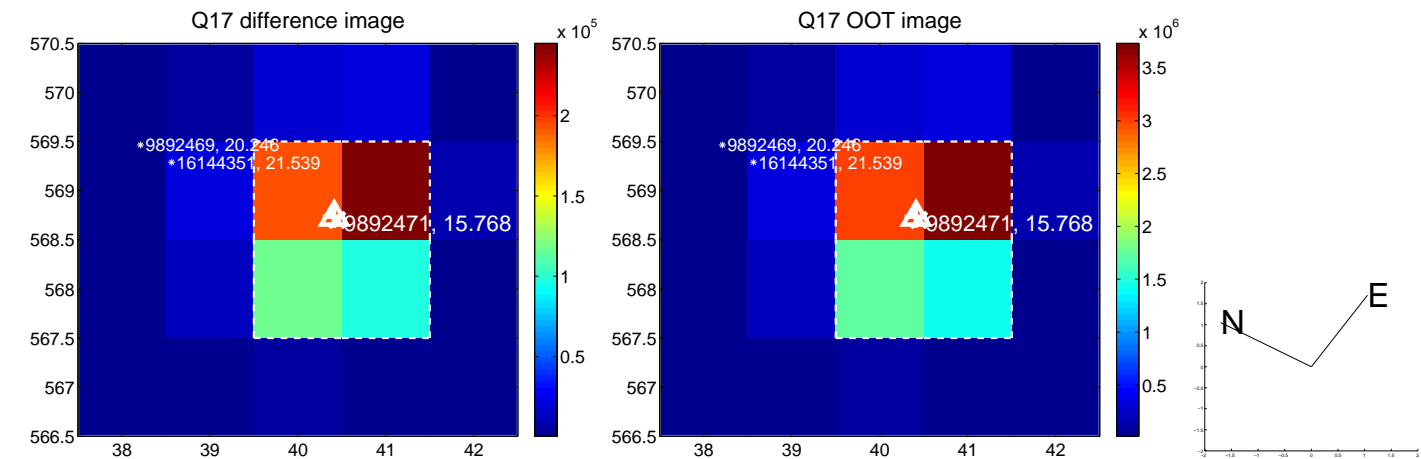
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

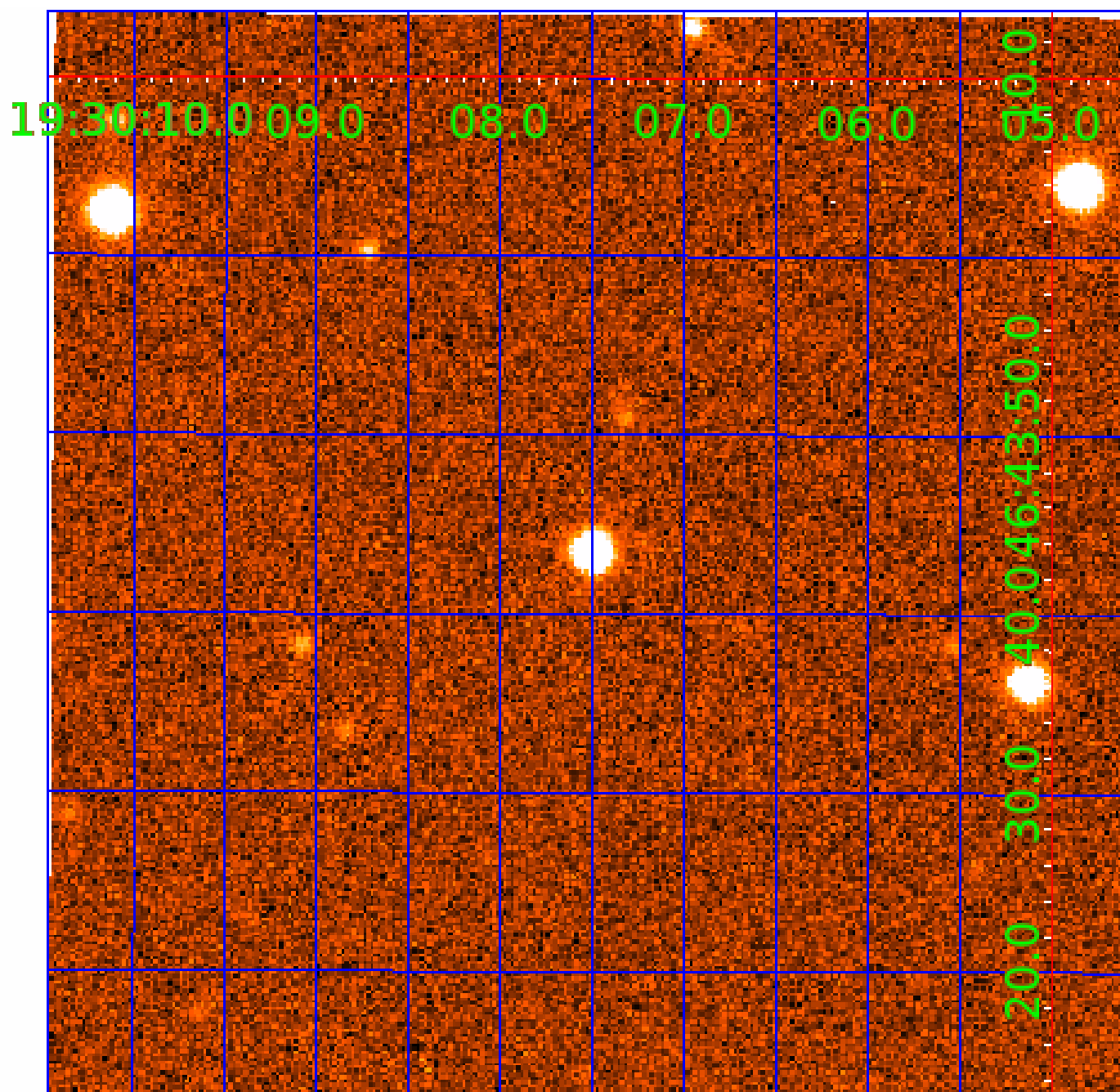


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009892471

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})
009892471-01	OBS	3584.01	8.268082	135.056209	71191.1	3.469	2061.7	1811.5	0.92	5749	35.28	131.18
009892471-02	OBS	No	8.268081	139.188842	8964.0	3.312	265.5	264.5	0.92	5749	14.72	131.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009892471-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
009892471-02	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.

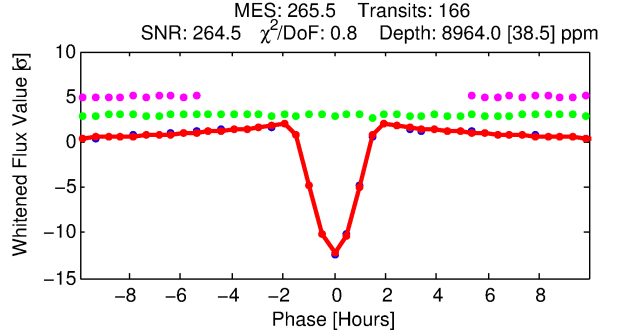
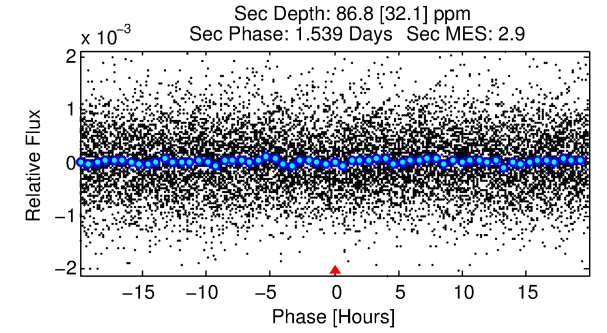
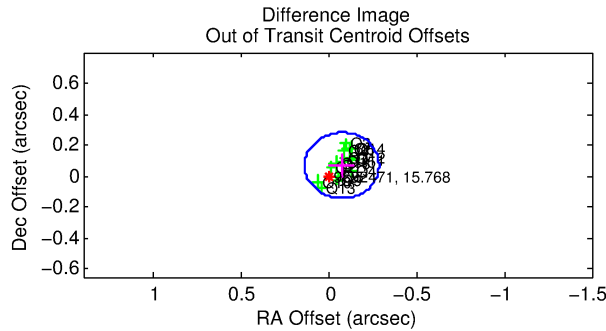
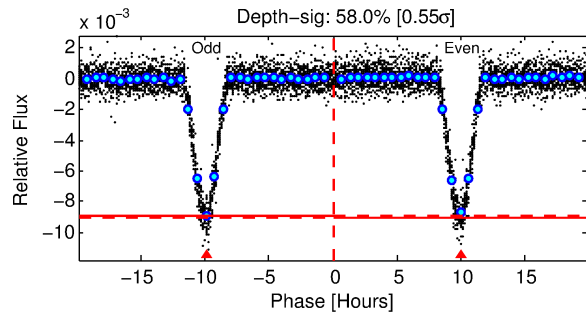
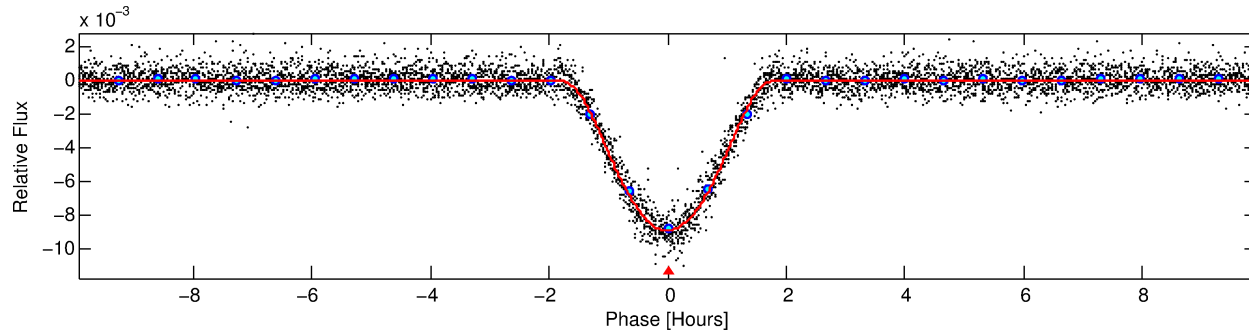
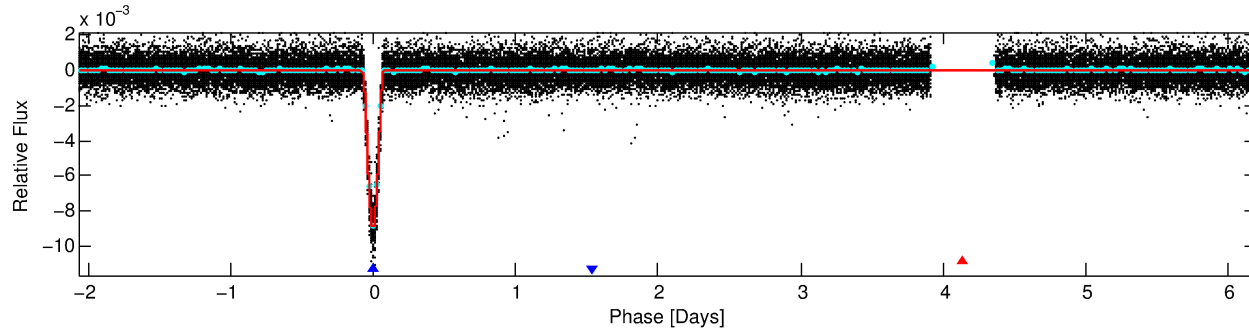
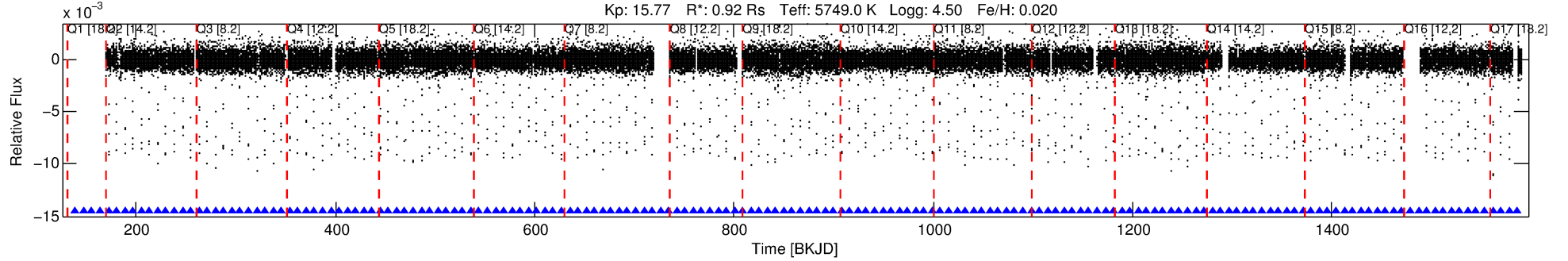
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009892471-02

No Significant Match Found

DV One-Page Summary

KIC: 9892471 Candidate: 2 of 2 Period: 8.268 d
KOI: K03584 Corr: No Ephemeris Match



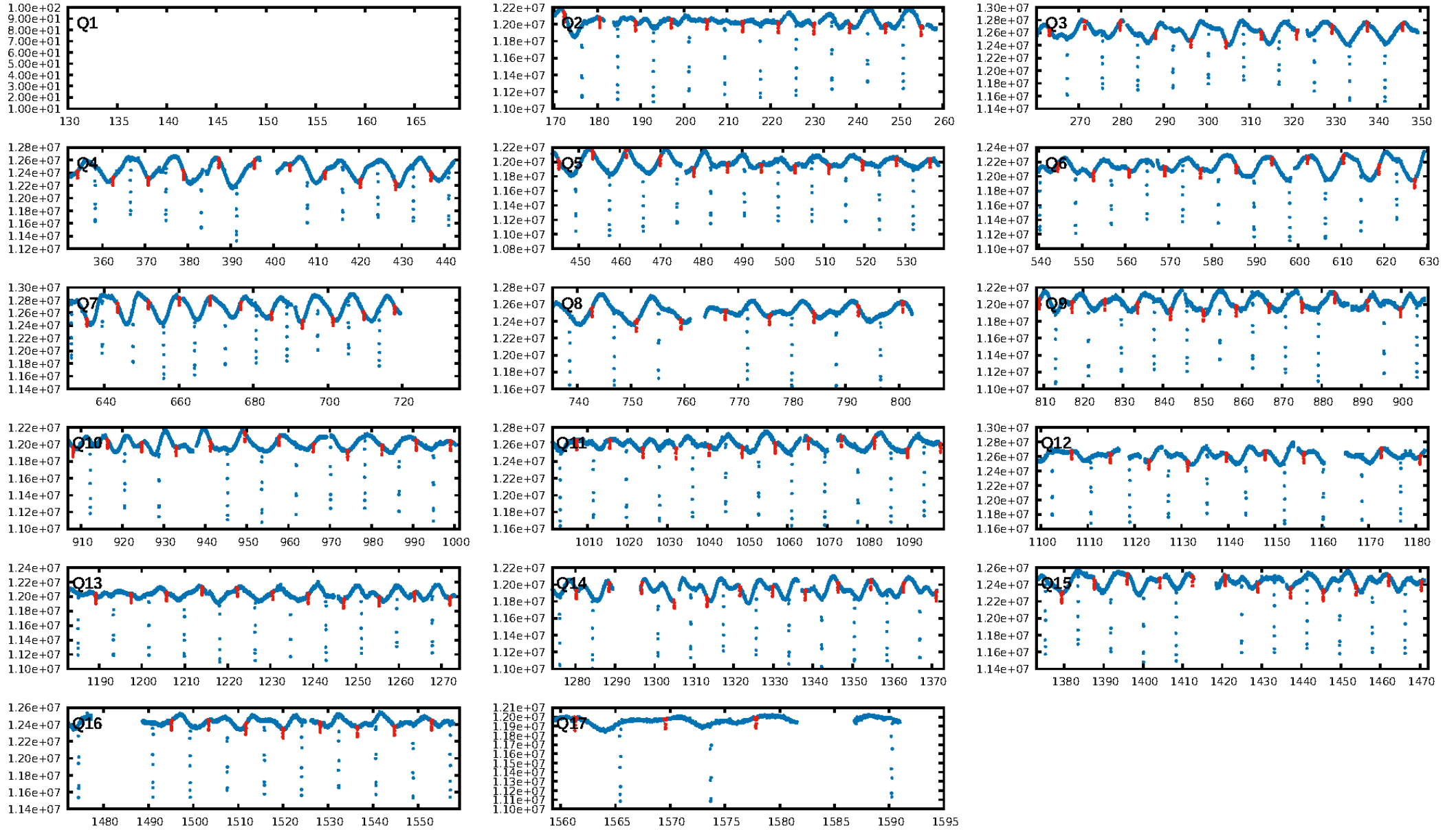
DV Fit Results:

Period = 8.26808 [0.00000] d
Epoch = 139.1888 [0.0003] BKJD
Rp/R* = 0.1463 [0.0196]
a/R* = 11.31 [0.27]
b = 0.98 [0.03]
Seff = 131.18 [50.92]
Teq = 863 [84] K
Rp = 14.72 [4.78] Re
a = 0.0796 [0.0199] AU
Ag = 1.40 [0.82] [0.49 σ]
Teffp = 1451 [172] K [3.07 σ]

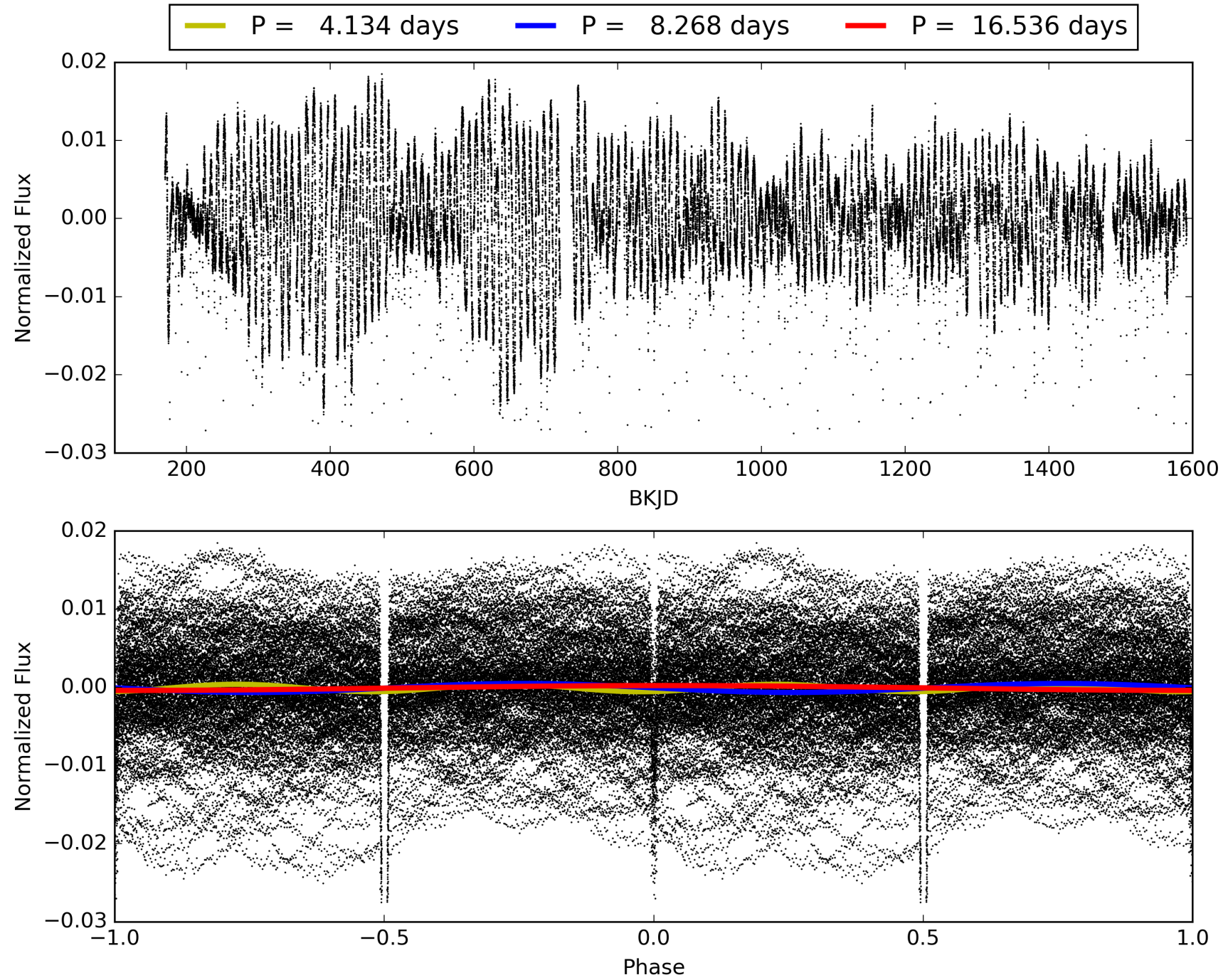
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [163/163]
GhostDiagnostic-chr: 2.442
Centroid-sig: 19.7%
Centroid-so: 0.221 arcsec [5.15 σ]
OotOffset-rm: 0.101 arcsec [1.43 σ]
KicOffset-rm: 0.267 arcsec [3.78 σ]
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]

TCE 009892471-02, PDC Light Curves

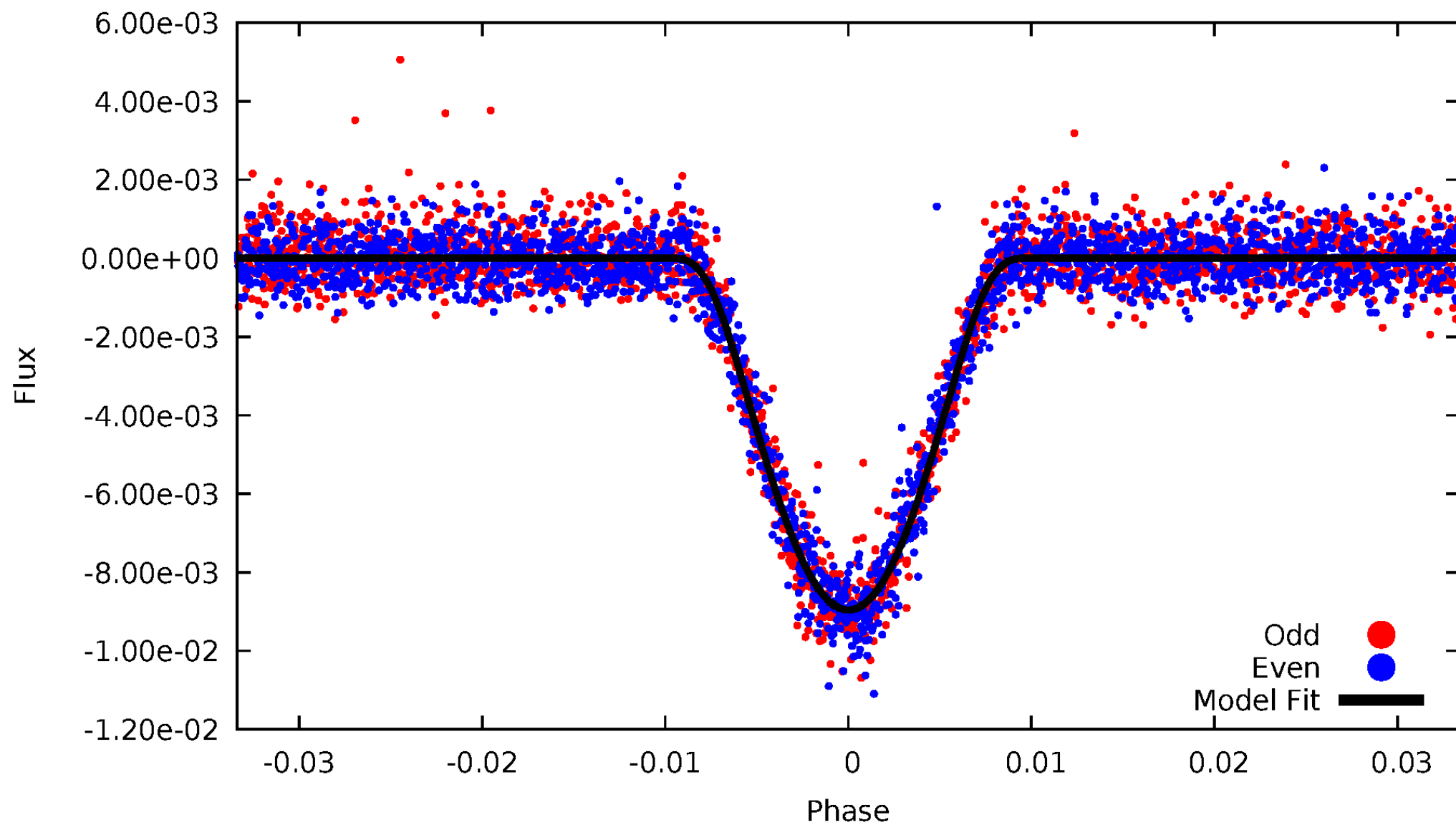


TCE 009892471-02



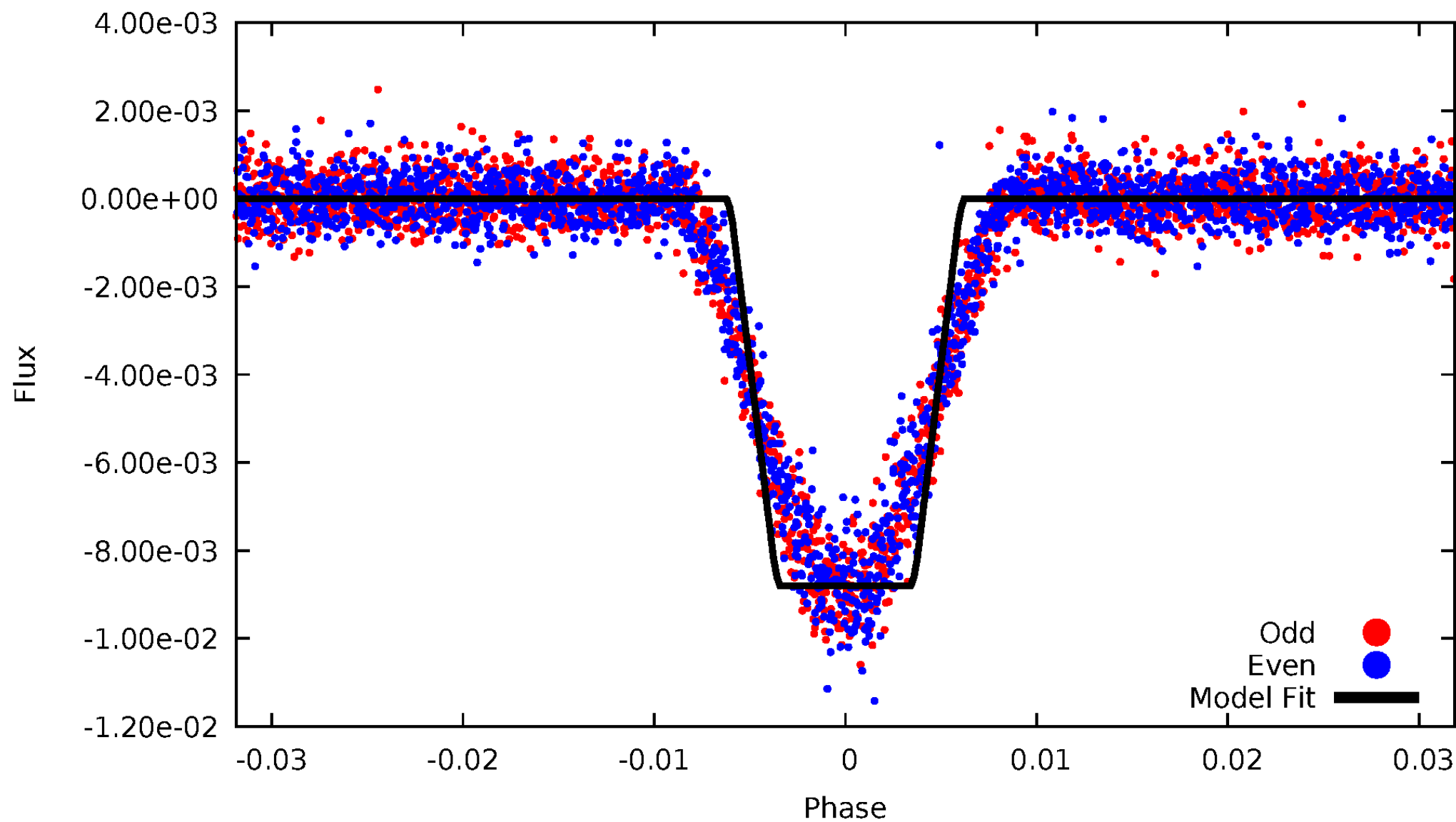
DV Odd/Even

TCE 009892471-02



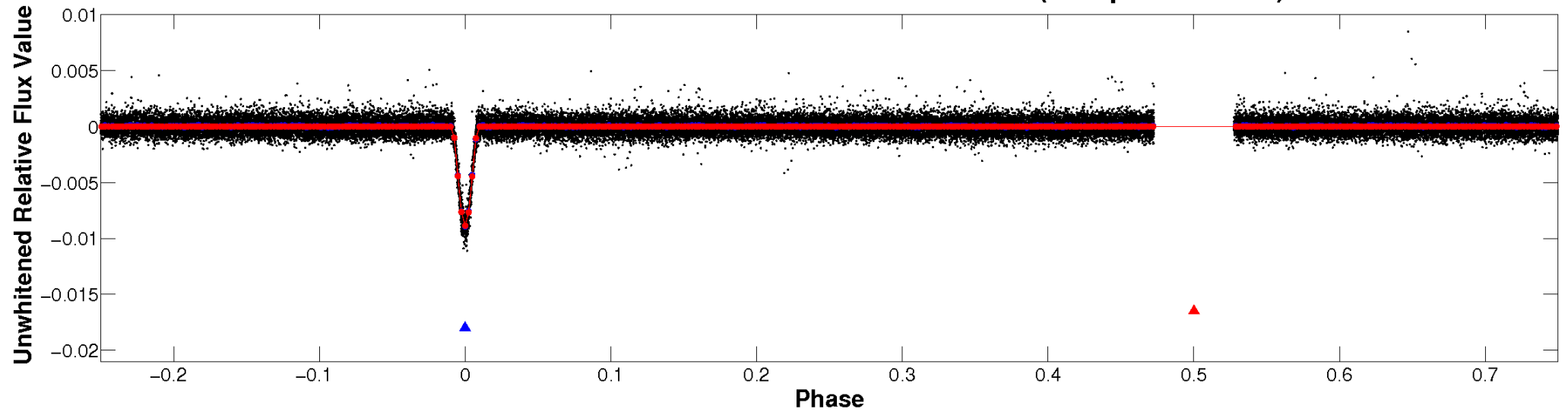
ALT Odd/Even

TCE 009892471-02

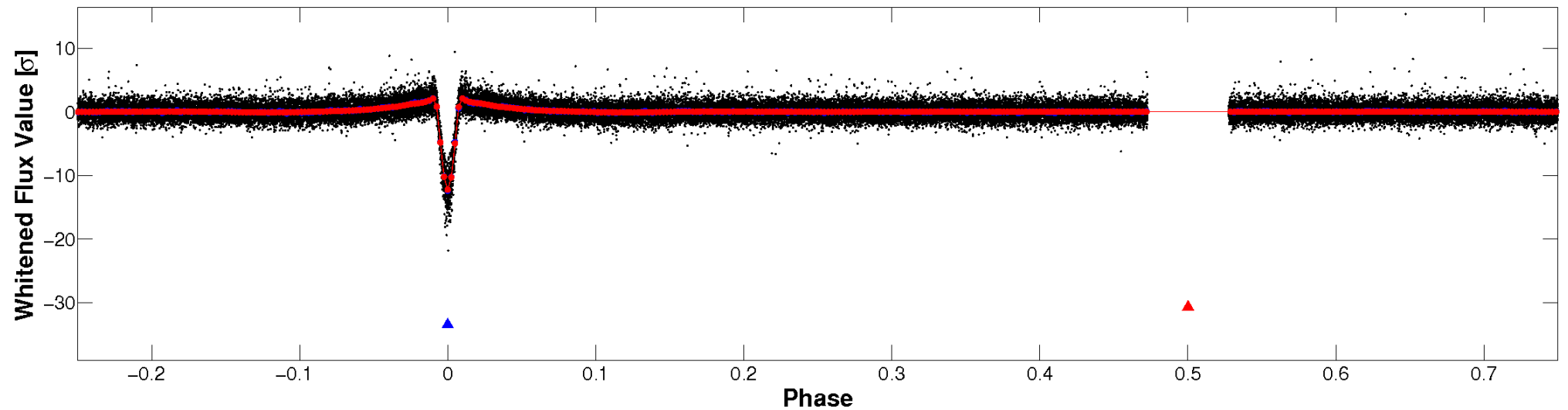


Non-Whitened Vs. Whitened Light Curve

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

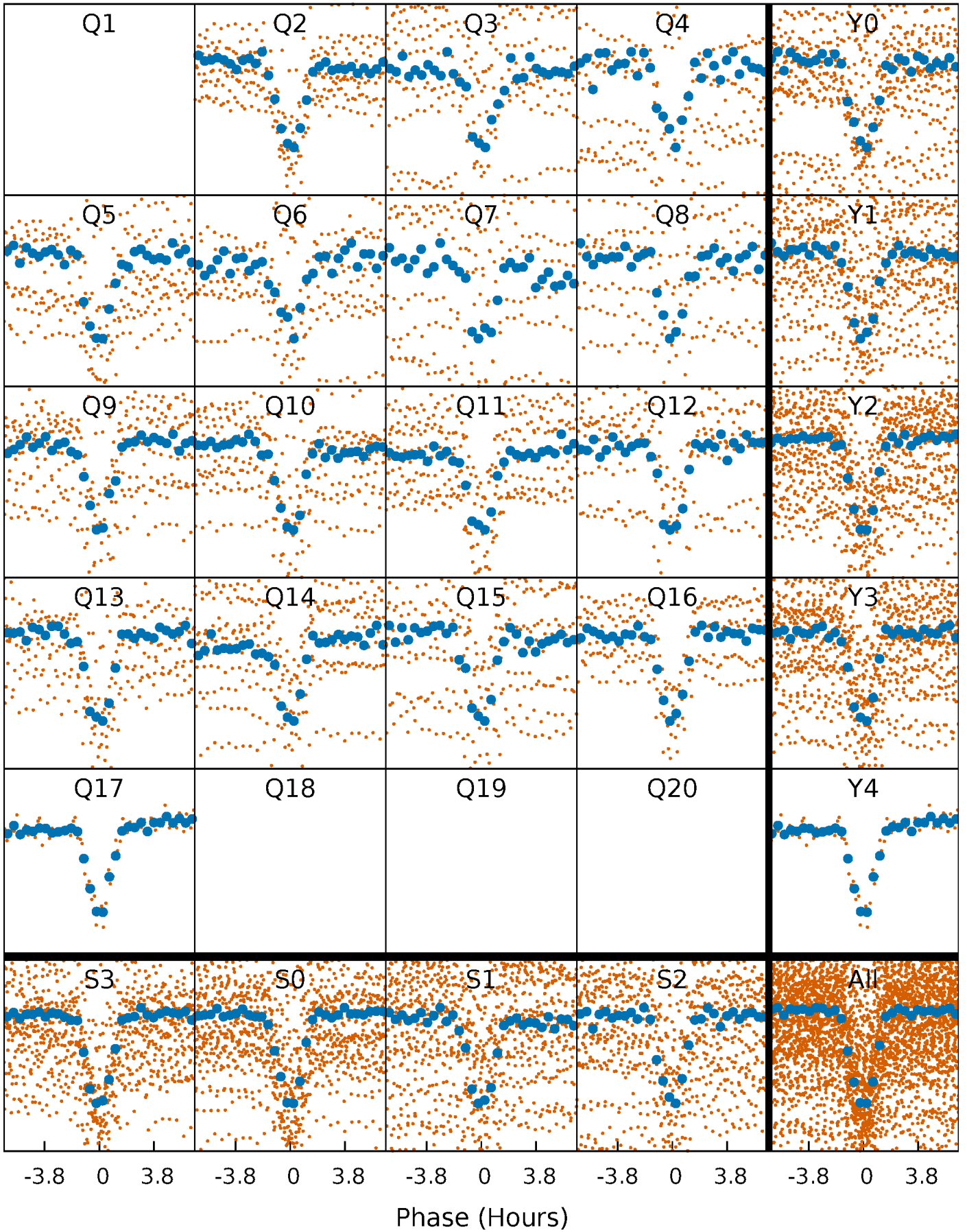


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



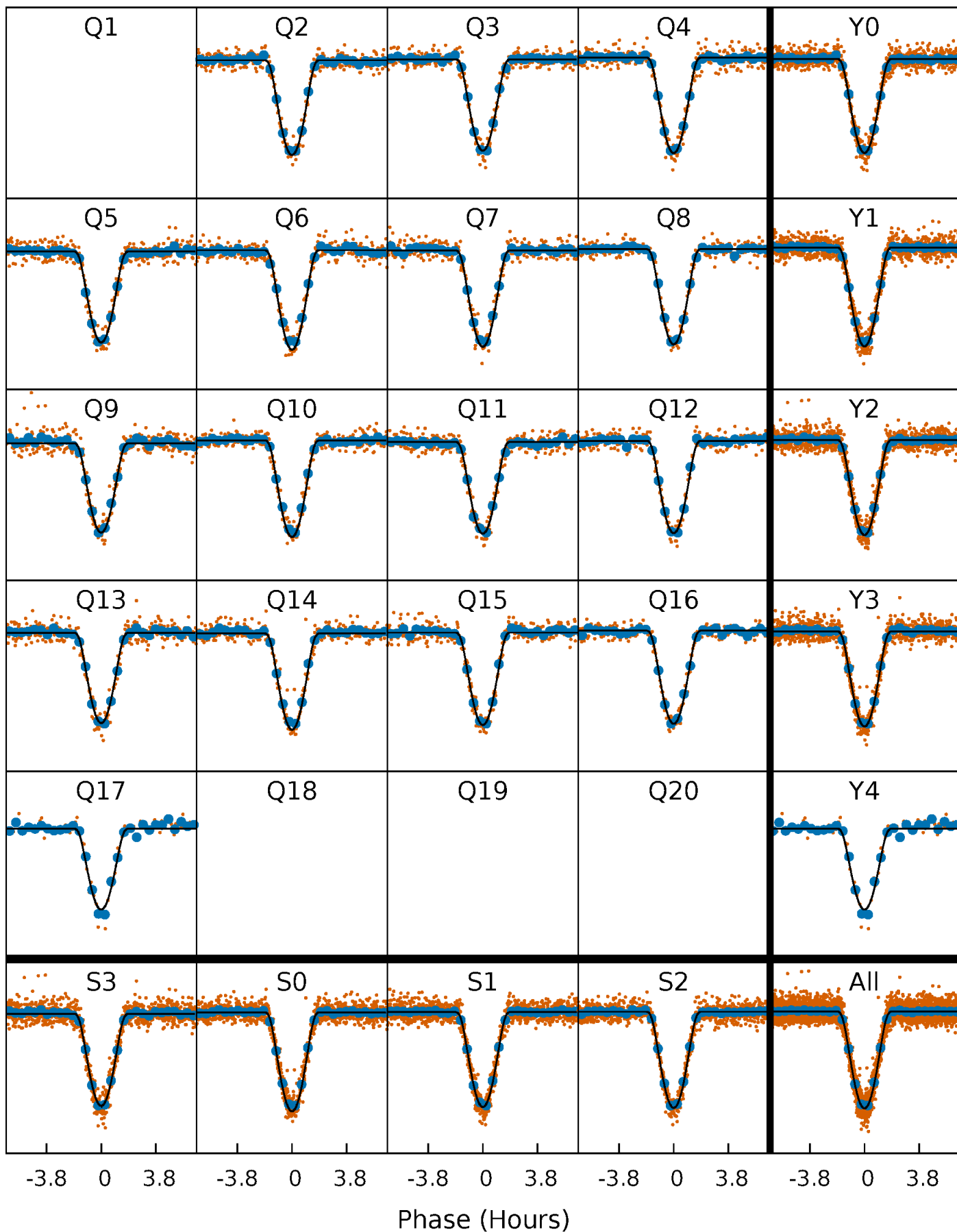
PDC Quarter-Phased Transit Curves

TCE 009892471-02 P= 8.268081 Days $T_0=139.188841$ (BKJD)



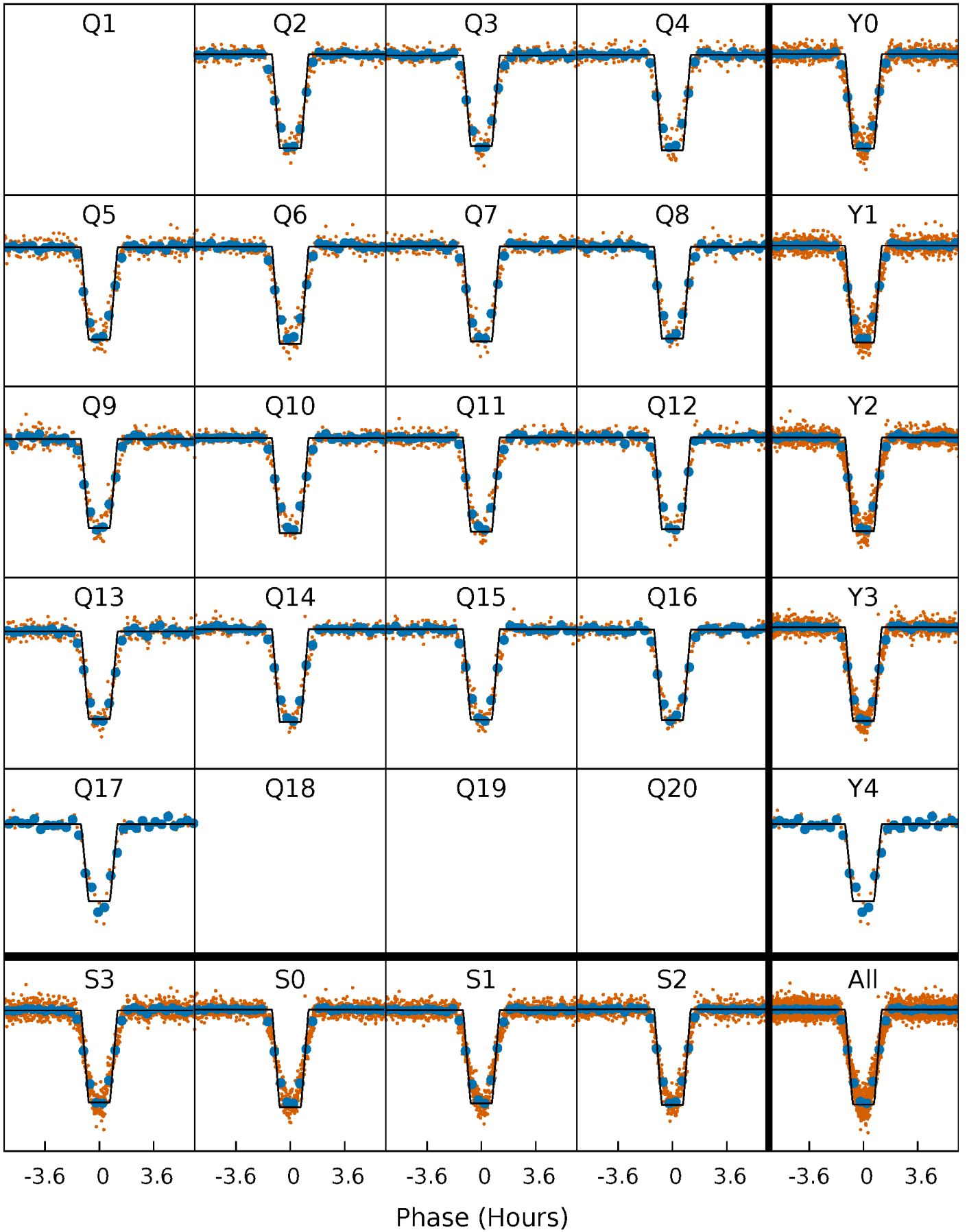
DV Quarter-Phased Transit Curves

TCE 009892471-02 P= 8.268081 Days $T_0=139.188841$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

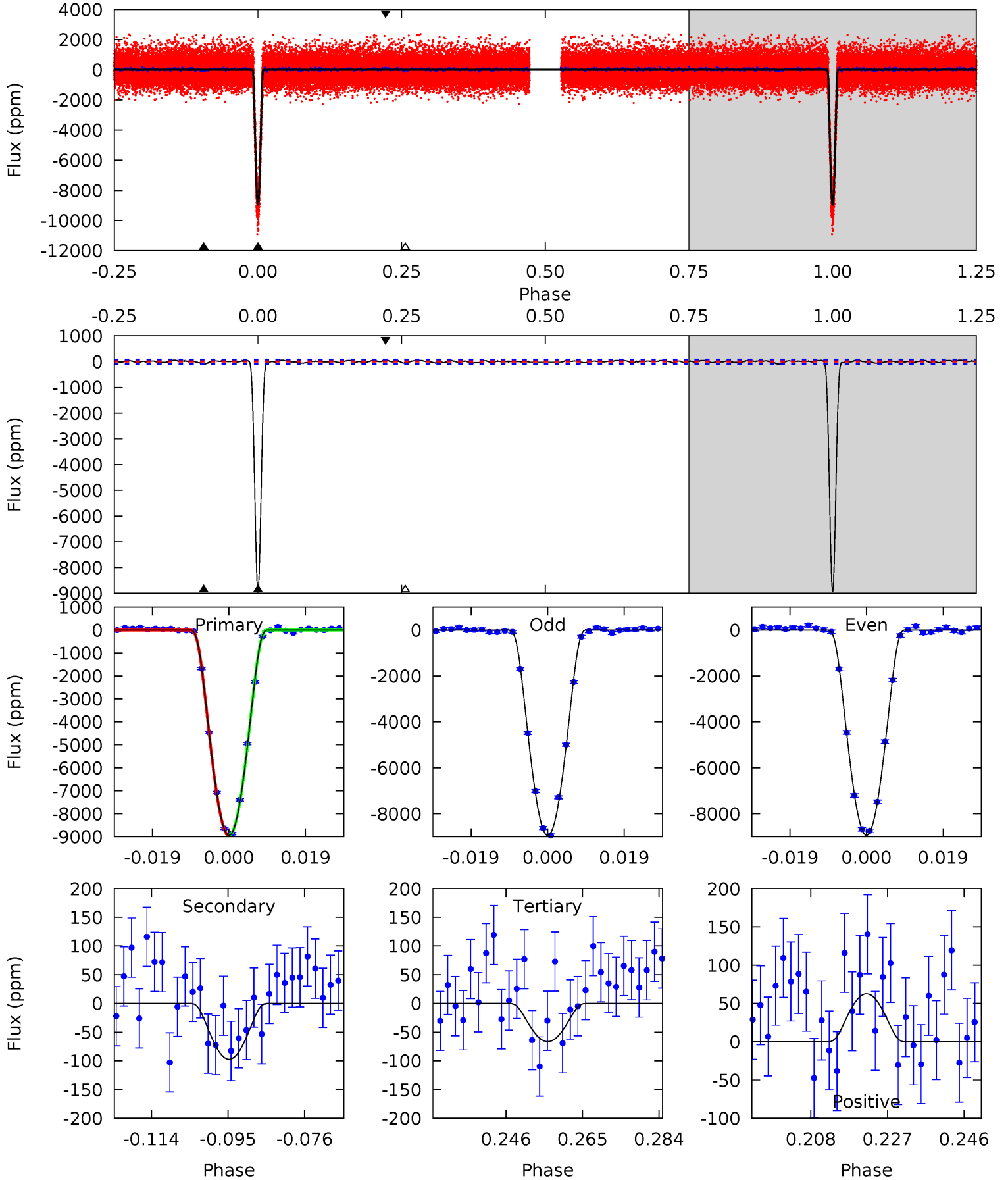
TCE 009892471-02 P= 8.268071 Days $T_0=139.189452$ (BKJD)



DV Model-Shift Uniqueness Test

009892471-02, P = 8.268081 Days, E = 139.188841 Days

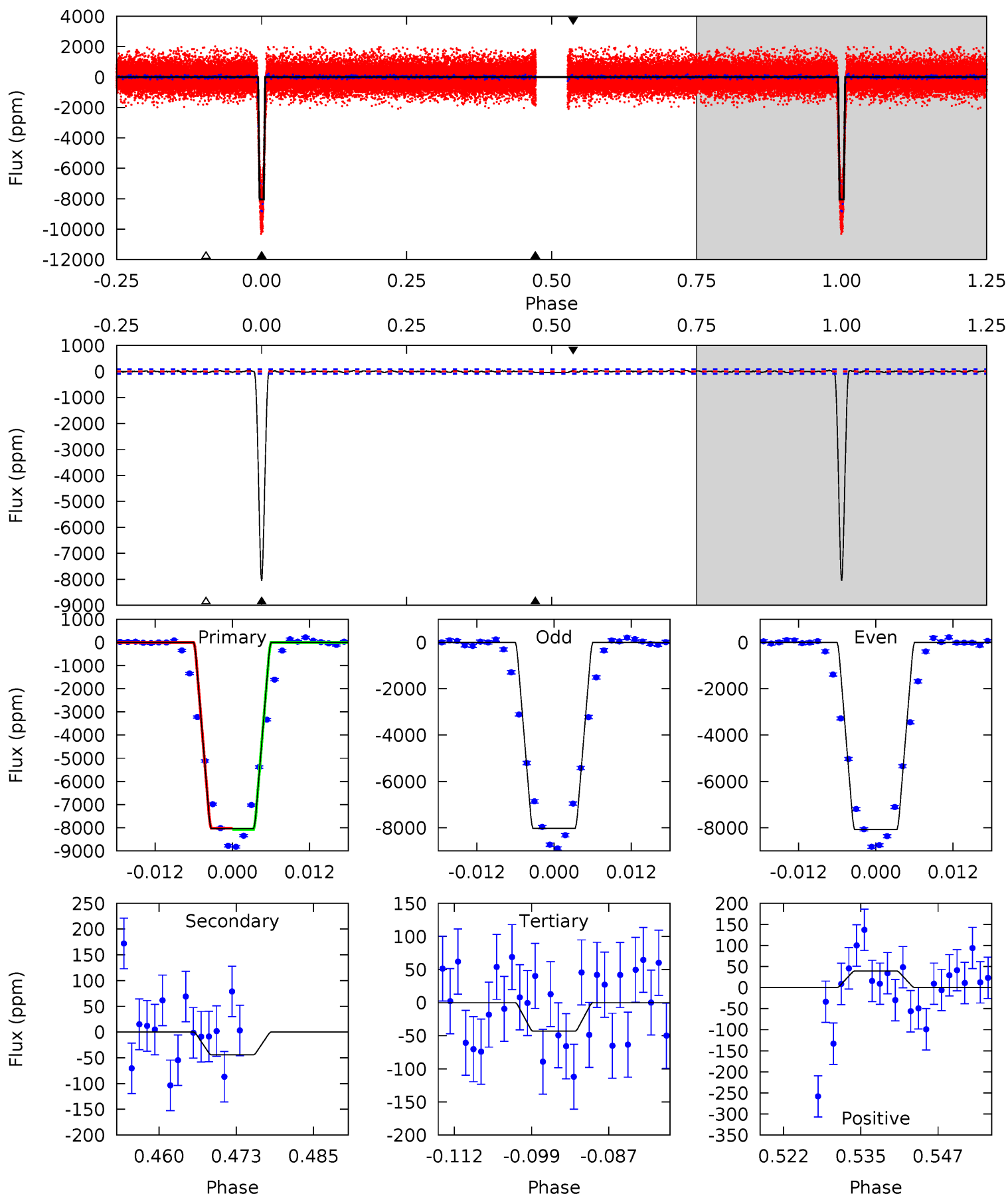
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
541.1	5.87	4.02	3.79	4.90	2.35	1.54	537.1	537.3	1.86	2.09	0.27	1.00	0.01	0.41



Alt Model-Shift Uniqueness Test

009892471-02, P = 8.268071 Days, E = 139.189452 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
442.7	2.43	2.38	2.17	4.98	2.50	0.92	440.3	440.5	0.05	0.26	1.58	1.00	0.00	1.23



Stellar Parameters For KIC 009892471

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5749^{+156}_{-190}	$4.502^{+0.050}_{-0.200}$	$0.020^{+0.250}_{-0.300}$	$0.922^{+0.273}_{-0.091}$	$0.987^{+0.114}_{-0.114}$	$1.771^{+0.464}_{-0.885}$
	+3%/-3%	+1%/-4%	+1250%/-1500%	+30%/-10%	+12%/-12%	+26%/-50%
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 009892471-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-97 ± 17	$15.29^{+3.05}_{-2.34}$	1228^{+86}_{-54}	2316^{+116}_{-125}	$1.431^{+0.629}_{-0.485}$
Alt.	-44 ± 18	$9.87^{+2.40}_{-2.15}$	1225^{+80}_{-51}	2332^{+212}_{-250}	$1.461^{+1.252}_{-0.751}$

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 $A_{obs} \gg 1.0$

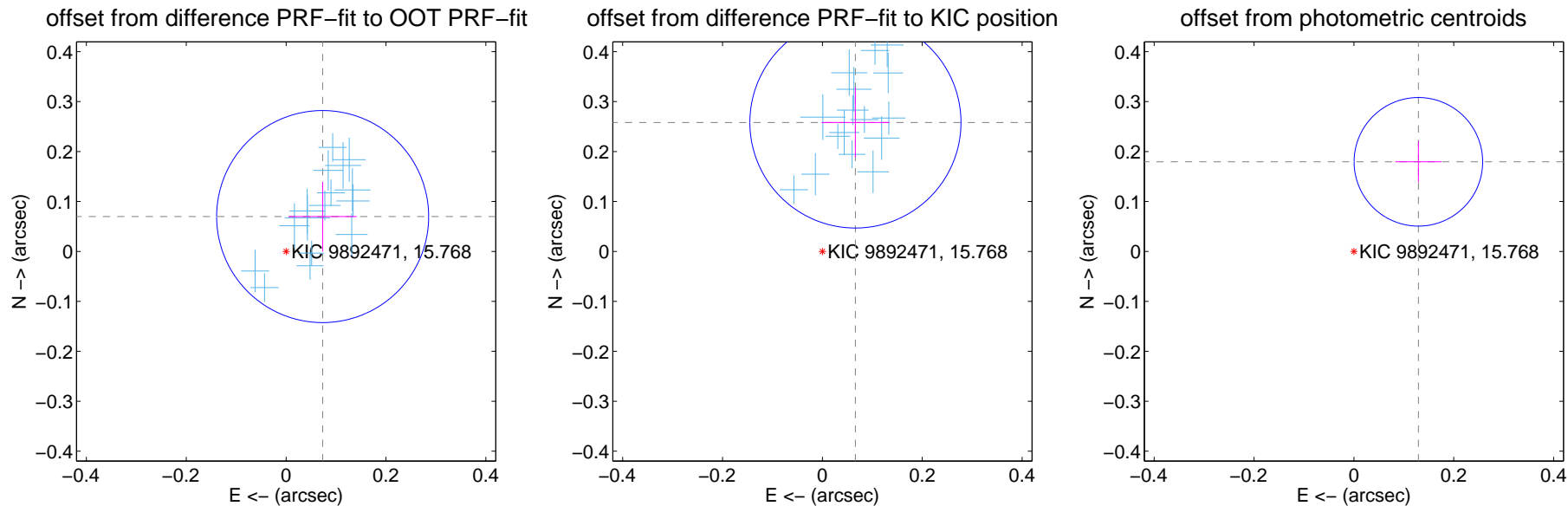
DV Centroid Data

Supplemental centroid analysis for 009892471-02. Kepler magnitude: 15.77. Transit SNR 264.50

There are 16 quarters with good PRF difference image offsets

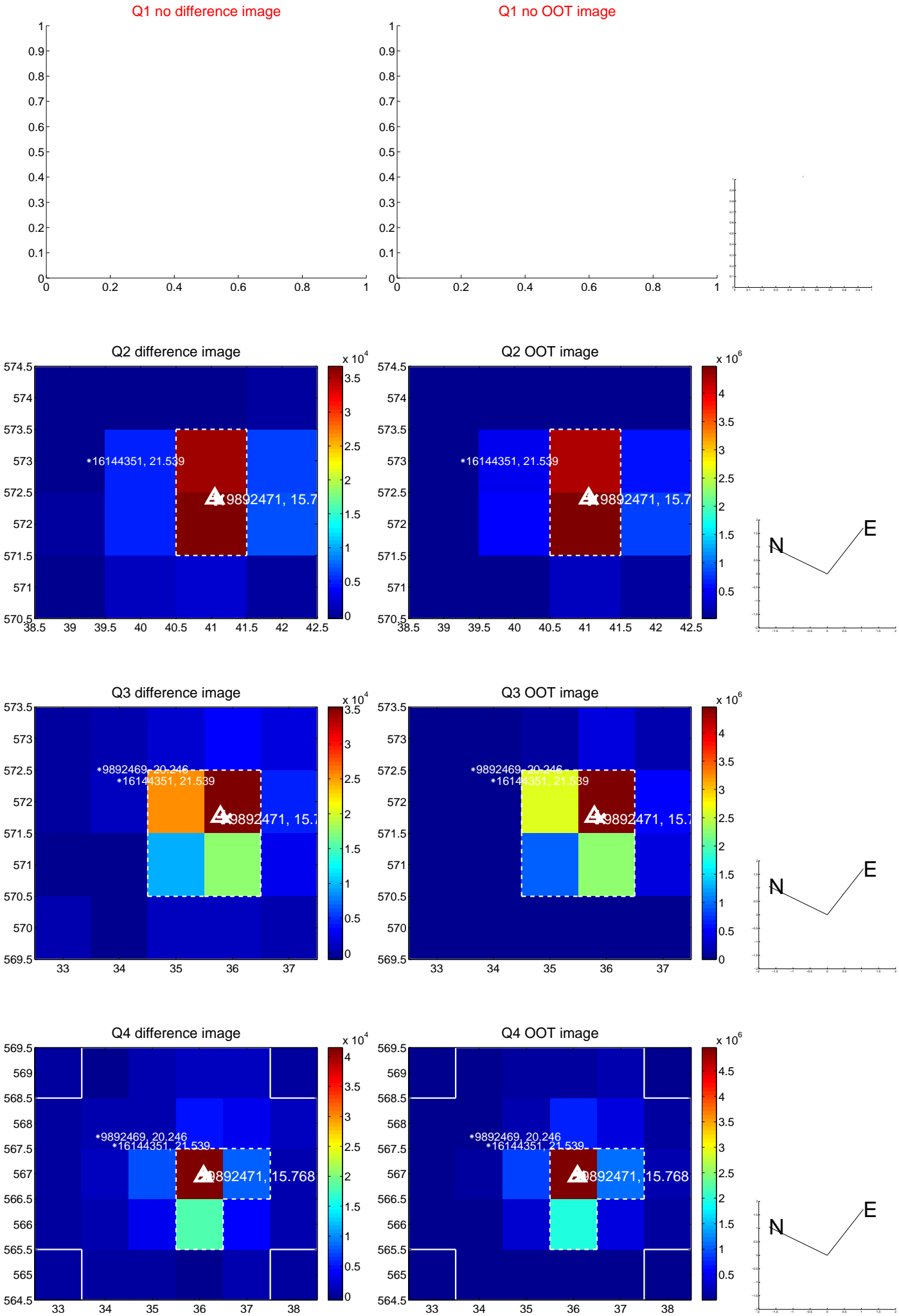
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.071	1.43	-0.073 ± 0.068	0.070 ± 0.070
PRF-fit source offset from KIC position	0.267 ± 0.070	3.78	-0.066 ± 0.068	0.258 ± 0.070
photometric centroid source offset	0.22 ± 0.04	5.15	-0.13 ± 0.05	0.18 ± 0.04

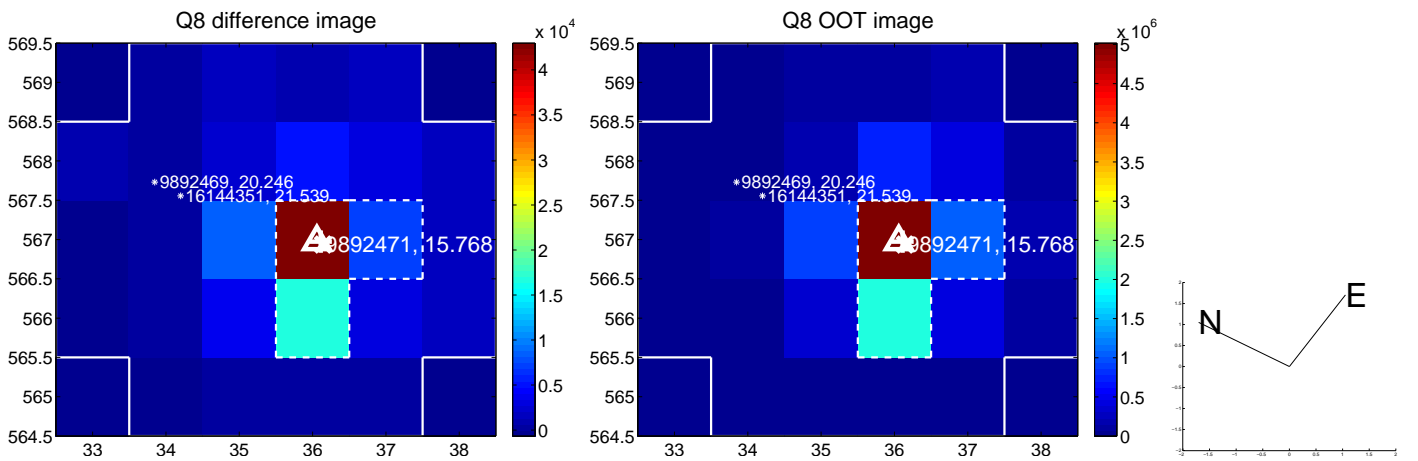
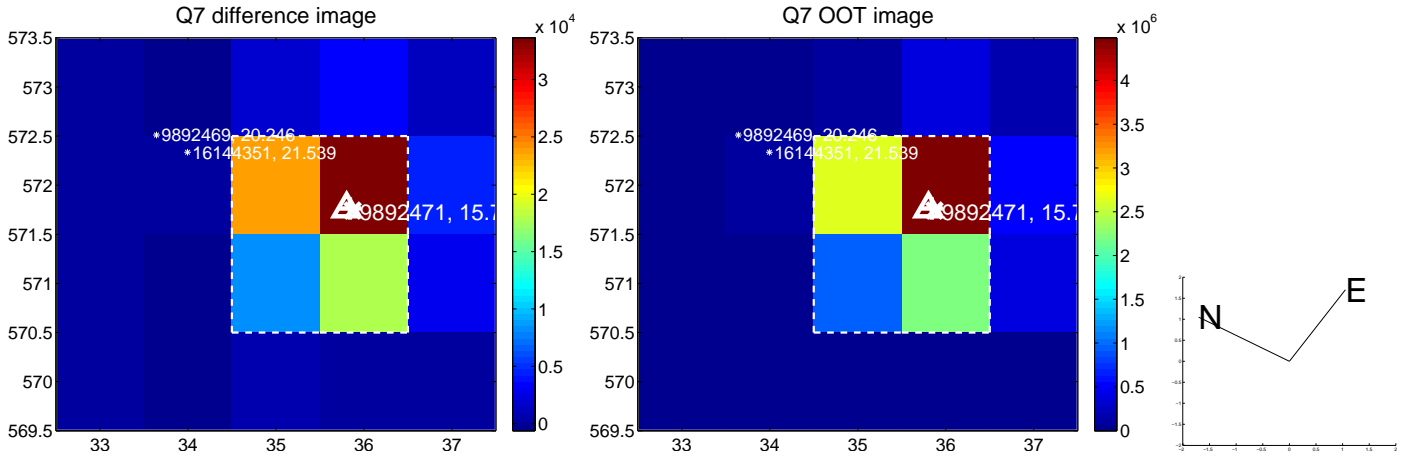
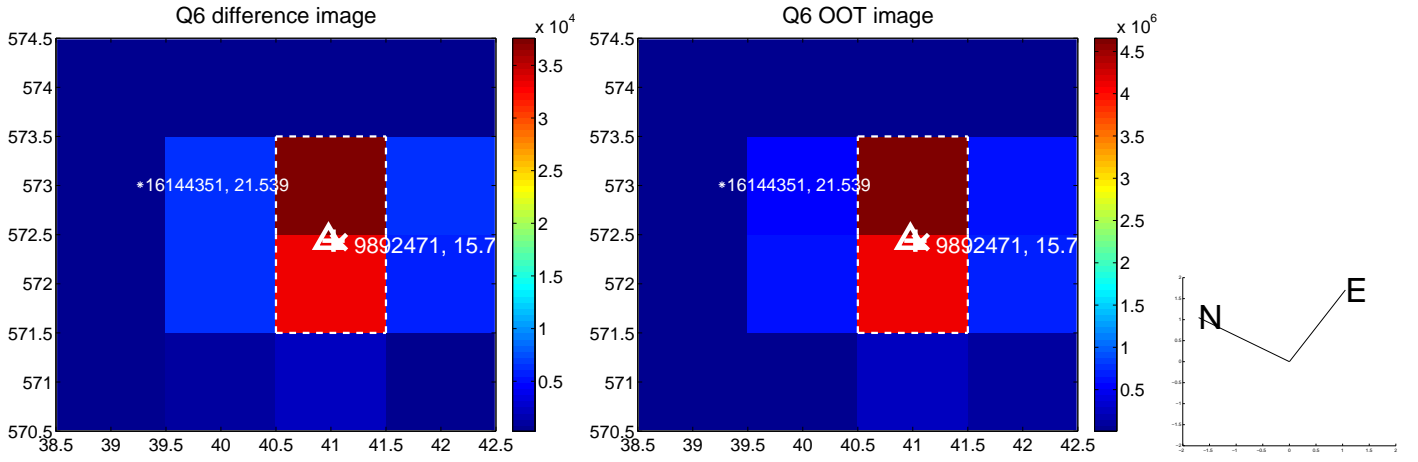
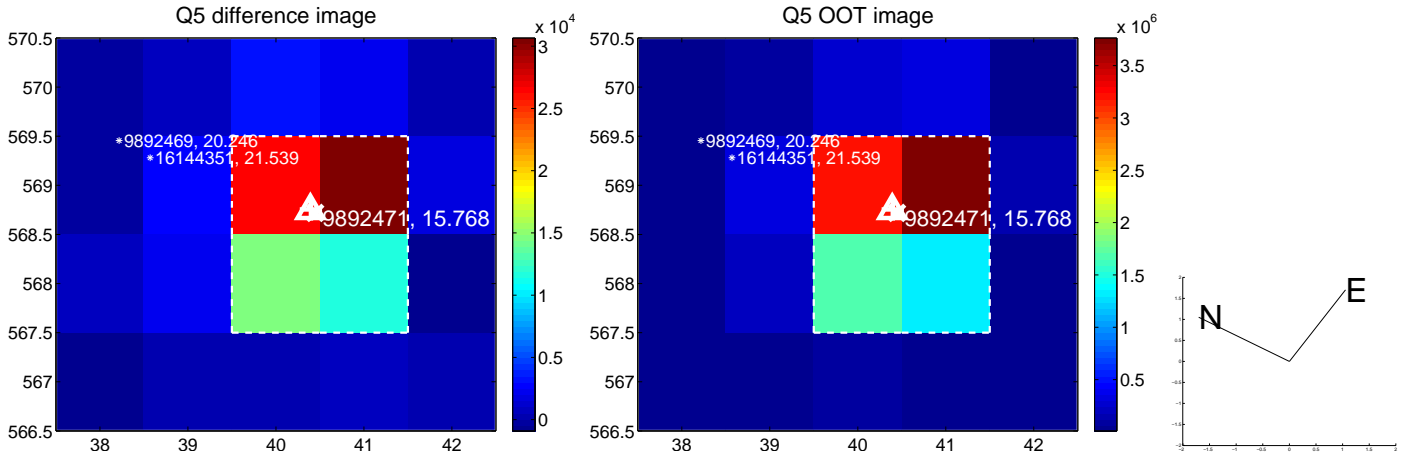


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

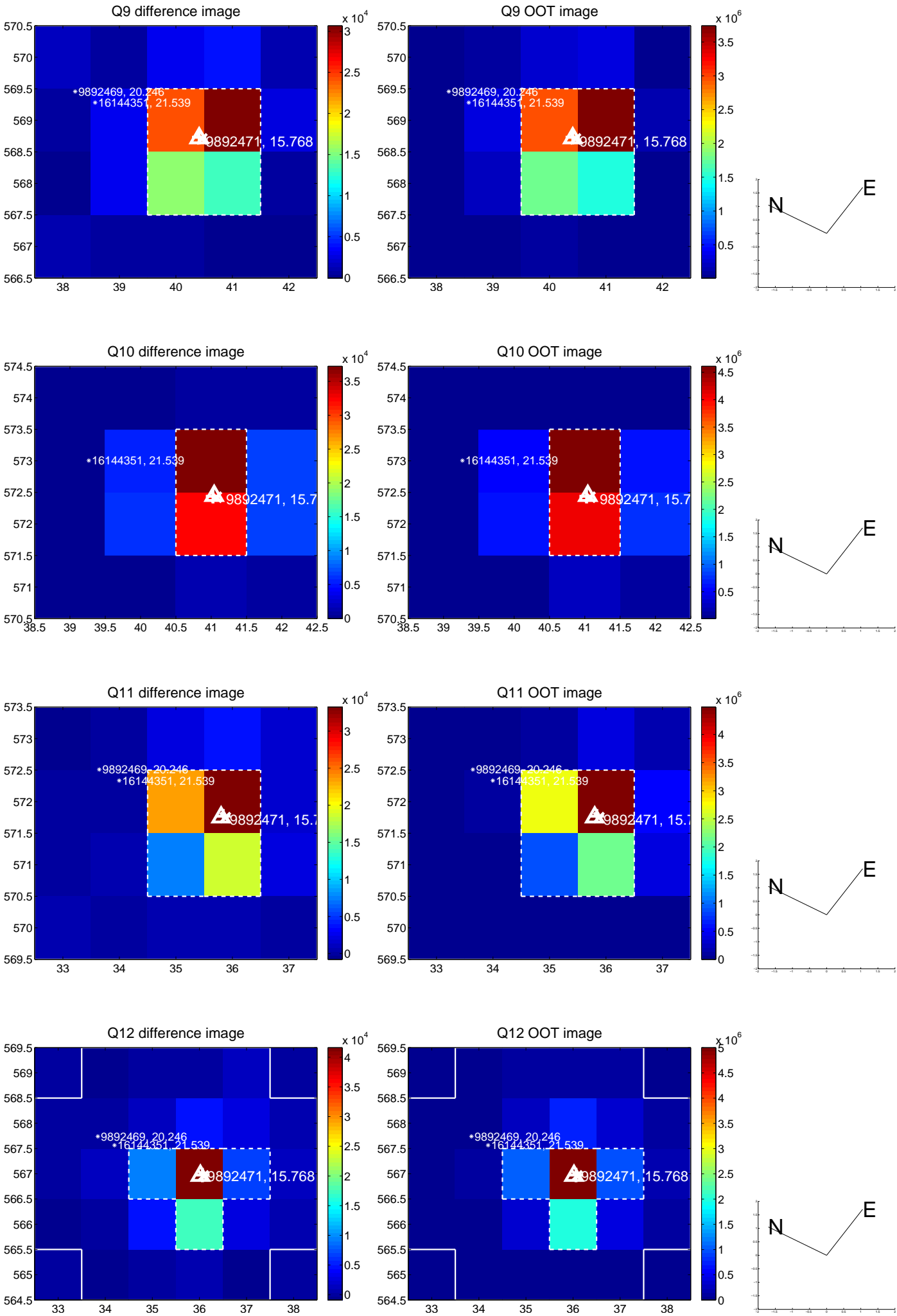
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



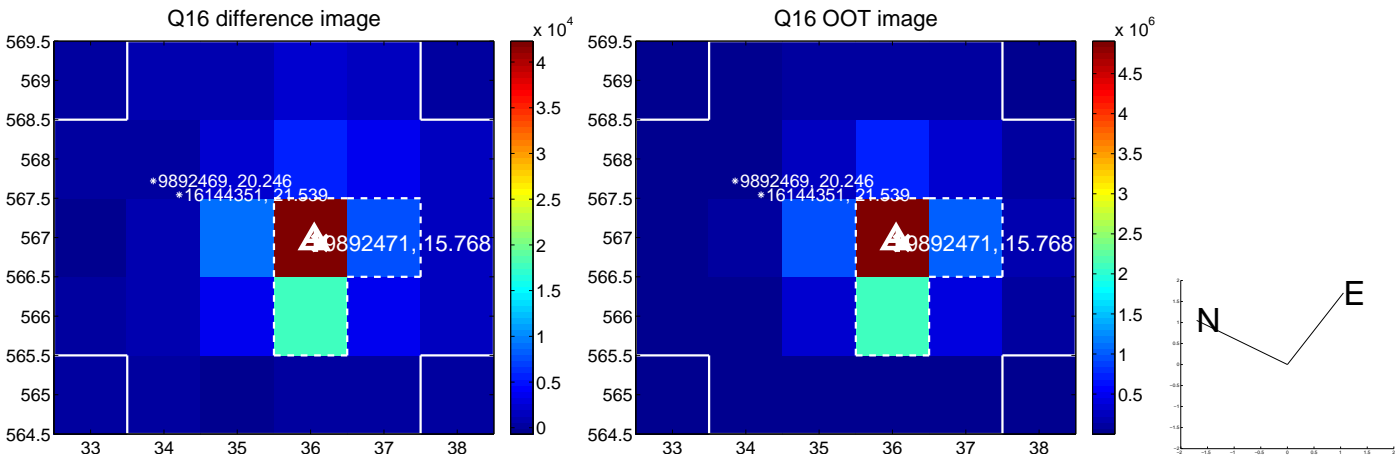
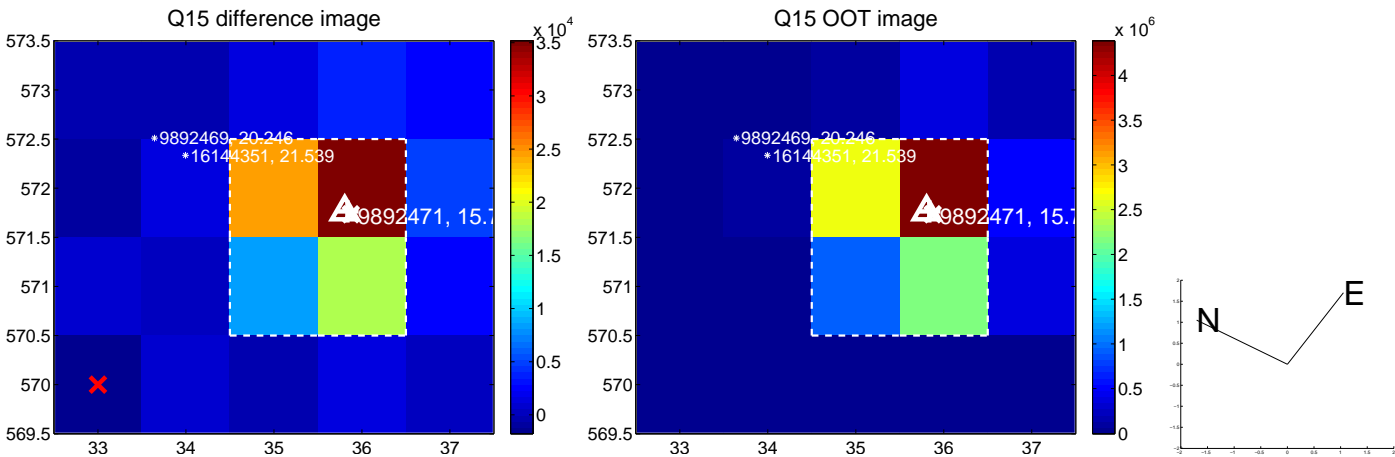
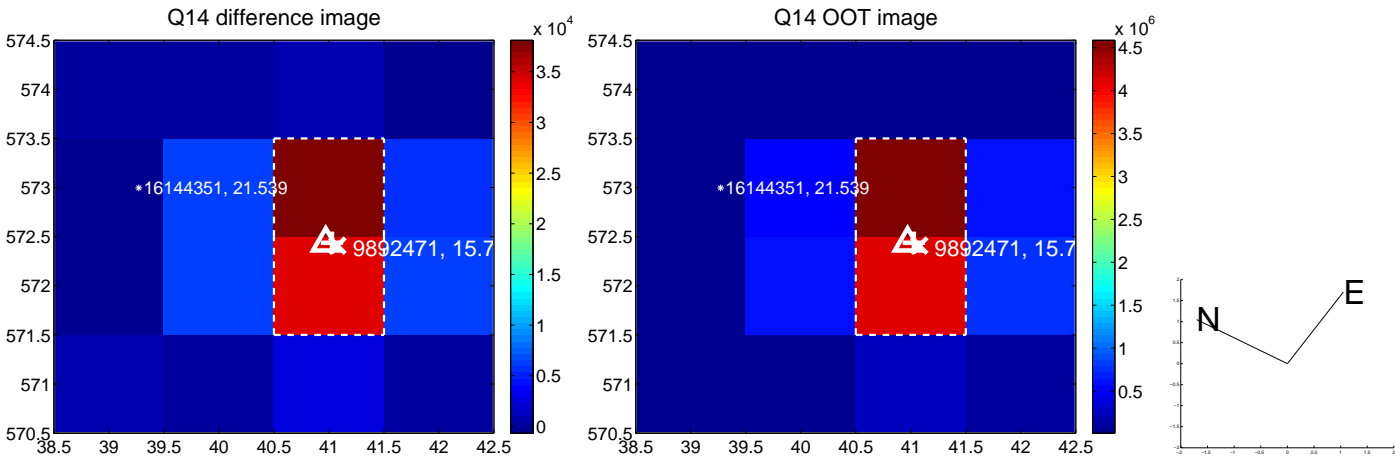
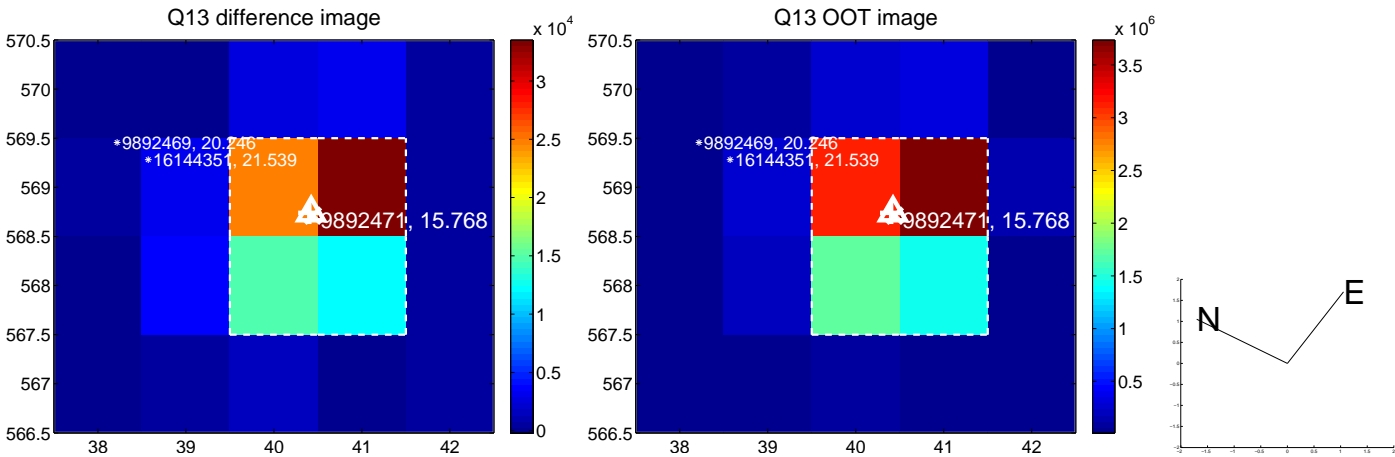
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



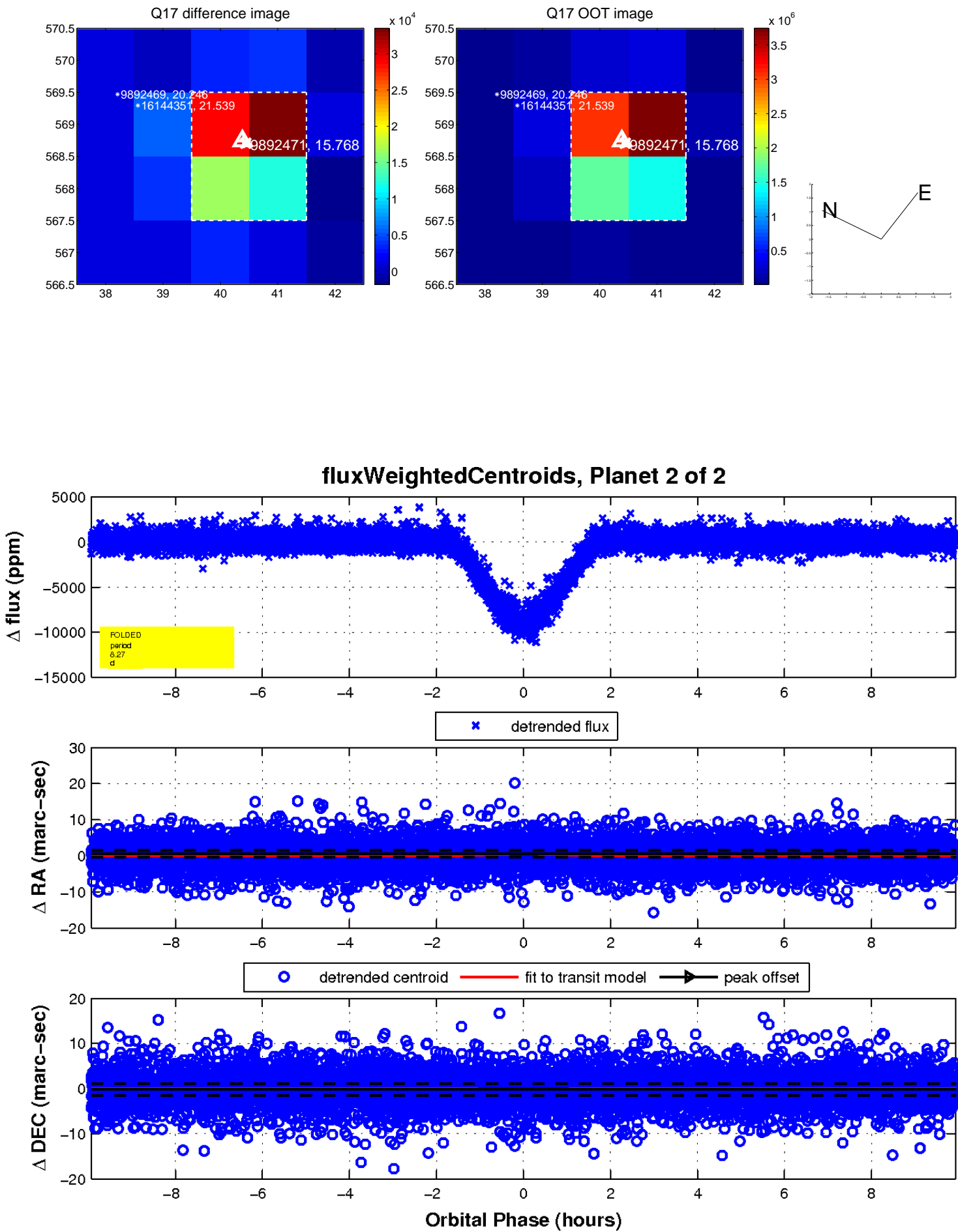
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UKIRT Image

