

KIC 008747222

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})
008747222-01	OBS	5569.01	1.667471	133.181176	379.4	1.622	38.0	42.6	6.72	4678	16.18	0.00
008747222-02	OBS	No	1.667496	132.344726	73.7	1.578	8.6	8.6	6.72	4678	7.21	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747222-01	OBS	FP	0.00	0	1	1	0	PLANET_IN_STAR—MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
008747222-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

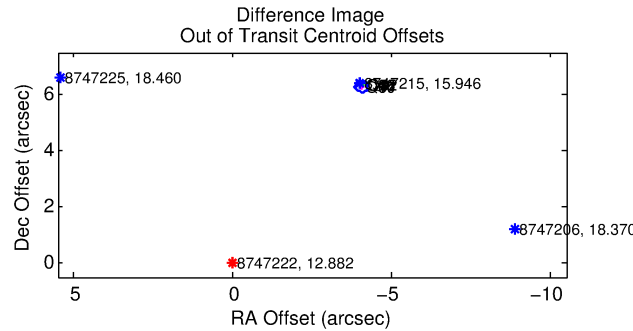
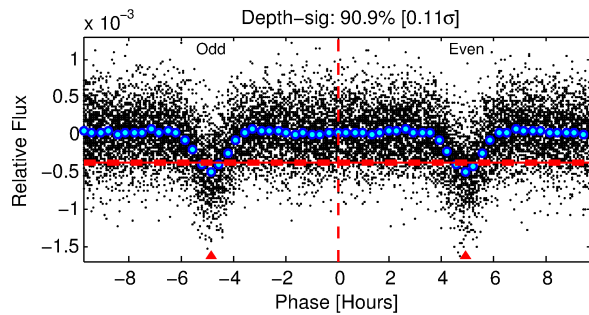
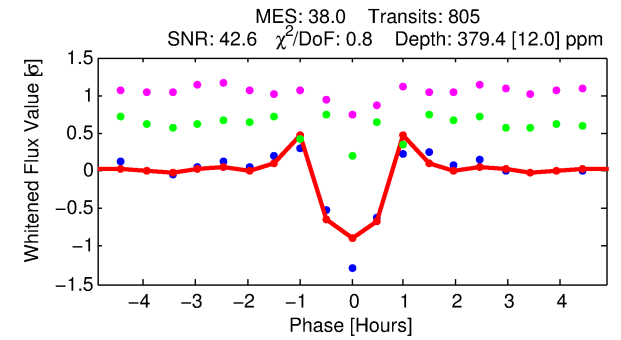
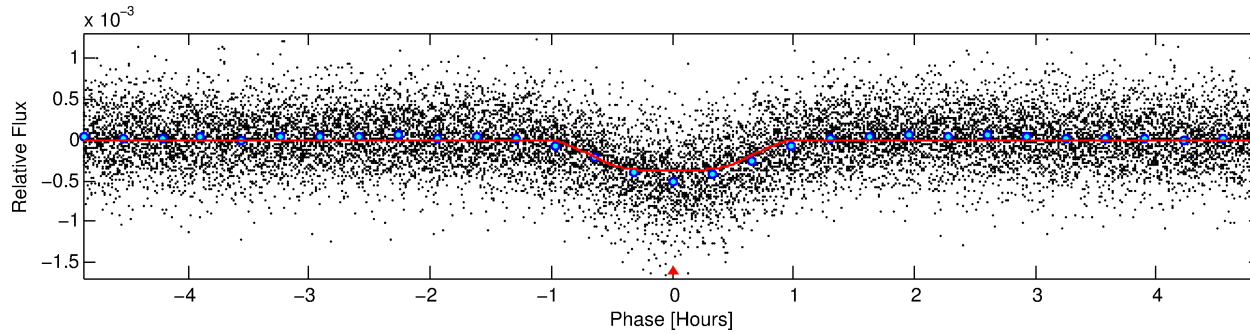
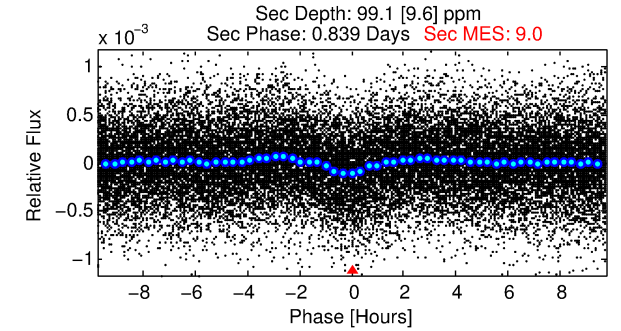
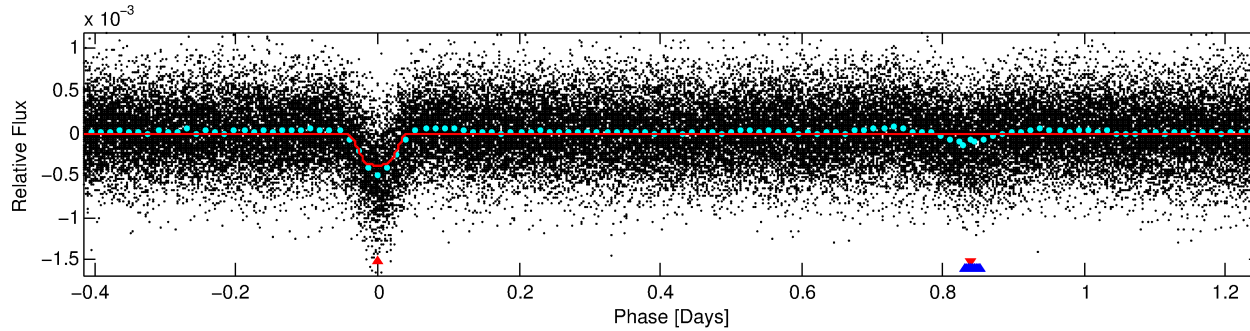
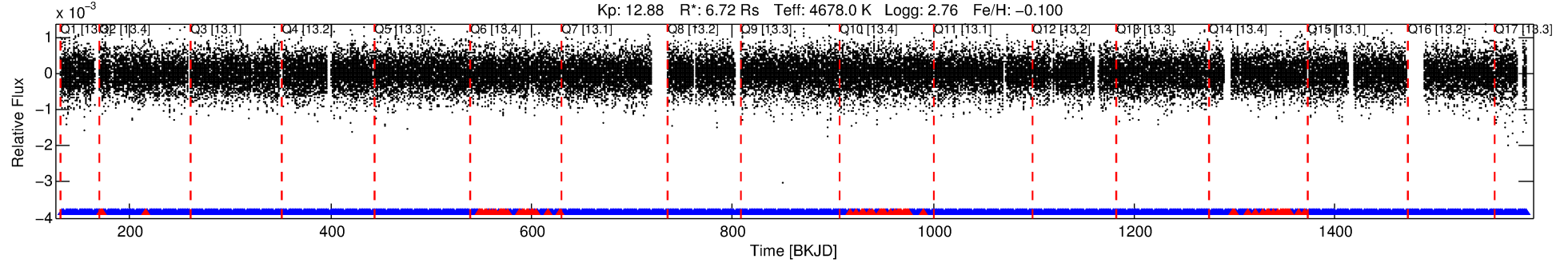
Ephemeris Match Information For 008747222-01

No Significant Match Found

DV One-Page Summary

KIC: 8747222 Candidate: 1 of 2 Period: 1.667 d
KOI: K05569.01 Corr: 0.959

Kp: 12.88 R*: 6.72 Rs Teff: 4678.0 K Logg: 2.76 Fe/H: -0.100



DV Fit Results:

Period = 1.66747 [0.00000] d
Epoch = 133.1812 [0.0003] BKJD
Rp/R* = 0.0221 [0.0020]
a/R* = 3.90 [1.18]
b = 0.90 [0.07]
Seff = N/A
Teq = N/A
Rp = 16.18 [3.60] Re
a = N/A
Ag = N/A
Teffp = N/A

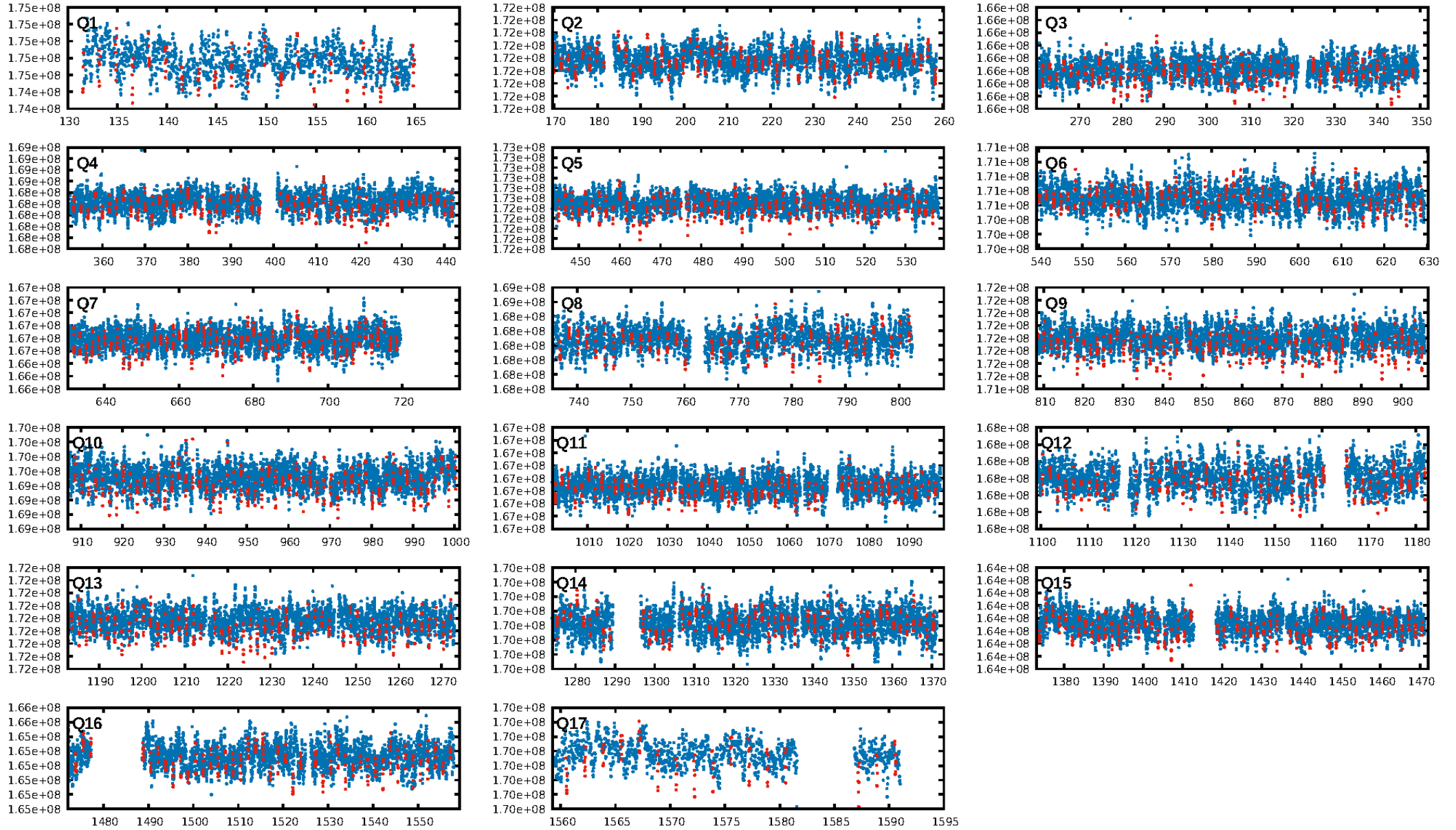
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.92 [704/768]
GhostDiagnostic-chr: -0.1303
Centroid-sig: 0.0%
Centroid-so: 35.998 arcsec [373.98σ]
OotOffset-rm: 7.489 arcsec [111.72σ]
KicOffset-rm: 7.650 arcsec [111.39σ]
OotOffset-st: 4/0/4/5 [13]
KicOffset-st: 4/0/4/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [17/17]

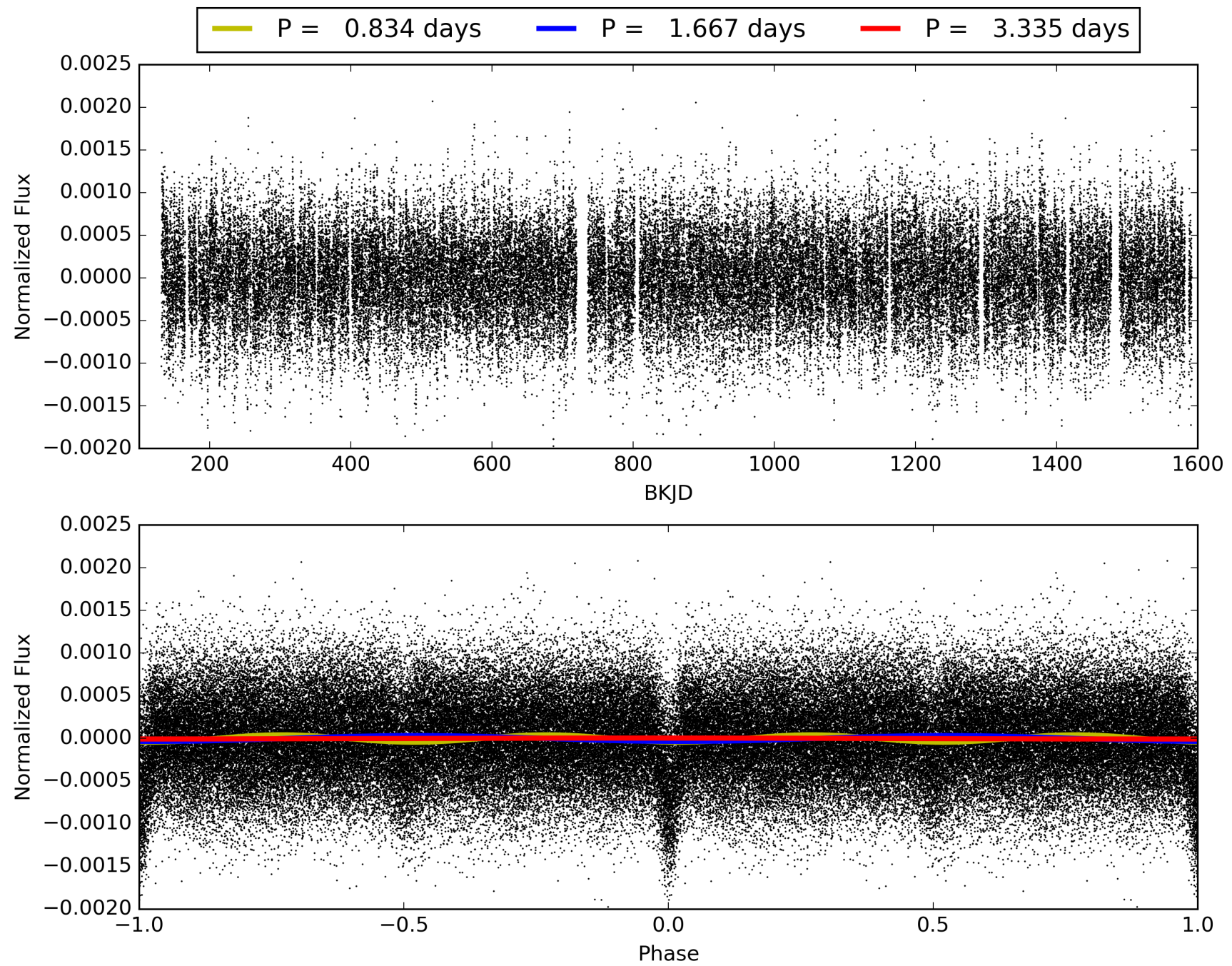
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:27:04 Z

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

TCE 008747222-01, PDC Light Curves

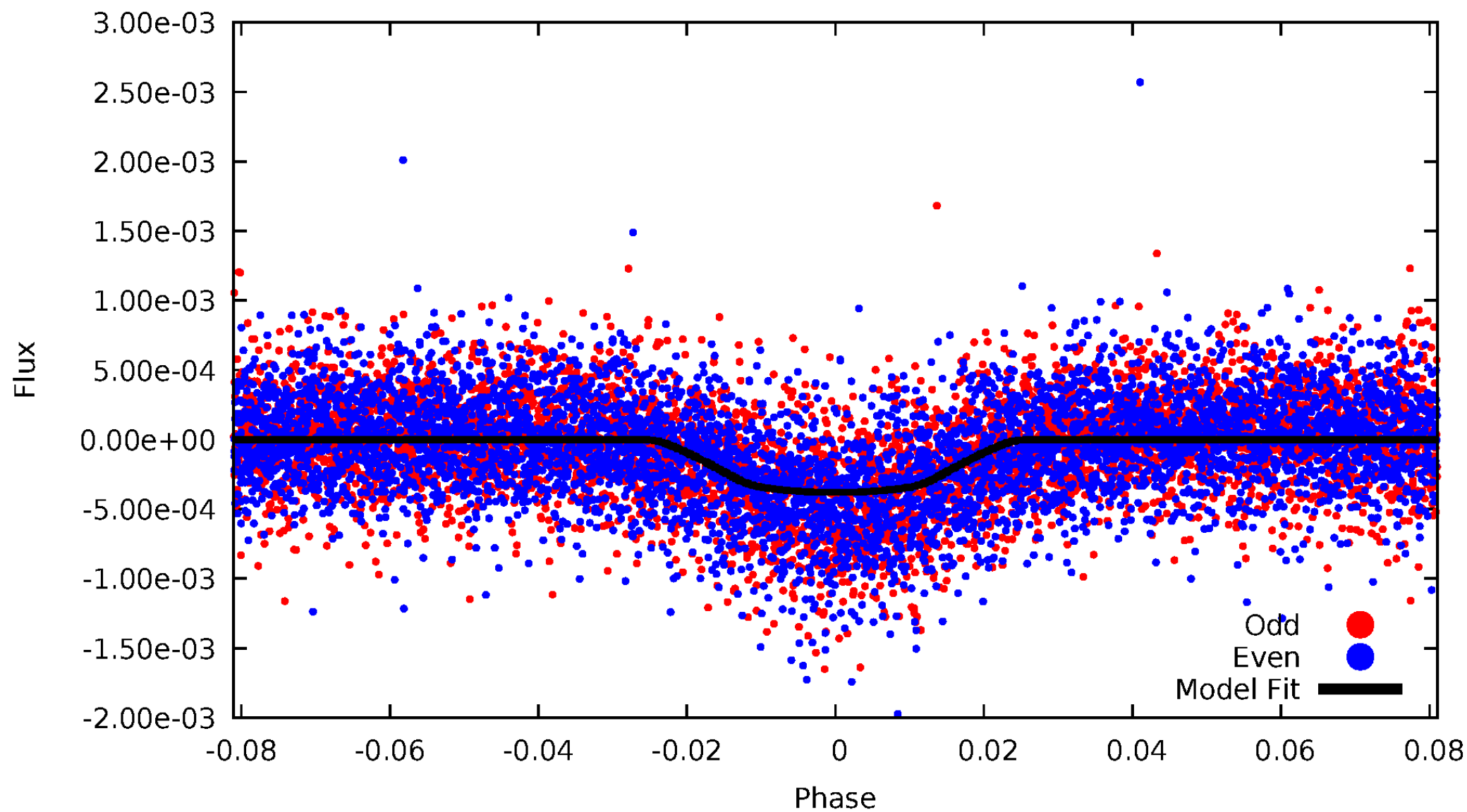


TCE 008747222-01



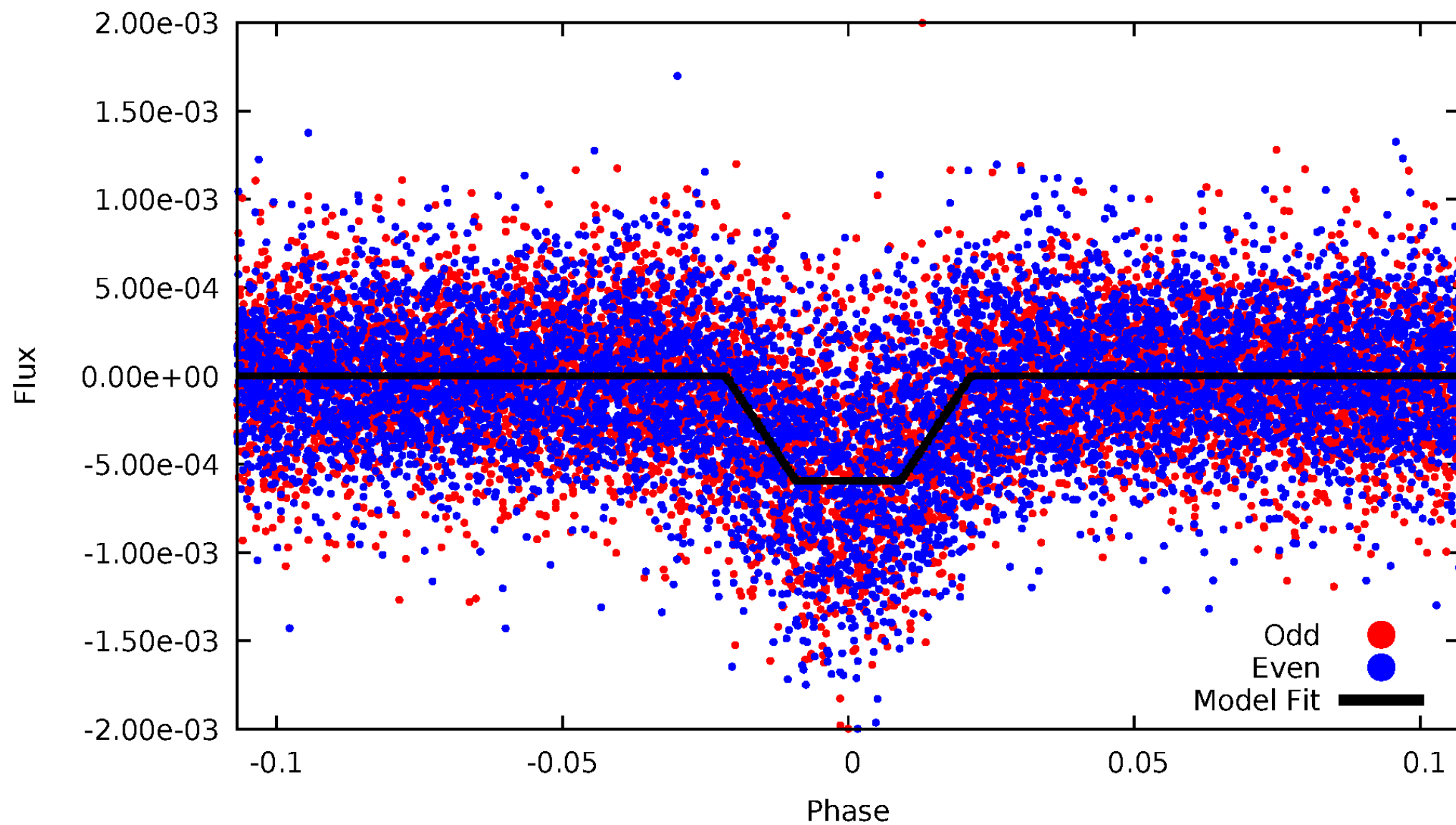
DV Odd/Even

TCE 008747222-01

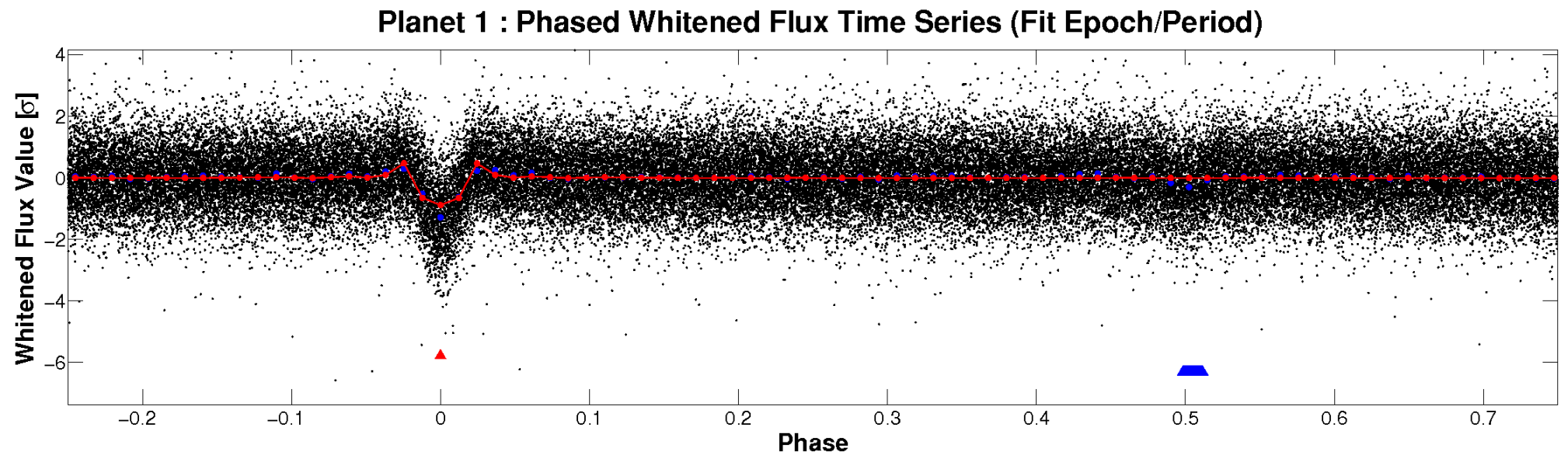
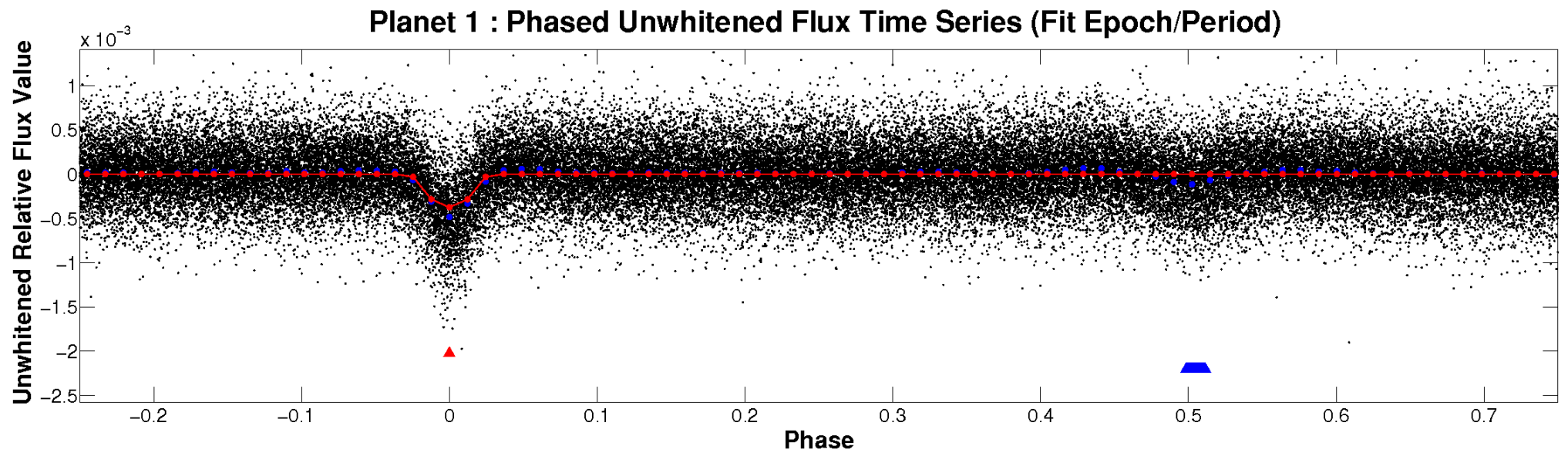


ALT Odd/Even

TCE 008747222-01

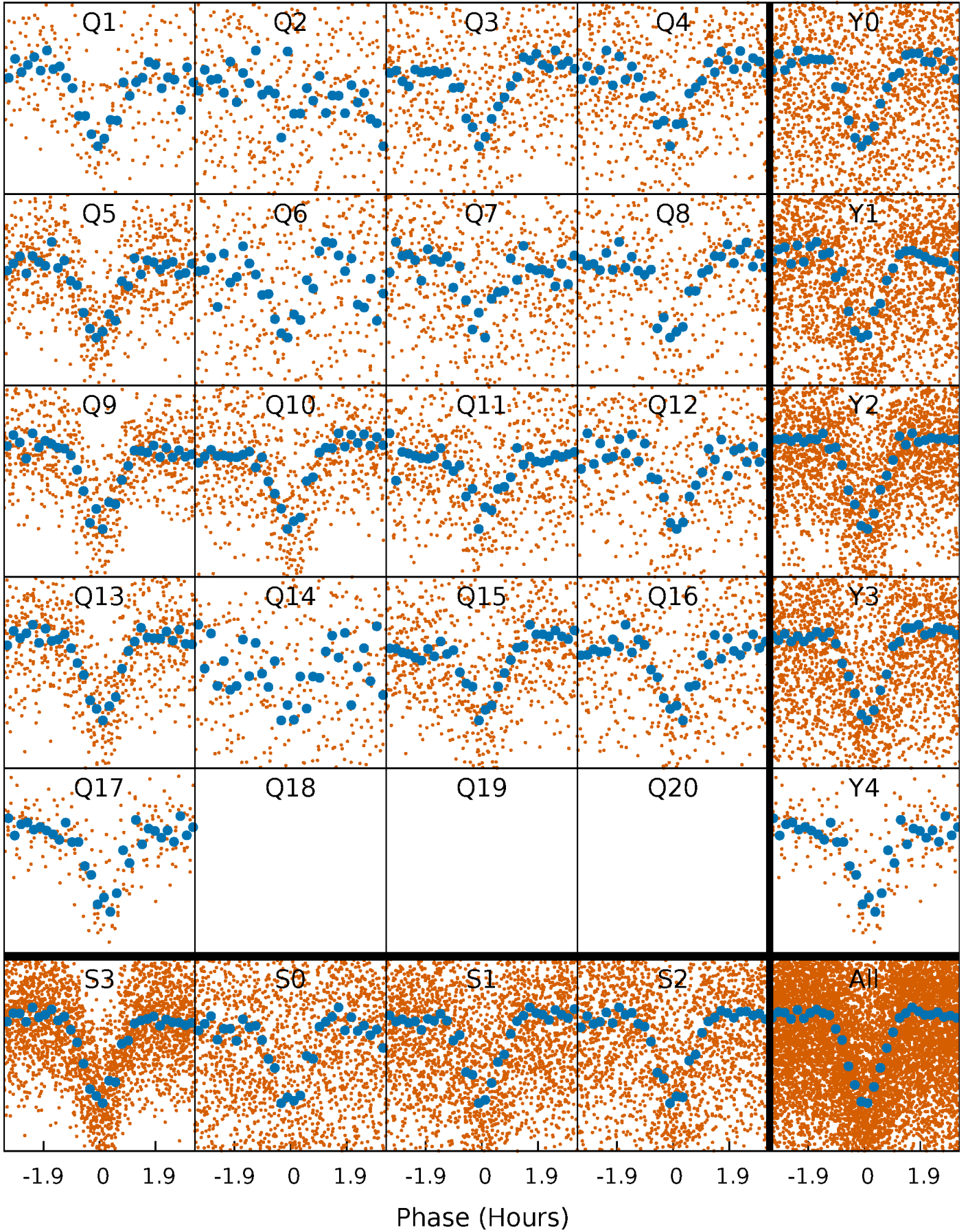


Non-Whitened Vs. Whitened Light Curve



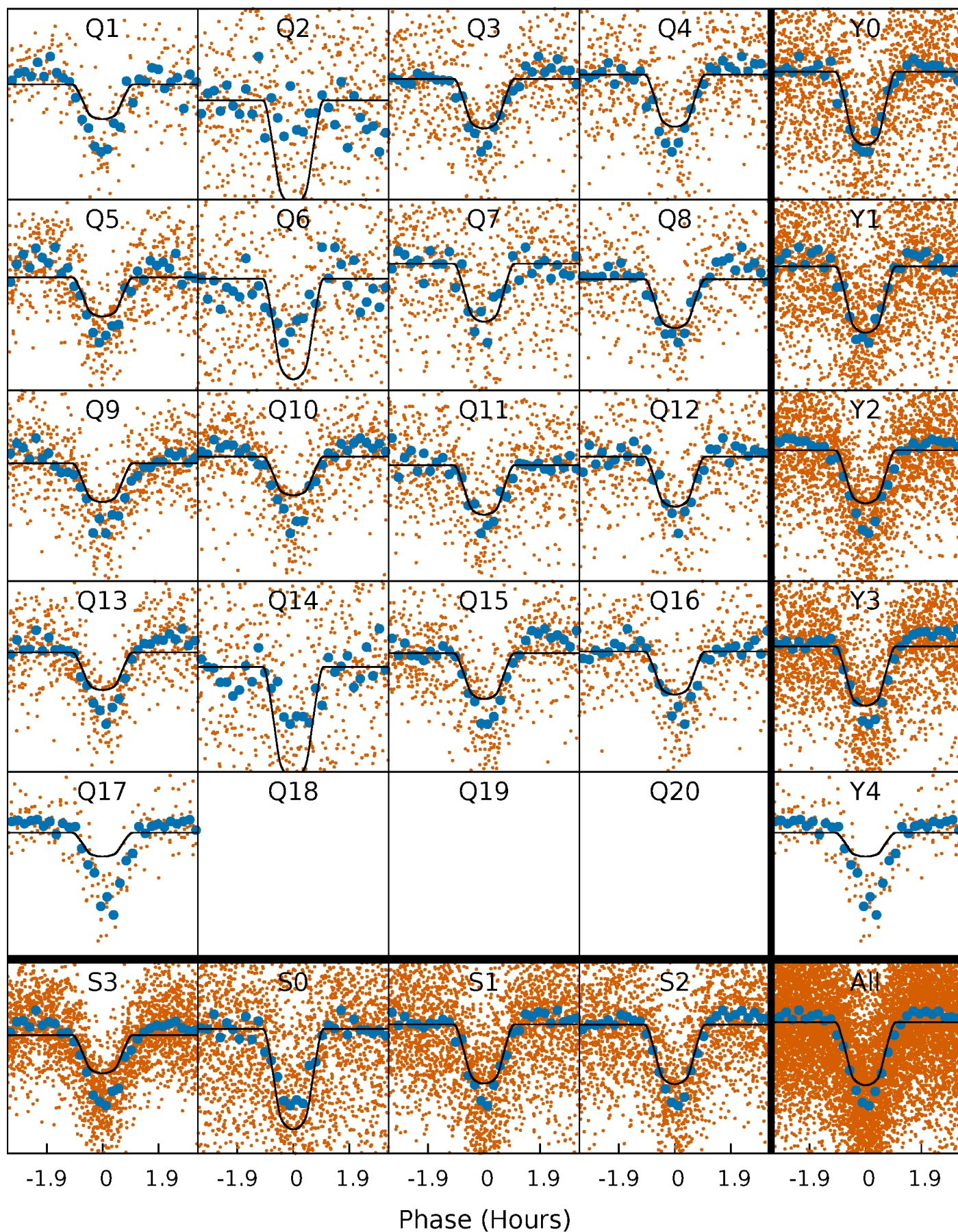
PDC Quarter-Phased Transit Curves

TCE 008747222-01 P= 1.667471 Days $T_0=133.181176$ (BKJD)



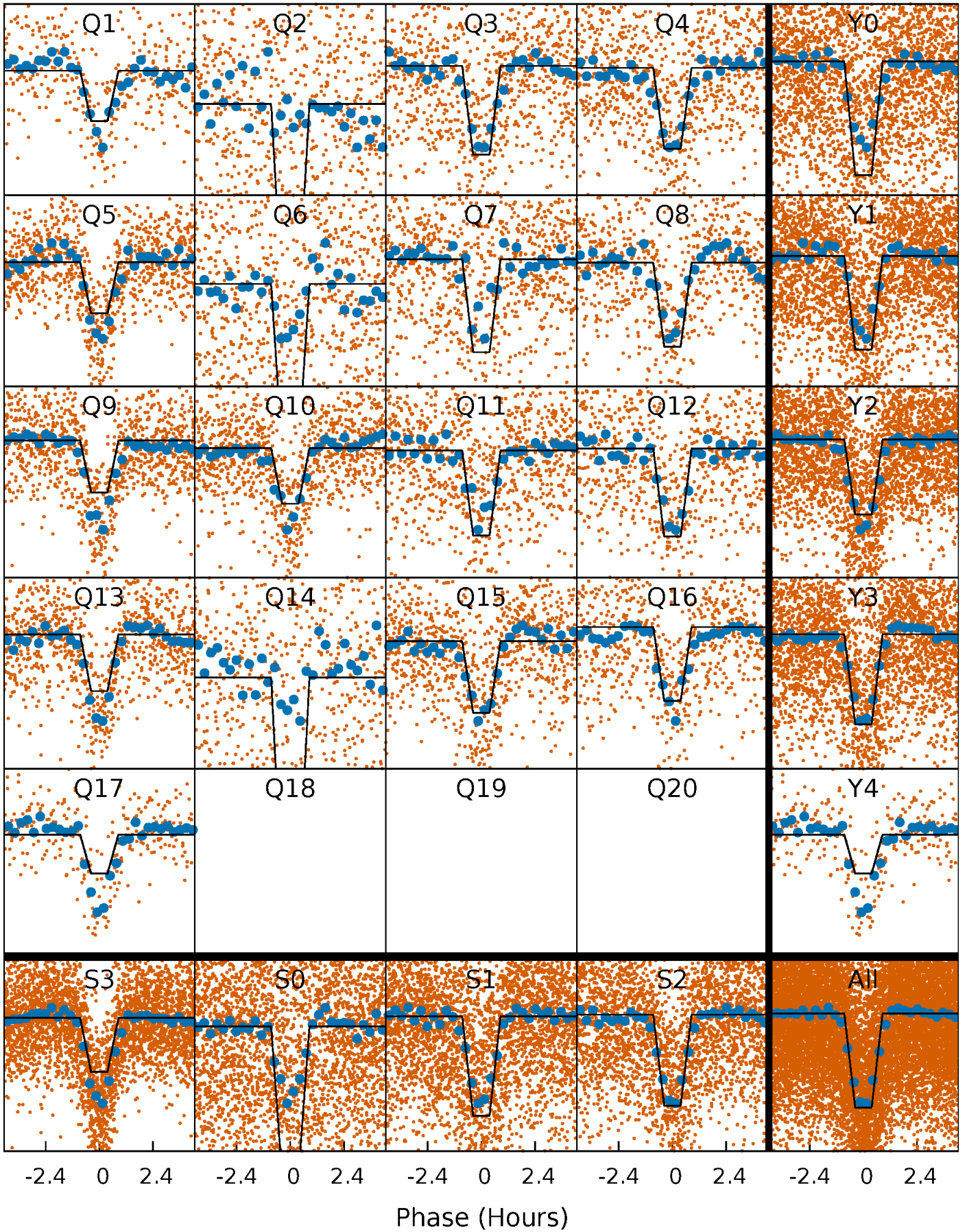
DV Quarter-Phased Transit Curves

TCE 008747222-01 P= 1.667471 Days $T_0=133.181176$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

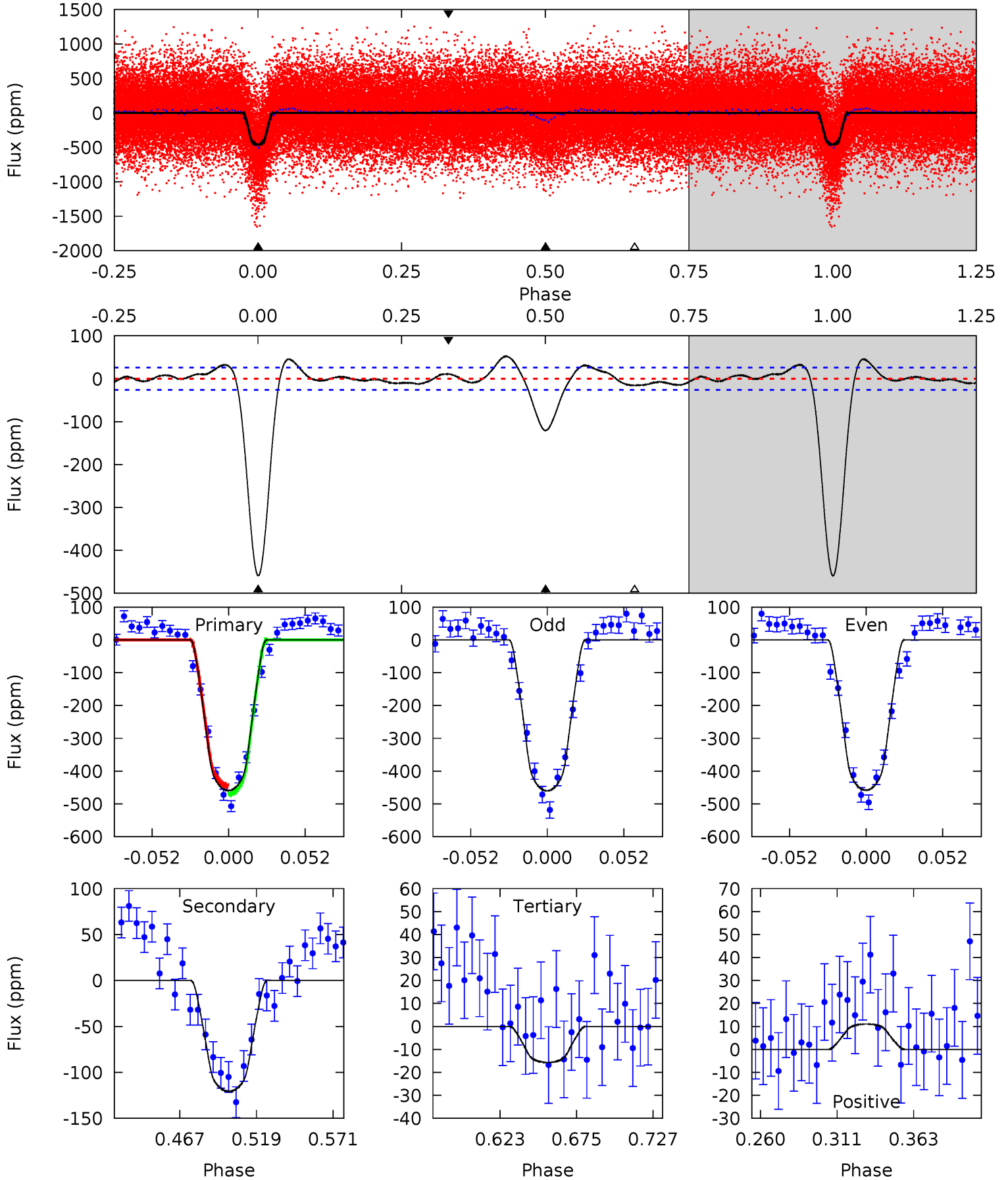
TCE 008747222-01 P= 1.667482 Days $T_0=133.176856$ (BKJD)



DV Model-Shift Uniqueness Test

008747222-01, P = 1.667471 Days, E = 129.846234 Days

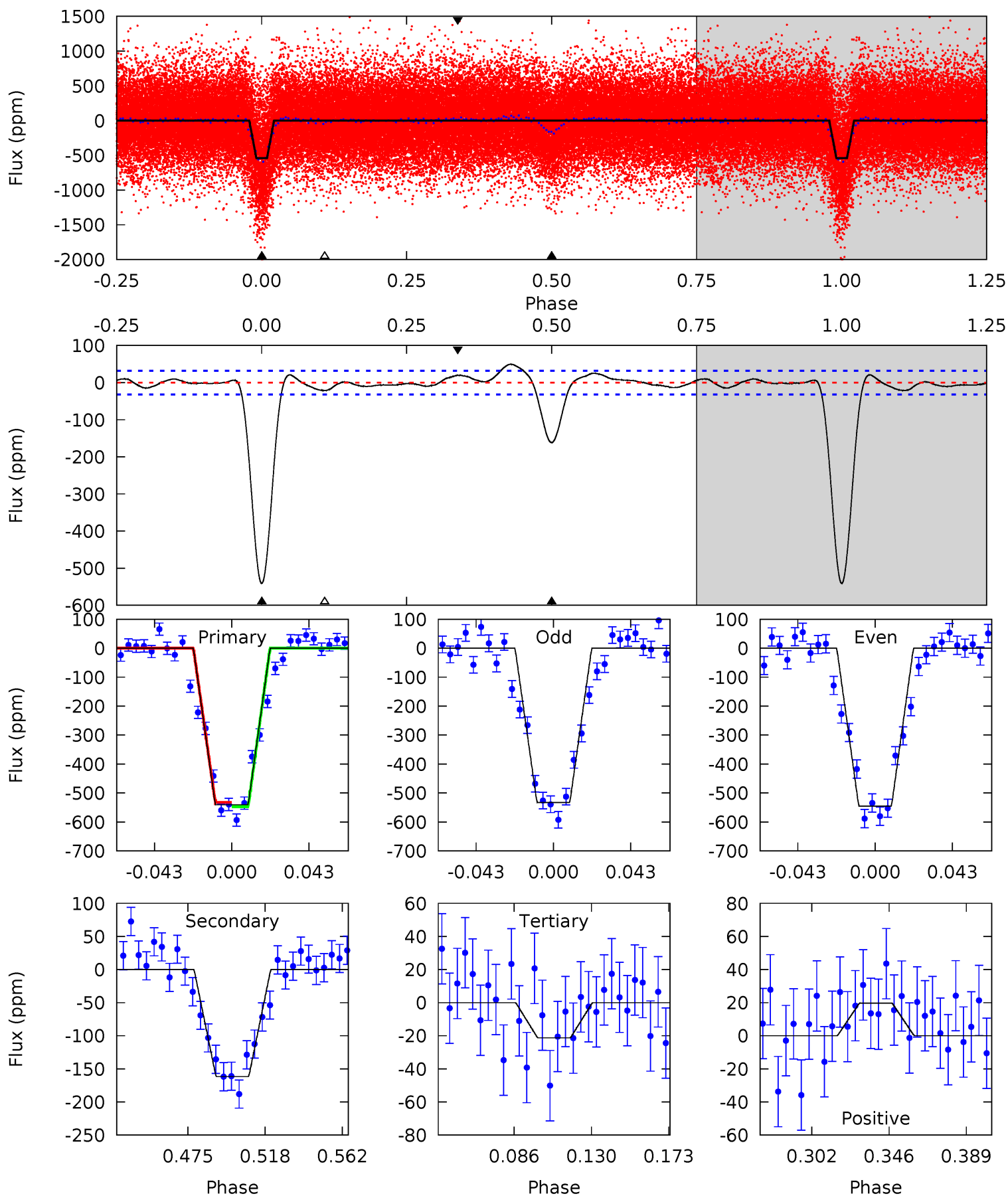
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.0	21.8	2.84	1.99	4.70	1.94	2.81	80.1	81.0	19.0	19.8	0.17	1.05	0.10	2.32



Alt Model-Shift Uniqueness Test

008747222-01, P = 1.667482 Days, E = 131.509374 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.4	24.0	3.17	2.93	4.74	2.02	2.04	77.2	77.5	20.9	21.1	0.86	1.01	0.08	0



Stellar Parameters For KIC 008747222

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4678^{+80}_{-47}	$2.756^{+0.027}_{-0.030}$	$-0.100^{+0.150}_{-0.100}$	$6.720^{+1.369}_{-0.257}$	$0.940^{+0.403}_{-0.021}$	$0.004^{+0.000}_{-0.001}$
	+2%/-1%	+1%/-1%	+150%/-100%	+20%/-4%	+43%/-2%	+8%/-20%
Source	SPE74	AST9	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008747222-01 / KOI 5569.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-121 ± 6	$16.23^{+2.04}_{-1.72}$	4555^{+115}_{-78}	-3377^{+244}_{-156}	$0.185^{+0.044}_{-0.032}$
Alt.	-162 ± 7	$17.95^{+1.81}_{-1.67}$	4554^{+108}_{-67}	-3295^{+270}_{-165}	$0.203^{+0.041}_{-0.032}$

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 $A_{obs} \gg 1.0$

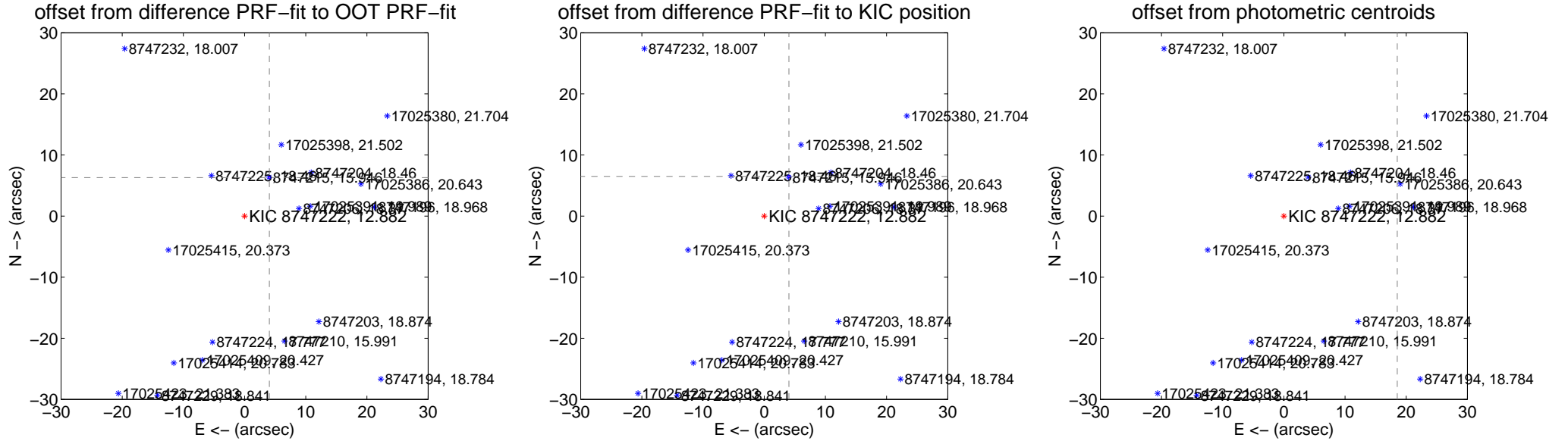
DV Centroid Data

Supplemental centroid analysis for 008747222-01. Kepler magnitude: 12.88. Transit SNR 42.61

There are 13 quarters with good PRF difference image offsets

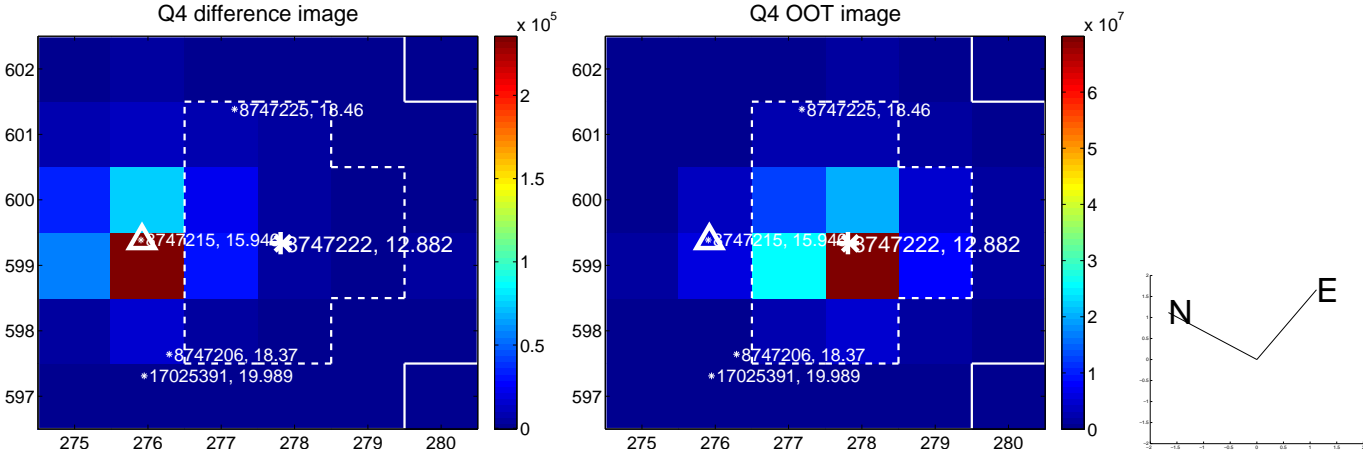
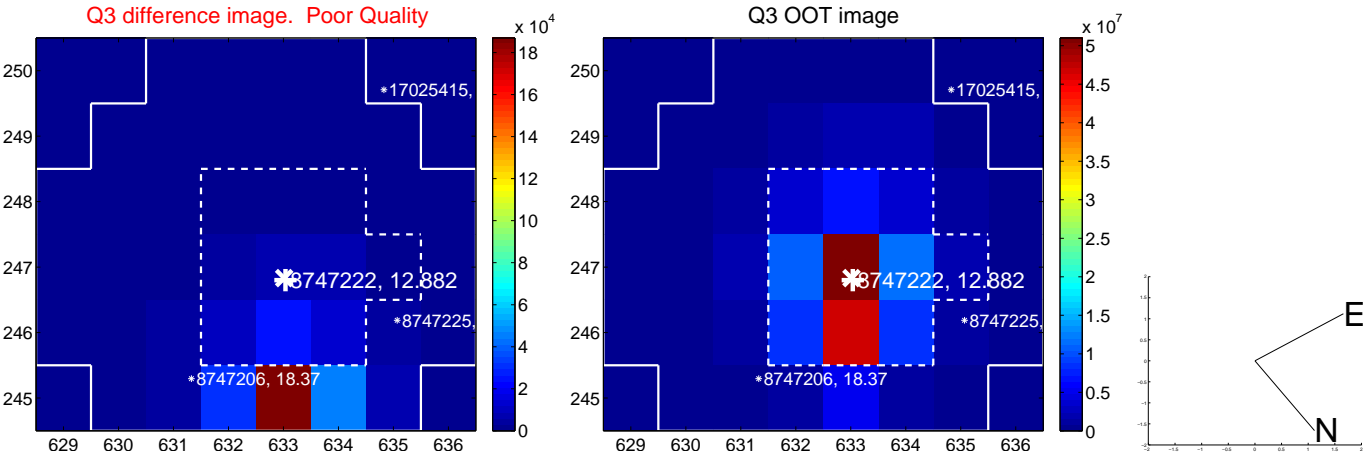
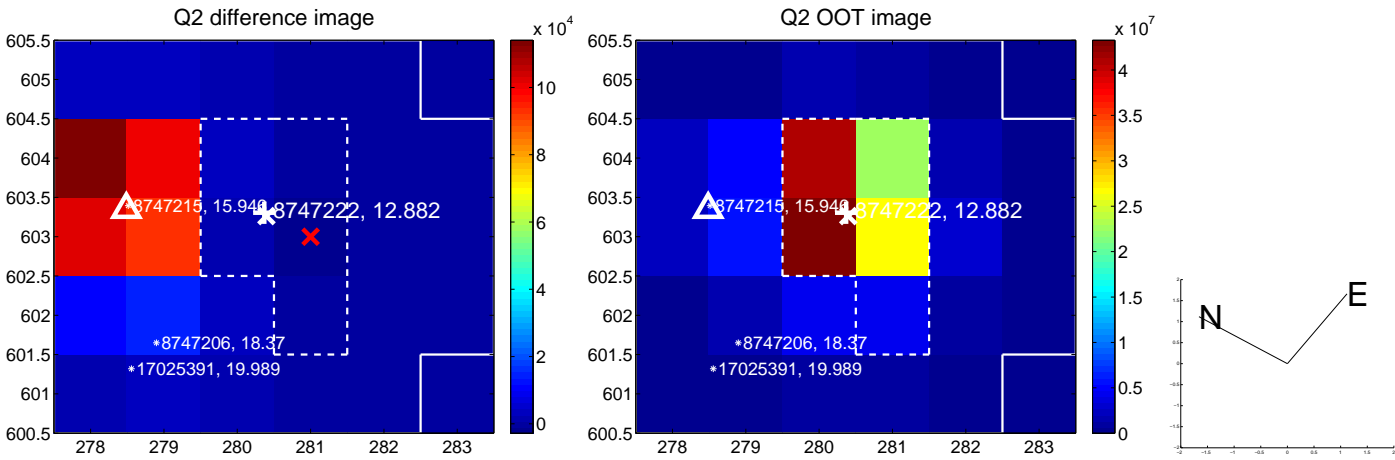
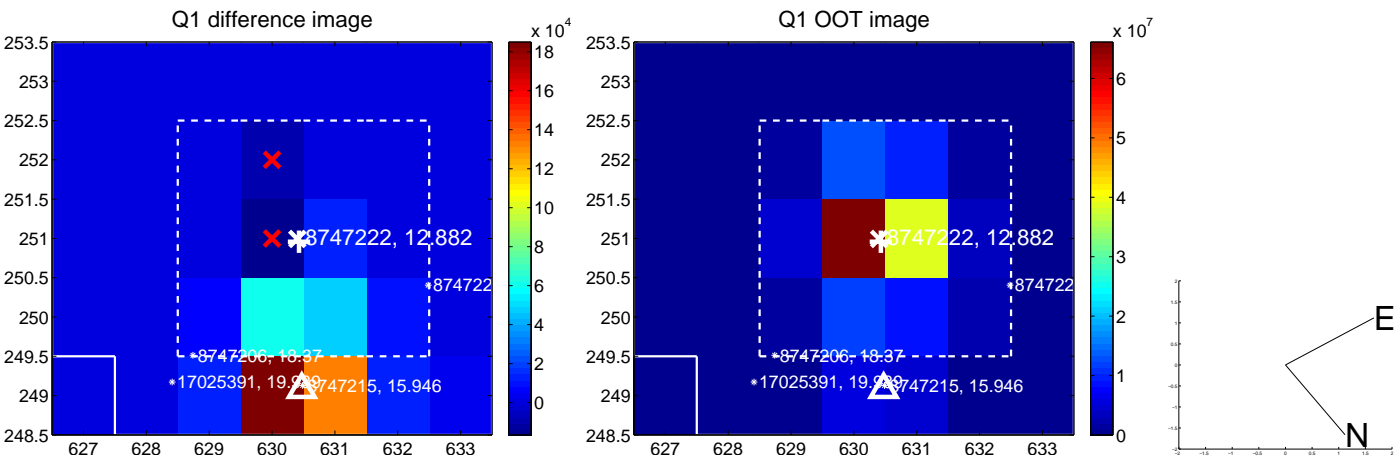
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.489 \pm 0.067	111.72	-4.054 \pm 0.067	6.297 \pm 0.067
PRF-fit source offset from KIC position	7.650 \pm 0.069	111.39	-4.033 \pm 0.070	6.501 \pm 0.068
photometric centroid source offset	36.00 \pm 0.10	373.98	-18.54 \pm 0.10	30.85 \pm 0.09

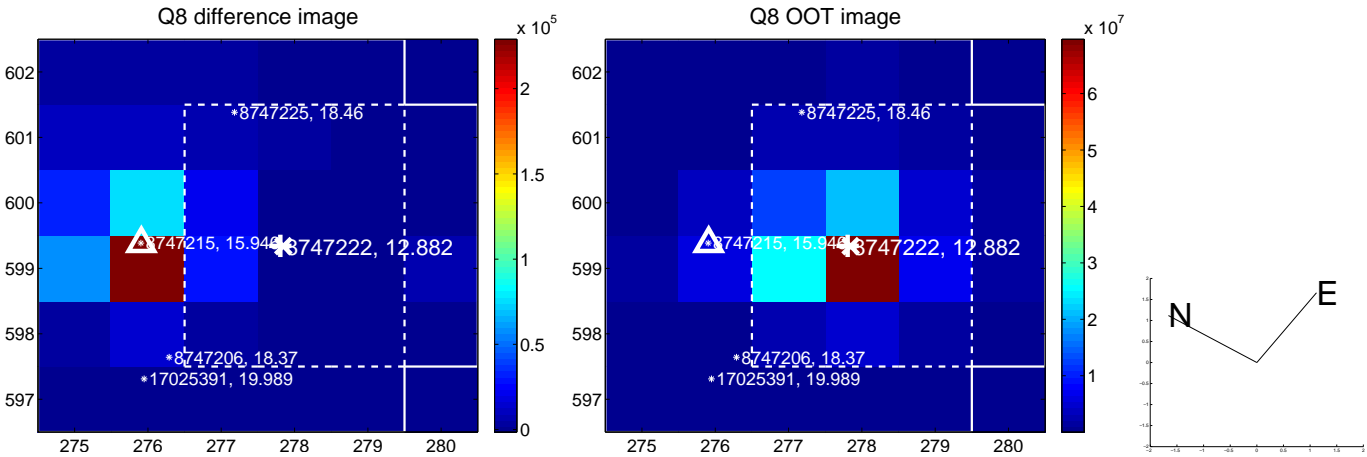
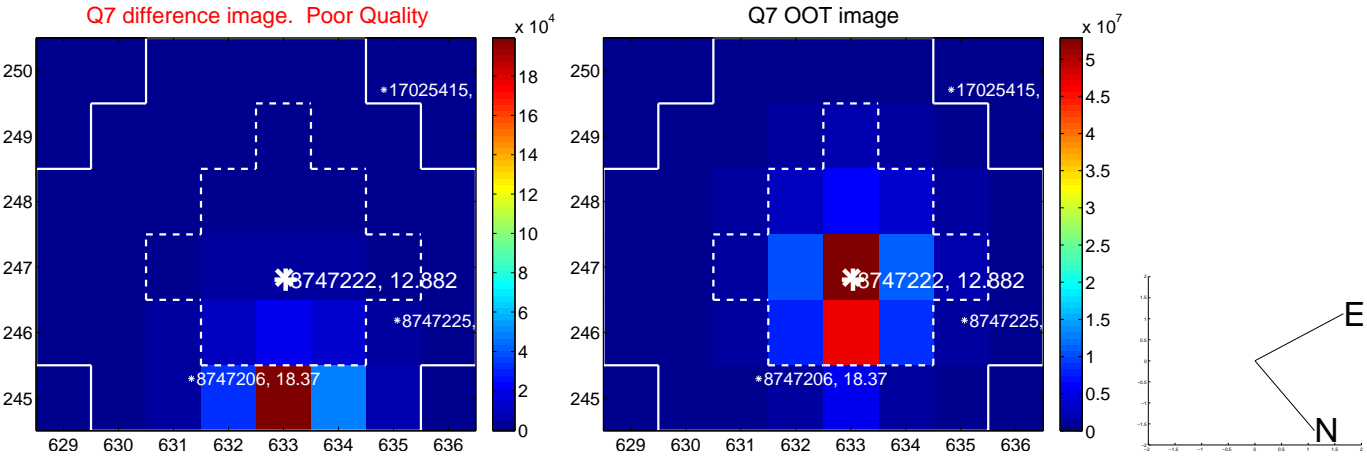
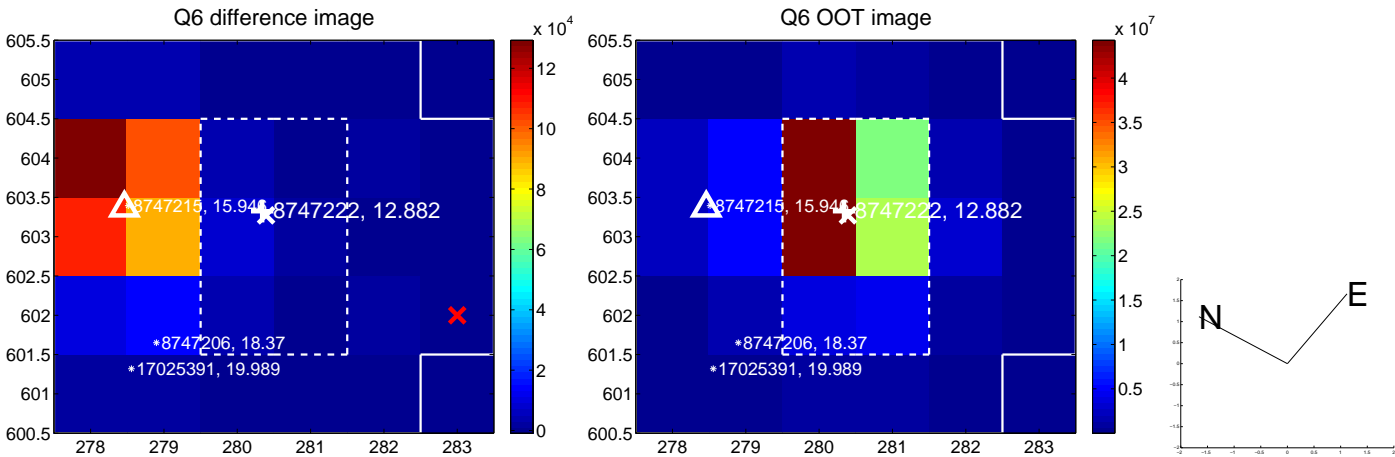
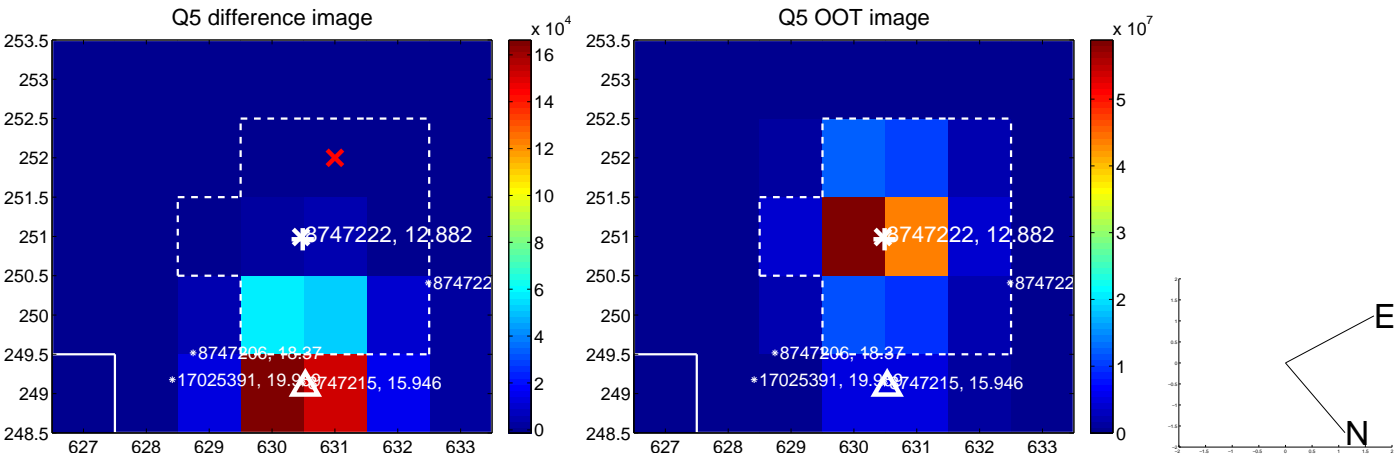


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

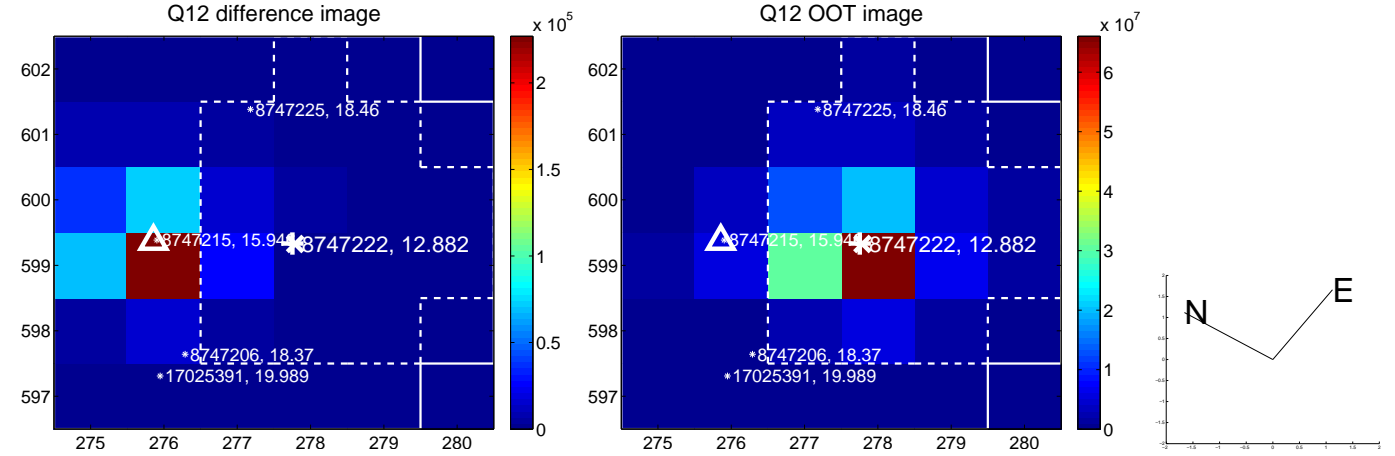
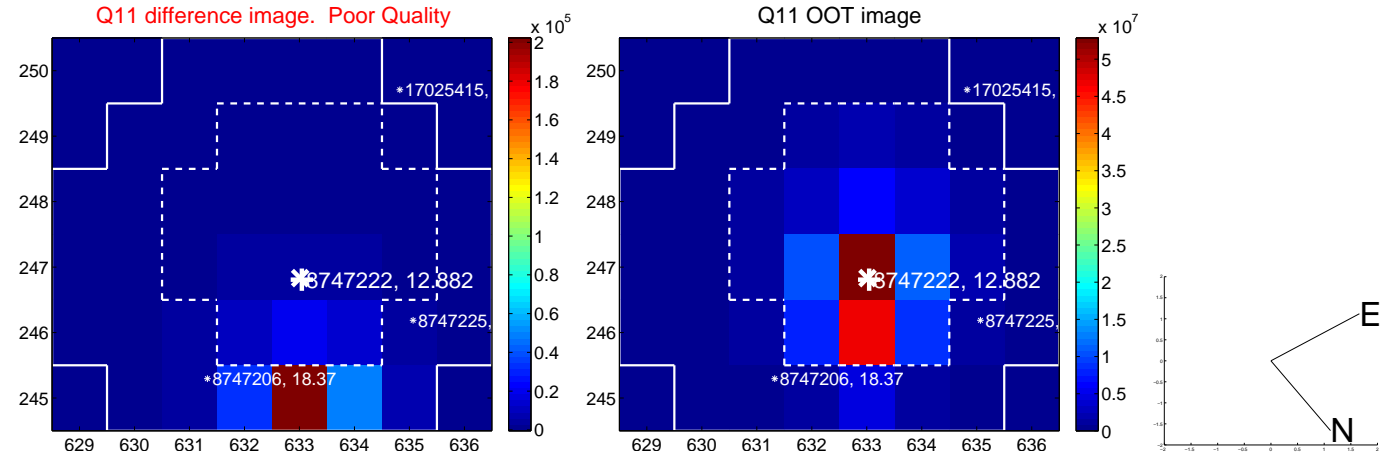
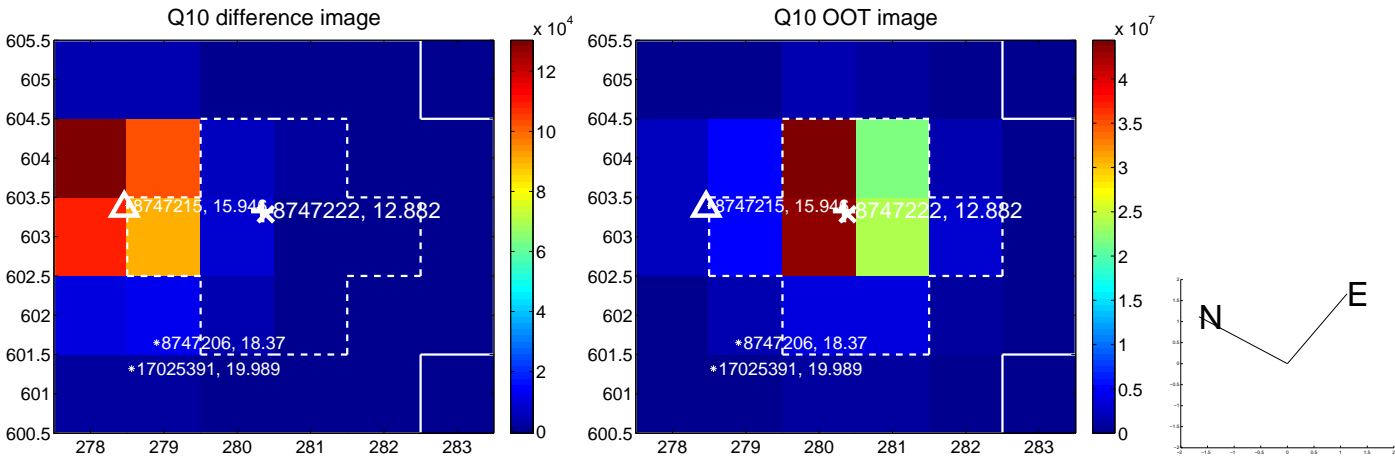
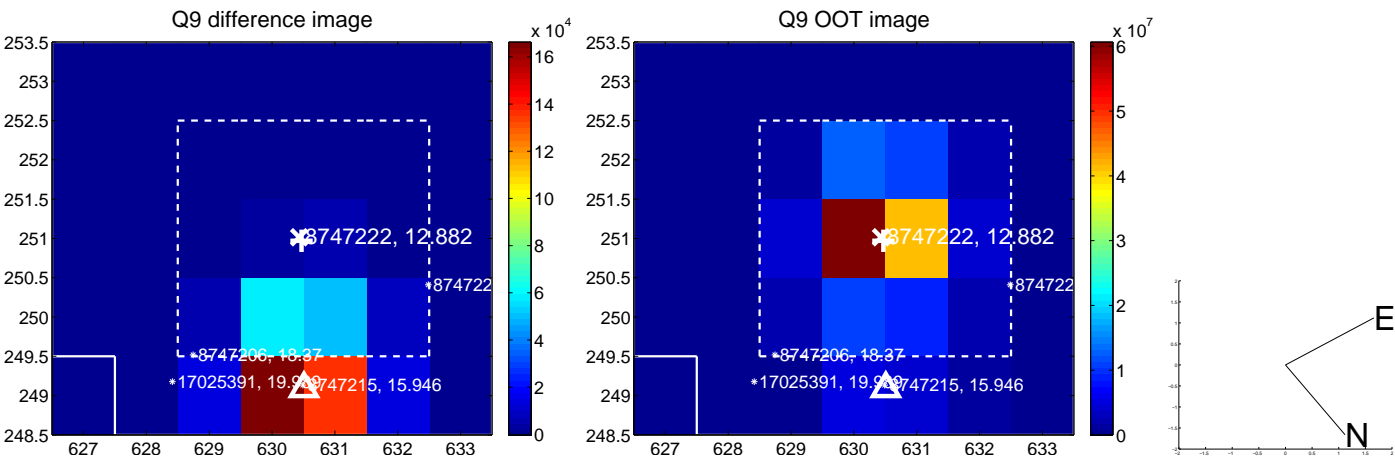
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



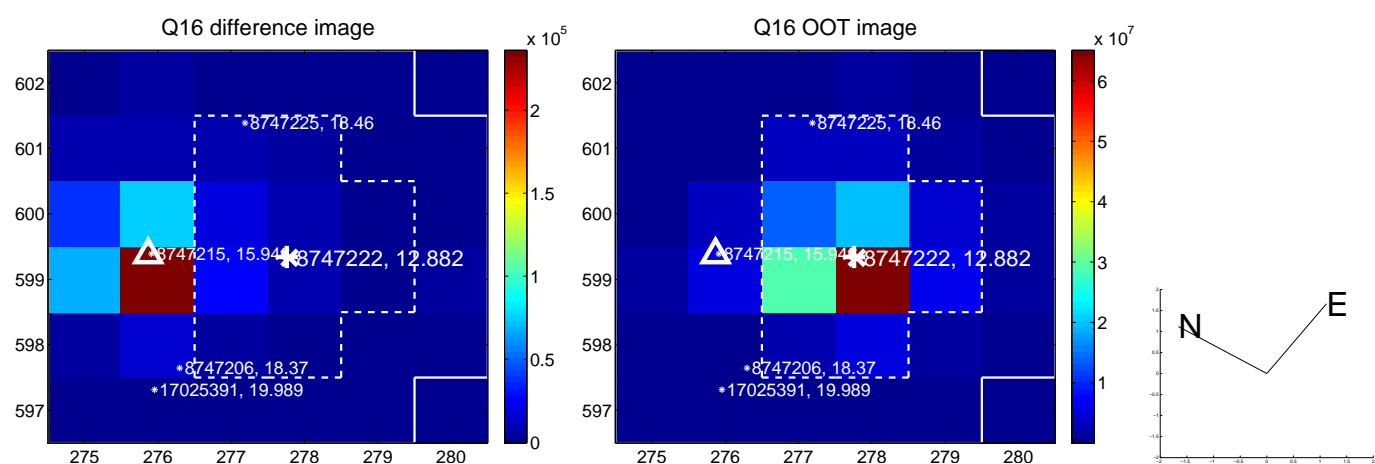
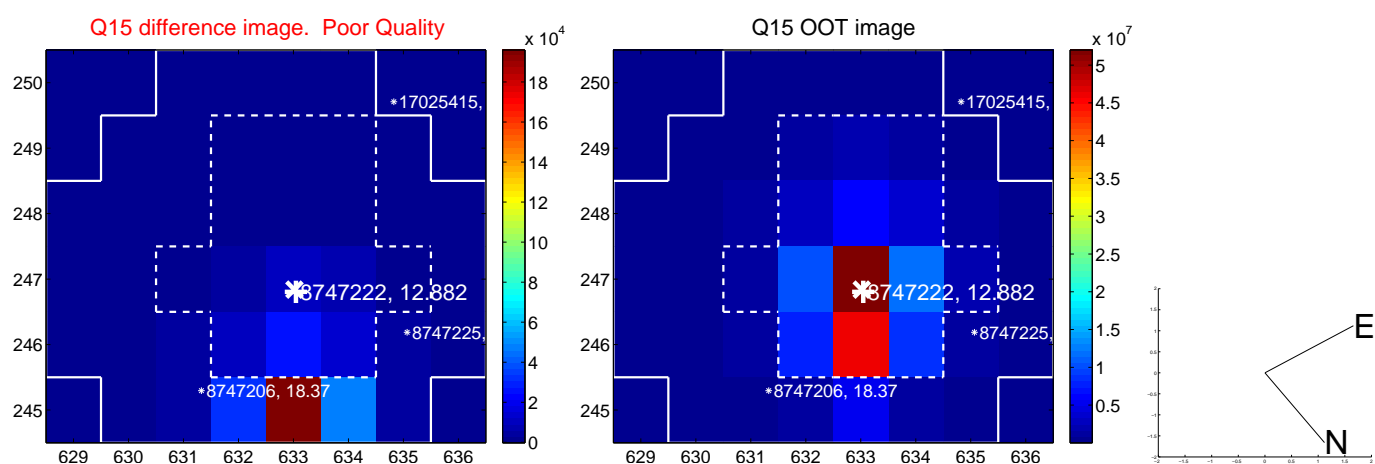
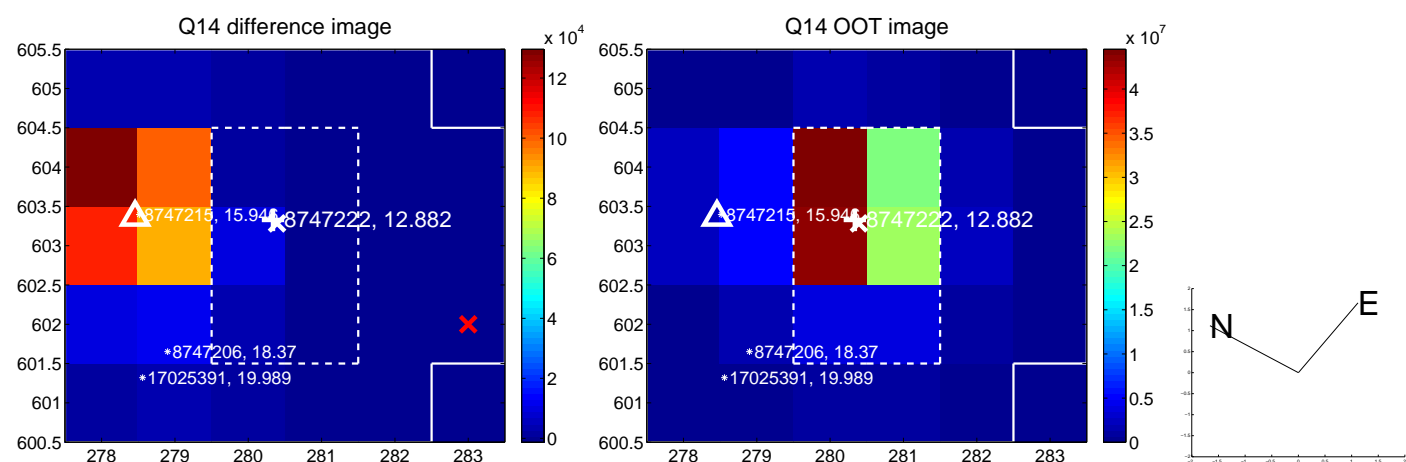
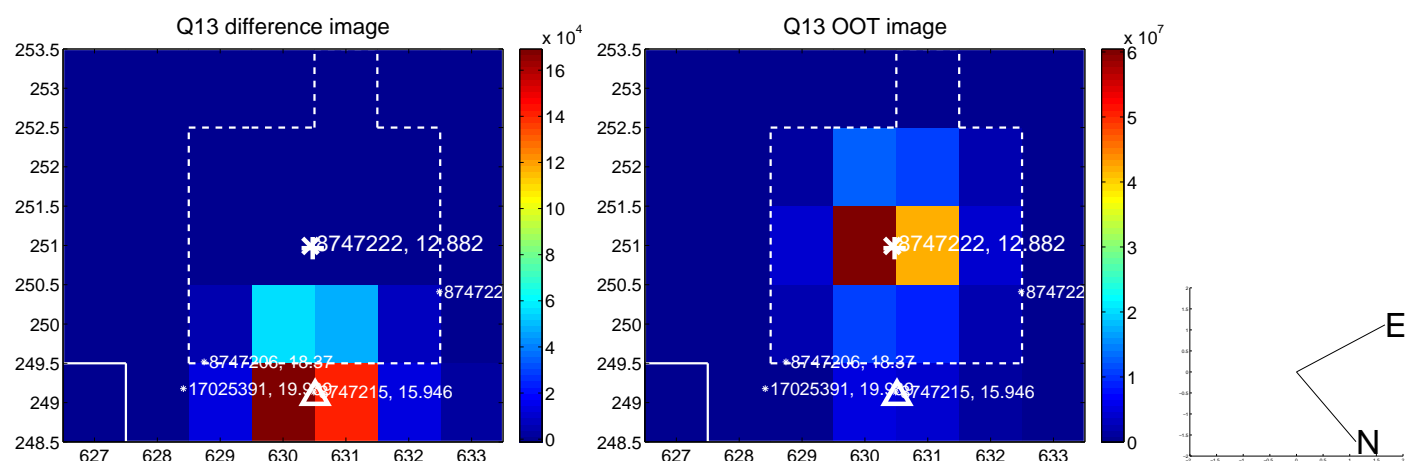
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



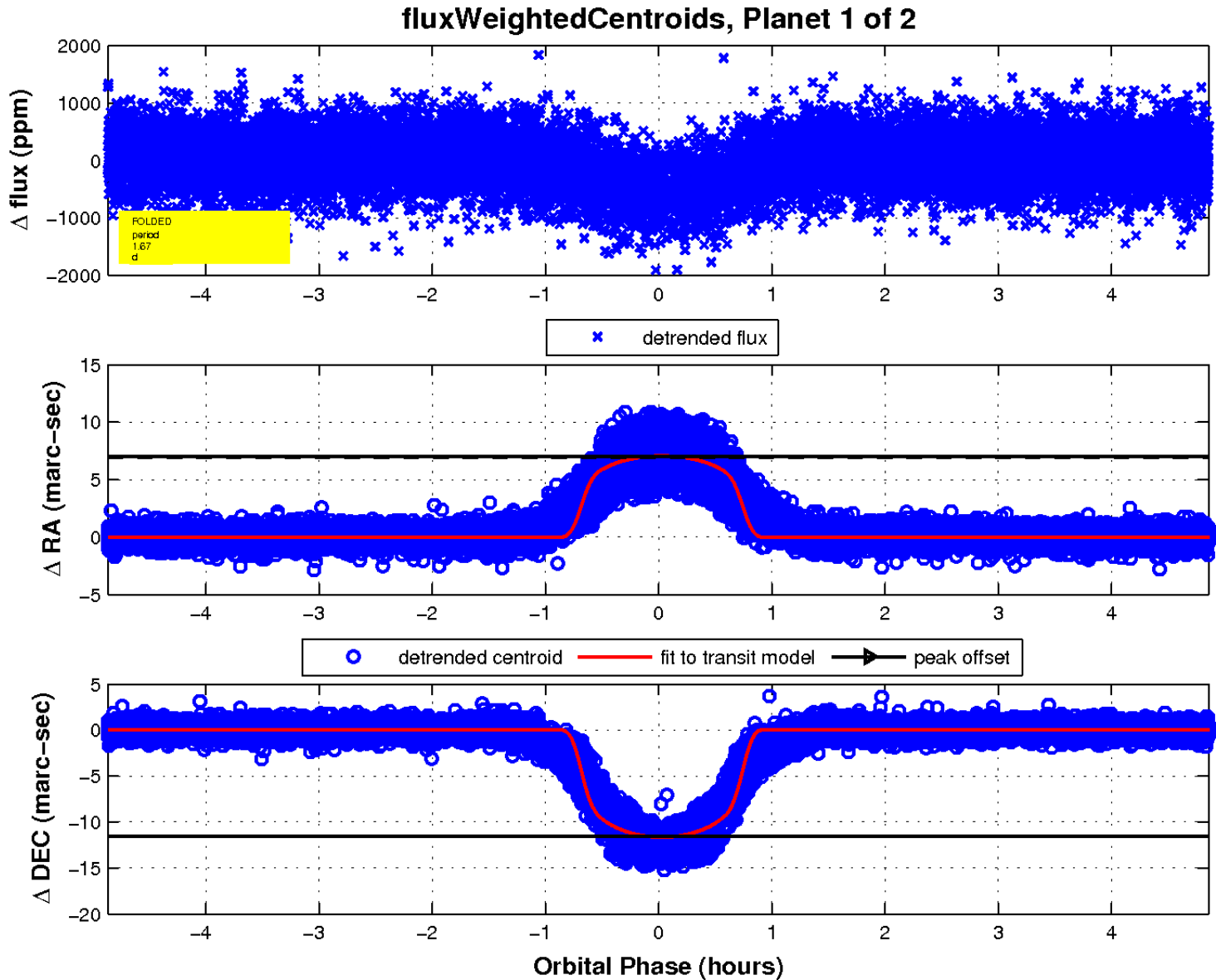
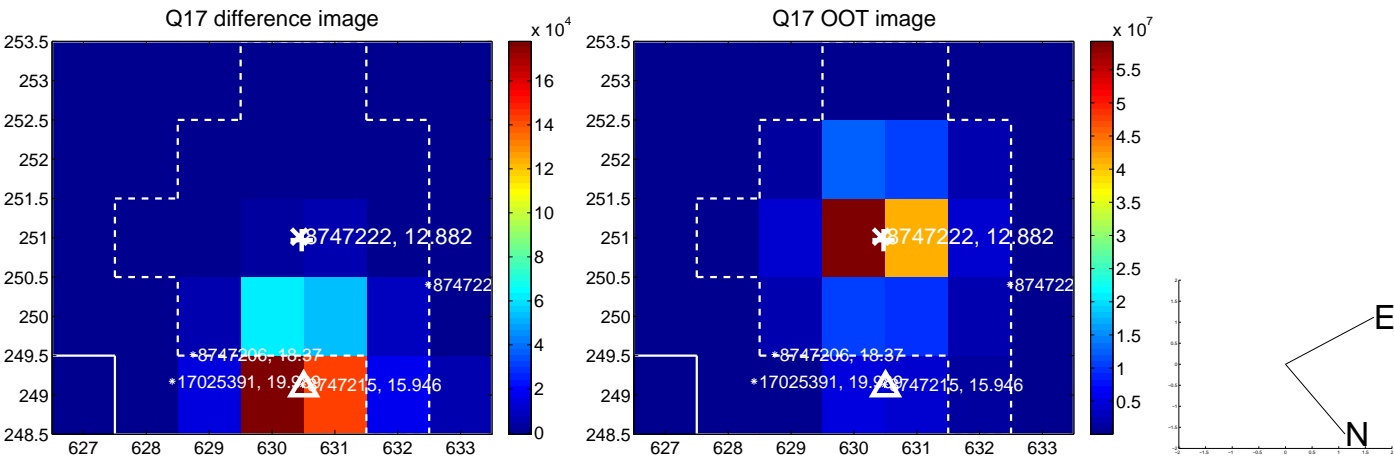
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

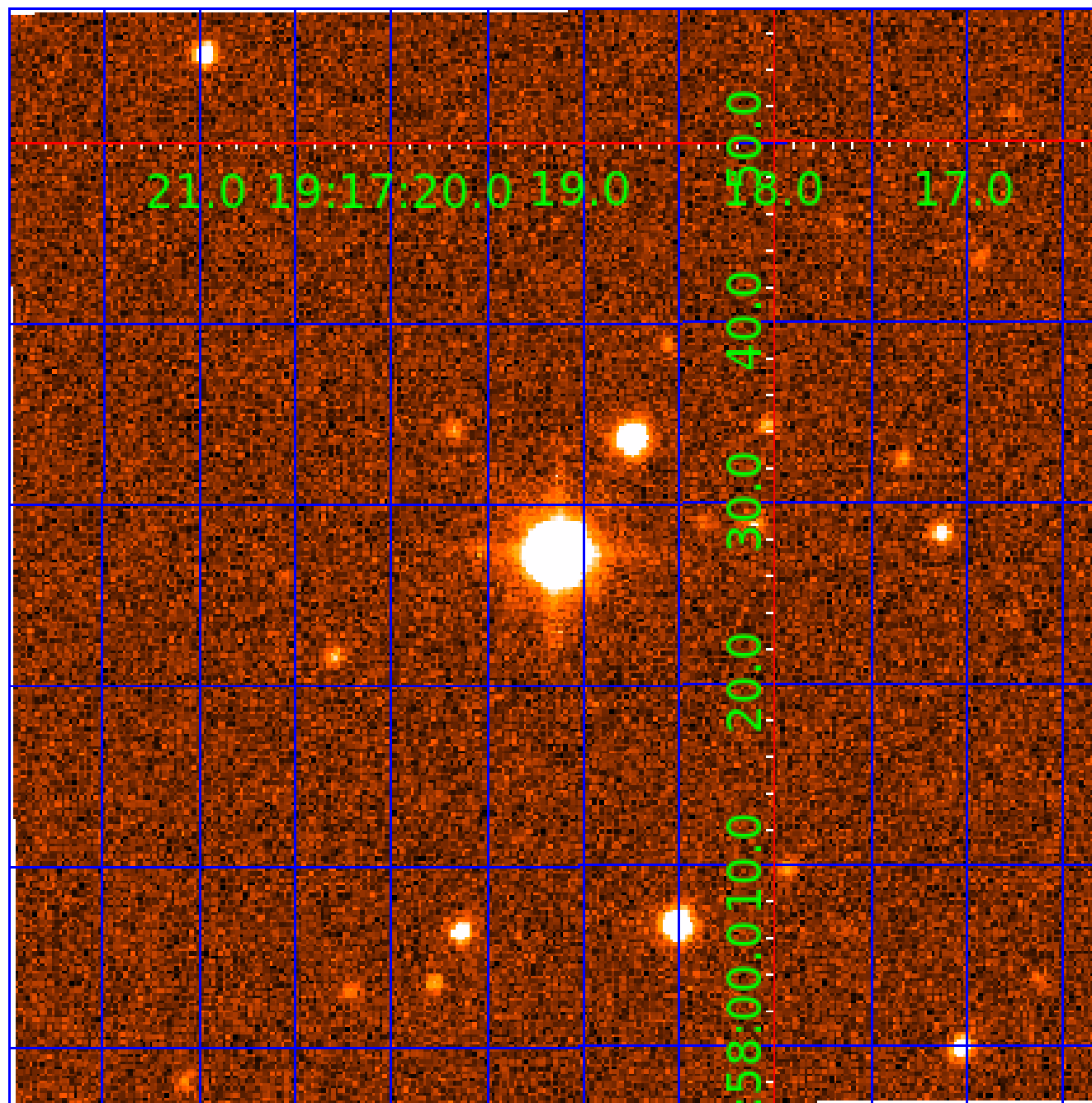


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008747222

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})
008747222-01	OBS	5569.01	1.667471	133.181176	379.4	1.622	38.0	42.6	6.72	4678	16.18	0.00
008747222-02	OBS	No	1.667496	132.344726	73.7	1.578	8.6	8.6	6.72	4678	7.21	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747222-01	OBS	FP	0.00	0	1	1	0	PLANET_IN_STAR—MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
008747222-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

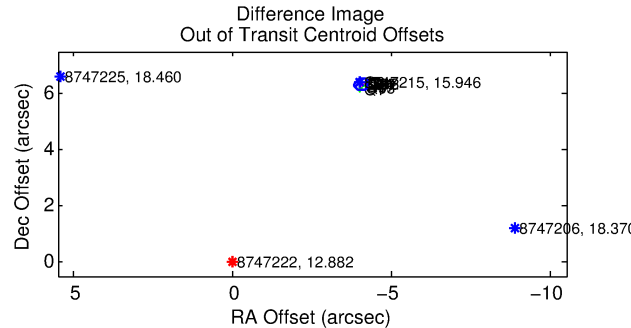
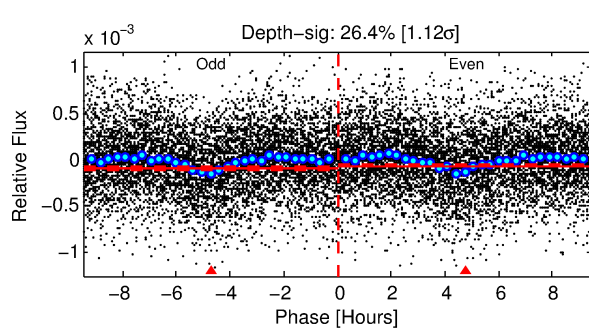
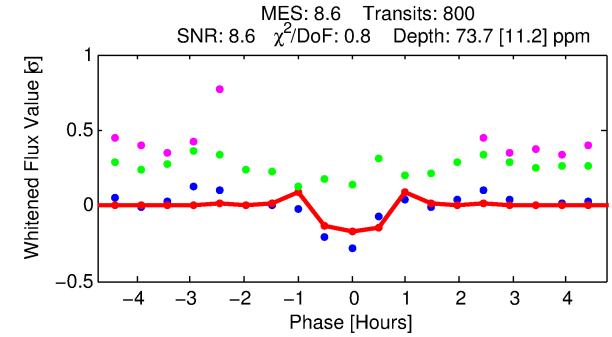
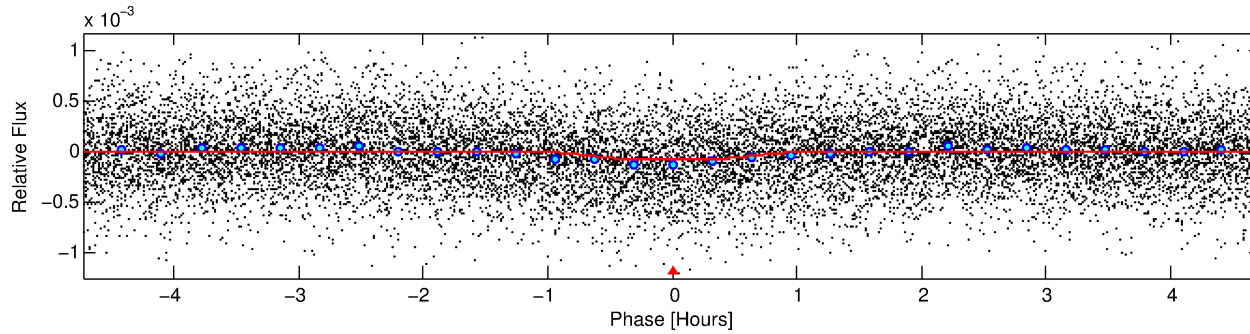
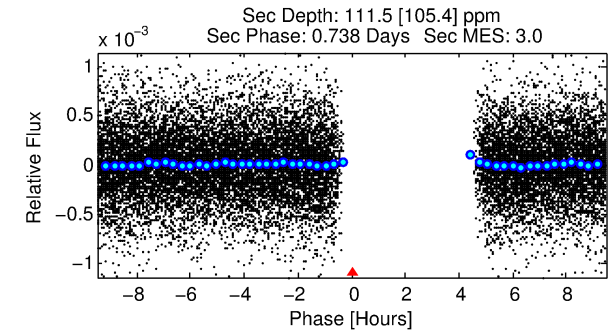
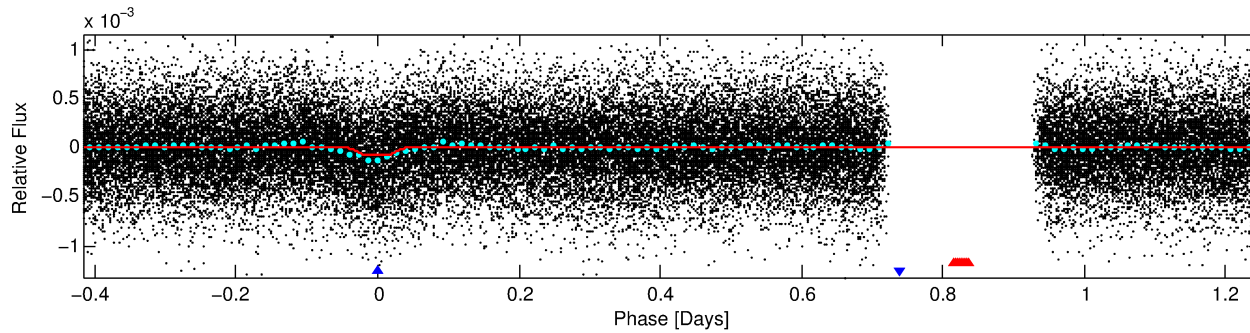
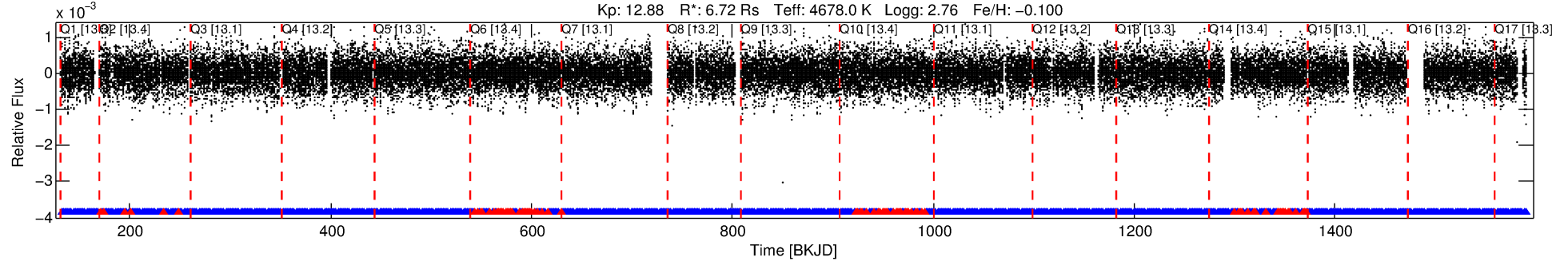
Ephemeris Match Information For 008747222-02

No Significant Match Found

DV One-Page Summary

KIC: 8747222 Candidate: 2 of 2 Period: 1.667 d
KOI: K05569 Corr: No Ephemeris Match

Kp: 12.88 R*: 6.72 Rs Teff: 4678.0 K Logg: 2.76 Fe/H: -0.100



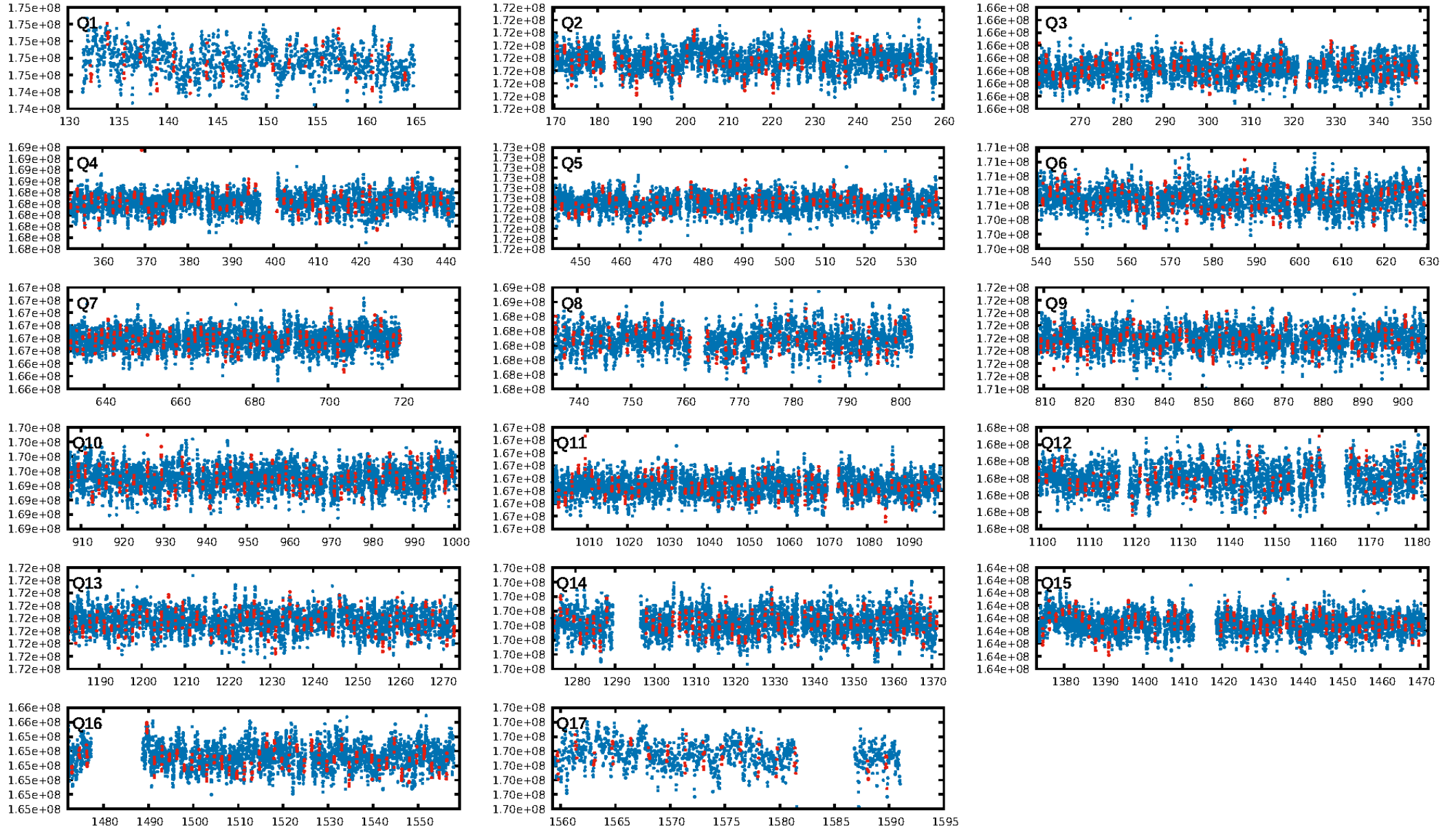
DV Fit Results:

Period = 1.66750 [0.00001] d
Epoch = 132.3447 [0.0015] BKJD
Rp/R* = 0.0098 [0.0038]
a/R* = 3.64 [5.01]
b = 0.91 [0.29]
Seff = N/A
Teq = N/A
Rp = 7.21 [3.17] Re
a = N/A
Ag = N/A
Teffp = N/A

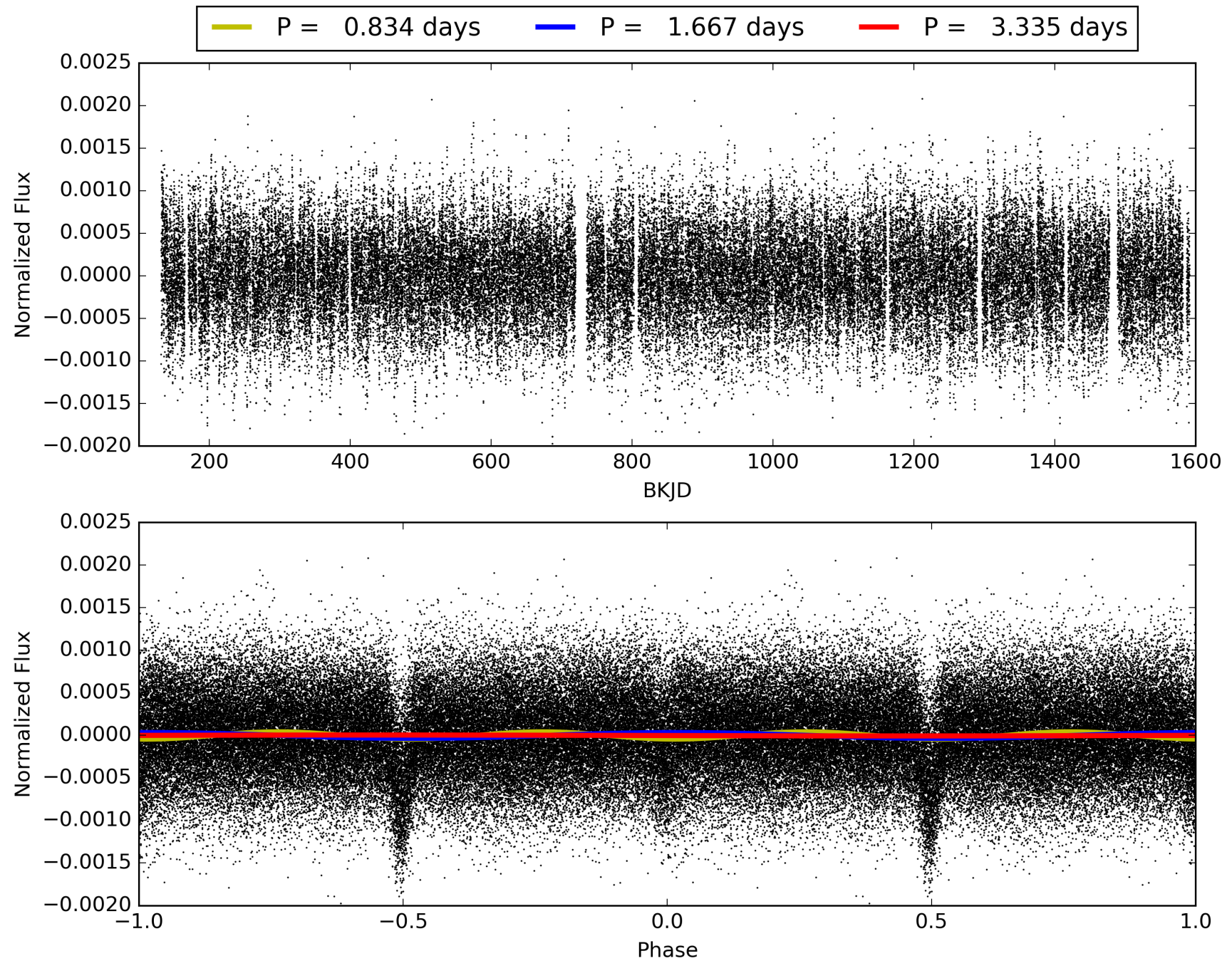
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.69e-30
RollingBand-fgt: 0.90 [684/764]
GhostDiagnostic-chr: -0.1094
Centroid-sig: 0.0%
Centroid-so: 32.552 arcsec [65.68σ]
OotOffset-rm: 7.507 arcsec [108.40σ]
KicOffset-rm: 7.655 arcsec [105.93σ]
OotOffset-st: 4/0/4/5 [13]
KicOffset-st: 4/0/4/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008747222-02, PDC Light Curves

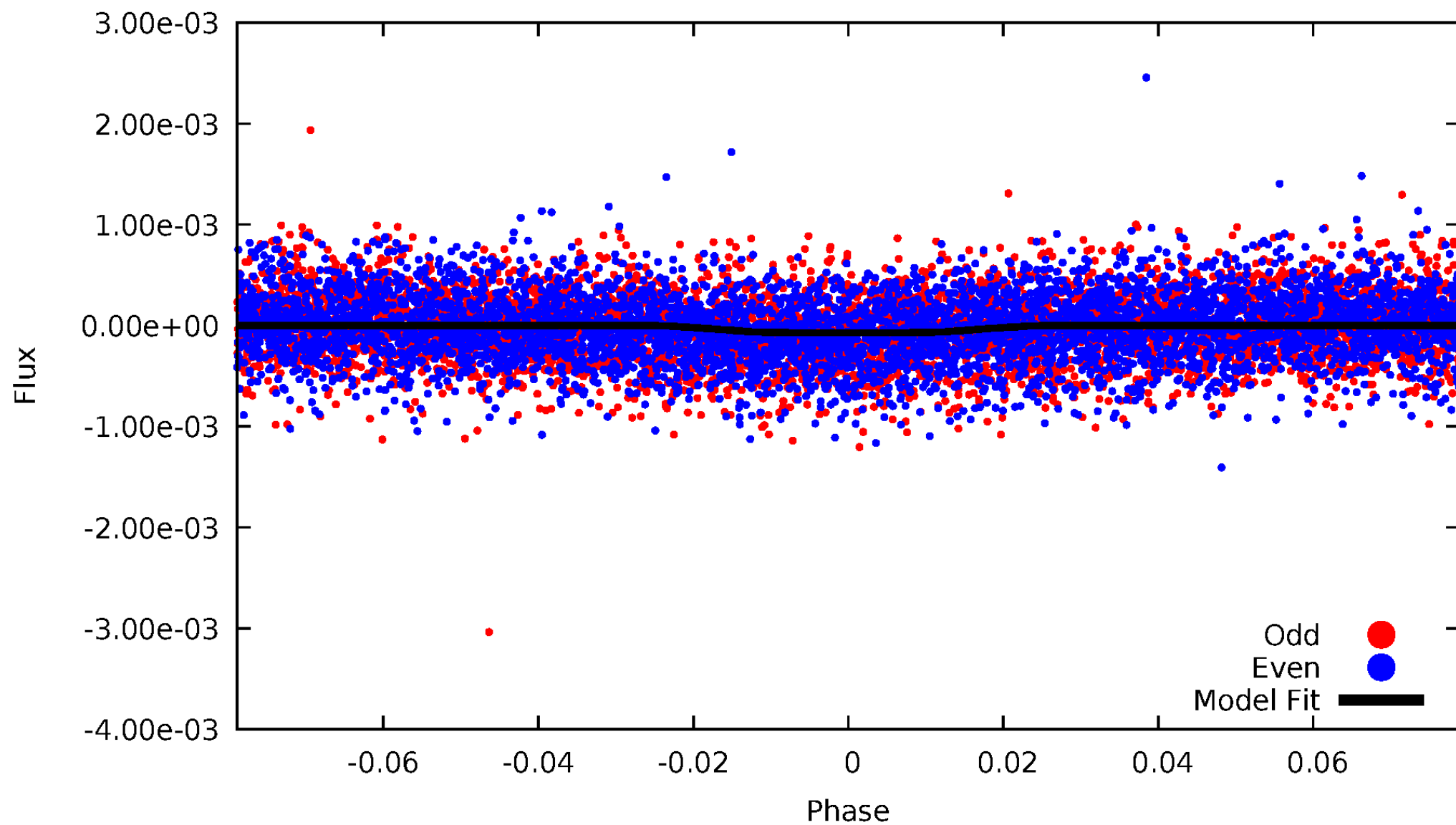


TCE 008747222-02



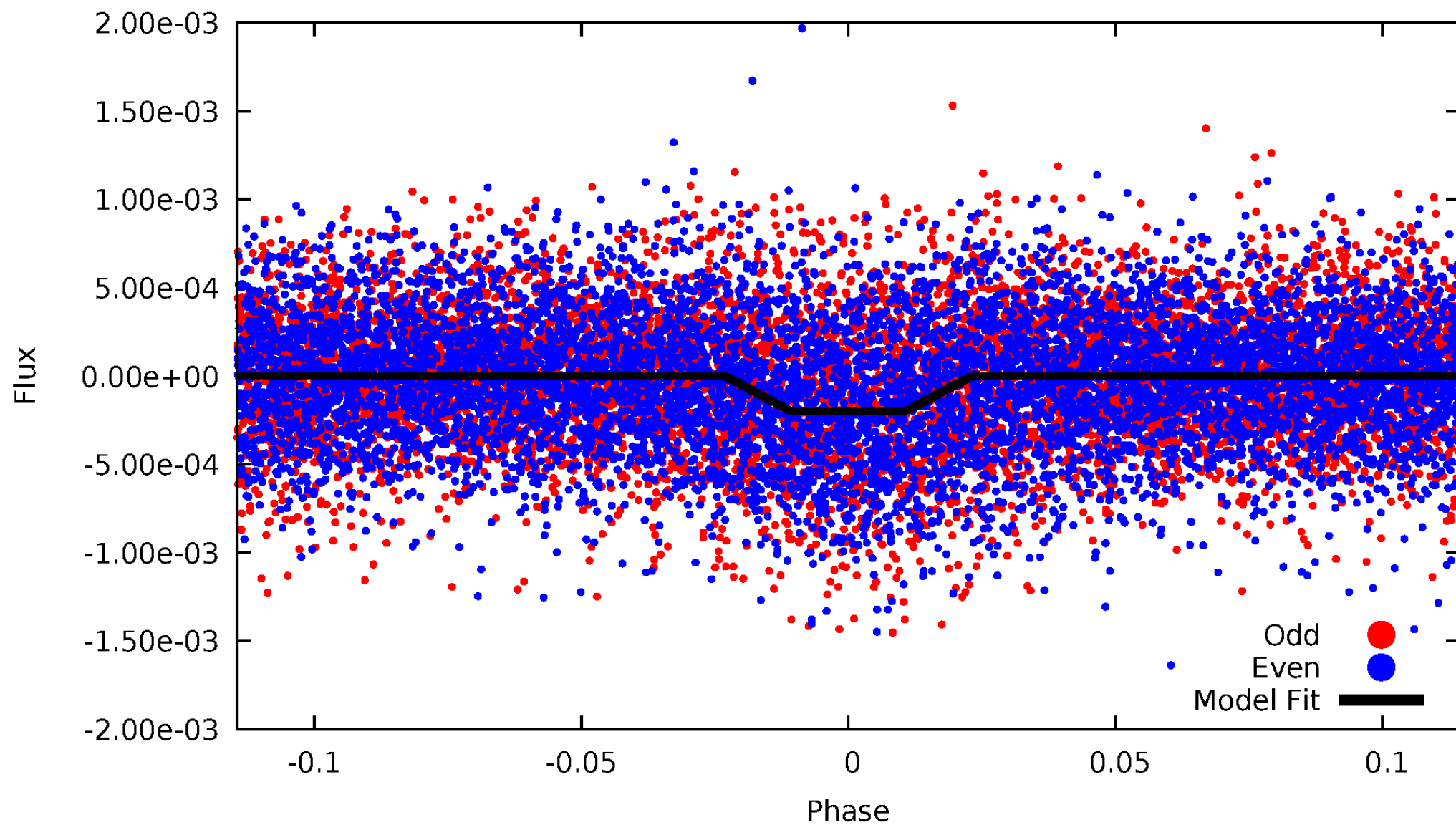
DV Odd/Even

TCE 008747222-02



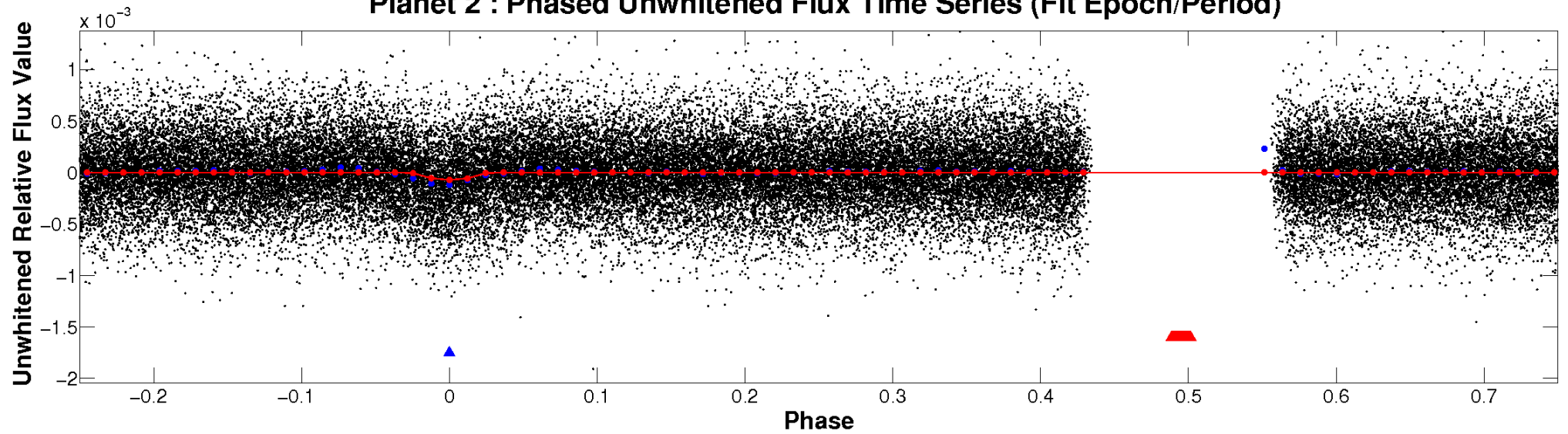
ALT Odd/Even

TCE 008747222-02

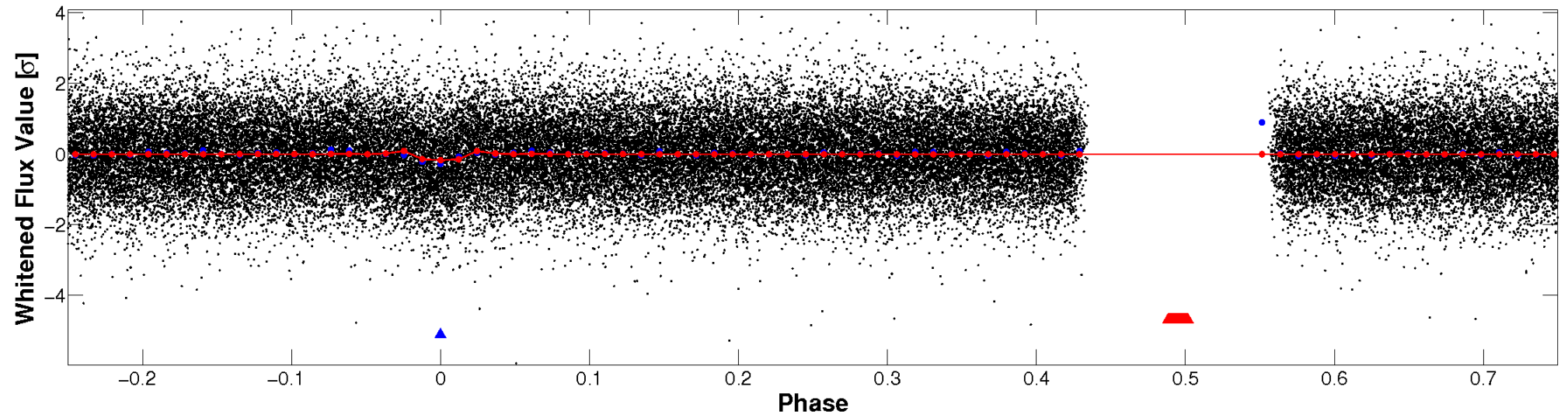


Non-Whitened Vs. Whitened Light Curve

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

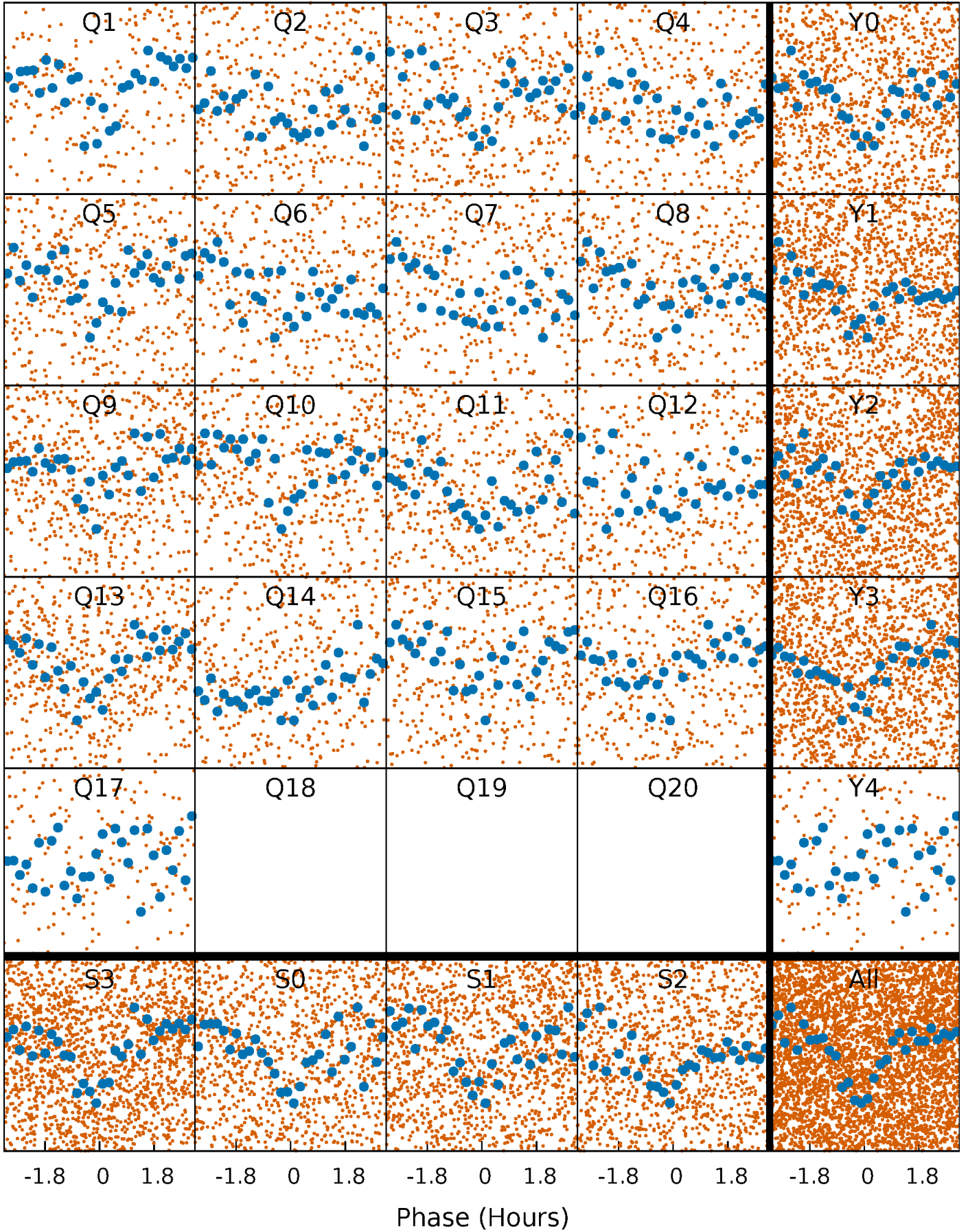


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



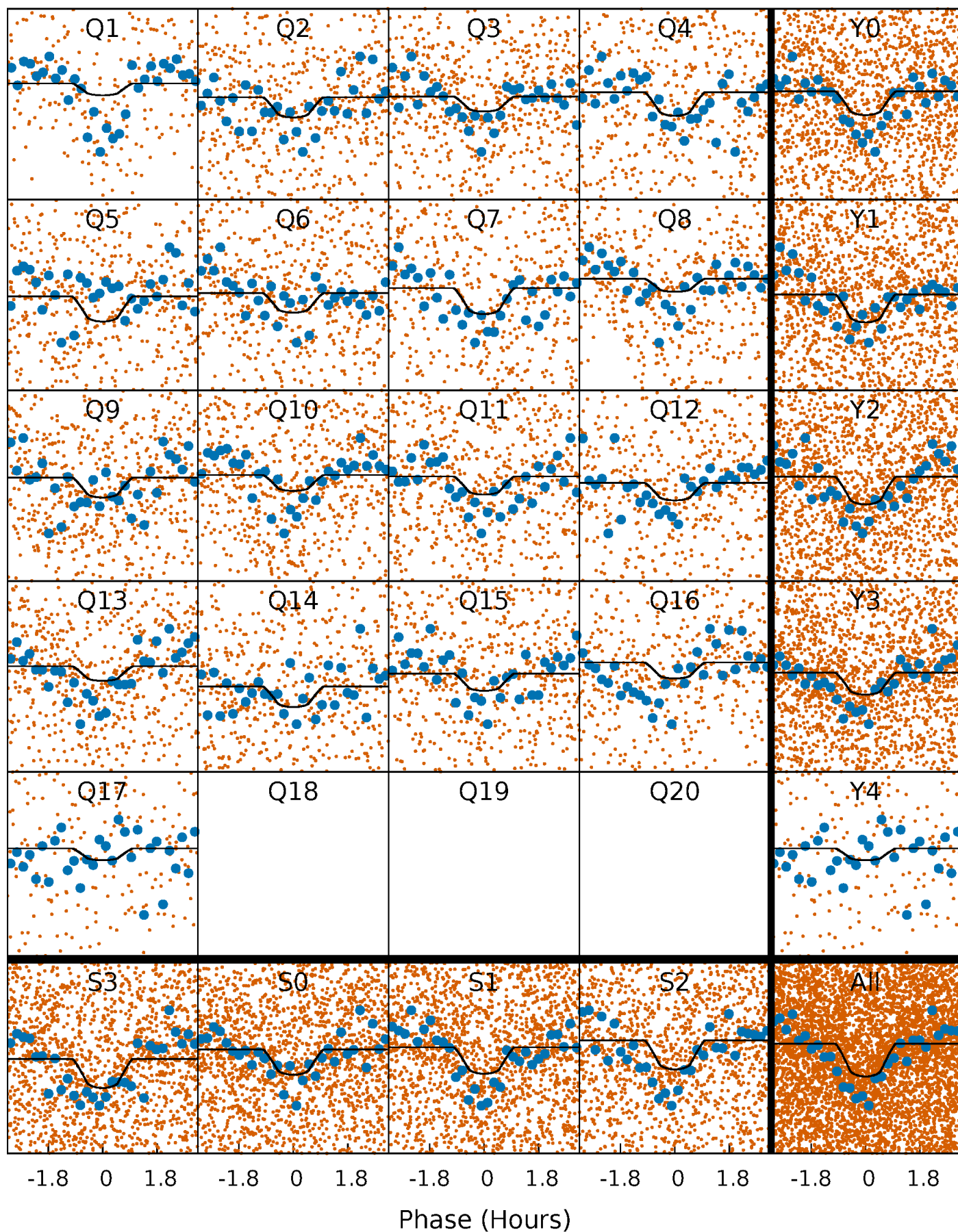
PDC Quarter-Phased Transit Curves

TCE 008747222-02 P= 1.667496 Days $T_0=132.344727$ (BKJD)



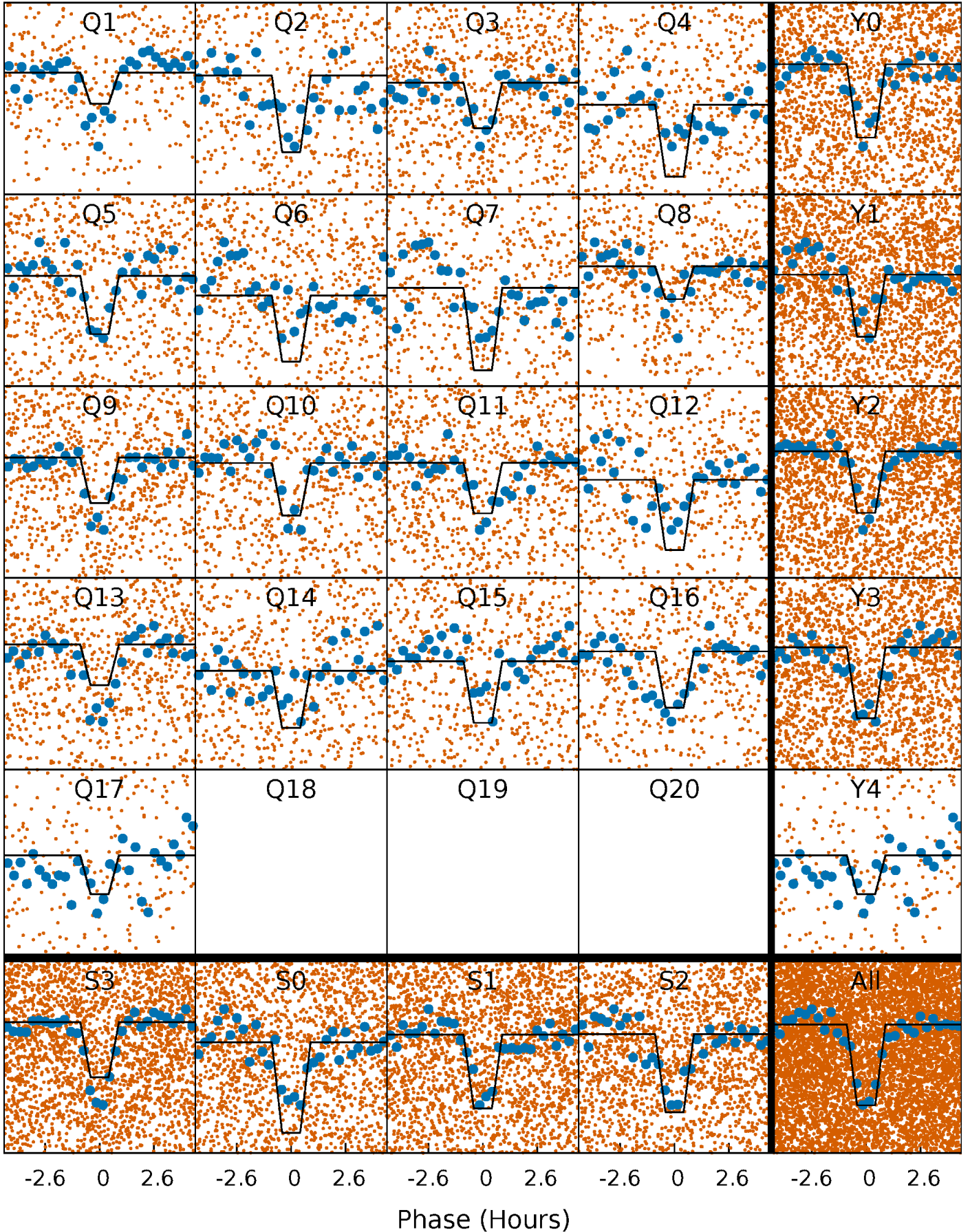
DV Quarter-Phased Transit Curves

TCE 008747222-02 P= 1.667496 Days $T_0=132.344727$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

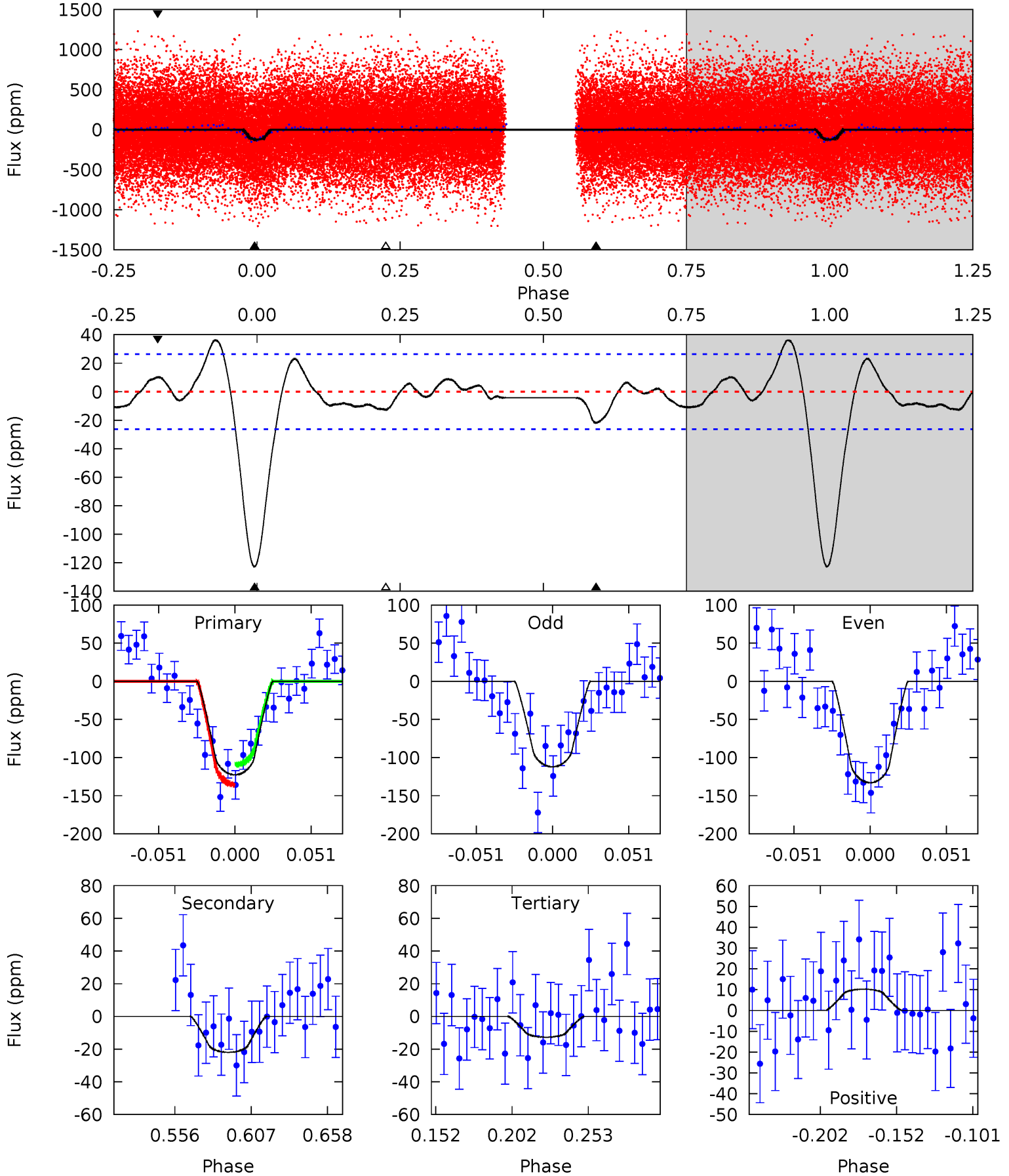
TCE 008747222-02 P= 1.667468 Days $T_0=132.348793$ (BKJD)



DV Model-Shift Uniqueness Test

008747222-02, P = 1.667496 Days, E = 130.677231 Days

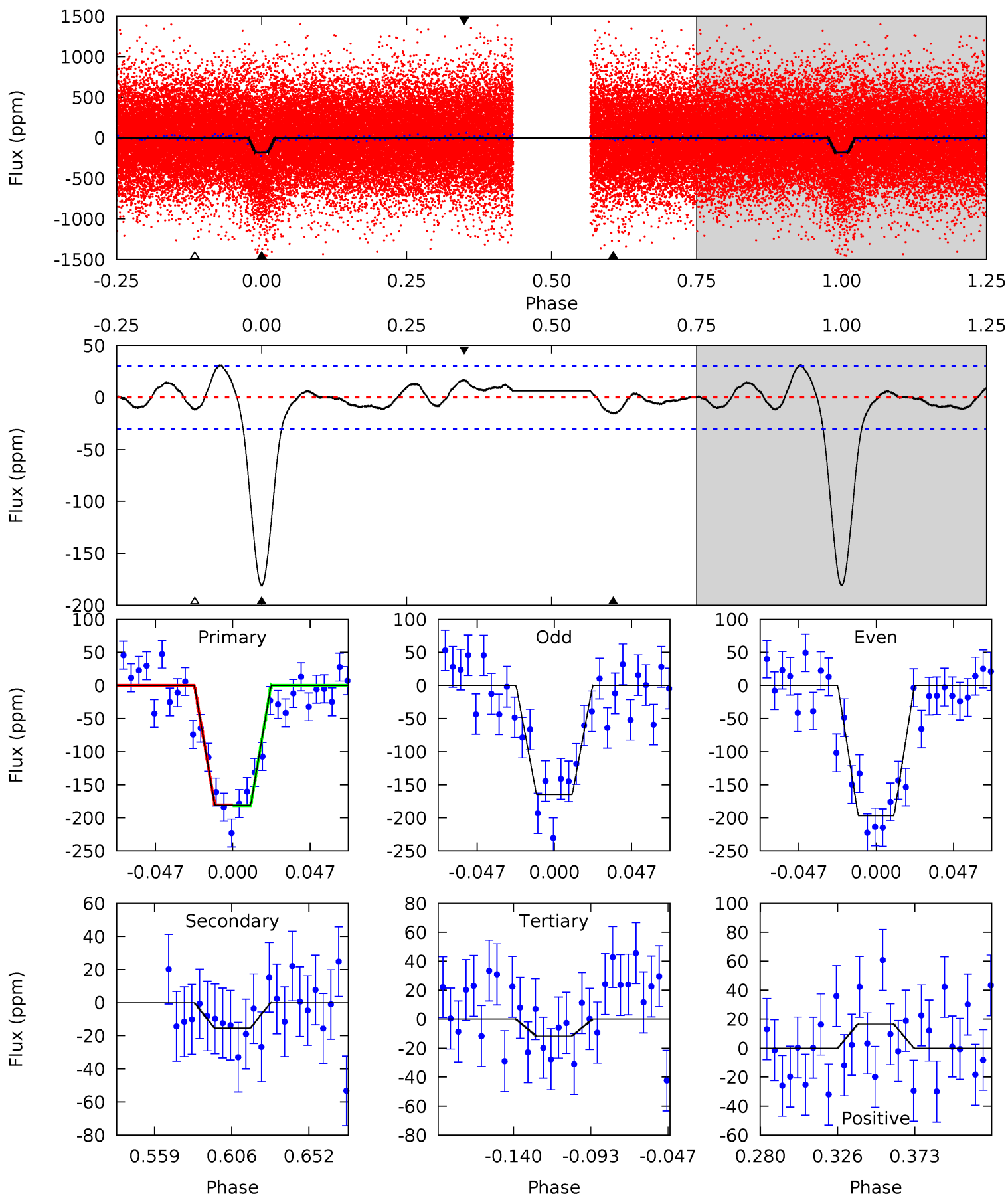
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	3.94	2.28	1.83	4.71	1.96	1.87	19.7	20.1	1.66	2.11	1.87	1.06	0.23	2.34



Alt Model-Shift Uniqueness Test

008747222-02, P = 1.667468 Days, E = 130.681325 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.2	2.40	1.81	2.59	4.72	1.99	1.45	26.4	25.6	0.59	-0.19	2.47	0.94	0.15	0.12



Stellar Parameters For KIC 008747222

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4678^{+80}_{-47}	$2.756^{+0.027}_{-0.030}$	$-0.100^{+0.150}_{-0.100}$	$6.720^{+1.369}_{-0.257}$	$0.940^{+0.403}_{-0.021}$	$0.004^{+0.000}_{-0.001}$
	+2%/-1%	+1%/-1%	+150%/-100%	+20%/-4%	+43%/-2%	+8%/-20%
Source	SPE74	AST9	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008747222-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-22 ± 6	$7.48^{+2.95}_{-2.95}$	4569^{+93}_{-83}	-3487^{+6961}_{-283}	$0.161^{+0.279}_{-0.084}$
Alt.	-15 ± 6	$10.49^{+2.78}_{-2.82}$	4560^{+104}_{-75}	-3811^{+163}_{-103}	$0.054^{+0.057}_{-0.027}$

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 $A_{obs} \gg 1.0$

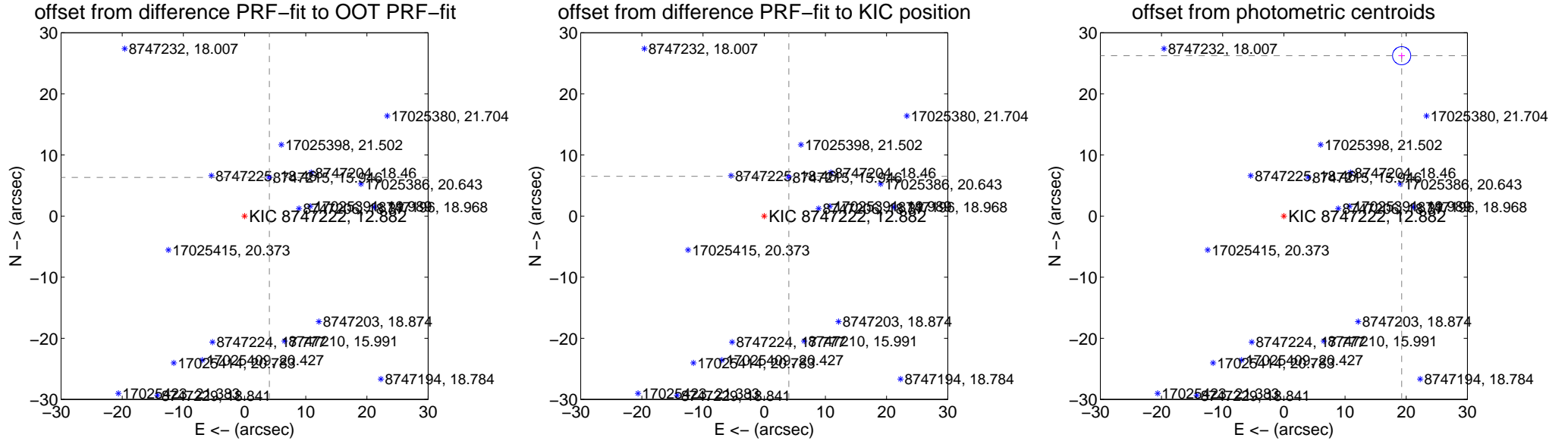
DV Centroid Data

Supplemental centroid analysis for 008747222-02. Kepler magnitude: 12.88. Transit SNR 8.64

There are 13 quarters with good PRF difference image offsets

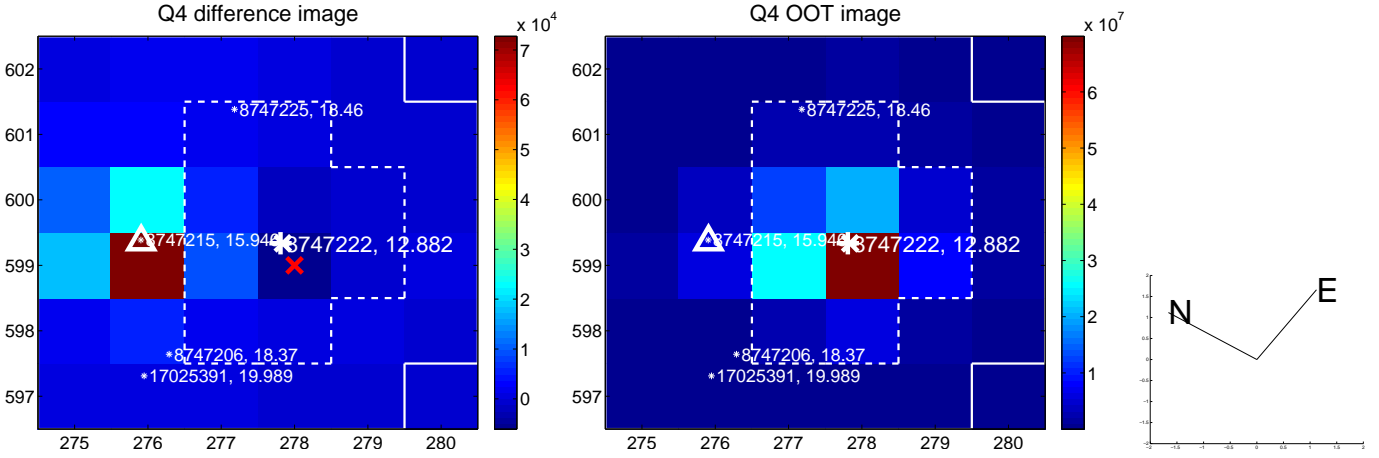
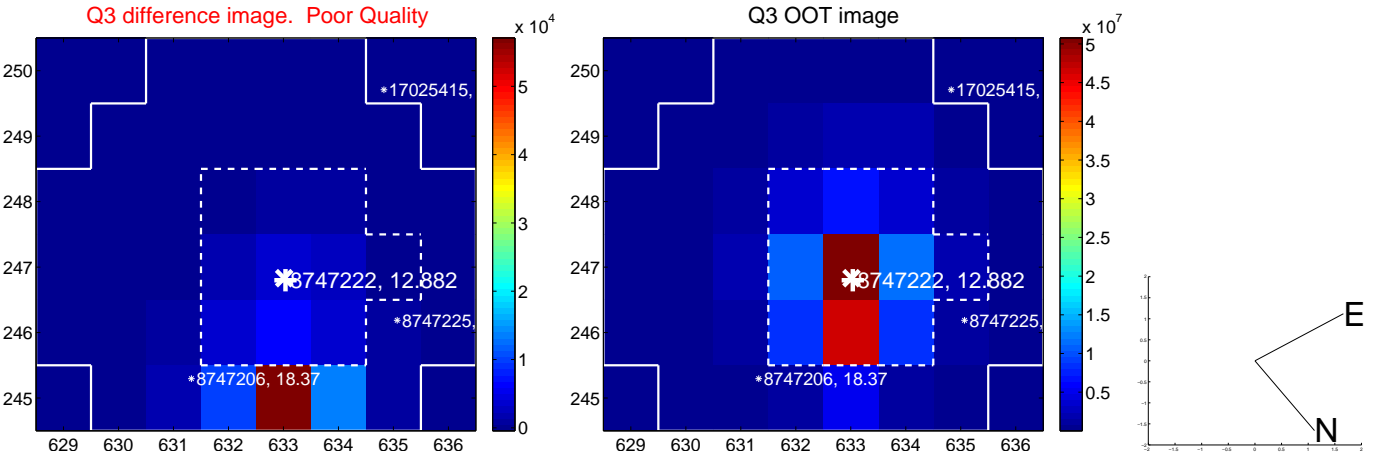
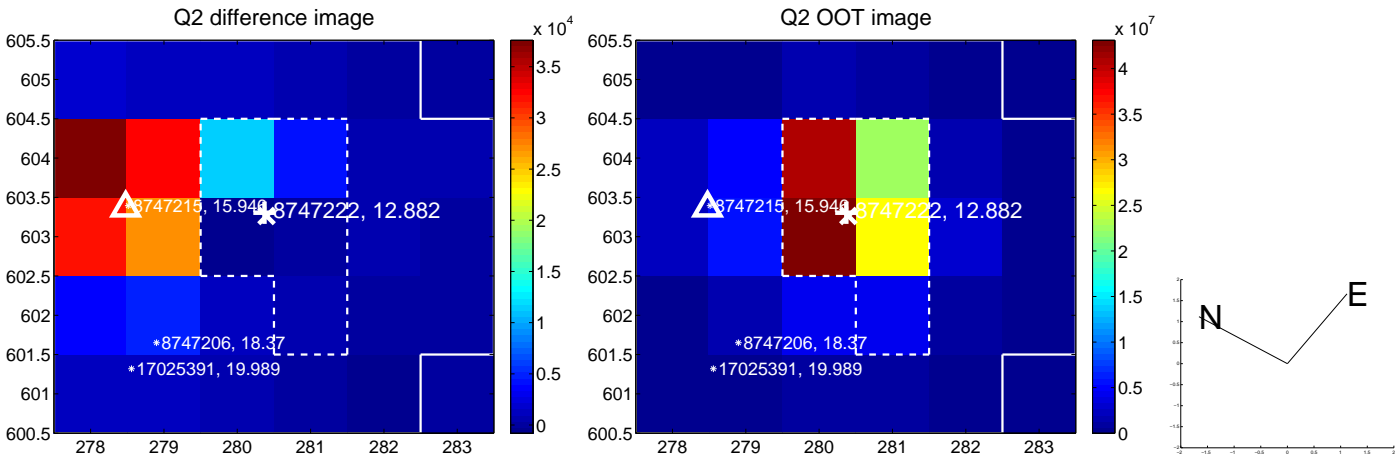
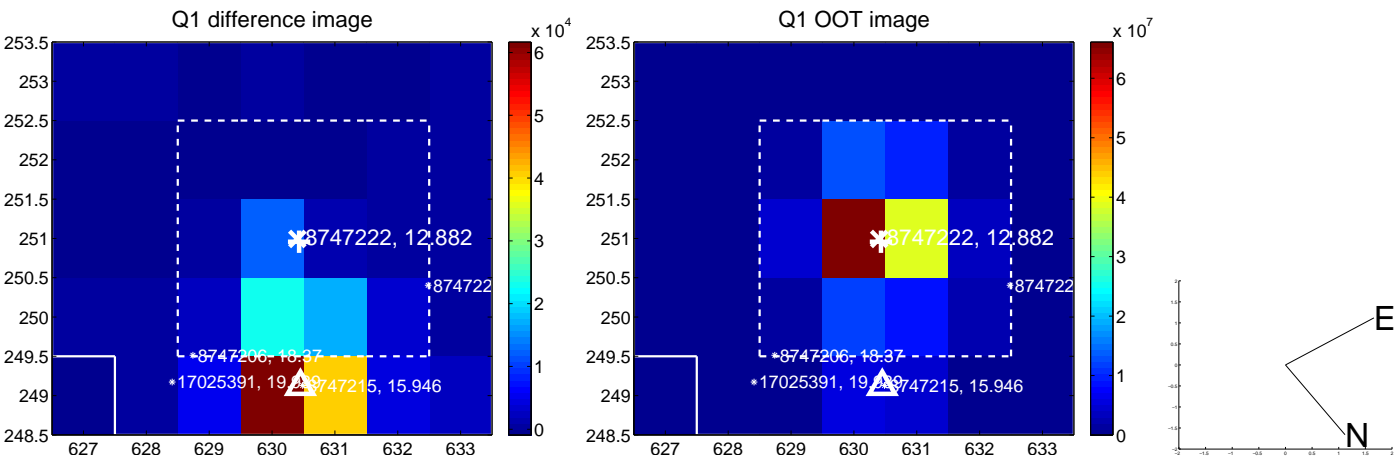
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.507 ± 0.069	108.40	-4.053 ± 0.068	6.318 ± 0.069
PRF-fit source offset from KIC position	7.655 ± 0.072	105.93	-4.032 ± 0.074	6.508 ± 0.072
photometric centroid source offset	32.55 ± 0.50	65.68	-19.25 ± 0.51	26.25 ± 0.49

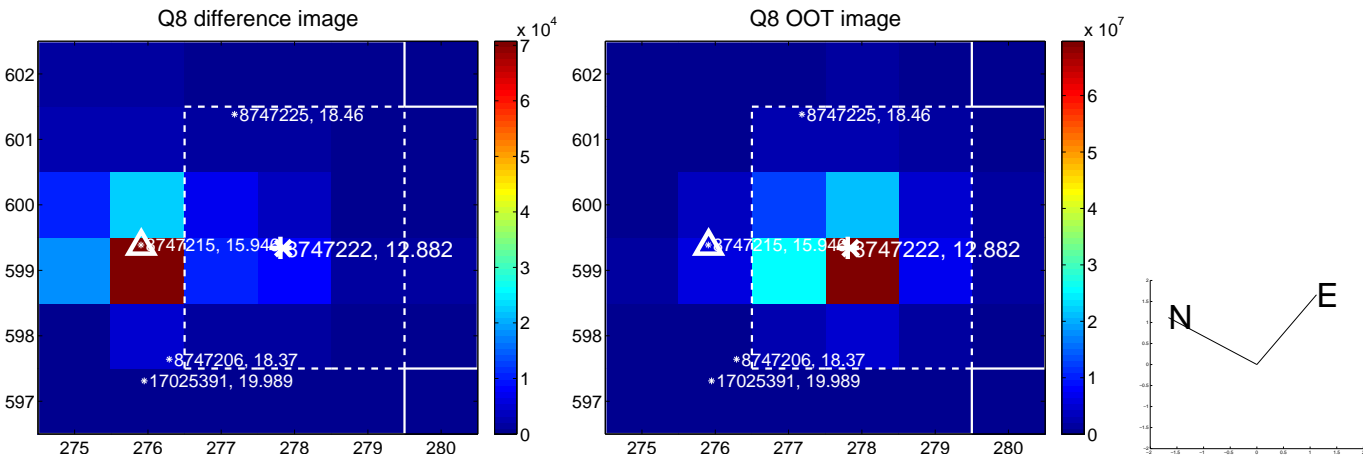
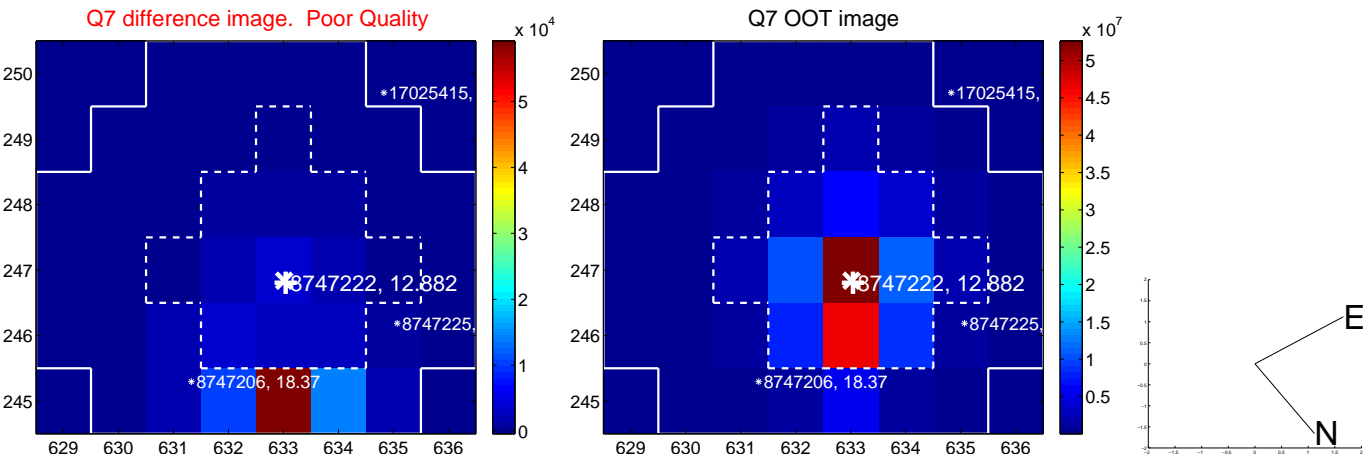
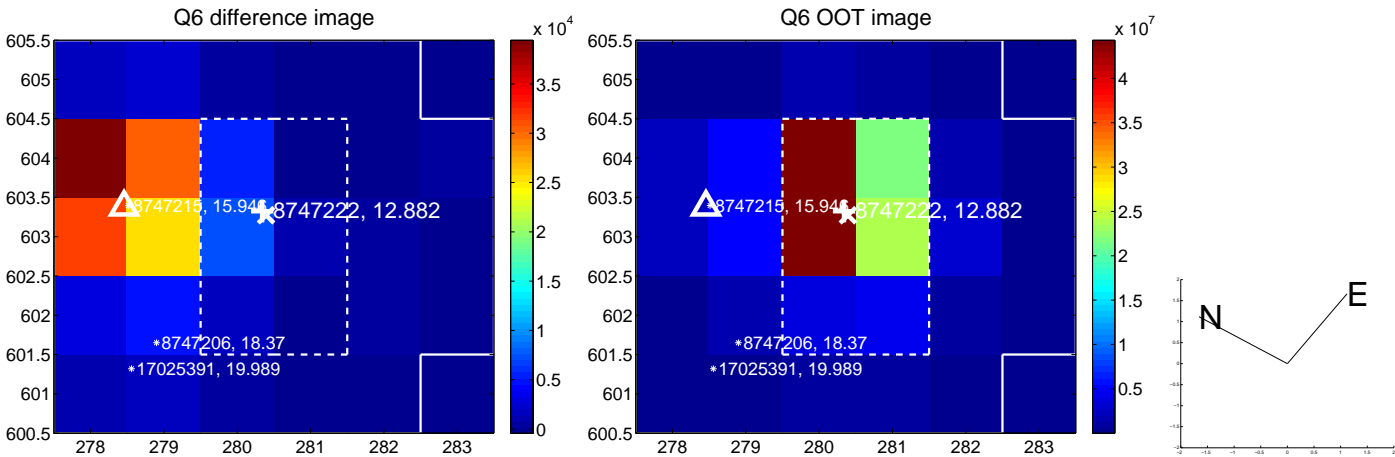
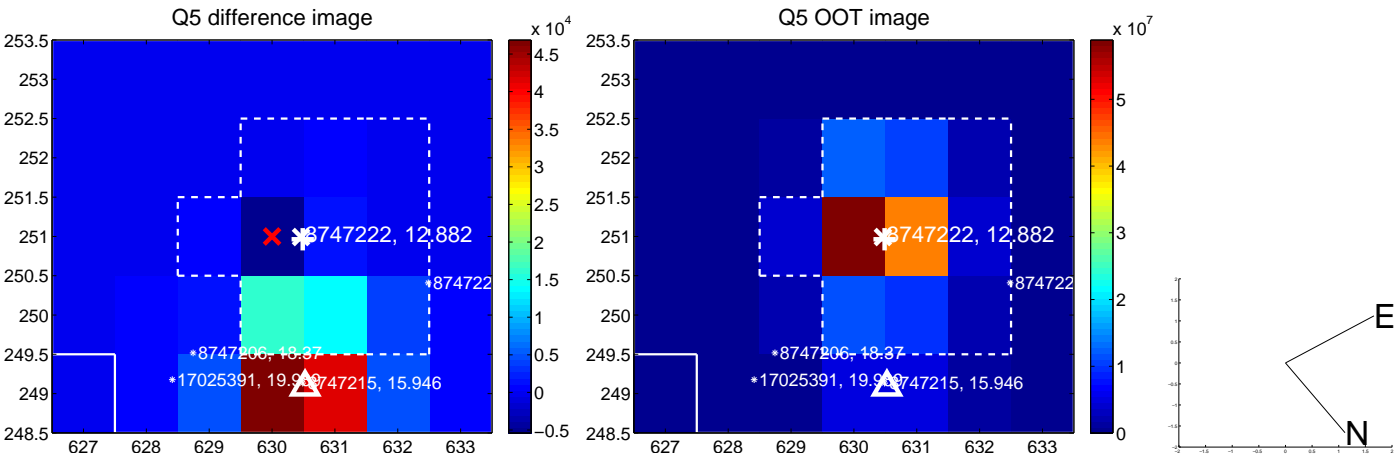


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

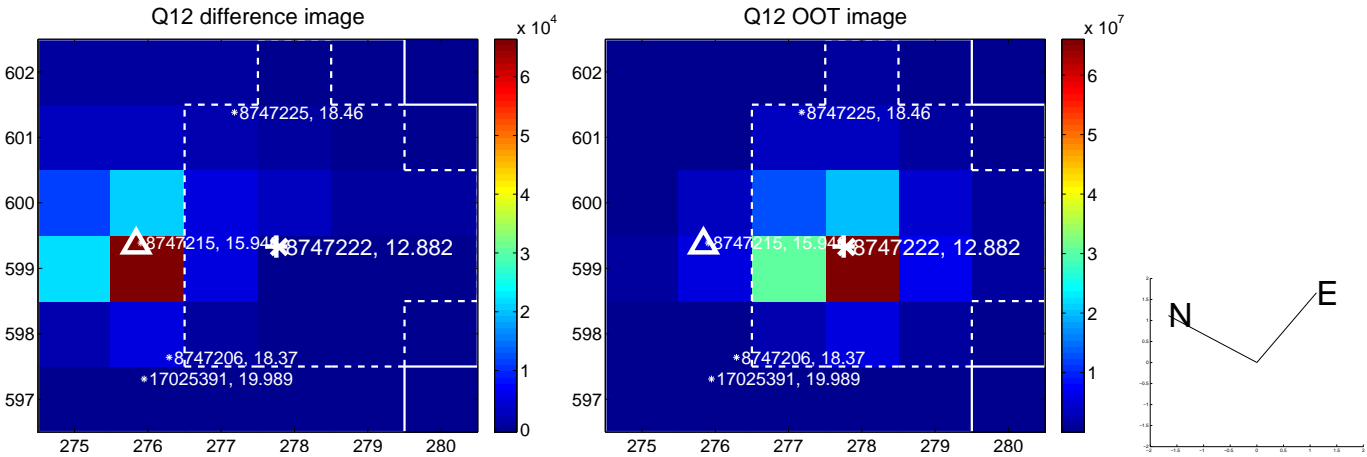
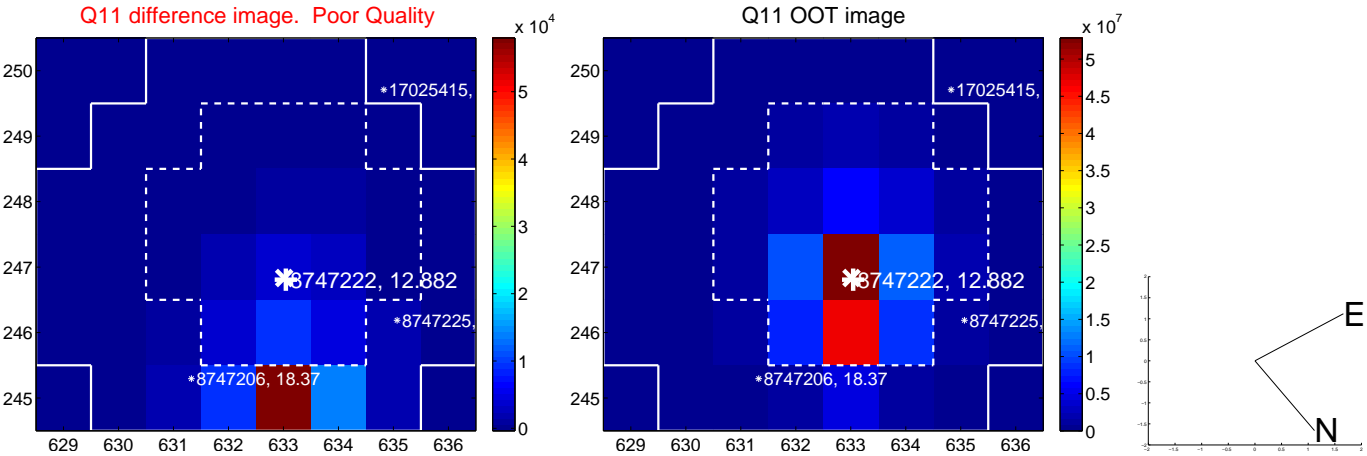
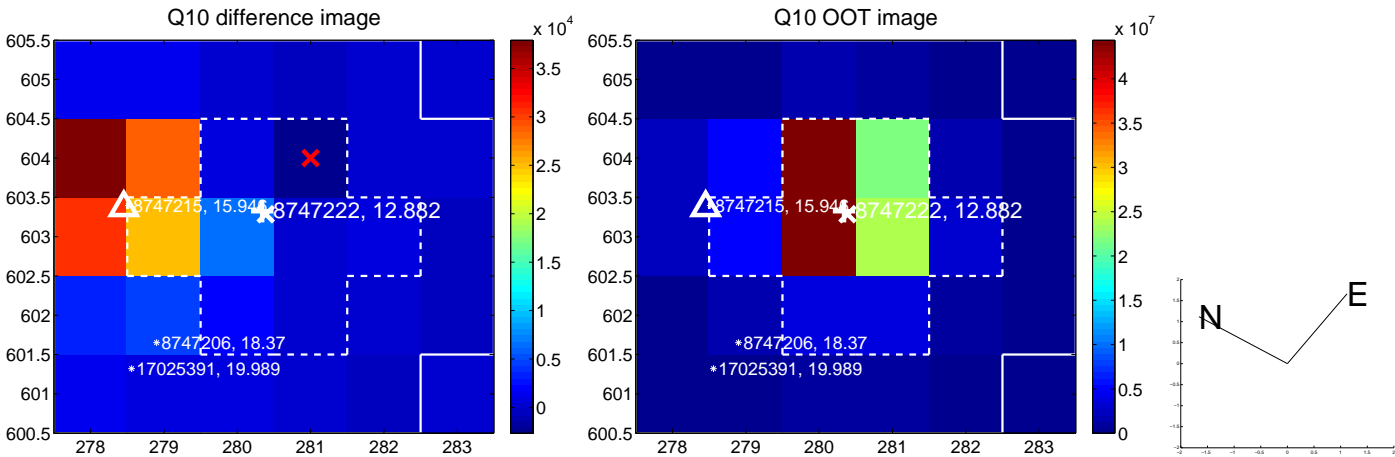
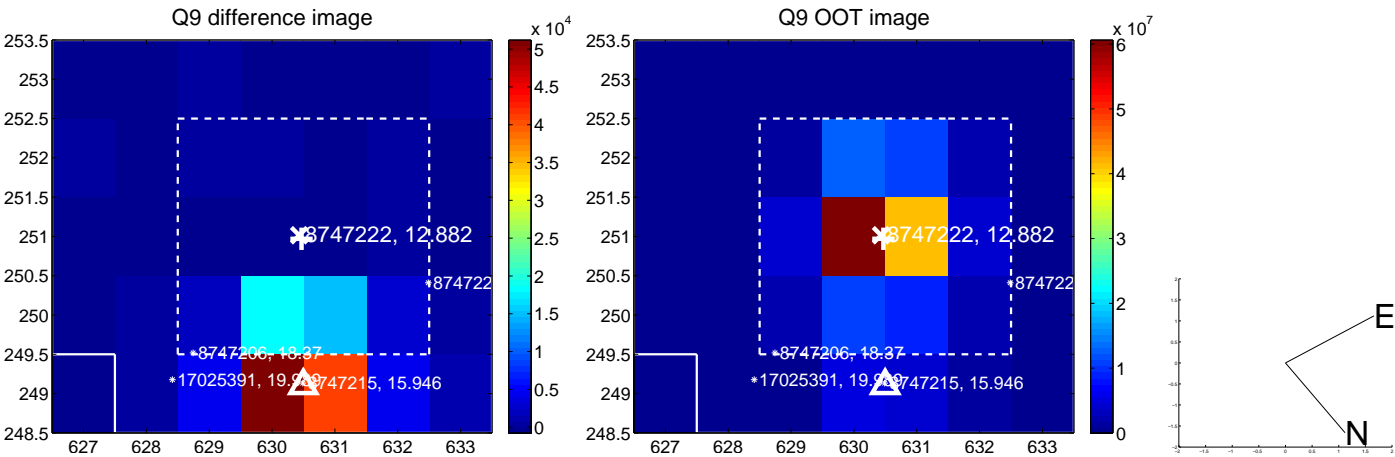
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



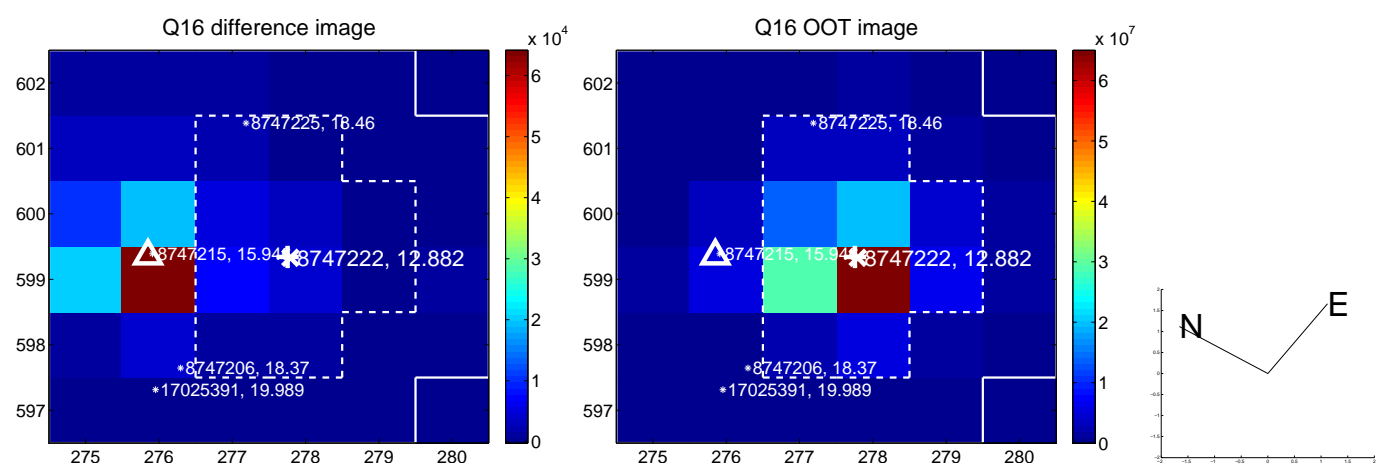
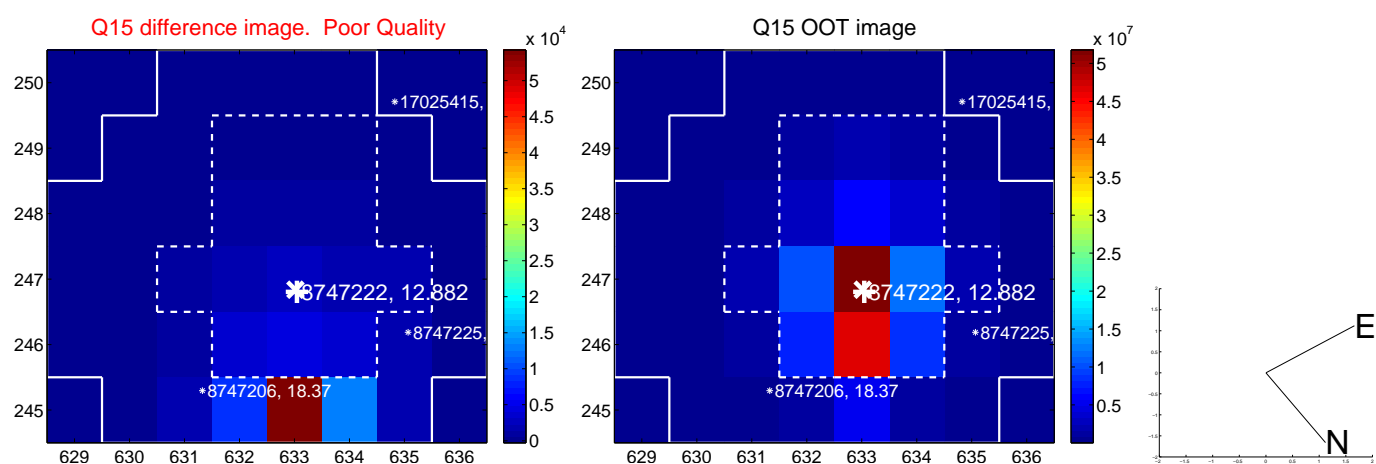
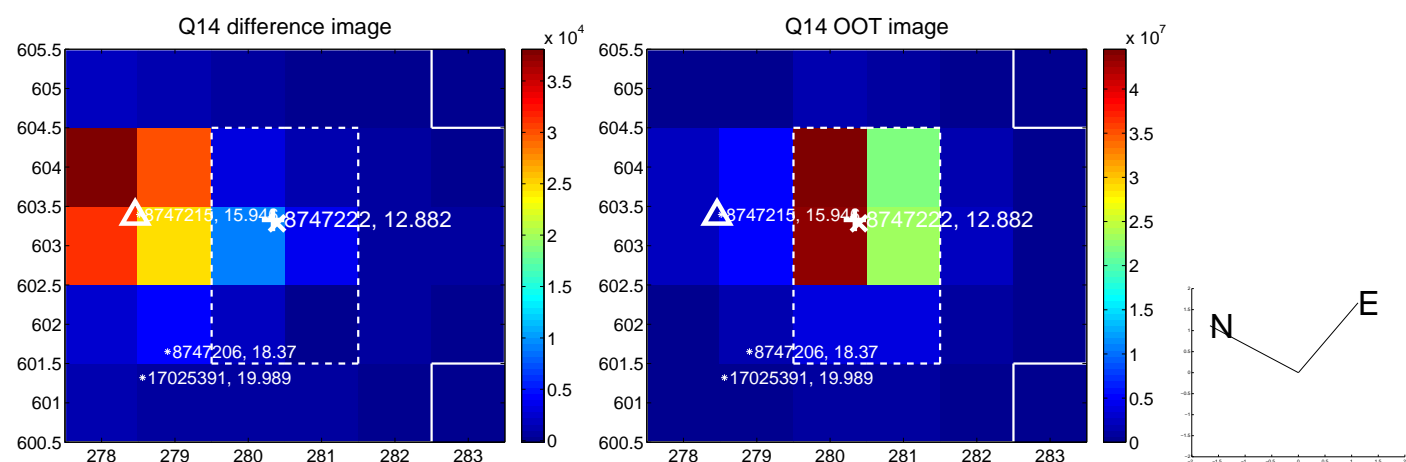
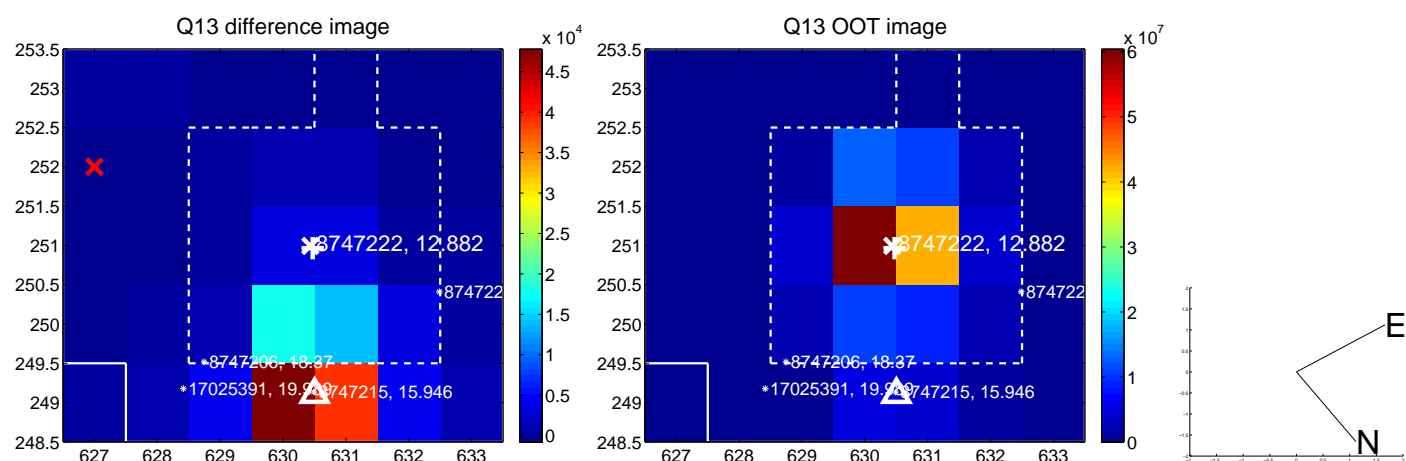
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



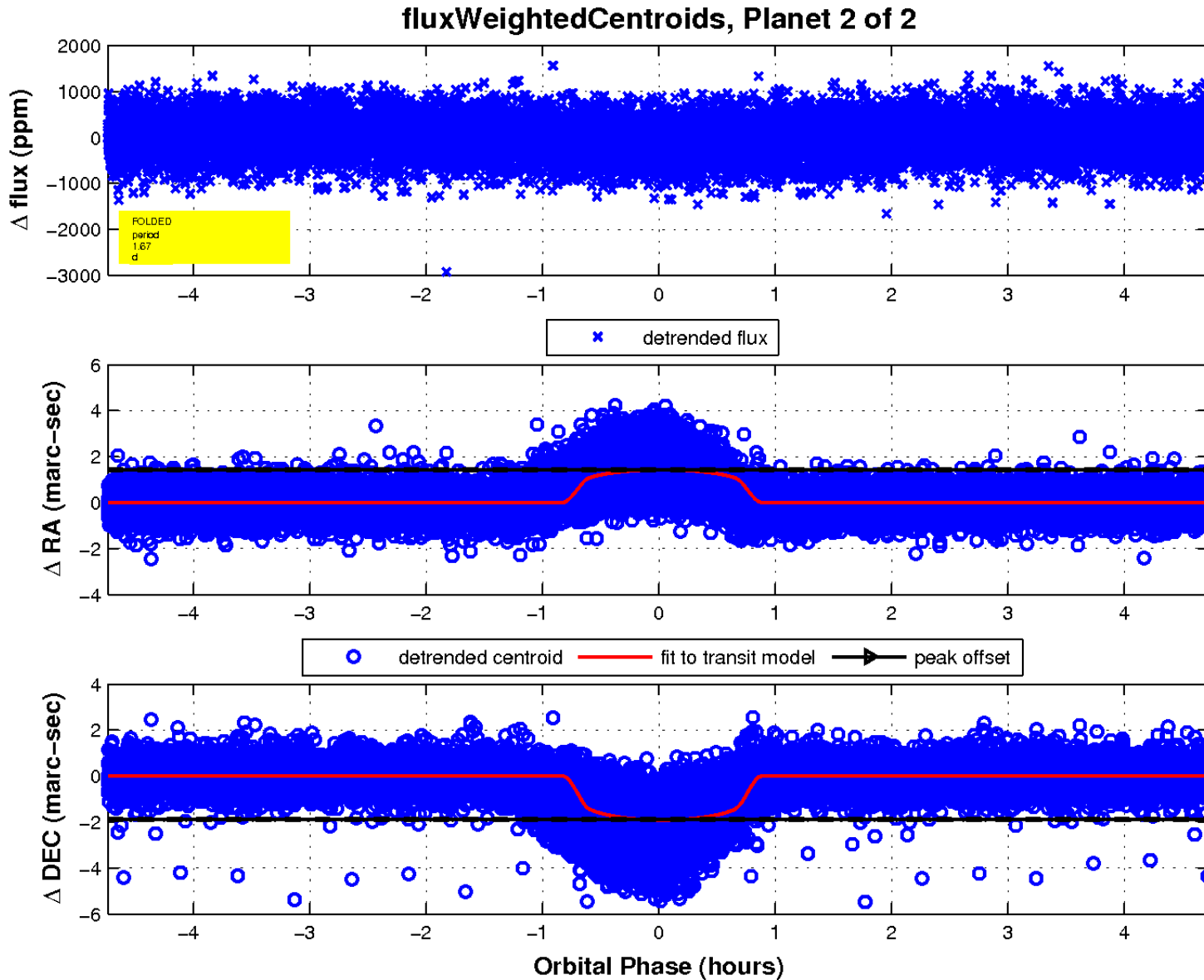
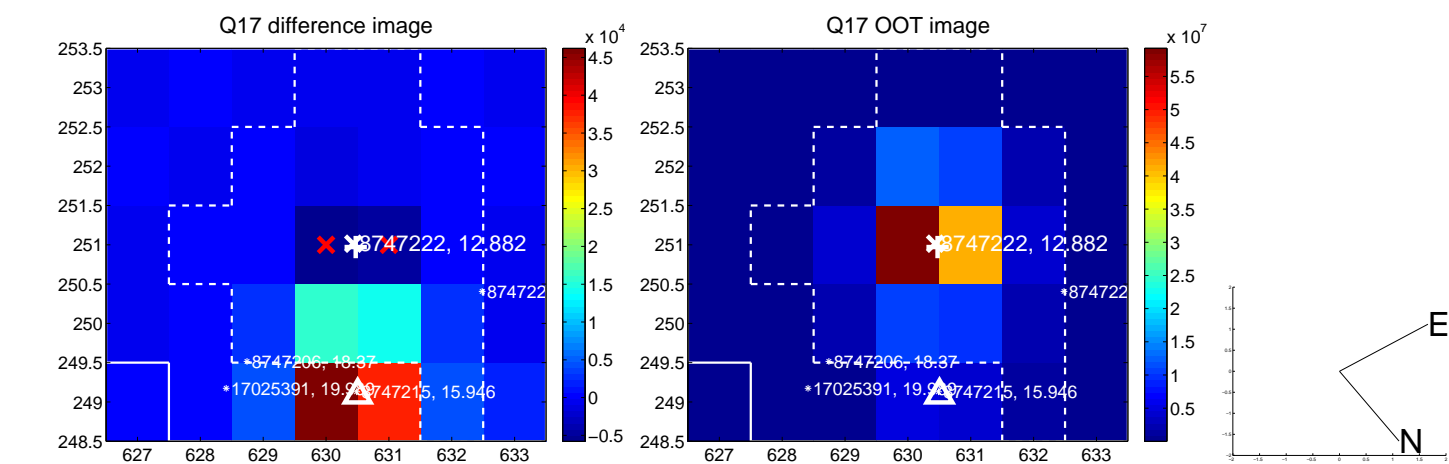
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

