

KIC 008746310

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})
008746310-01	OBS	7085.01	6.855624	136.022456	70675.6	3.029	3518.6	2896.5	0.93	6109	35.33	224.91
008746310-02	OBS	No	6.855628	132.594662	9033.8	2.939	447.4	424.9	0.93	6109	15.25	224.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008746310-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV MOD_SEC_ALT DEEP_V_SHAPED HAS_SEC_TCE
008746310-02	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.

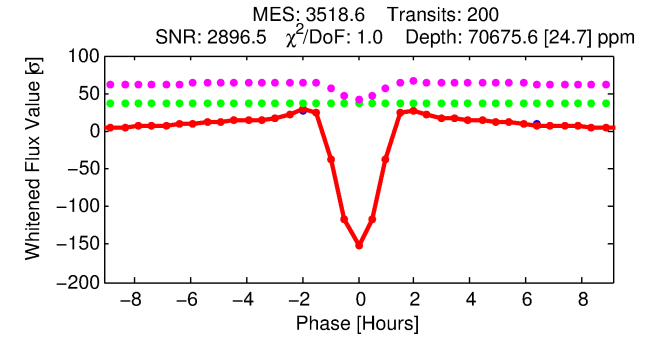
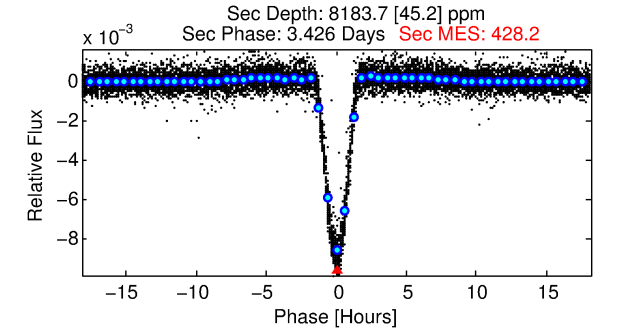
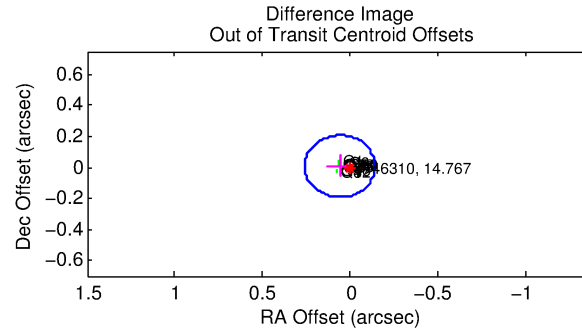
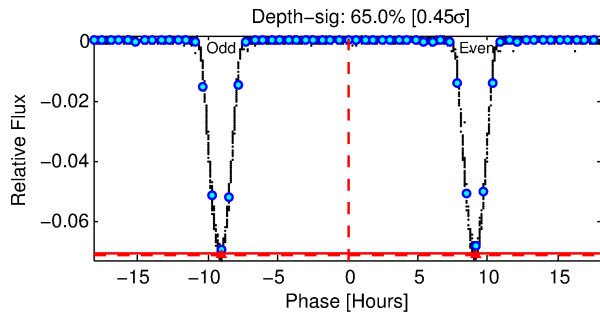
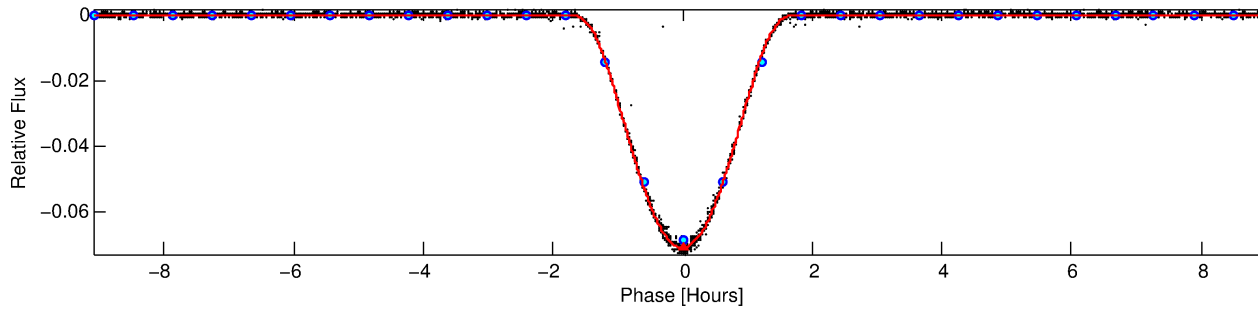
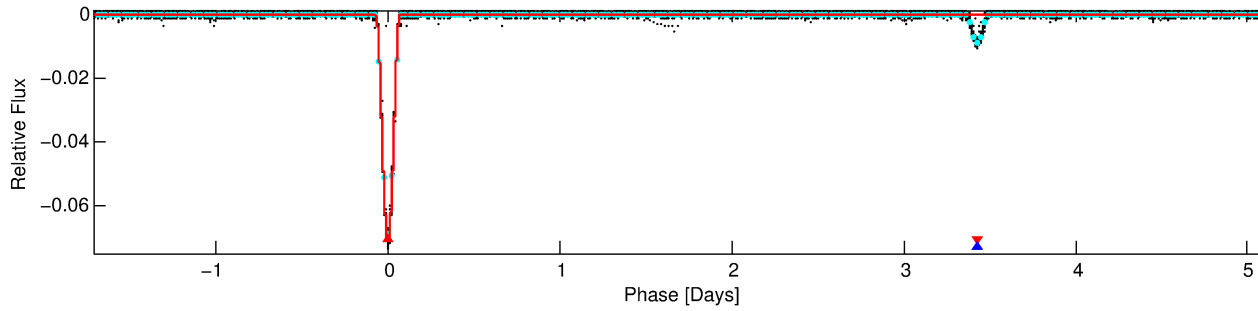
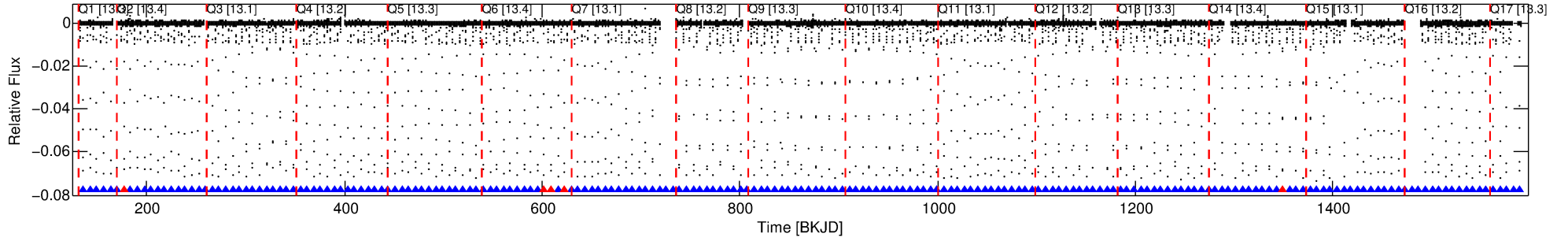
Ephemeris Match Information For 008746310-01

No Significant Match Found

DV One-Page Summary

KIC: 8746310 Candidate: 1 of 2 Period: 6.856 d
KOI: K07085.01 Corr: 0.998

Kp: 14.77 R*: 0.93 Rs Teff: 6109.0 K Logg: 4.48 Fe/H: -0.400



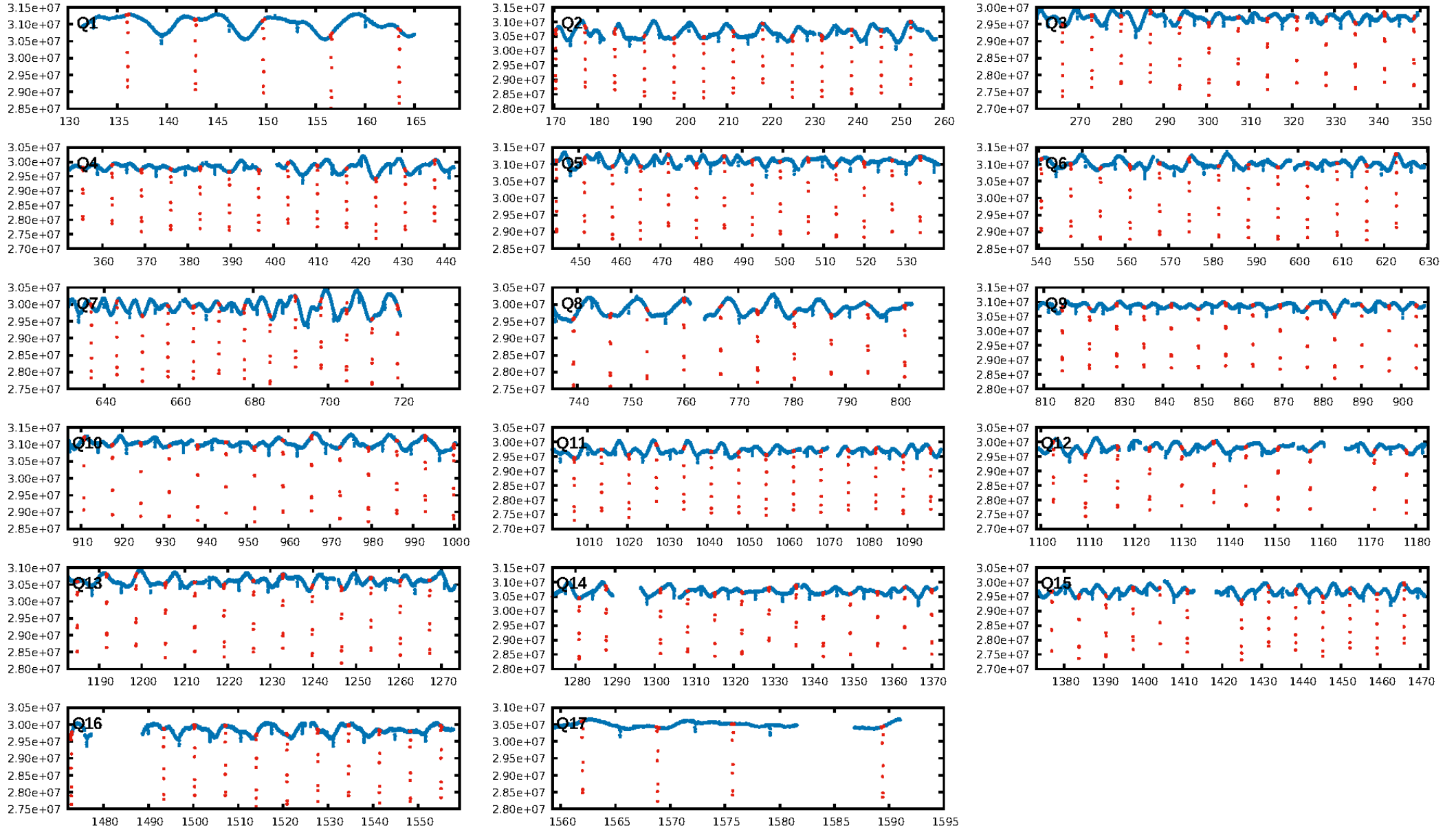
DV Fit Results:

Period = 6.85562 [0.00000] d
Epoch = 136.0225 [0.0000] BKJD
Rp/R* = 0.3478 [0.0054]
a/R* = 17.36 [0.01]
b = 0.90 [0.01]
Seff = 224.91 [86.17]
Teq = 987 [95] K
Rp = 35.33 [10.11] Re
a = 0.0693 [0.0170] AU
Ag = 17.34 [6.33] [2.58σ]
Teffp = 3116 [96] K [15.75σ]

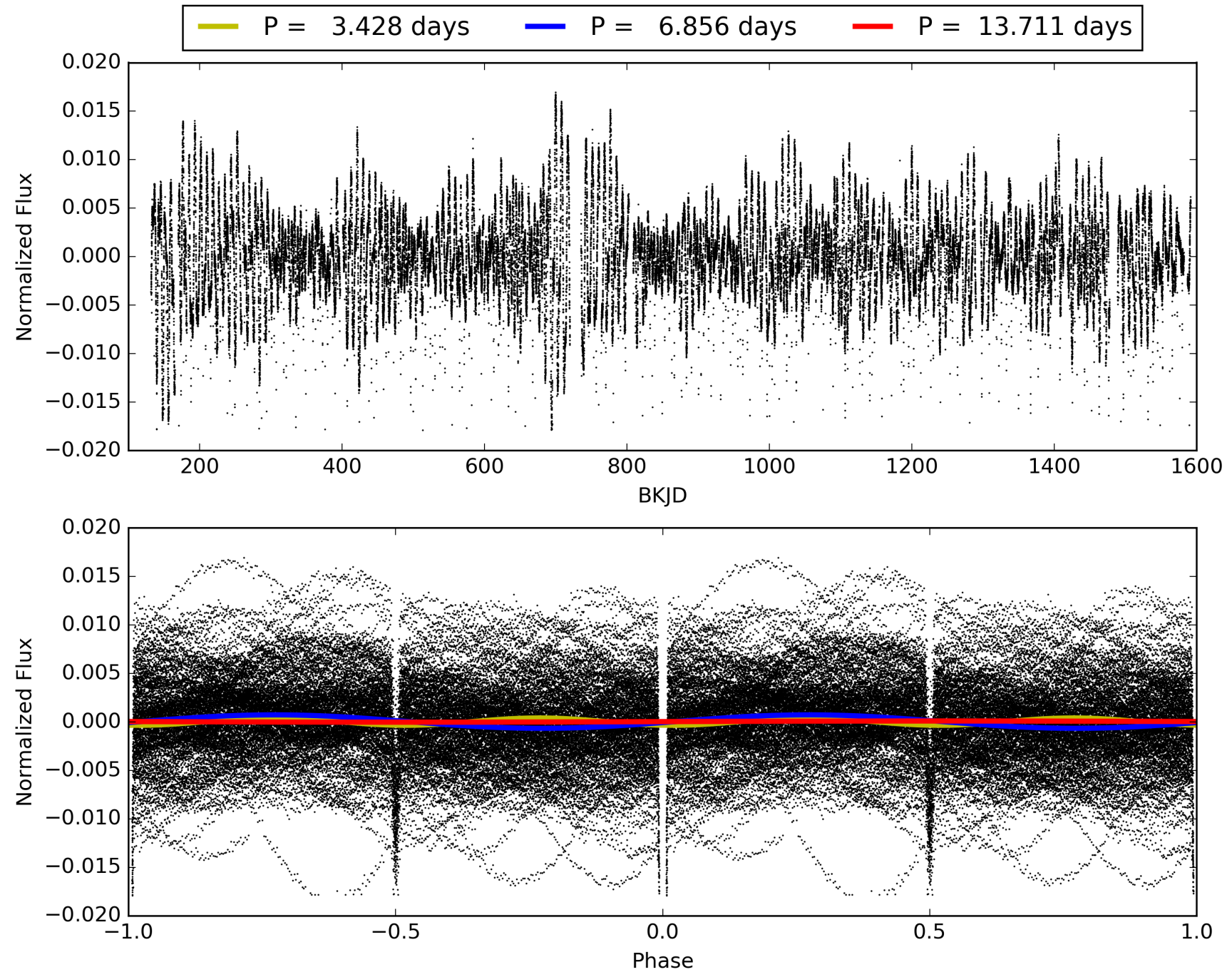
DV Diagnostic Results:

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: 0.97 [186/191]
GhostDiagnostic-chr: 3.816
Centroid-sig: 0.0%
Centroid-so: 0.234 arcsec [76.87σ]
OotOffset-rm: 0.061 arcsec [0.91σ]
KicOffset-rm: 0.156 arcsec [2.26σ]
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 008746310-01, PDC Light Curves

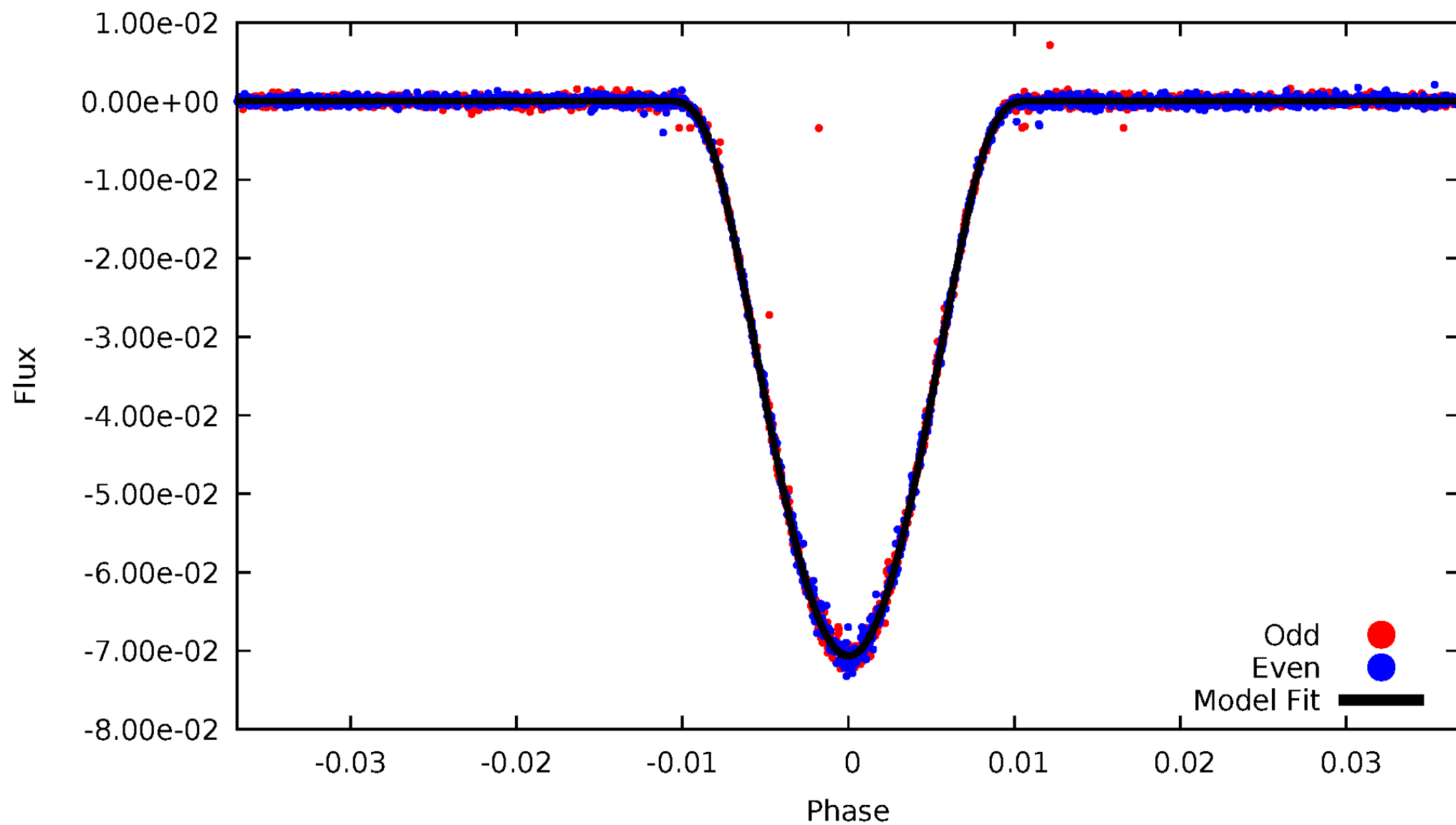


TCE 008746310-01



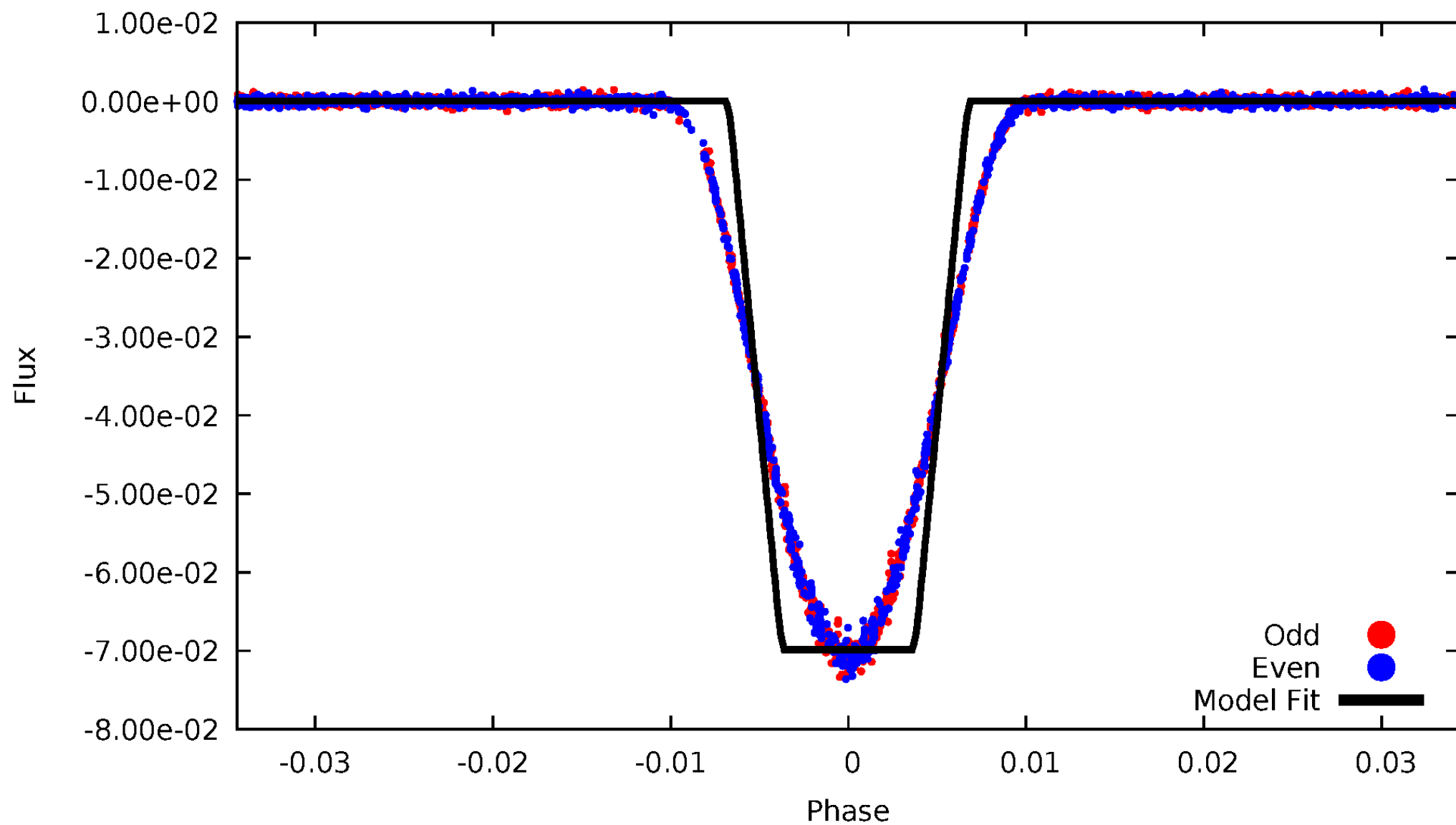
DV Odd/Even

TCE 008746310-01



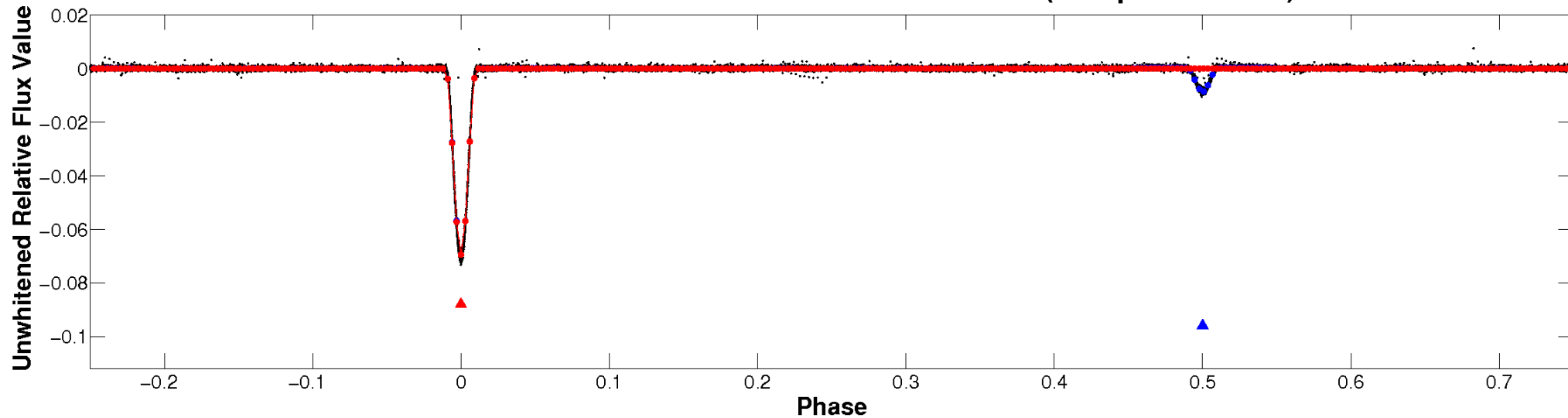
ALT Odd/Even

TCE 008746310-01

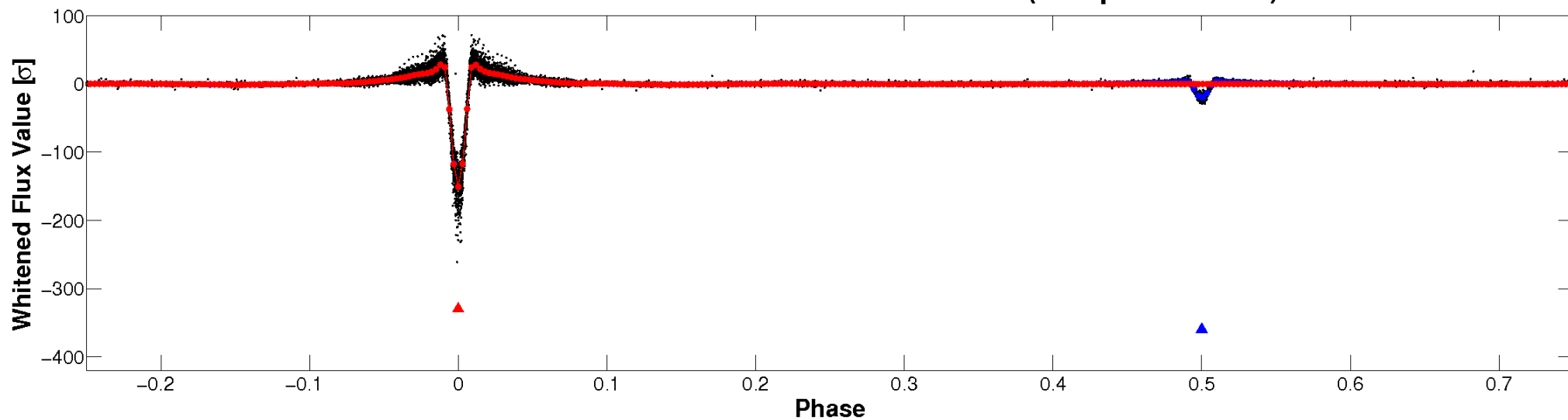


Non-Whitened Vs. Whitened Light Curve

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

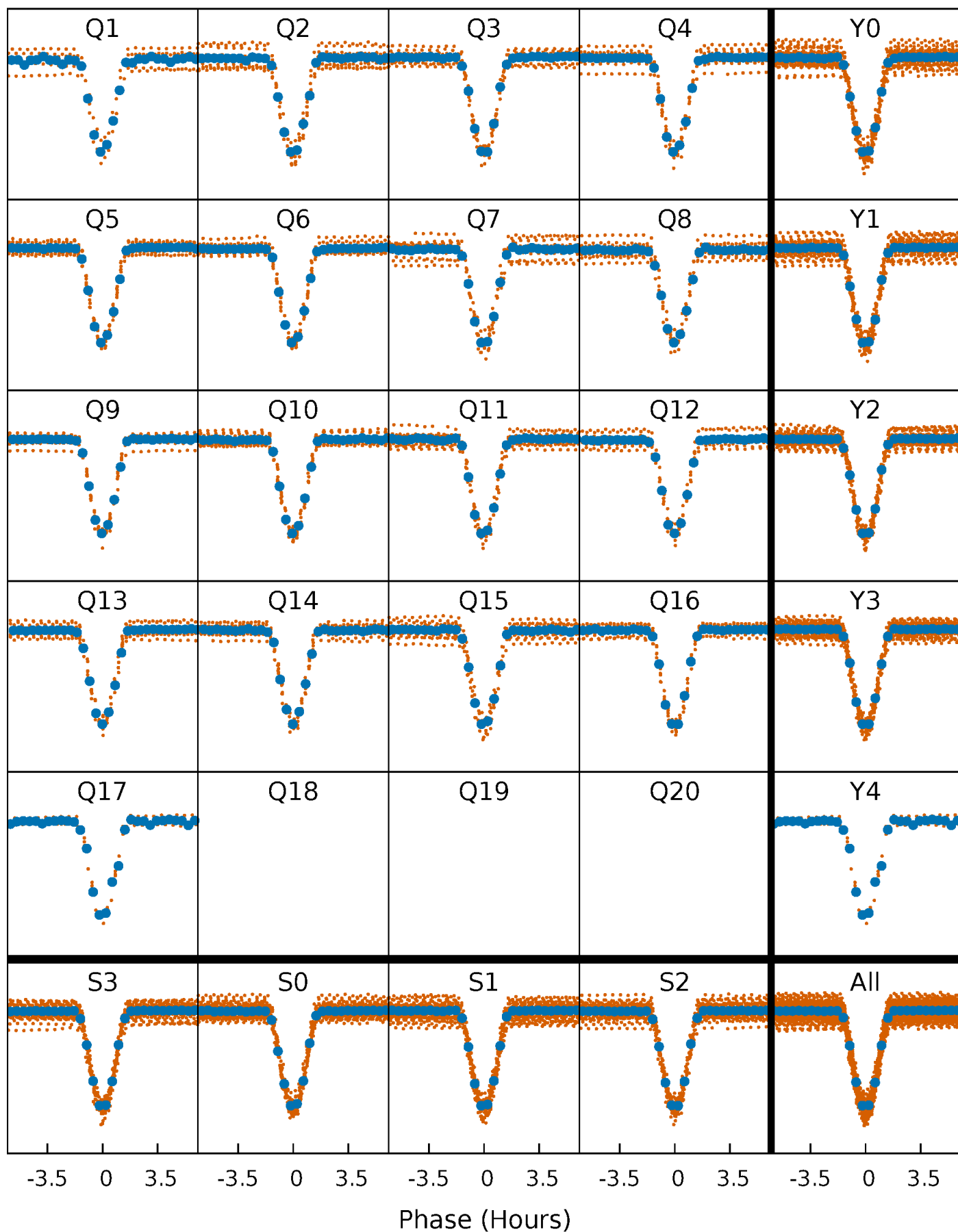


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



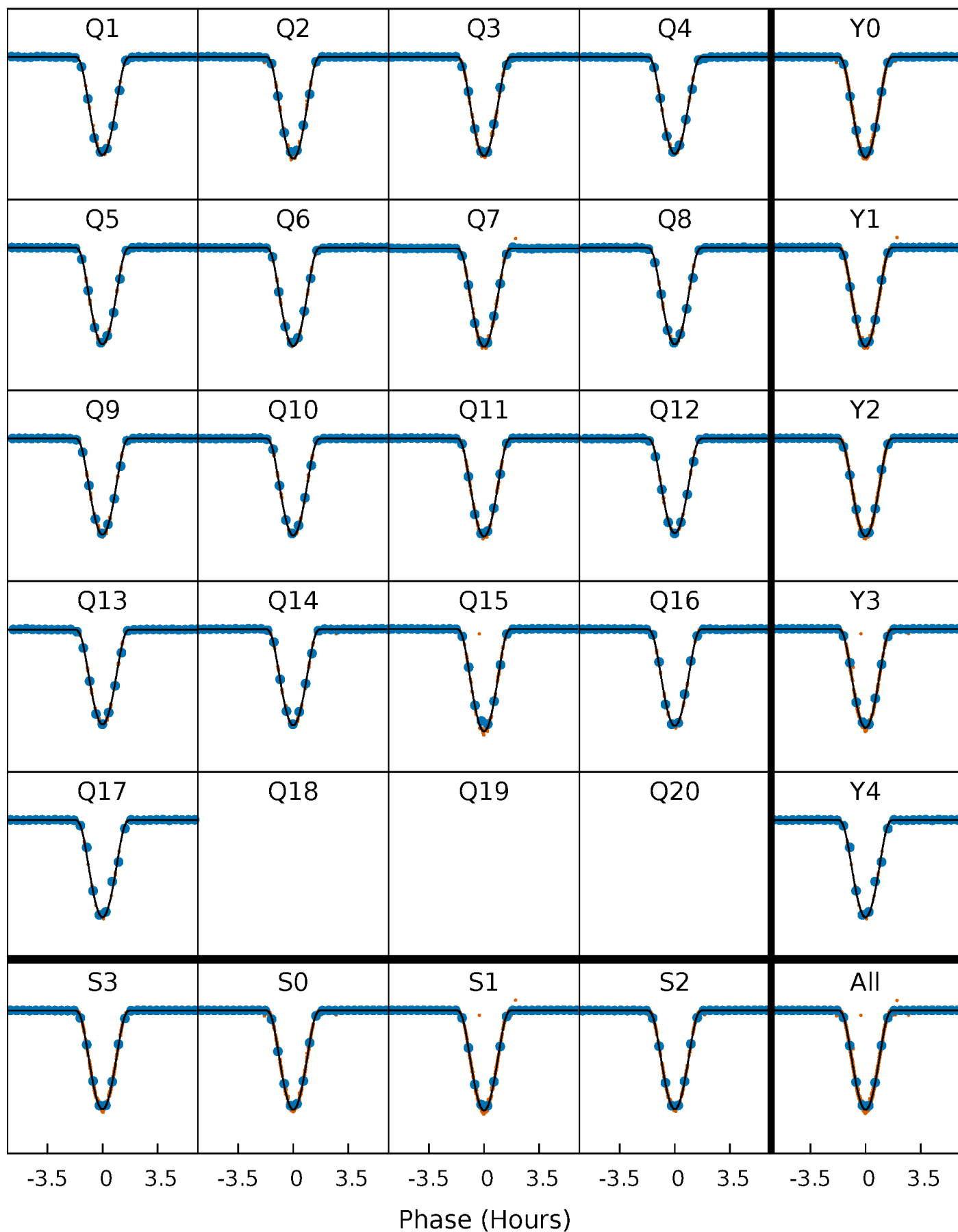
PDC Quarter-Phased Transit Curves

TCE 008746310-01 P= 6.855624 Days $T_0=136.022456$ (BKJD)



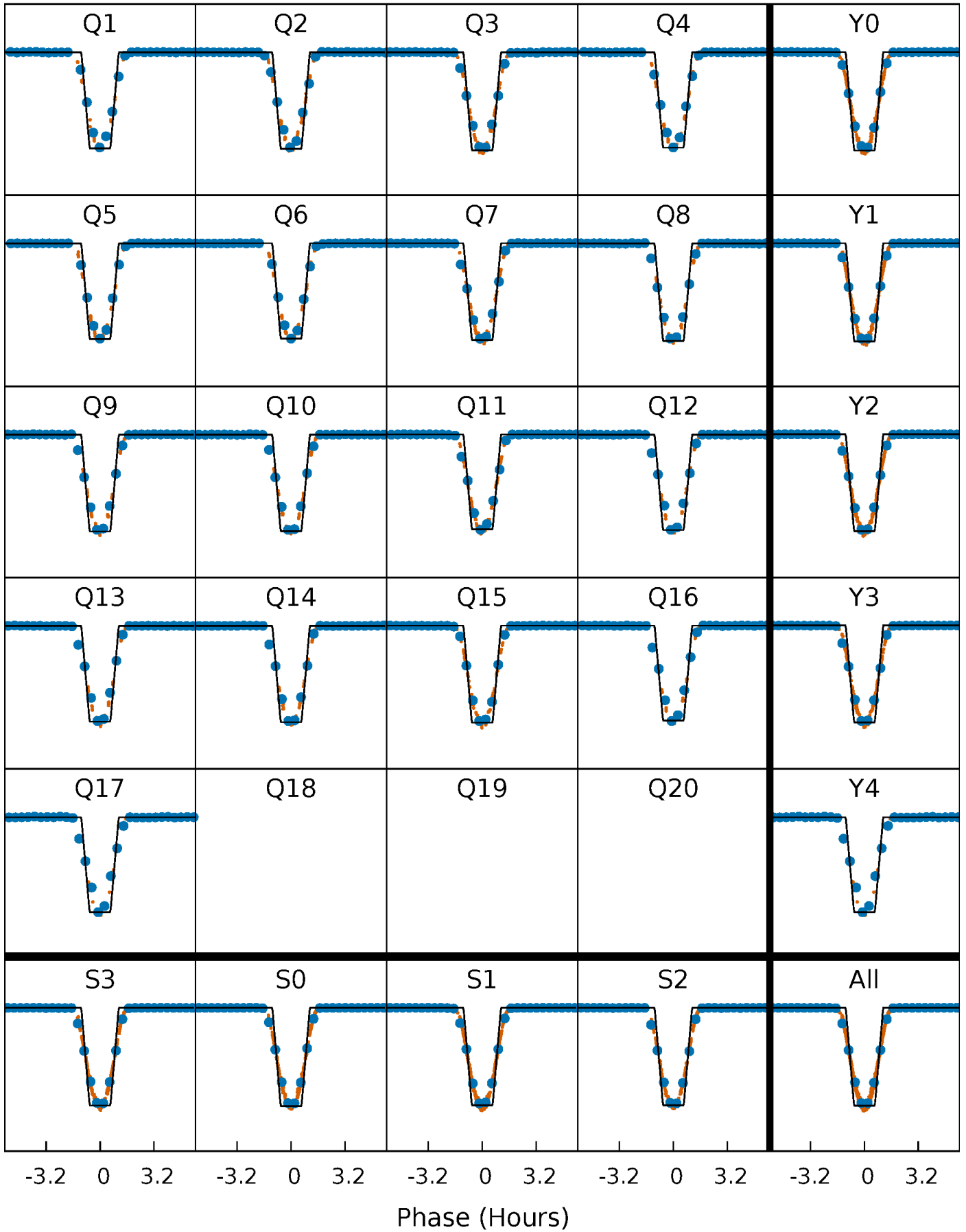
DV Quarter-Phased Transit Curves

TCE 008746310-01 P= 6.855624 Days $T_0=136.022456$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

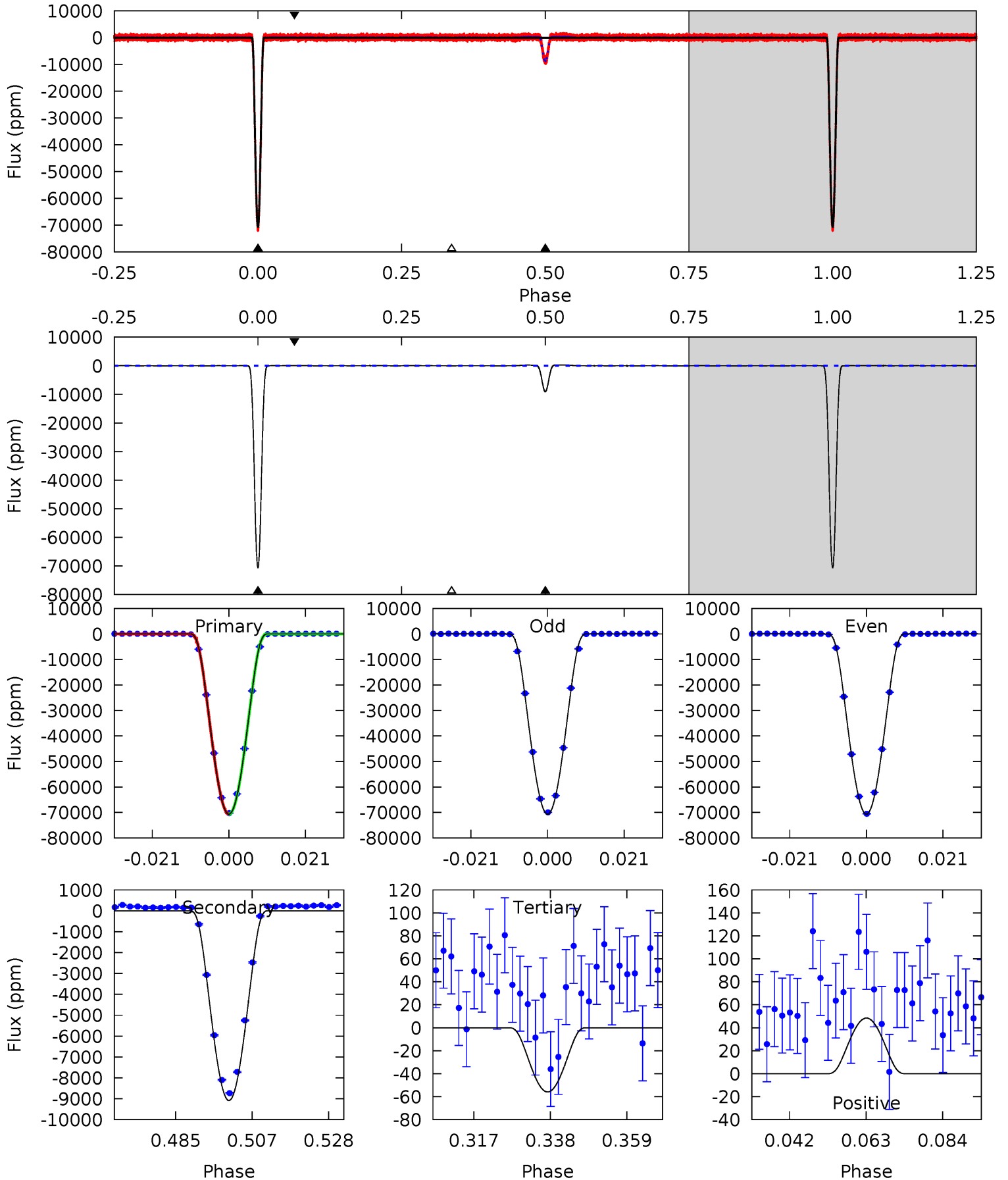
TCE 008746310-01 P= 6.855625 Days $T_0=136.022374$ (BKJD)



DV Model-Shift Uniqueness Test

008746310-01, P = 6.855624 Days, E = 129.166832 Days

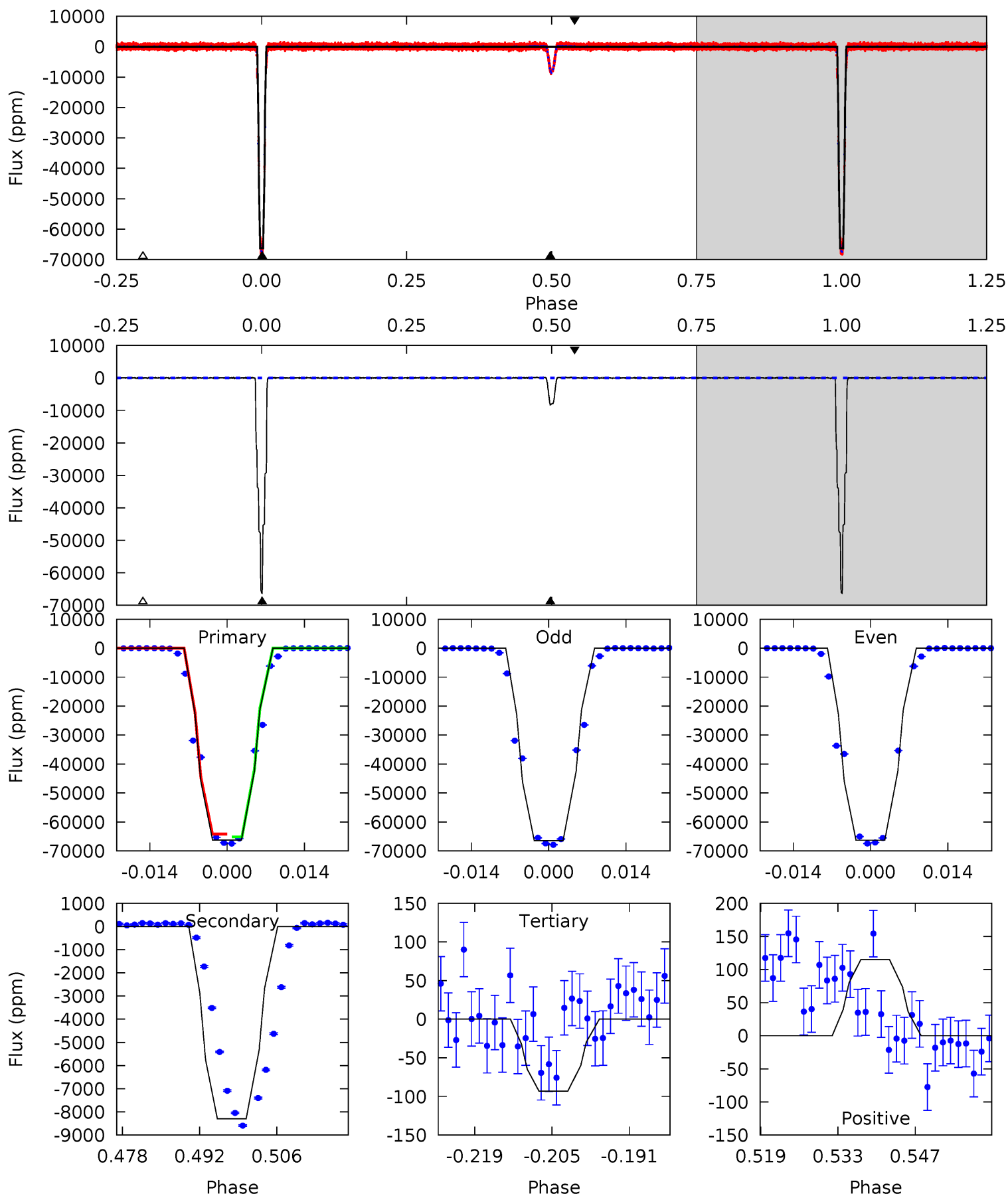
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6689	860.1	5.29	4.59	4.88	2.31	5.15	6683	6684	854.8	855.5	1.07	1.00	0.00	4.14



Alt Model-Shift Uniqueness Test

008746310-01, P = 6.855625 Days, E = 129.166749 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2667	333.9	3.75	4.62	4.97	2.47	1.51	2664	2663	330.2	329.3	2.74	1.00	0.00	0



Stellar Parameters For KIC 008746310

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6109^{+183}_{-183}	$4.476^{+0.067}_{-0.202}$	$-0.400^{+0.300}_{-0.300}$	$0.931^{+0.266}_{-0.095}$	$0.946^{+0.118}_{-0.108}$	$1.651^{+0.469}_{-0.835}$
	+3%/-3%	+1%/-5%	+75%/-75%	+29%/-10%	+12%/-11%	+28%/-51%
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 008746310-01 / KOI 7085.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9087 ± 11	$35.78^{+5.35}_{-2.64}$	1402^{+91}_{-65}	3637^{+74}_{-75}	18^{+3}_{-4}
Alt.	-8300 ± 25	$27.30^{+4.20}_{-2.03}$	1402^{+98}_{-68}	3927^{+94}_{-91}	29^{+5}_{-7}

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

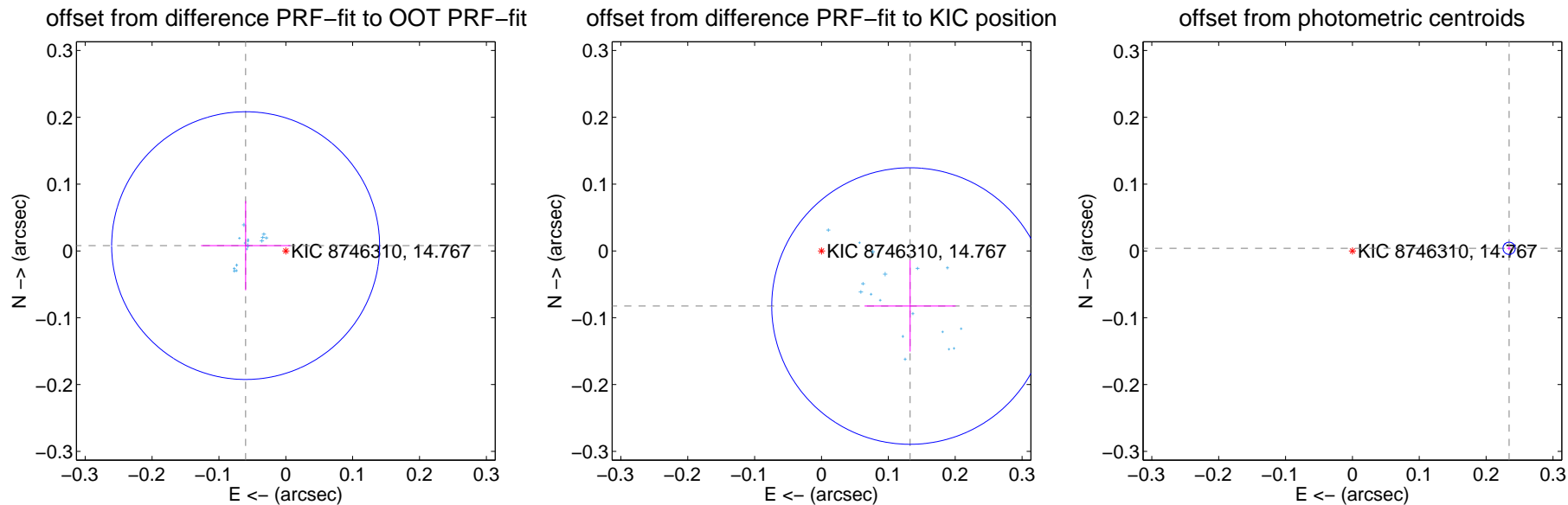
DV Centroid Data

Supplemental centroid analysis for 008746310-01. Kepler magnitude: 14.77. Transit SNR 2896.47

There are 17 quarters with good PRF difference image offsets

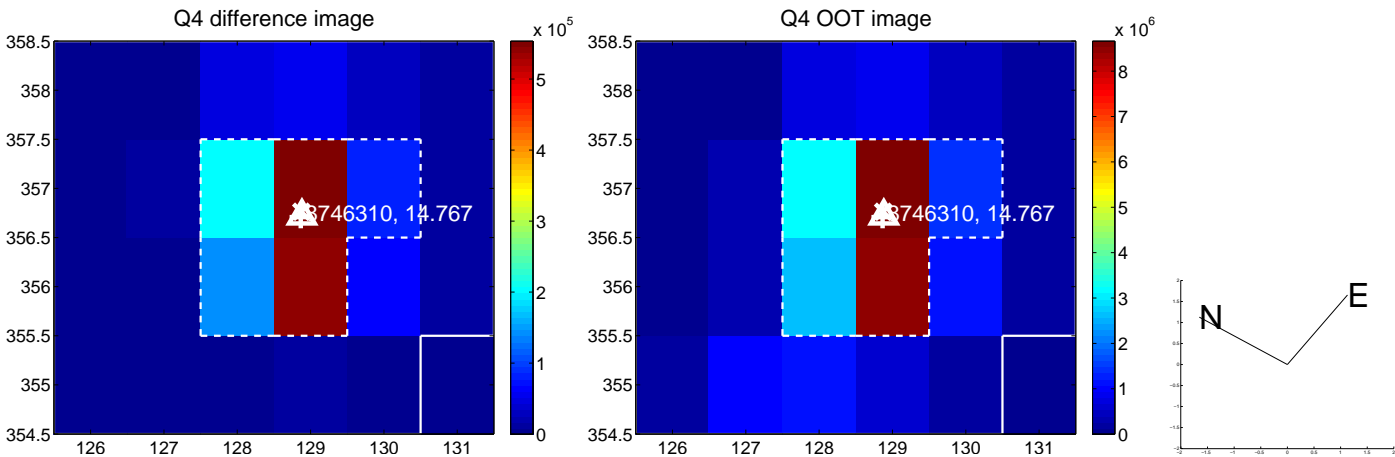
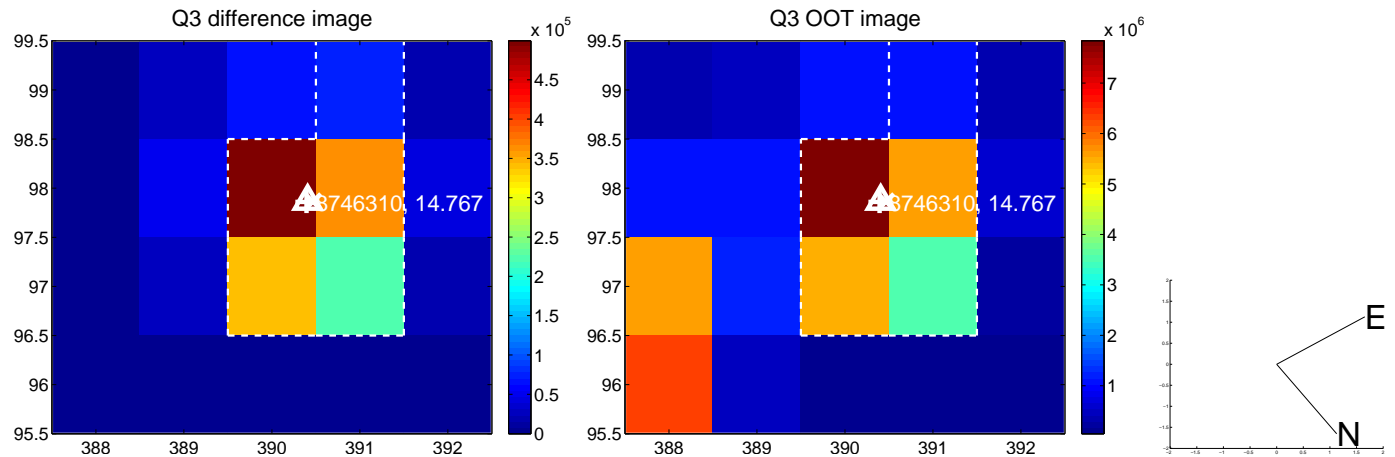
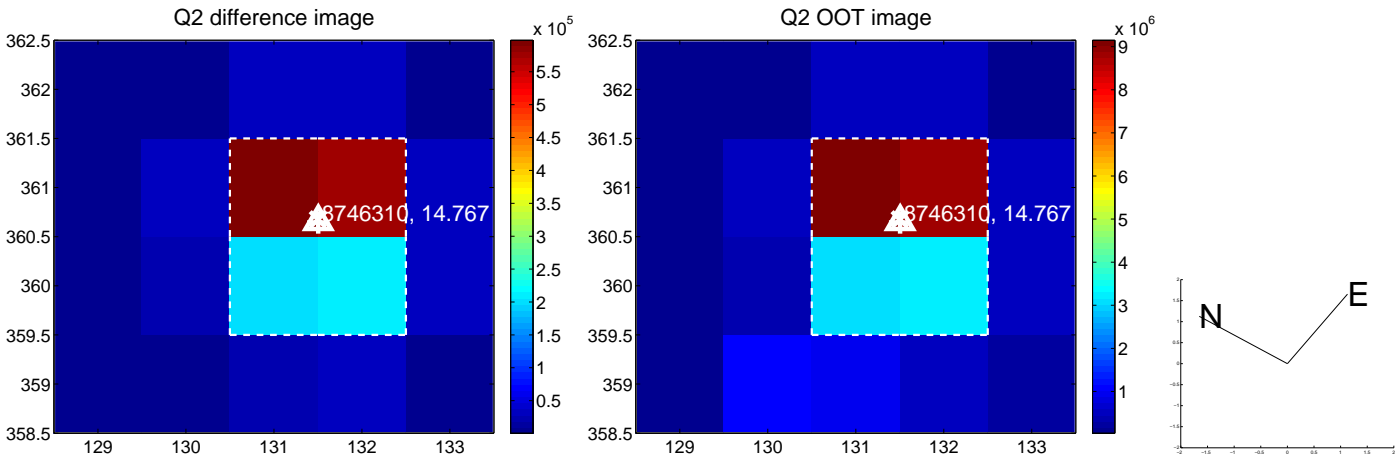
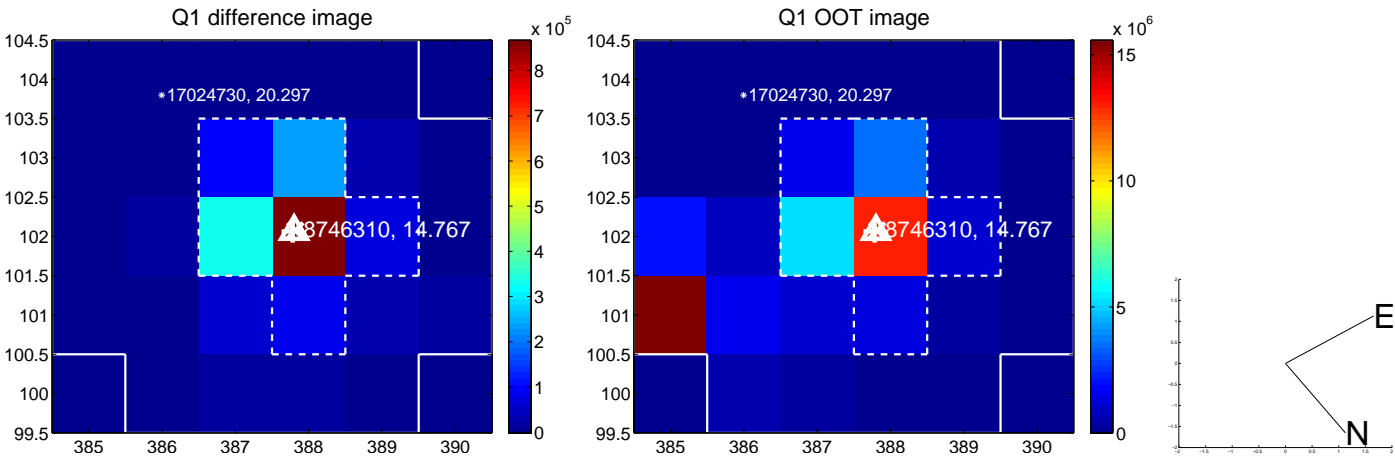
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.061 ± 0.067	0.91	0.060 ± 0.067	0.008 ± 0.067
PRF-fit source offset from KIC position	0.156 ± 0.069	2.26	-0.133 ± 0.068	-0.082 ± 0.068
photometric centroid source offset	0.23 ± 0.00	76.87	-0.23 ± 0.00	0.00 ± 0.00

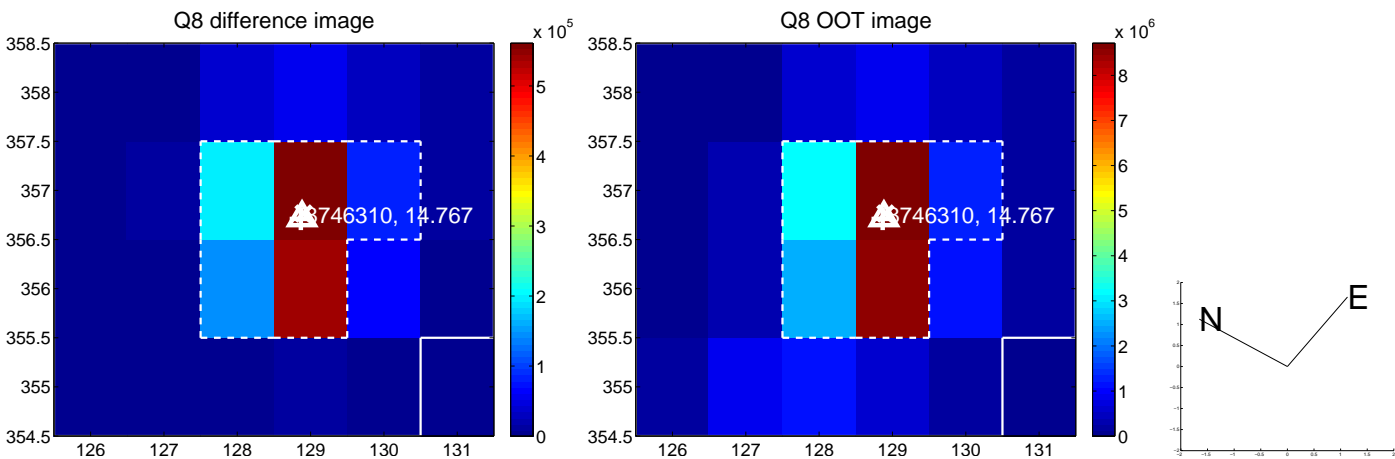
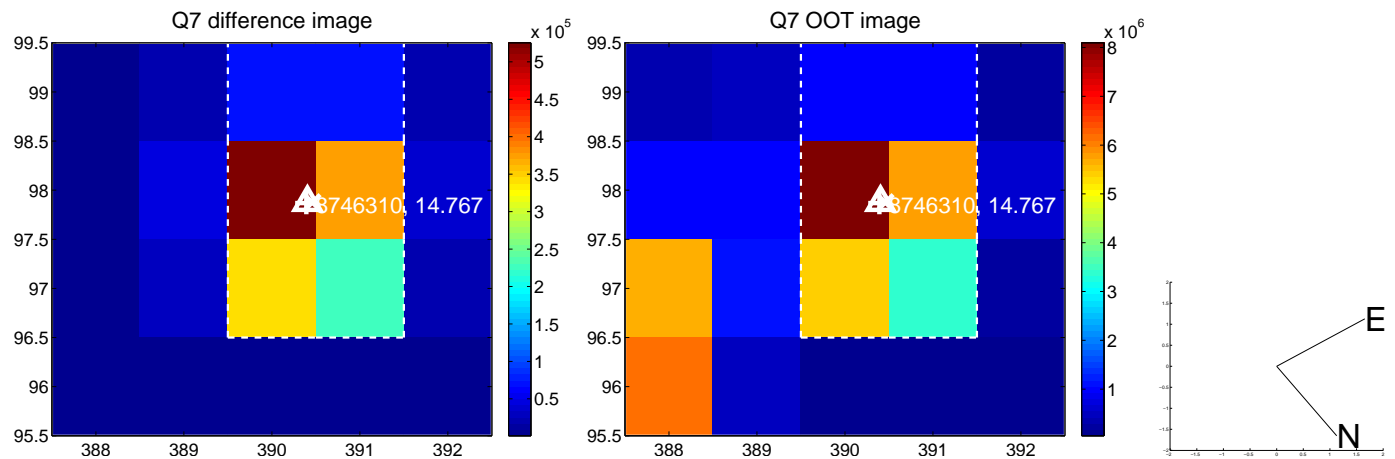
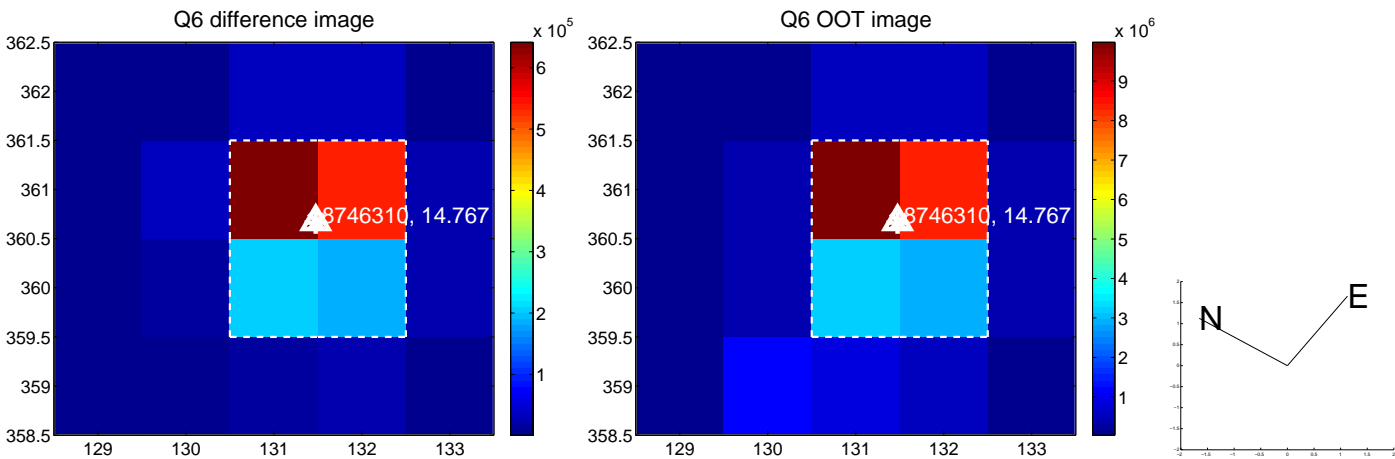
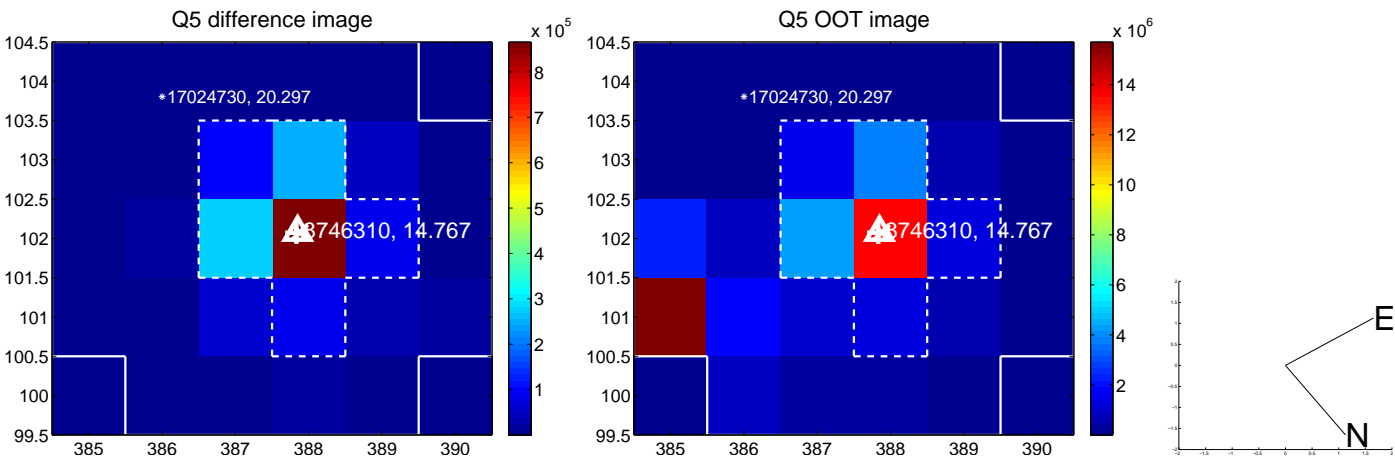


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

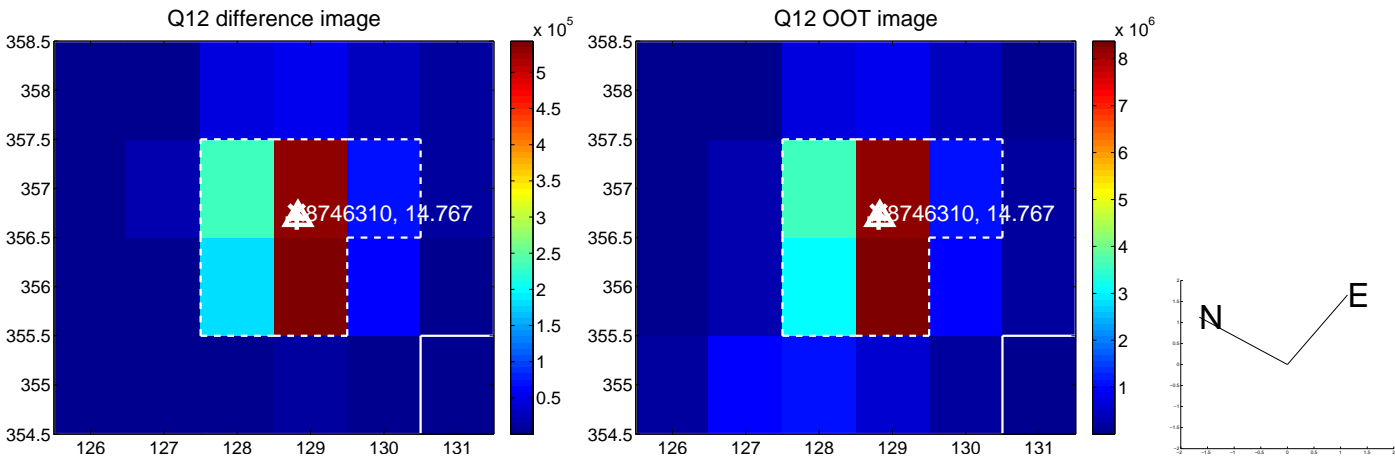
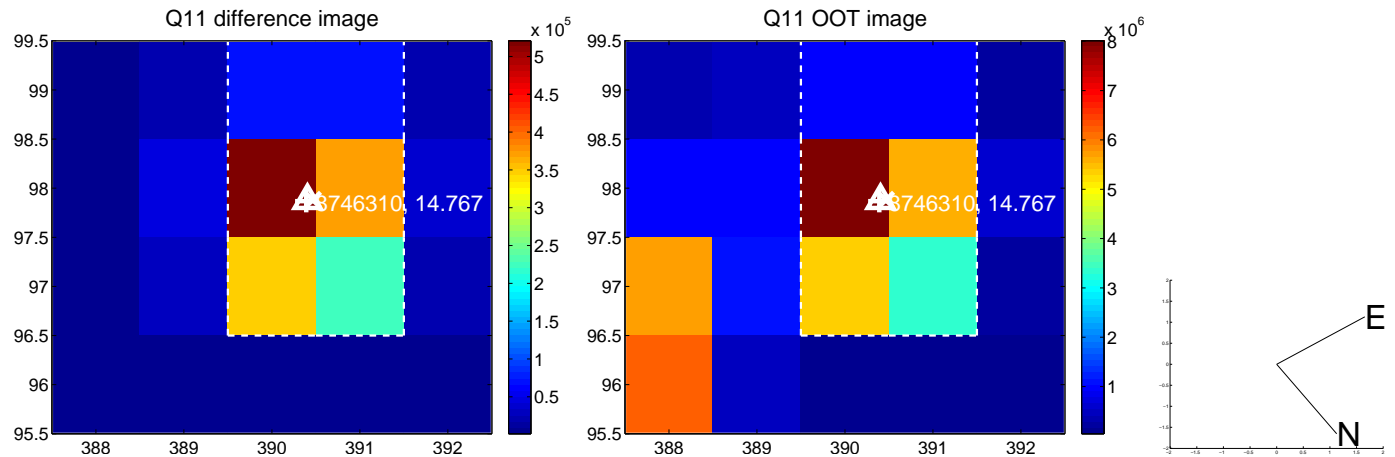
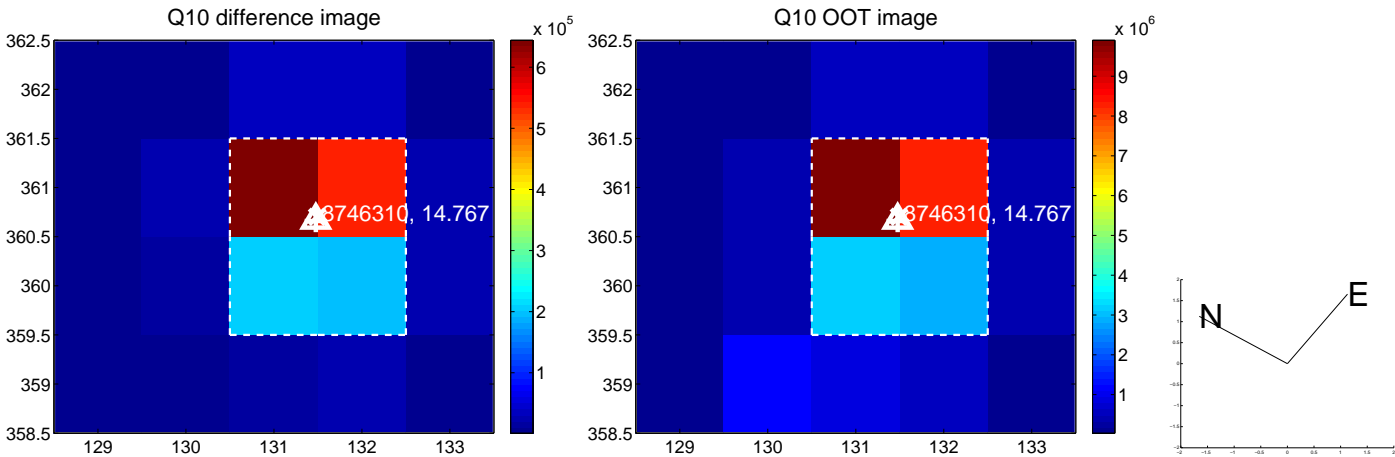
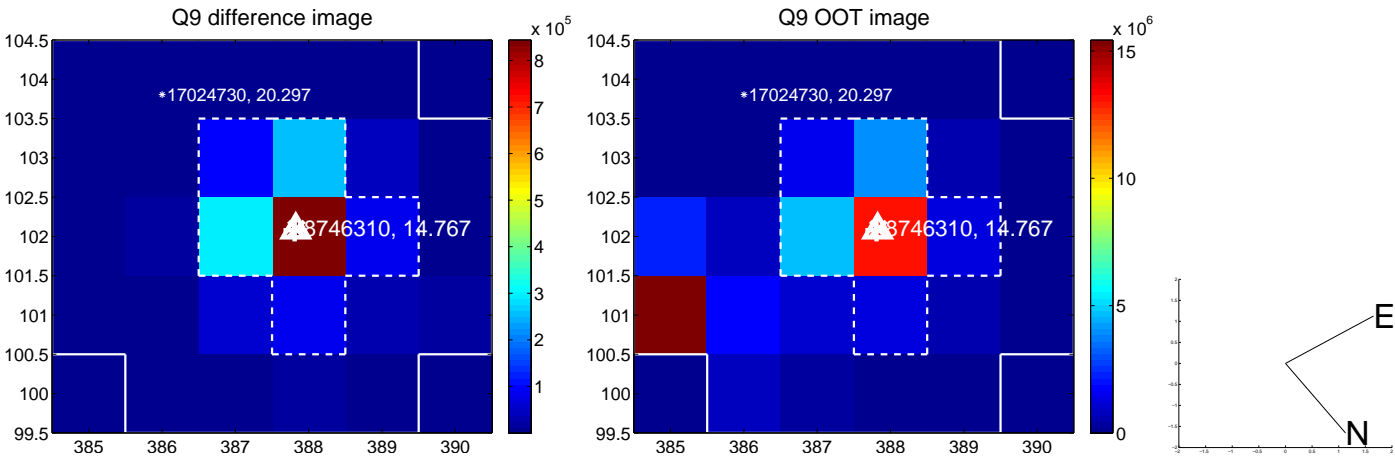
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



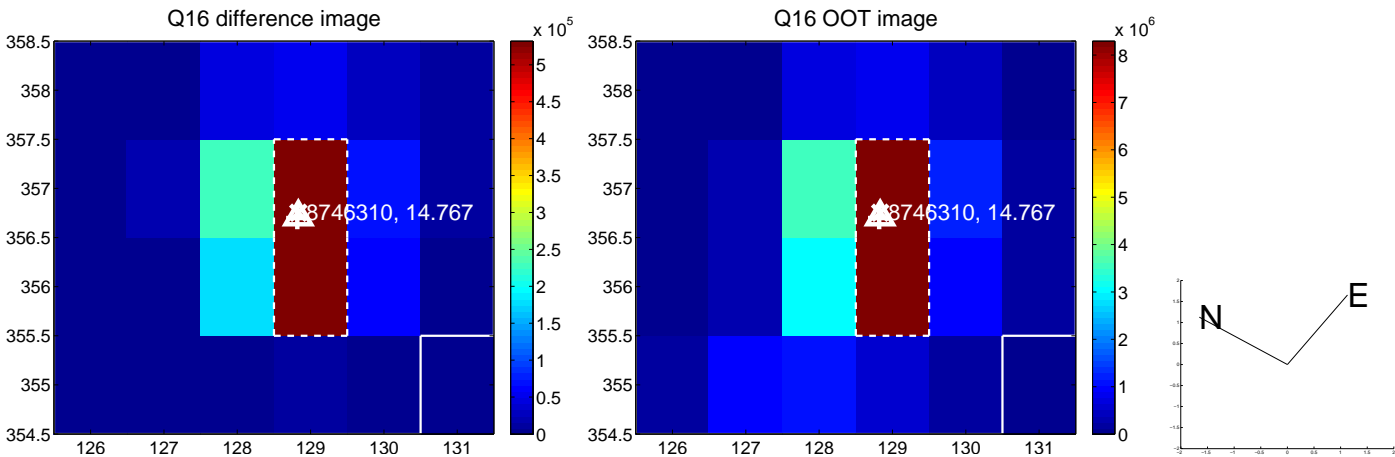
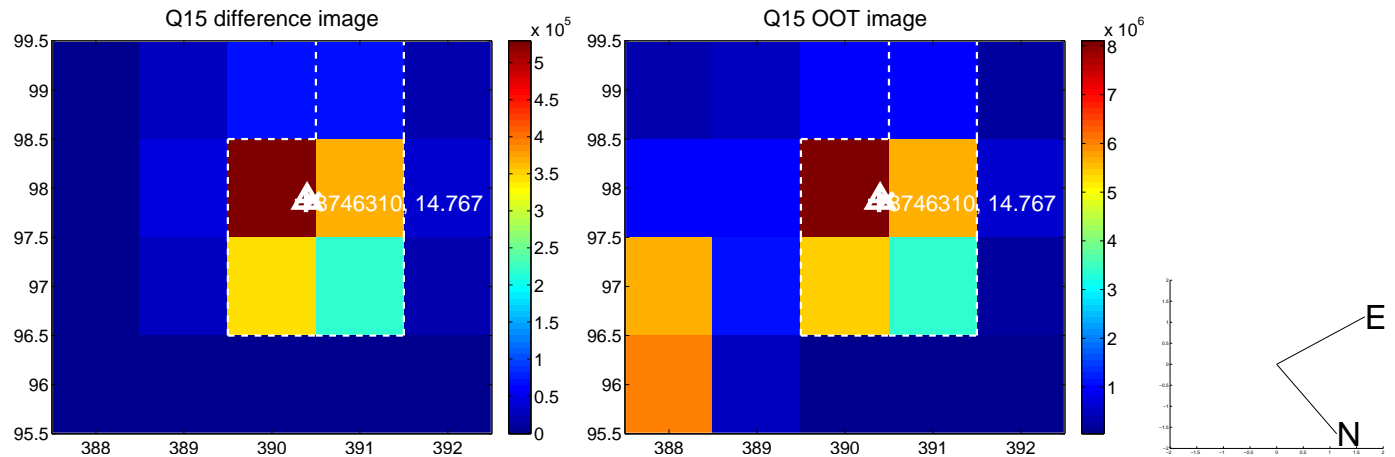
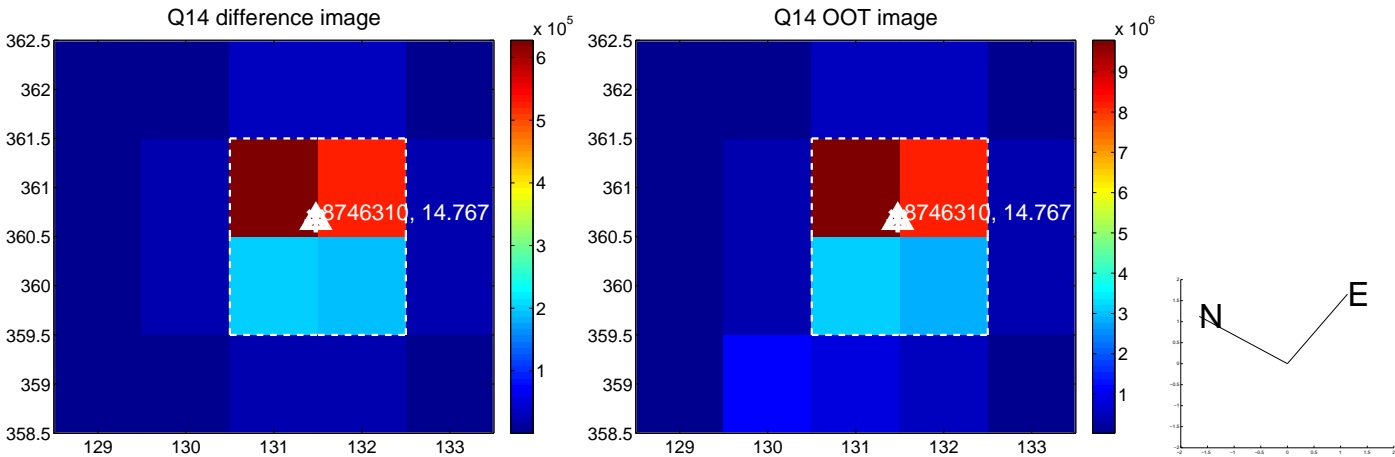
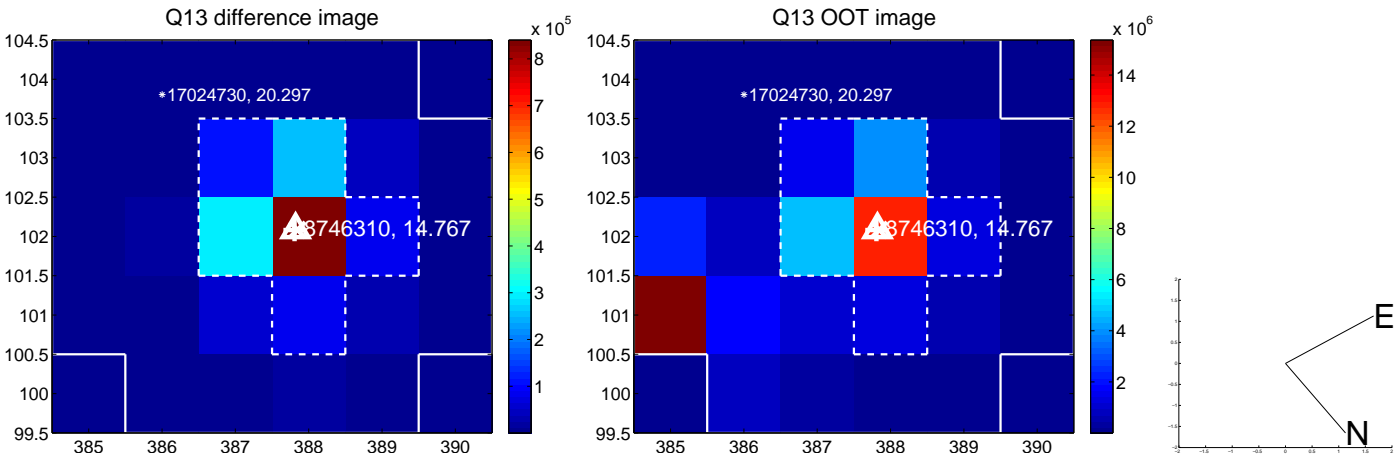
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



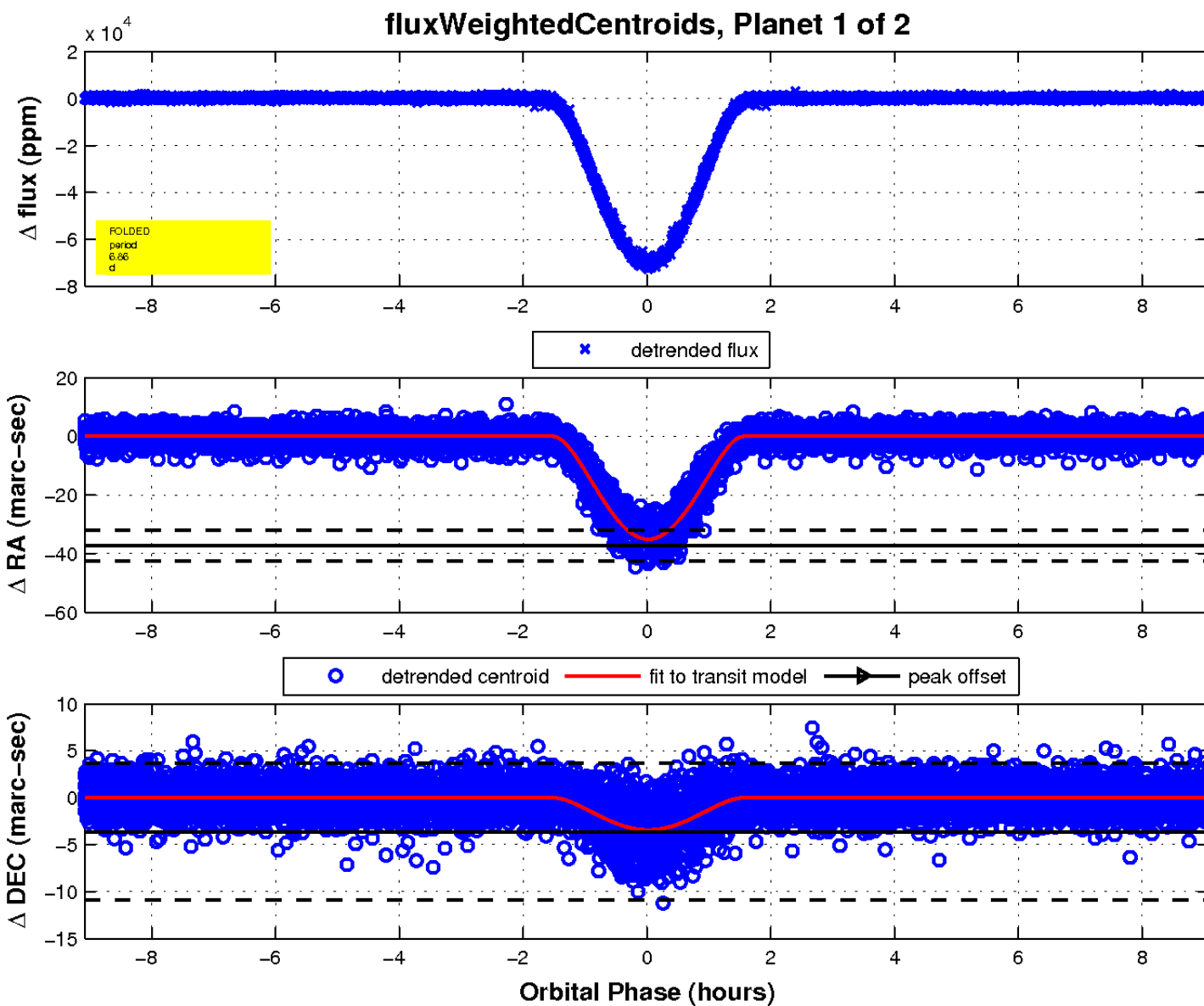
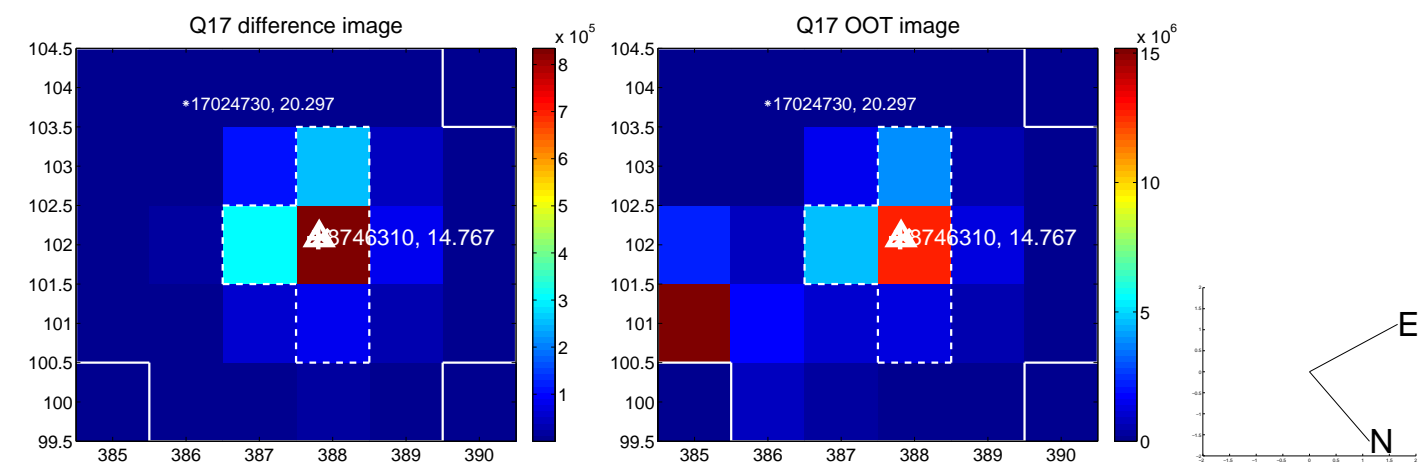
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

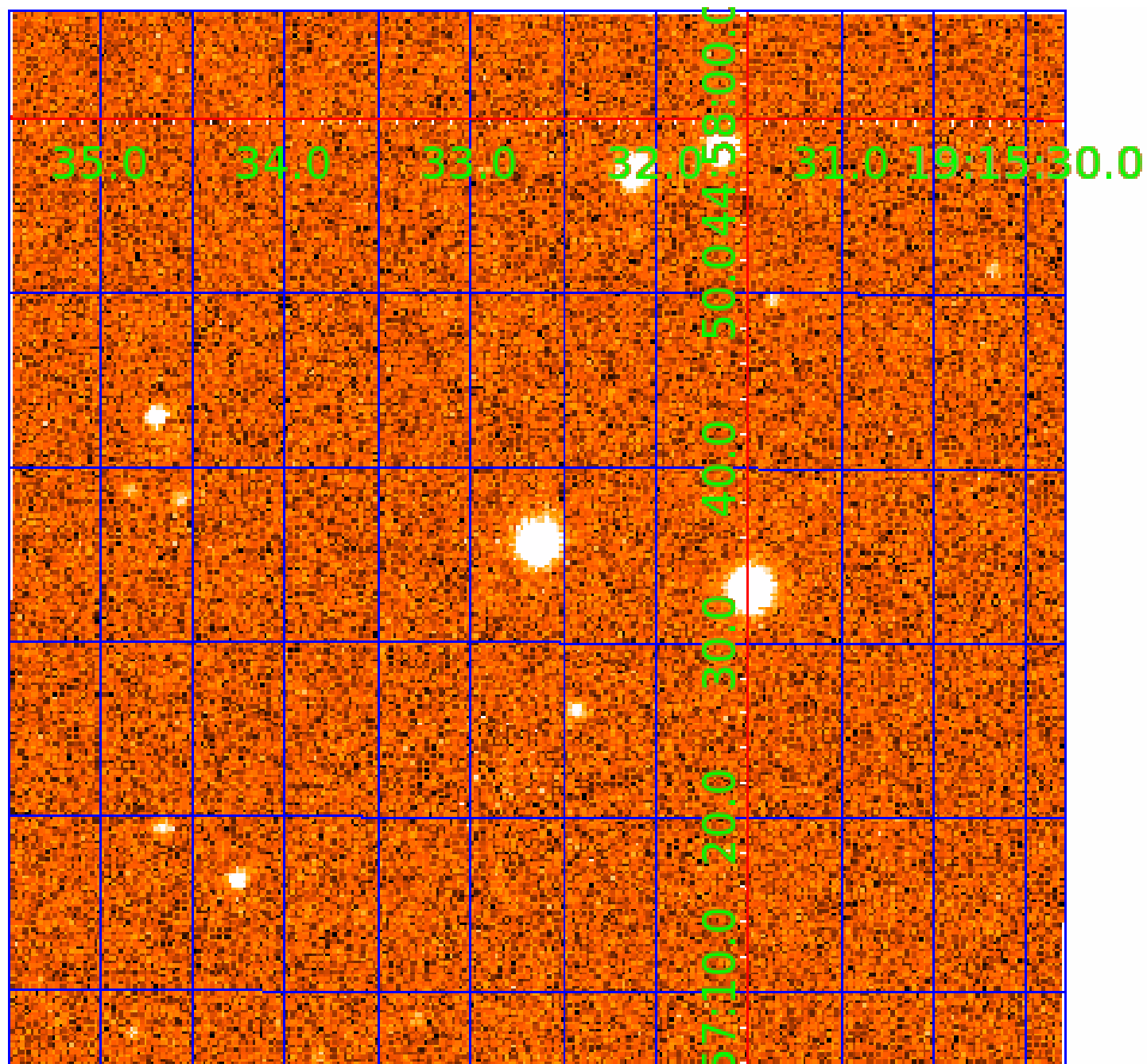


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008746310

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})
008746310-01	OBS	7085.01	6.855624	136.022456	70675.6	3.029	3518.6	2896.5	0.93	6109	35.33	224.91
008746310-02	OBS	No	6.855628	132.594662	9033.8	2.939	447.4	424.9	0.93	6109	15.25	224.91

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008746310-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
008746310-02	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 008746310-02

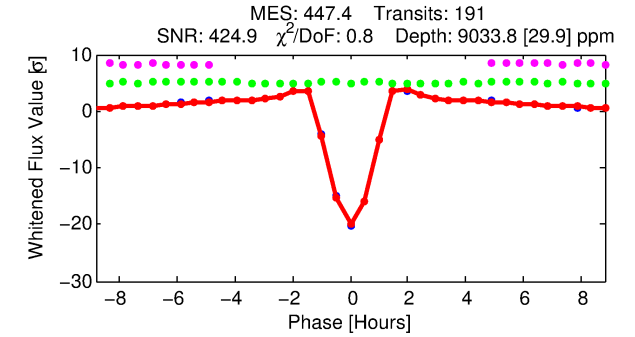
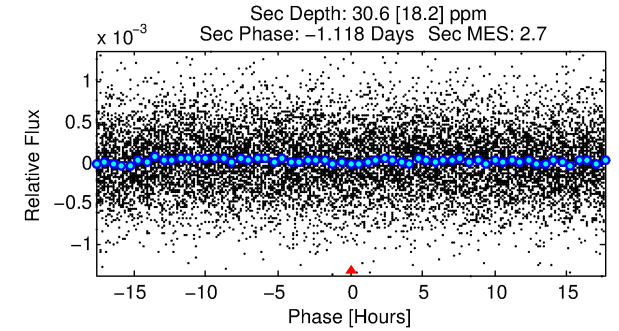
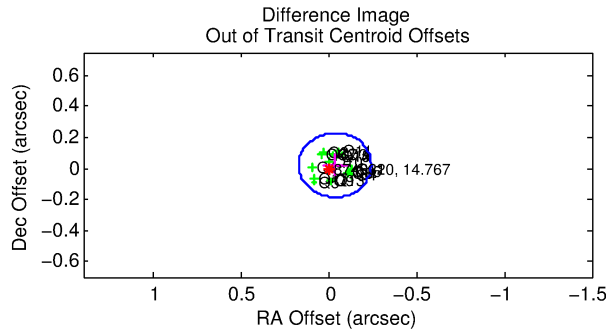
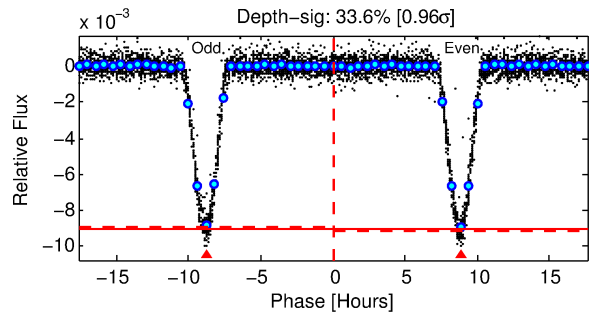
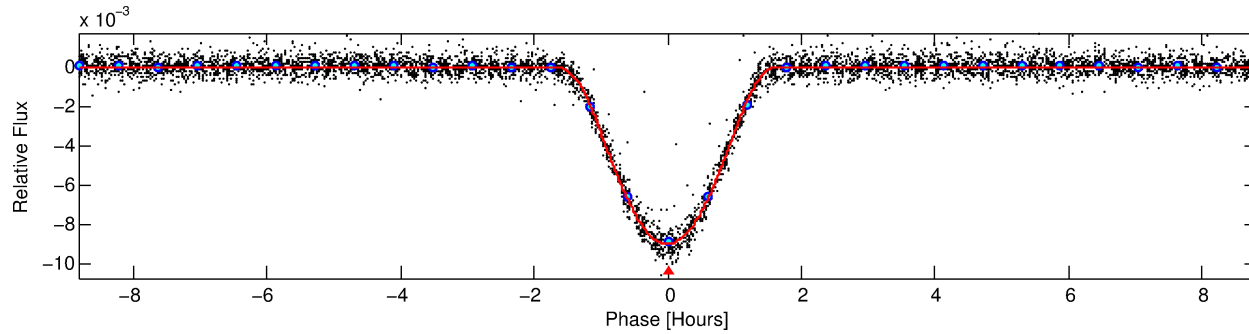
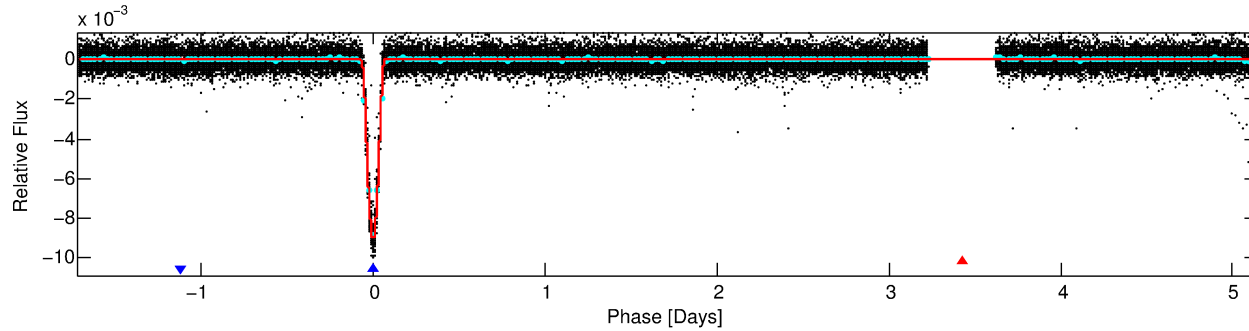
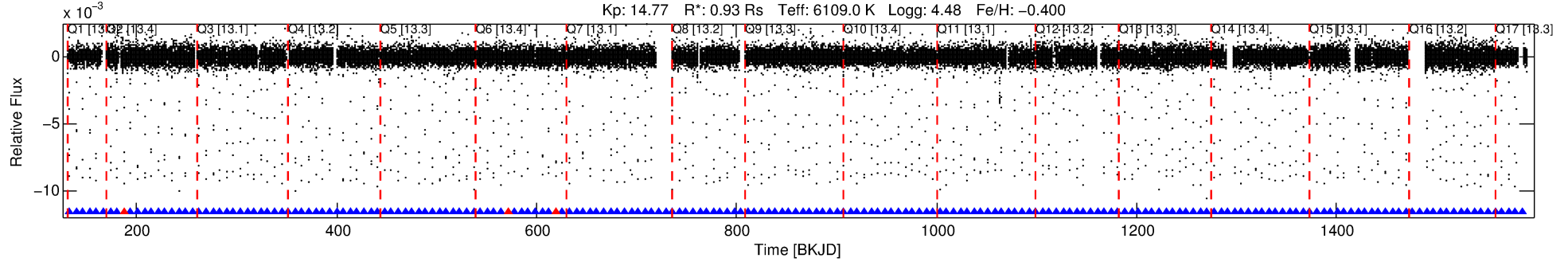
No Significant Match Found

DV One-Page Summary

KIC: 8746310 Candidate: 2 of 2 Period: 6.856 d

KOI: K07085 Corr: No Ephemeris Match

Kp: 14.77 R*: 0.93 Rs Teff: 6109.0 K Logg: 4.48 Fe/H: -0.400



DV Fit Results:

Period = 6.85563 [0.00000] d
Epoch = 132.5947 [0.0001] BKJD
Rp/R* = 0.1501 [0.0149]
a/R* = 10.44 [0.18]
b = 0.99 [0.02]
Seff = 224.91 [86.17]
Teff = 987 [95] K
Rp = 15.25 [4.61] Re
a = 0.0693 [0.0170] AU
Ag = 0.35 [0.25] [-2.58σ]
Teffp = 1172 [188] K [0.88σ]

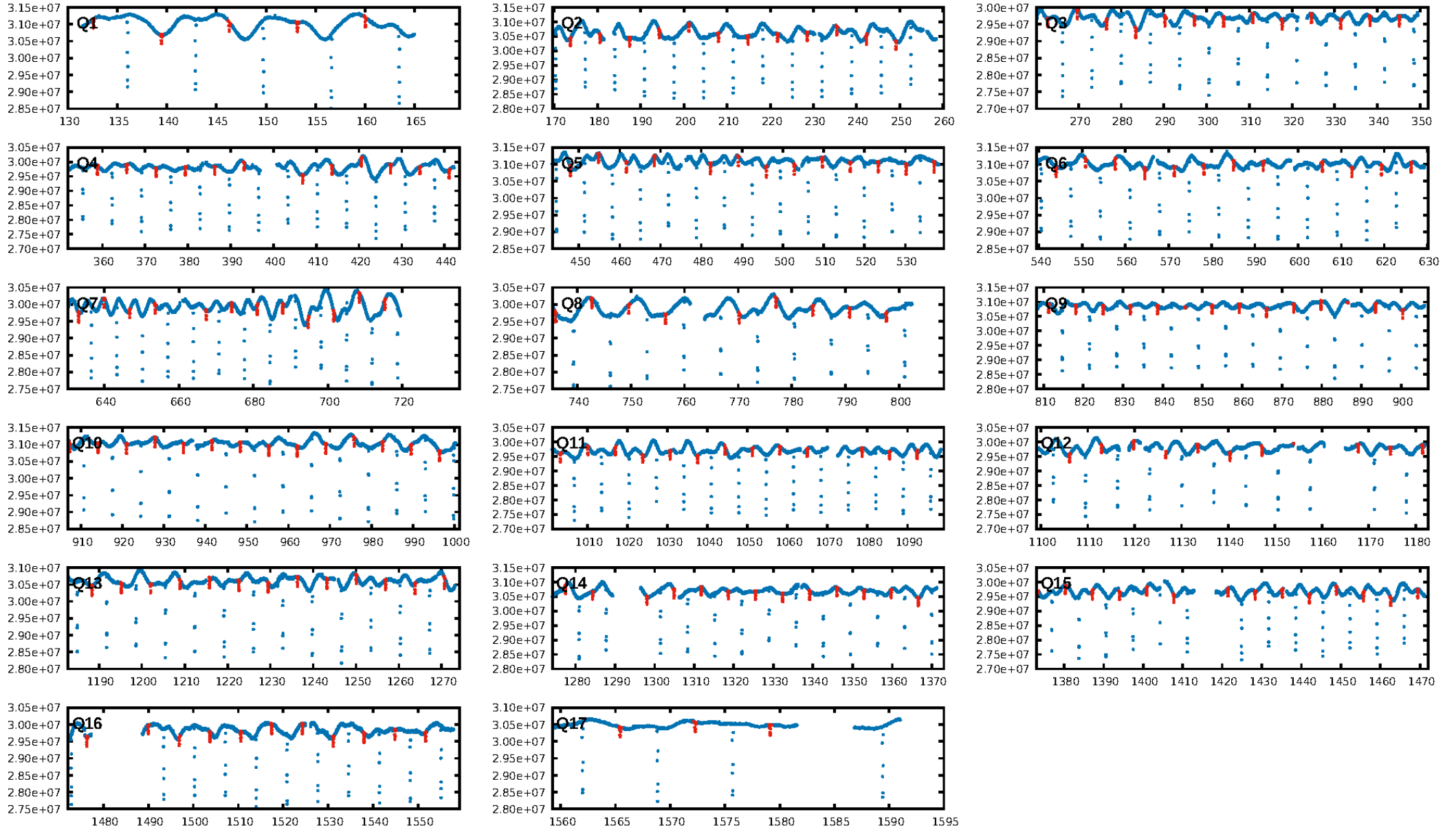
DV Diagnostic Results:

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: 0.98 [180/183]
GhostDiagnostic-chr: 3.006
Centroid-sig: 0.0%
Centroid-so: 0.403 arcsec [17.02σ]
OotOffset-rm: 0.041 arcsec [0.59σ]
KicOffset-rm: 0.233 arcsec [3.19σ]
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]

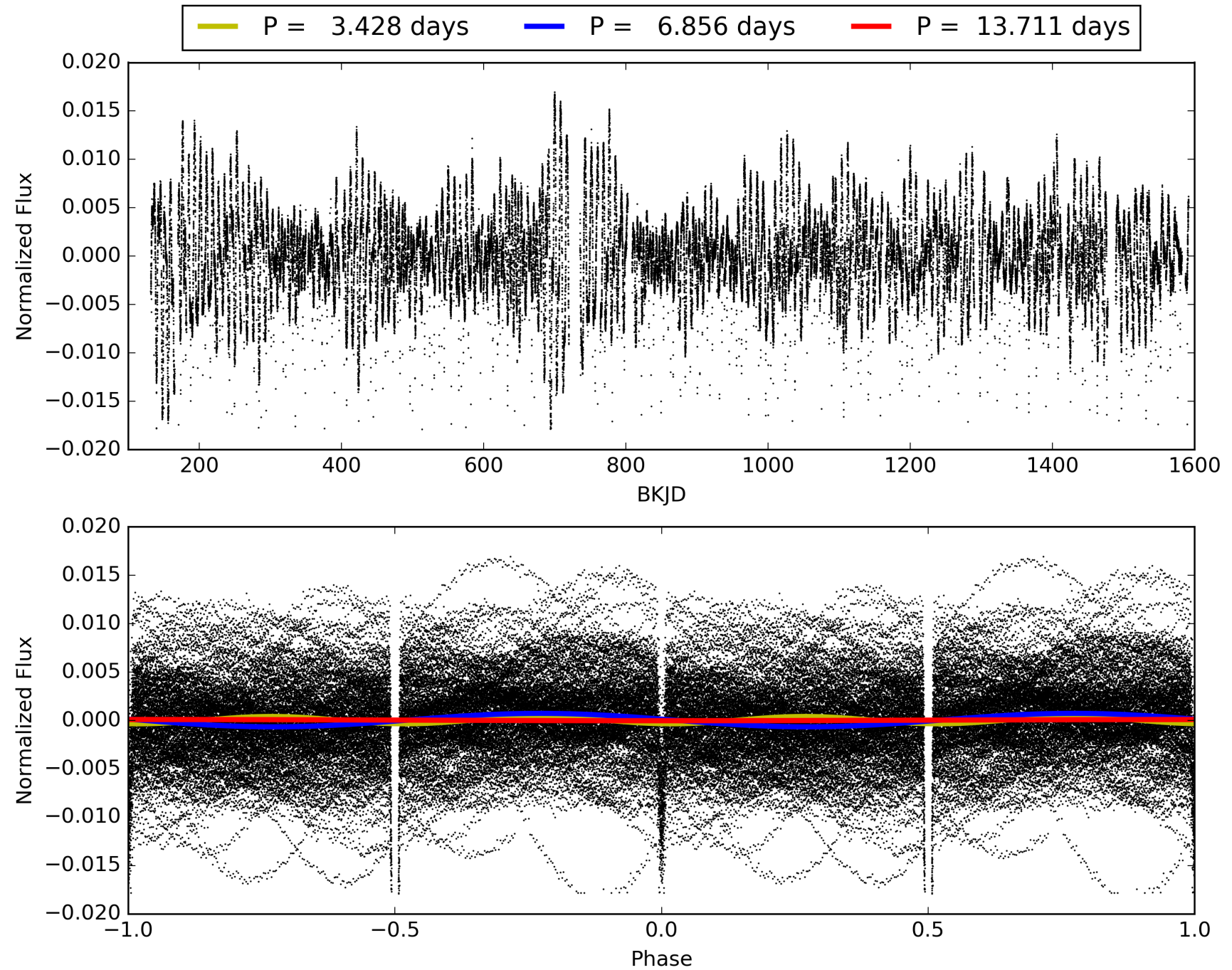
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:39:26 Z

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

TCE 008746310-02, PDC Light Curves

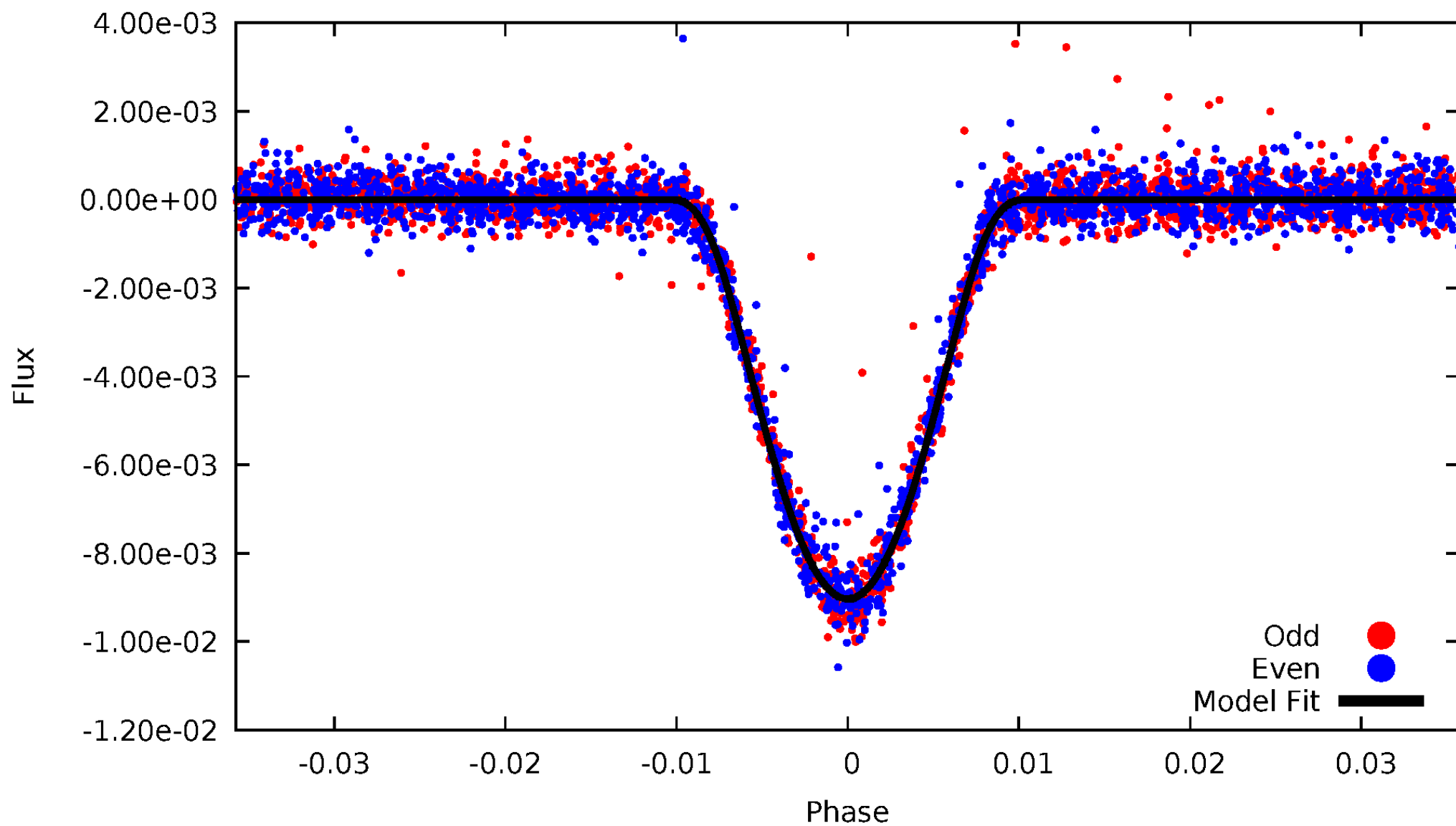


TCE 008746310-02



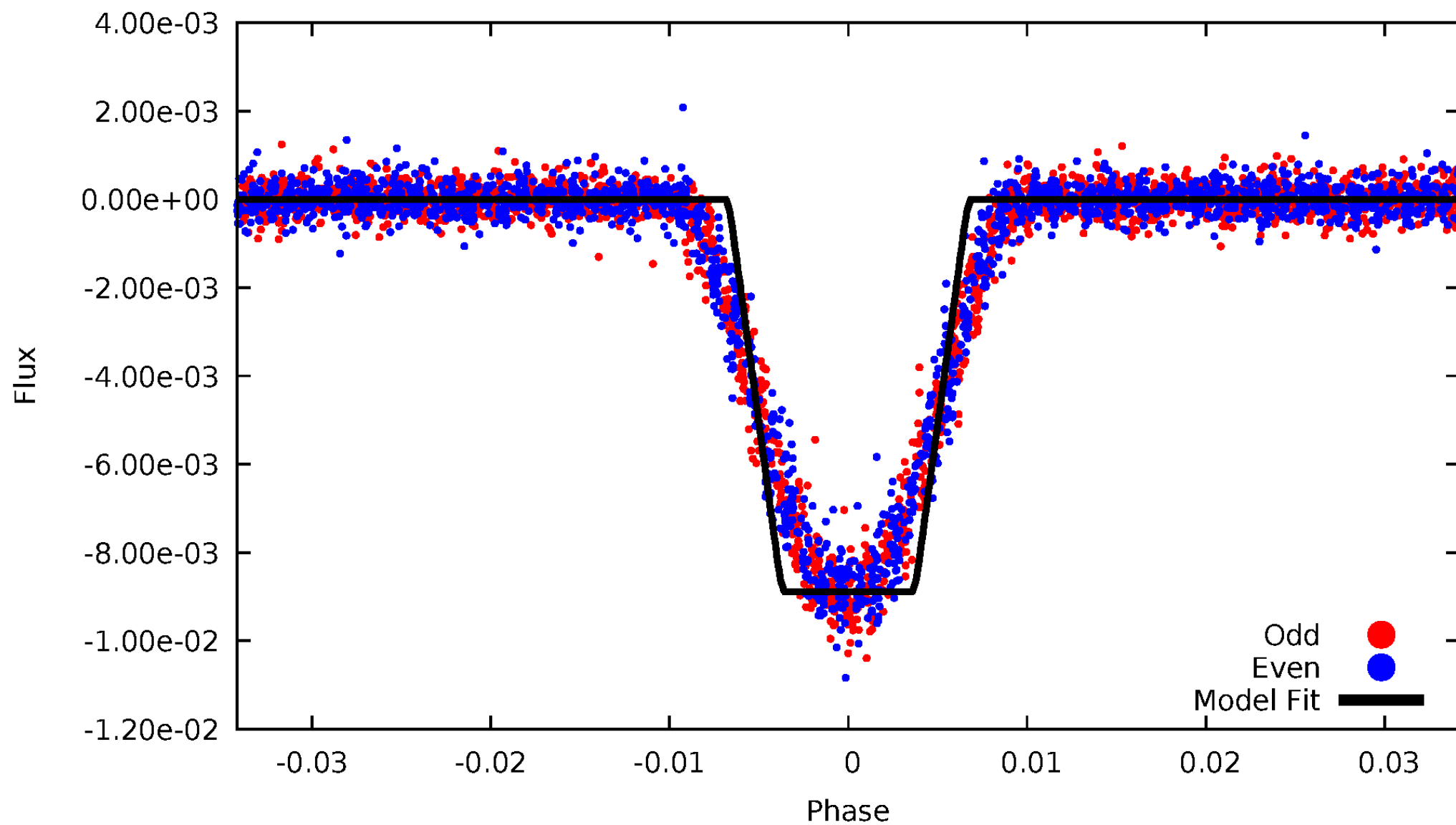
DV Odd/Even

TCE 008746310-02



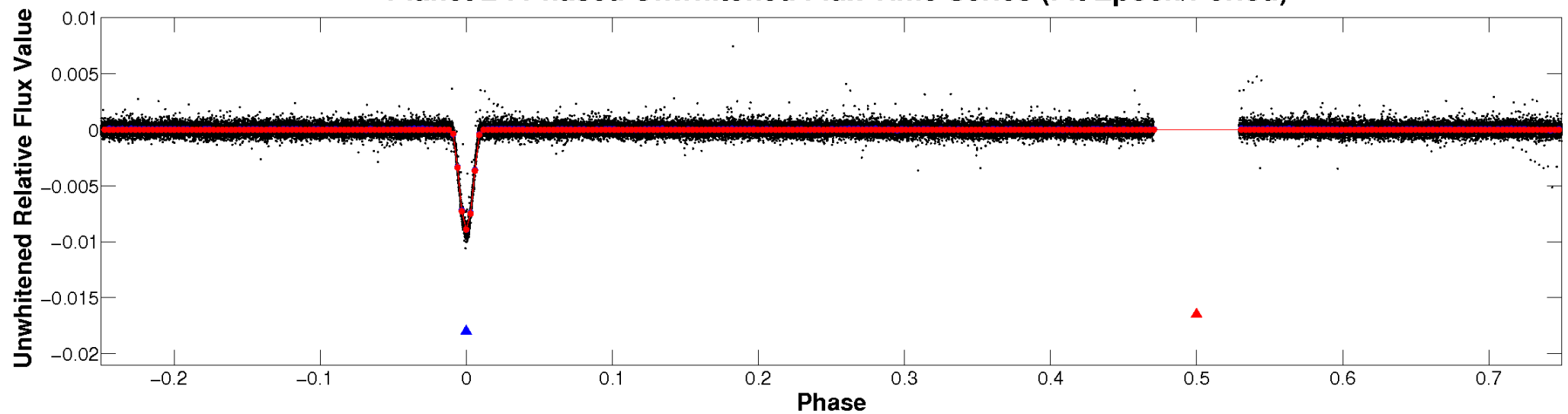
ALT Odd/Even

TCE 008746310-02

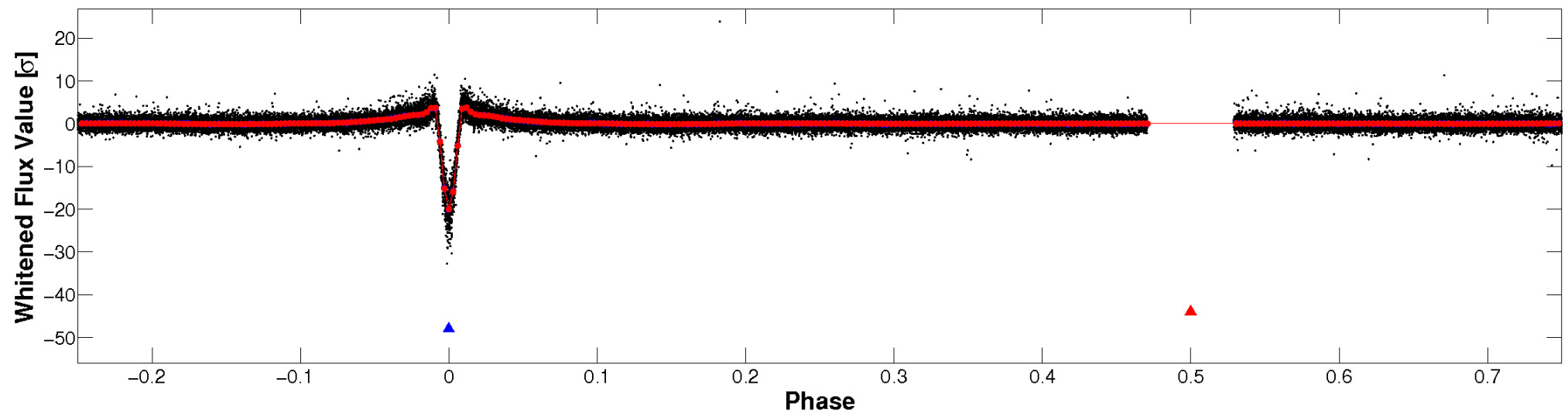


Non-Whitened Vs. Whitened Light Curve

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

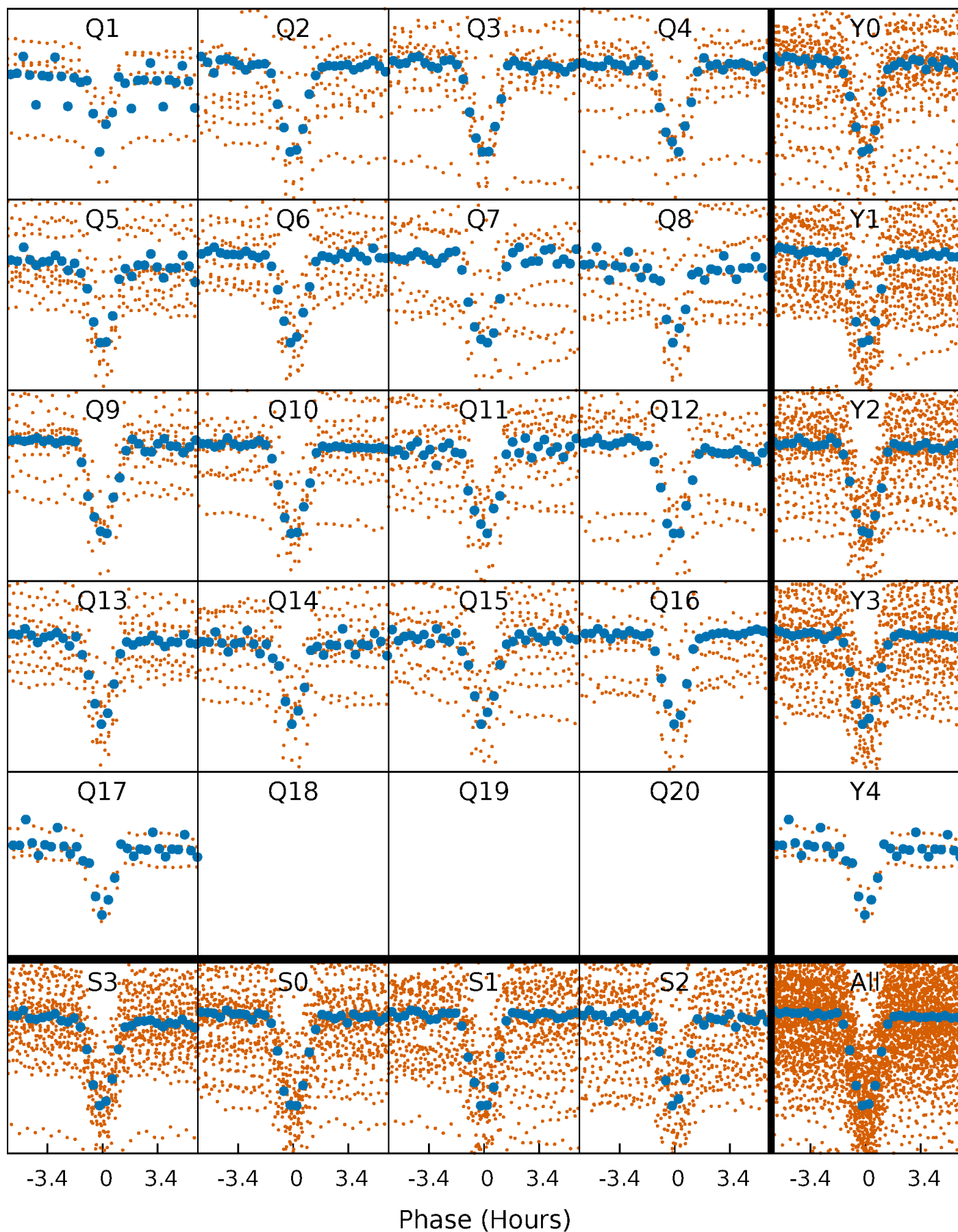


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



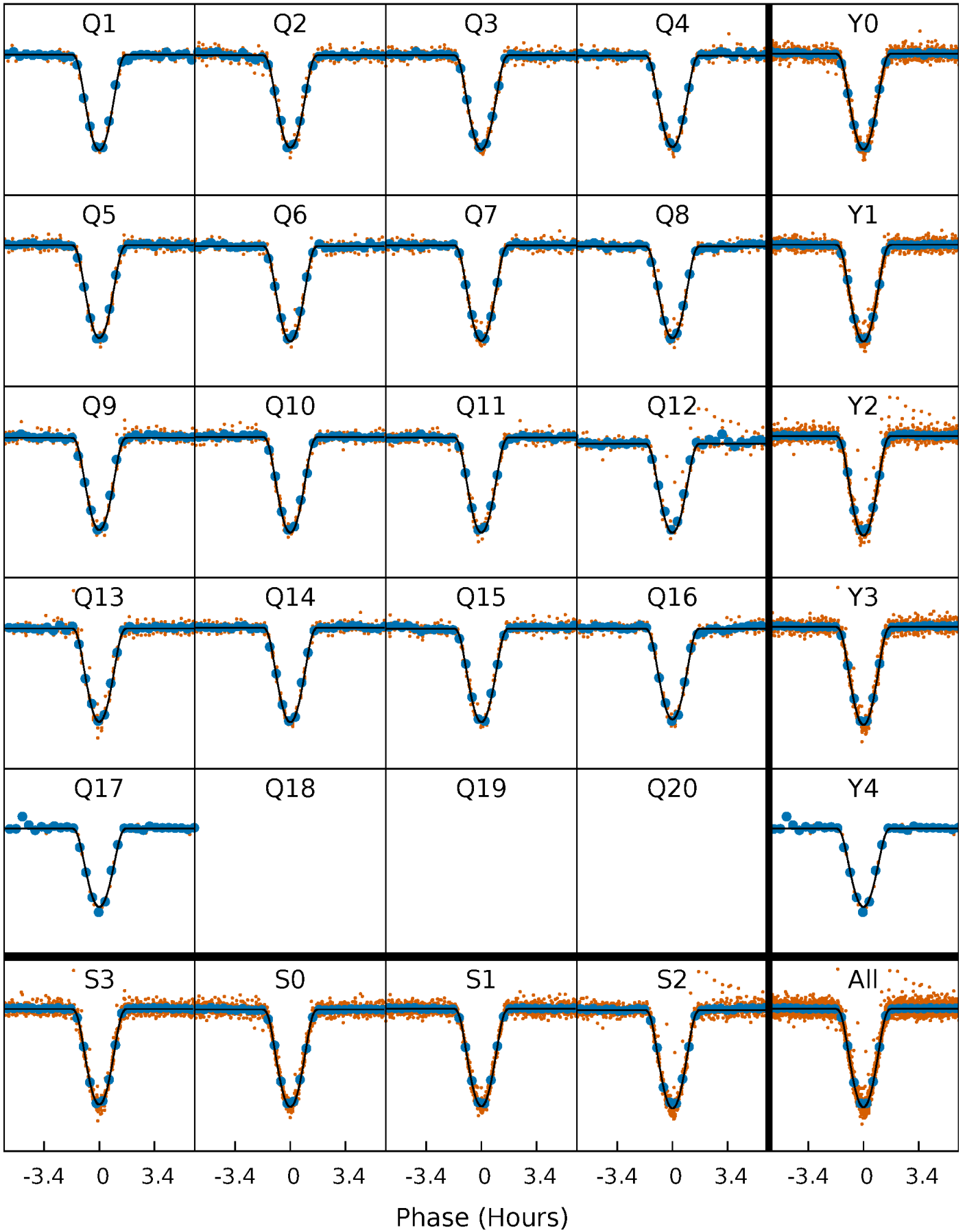
PDC Quarter-Phased Transit Curves

TCE 008746310-02 P= 6.855628 Days $T_0=132.594662$ (BKJD)



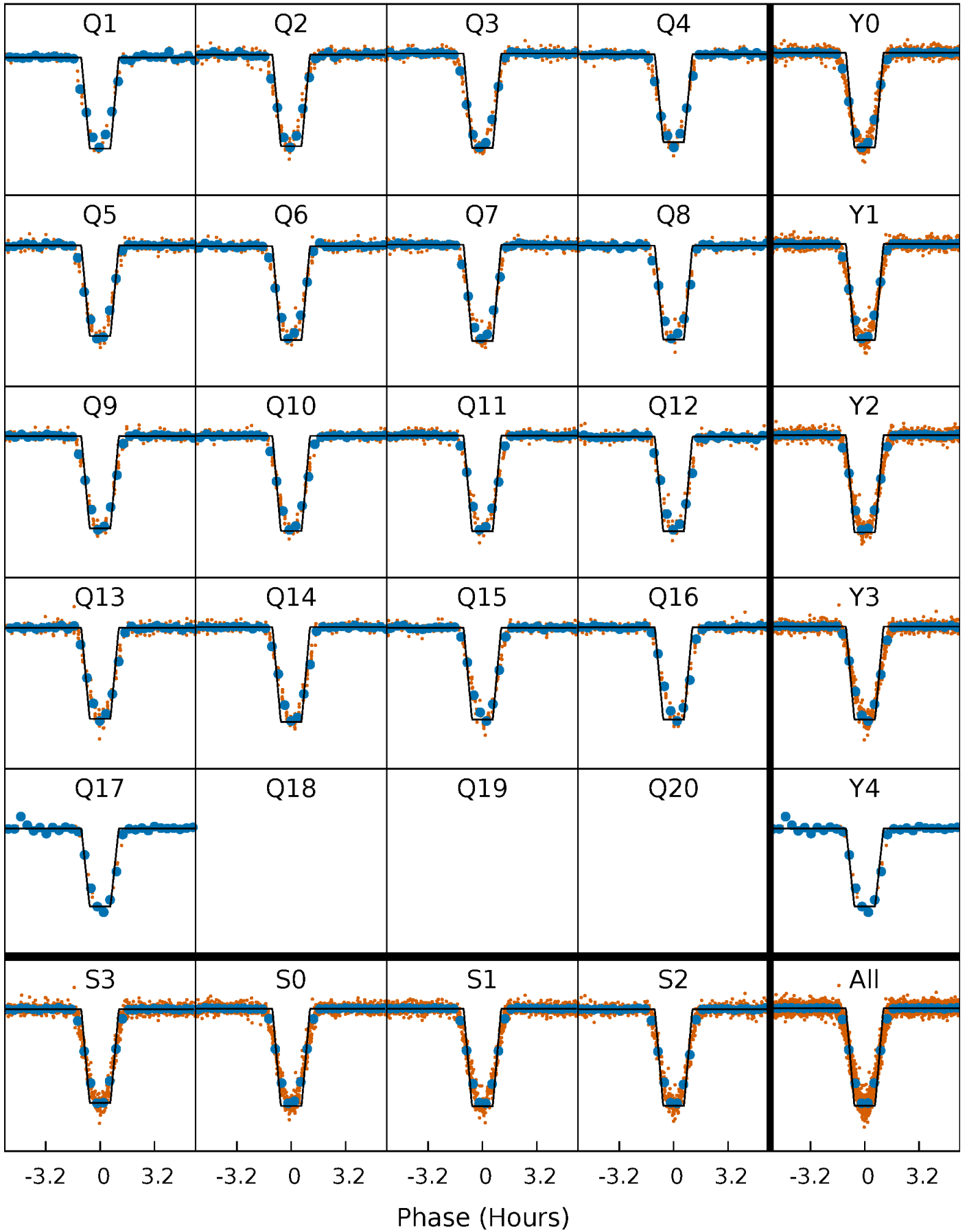
DV Quarter-Phased Transit Curves

TCE 008746310-02 P= 6.855628 Days $T_0=132.594662$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

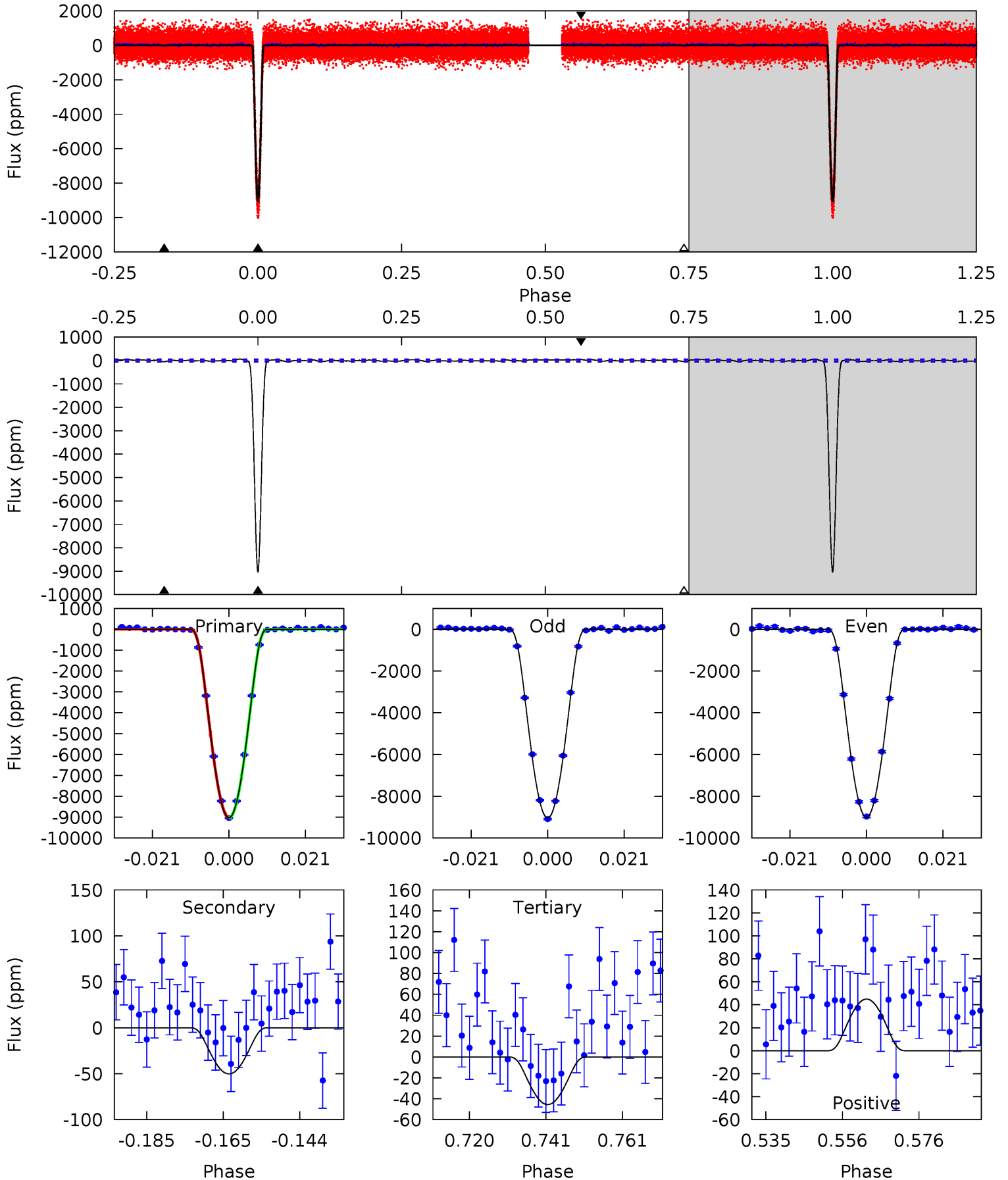
TCE 008746310-02 P= 6.855582 Days $T_0=132.599462$ (BKJD)



DV Model-Shift Uniqueness Test

008746310-02, P = 6.855628 Days, E = 125.739034 Days

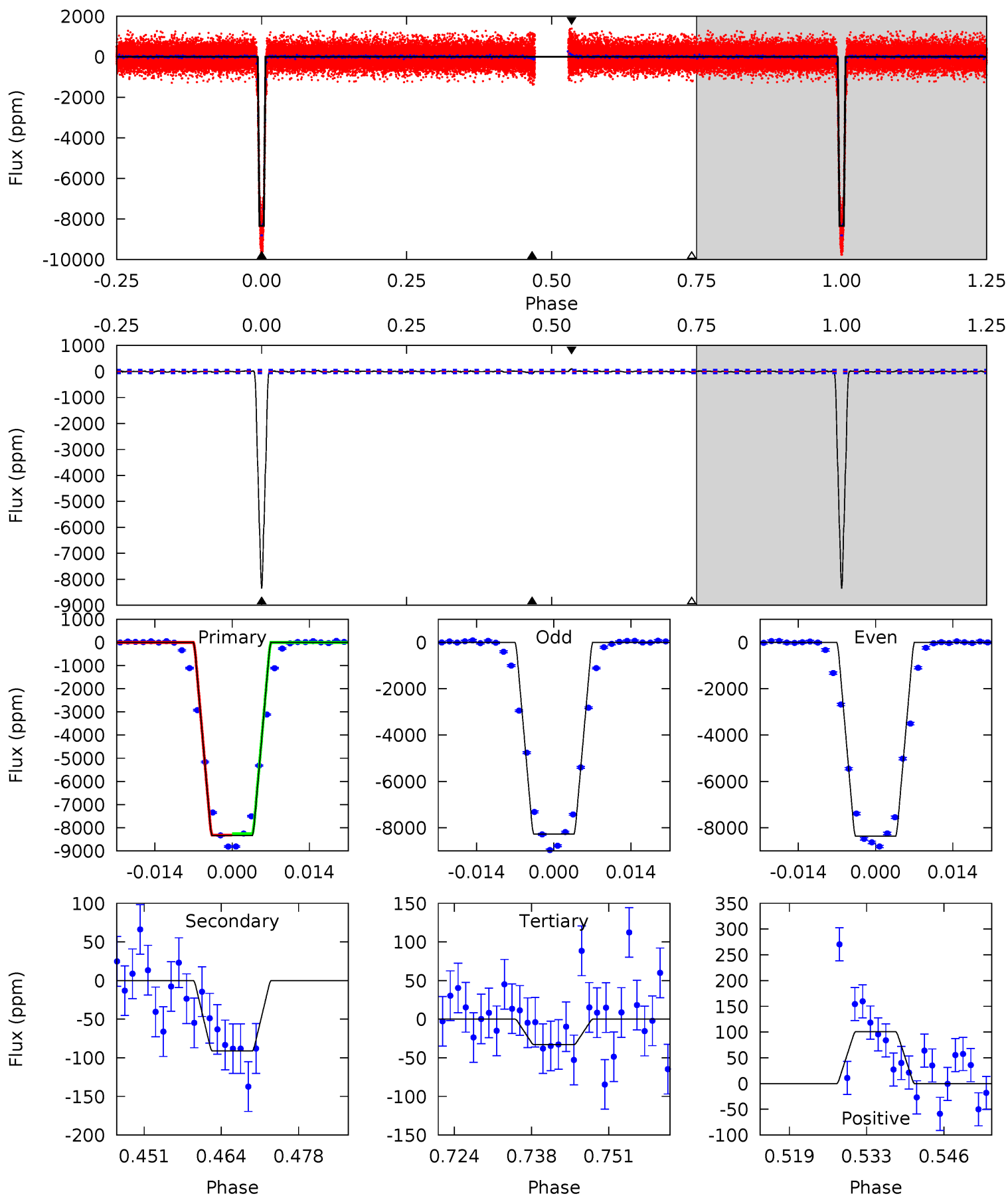
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
867.9	4.83	4.38	4.32	4.89	2.32	1.93	863.6	863.6	0.45	0.51	1.58	0.99	0.01	0



Alt Model-Shift Uniqueness Test

008746310-02, P = 6.855582 Days, E = 125.743880 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
669.7	7.32	2.65	8.08	4.97	2.47	1.08	667.1	661.6	4.67	-0.76	3.73	1.00	0.01	0



Stellar Parameters For KIC 008746310

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6109^{+183}_{-183}	$4.476^{+0.067}_{-0.202}$	$-0.400^{+0.300}_{-0.300}$	$0.931^{+0.266}_{-0.095}$	$0.946^{+0.118}_{-0.108}$	$1.651^{+0.469}_{-0.835}$
	+3%/-3%	+1%/-5%	+75%/-75%	+29%/-10%	+12%/-11%	+28%/-51%
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 008746310-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-50 ± 10	$15.80^{+2.70}_{-2.30}$	1401^{+95}_{-64}	2063^{+149}_{-228}	$0.525^{+0.239}_{-0.159}$
Alt.	-91 ± 12	$9.98^{+2.00}_{-1.85}$	1401^{+101}_{-60}	2670^{+154}_{-133}	$2.380^{+1.174}_{-0.763}$

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

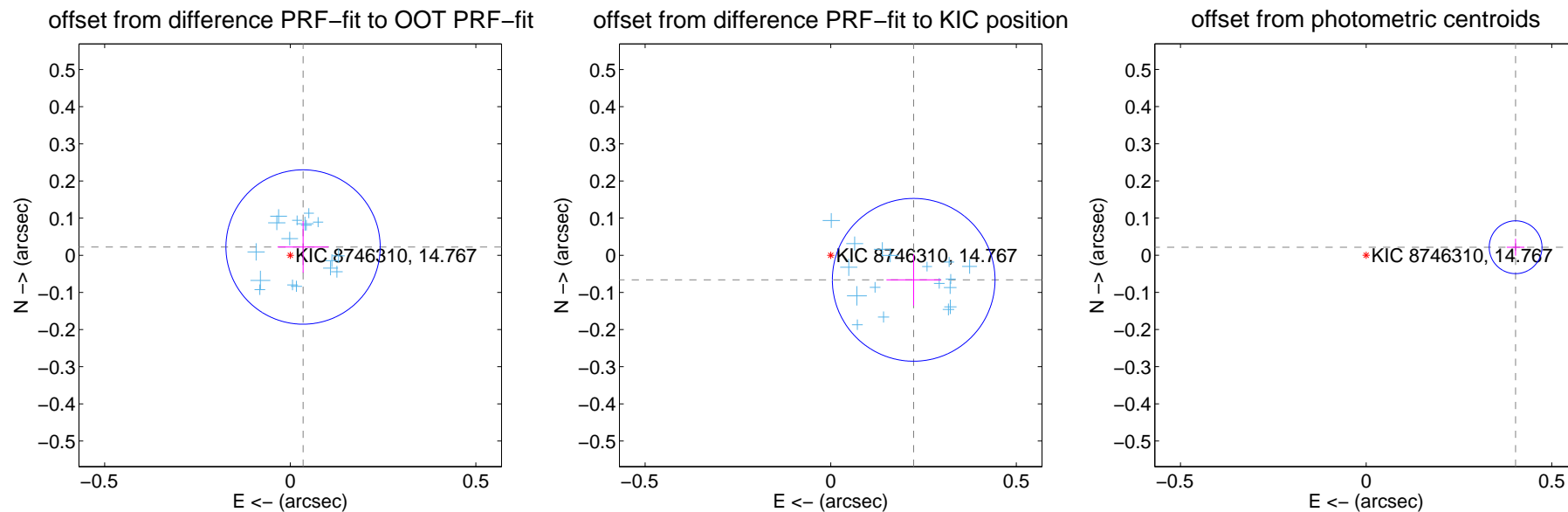
DV Centroid Data

Supplemental centroid analysis for 008746310-02. Kepler magnitude: 14.77. Transit SNR 424.91

There are 17 quarters with good PRF difference image offsets

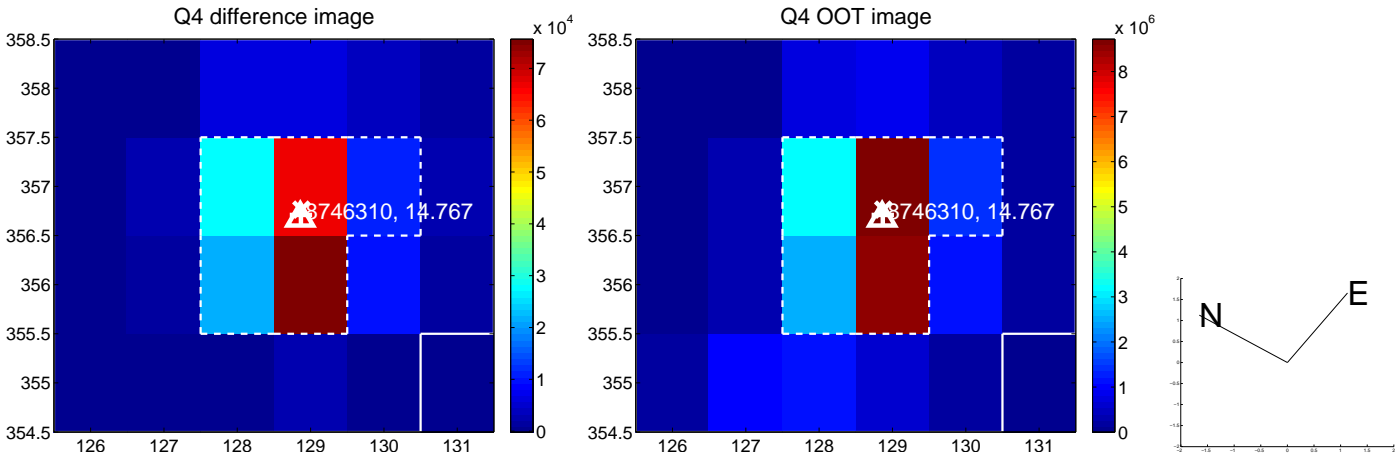
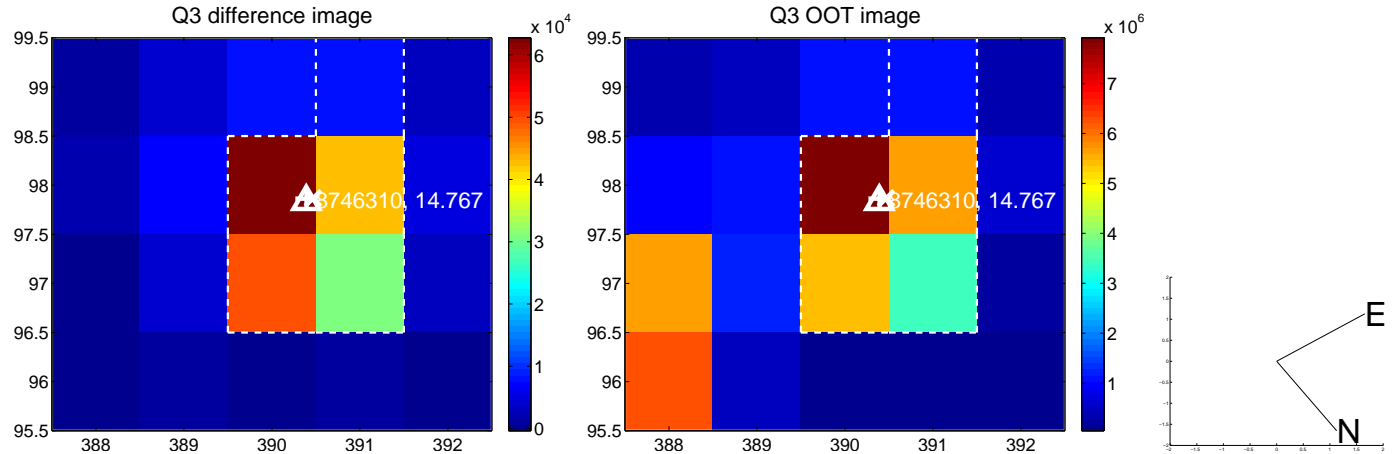
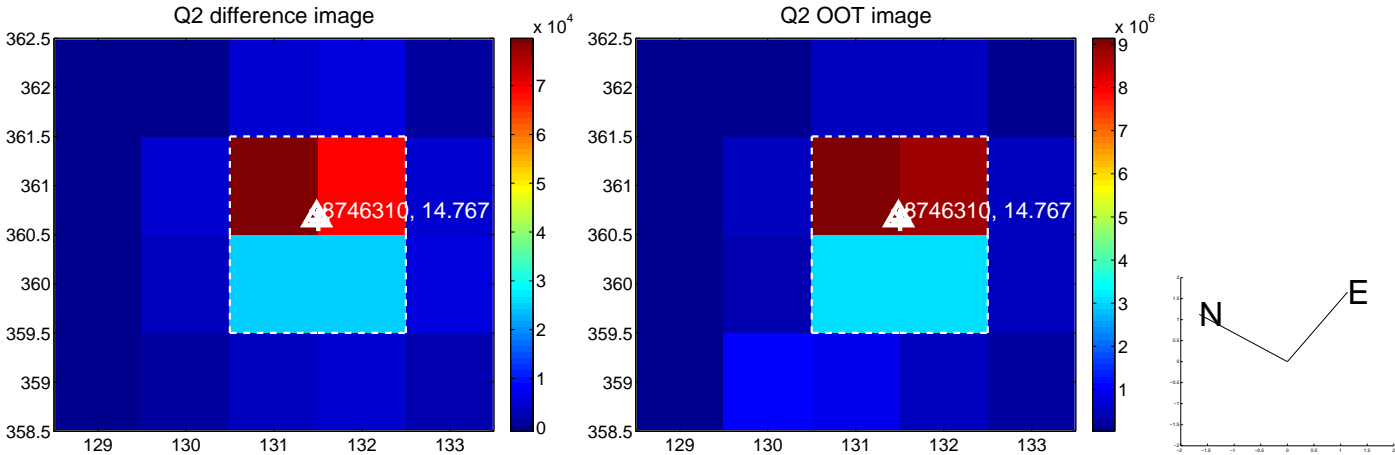
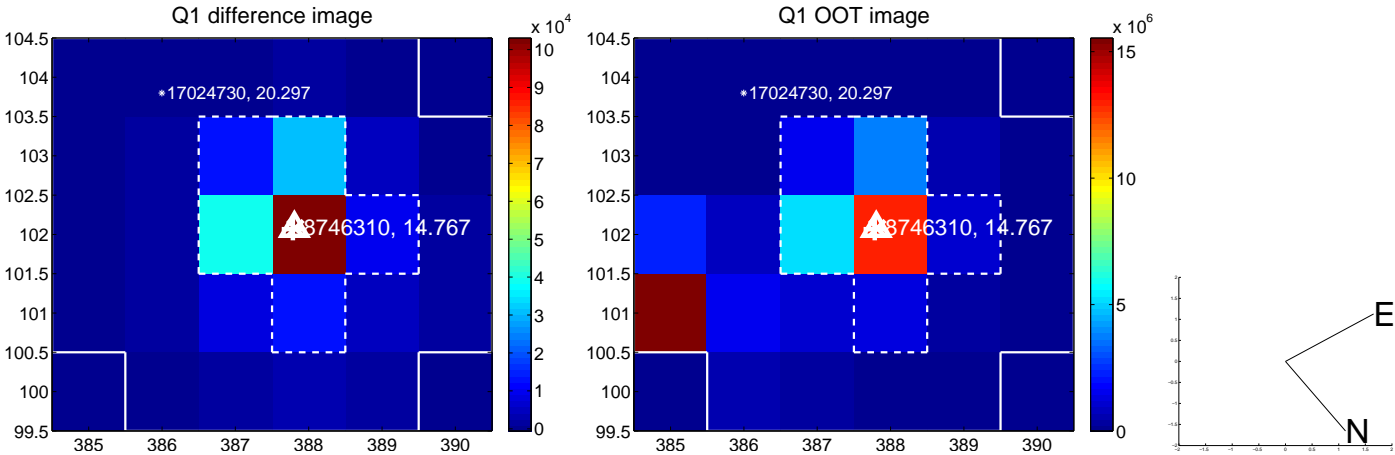
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.041 ± 0.069	0.59	-0.035 ± 0.069	0.022 ± 0.069
PRF-fit source offset from KIC position	0.233 ± 0.073	3.19	-0.224 ± 0.073	-0.066 ± 0.069
photometric centroid source offset	0.40 ± 0.02	17.02	-0.40 ± 0.02	0.02 ± 0.02

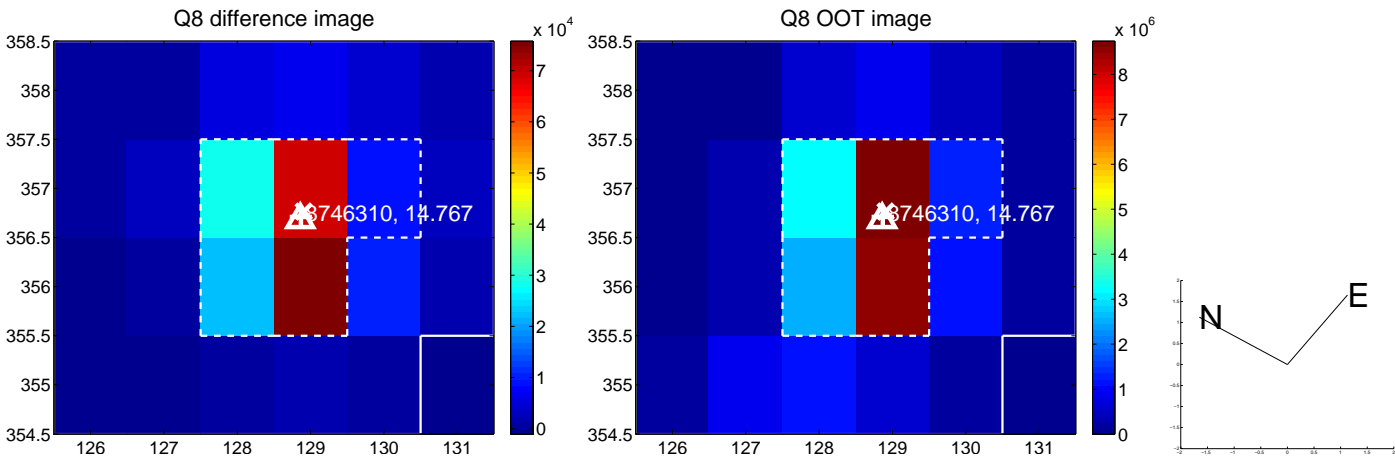
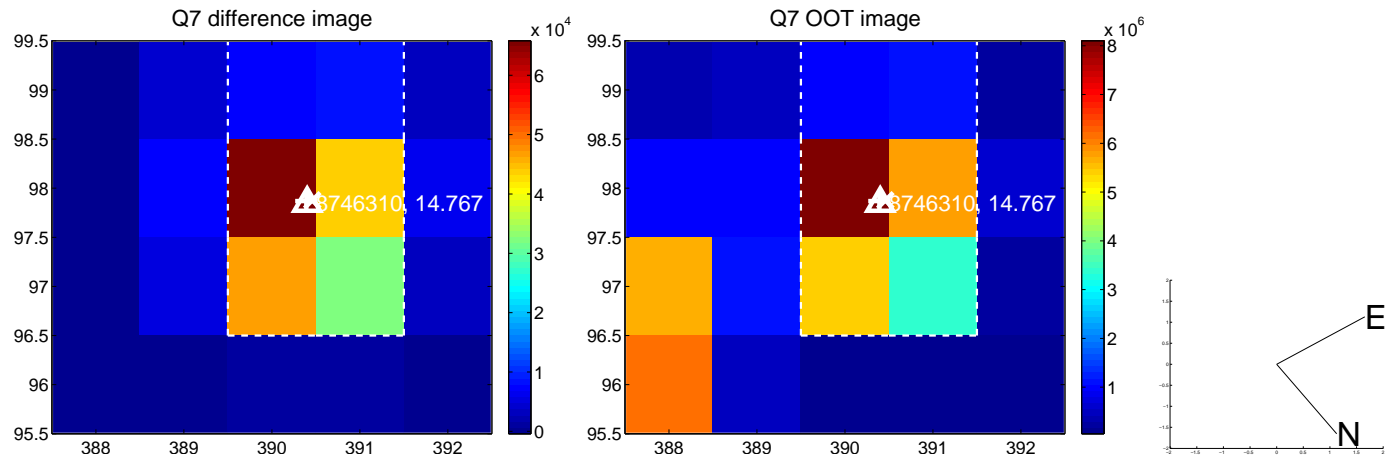
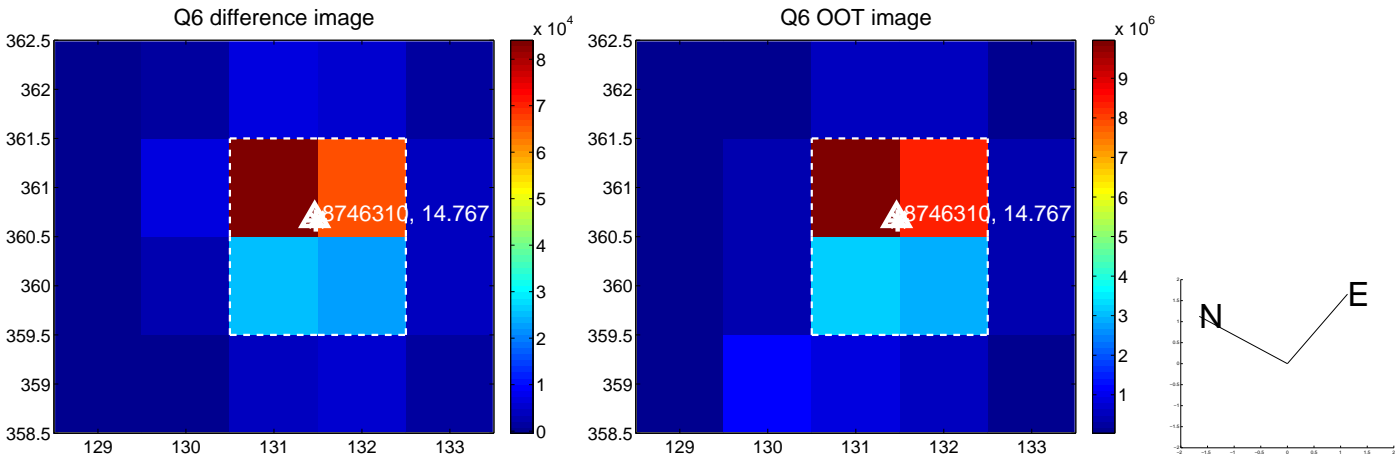
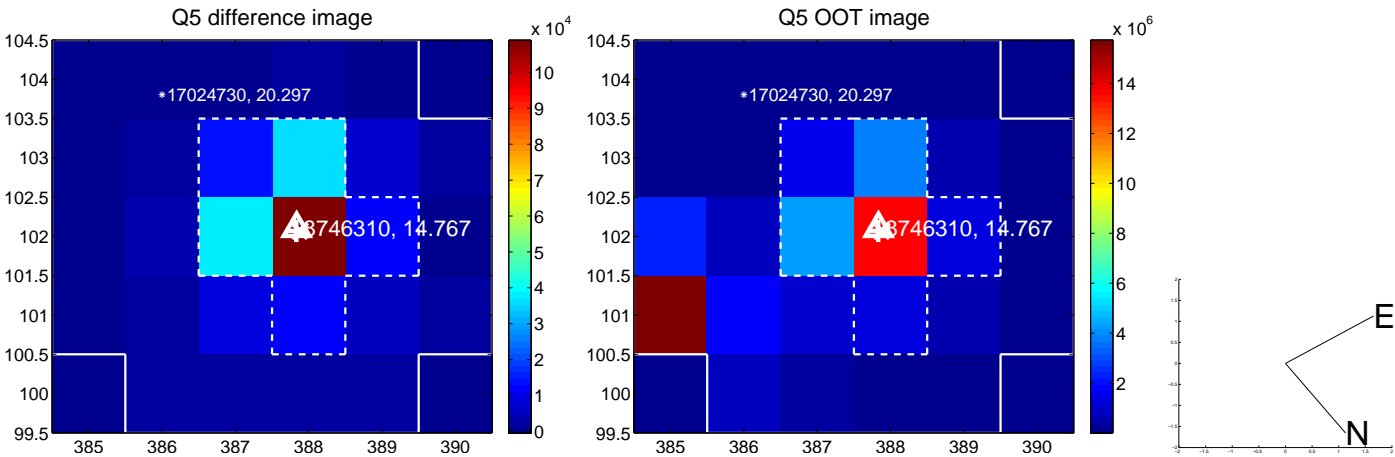


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

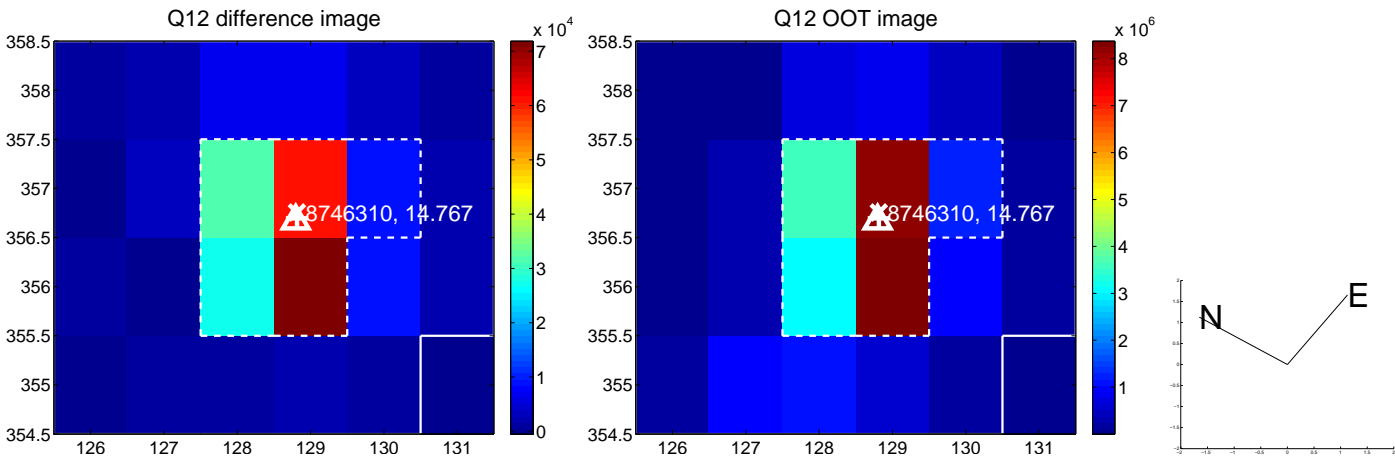
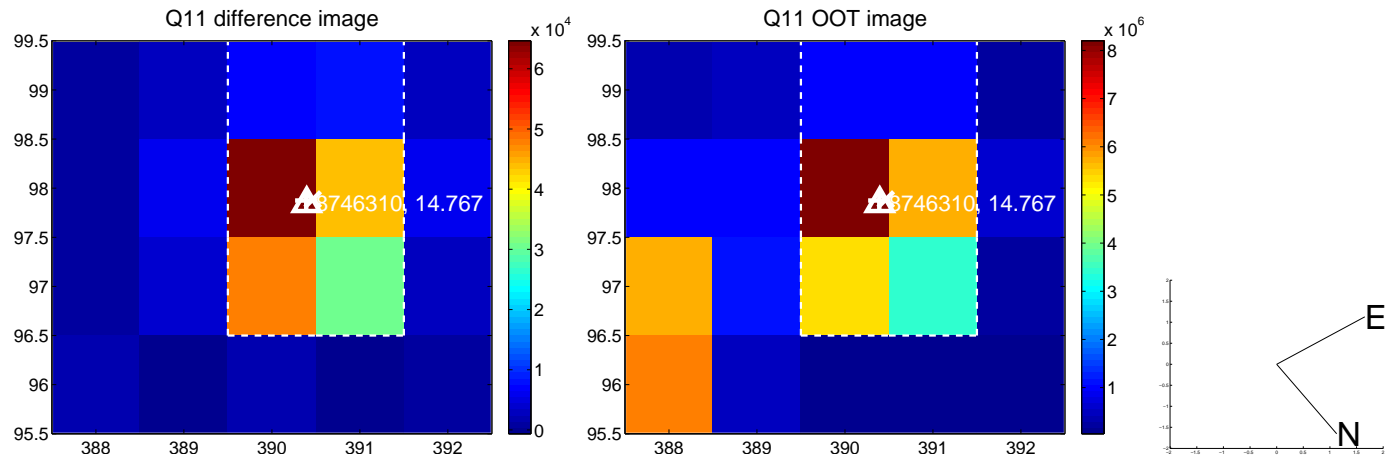
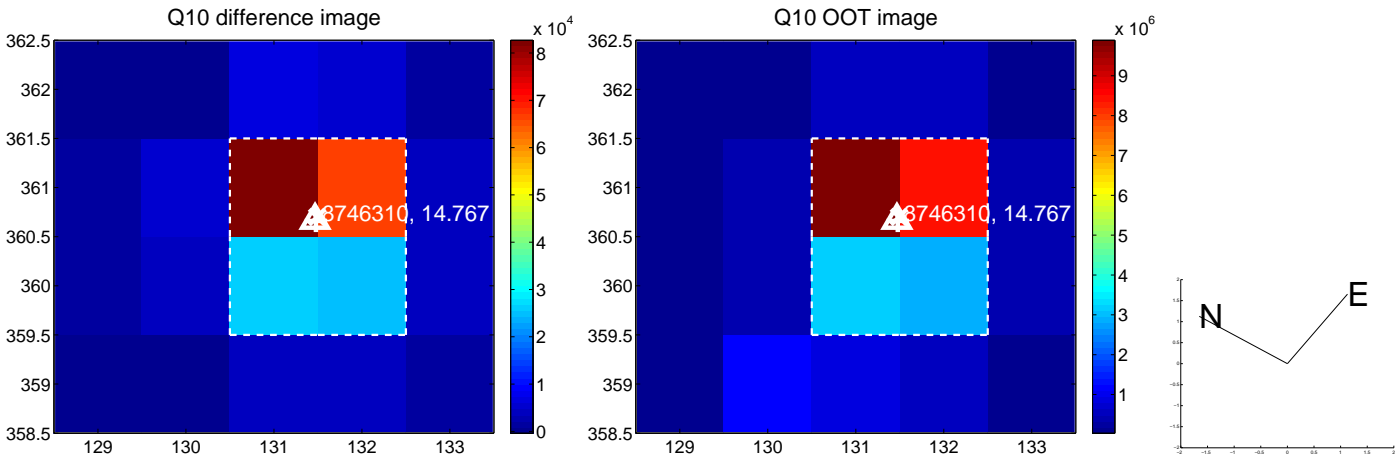
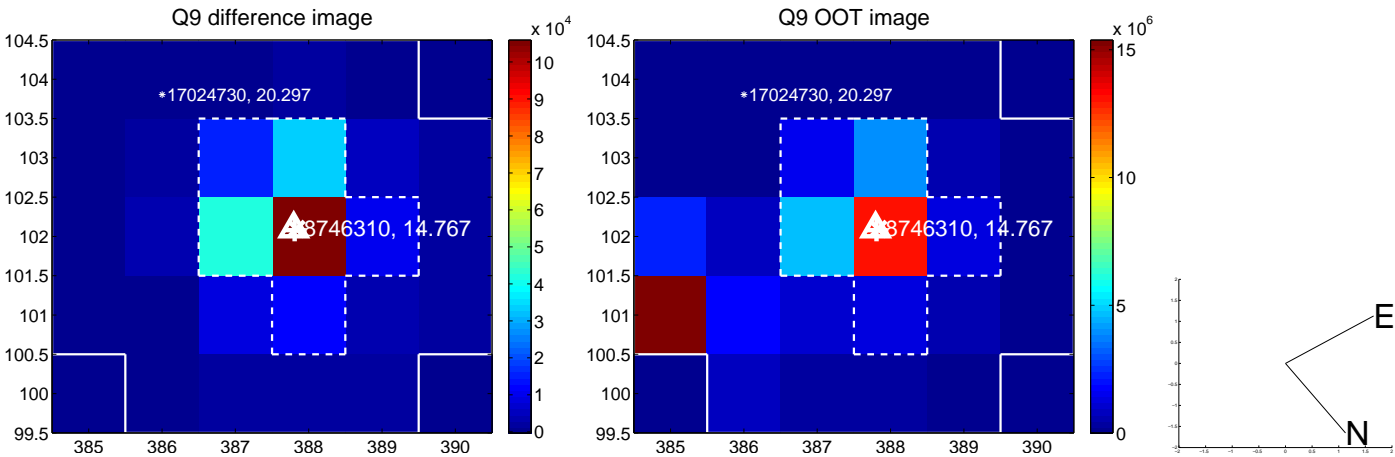
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



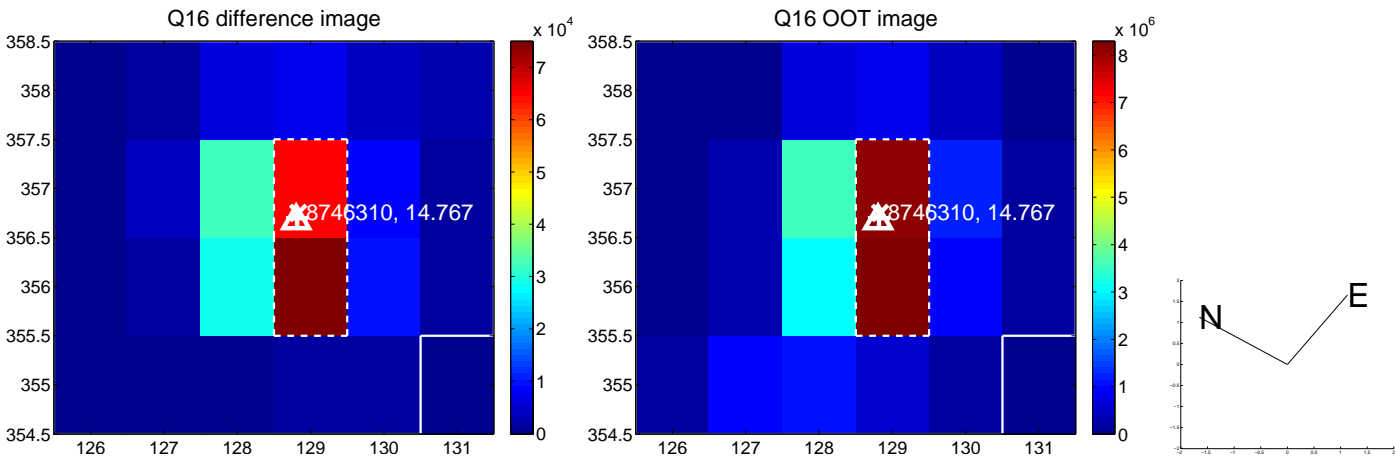
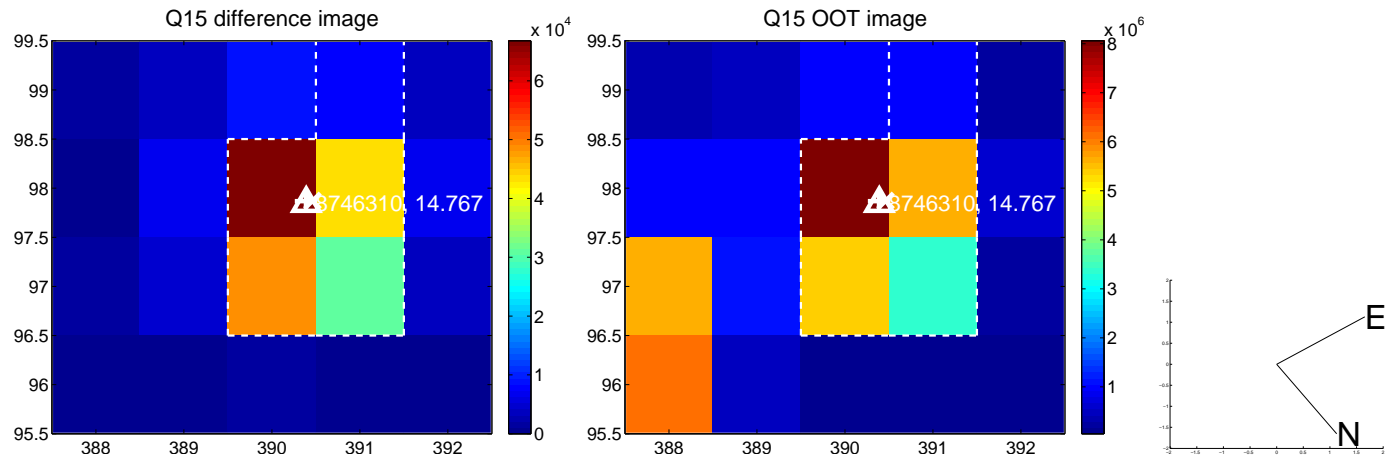
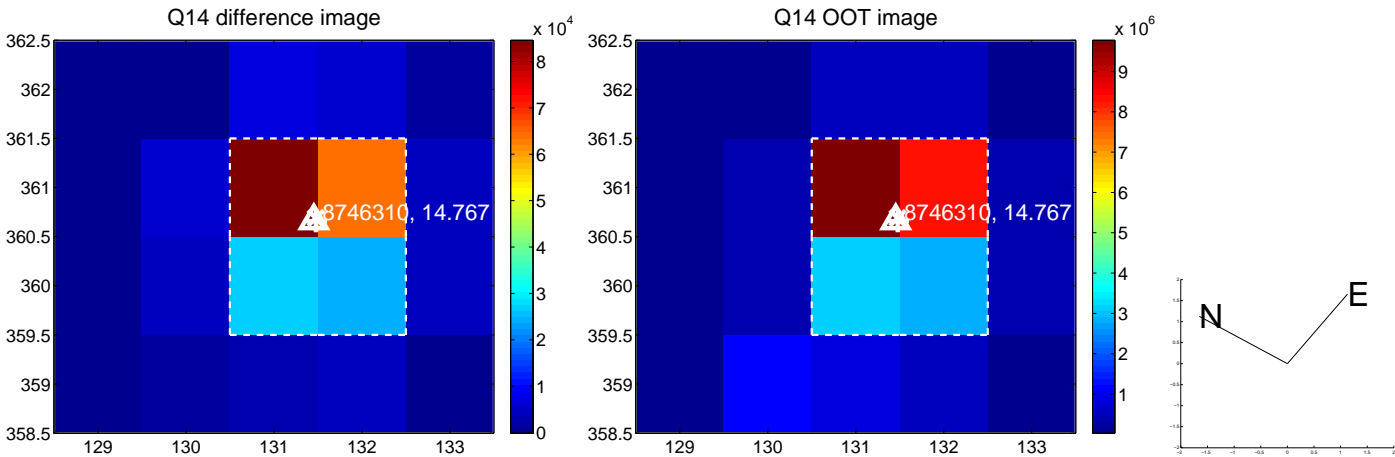
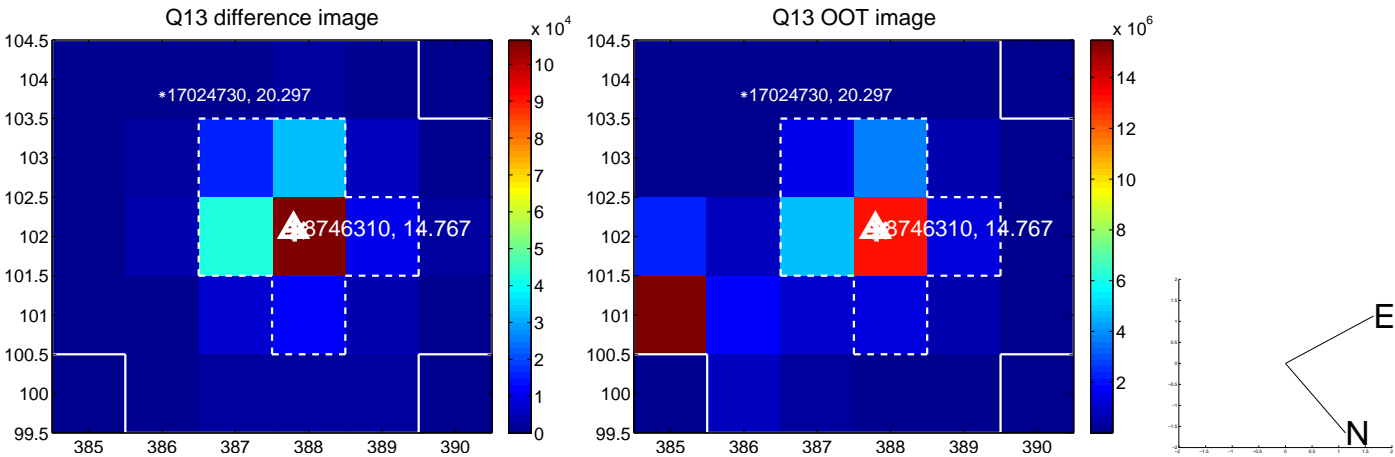
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



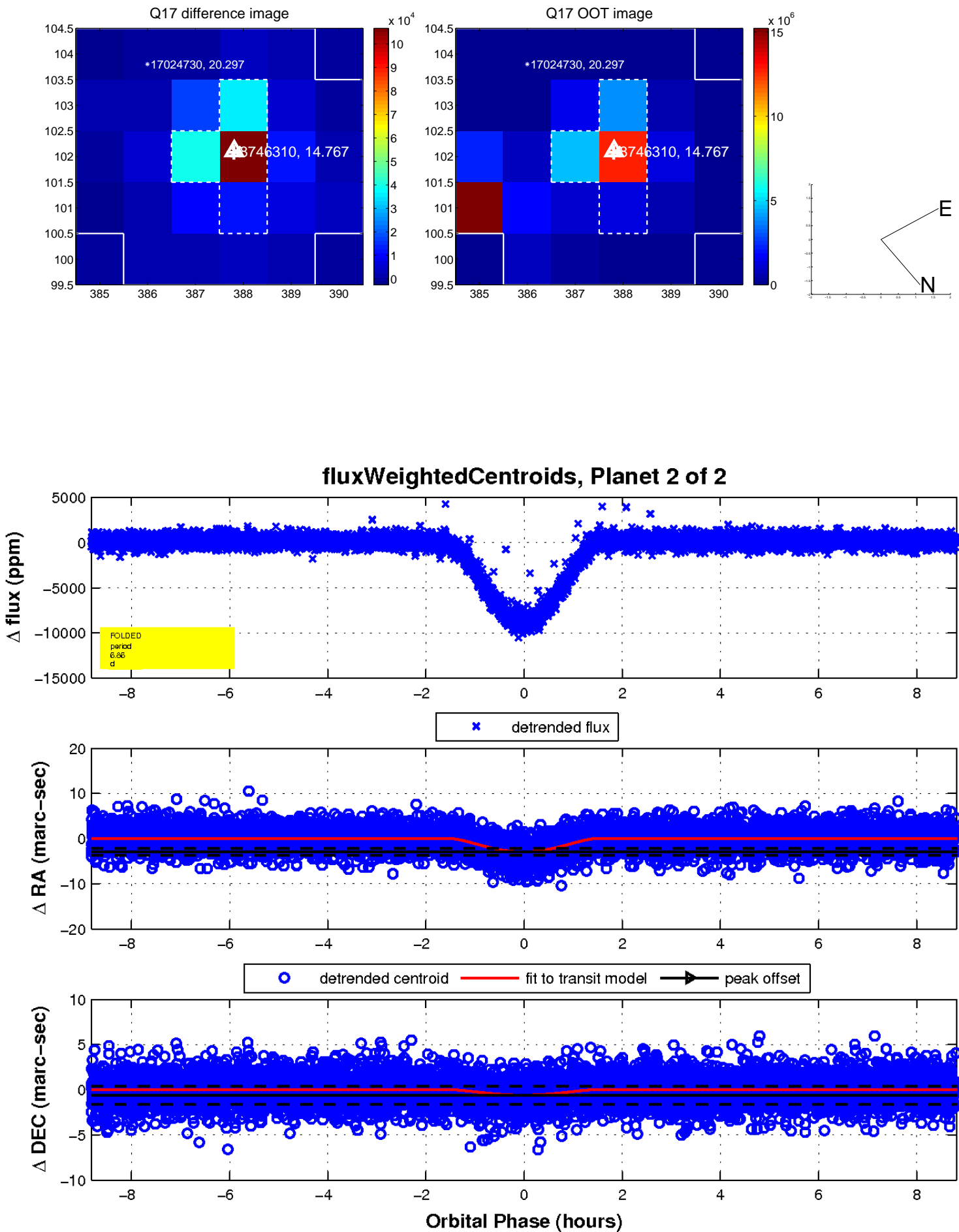
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

