

KIC 002854948

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})
002854948-01	OBS	No	1.461354	132.927410	150.4	4.182	154.6	4.6	0.79	5688	1.82	1006.18
002854948-02	OBS	3786.01	0.974303	132.389119	51467.9	1.500	435.6	-1.0	0.79	5688	17.85	1727.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002854948-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
002854948-02	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—CENT_NOFITS

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.

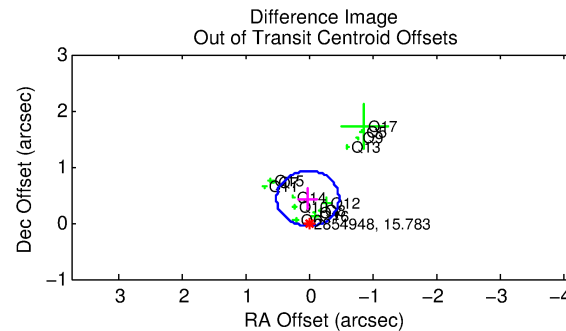
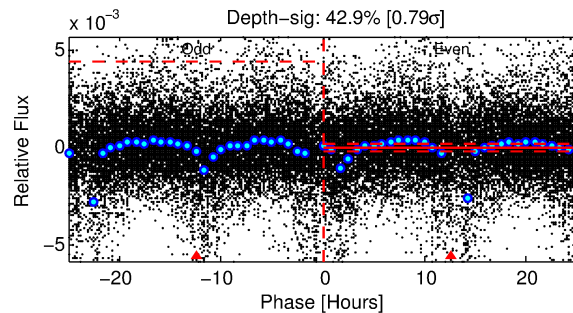
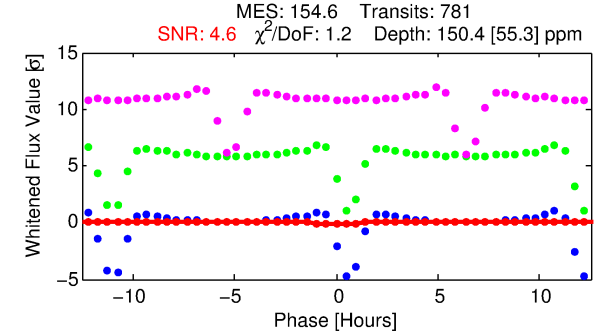
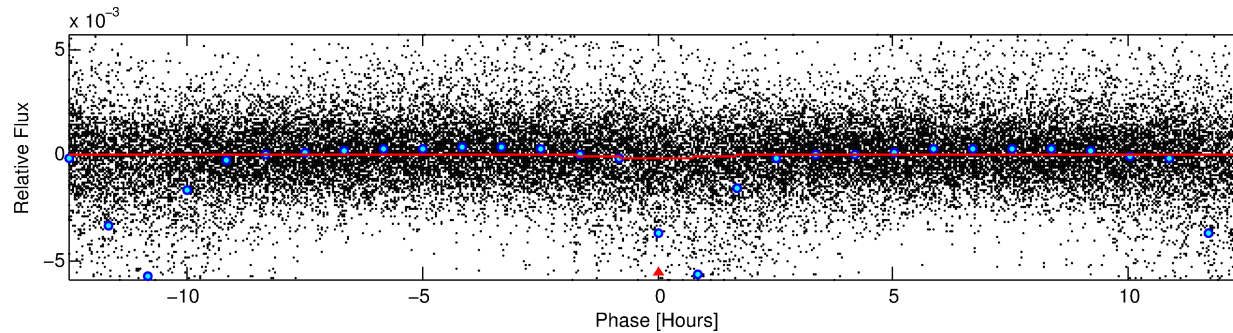
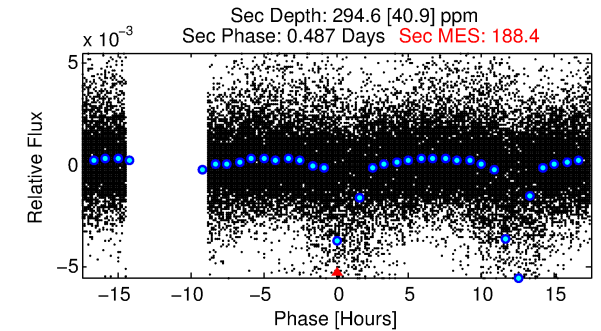
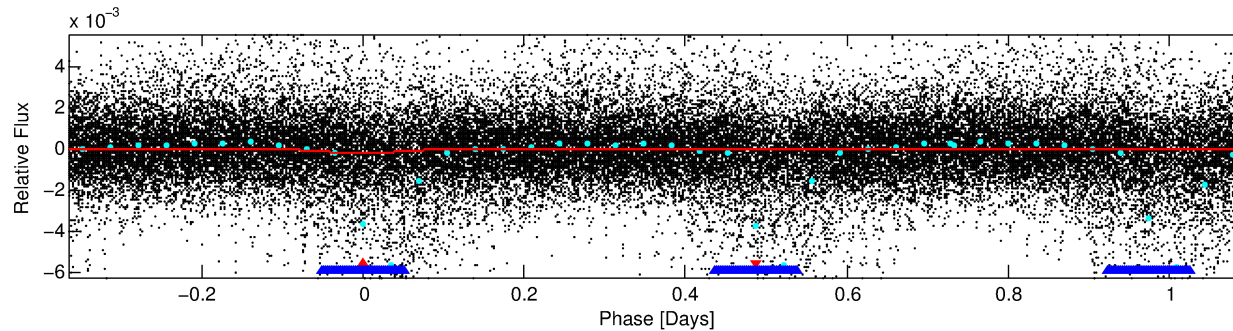
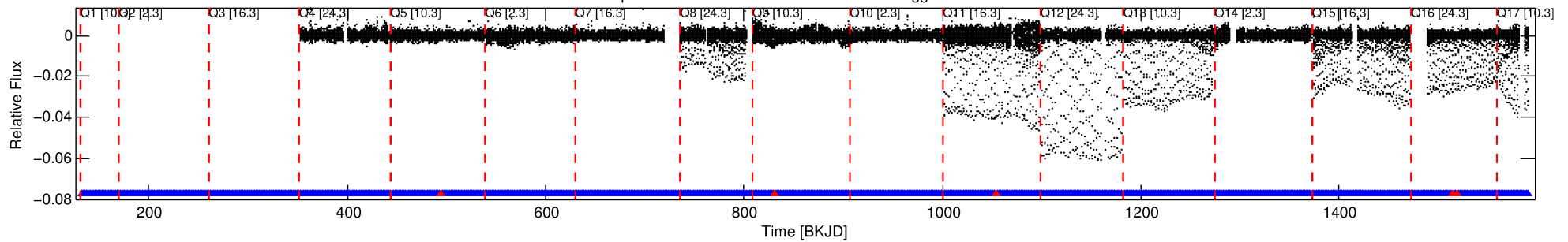
Ephemeris Match Information For 002854948-01

No Significant Match Found

DV One-Page Summary

KIC: 2854948 Candidate: 1 of 2 Period: 1.461 d
KOI: K03786 Corr: No Ephemeris Match

Kp: 15.78 R*: 0.79 Rs Teff: 5688.0 K Logg: 4.58 Fe/H: -0.360



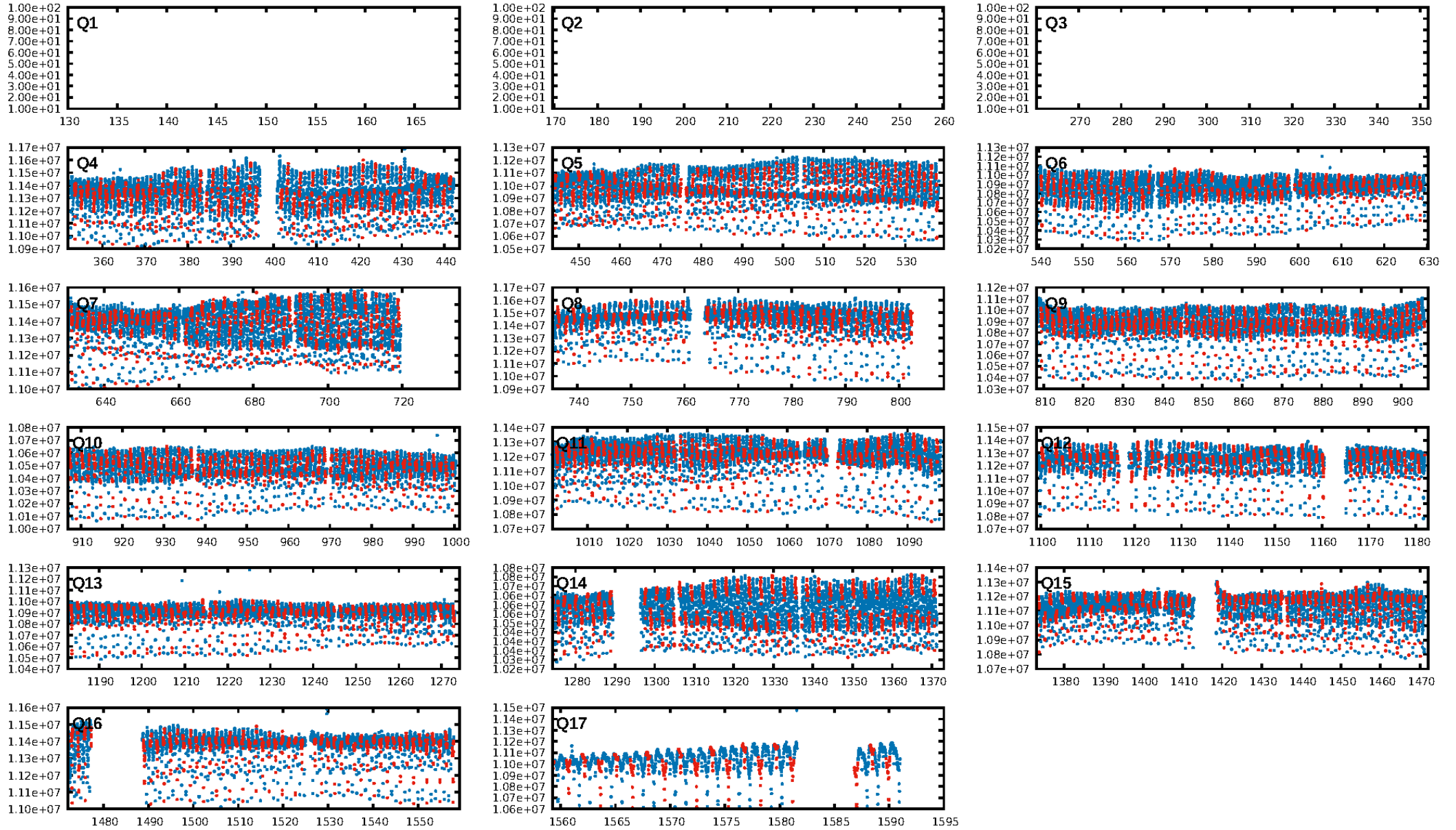
DV Fit Results:

Period = 1.46135 [0.00003] d
Epoch = 132.9274 [0.0120] BKJD
Rp/R* = 0.0213 [0.0870]
a/R* = 1.17 [0.28]
b = 1.00 [0.14]
Seff = 1006.18 [326.57]
Teq = 1436 [117] K
Rp = 1.82 [7.48] Re
a = 0.0240 [0.0049] AU
Ag = 28.06 [229.93] [0.12σ]
Teffp = 5110 [10464] K [0.35σ]

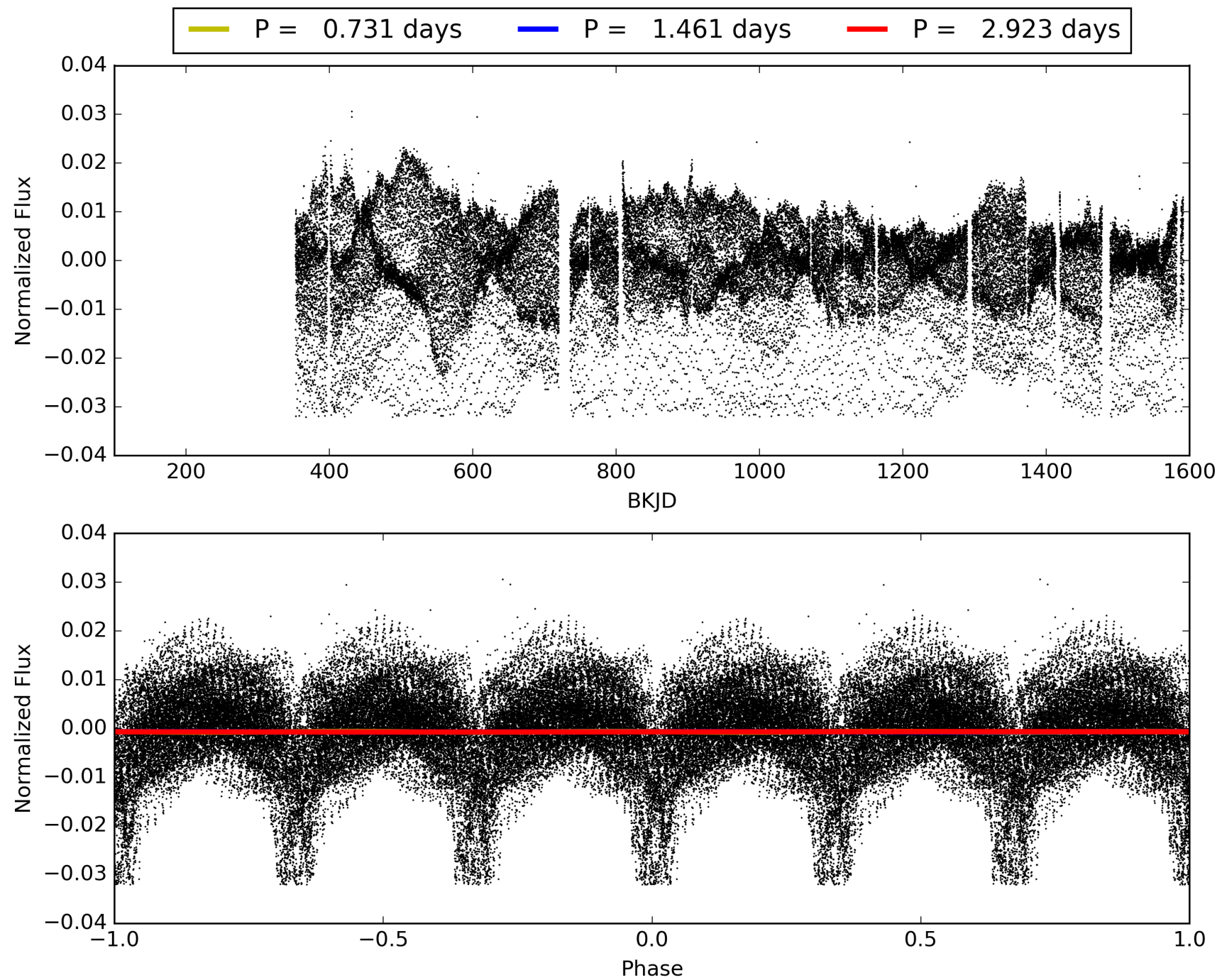
DV Diagnostic Results:

ShortPeriod-sig: 99.1% [2.63σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [757/762]
GhostDiagnostic-chr: -11.61
Centroid-sig: 29.6%
Centroid-so: 1.815 arcsec [1.43σ]
OotOffset-rm: 0.433 arcsec [2.65σ]
KicOffset-rm: 0.257 arcsec [3.30σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 002854948-01, PDC Light Curves

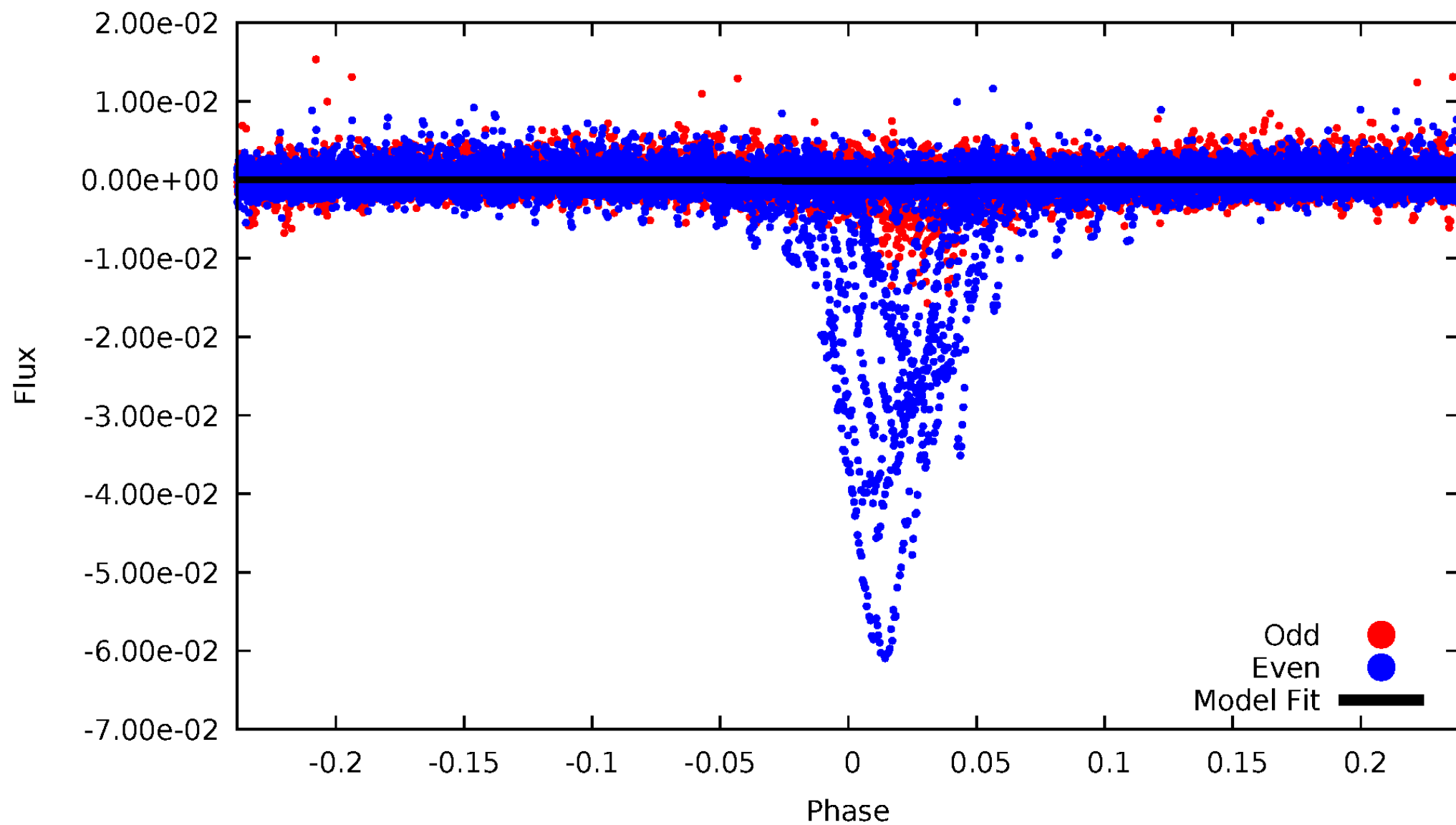


TCE 002854948-01



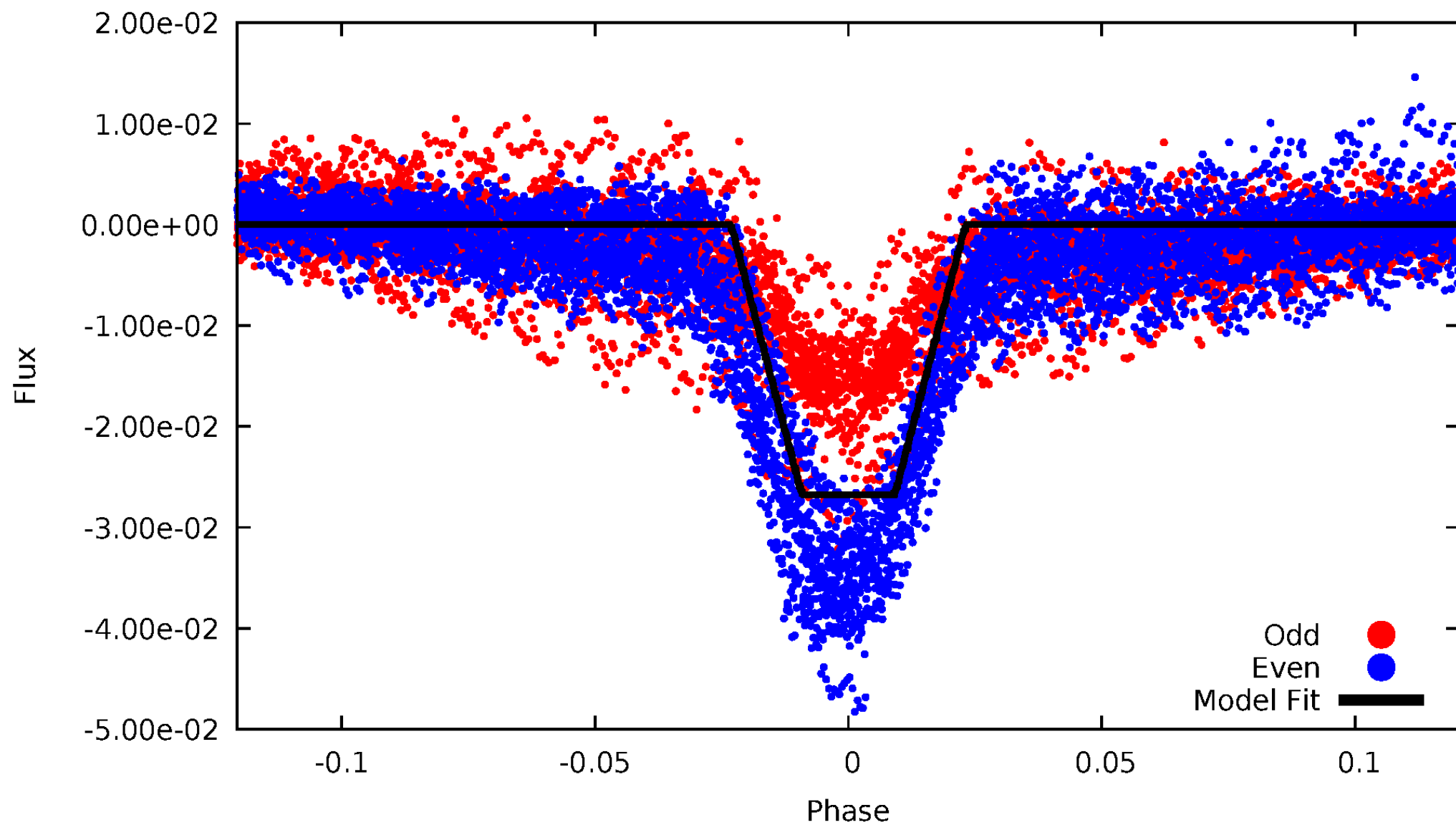
DV Odd/Even

TCE 002854948-01

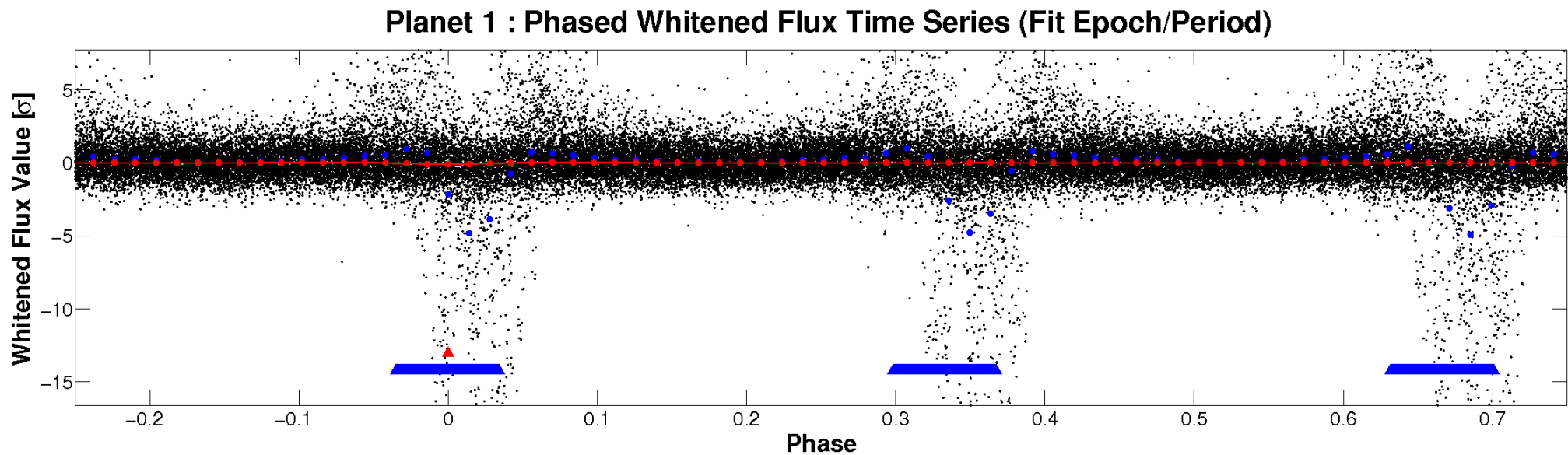
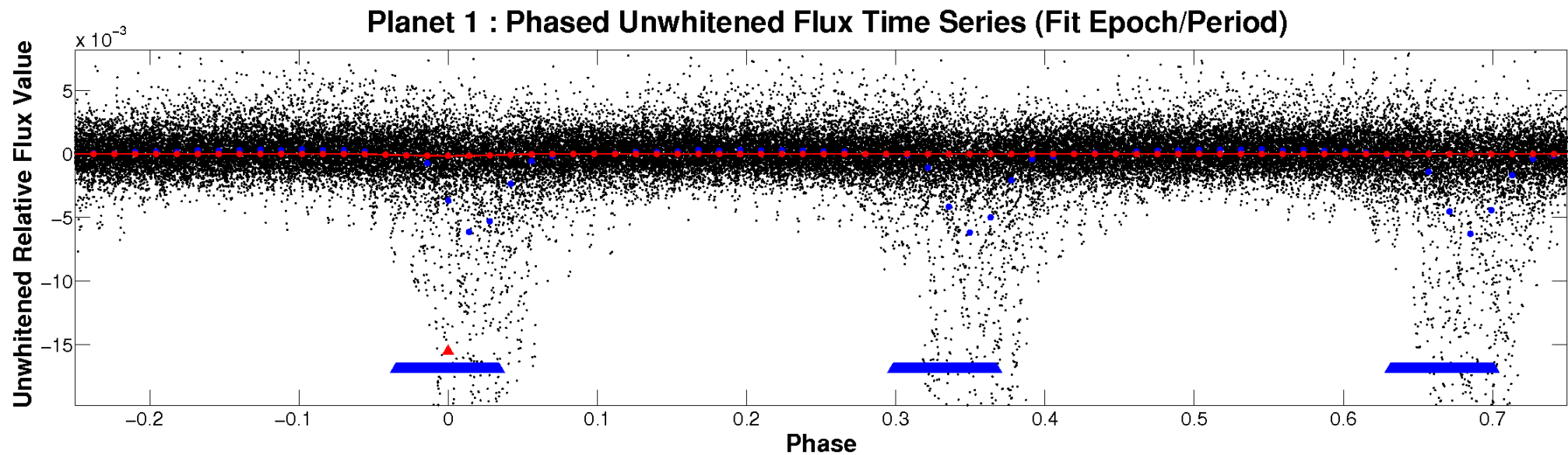


ALT Odd/Even

TCE 002854948-01

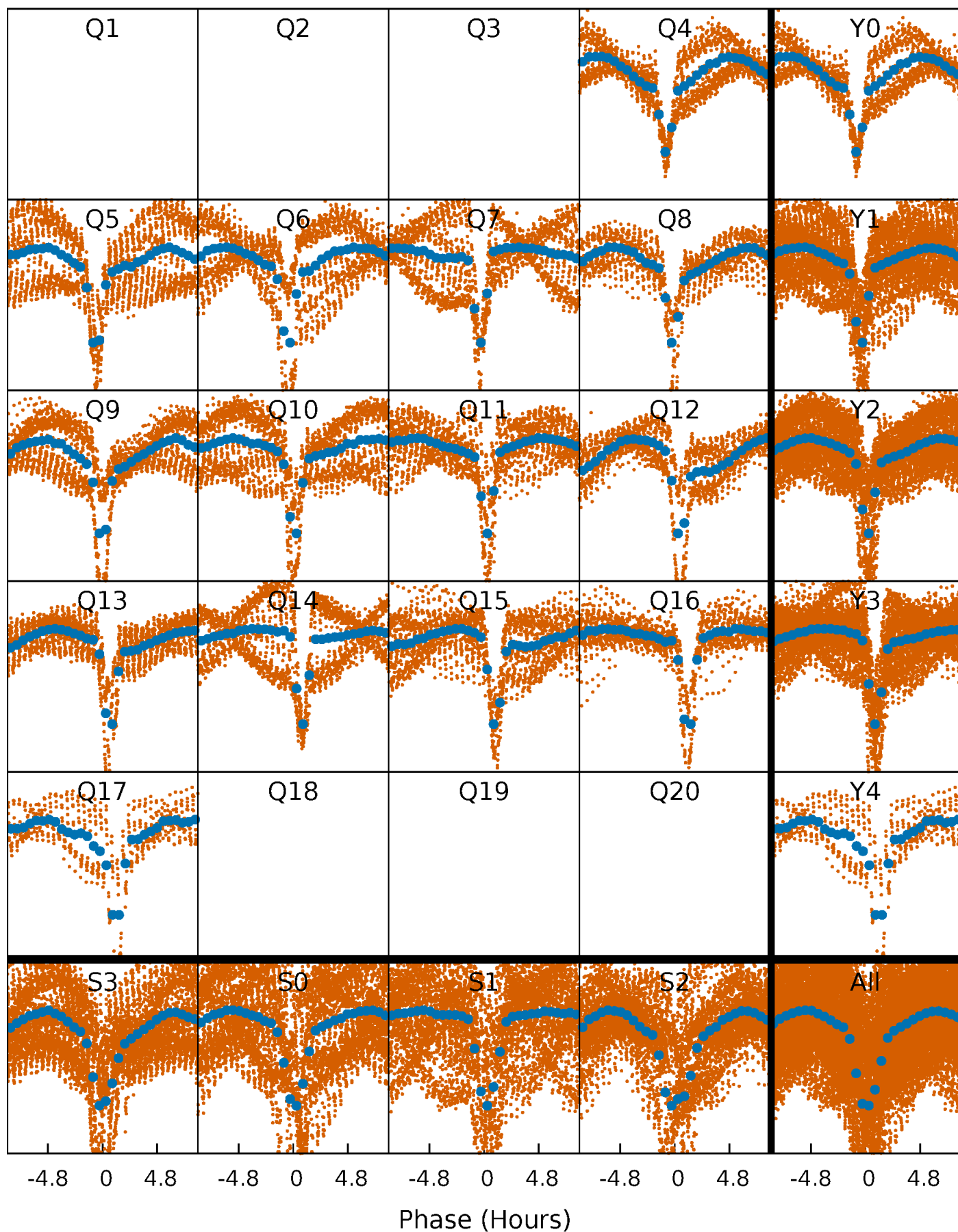


Non-Whitened Vs. Whitened Light Curve



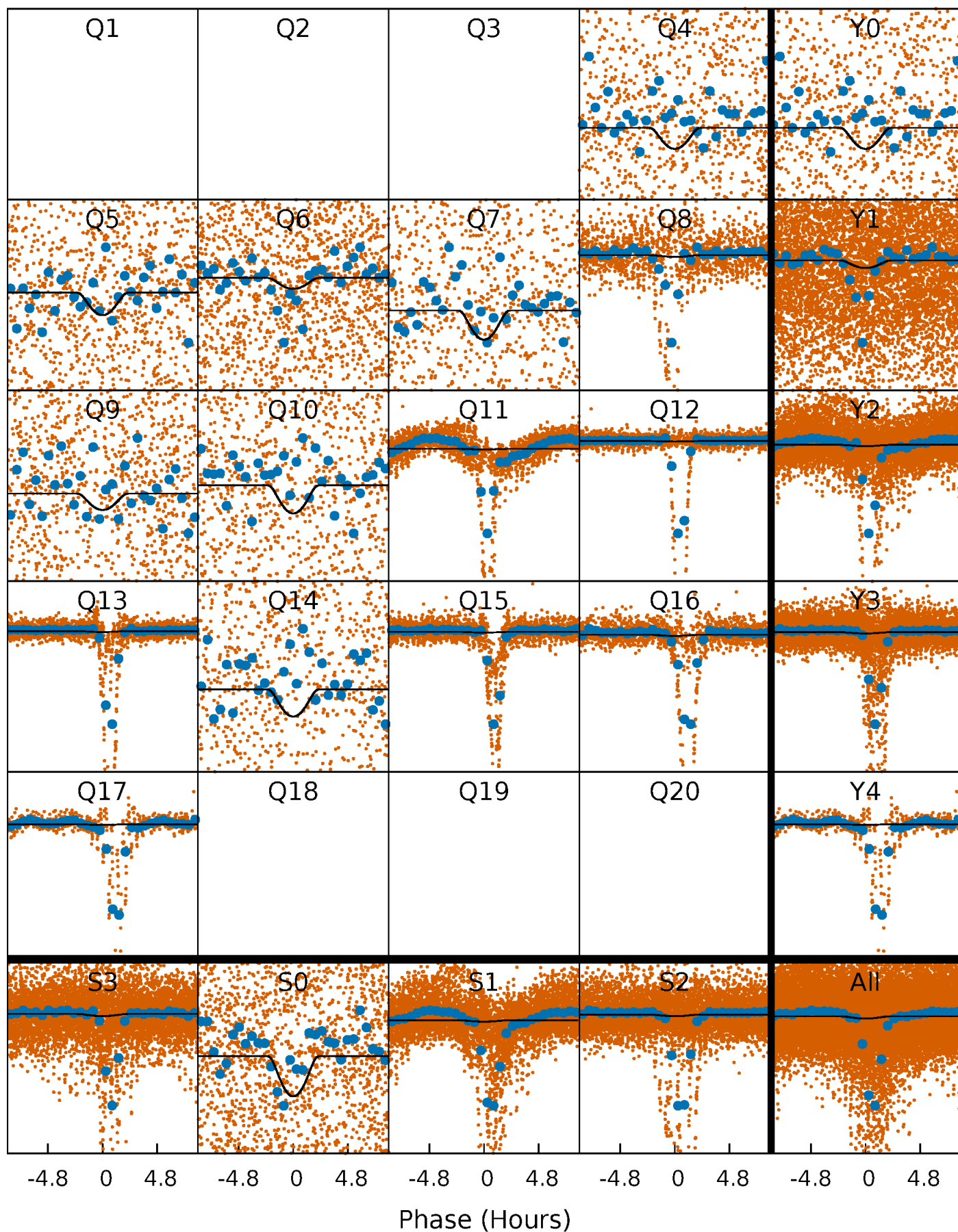
PDC Quarter-Phased Transit Curves

TCE 002854948-01 P= 1.461354 Days $T_0=132.927410$ (BKJD)



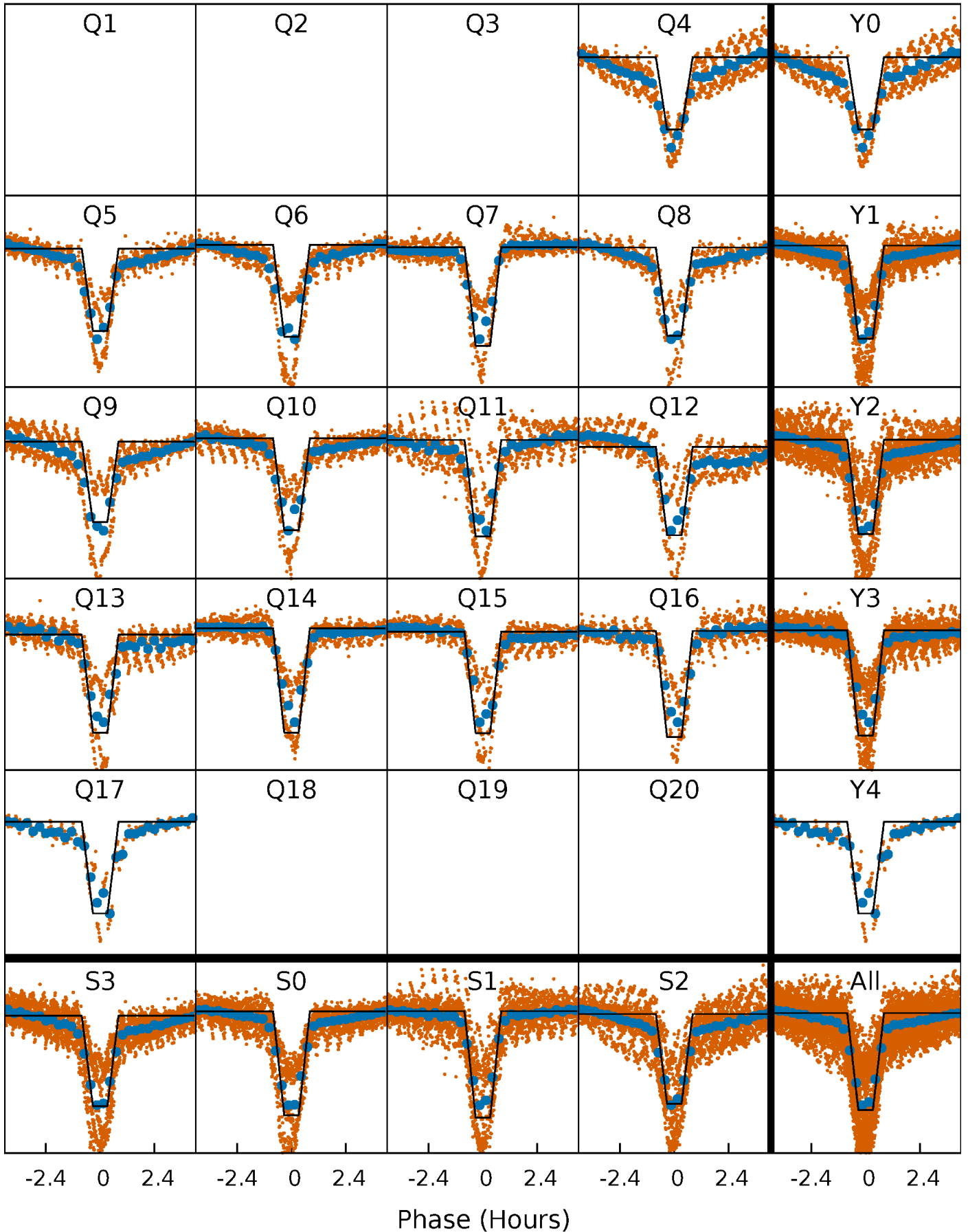
DV Quarter-Phased Transit Curves

TCE 002854948-01 P= 1.461354 Days $T_0=132.927410$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

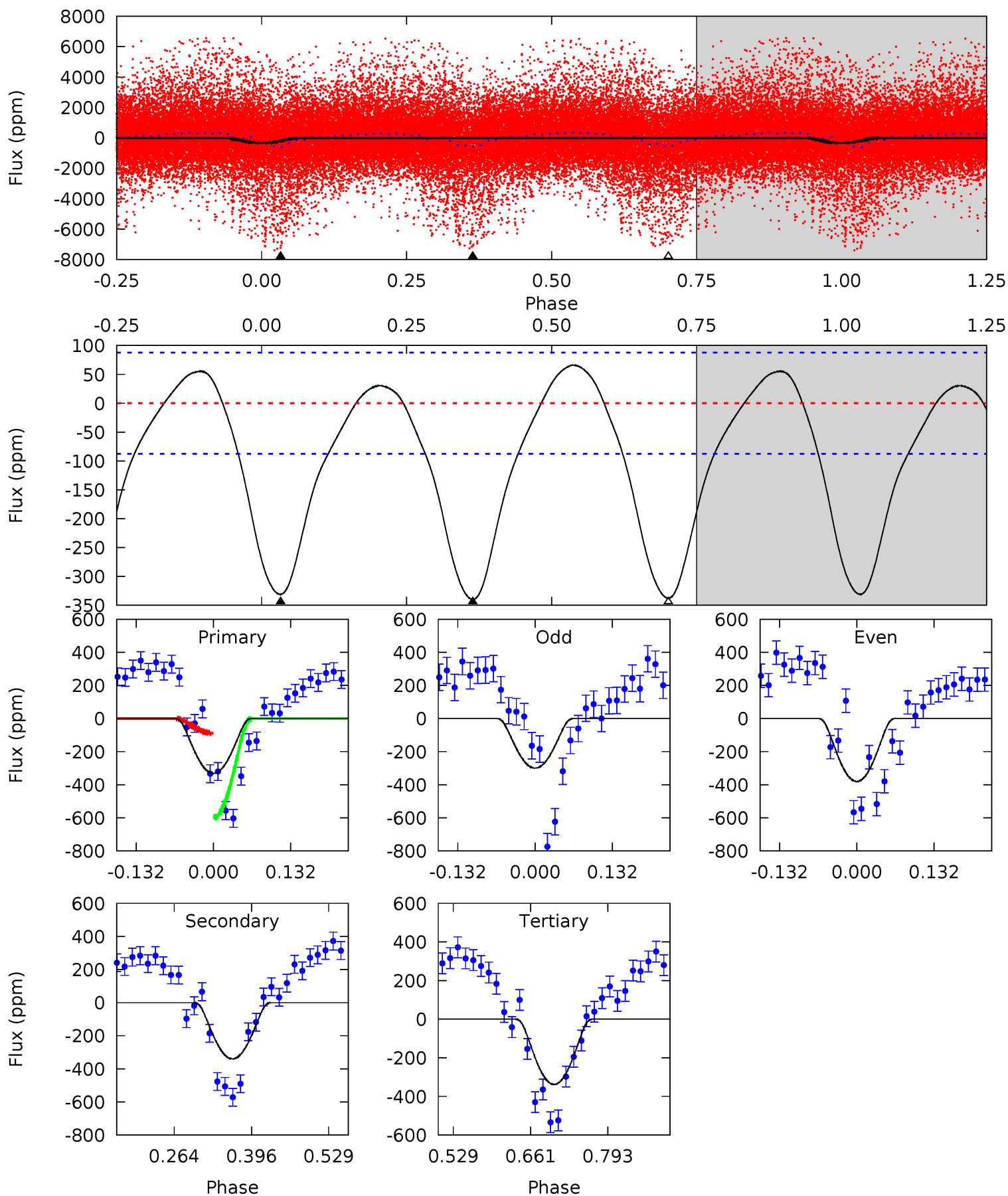
TCE 002854948-01 P= 1.461446 Days $T_0=132.882560$ (BKJD)



DV Model-Shift Uniqueness Test

002854948-01, P = 1.461354 Days, E = 132.927410 Days

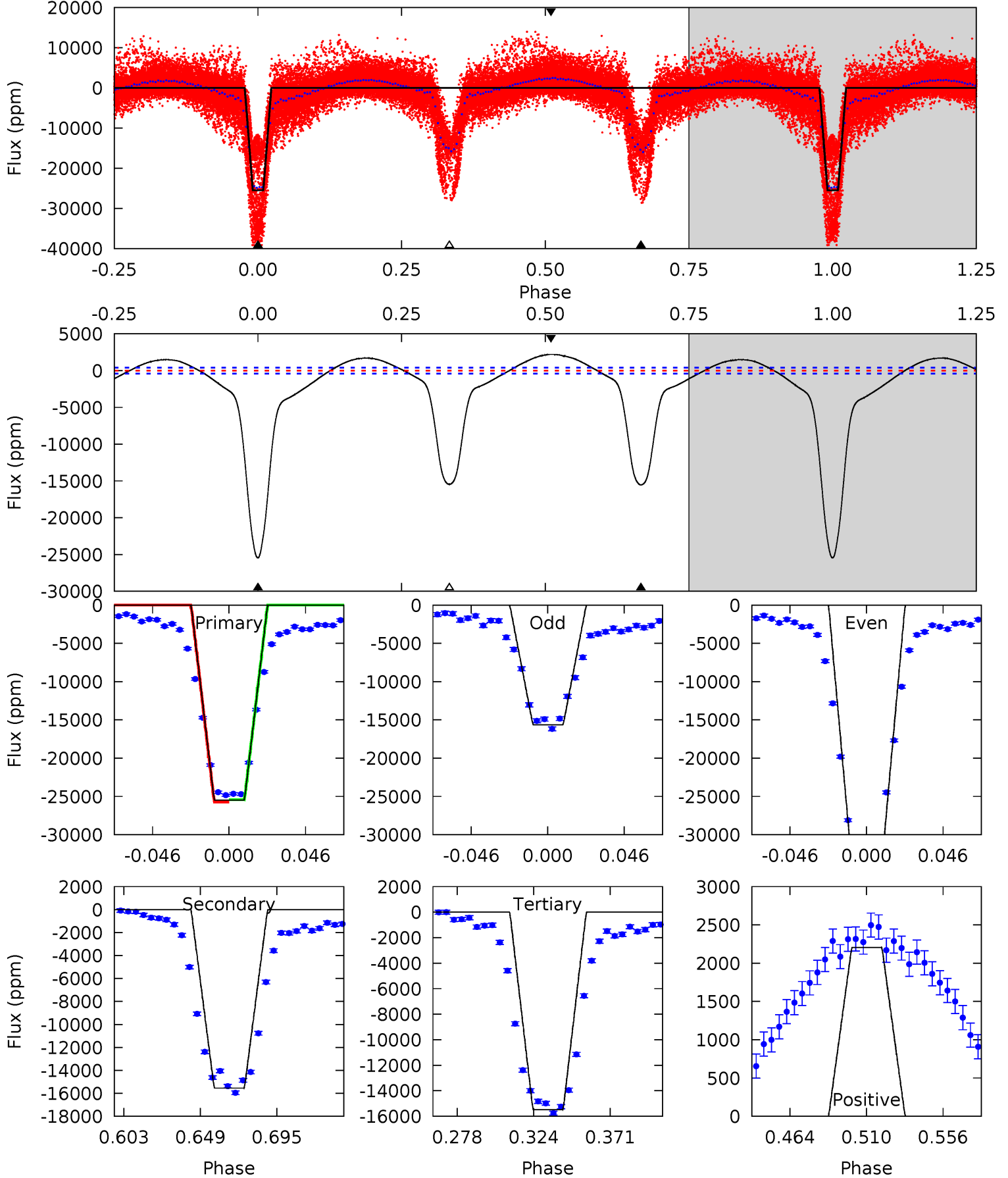
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	17.5	17.4	0	4.51	1.51	6.51	-0.34	17.0	0.11	17.5	2.11	5.34	0.16	13.8



Alt Model-Shift Uniqueness Test

002854948-01, P = 1.461446 Days, E = 132.882560 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
299.3	182.6	181.9	25.9	4.72	1.99	37.0	117.5	273.4	0.79	156.7	95.9	0.96	0.08	0



Stellar Parameters For KIC 002854948

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5688^{+189}_{-189}	$4.583^{+0.040}_{-0.160}$	$-0.360^{+0.300}_{-0.300}$	$0.786^{+0.195}_{-0.065}$	$0.870^{+0.088}_{-0.098}$	$2.519^{+0.520}_{-1.081}$
	+3%/-3%	+1%/-3%	+83%/-83%	+25%/-8%	+10%/-11%	+21%/-43%
Source	KIC0	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 002854948-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-340 ± 19	$6.18^{+6.58}_{-4.08}$	2044^{+118}_{-99}	3361^{+1758}_{-796}	$2.833^{+22.553}_{-2.203}$
Alt.	-15543 ± 85	$14.85^{+7.03}_{-7.47}$	2047^{+115}_{-94}	5038^{+2061}_{-758}	23^{+67}_{-12}

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 $A_{obs} \gg 1.0$

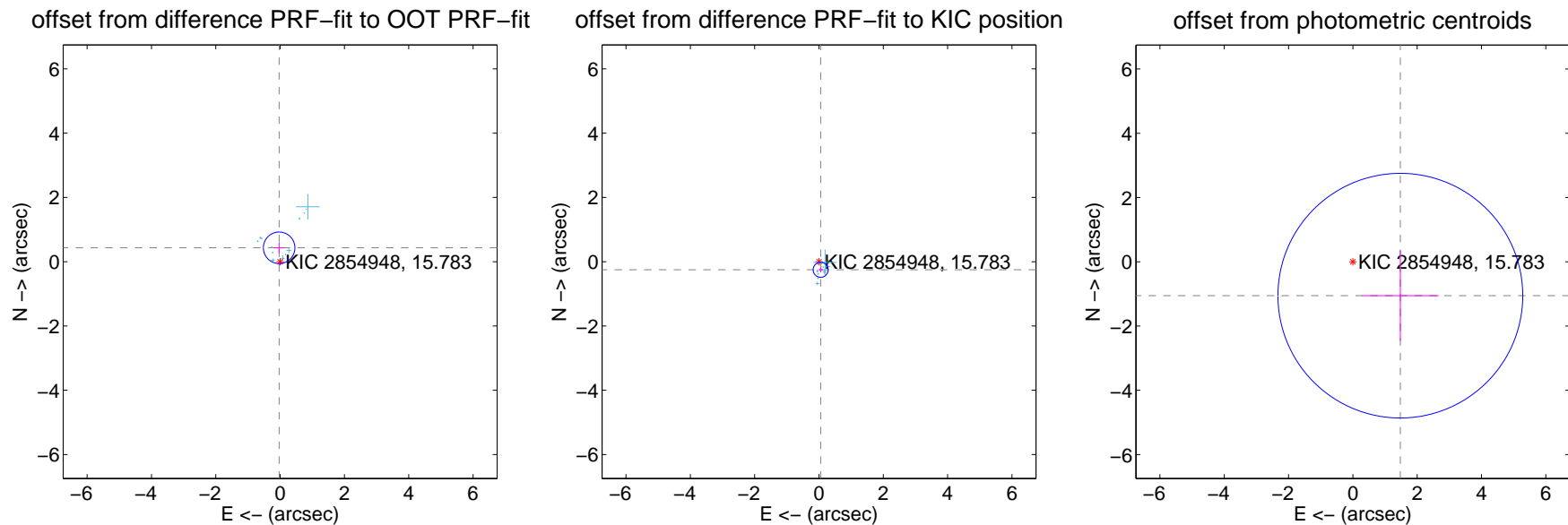
DV Centroid Data

Supplemental centroid analysis for 002854948-01. Kepler magnitude: 15.78. Transit SNR 4.55

There are 14 quarters with good PRF difference image offsets

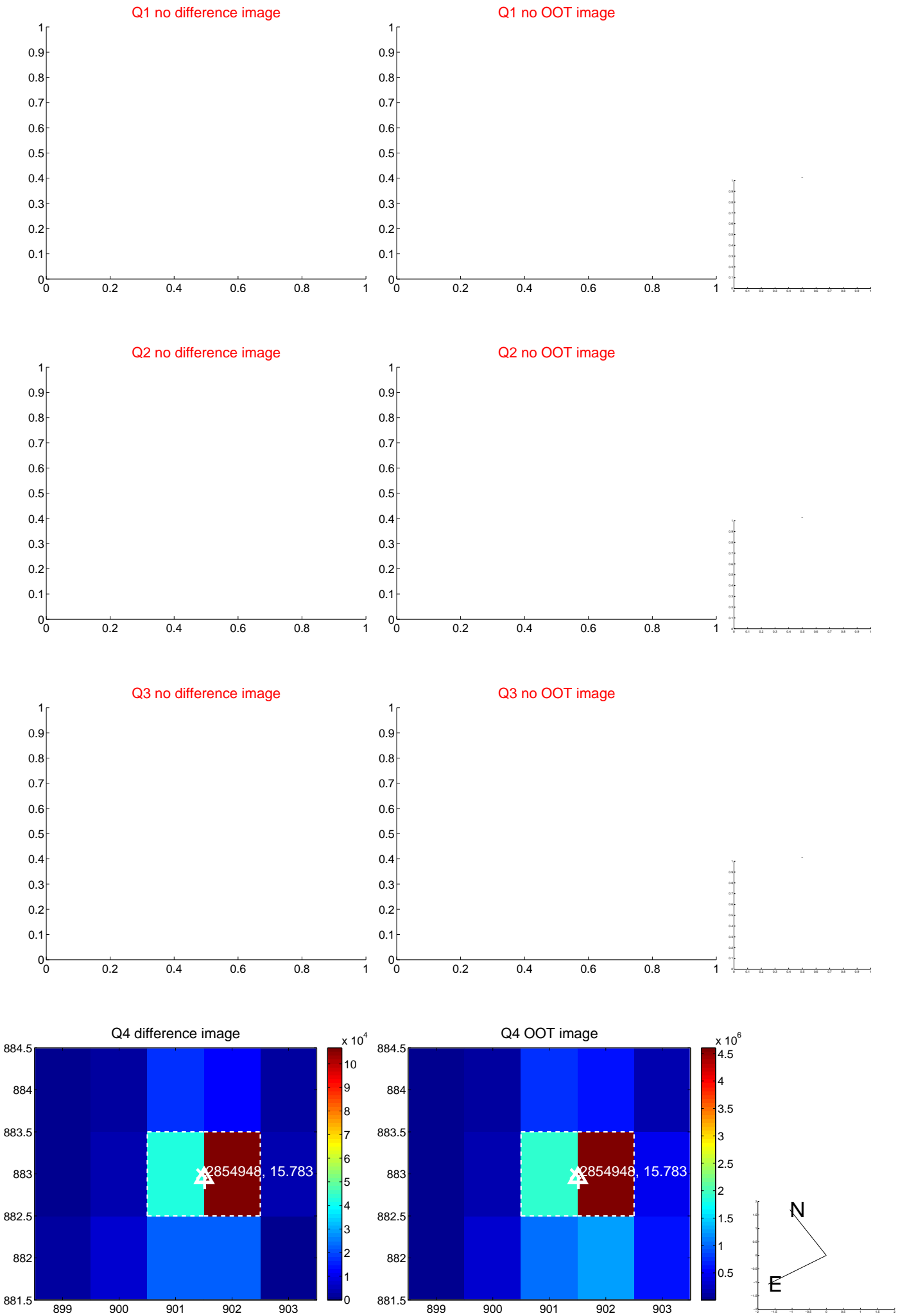
The direct PRF centroid is offset from the target star catalog position by about 1.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.433 ± 0.164	2.65	0.030 ± 0.158	0.432 ± 0.170
PRF-fit source offset from KIC position	0.257 ± 0.078	3.30	-0.052 ± 0.072	-0.252 ± 0.080
photometric centroid source offset	1.81 ± 1.27	1.43	-1.48 ± 1.19	-1.05 ± 1.40

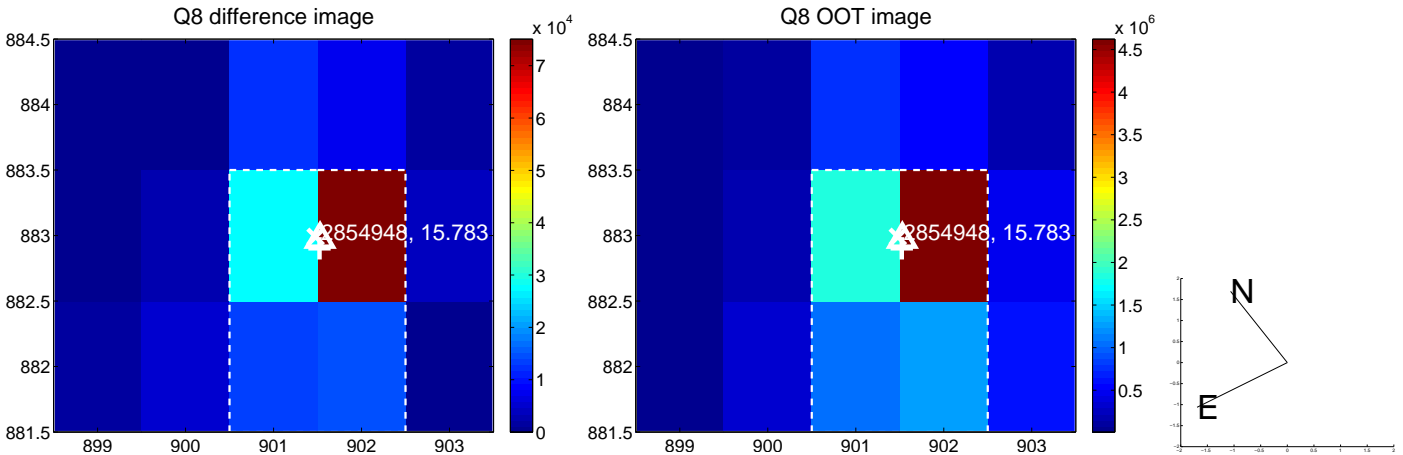
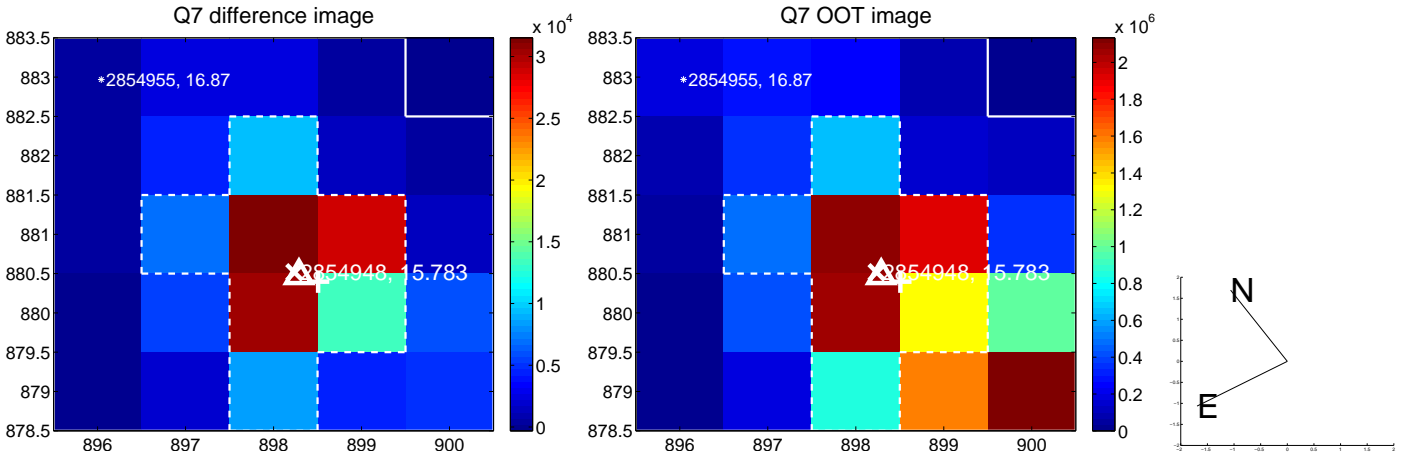
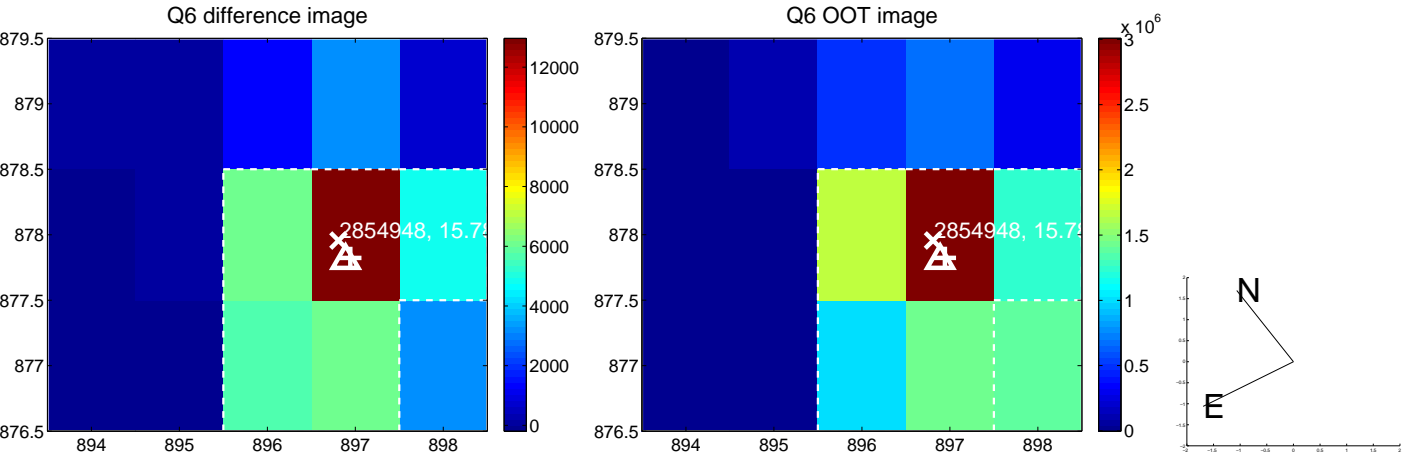
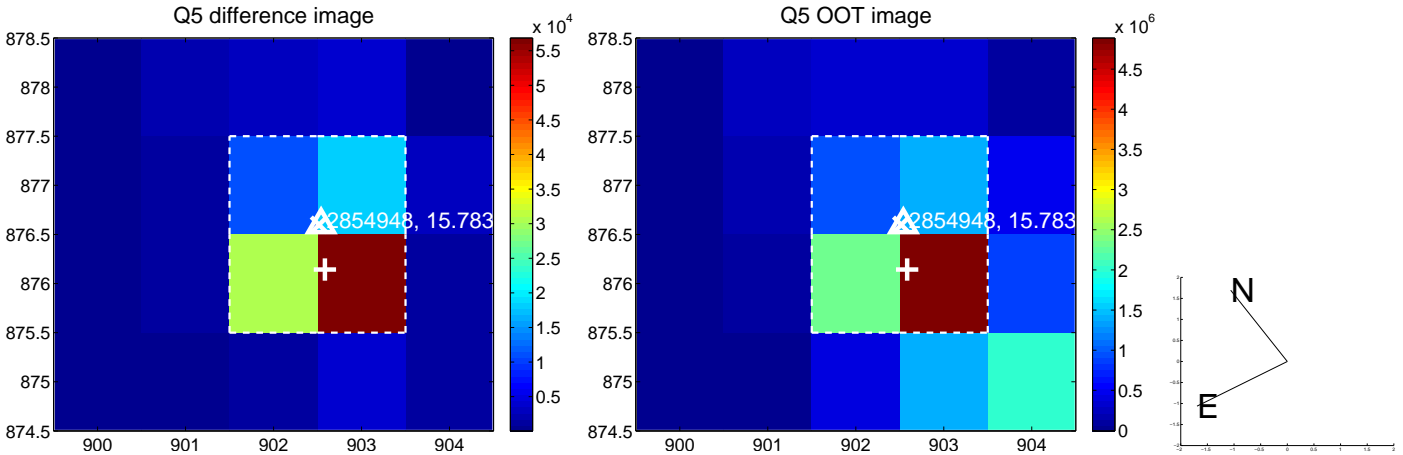


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

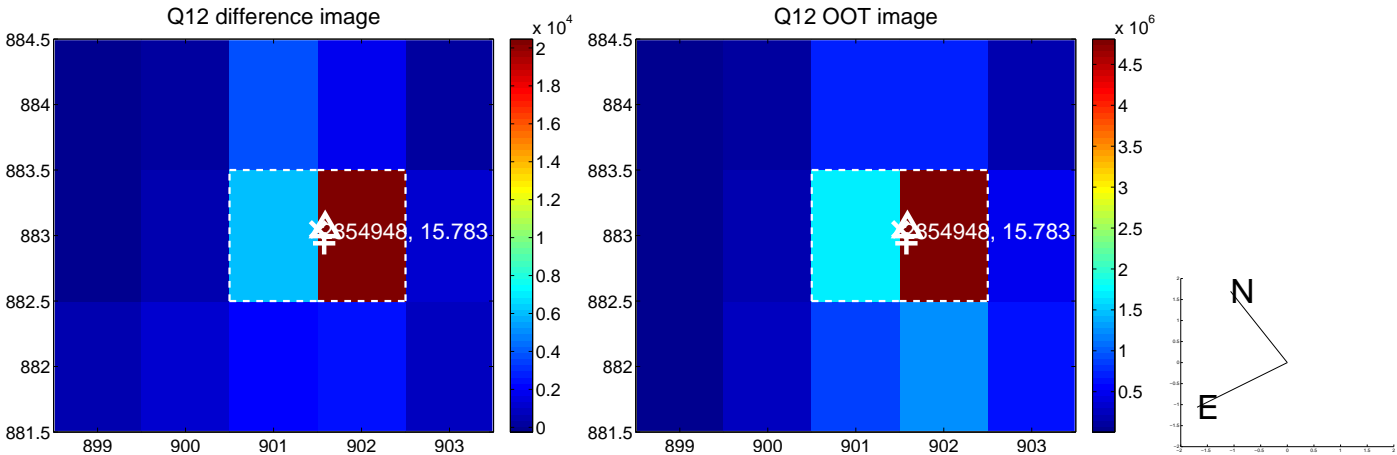
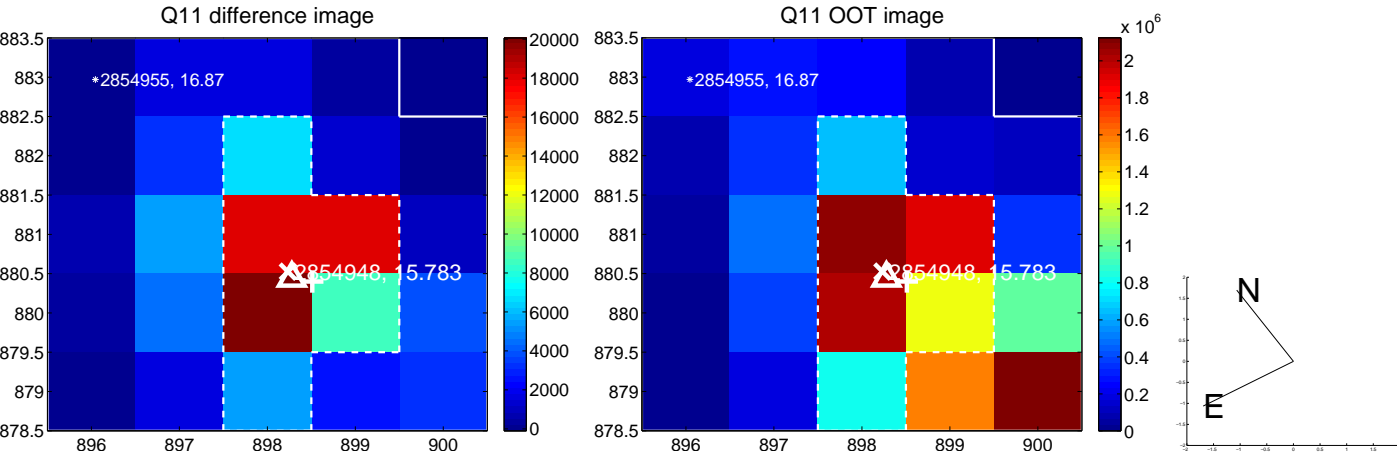
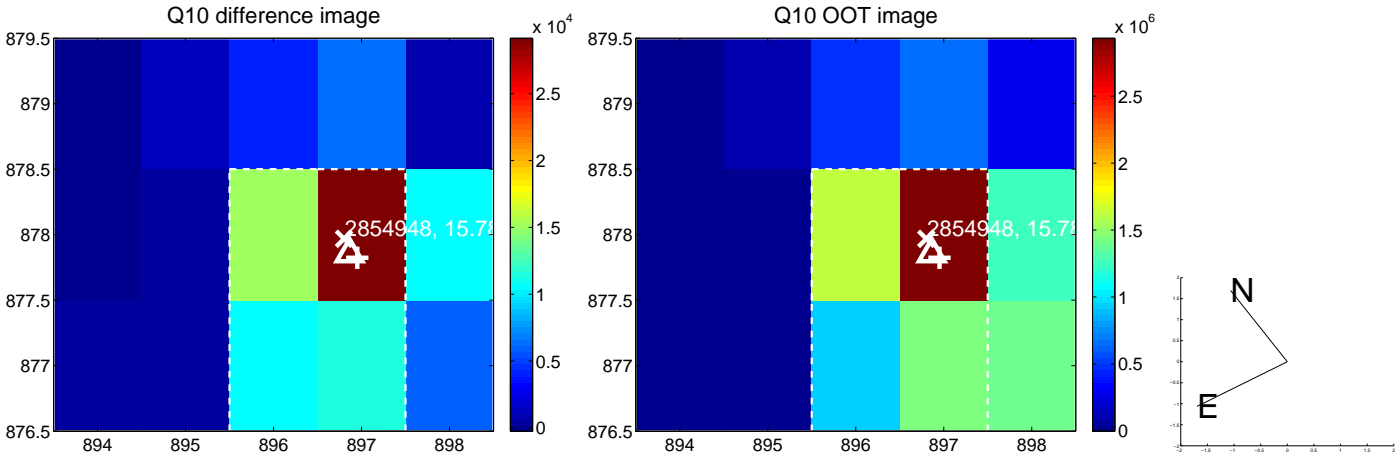
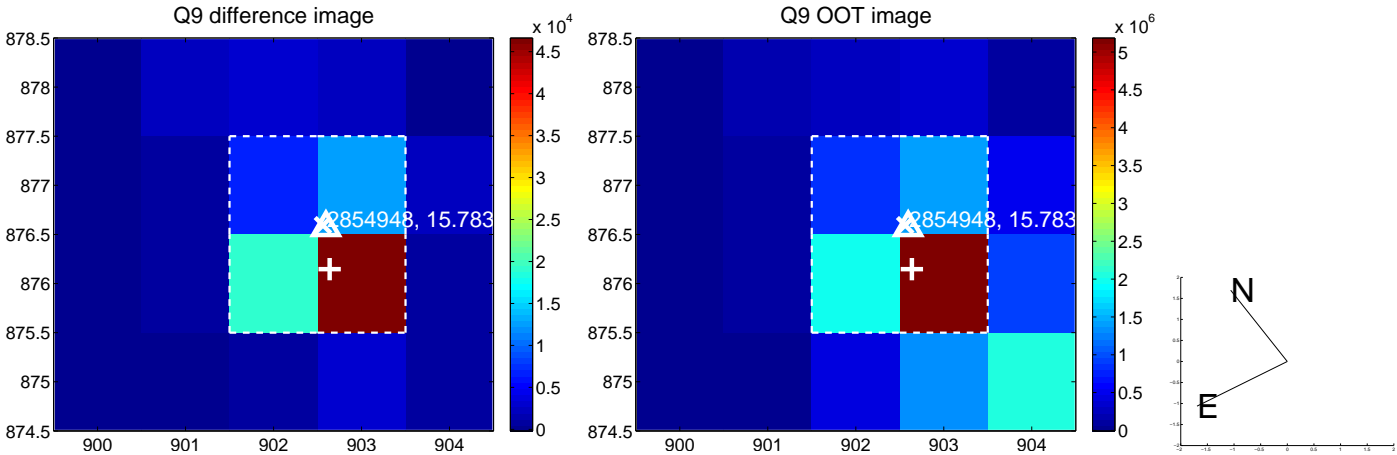
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



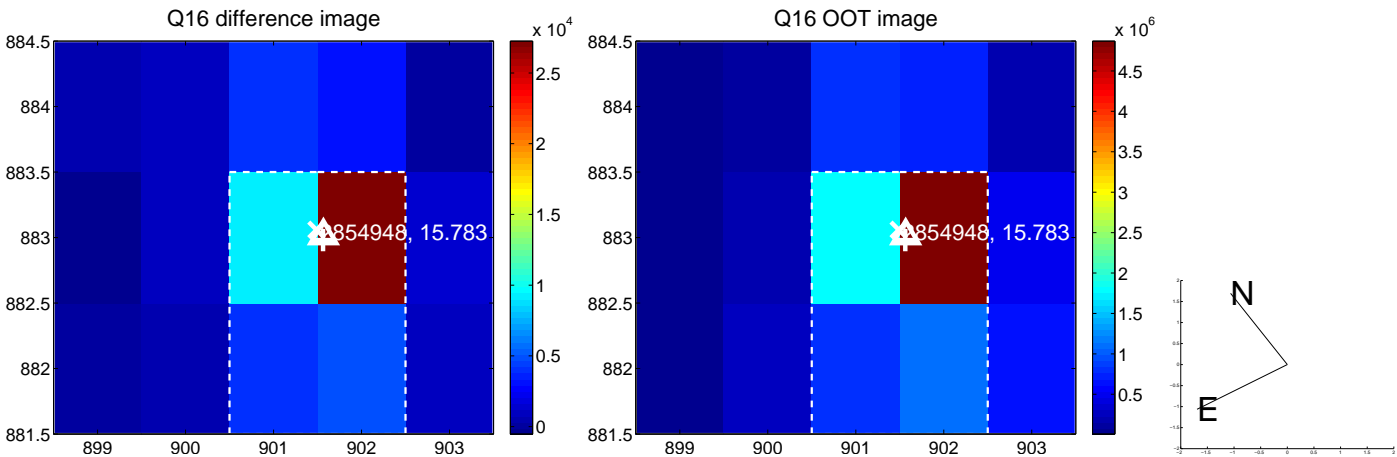
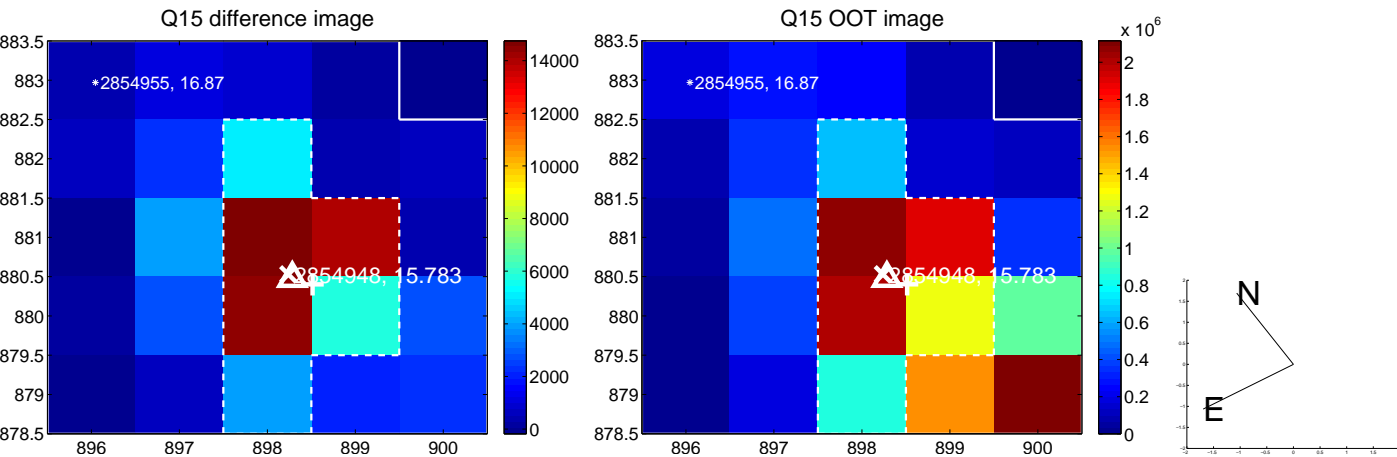
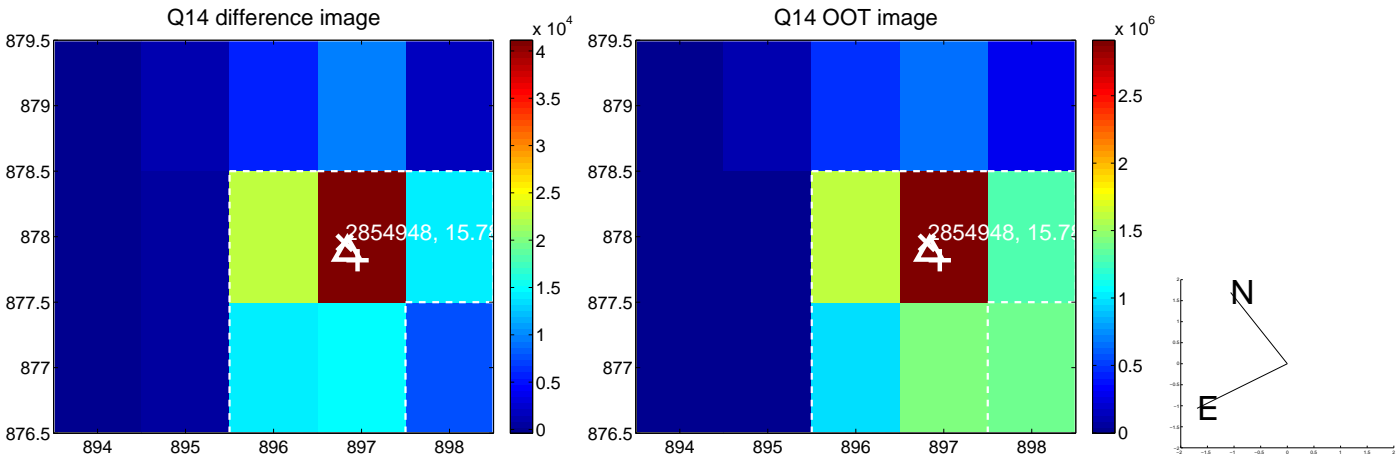
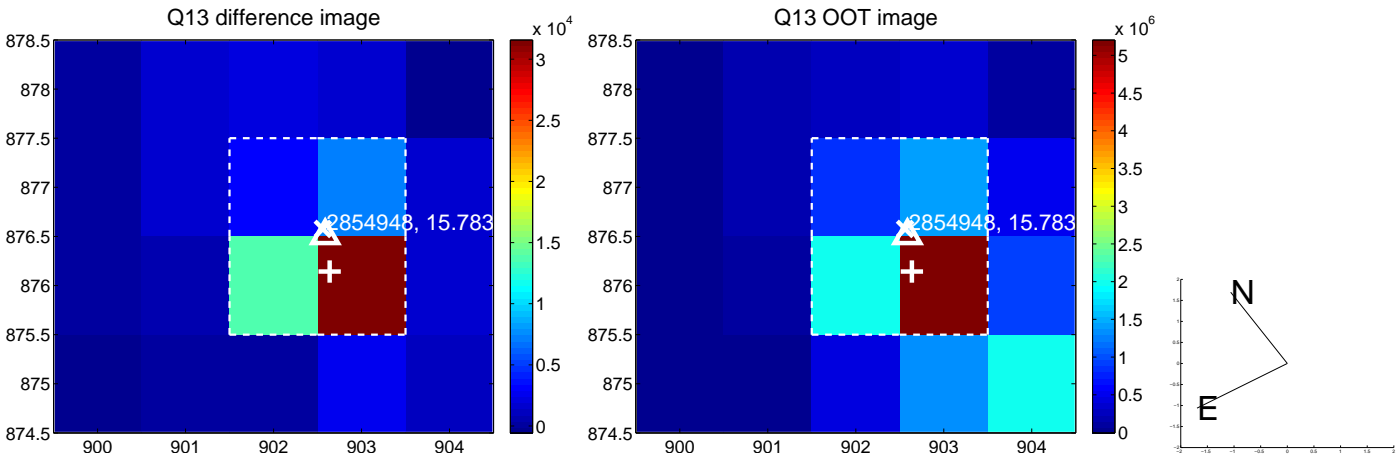
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



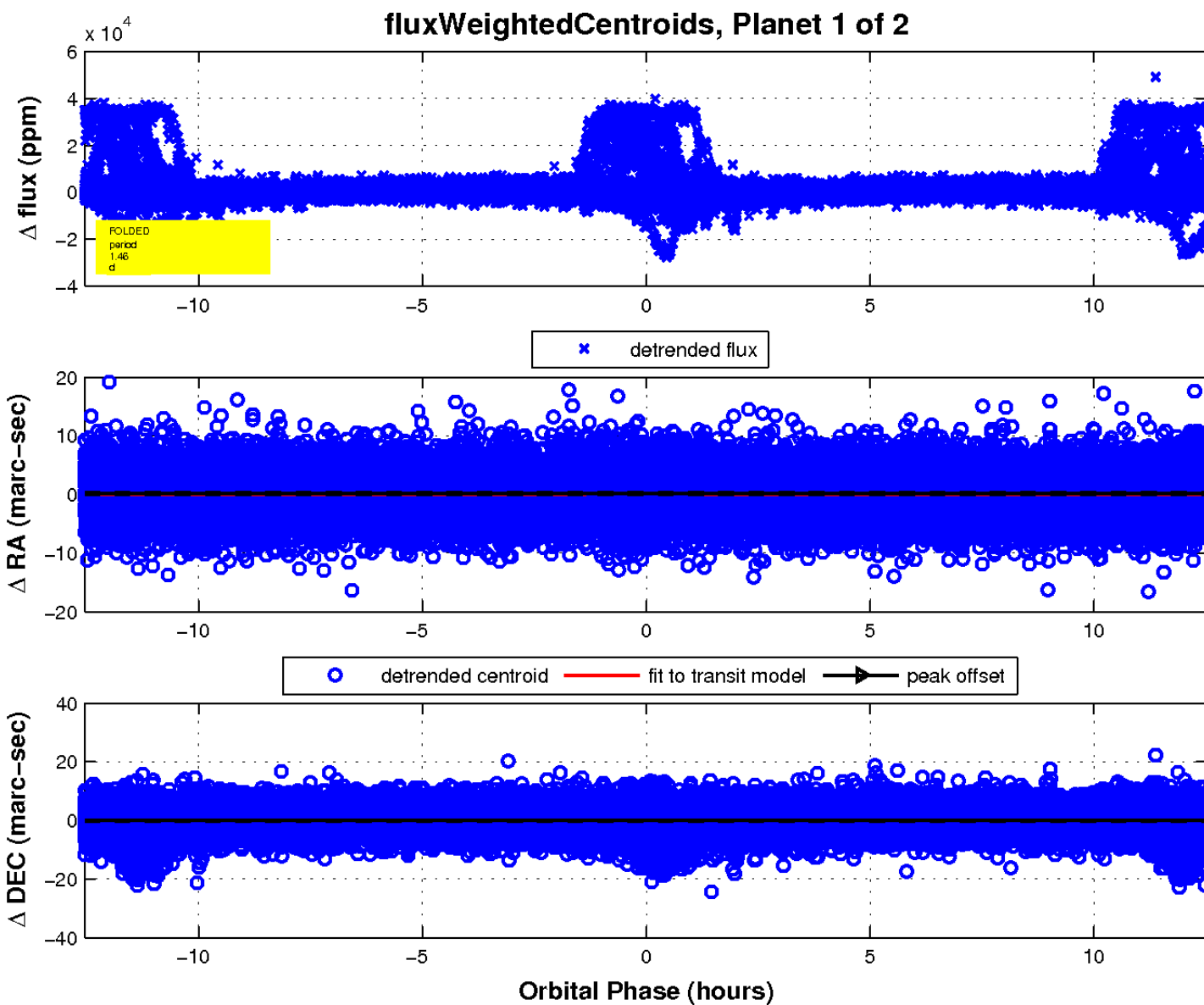
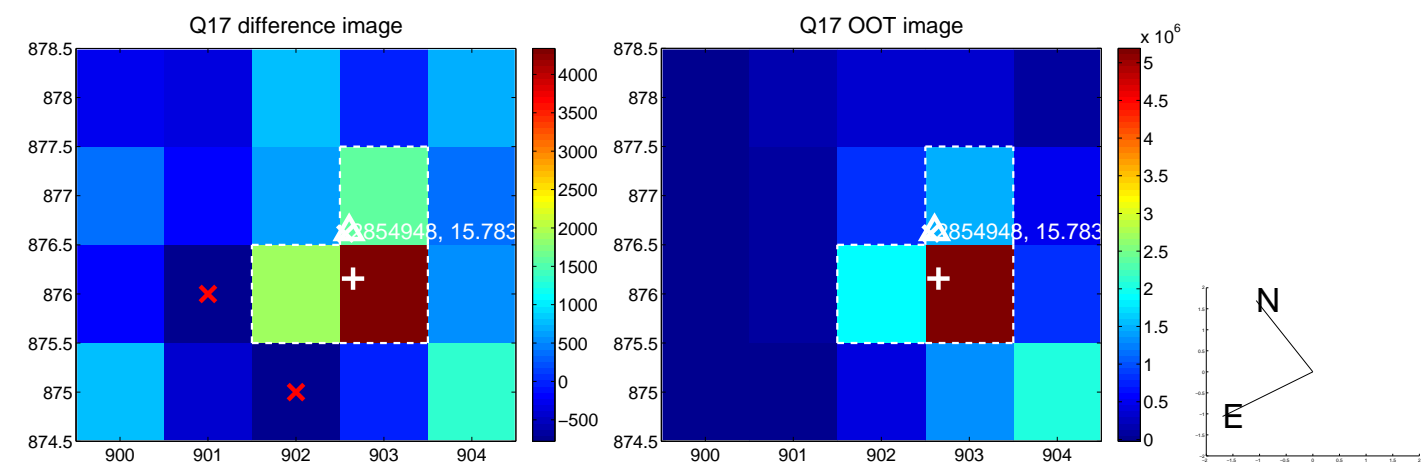
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

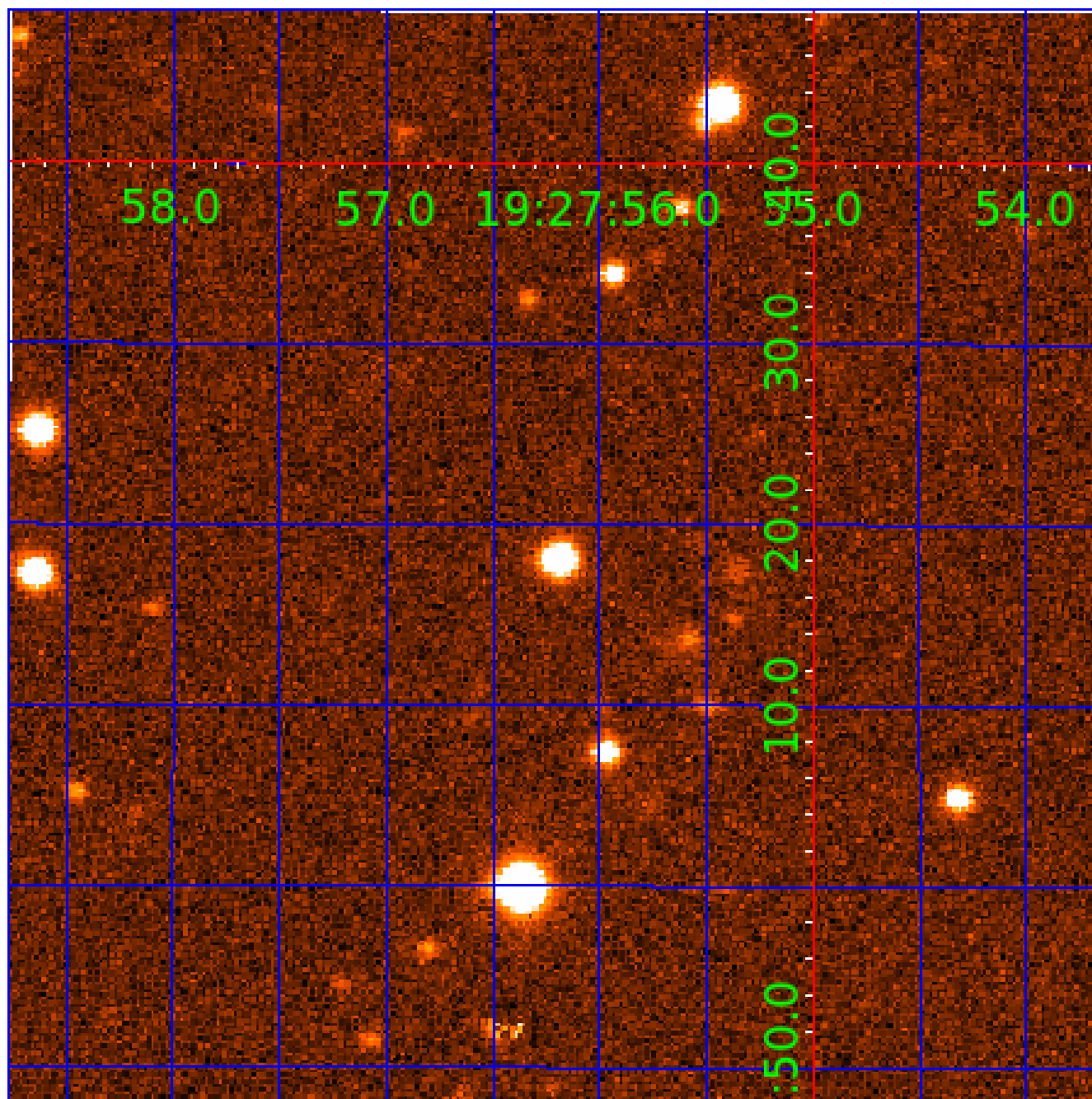


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002854948

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})
002854948-01	OBS	No	1.461354	132.927410	150.4	4.182	154.6	4.6	0.79	5688	1.82	1006.18
002854948-02	OBS	3786.01	0.974303	132.389119	51467.9	1.500	435.6	-1.0	0.79	5688	17.85	1727.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002854948-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV
002854948-02	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_ALT—CENT_NOFITS

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.

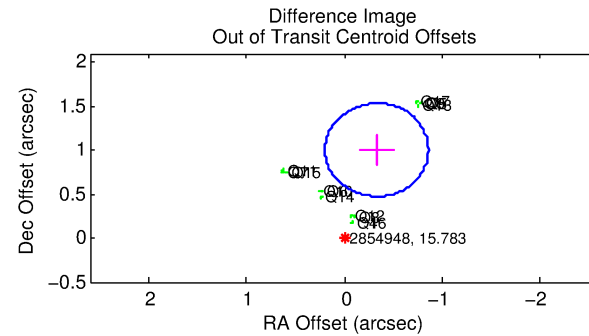
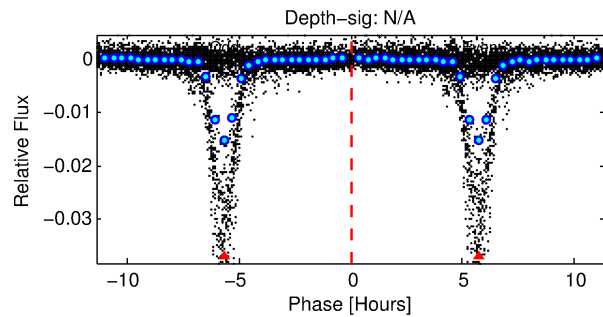
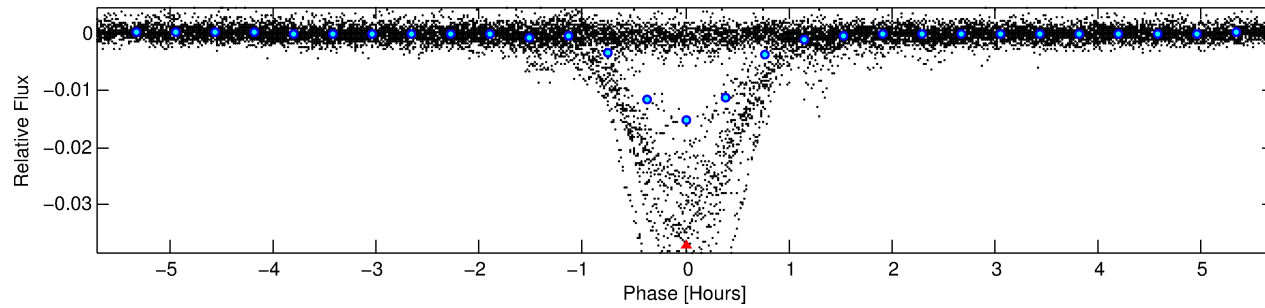
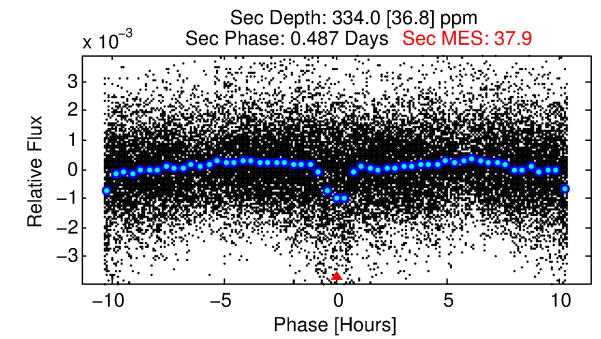
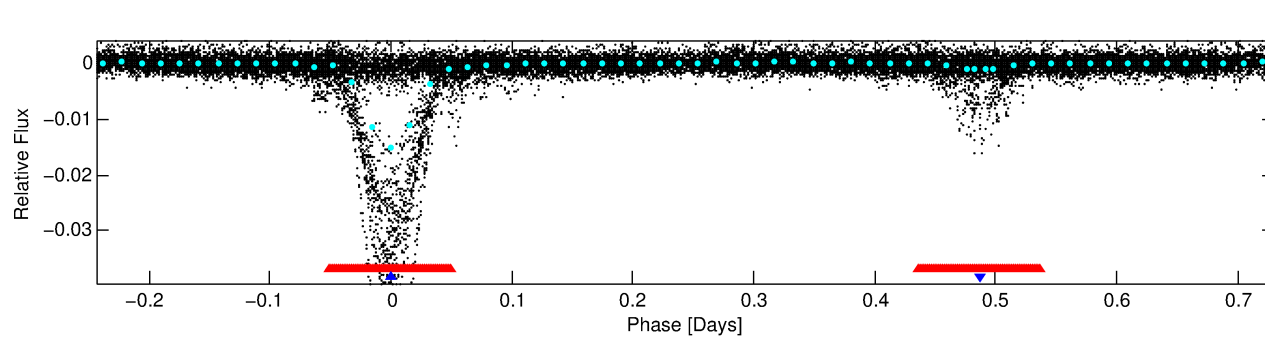
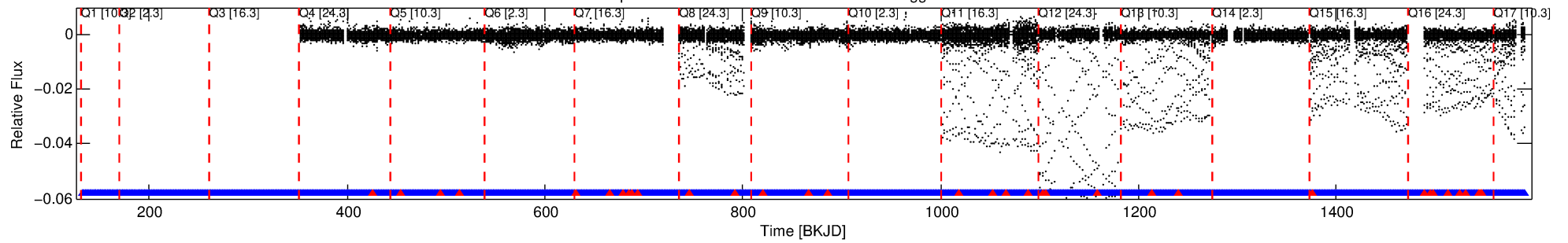
Ephemeris Match Information For 002854948-02

No Significant Match Found

DV One-Page Summary

KIC: 2854948 Candidate: 2 of 2 Period: 0.974 d
KOI: K03786.01 Corr: 0.843

Kp: 15.78 R*: 0.79 Rs Teff: 5688.0 K Logg: 4.58 Fe/H: -0.360



TPS TCE Results:

Period = 0.97430 d
Epoch = 132.3891 BKJD

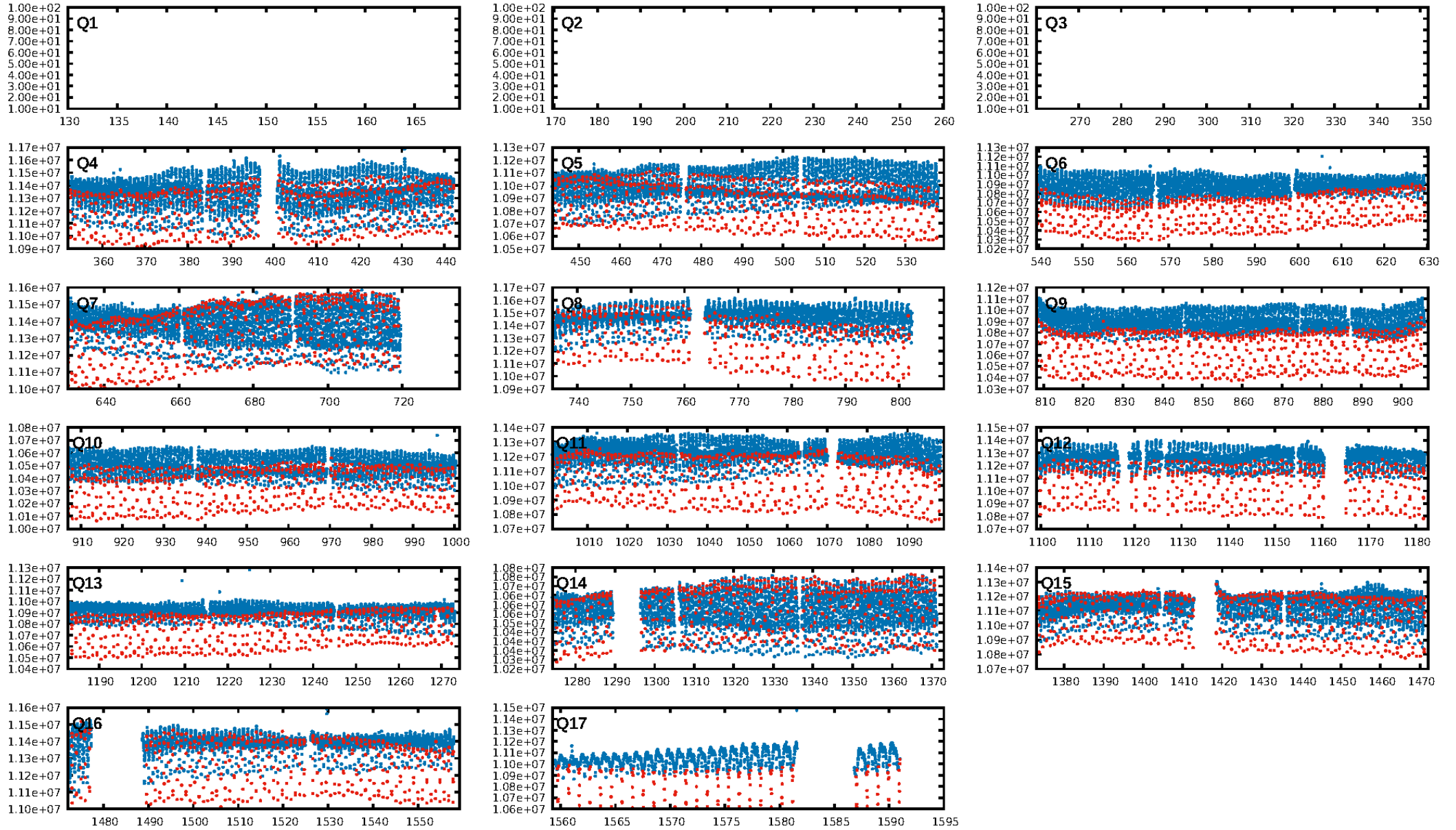
DV fit results are unavailable

DV Diagnostic Results:

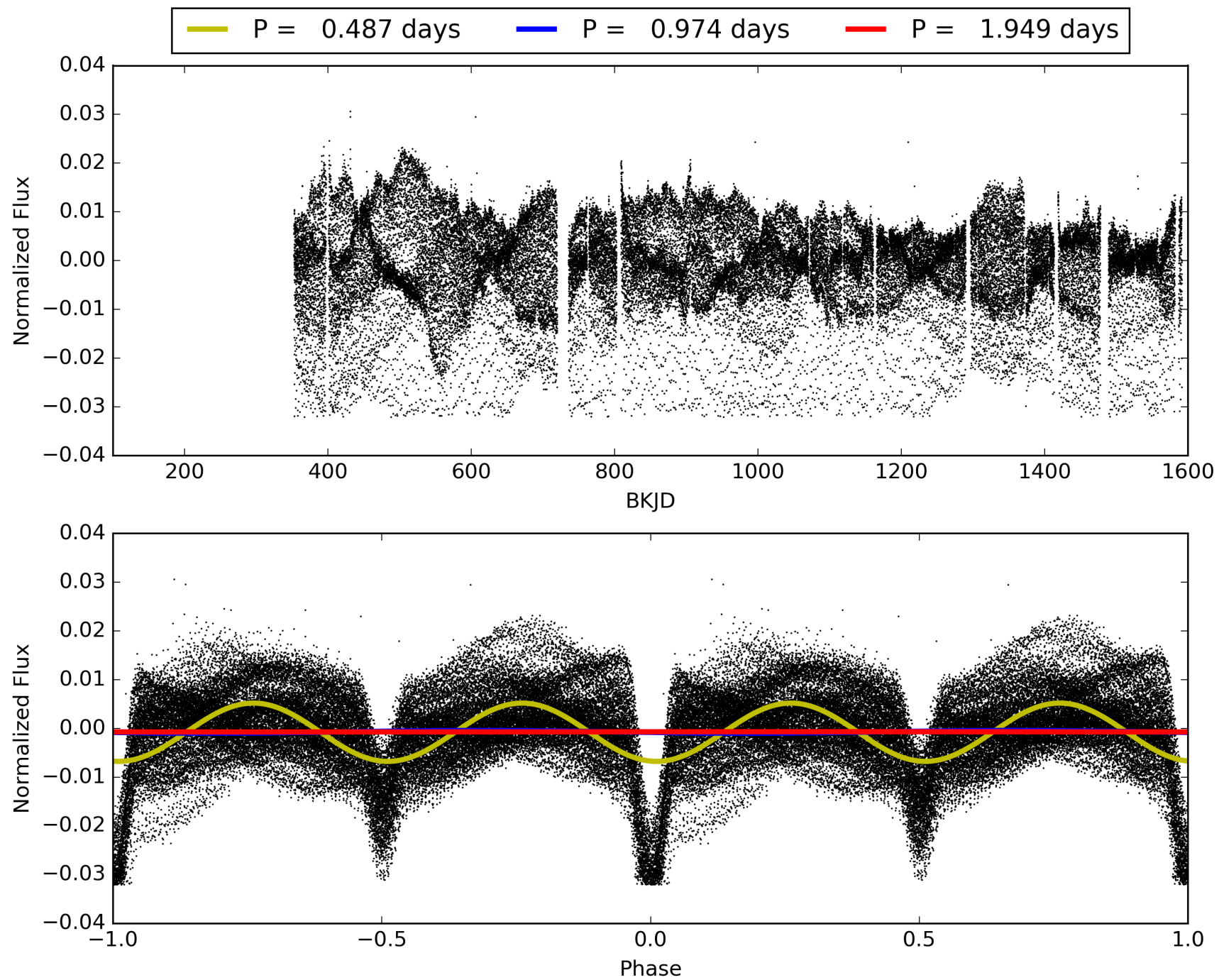
ShortPeriod-sig: N/A
LongPeriod-sig: 99.1% [2.63 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [725/759]
GhostDiagnostic-chr: 1.943

Centroid-sig: 0.0%
Centroid-so: 1.534 arcsec [227.03 σ]
OotOffset-rm: 1.057 arcsec [5.99 σ]
KicOffset-rm: 0.200 arcsec [2.90 σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 1.00 [14/14]
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TCE 002854948-02, PDC Light Curves

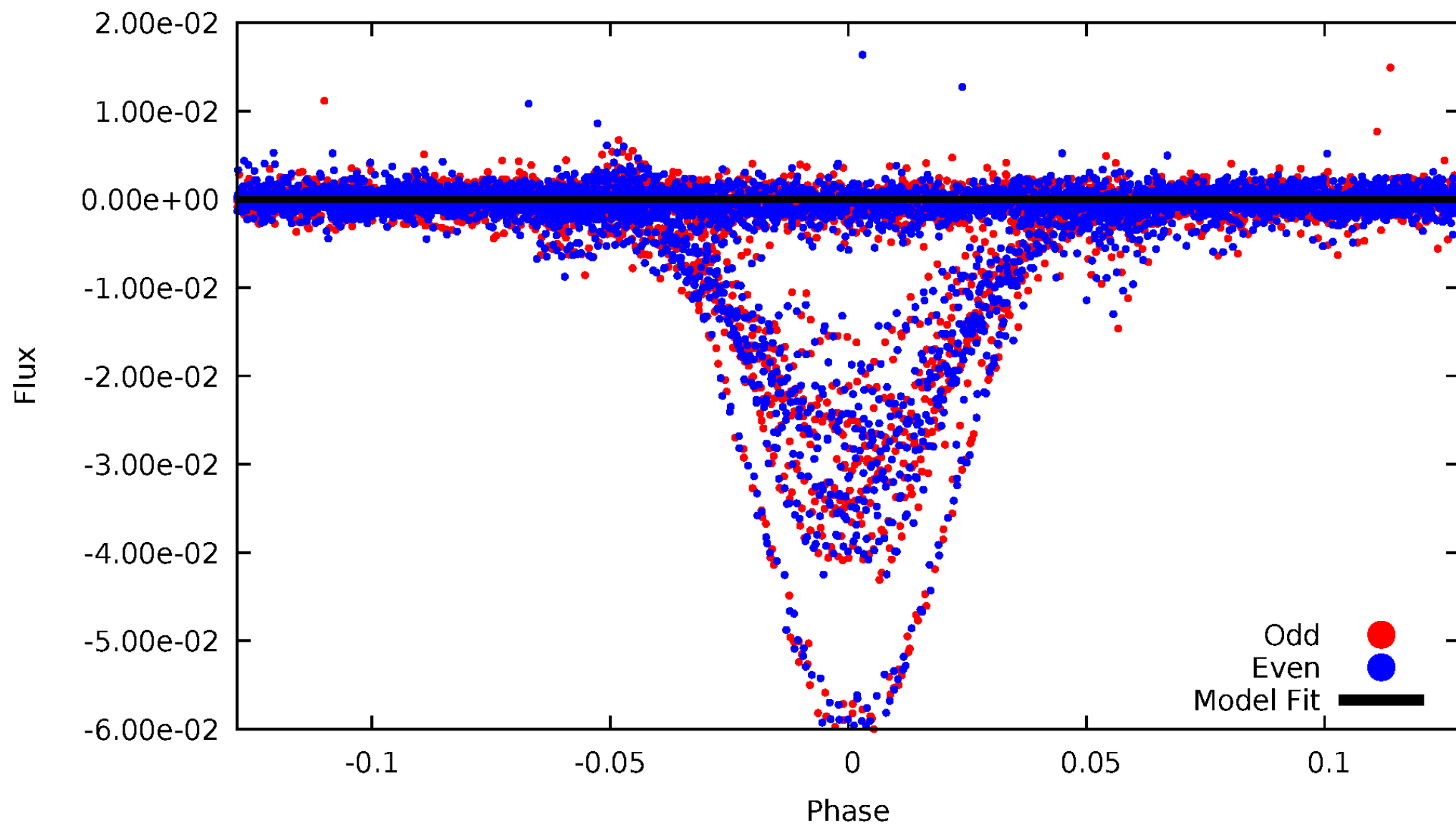


TCE 002854948-02



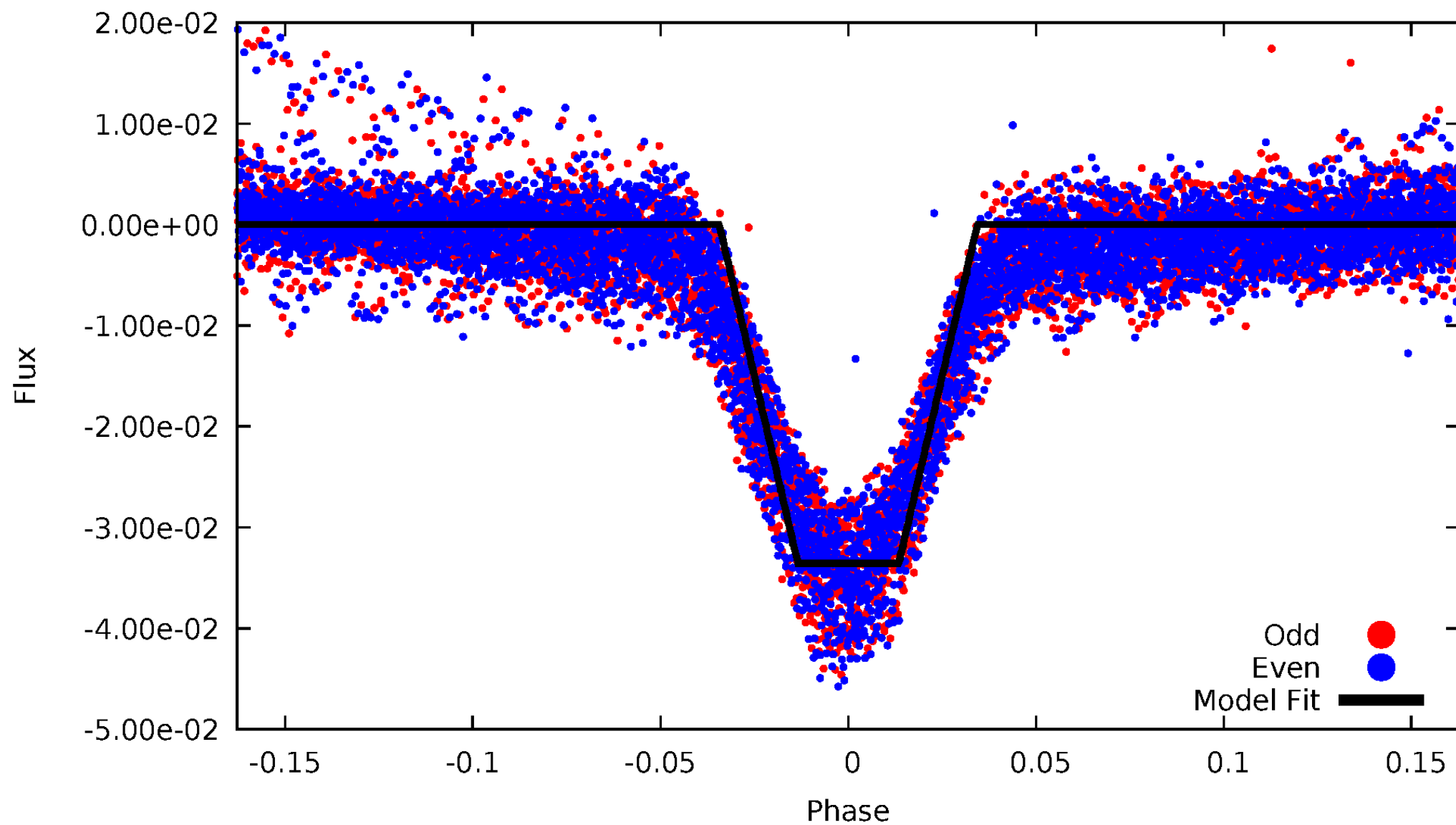
DV Odd/Even

TCE 002854948-02



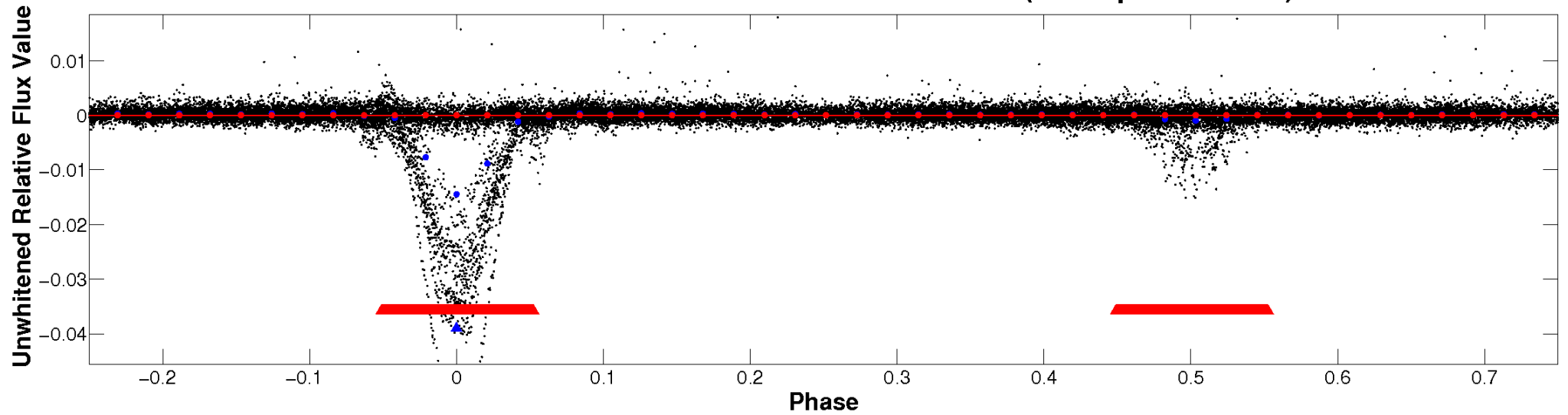
ALT Odd/Even

TCE 002854948-02

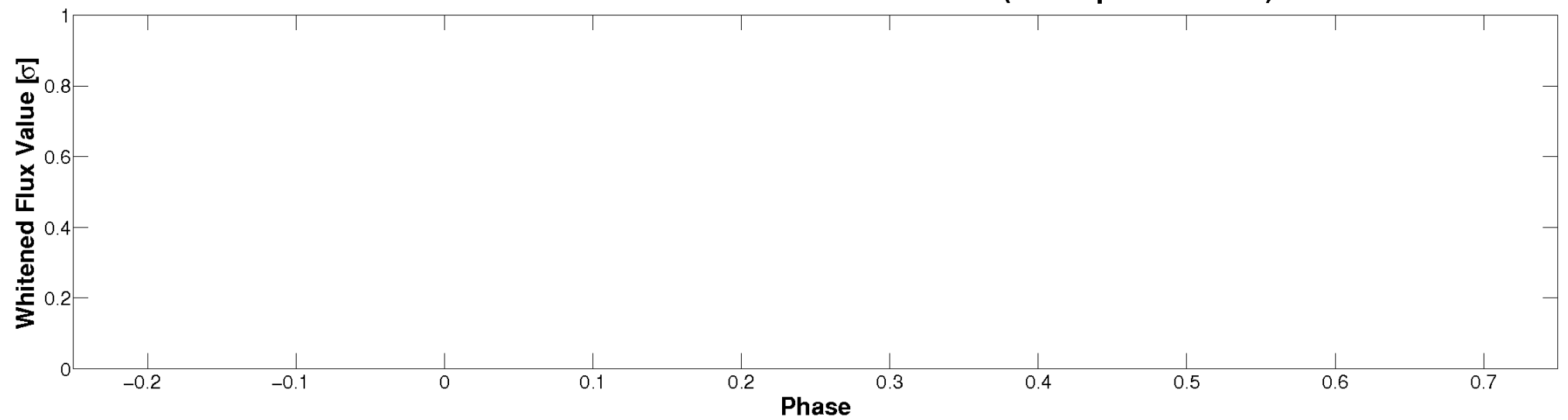


Non-Whitened Vs. Whitened Light Curve

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

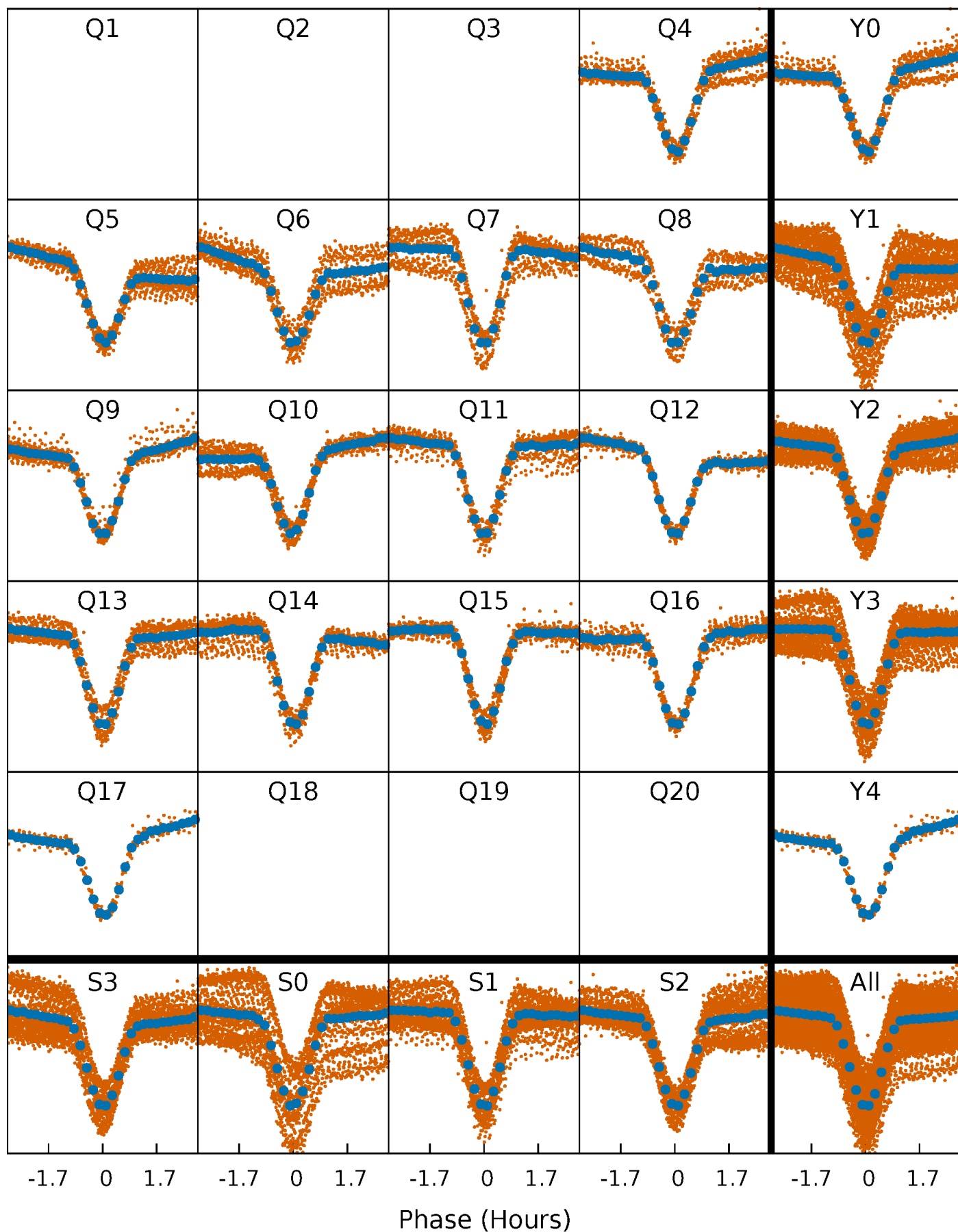


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



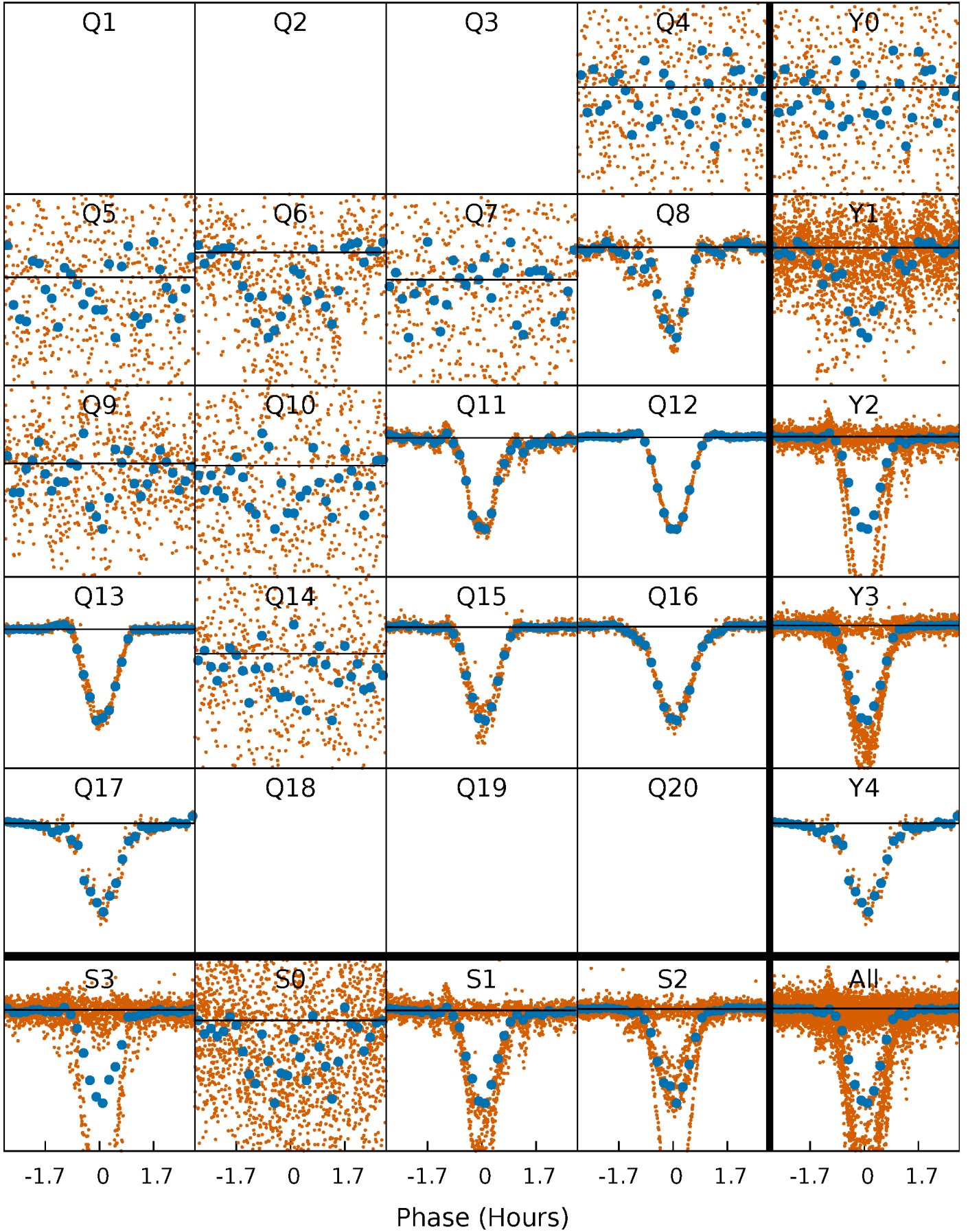
PDC Quarter-Phased Transit Curves

TCE 002854948-02 P= 0.974303 Days $T_0=132.389119$ (BKJD)



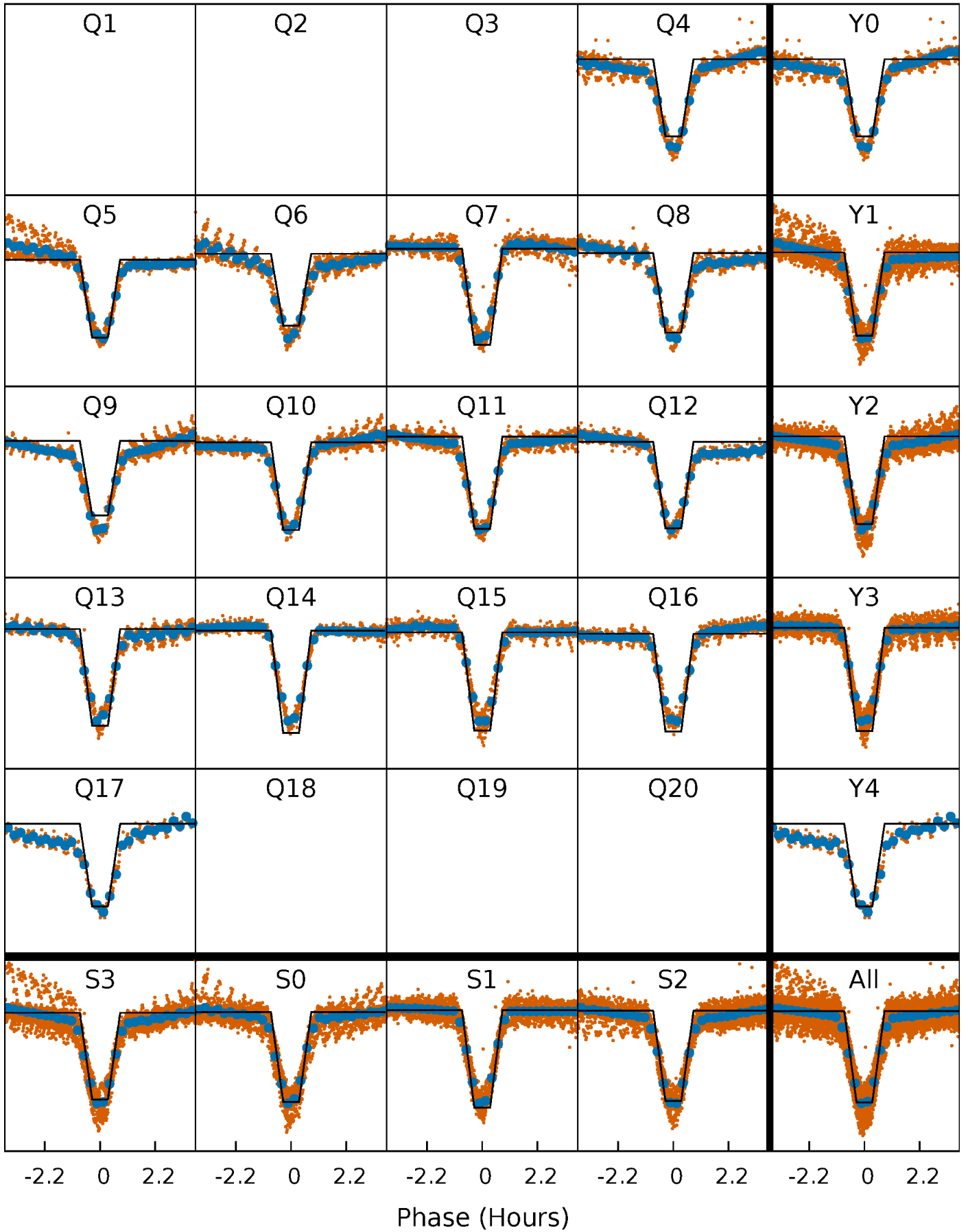
DV Quarter-Phased Transit Curves

TCE 002854948-02 $P = 0.974303$ Days $T_0 = 132.389119$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

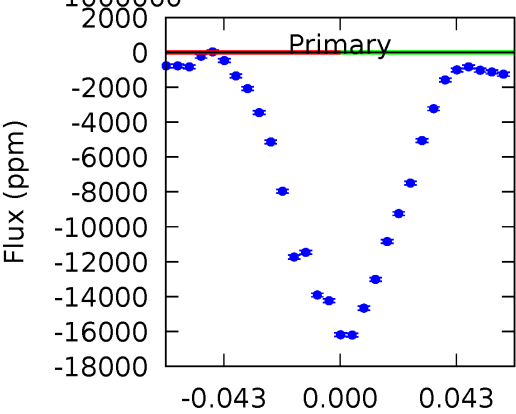
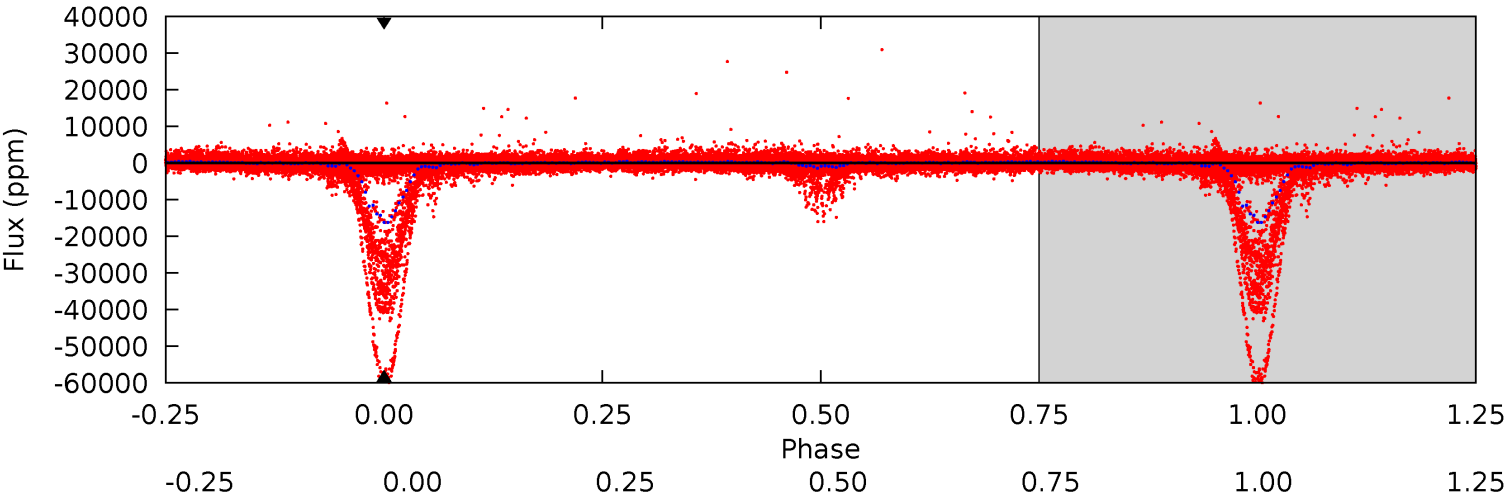
TCE 002854948-02 P= 0.974303 Days $T_0=132.390170$ (BKJD)



DV Model-Shift Uniqueness Test

002854948-02, P = 0.974303 Days, E = 132.389119 Days

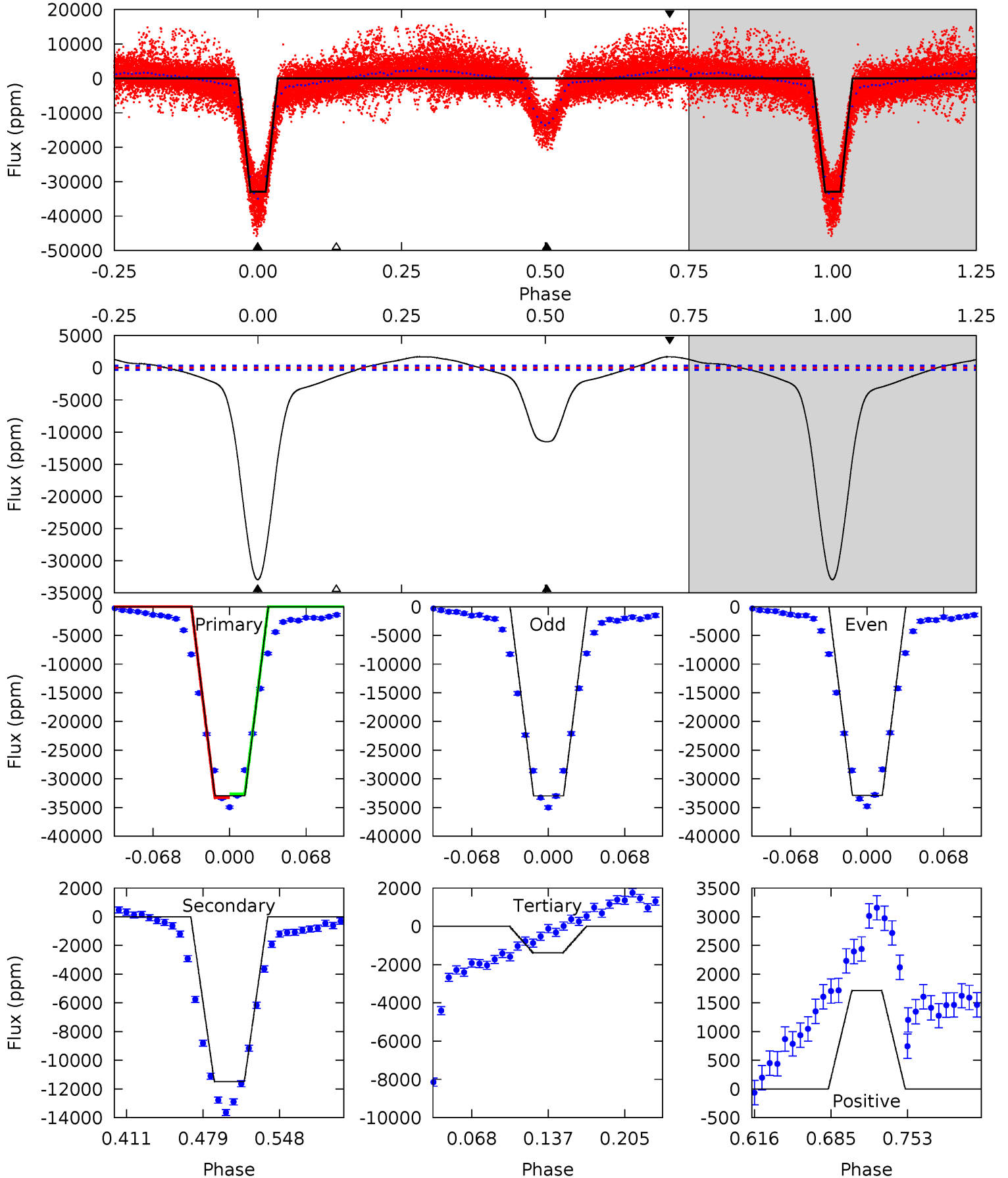
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

002854948-02, P = 0.974303 Days, E = 132.390170 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
463.7	161.9	19.4	24.1	4.64	1.82	18.5	444.3	439.6	142.4	137.7	0.61	1.01	0.05	4.75



Stellar Parameters For KIC 002854948

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5688^{+189}_{-189}	$4.583^{+0.040}_{-0.160}$	$-0.360^{+0.300}_{-0.300}$	$0.786^{+0.195}_{-0.065}$	$0.870^{+0.088}_{-0.098}$	$2.519^{+0.520}_{-1.081}$
	+3%/-3%	+1%/-3%	+83%/-83%	+25%/-8%	+10%/-11%	+21%/-43%
Source	KIC0	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 002854948-02 / KOI 3786.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$18.90^{+8.76}_{-8.04}$	2348^{+151}_{-106}	-2911^{+10476}_{-4539}	$-0.193^{+65.550}_{-64.413}$
Alt.	-11496 ± 71	$16.92^{+9.30}_{-7.90}$	2351^{+139}_{-108}	4456^{+1412}_{-664}	$7.263^{+18.997}_{-4.136}$

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

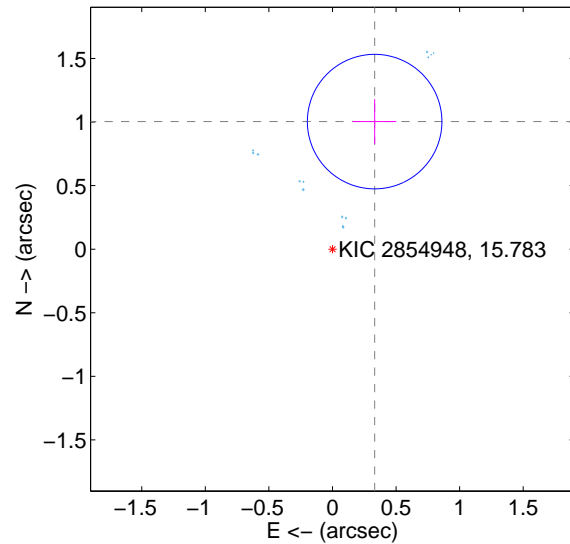
Supplemental centroid analysis for 002854948-02. Kepler magnitude: 15.78. Transit SNR -1.00

There are 14 quarters with good PRF difference image offsets

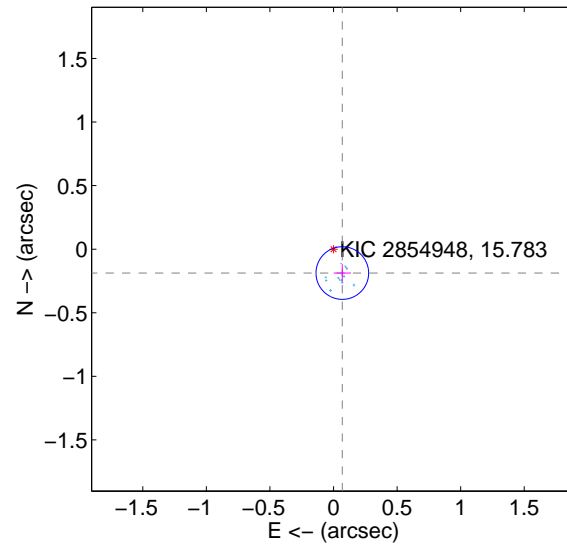
The direct PRF centroid is offset from the target star catalog position by about 1.82 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.057 ± 0.176	5.99	-0.332 ± 0.171	1.004 ± 0.177
PRF-fit source offset from KIC position	0.200 ± 0.069	2.90	-0.069 ± 0.068	-0.188 ± 0.069
photometric centroid source offset	1.53 ± 0.01	227.03	-0.34 ± 0.01	-1.50 ± 0.01

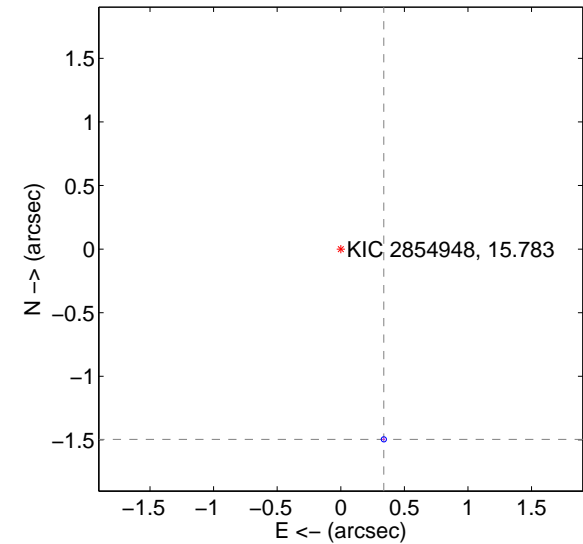
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

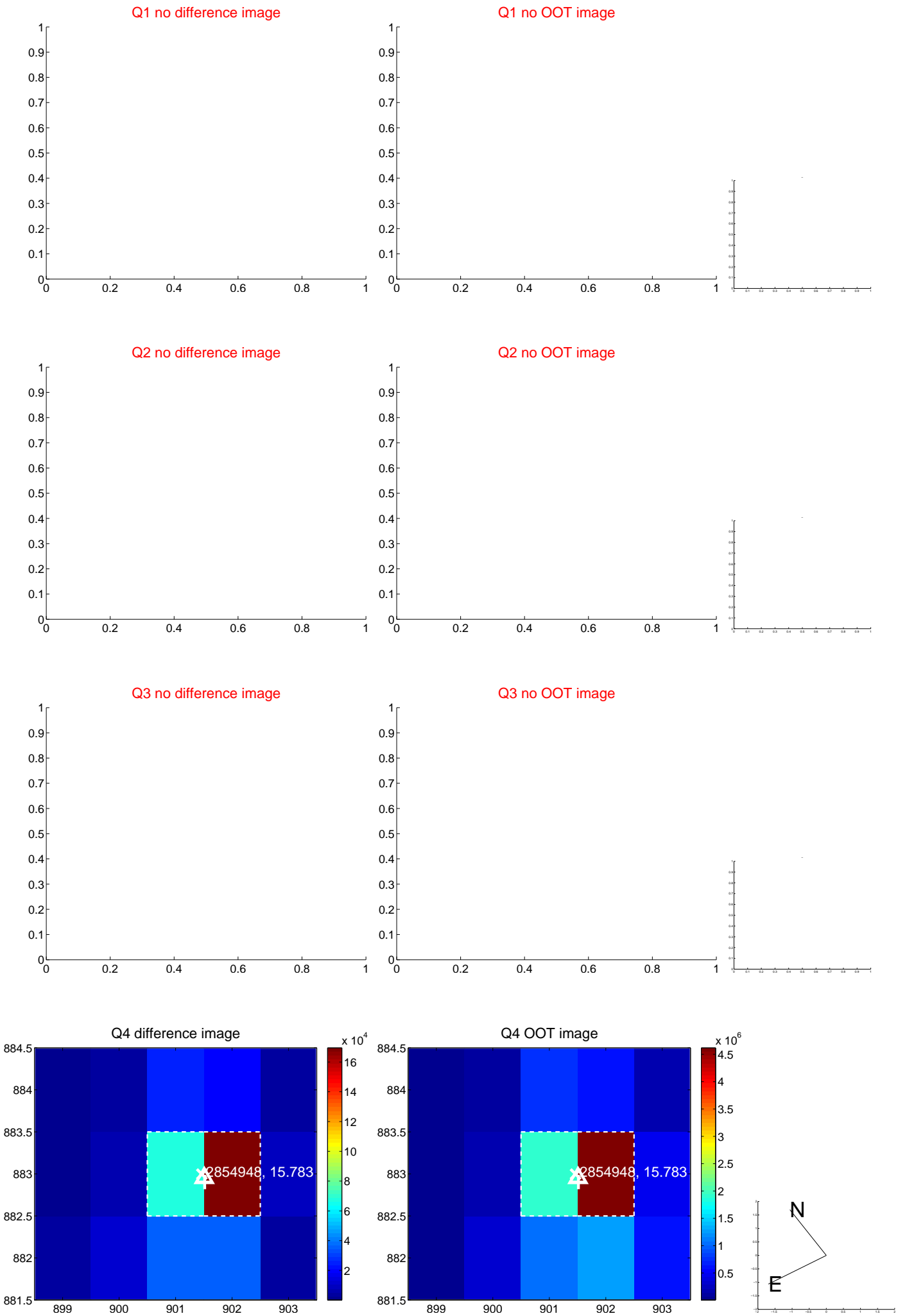


offset from photometric centroids

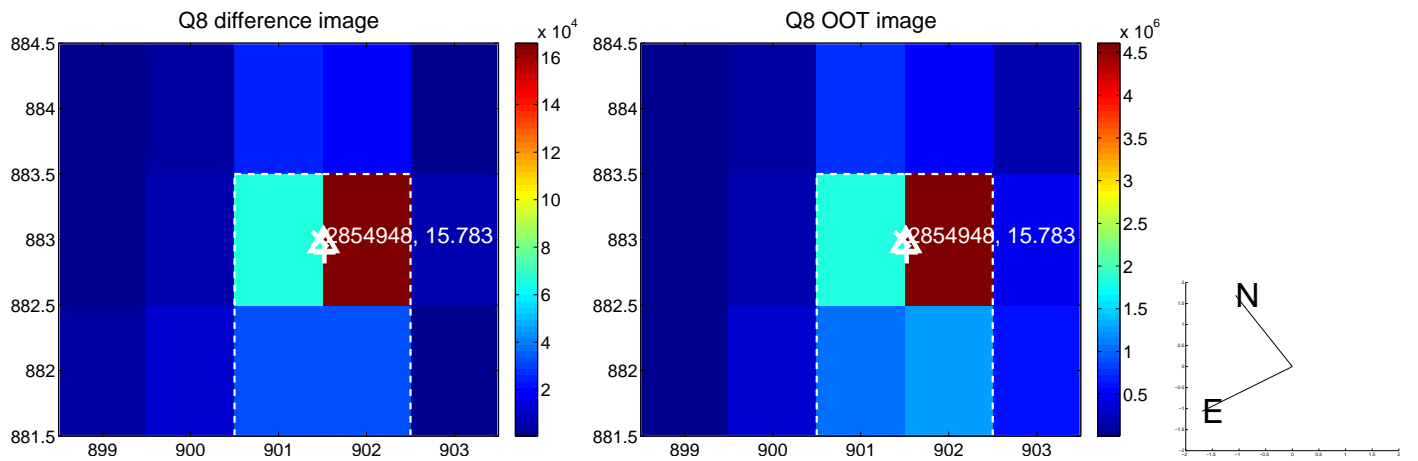
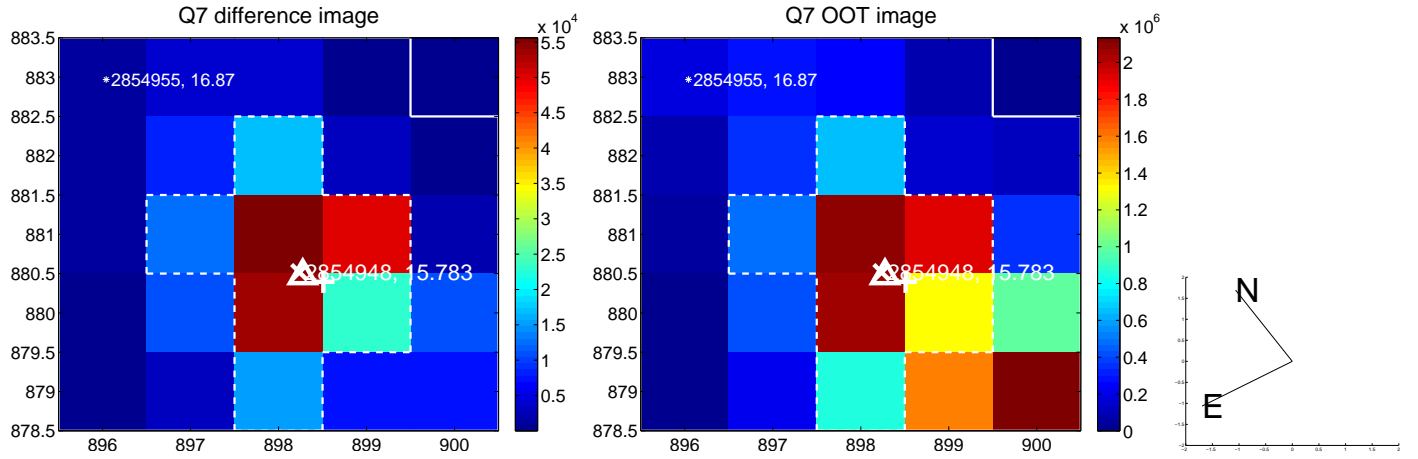
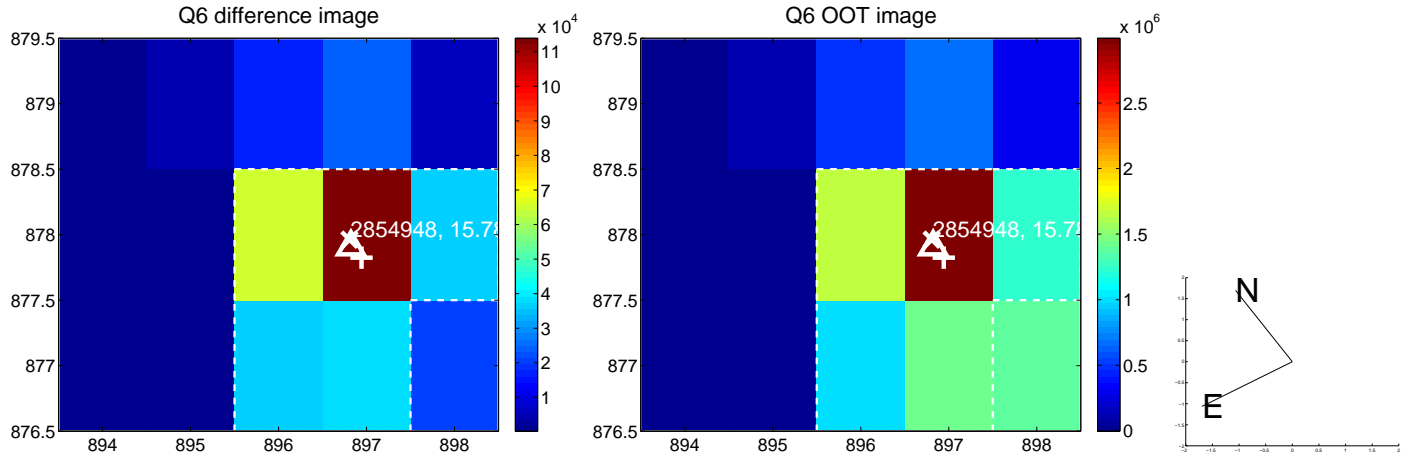
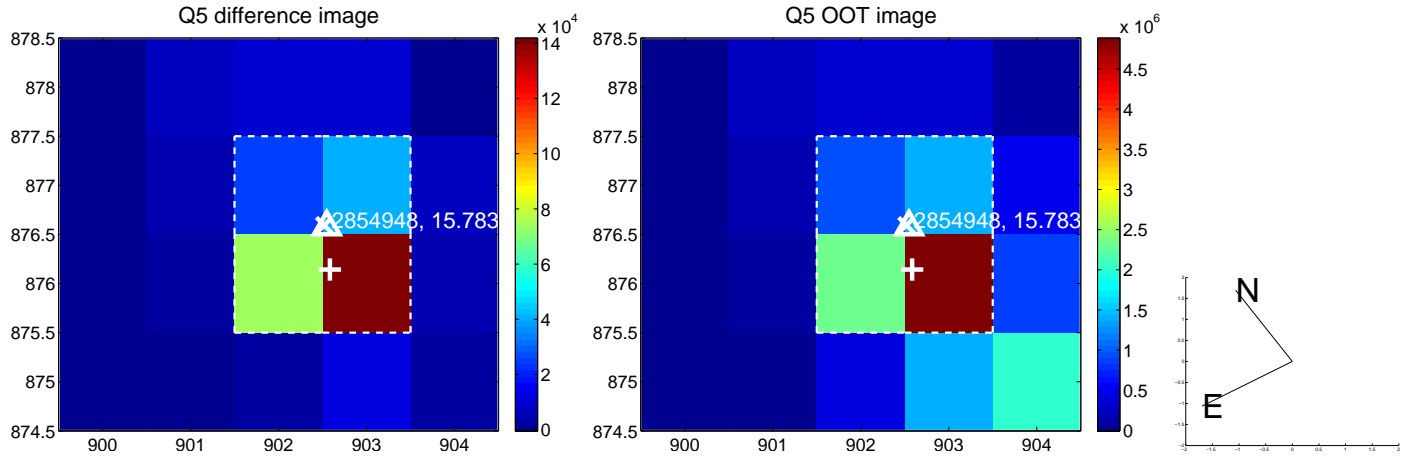


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

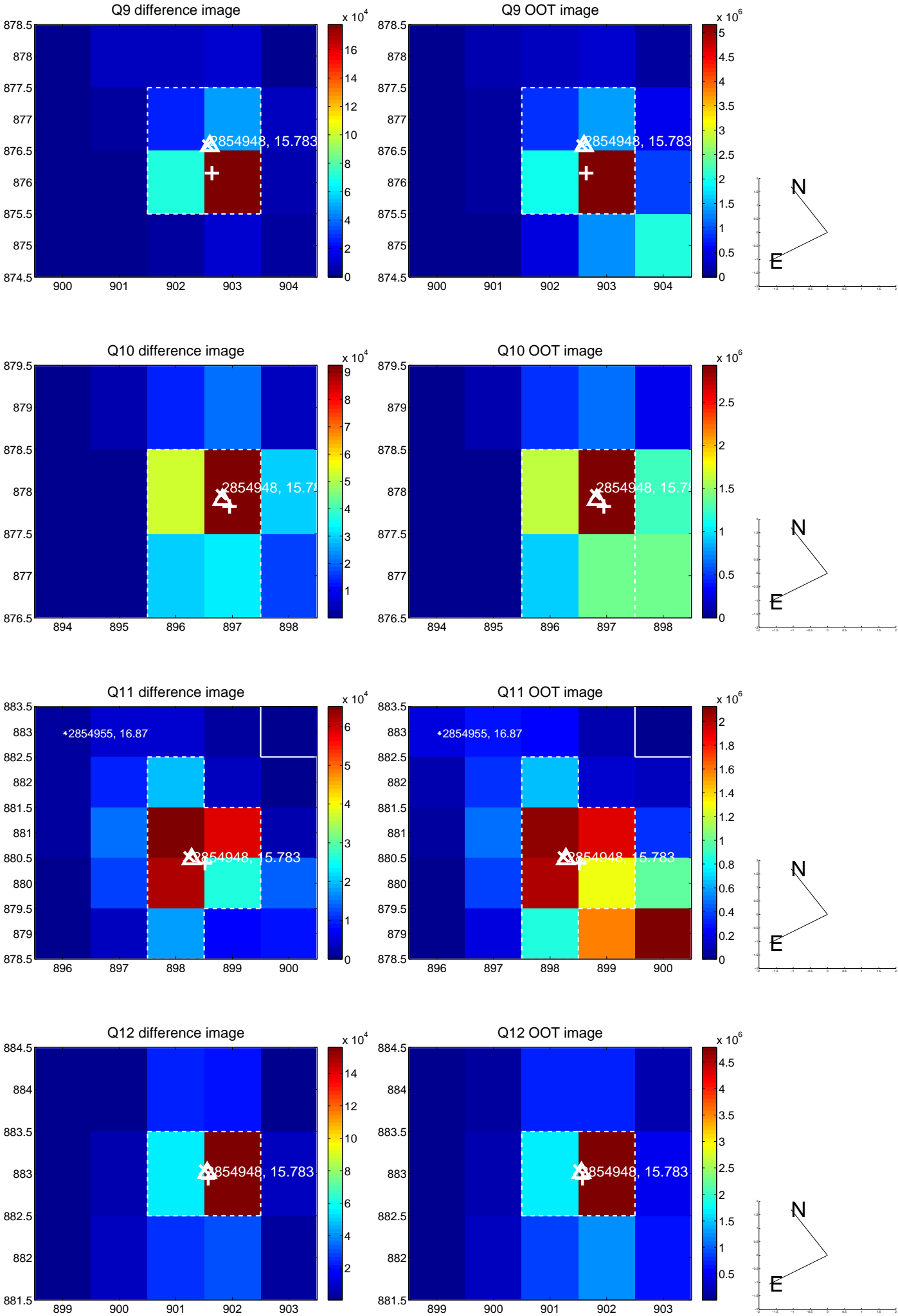
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



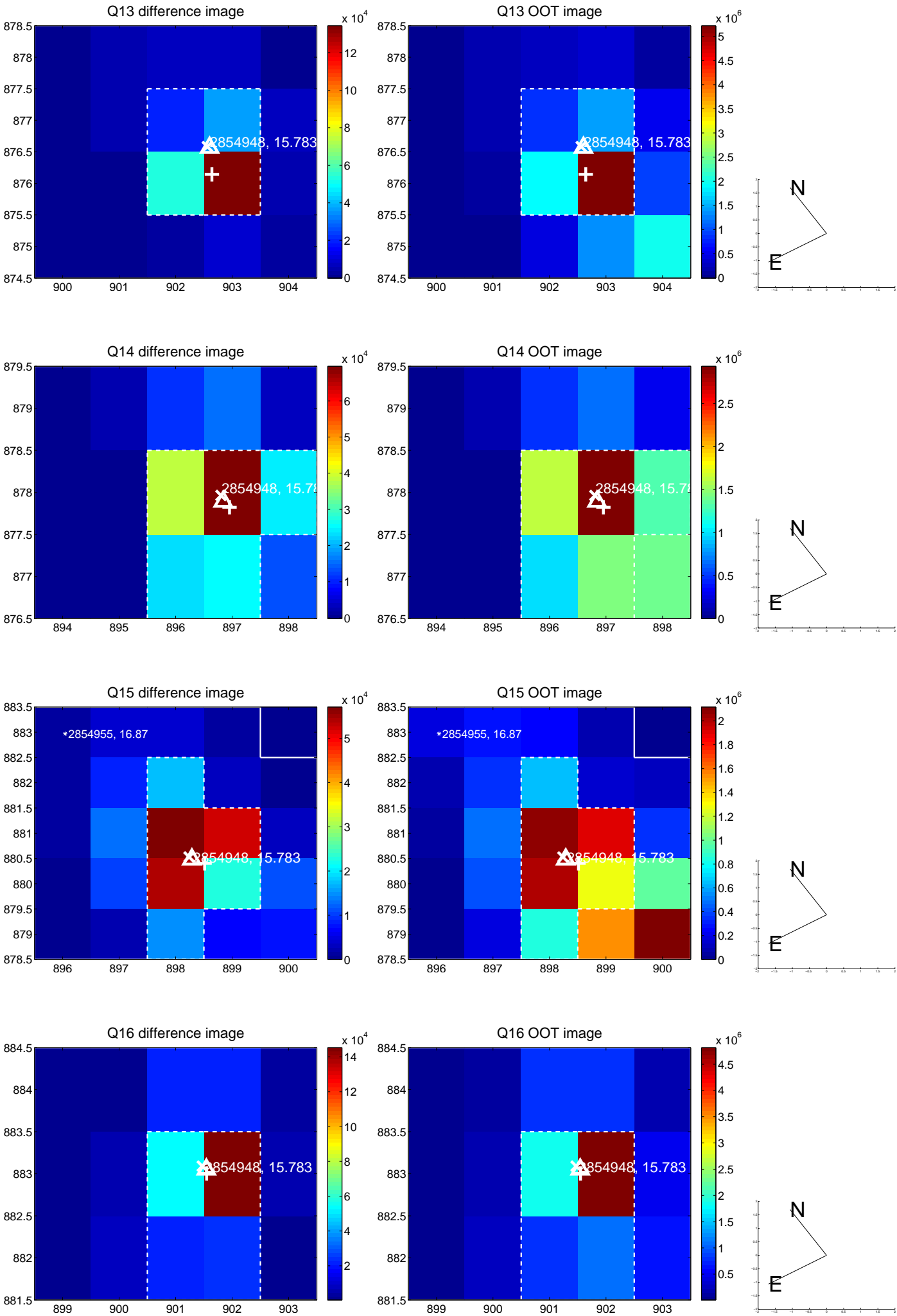
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



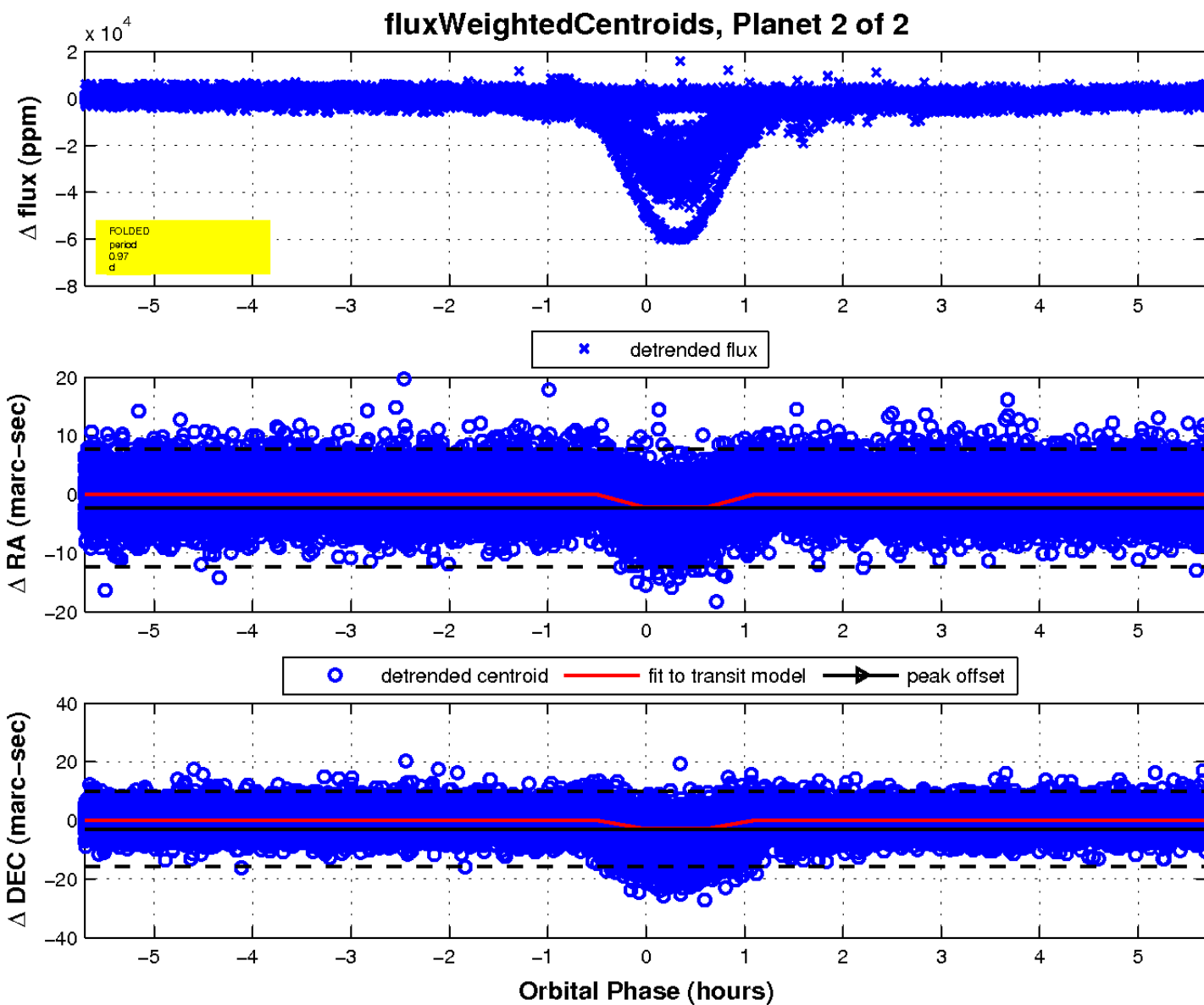
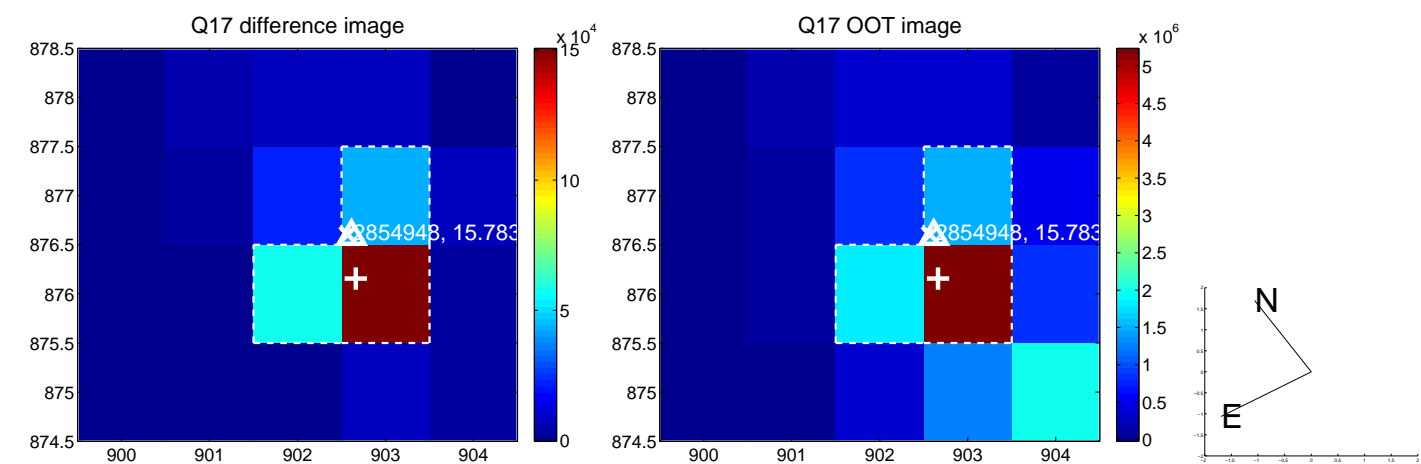
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UKIRT Image

Declination

