

KIC 007598128

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})
007598128-01	OBS	0681.01	44.258165	144.237581	20513.5	7.572	1204.6	1176.6	2.33	6544	37.35	120.60
007598128-02	OBS	No	44.258212	134.692086	273.6	5.450	15.4	16.7	2.33	6544	5.00	120.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007598128-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007598128-02	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.

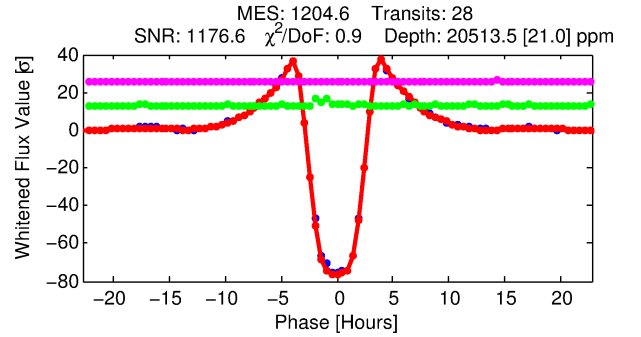
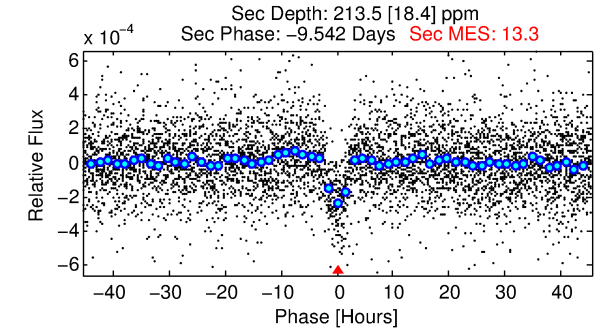
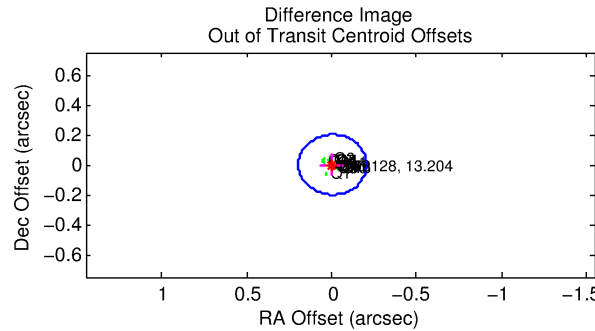
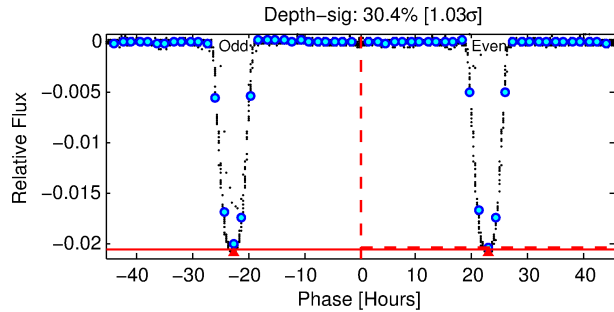
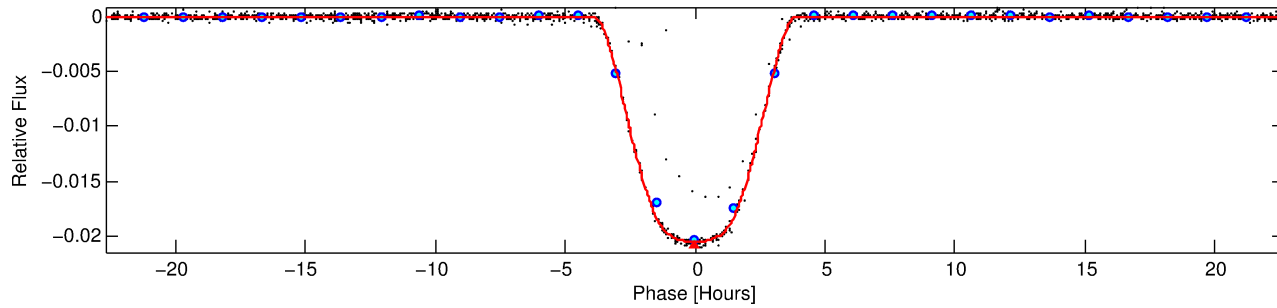
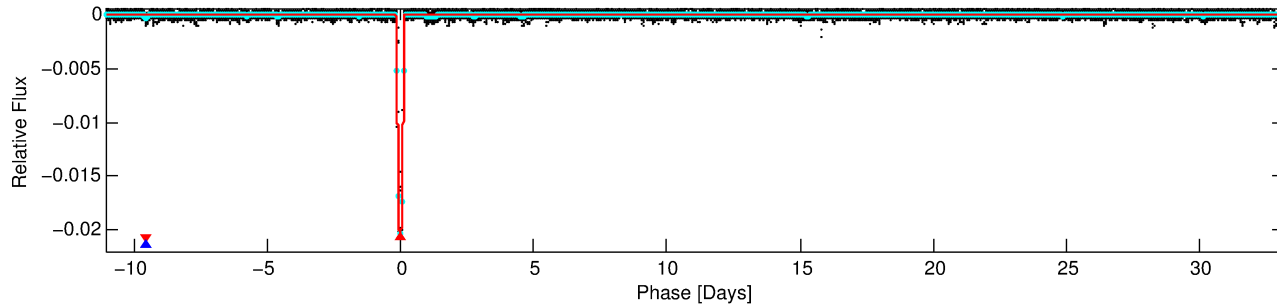
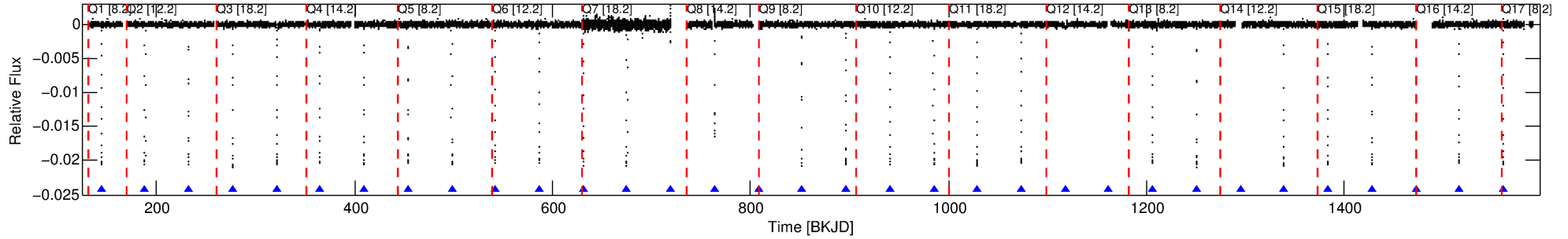
Ephemeris Match Information For 007598128-01

No Significant Match Found

DV One-Page Summary

KIC: 7598128 Candidate: 1 of 2 Period: 44.258 d
KOI: K00681.01 Corr: 0.999

Kp: 13.20 R*: 2.33 Rs Teff: 6544.0 K Logg: 3.84 Fe/H: -0.220



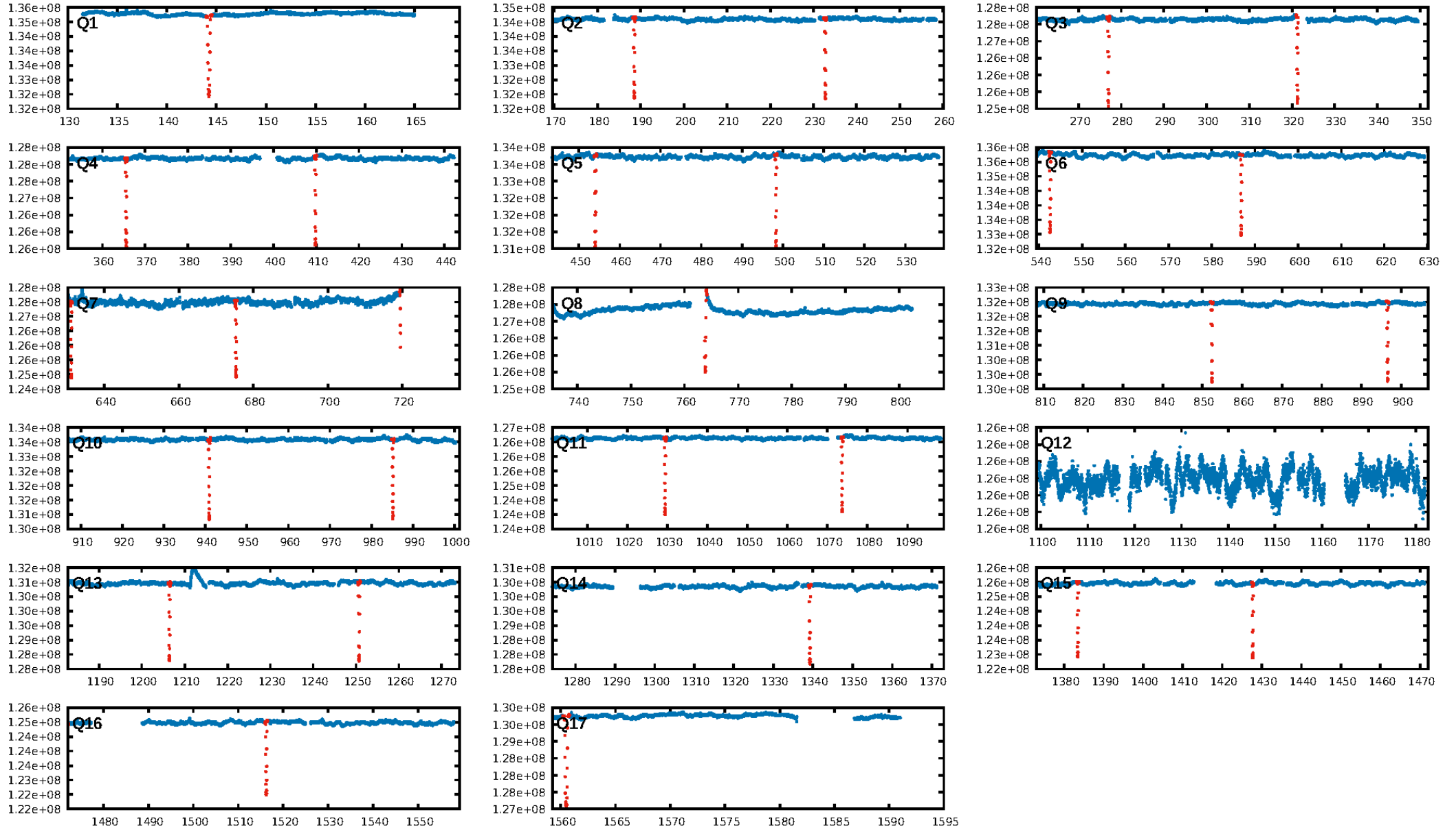
DV Fit Results:

Period = 44.25817 [0.00001] d
Epoch = 144.2376 [0.0001] BKJD
Rp/R* = 0.1472 [0.0001]
a/R* = 35.99 [0.04]
b = 0.82 [0.00]
Seff = 120.60 [62.34]
Teq = 845 [109] K
Rp = 37.35 [13.06] Re
a = 0.2715 [0.0878] AU
Ag = 6.20 [3.18] [1.64σ]
Teffp = 2062 [72] K [9.31σ]

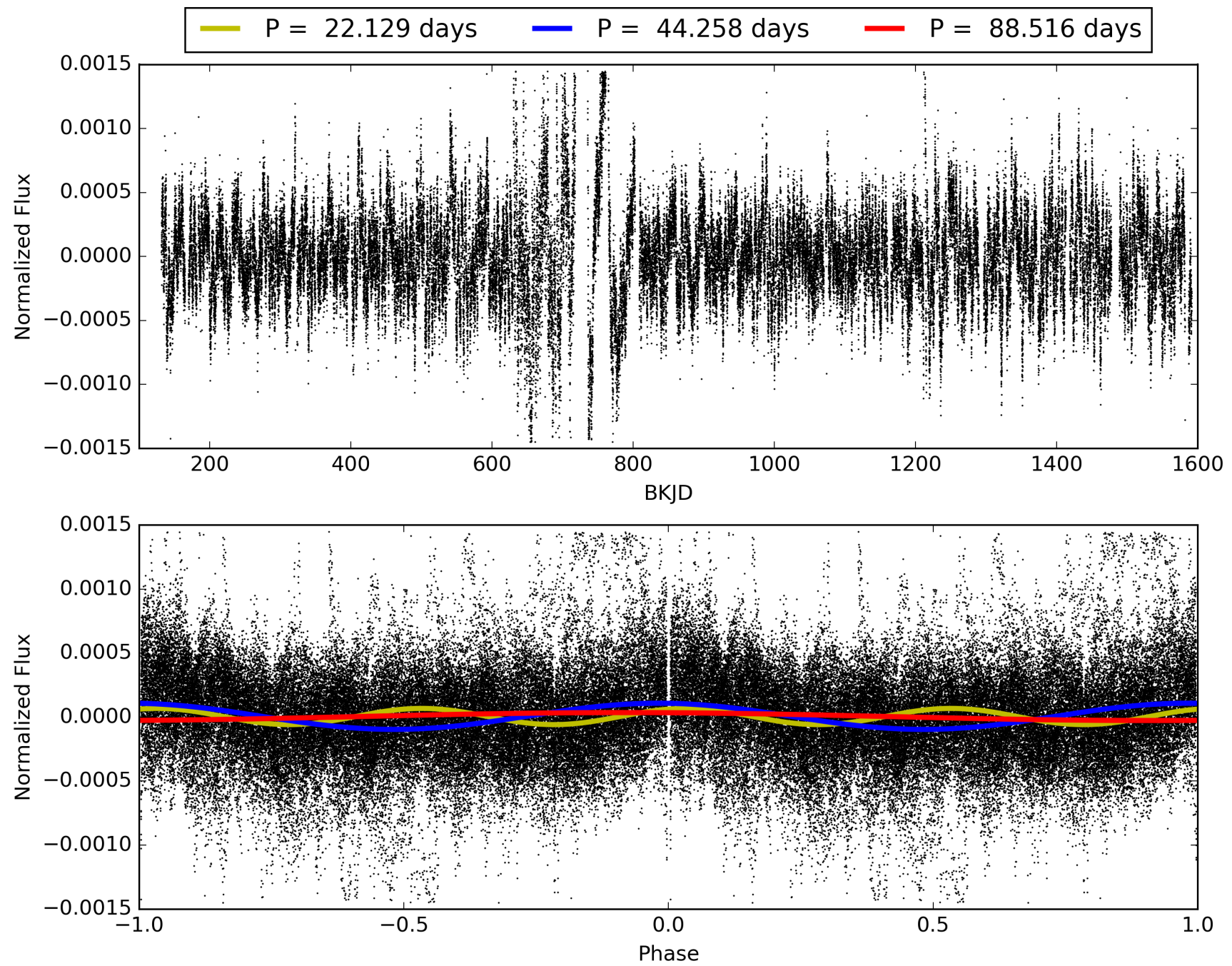
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [26/26]
GhostDiagnostic-chr: 6.154
Centroid-sig: N/A
Centroid-so: 0.143 arcsec [26.66σ]
OotOffset-rm: 0.005 arcsec [0.07σ]
KicOffset-rm: 0.048 arcsec [0.72σ]
OotOffset-st: 4/4/1/4 [13]
KicOffset-st: 4/4/1/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 007598128-01, PDC Light Curves

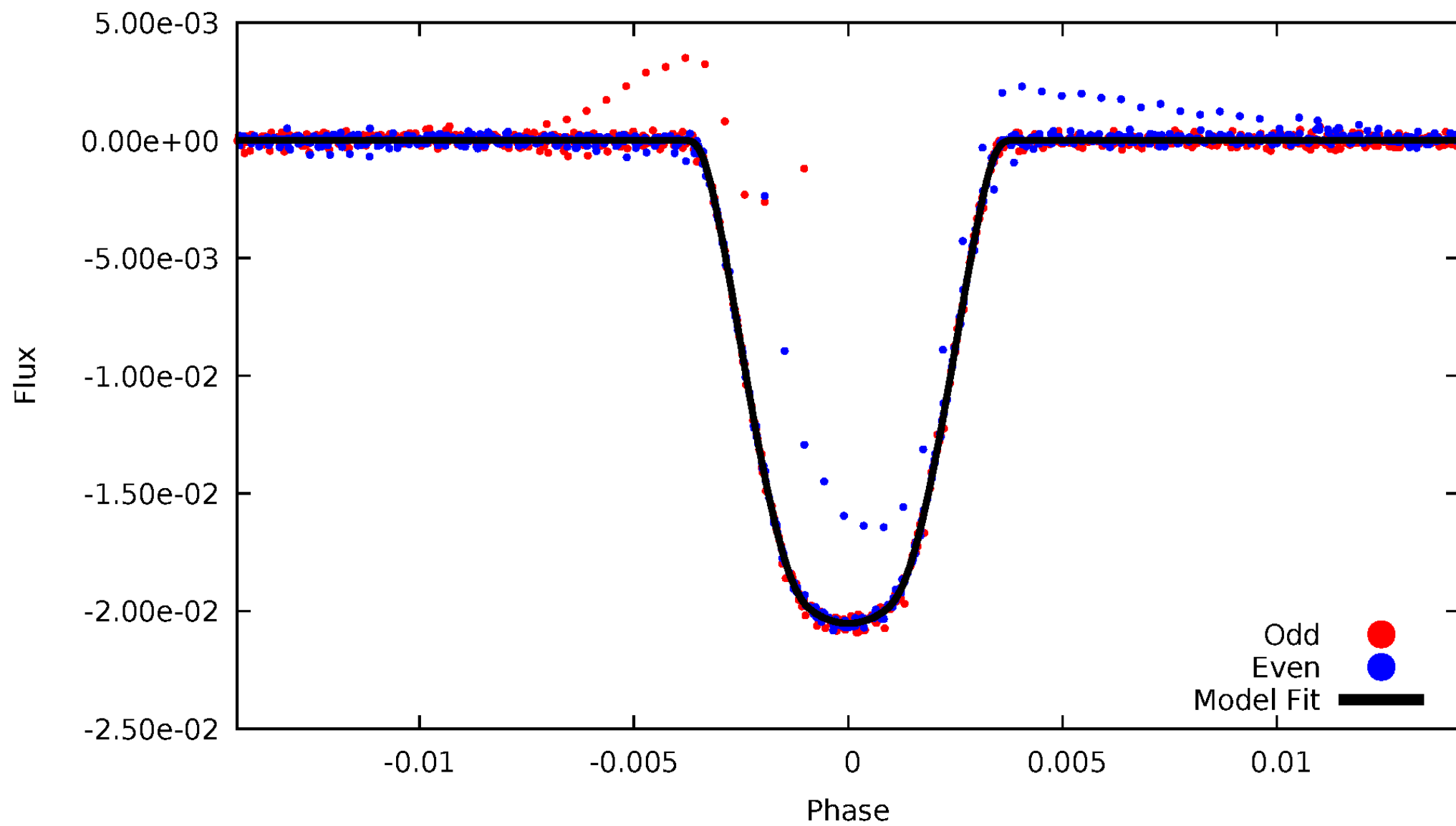


TCE 007598128-01



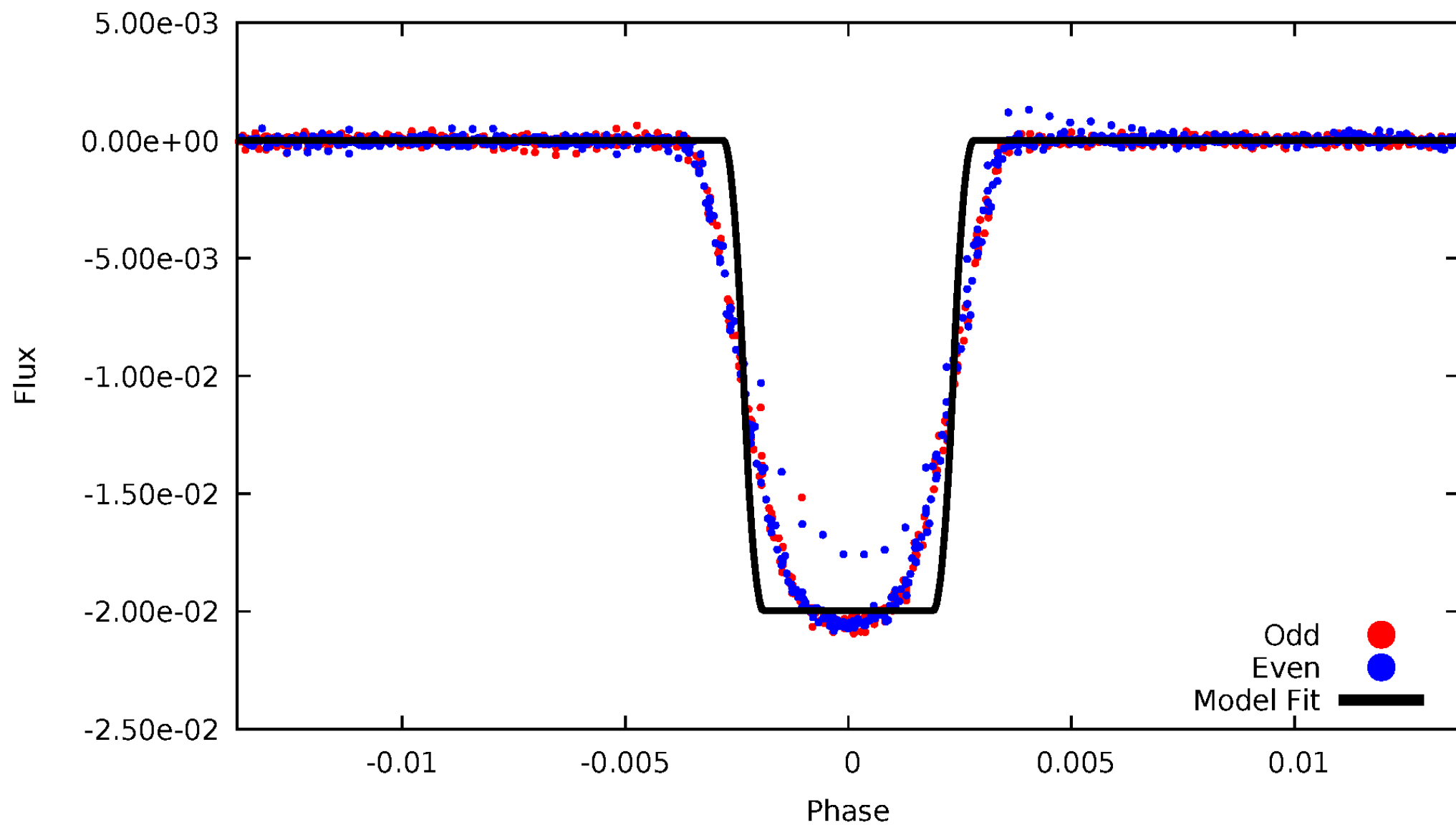
DV Odd/Even

TCE 007598128-01



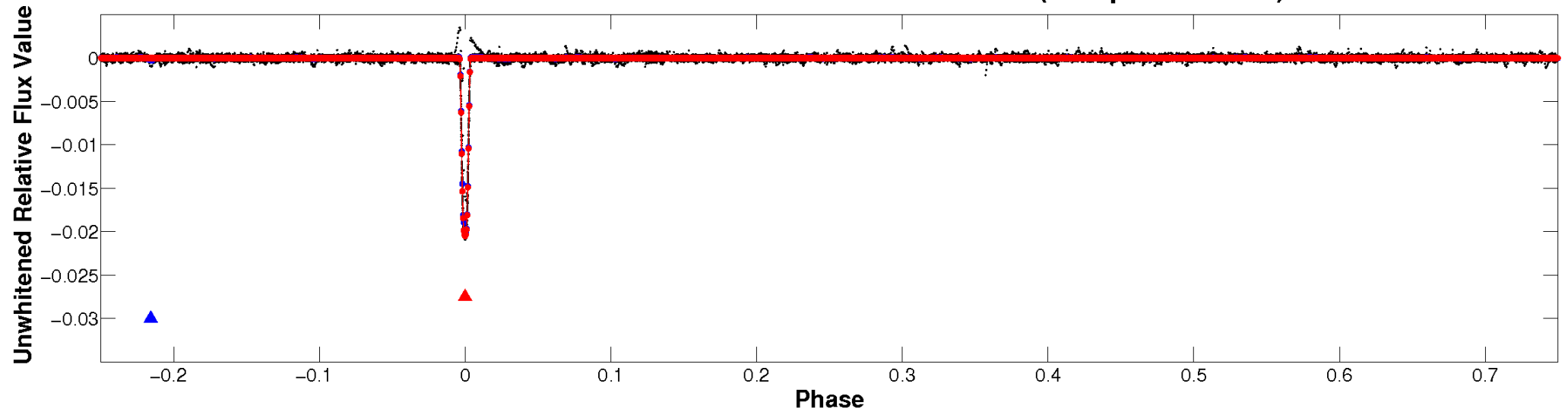
ALT Odd/Even

TCE 007598128-01

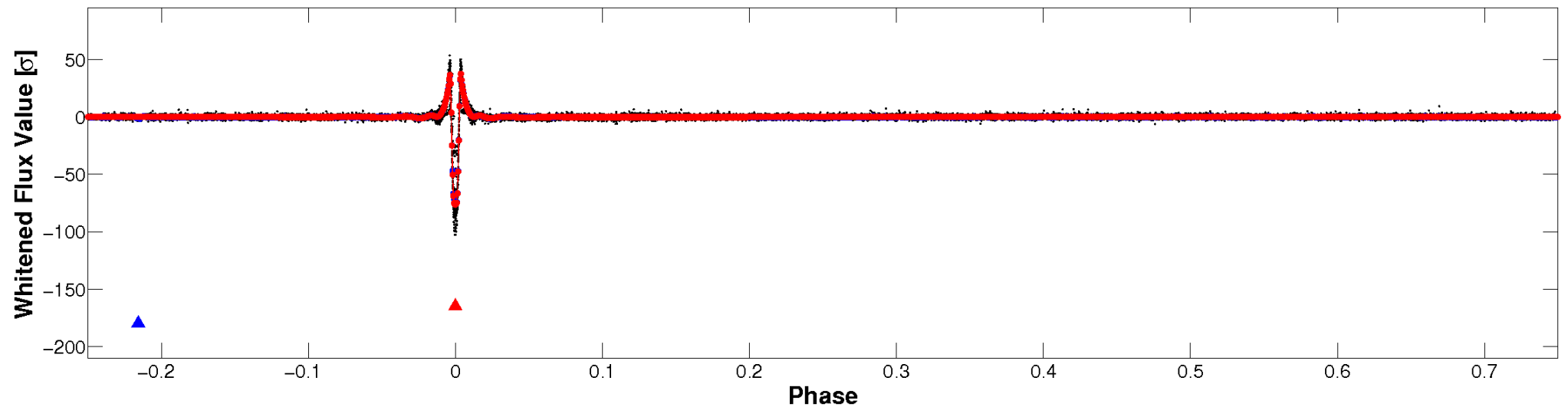


Non-Whitened Vs. Whitened Light Curve

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

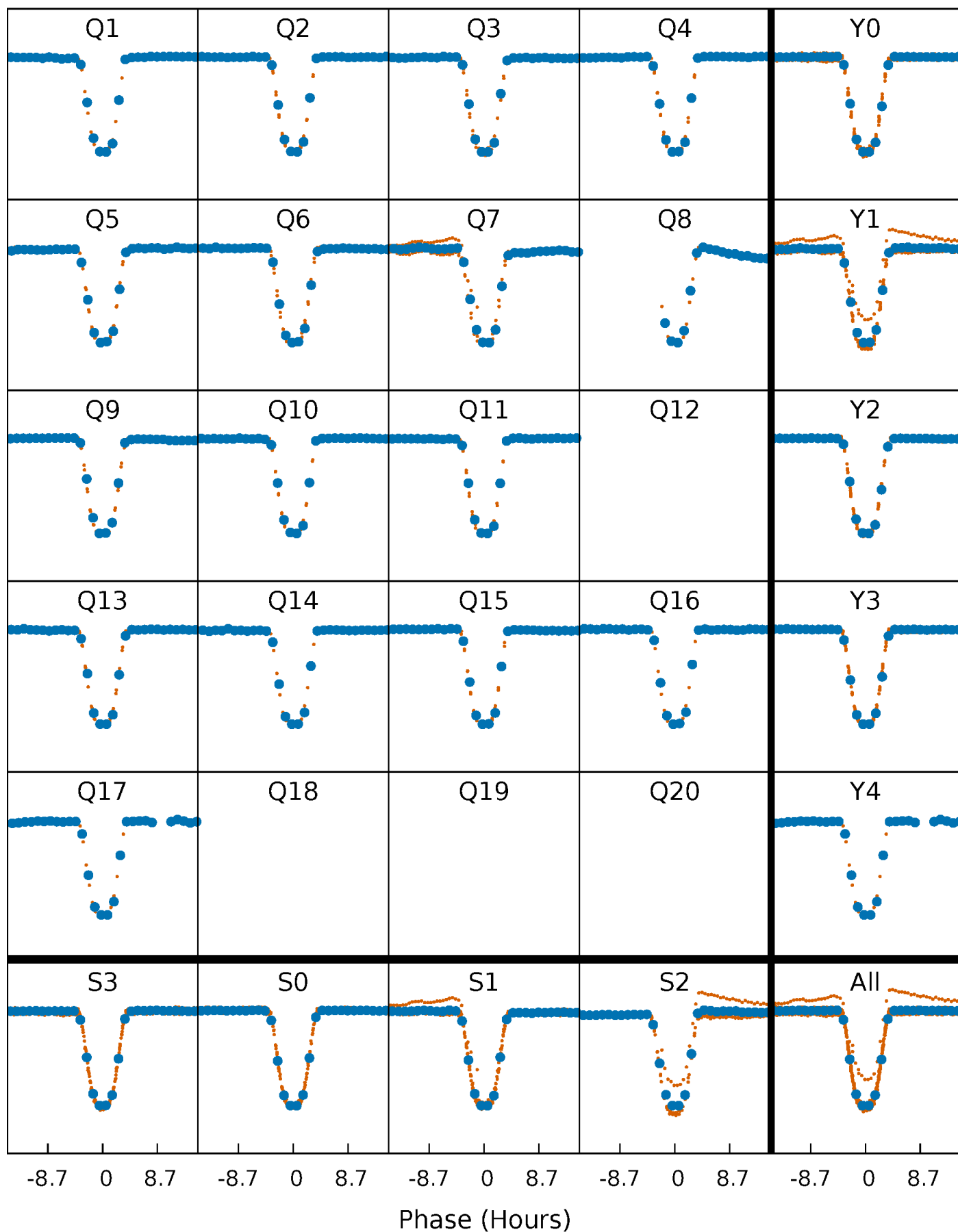


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



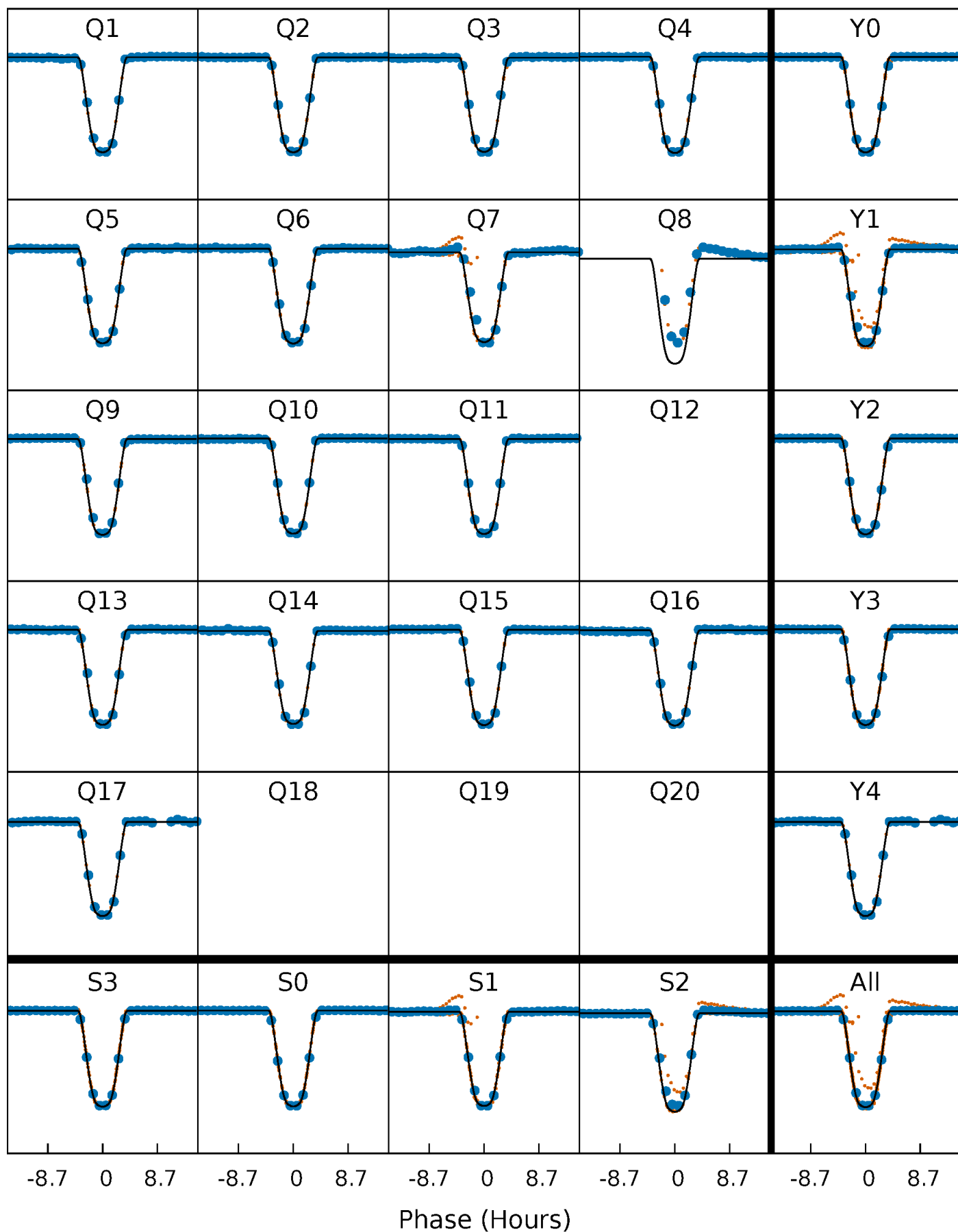
PDC Quarter-Phased Transit Curves

TCE 007598128-01 P= 44.258165 Days $T_0=144.237581$ (BKJD)



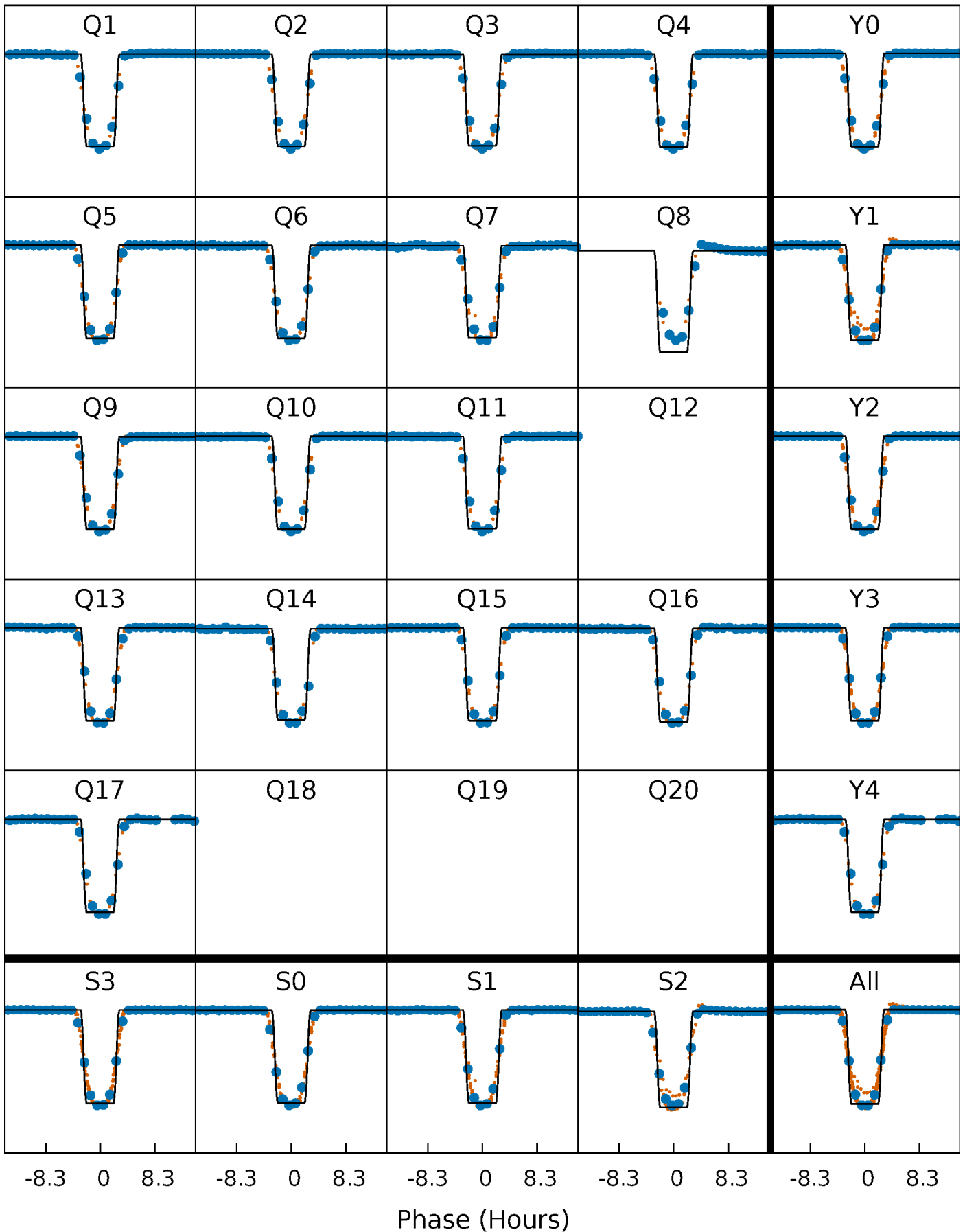
DV Quarter-Phased Transit Curves

TCE 007598128-01 P= 44.258165 Days $T_0=144.237581$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

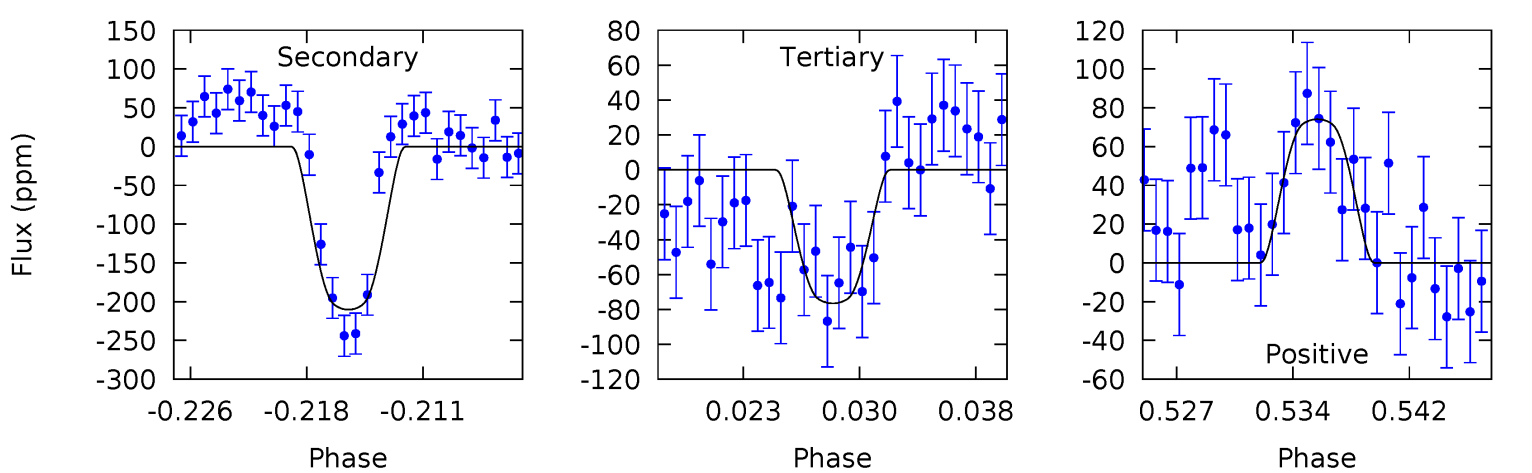
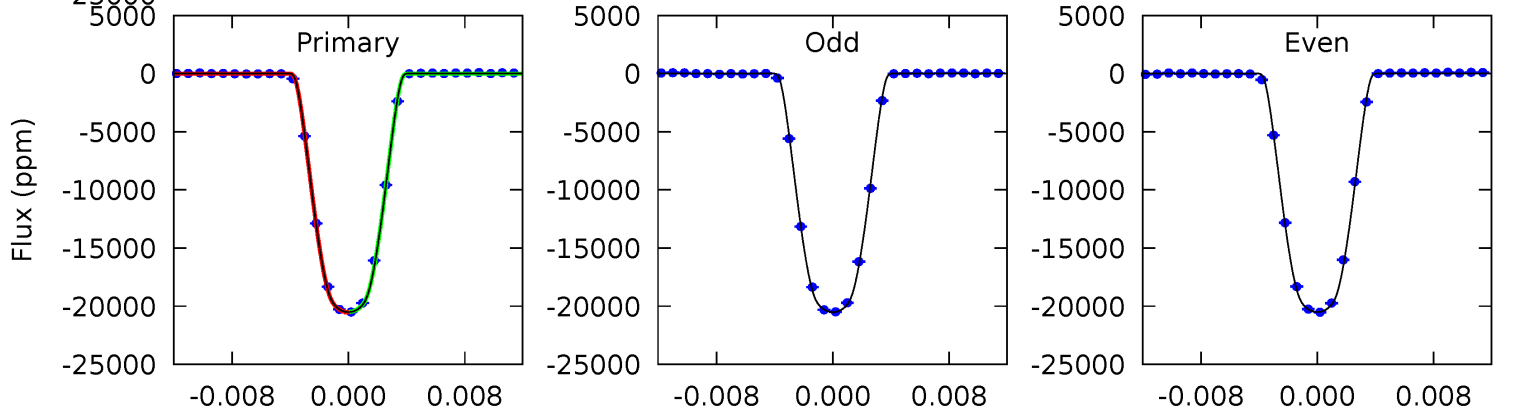
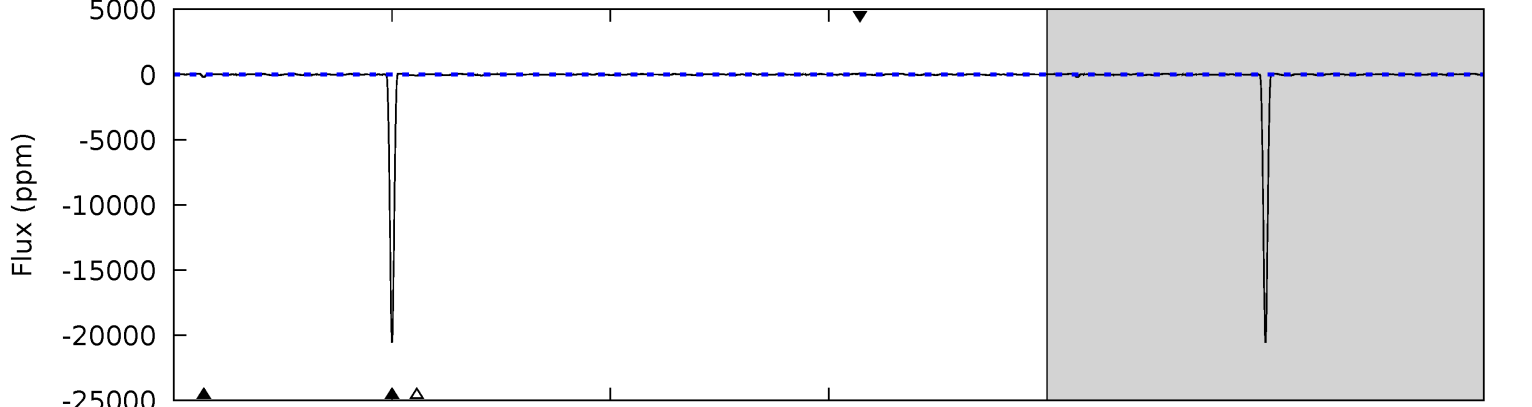
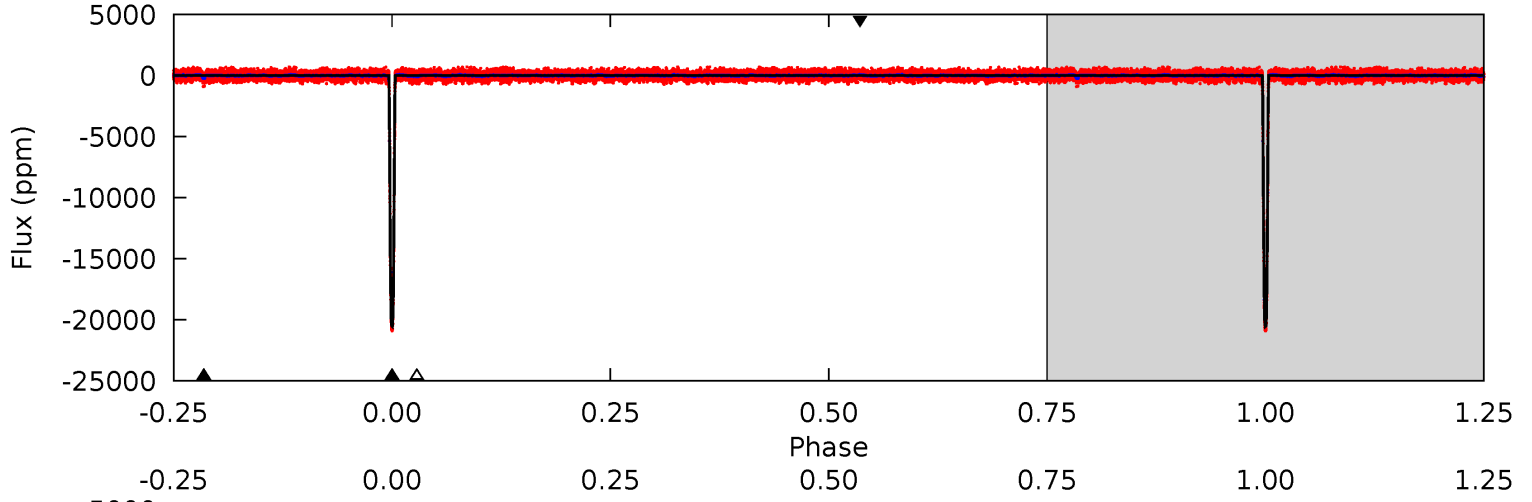
TCE 007598128-01 P= 44.257913 Days $T_0=144.241350$ (BKJD)



DV Model-Shift Uniqueness Test

007598128-01, P = 44.258165 Days, E = 99.979416 Days

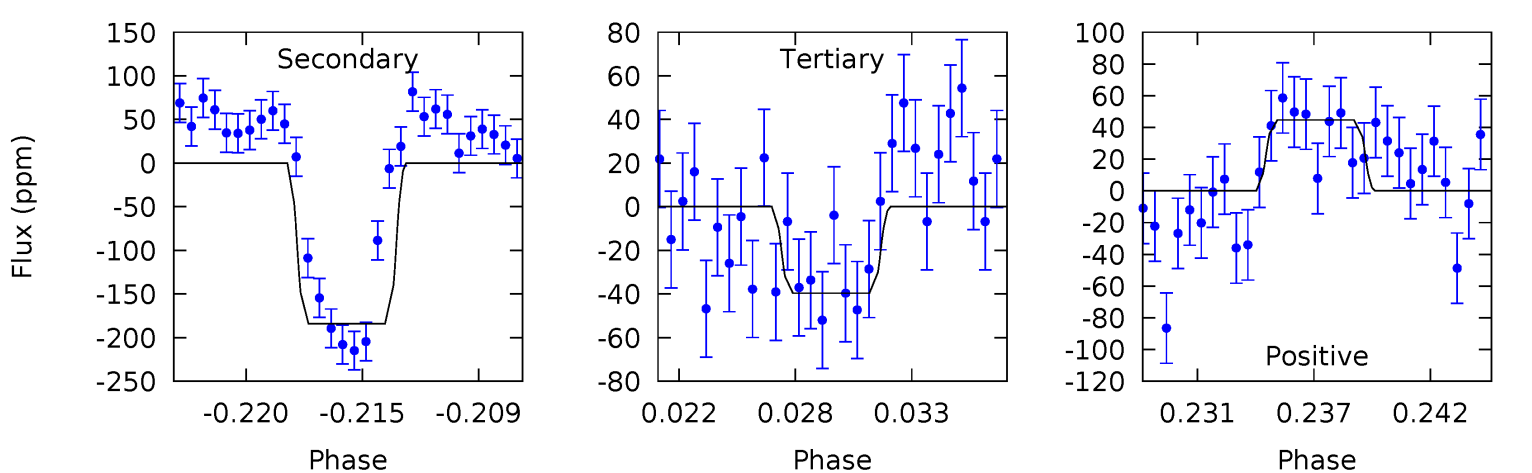
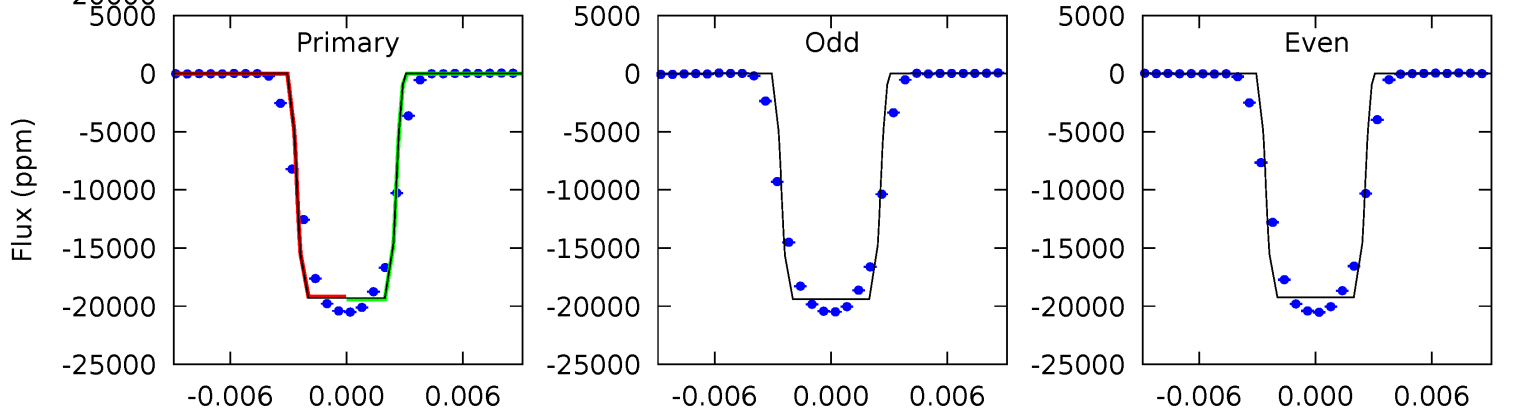
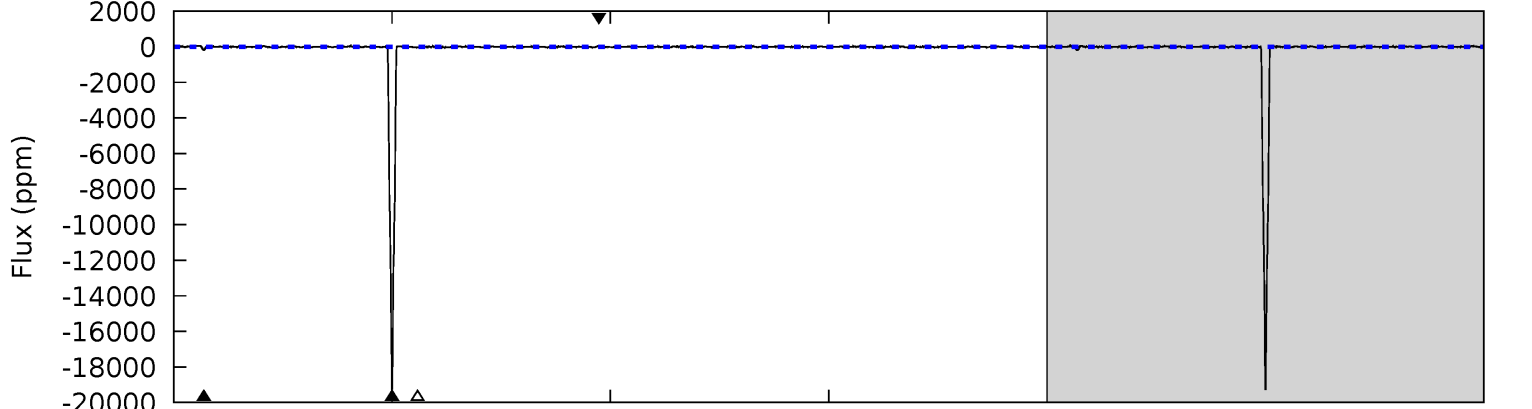
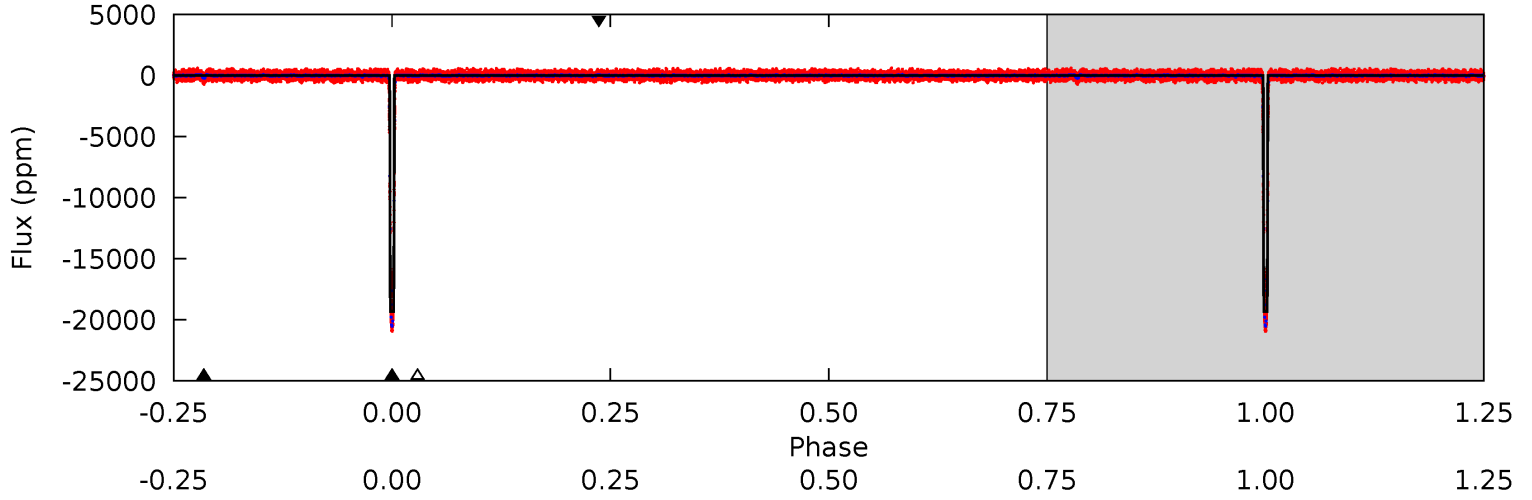
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2410	24.7	8.99	8.71	5.08	2.67	2.78	2401	2401	15.7	16.0	0.52	0.96	0.00	2.11



Alt Model-Shift Uniqueness Test

007598128-01, P = 44.257913 Days, E = 99.983437 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2055	19.6	4.22	4.76	5.14	2.78	1.49	2051	2050	15.4	14.9	8.31	0.99	0.00	12.1



Stellar Parameters For KIC 007598128

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6544^{+162}_{-179}	$3.839^{+0.292}_{-0.097}$	$-0.220^{+0.300}_{-0.250}$	$2.326^{+0.438}_{-0.813}$	$1.364^{+0.233}_{-0.257}$	$0.153^{+0.309}_{-0.046}$
	+2%/-3%	+8%/-3%	+136%/-114%	+19%/-35%	+17%/-19%	+202%/-30%
Source	PHO1	FLK73	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 007598128-01 / KOI 0681.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-210 ± 9	$36.84^{+4.21}_{-6.89}$	1158^{+69}_{-96}	2783^{+37}_{-41}	$6.571^{+2.643}_{-1.274}$
Alt.	-184 ± 9	$34.59^{+4.65}_{-6.44}$	1153^{+74}_{-101}	2767^{+39}_{-46}	$6.252^{+2.862}_{-1.210}$

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

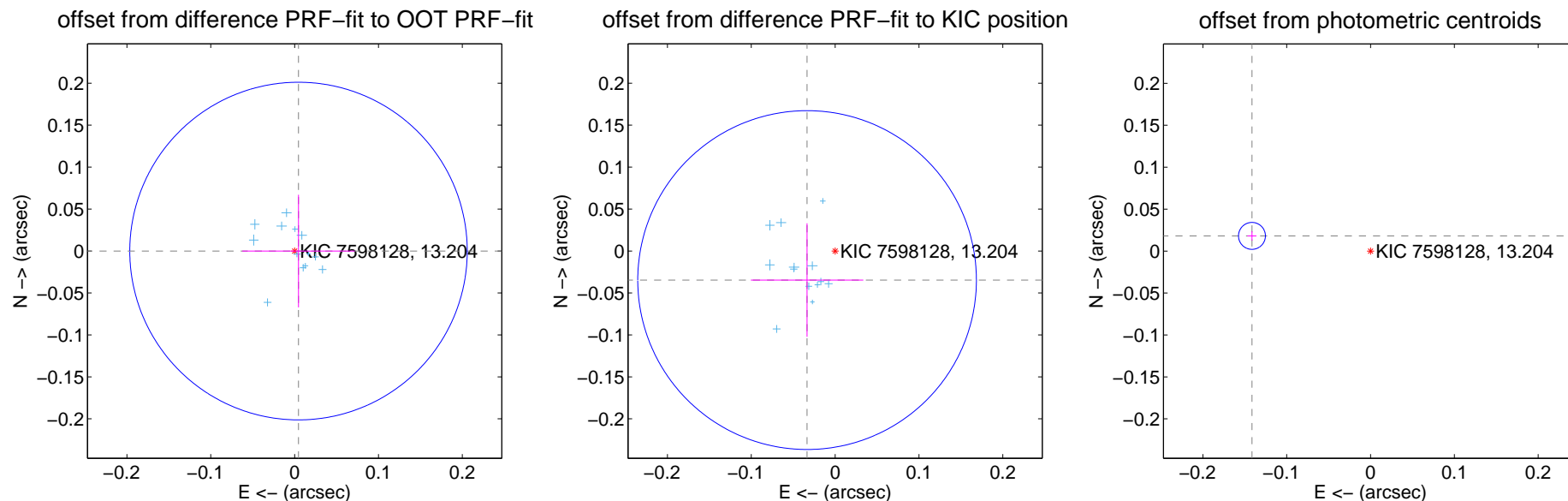
DV Centroid Data

Supplemental centroid analysis for 007598128-01. Kepler magnitude: 13.20. Transit SNR 1176.63

There are 13 quarters with good PRF difference image offsets

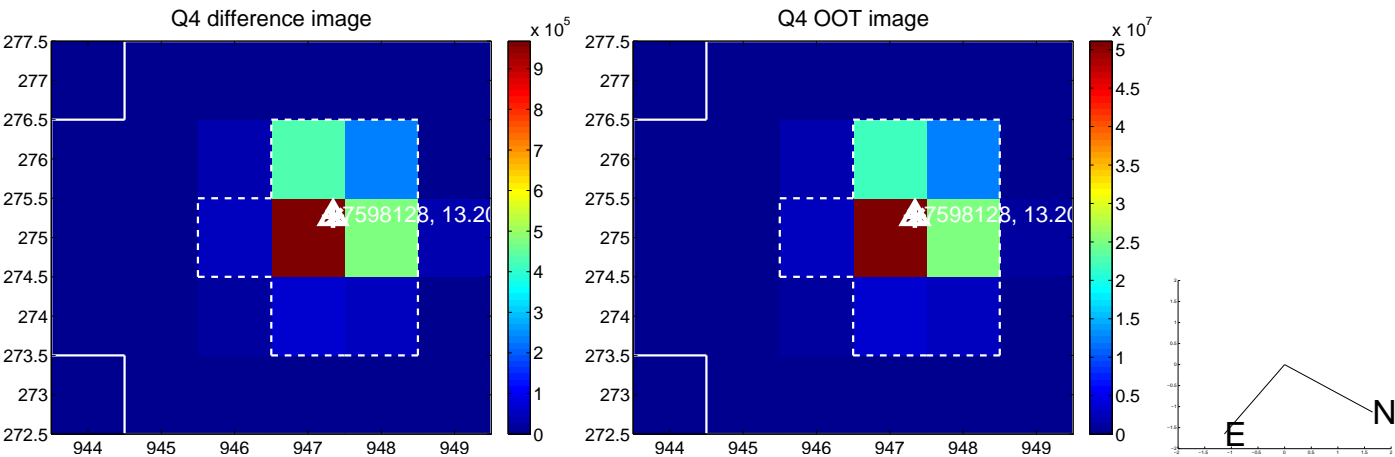
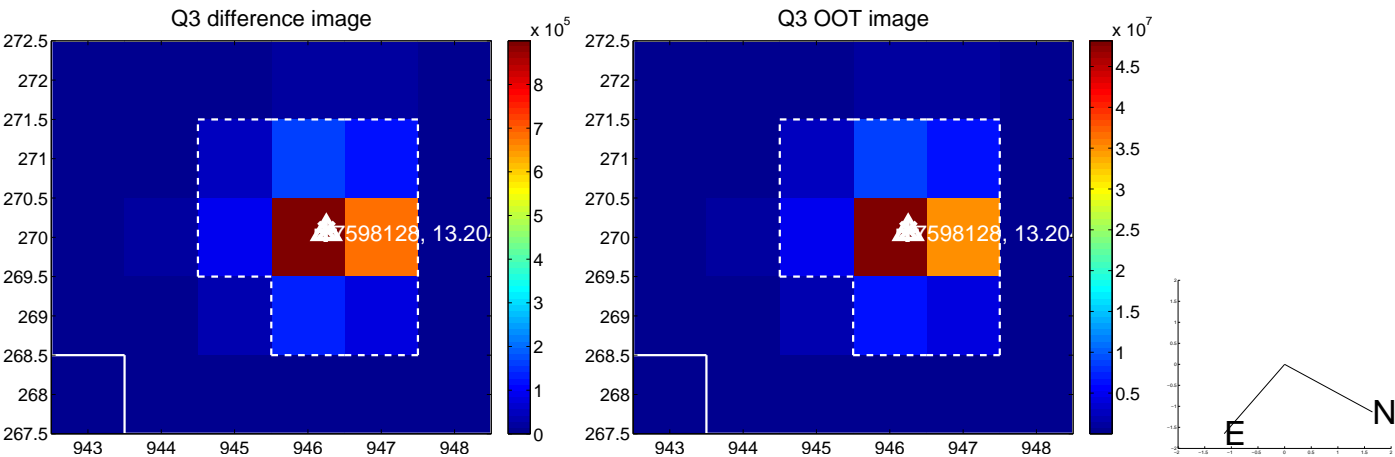
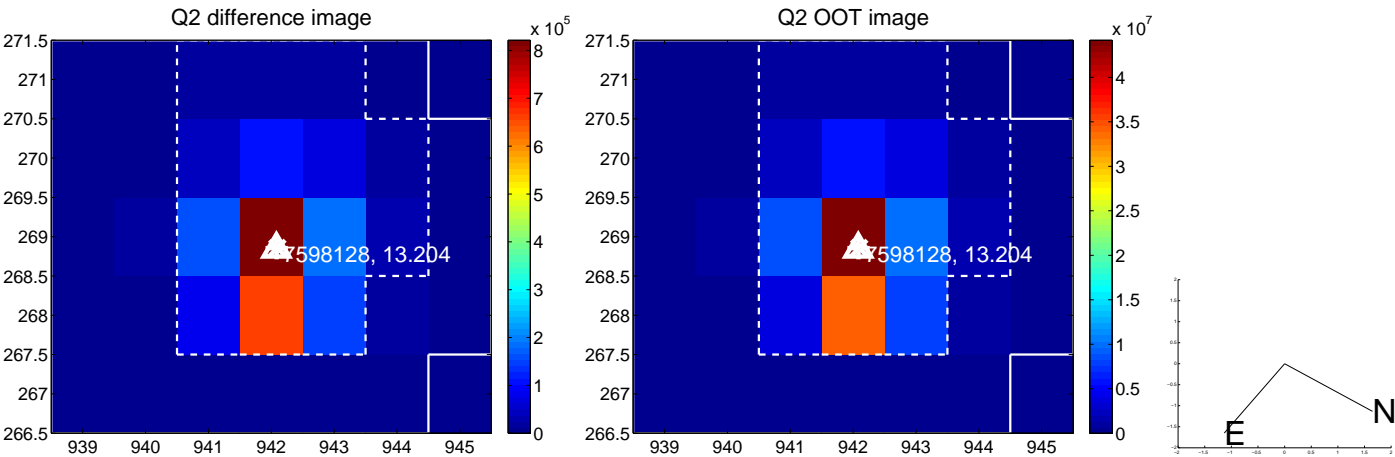
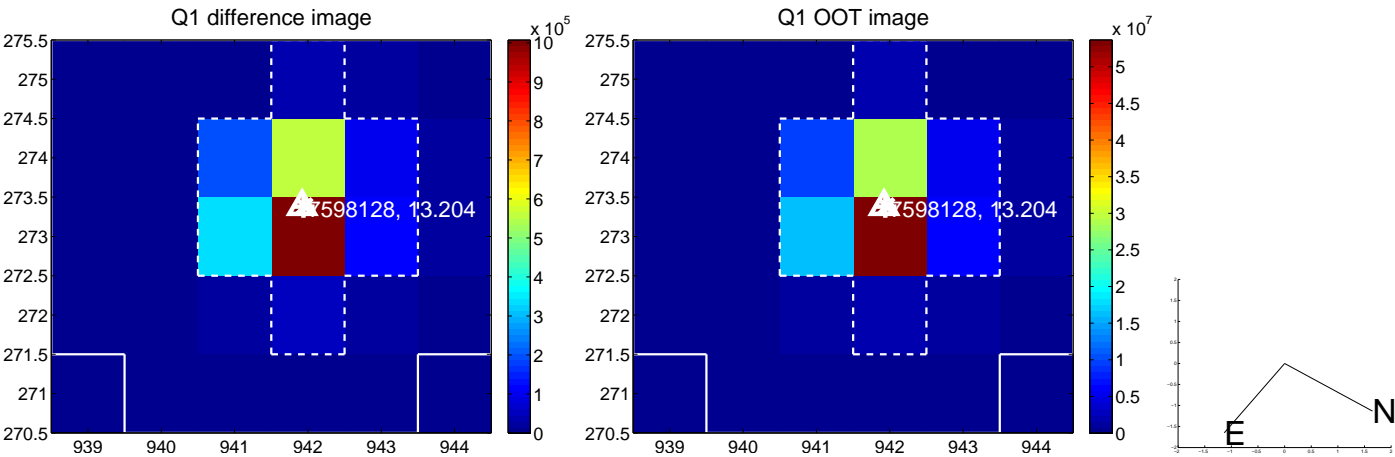
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.005 ± 0.067	0.07	-0.005 ± 0.067	-0.000 ± 0.067
PRF-fit source offset from KIC position	0.048 ± 0.067	0.72	0.033 ± 0.067	-0.035 ± 0.068
photometric centroid source offset	0.14 ± 0.01	26.66	0.14 ± 0.01	0.02 ± 0.01

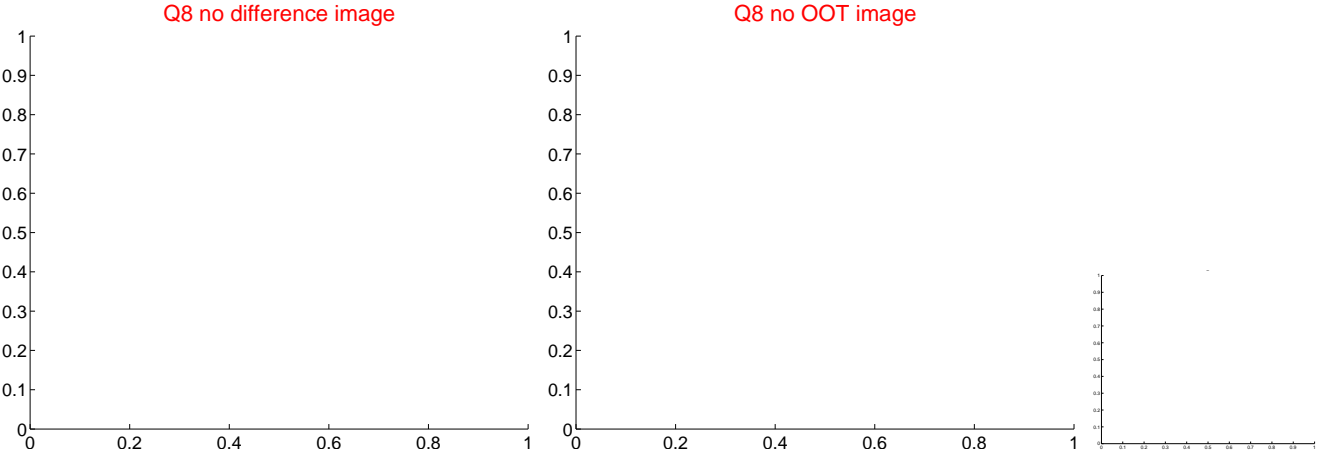
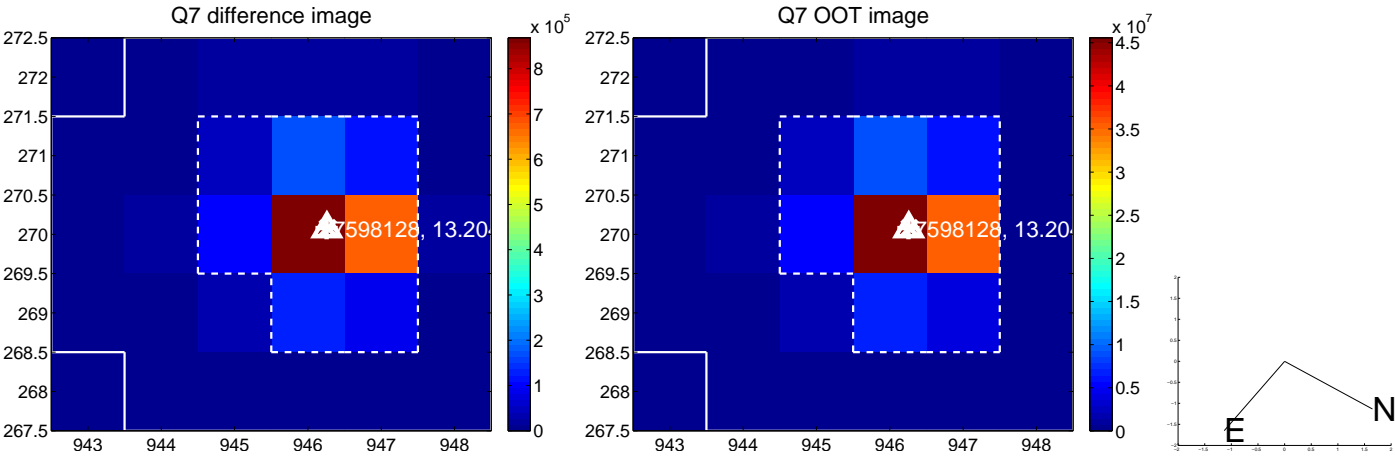
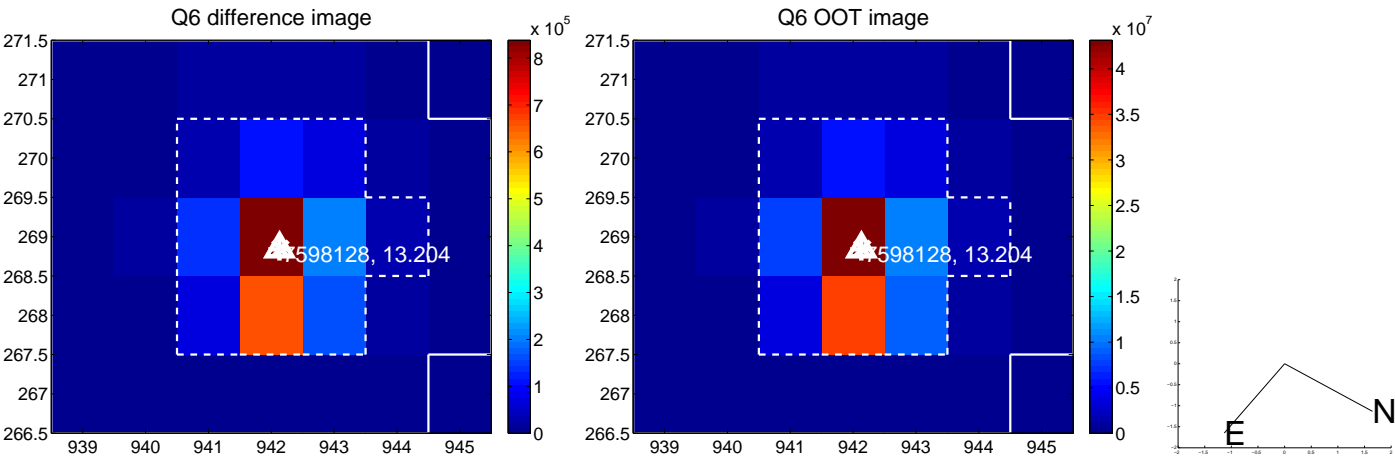
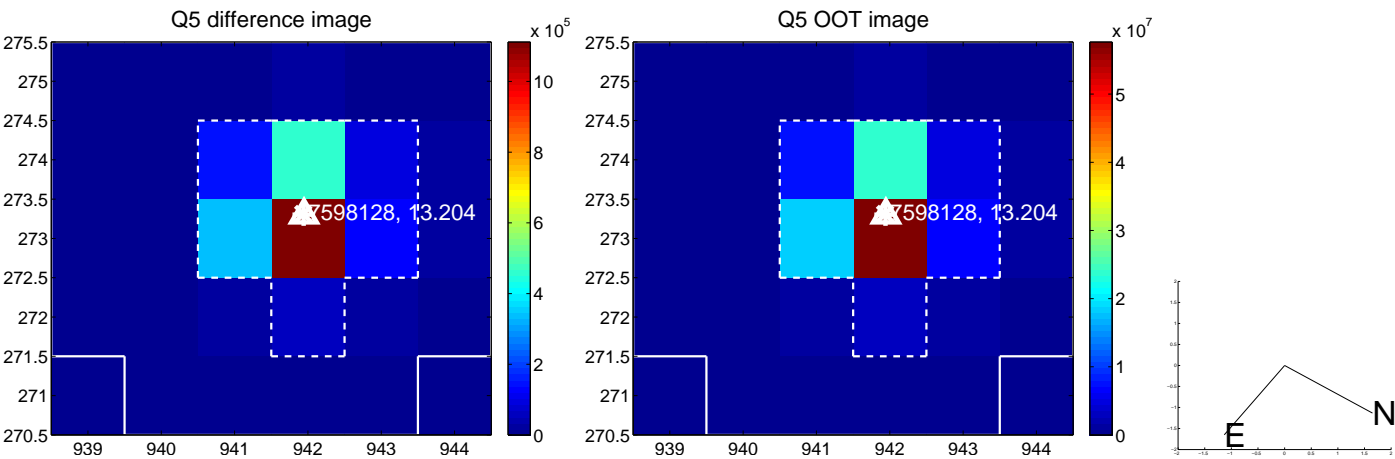


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

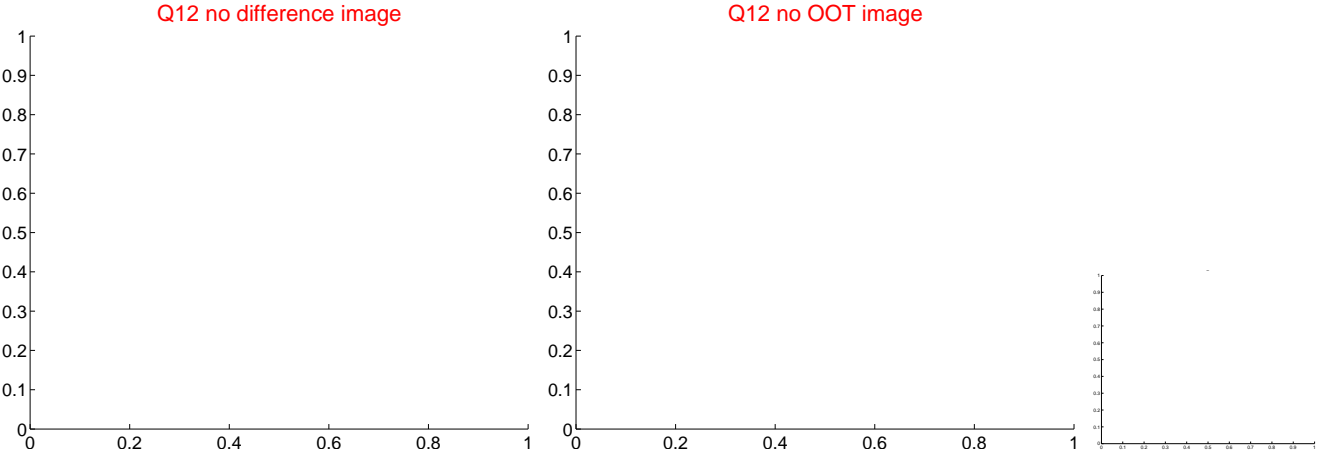
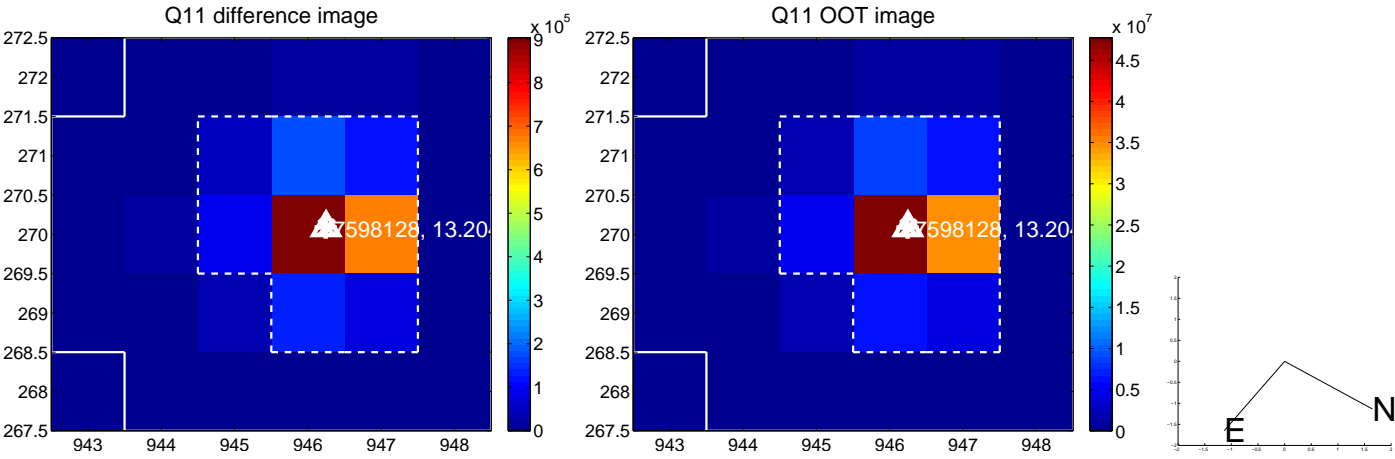
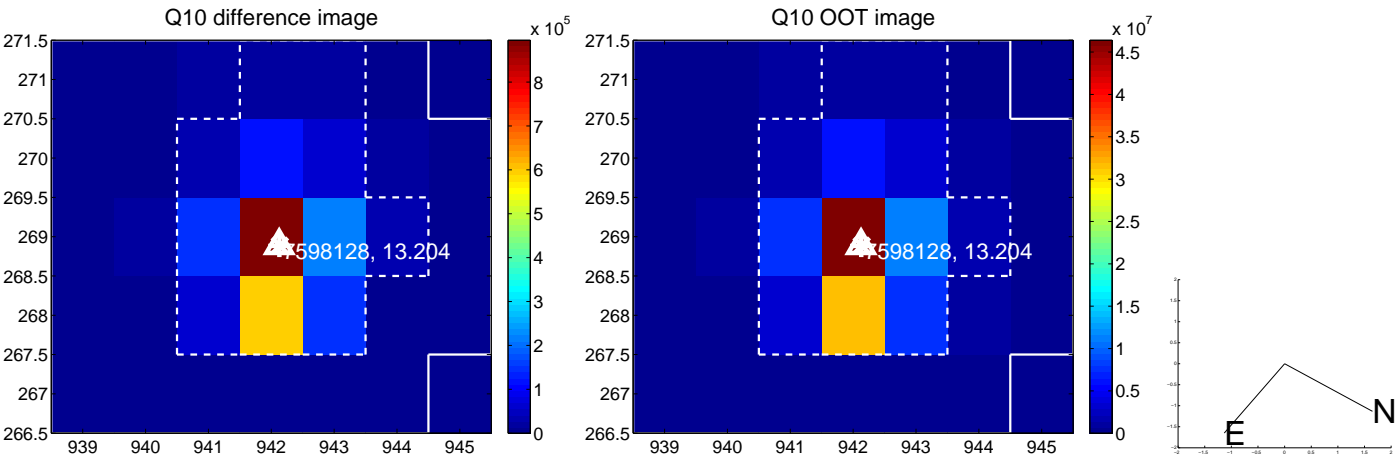
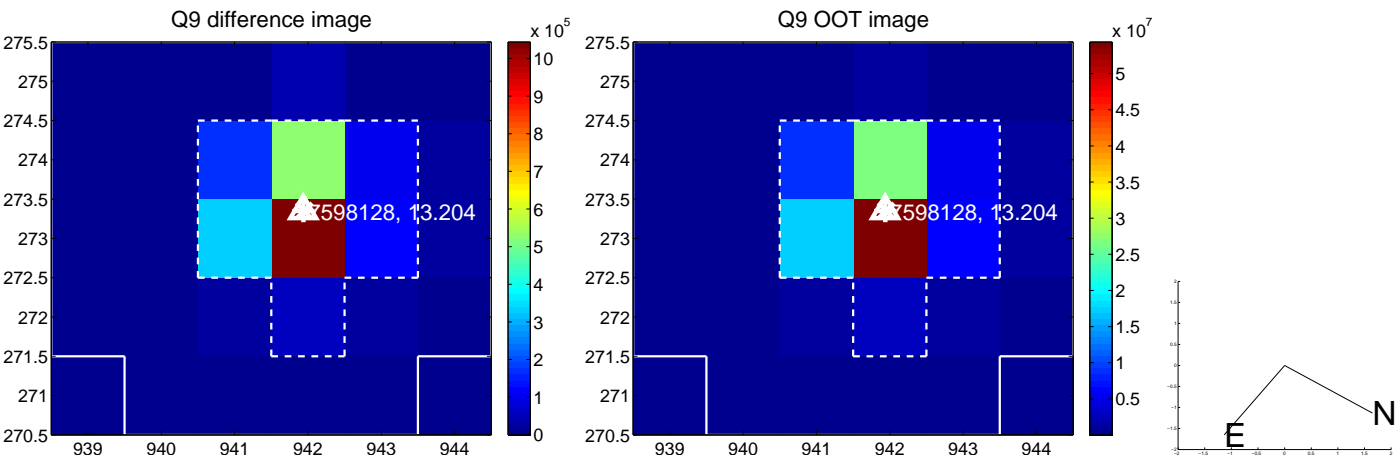
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



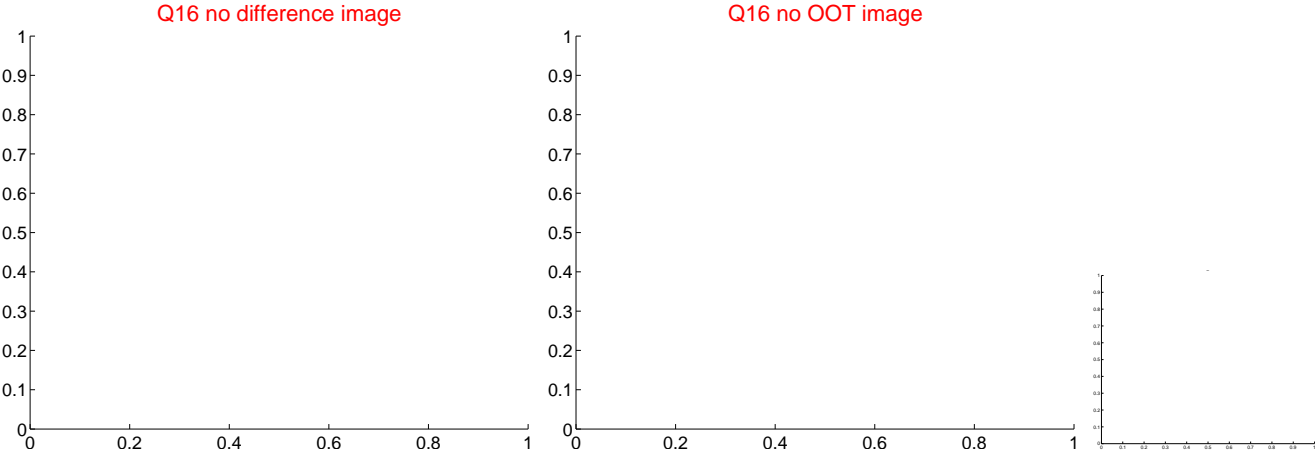
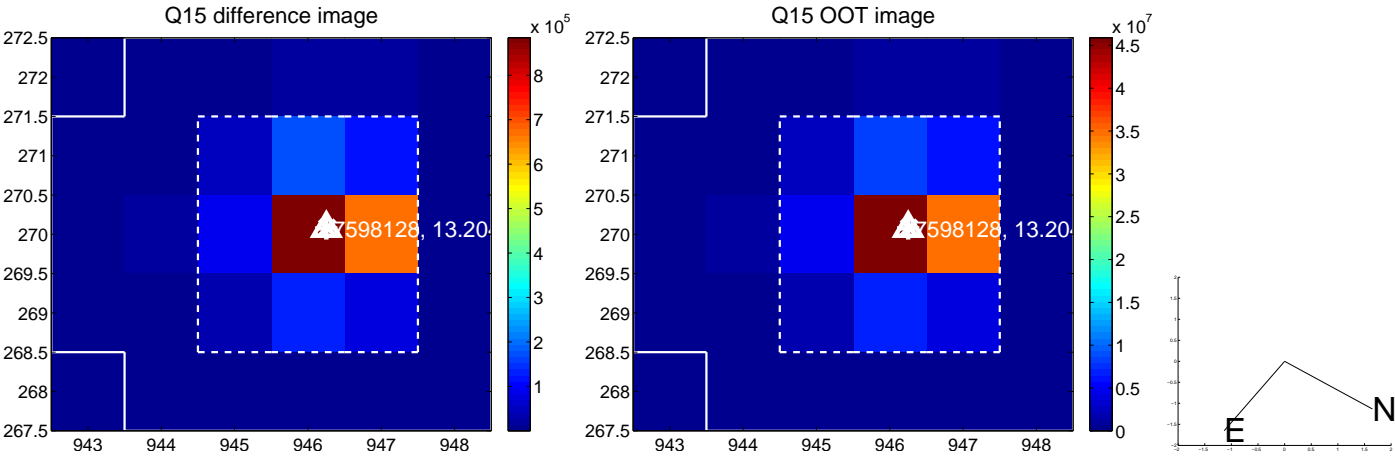
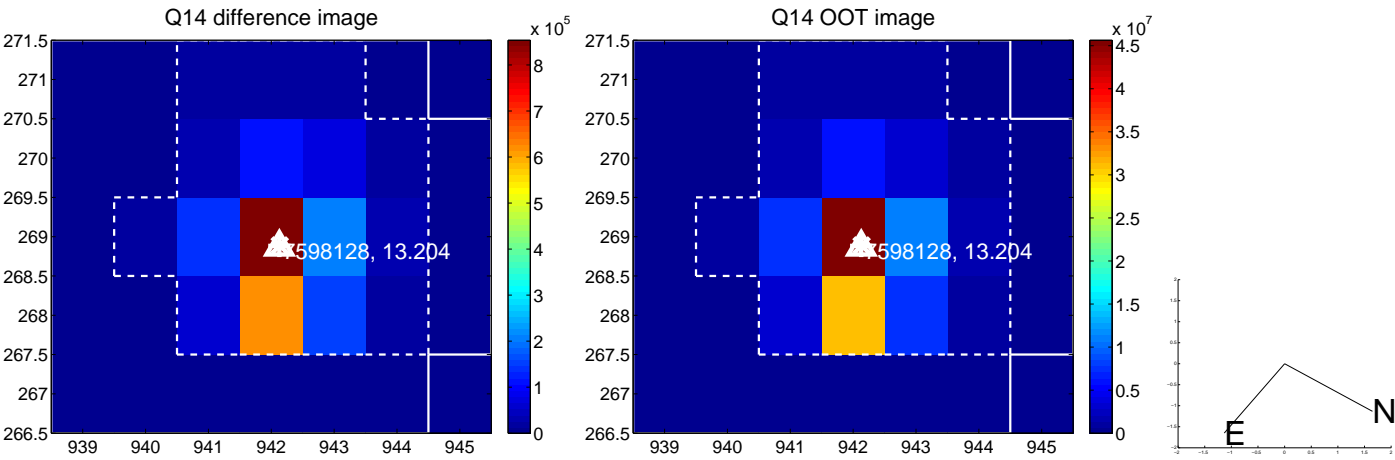
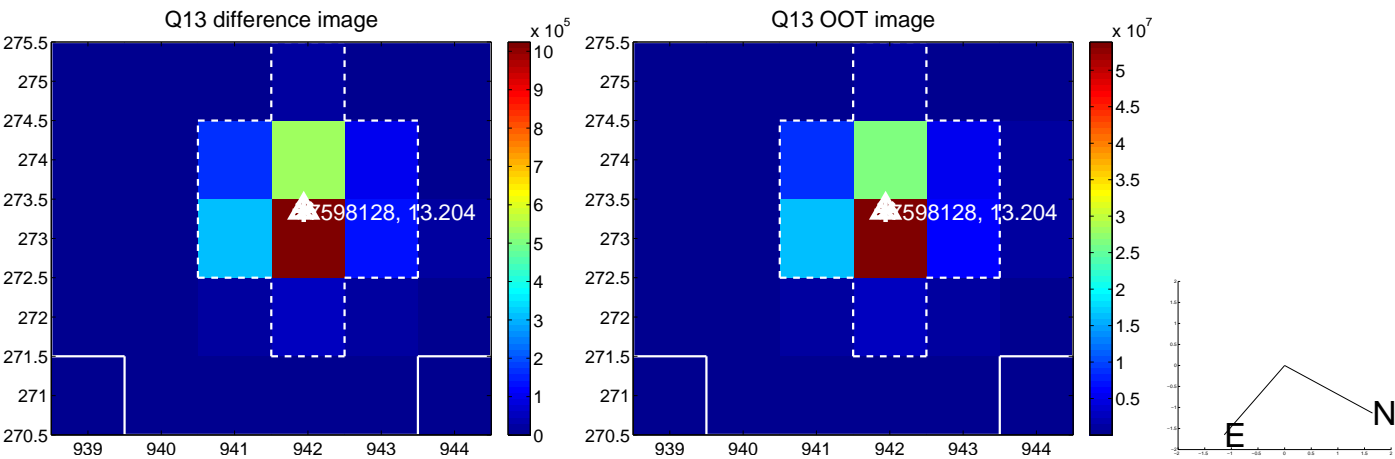
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



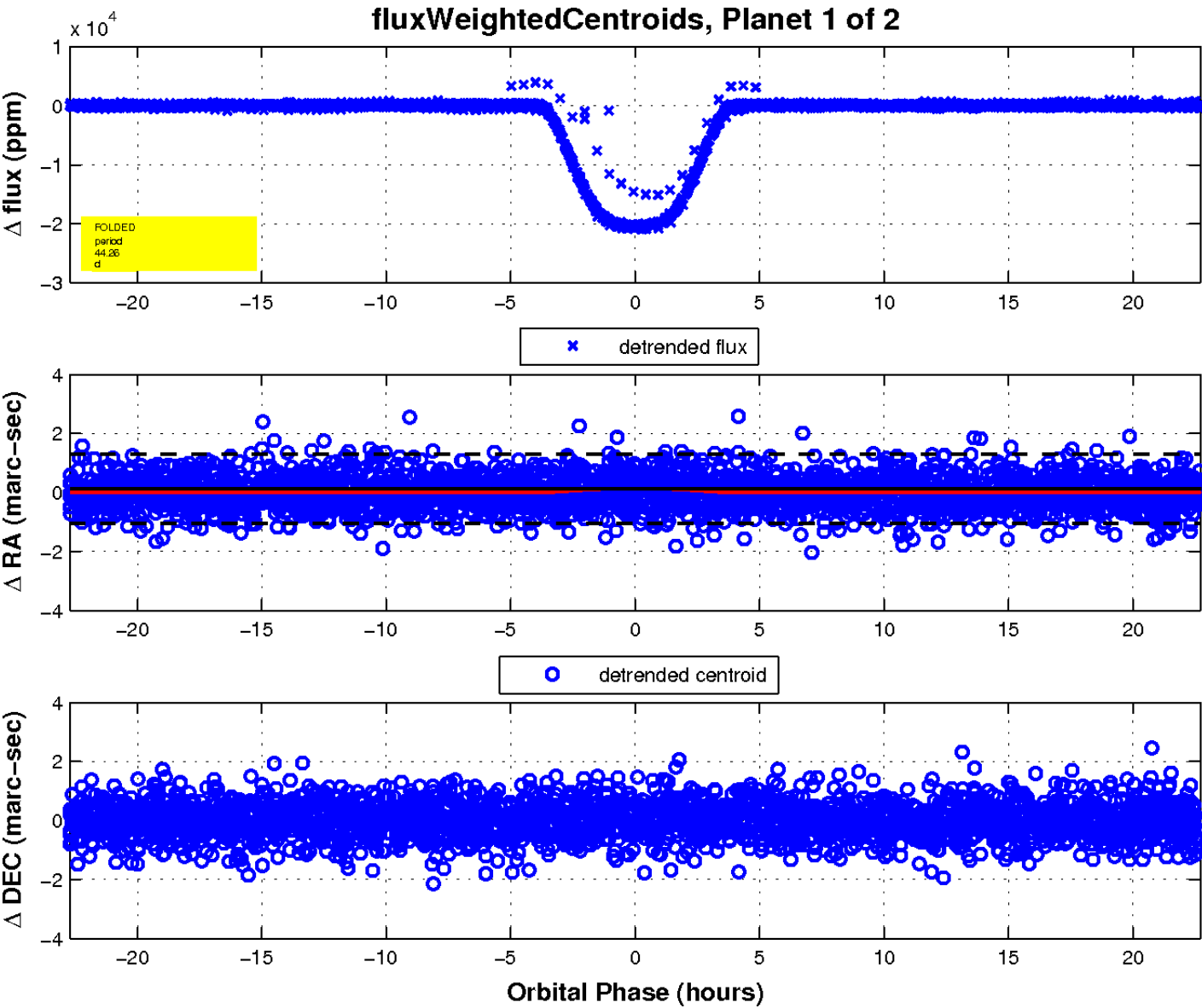
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

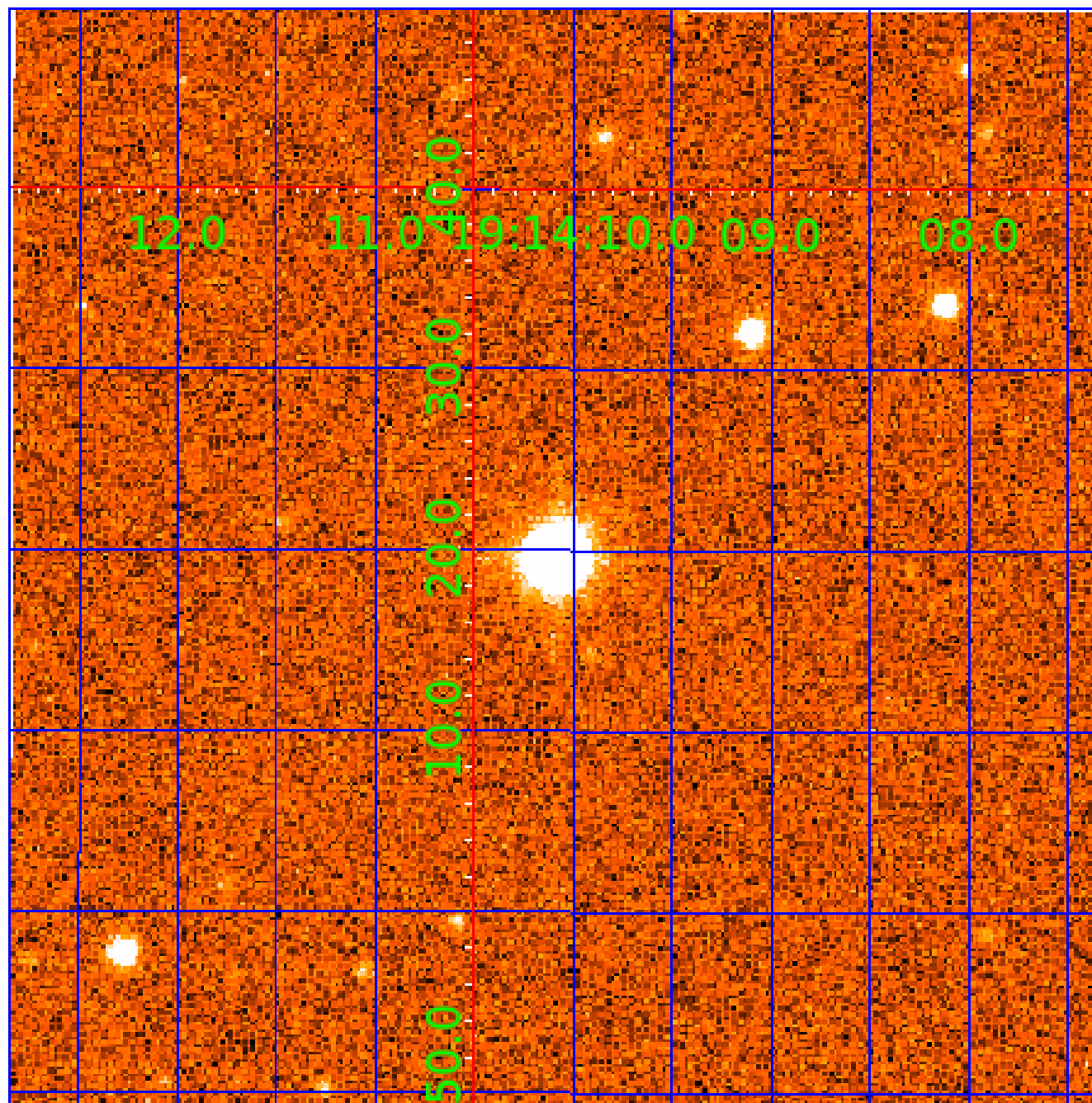


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007598128

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})
007598128-01	OBS	0681.01	44.258165	144.237581	20513.5	7.572	1204.6	1176.6	2.33	6544	37.35	120.60
007598128-02	OBS	No	44.258212	134.692086	273.6	5.450	15.4	16.7	2.33	6544	5.00	120.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007598128-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007598128-02	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.

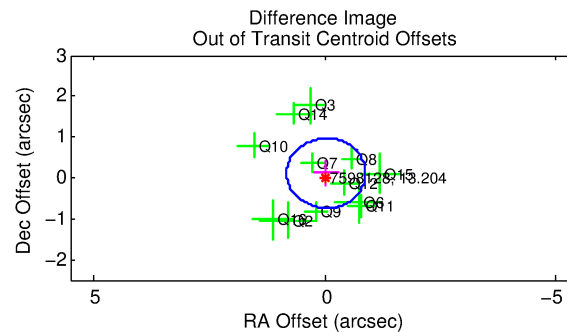
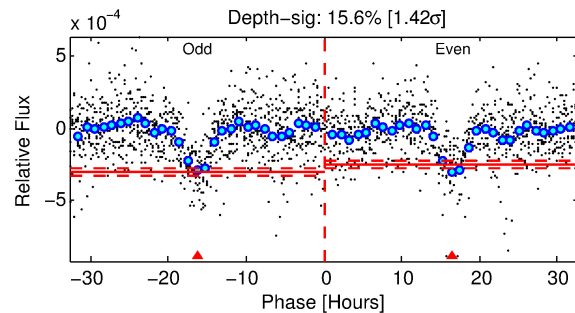
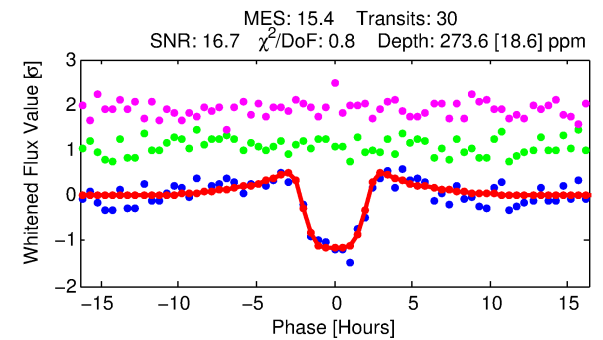
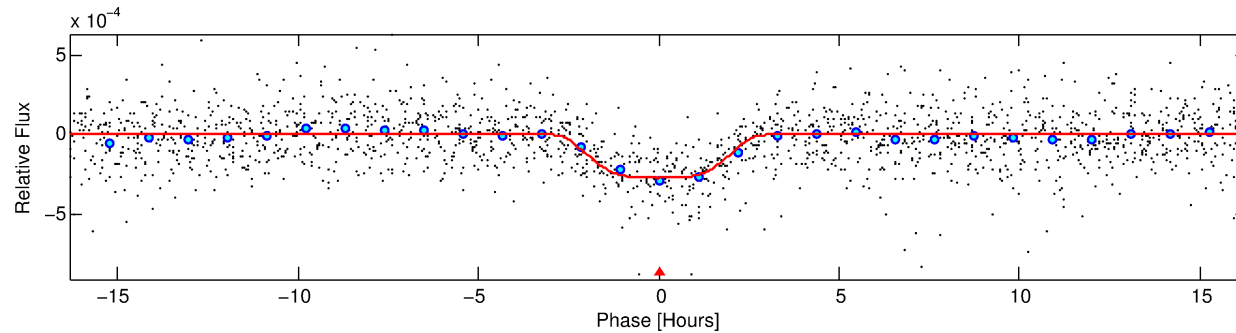
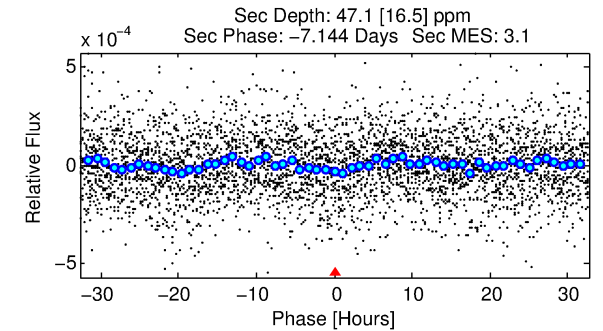
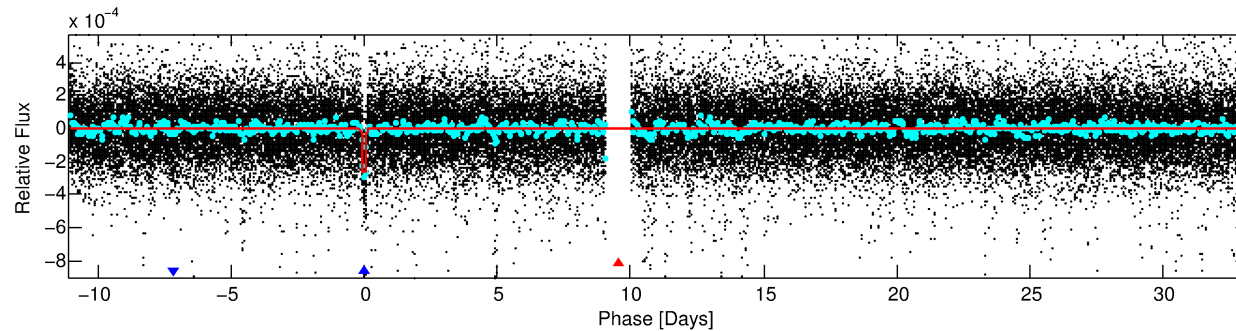
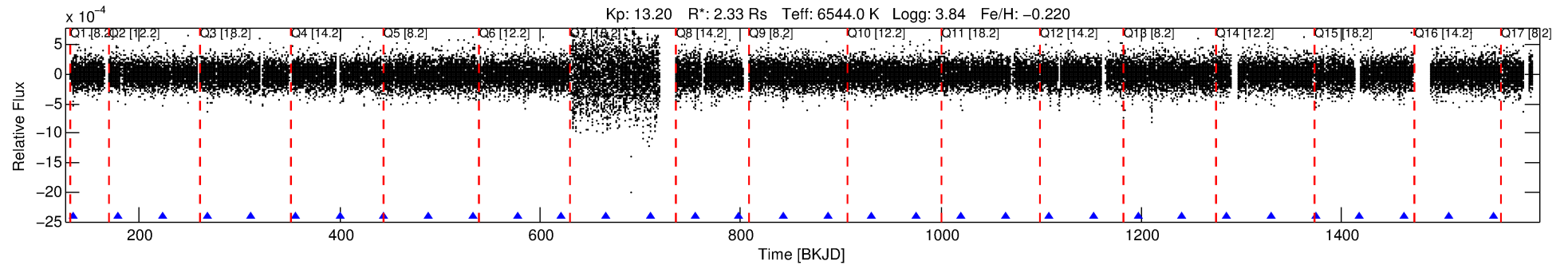
Ephemeris Match Information For 007598128-02

No Significant Match Found

DV One-Page Summary

KIC: 7598128 Candidate: 2 of 2 Period: 44.258 d

KOI: K00681 Corr: No Ephemeris Match



DV Fit Results:

Period = 44.25821 [0.00029] d
Epoch = 134.6921 [0.0053] BKJD
Rp/R* = 0.0197 [0.0009]
a/R* = 18.74 [1.82]
b = 0.97 [0.01]
Seff = 120.60 [62.34]
Teq = 845 [109] K
Rp = 5.00 [1.76] Re
a = 0.2715 [0.0878] AU
Ag = 76.28 [47.35] [1.59σ]
Teffp = 3861 [364] K [7.94σ]

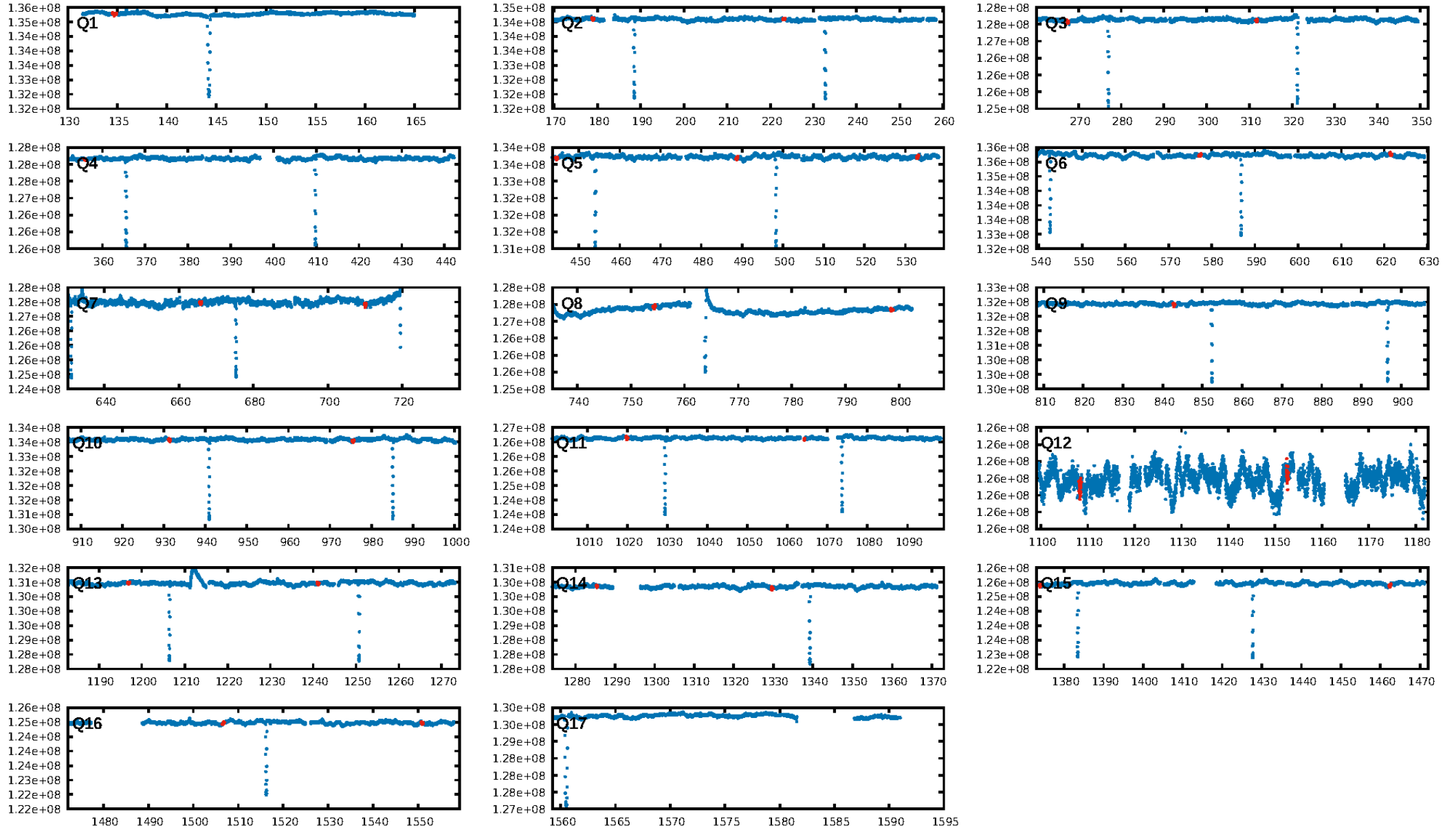
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.52e-53
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: 6.648
Centroid-sig: N/A
Centroid-so: 1.075 arcsec [2.44σ]
OotOffset-rm: 0.119 arcsec [0.42σ]
KicOffset-rm: 0.092 arcsec [0.32σ]
OotOffset-st: 4/4/3/1 [12]
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DiffImageOverlap-fno: 1.00 [15/15]

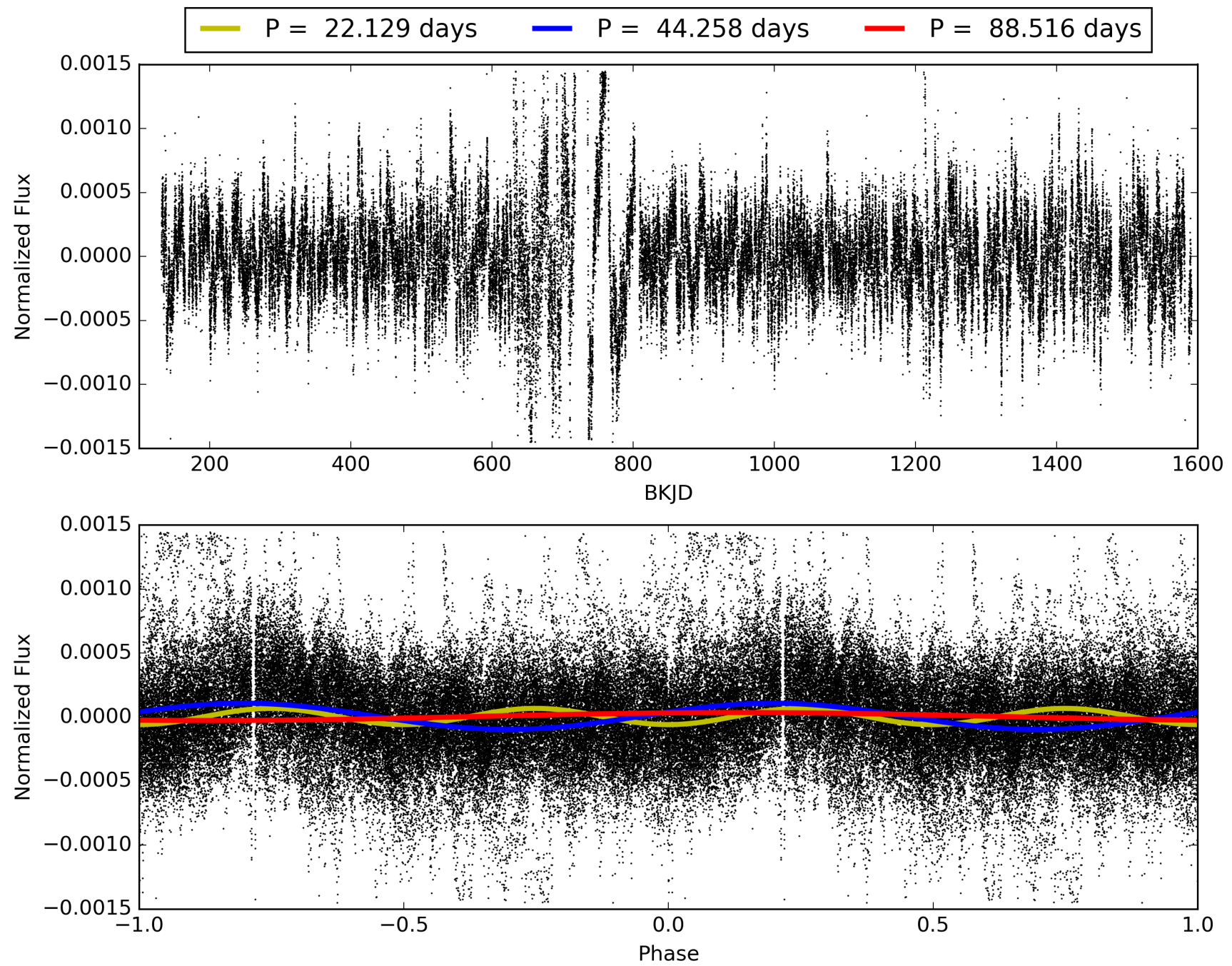
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007598128-02, PDC Light Curves

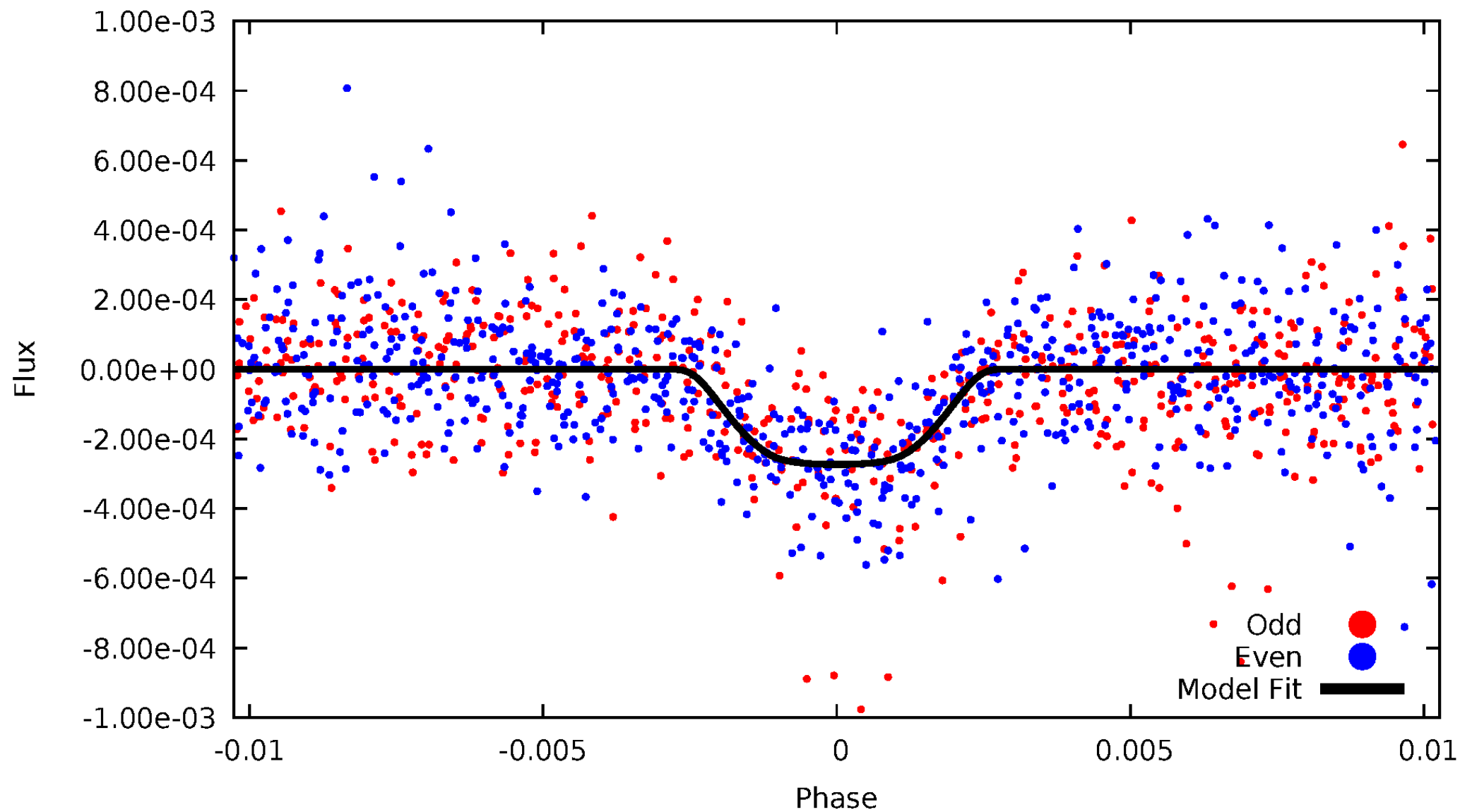


TCE 007598128-02



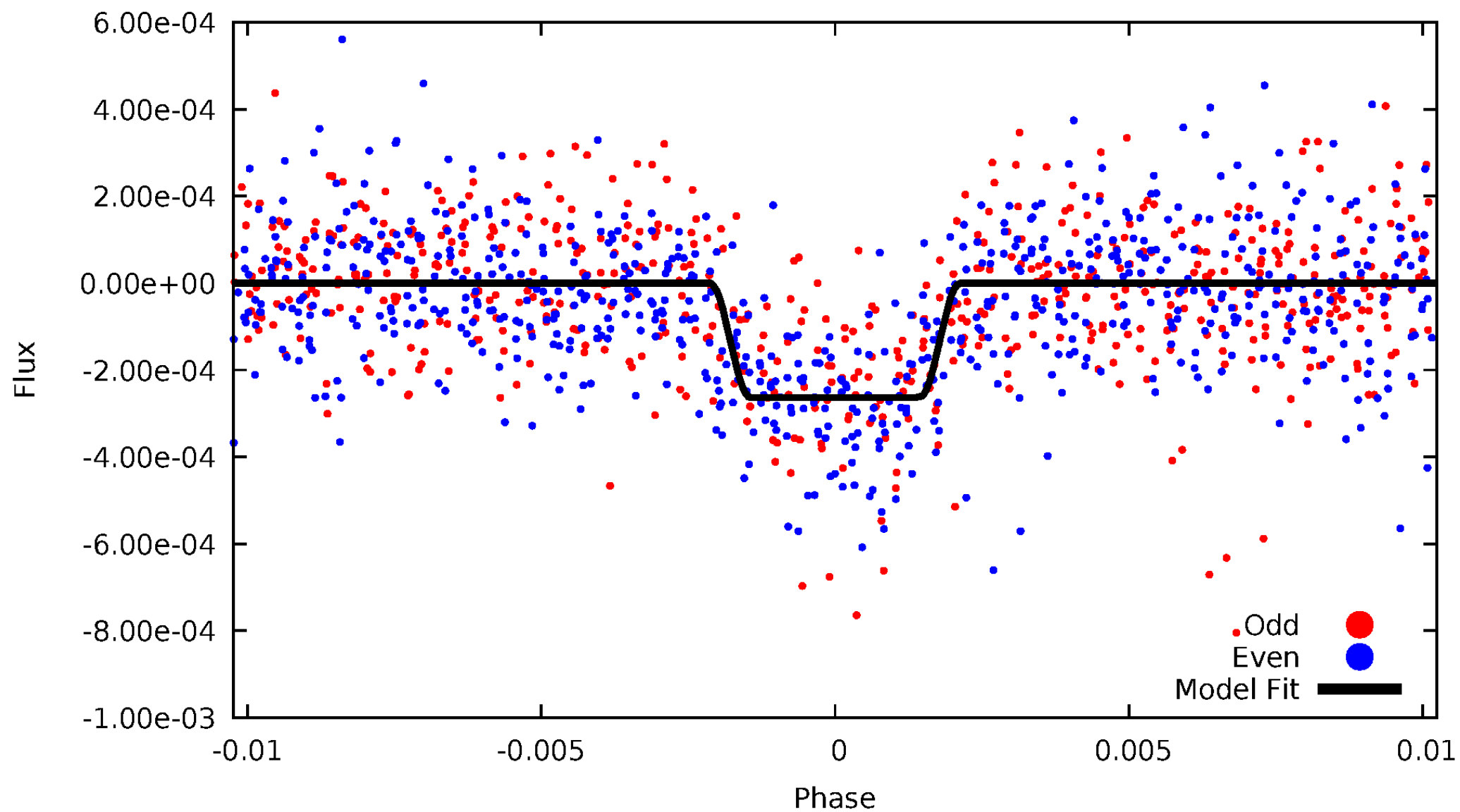
DV Odd/Even

TCE 007598128-02



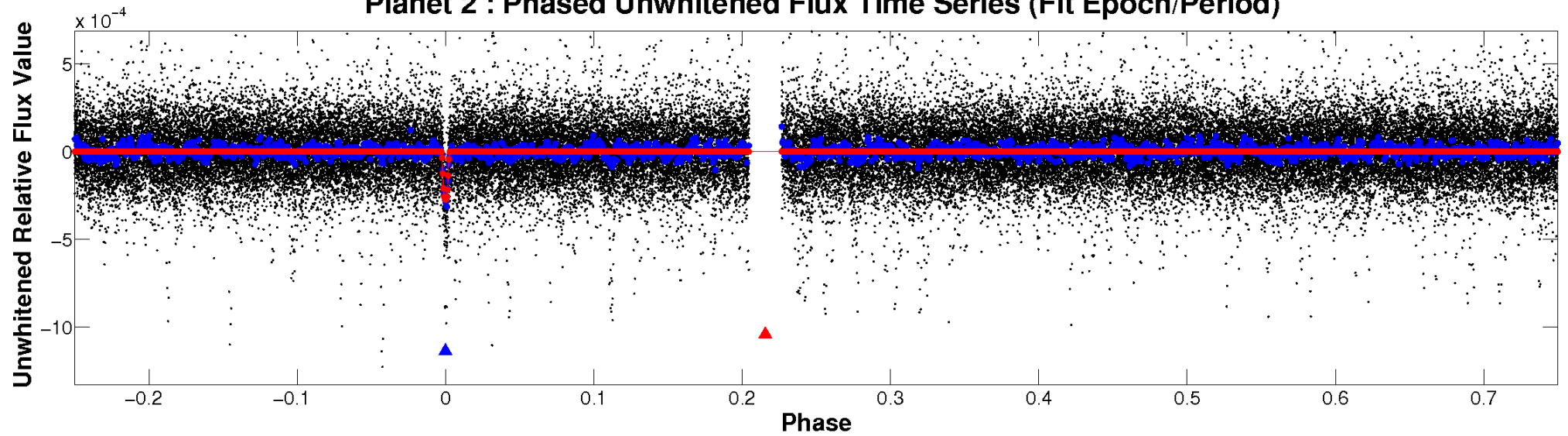
ALT Odd/Even

TCE 007598128-02

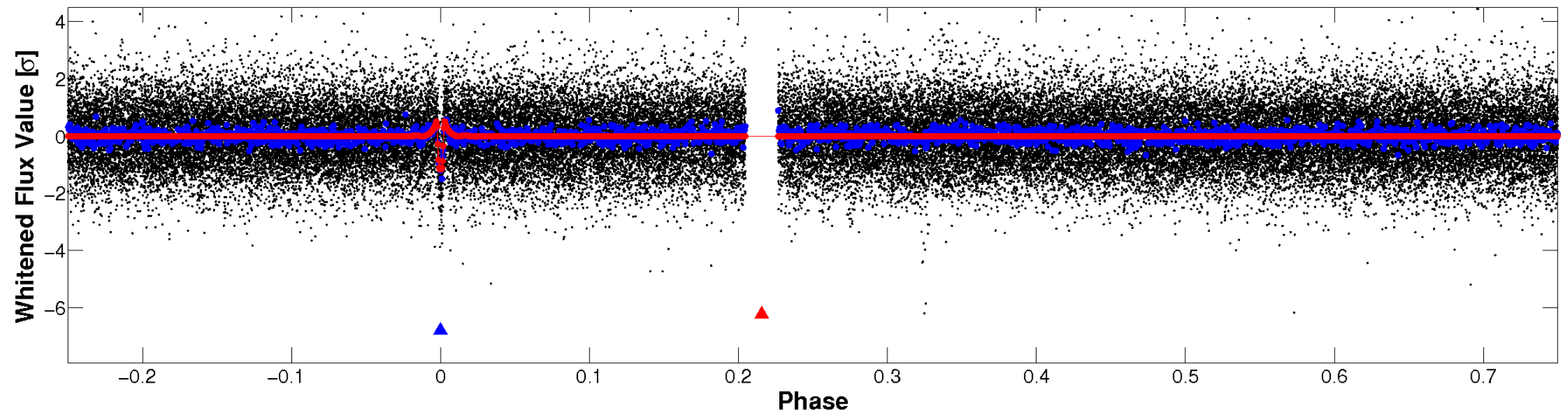


Non-Whitened Vs. Whitened Light Curve

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

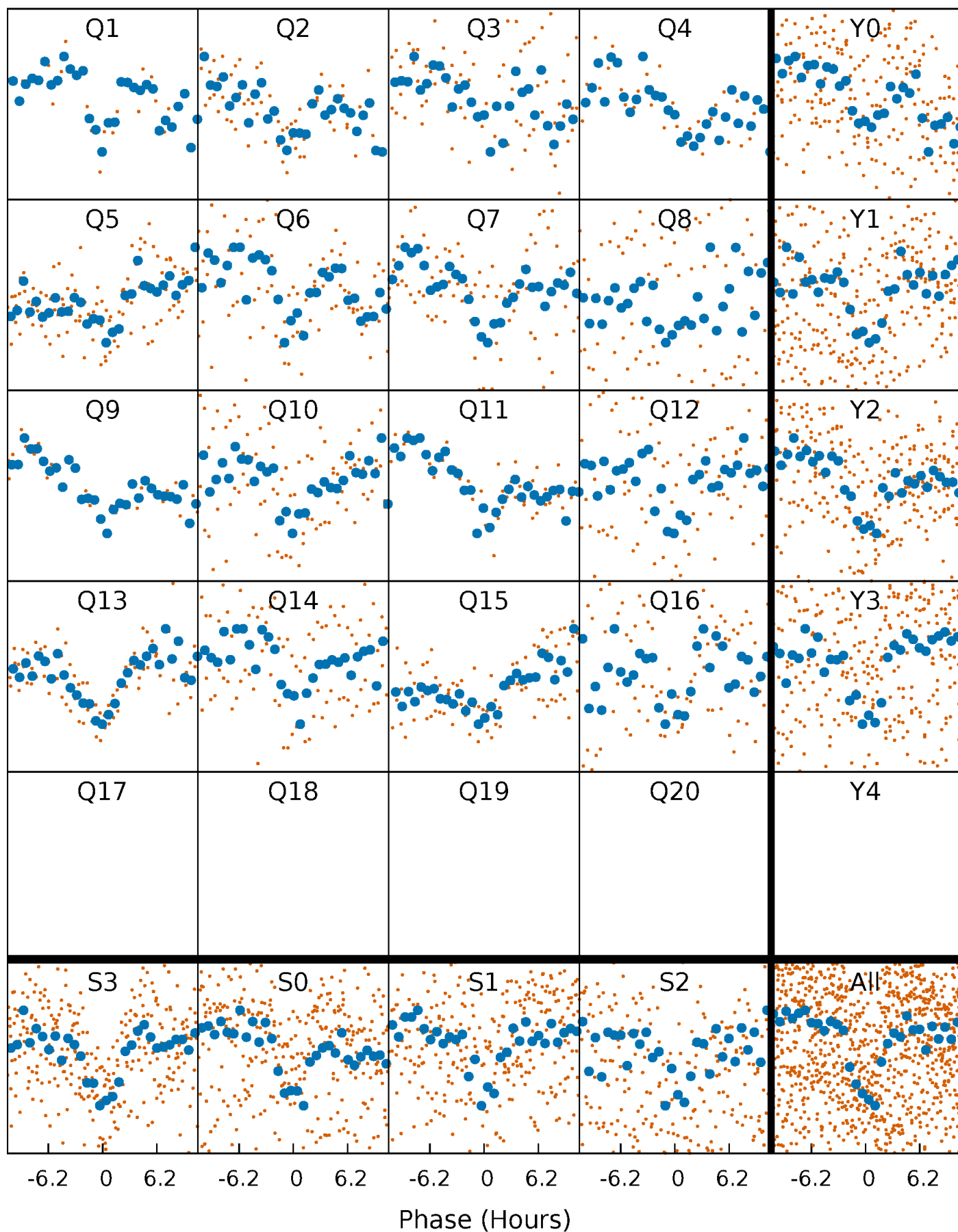


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



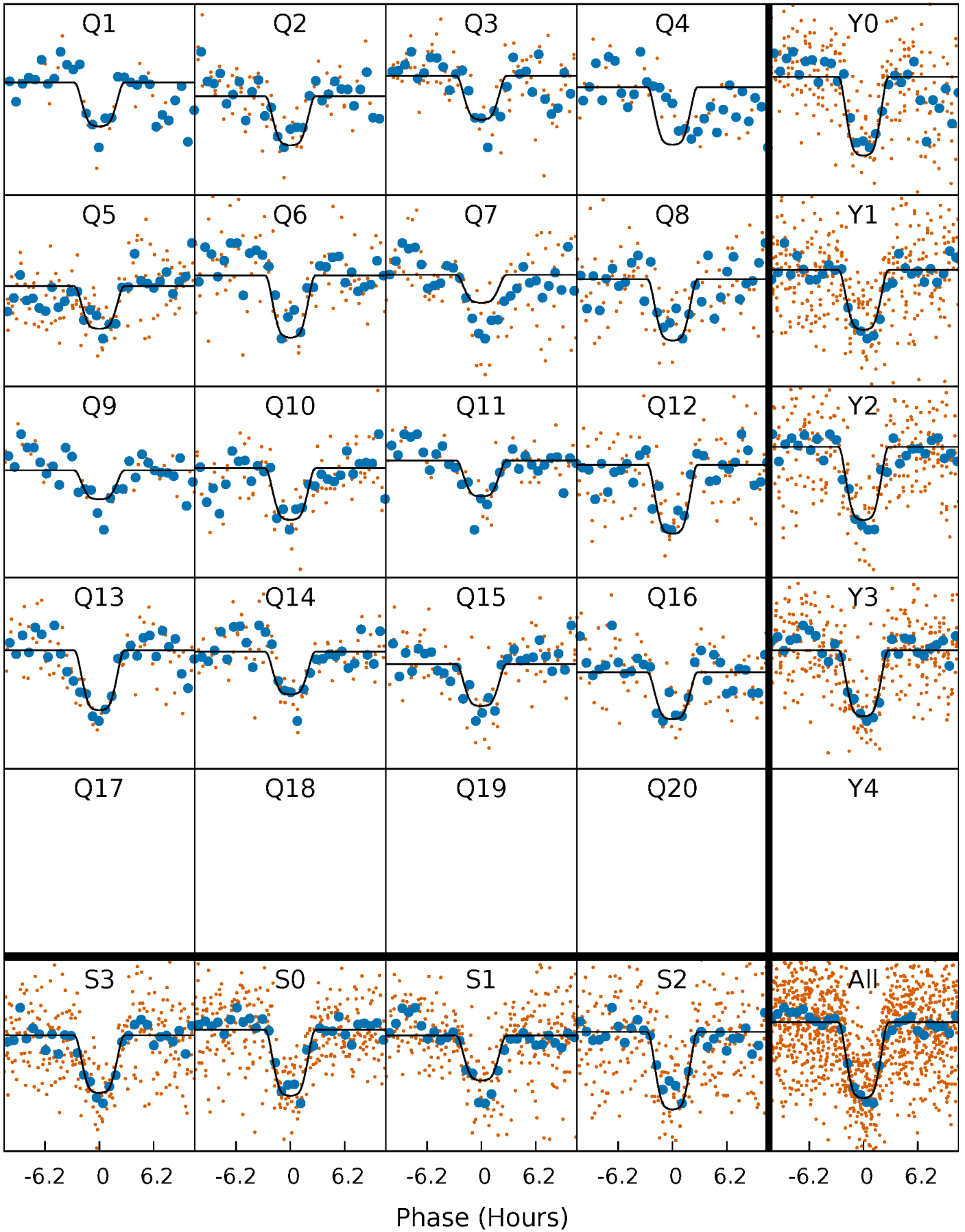
PDC Quarter-Phased Transit Curves

TCE 007598128-02 P= 44.258212 Days $T_0=134.692086$ (BKJD)



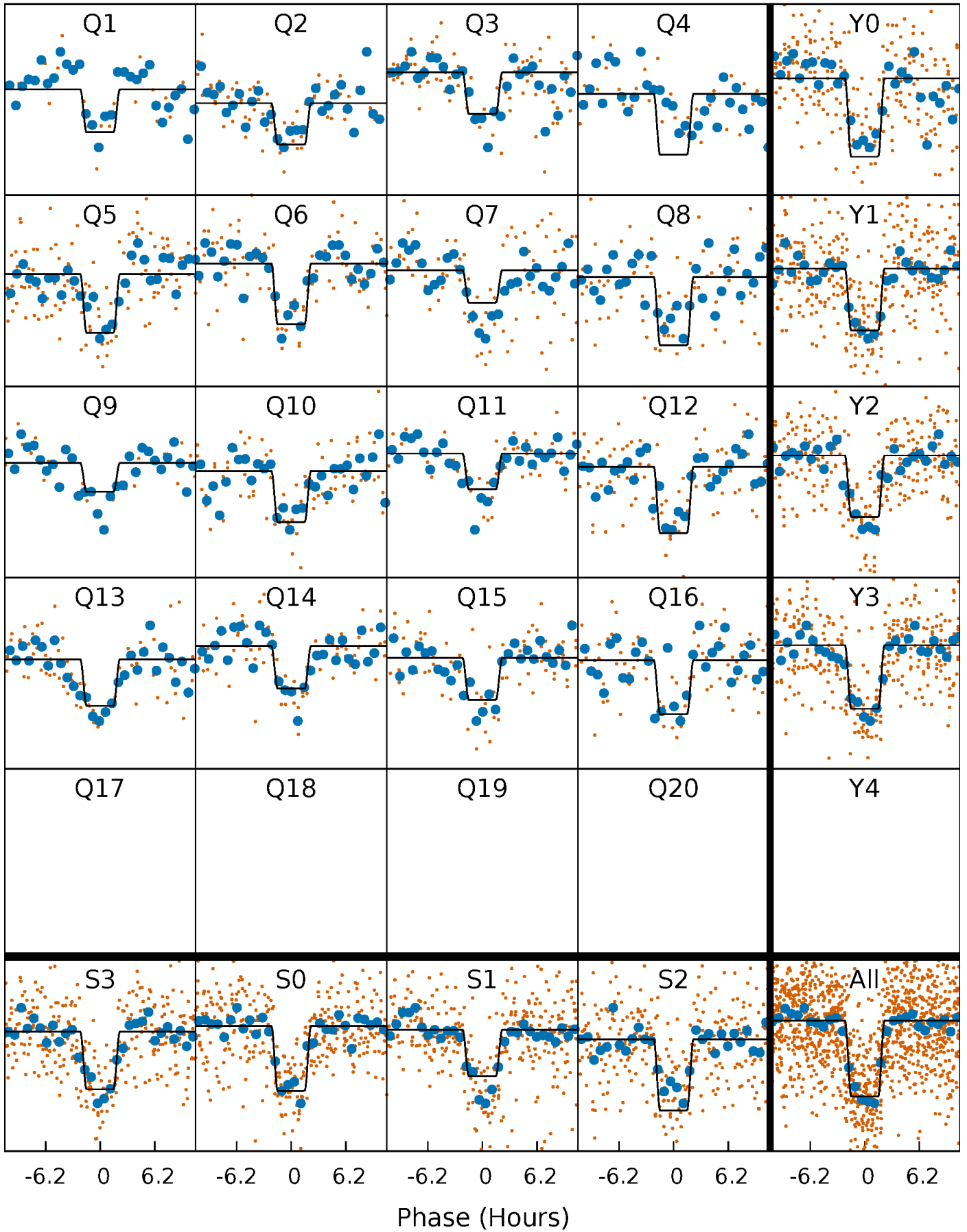
DV Quarter-Phased Transit Curves

TCE 007598128-02 P= 44.258212 Days $T_0=134.692086$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

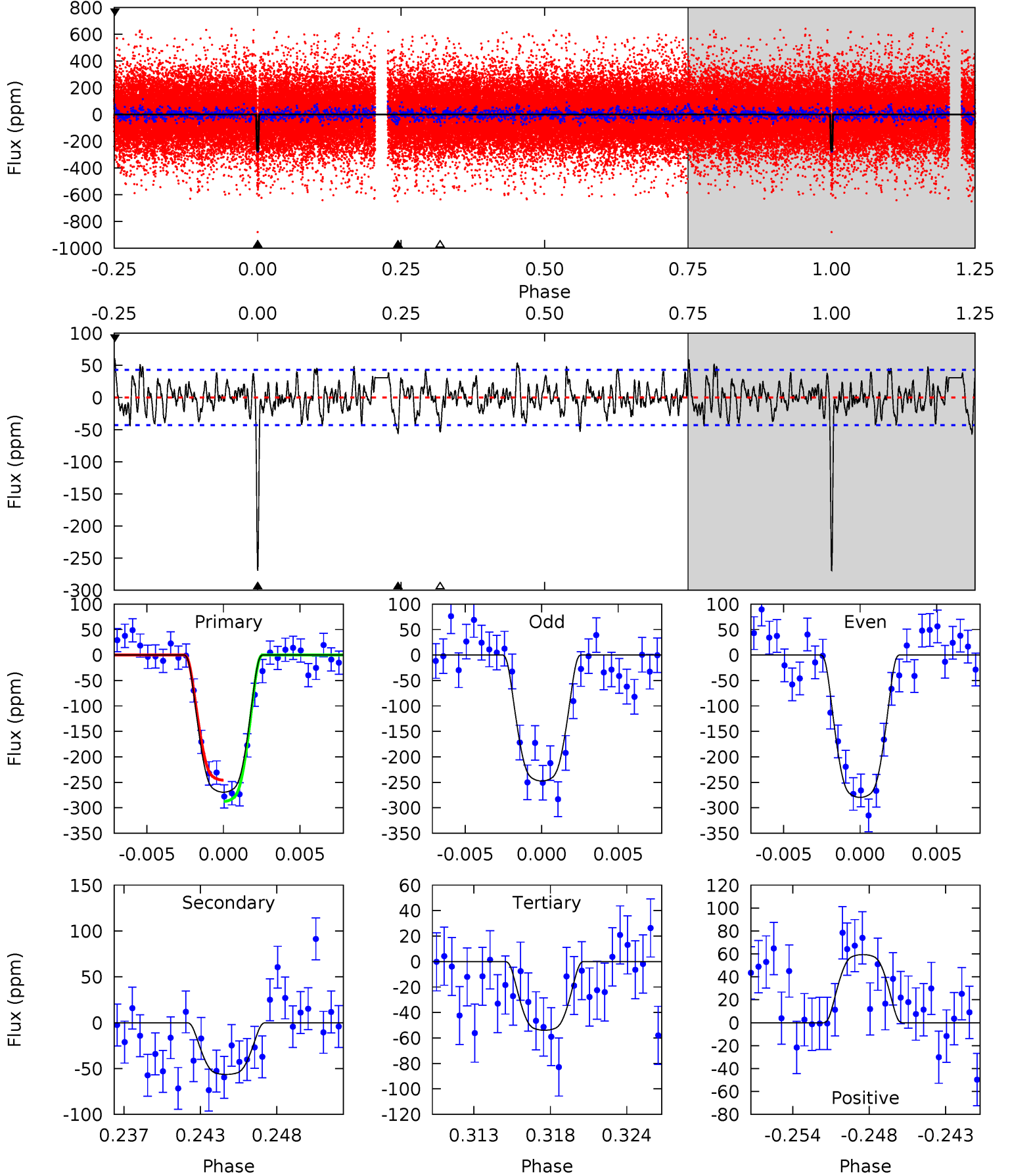
TCE 007598128-02 P= 44.258131 Days $T_0=134.695230$ (BKJD)



DV Model-Shift Uniqueness Test

007598128-02, P = 44.258212 Days, E = 90.433874 Days

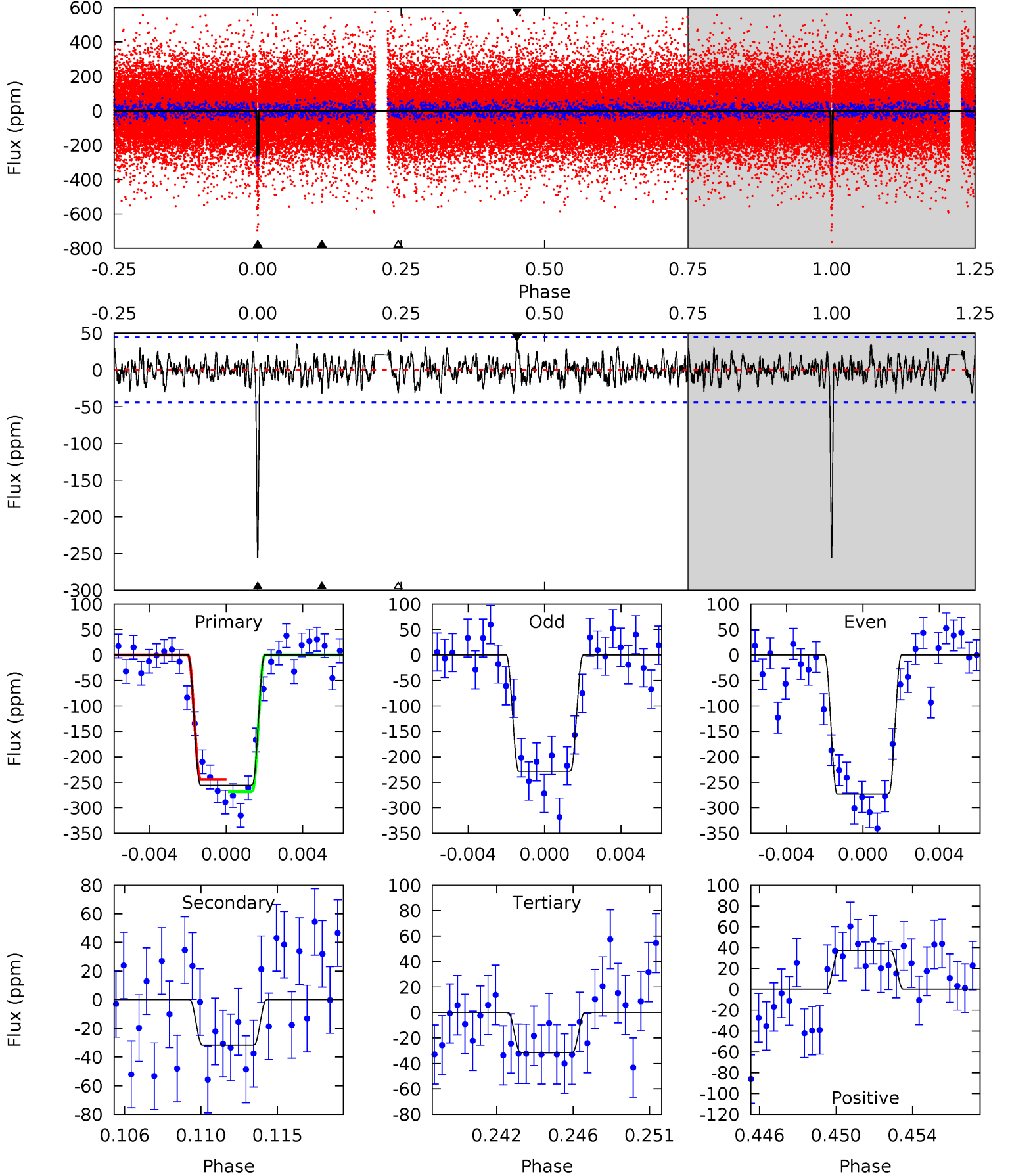
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.1	6.73	6.44	7.08	5.14	2.78	2.18	25.7	25.1	0.30	-0.35	1.91	1.02	0.18	2.50



Alt Model-Shift Uniqueness Test

007598128-02, P = 44.258131 Days, E = 90.437099 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	3.70	3.68	4.34	5.19	2.86	1.38	26.2	25.6	0.02	-0.65	2.60	1.00	0.13	1.40



Stellar Parameters For KIC 007598128

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6544^{+162}_{-179}	$3.839^{+0.292}_{-0.097}$	$-0.220^{+0.300}_{-0.250}$	$2.326^{+0.438}_{-0.813}$	$1.364^{+0.233}_{-0.257}$	$0.153^{+0.309}_{-0.046}$
	+2%/-3%	+8%/-3%	+136%/-114%	+19%/-35%	+17%/-19%	+202%/-30%
Source	PHO1	FLK73	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 007598128-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-56 ± 8	$4.93^{+0.62}_{-0.94}$	1162^{+67}_{-95}	4278^{+155}_{-166}	98^{+42}_{-24}
Alt.	-32 ± 9	$4.03^{+0.51}_{-0.76}$	1159^{+66}_{-90}	4112^{+230}_{-243}	82^{+38}_{-27}

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 $A_{obs} \gg 1.0$

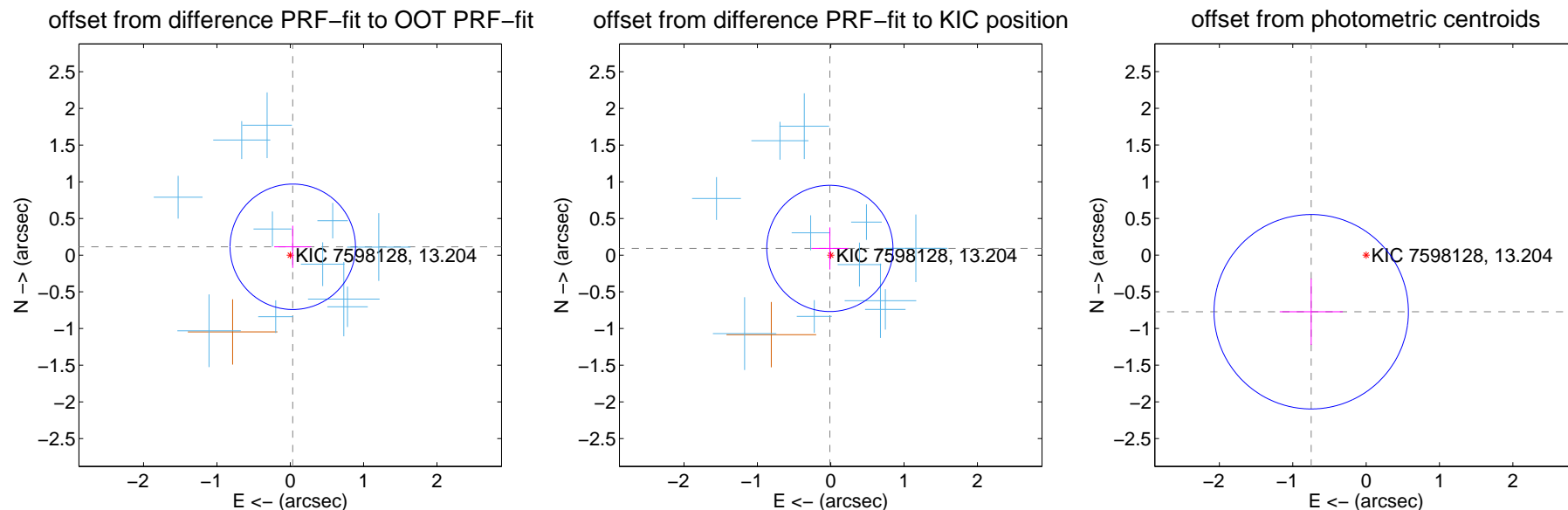
DV Centroid Data

Supplemental centroid analysis for 007598128-02. Kepler magnitude: 13.20. Transit SNR 16.72

There are 11 quarters with good PRF difference image offsets

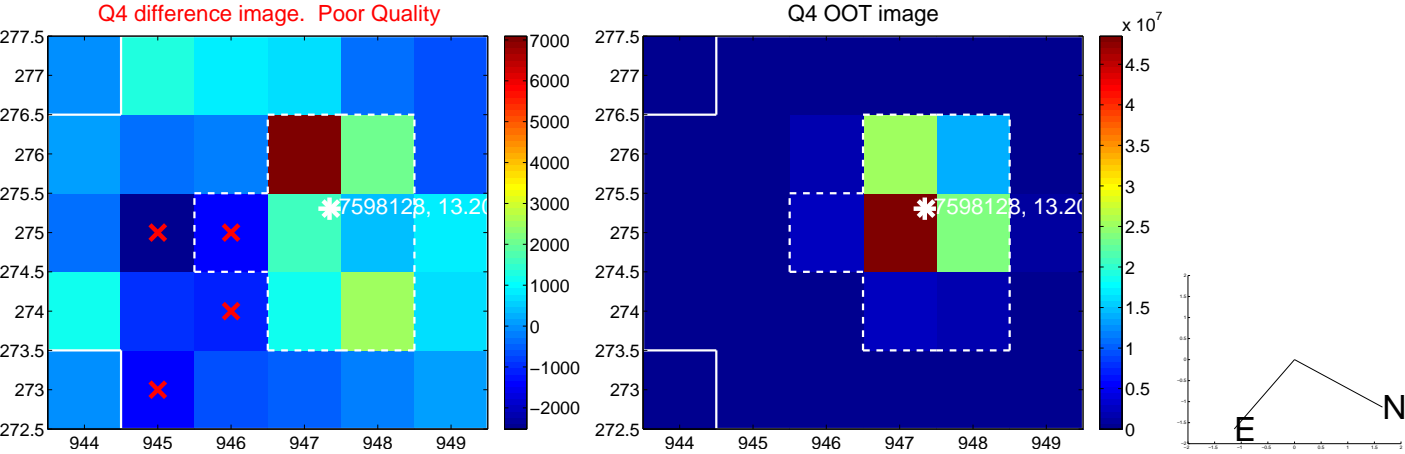
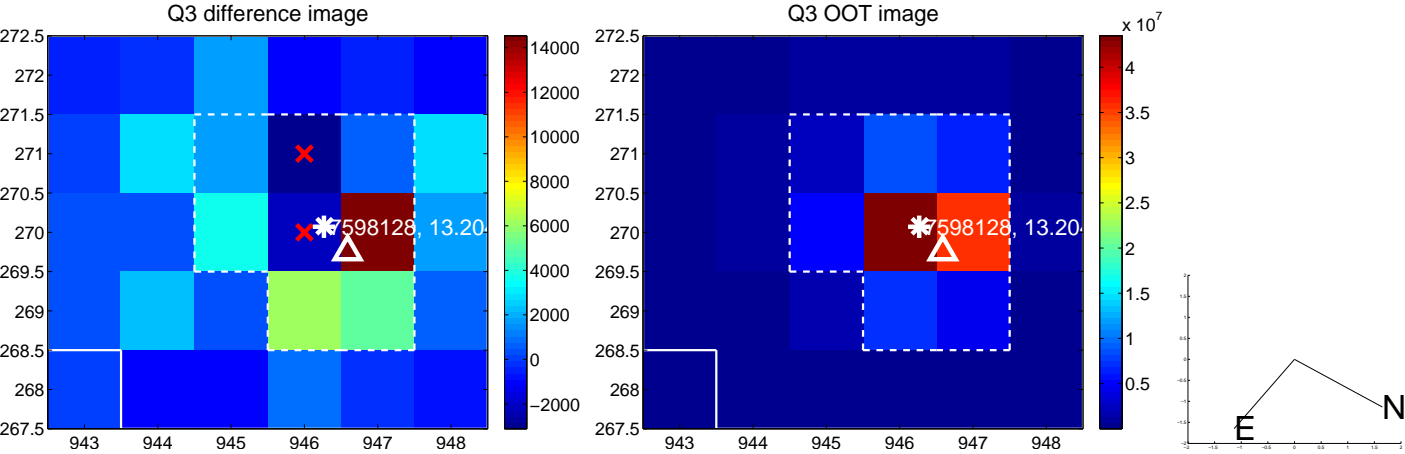
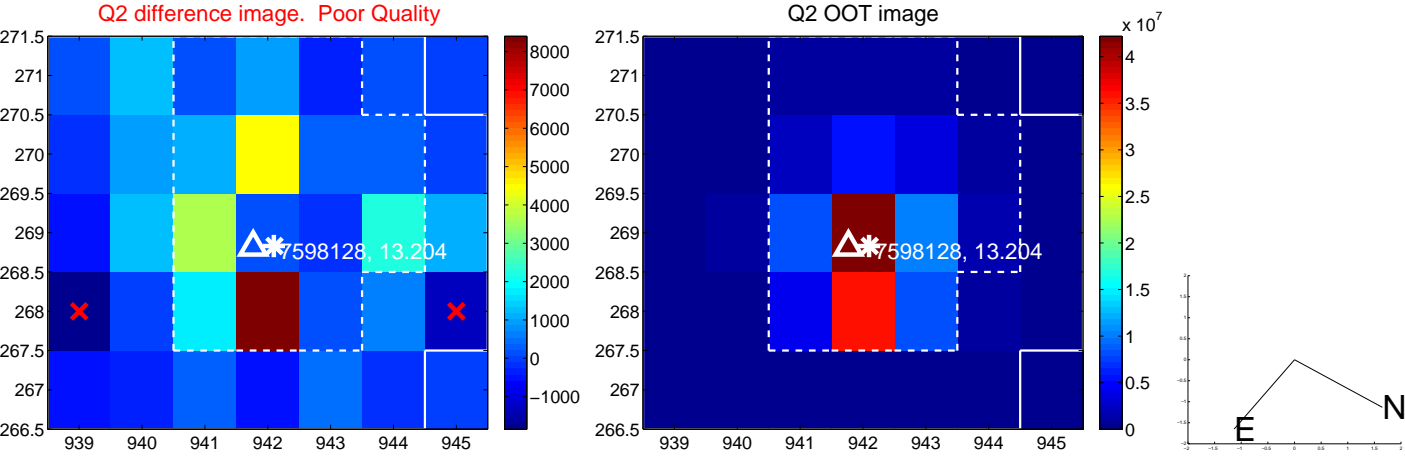
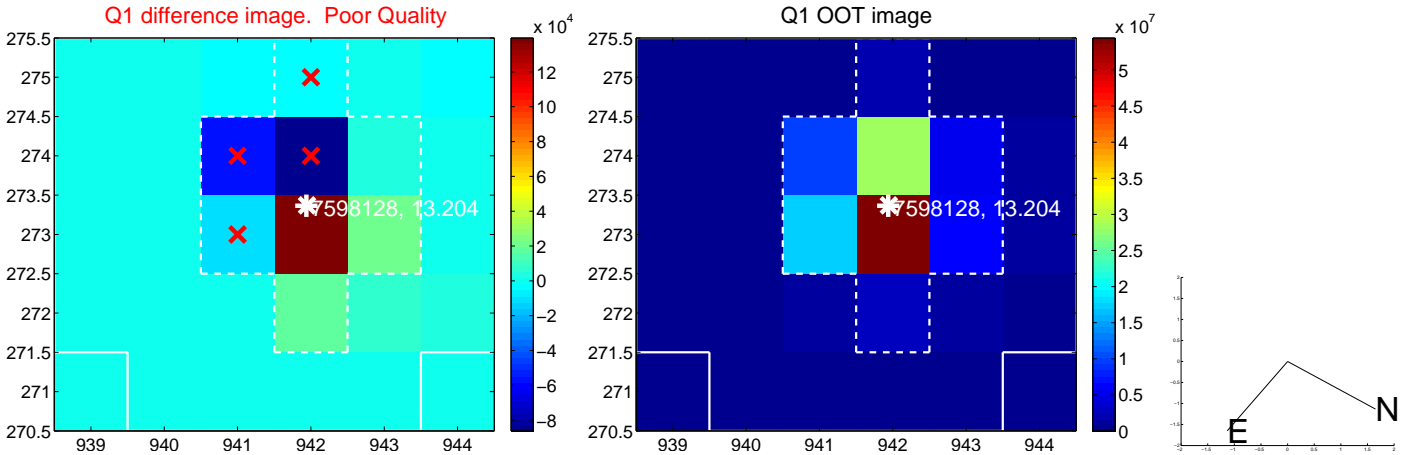
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.119 ± 0.285	0.42	-0.034 ± 0.252	0.114 ± 0.288
PRF-fit source offset from KIC position	0.092 ± 0.287	0.32	0.012 ± 0.248	0.092 ± 0.287
photometric centroid source offset	1.08 ± 0.44	2.44	0.75 ± 0.43	-0.77 ± 0.45

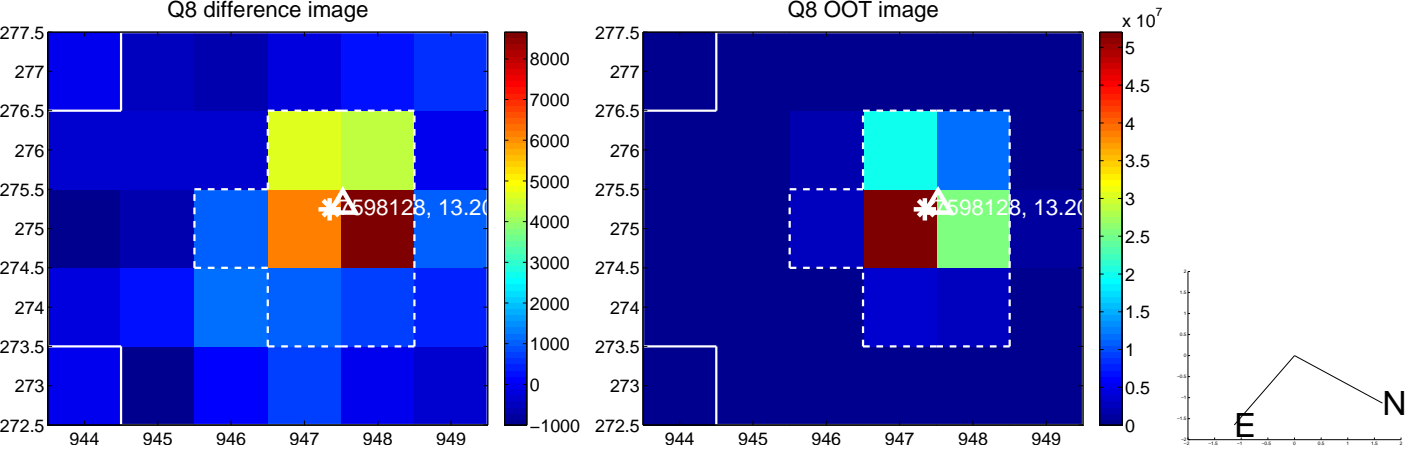
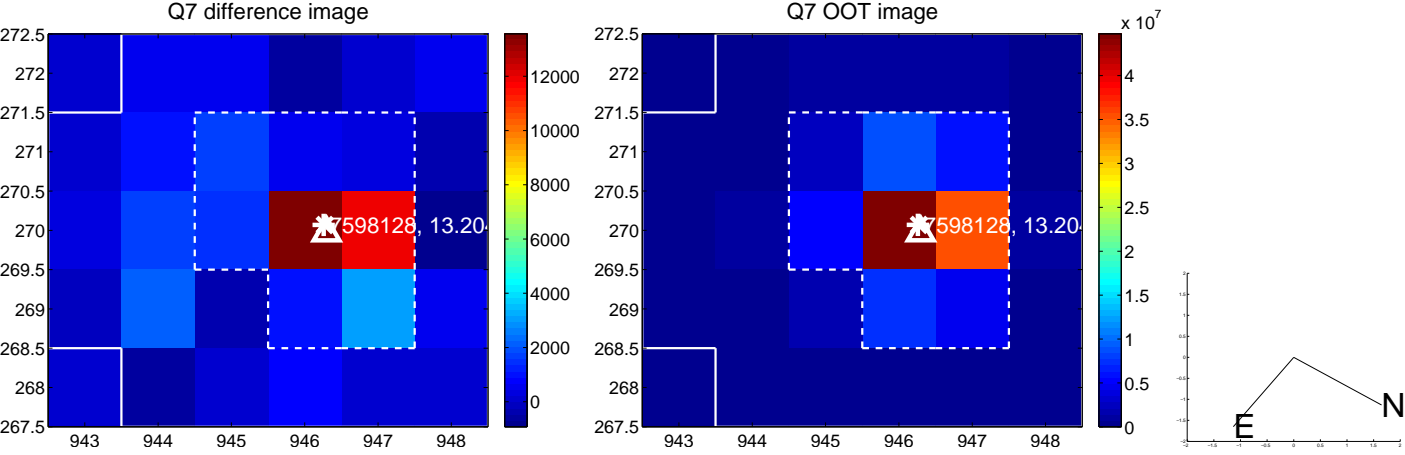
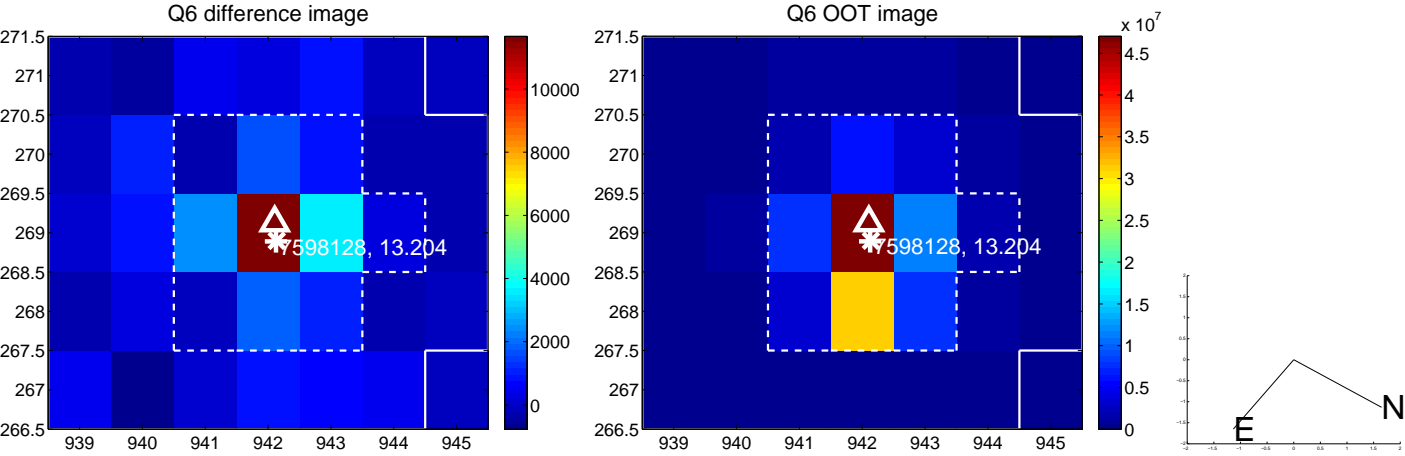
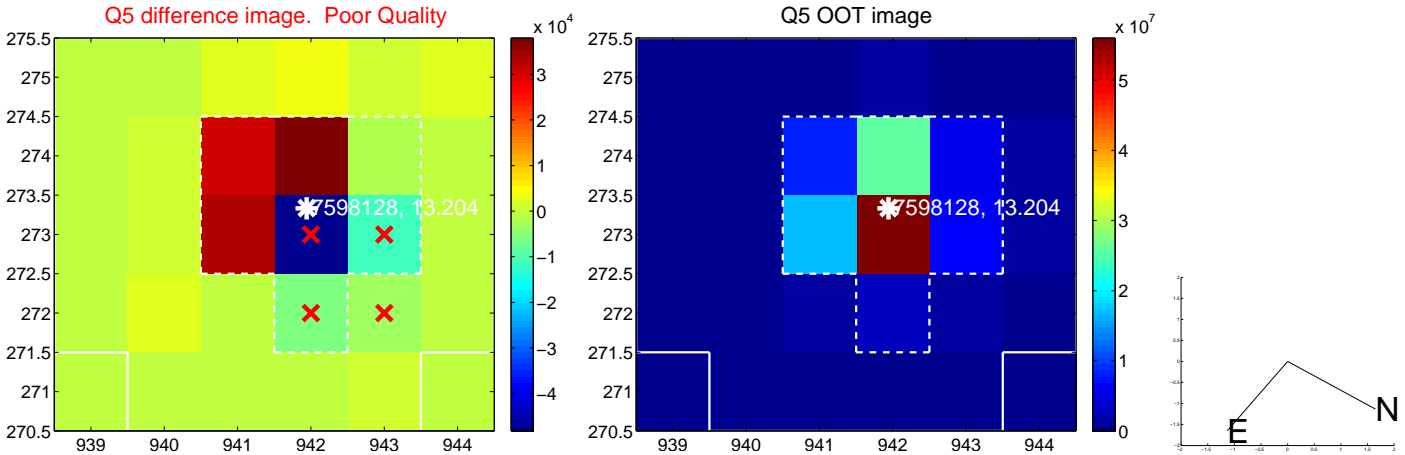


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

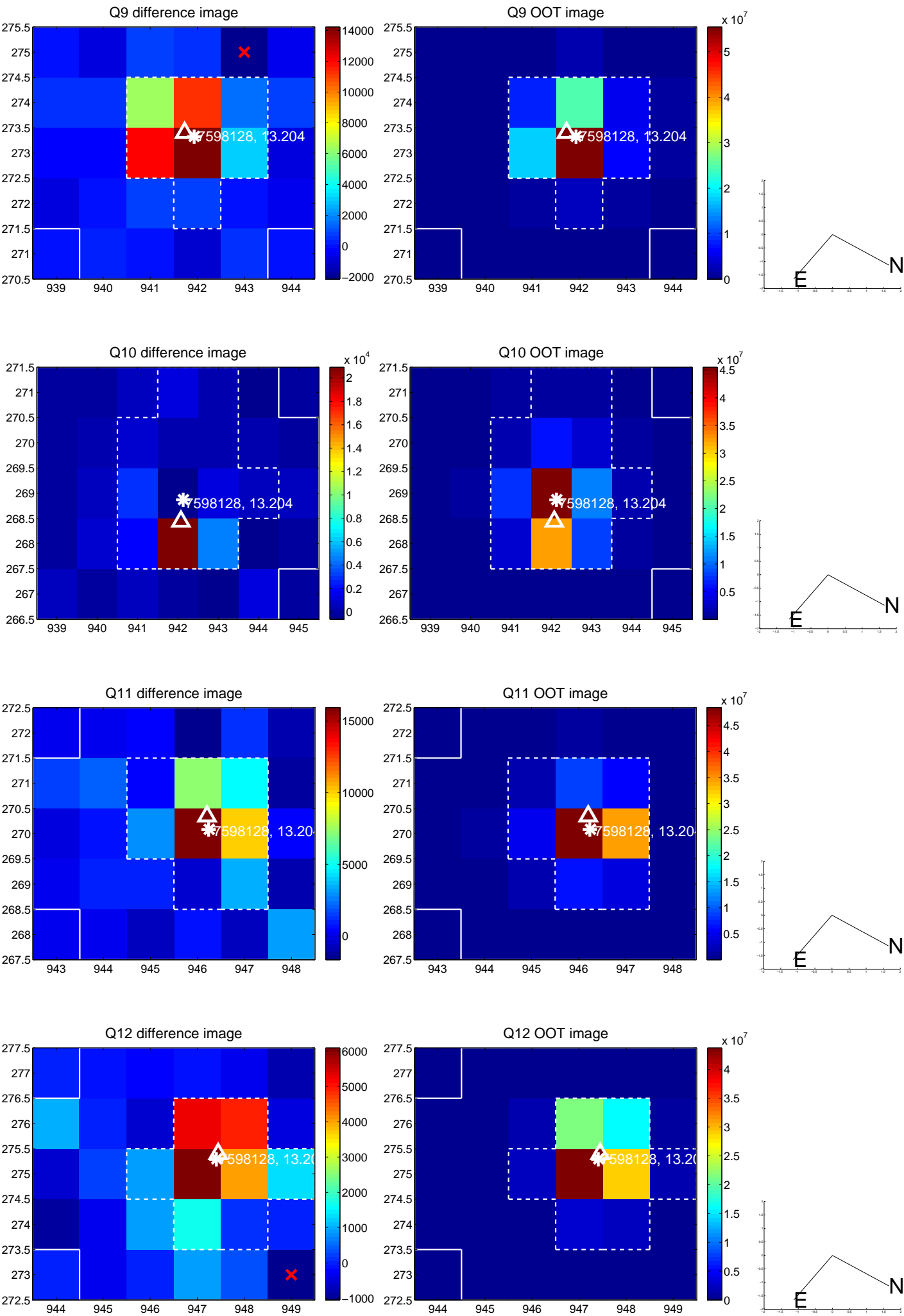
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



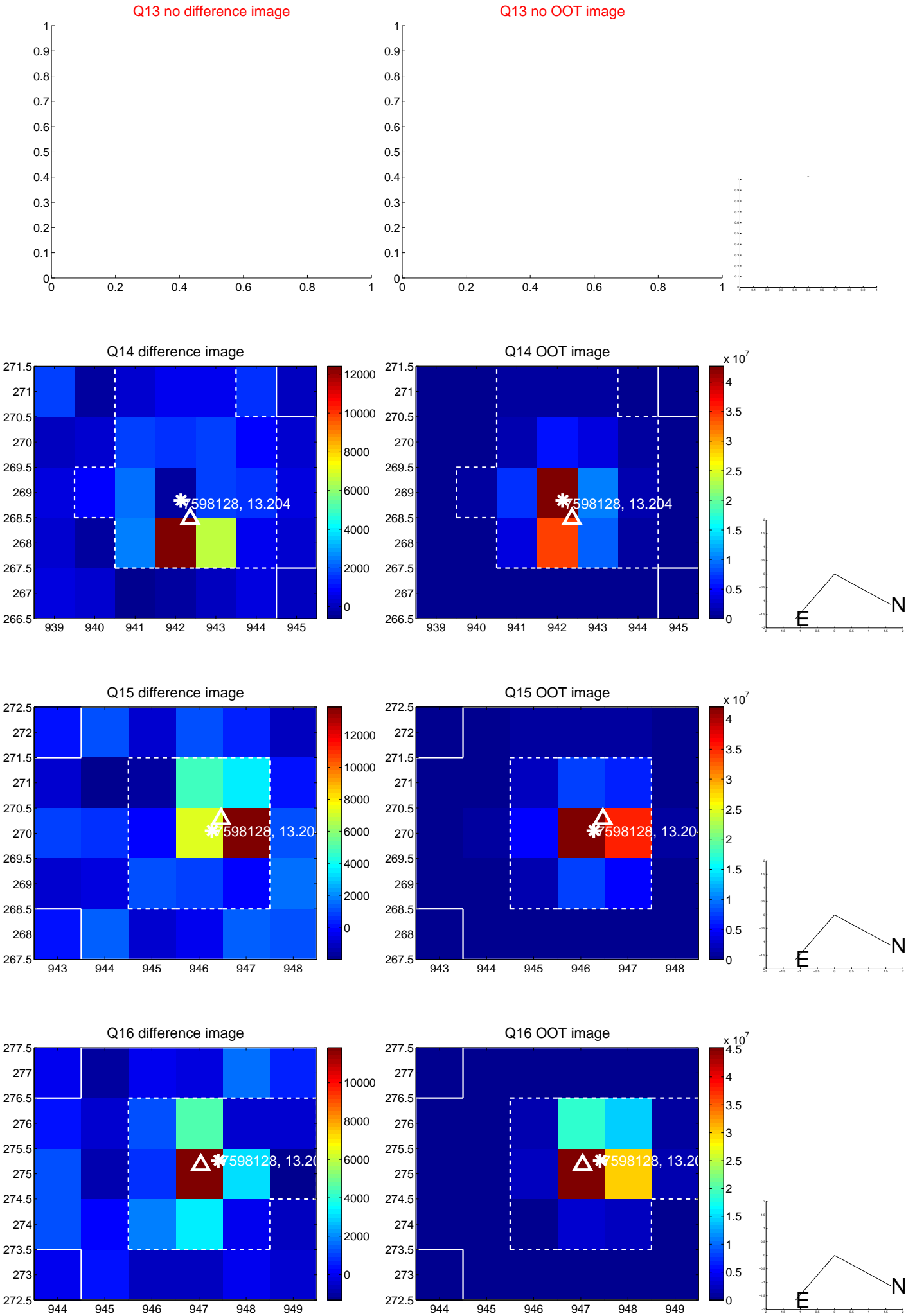
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



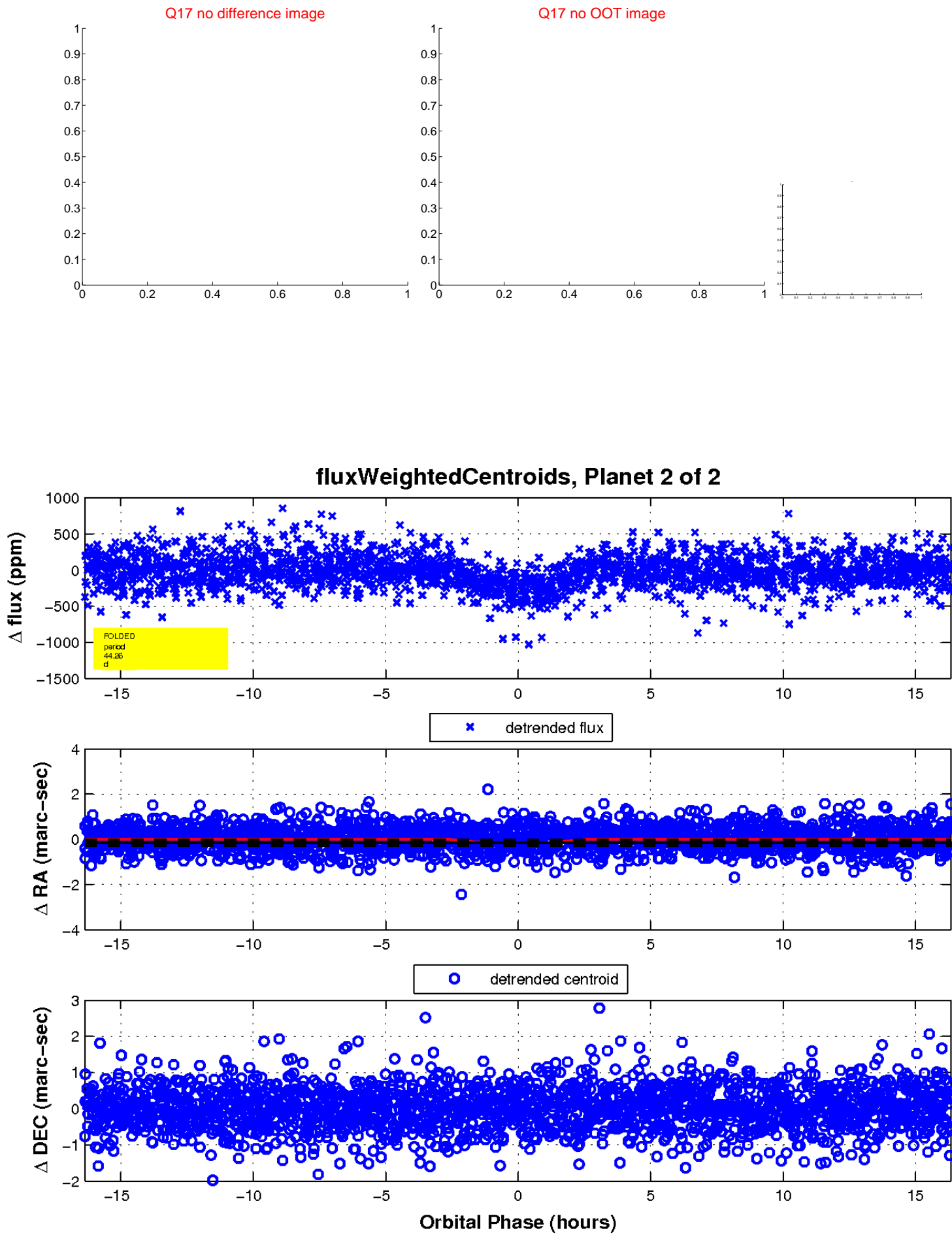
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

