

KIC 011018648

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})
011018648-01	OBS	0759.01	32.629377	161.461768	1703.5	5.499	61.4	63.7	0.80	5586	3.90	15.58
011018648-02	OBS	0759.02	91.772588	193.840096	596.1	6.402	14.7	15.4	0.80	5586	2.14	3.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011018648-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011018648-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT

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.

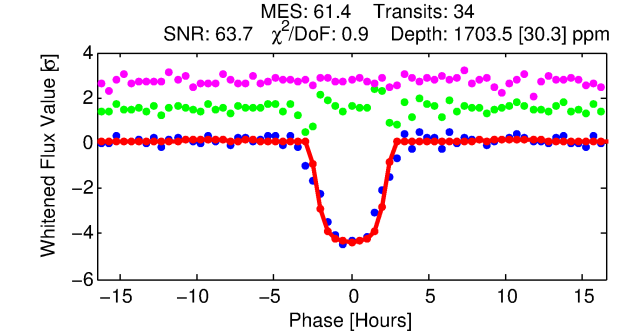
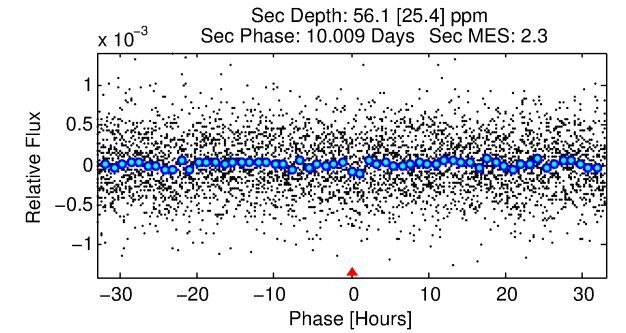
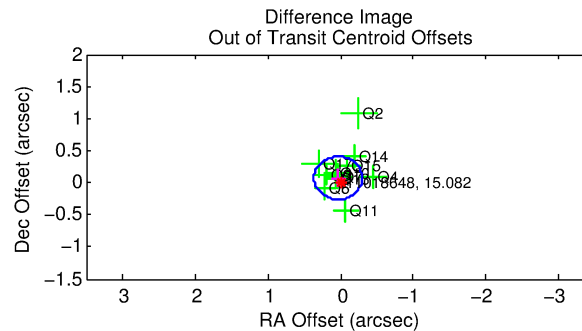
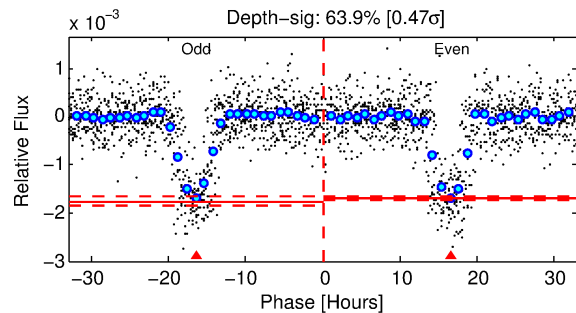
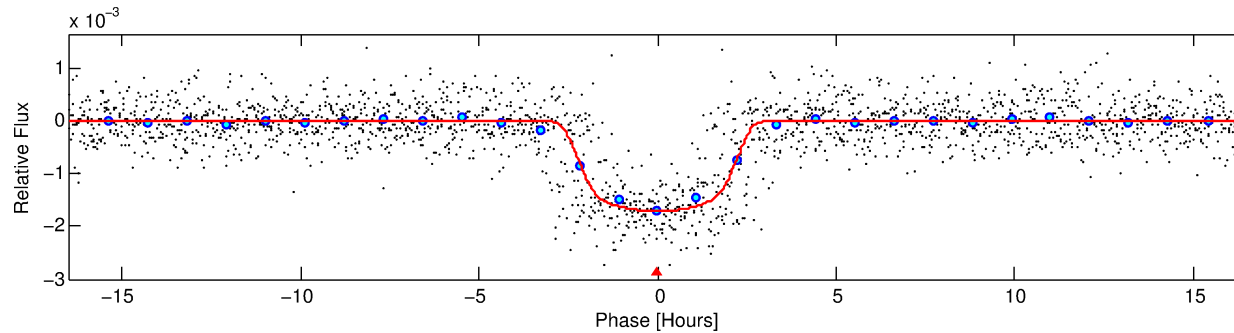
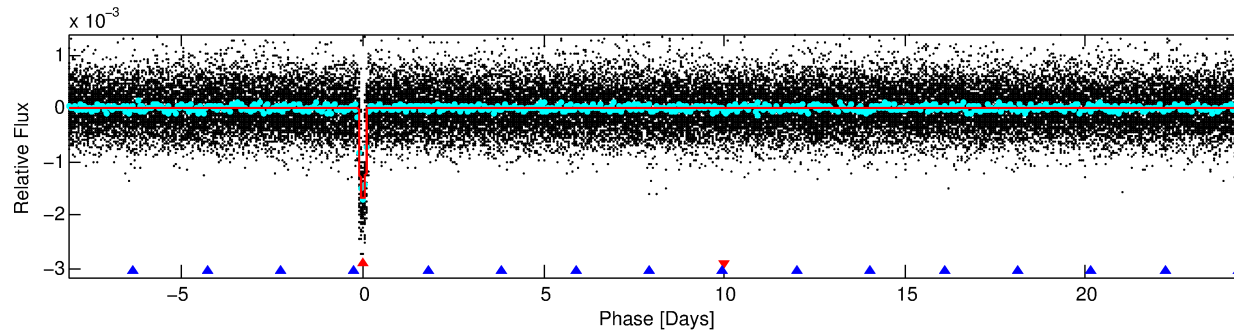
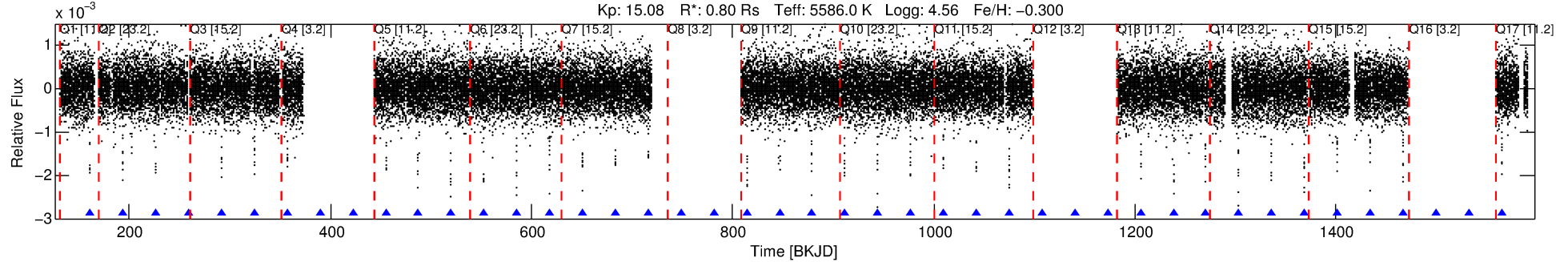
Ephemeris Match Information For 011018648-01

No Significant Match Found

DV One-Page Summary

KIC: 11018648 Candidate: 1 of 2 Period: 32.629 d
KOI: K00759.01 Name: Kepler-230b Corr: 0.930

Kp: 15.08 R*: 0.80 Rs Teff: 5586.0 K Logg: 4.56 Fe/H: -0.300



DV Fit Results:

Period = 32.62938 [0.00008] d
Epoch = 161.4618 [0.0020] BKJD
Rp/R* = 0.0447 [0.0009]
a/R* = 24.70 [1.87]
b = 0.89 [0.02]
Seff = 15.58 [4.61]
Teq = 507 [38] K
Rp = 3.89 [0.89] Re
a = 0.1888 [0.0359] AU
Ag = 72.50 [38.61] [1.85σ]
Teffp = 2285 [268] K [6.58σ]

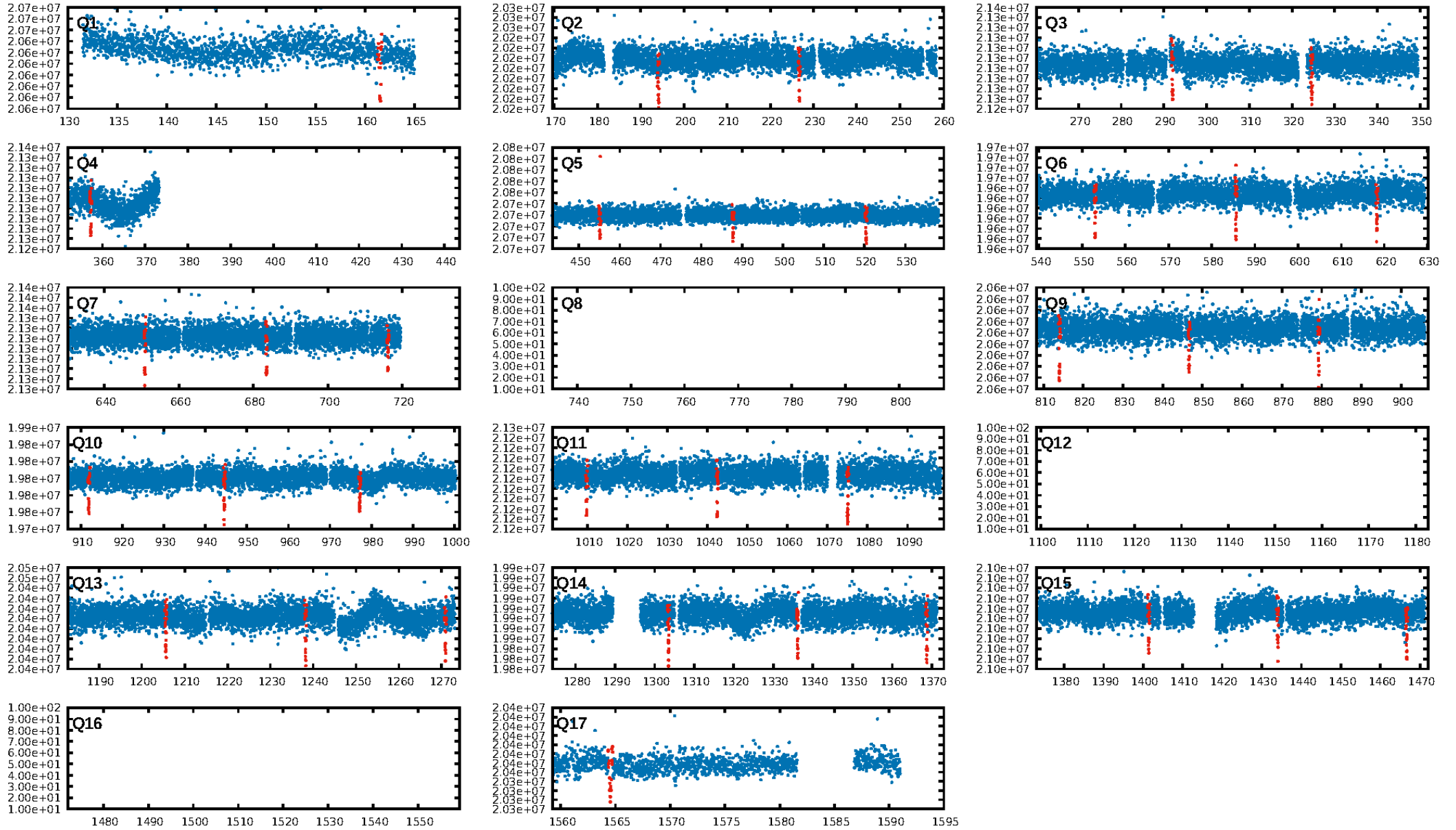
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [168.19σ]
ModelChiSquare2-sig: 85.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [31/31]
GhostDiagnostic-chr: 3.879
Centroid-sig: 4.7%
Centroid-so: 0.299 arcsec [1.23σ]
OotOffset-rm: 0.081 arcsec [0.73σ]
KicOffset-rm: 0.148 arcsec [1.34σ]
OotOffset-st: 4/3/1/4 [12]
KicOffset-st: 4/3/1/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [13/13]

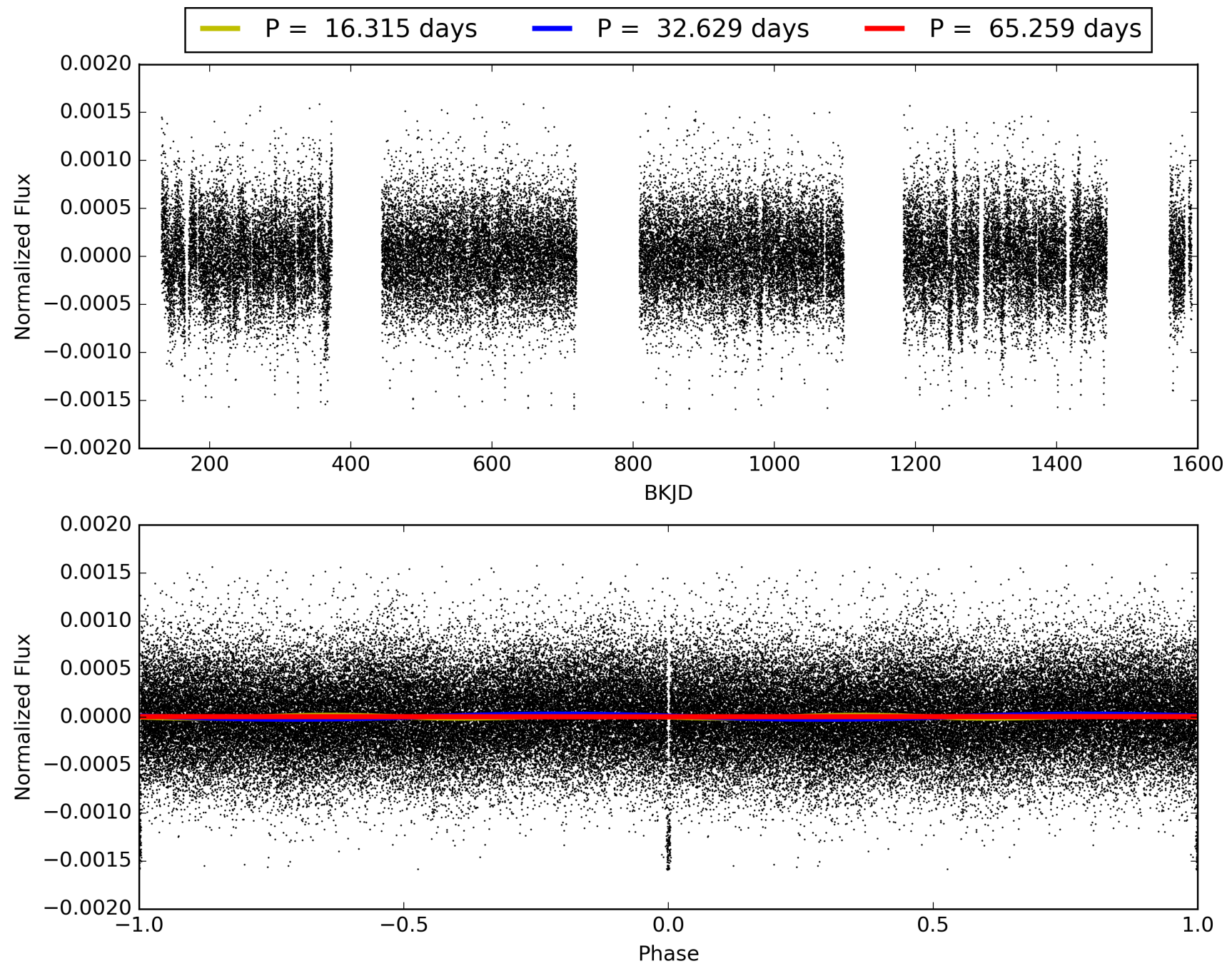
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:39:31 Z

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

TCE 011018648-01, PDC Light Curves

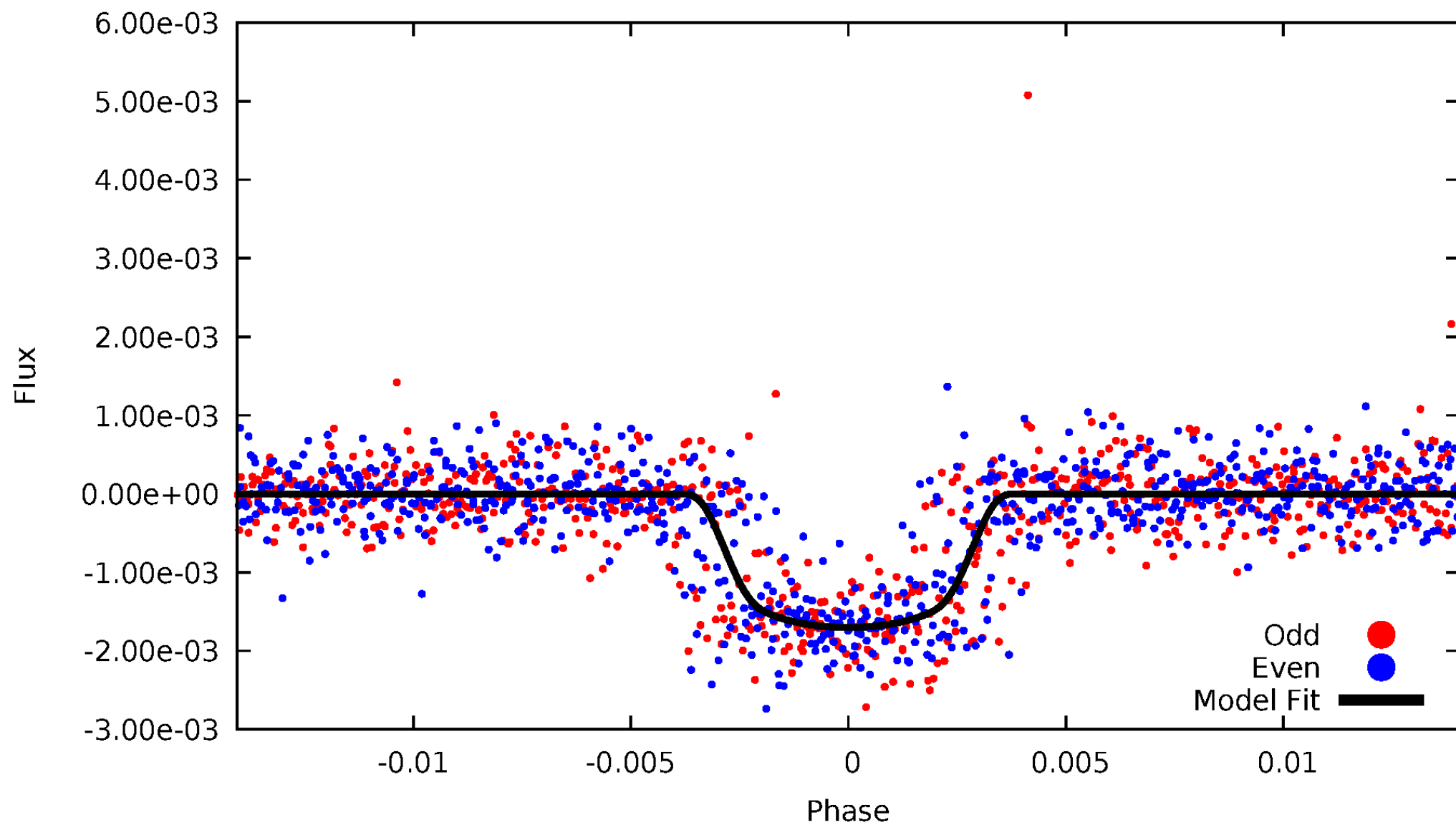


TCE 011018648-01



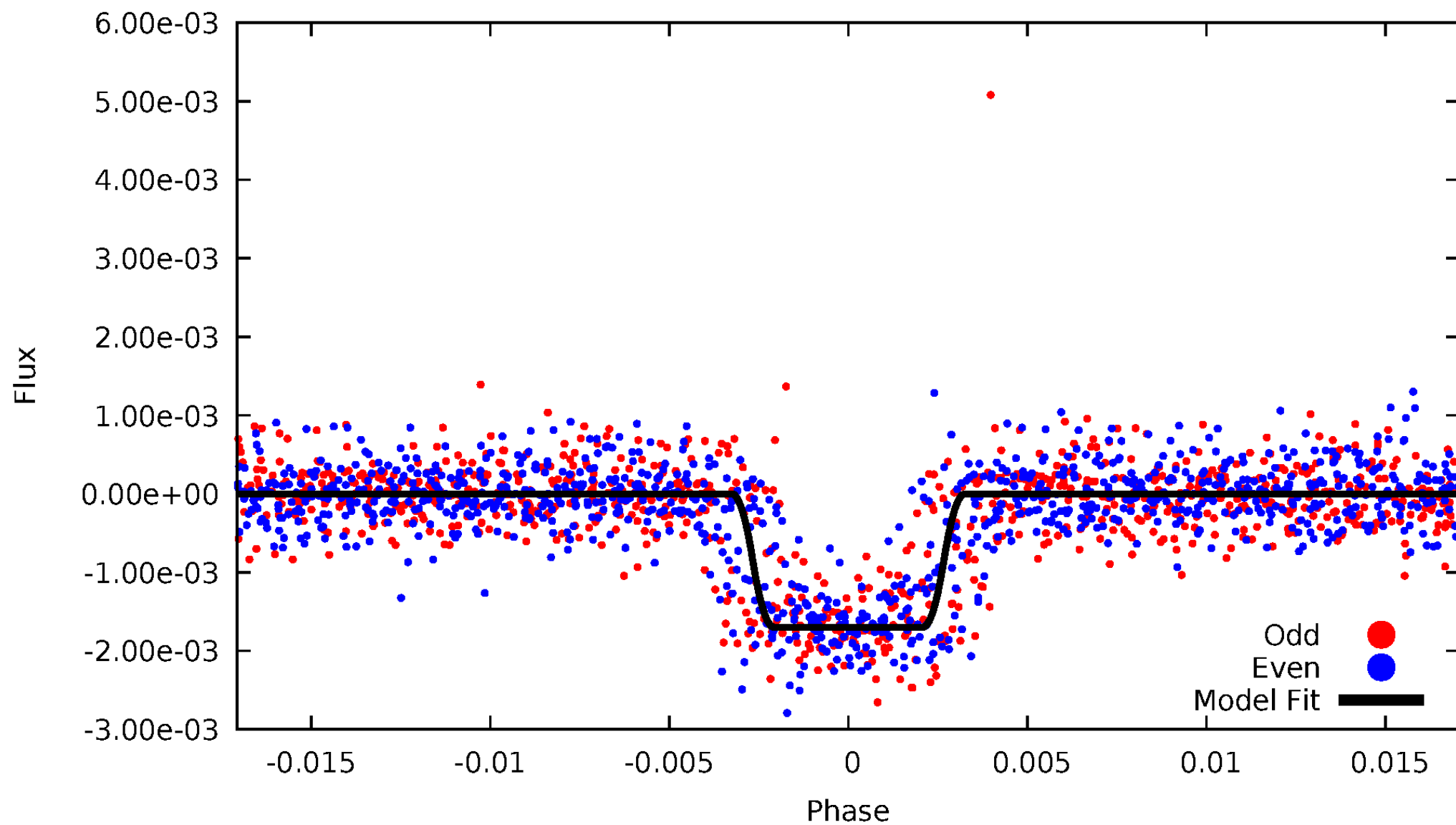
DV Odd/Even

TCE 011018648-01



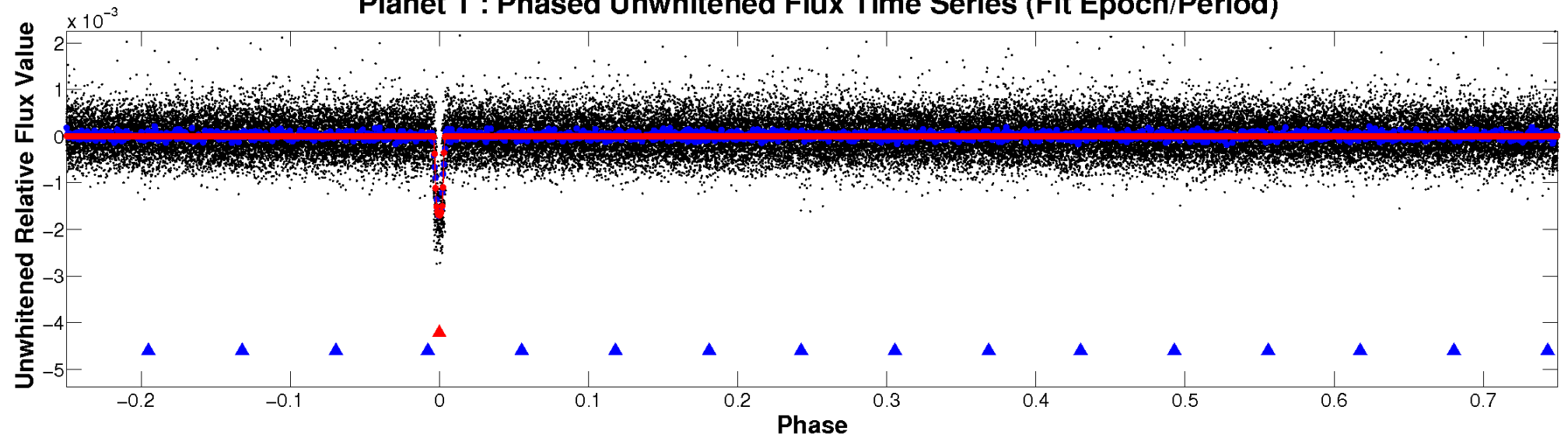
ALT Odd/Even

TCE 011018648-01

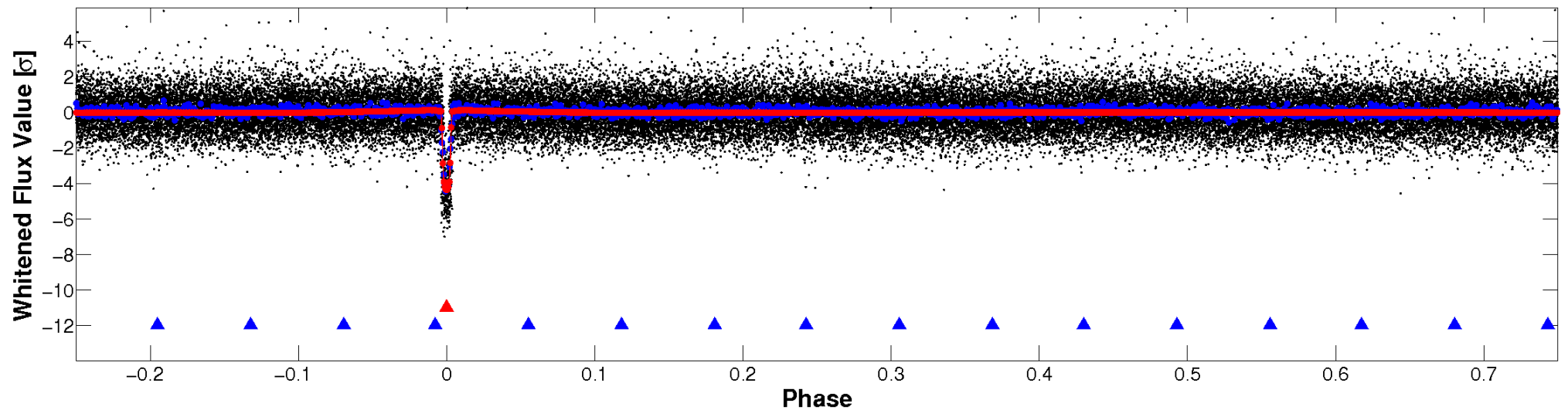


Non-Whitened Vs. Whitened Light Curve

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

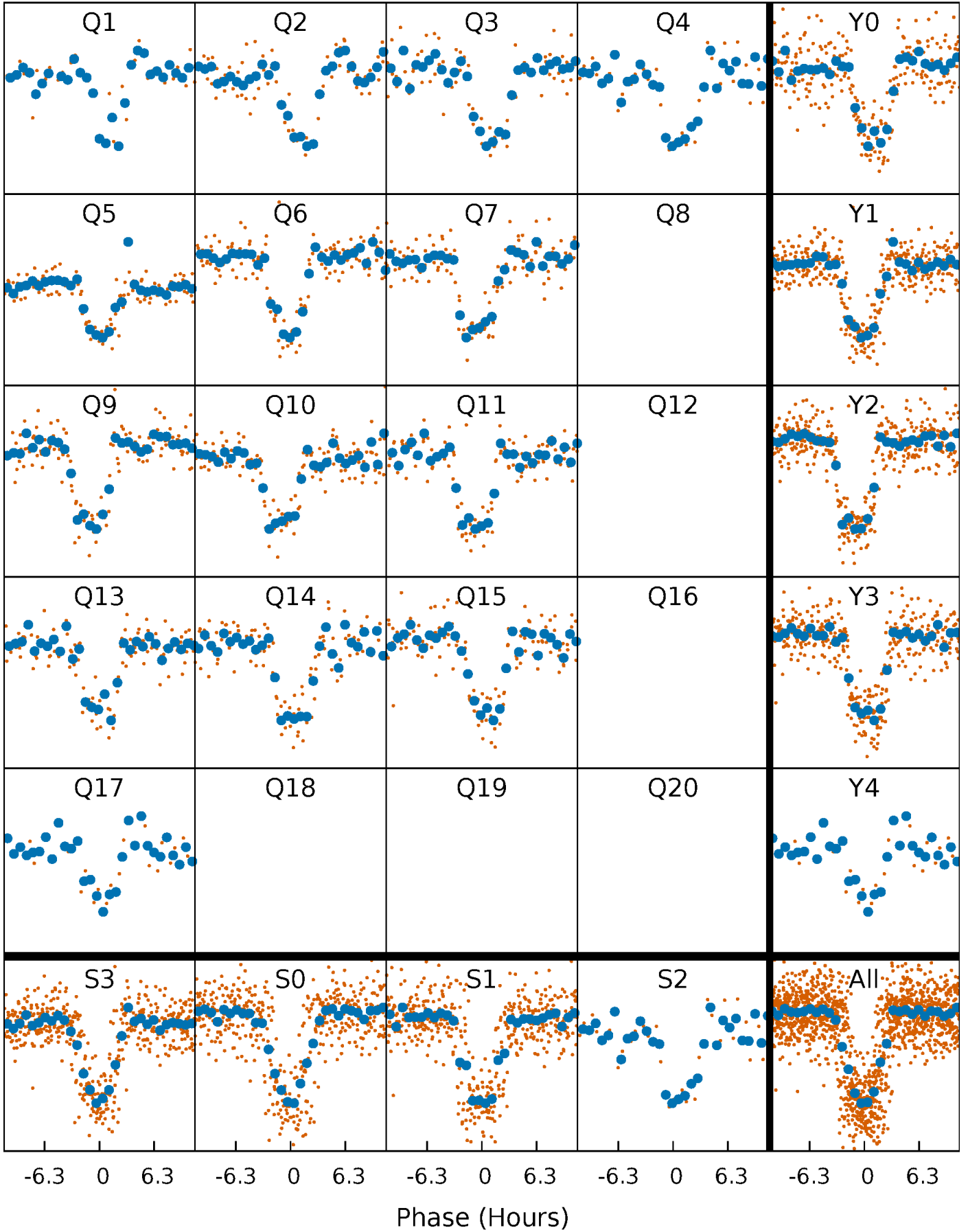


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



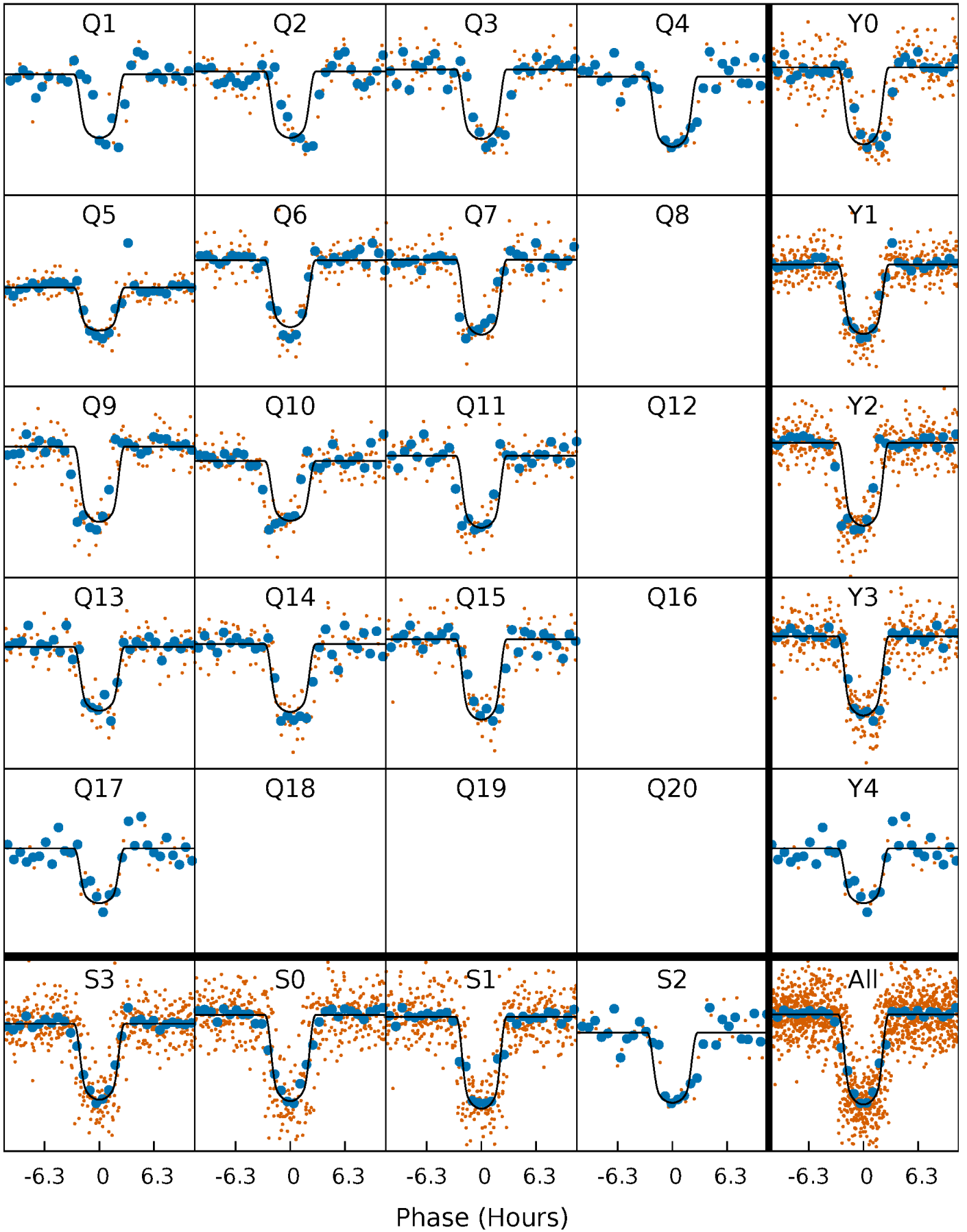
PDC Quarter-Phased Transit Curves

TCE 011018648-01 P= 32.629377 Days $T_0=161.461768$ (BKJD)



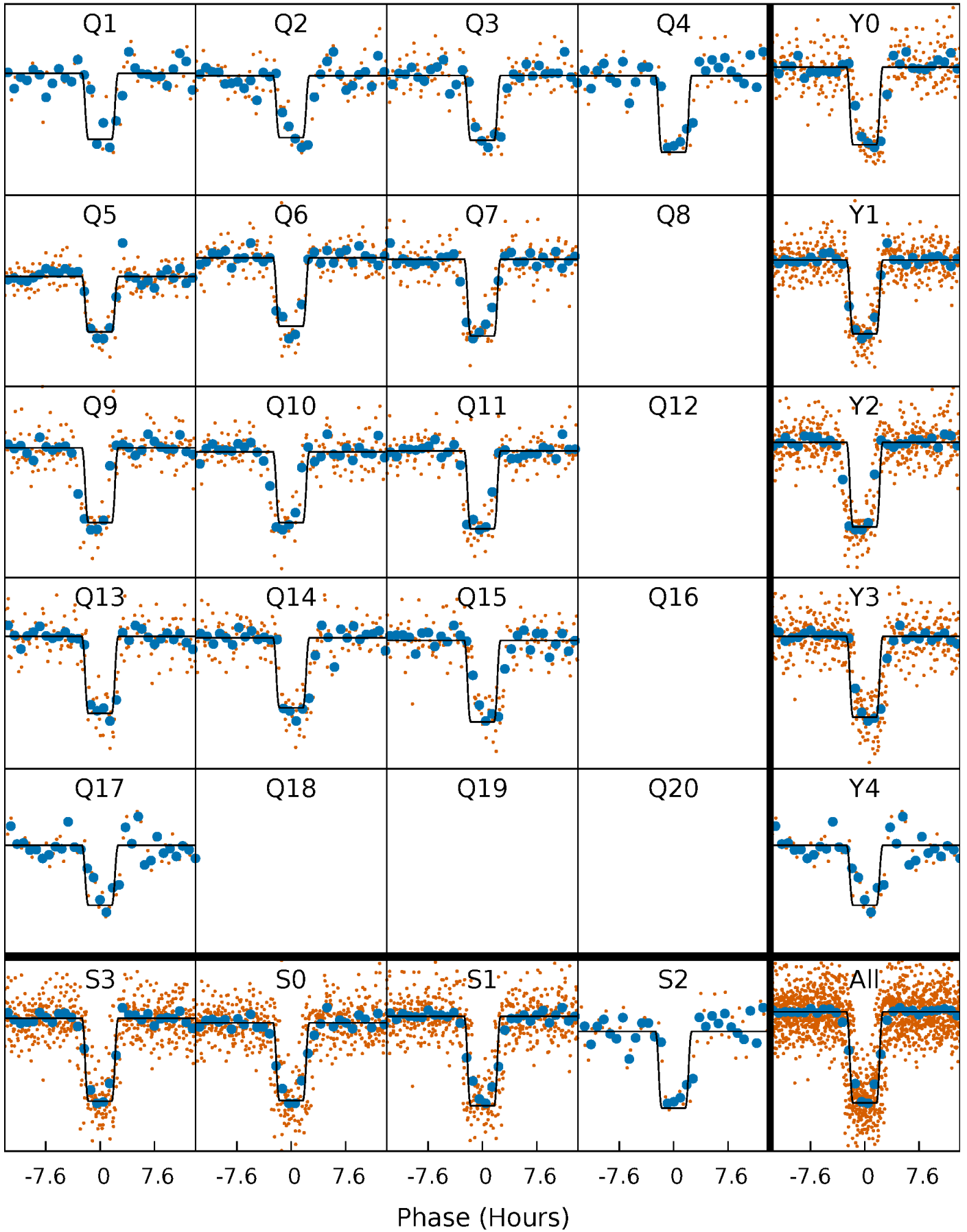
DV Quarter-Phased Transit Curves

TCE 011018648-01 P= 32.629377 Days $T_0=161.461768$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

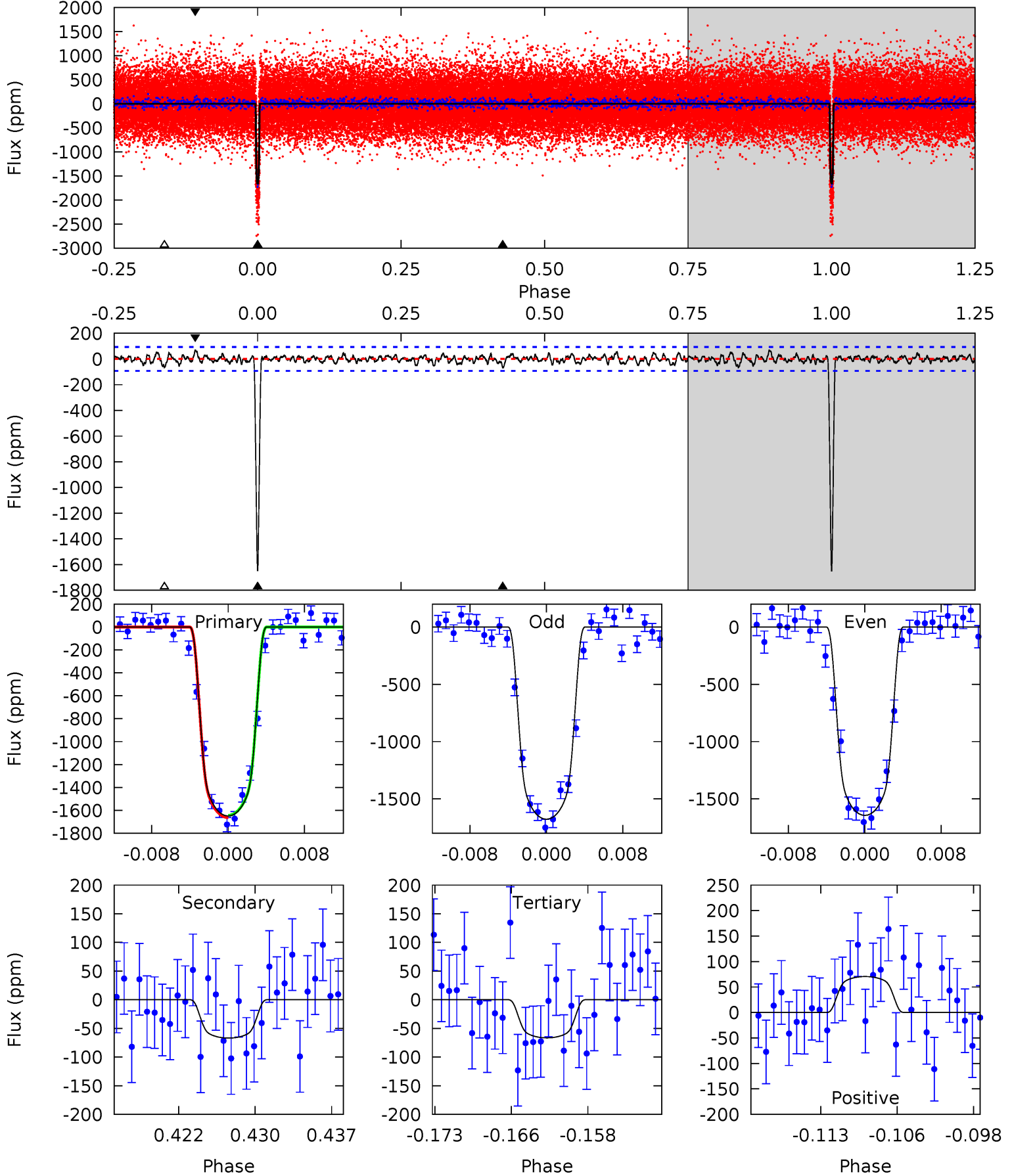
TCE 011018648-01 P= 32.628668 Days $T_0=161.473186$ (BKJD)



DV Model-Shift Uniqueness Test

011018648-01, $P = 32.629377$ Days, $E = 128.832391$ Days

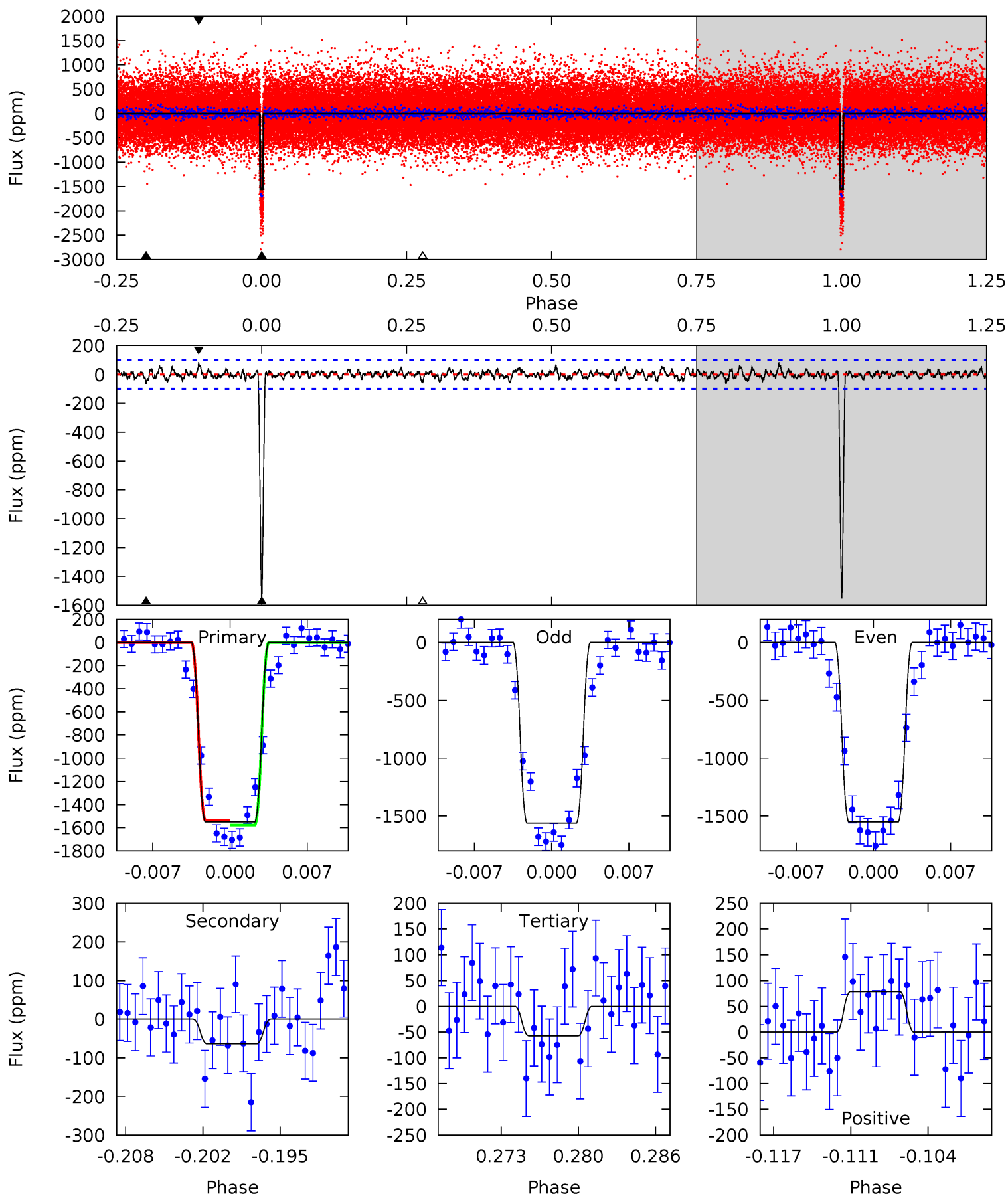
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.9	3.65	3.63	3.85	5.08	2.67	1.17	86.3	86.1	0.02	-0.20	0.91	1.02	0.04	0.54



Alt Model-Shift Uniqueness Test

011018648-01, $P = 32.628668$ Days, $E = 128.844518$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.8	3.23	2.90	3.99	5.11	2.72	1.03	75.8	74.8	0.33	-0.75	0.25	1.00	0.05	1.04



Stellar Parameters For KIC 011018648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5586^{+152}_{-152}	$4.560^{+0.050}_{-0.150}$	$-0.300^{+0.300}_{-0.300}$	$0.798^{+0.181}_{-0.077}$	$0.844^{+0.097}_{-0.078}$	$2.342^{+0.478}_{-1.002}$
	+3%/-3%	+1%/-3%	+100%/-100%	+23%/-10%	+11%/-9%	+20%/-43%
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 011018648-01 / KOI 0759.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-67 ± 18	$3.98^{+0.48}_{-0.28}$	719^{+36}_{-31}	3032^{+119}_{-145}	80^{+27}_{-24}
Alt.	-64 ± 20	$3.69^{+0.41}_{-0.28}$	717^{+38}_{-29}	3092^{+134}_{-180}	91^{+35}_{-30}

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 $A_{obs} \gg 1.0$

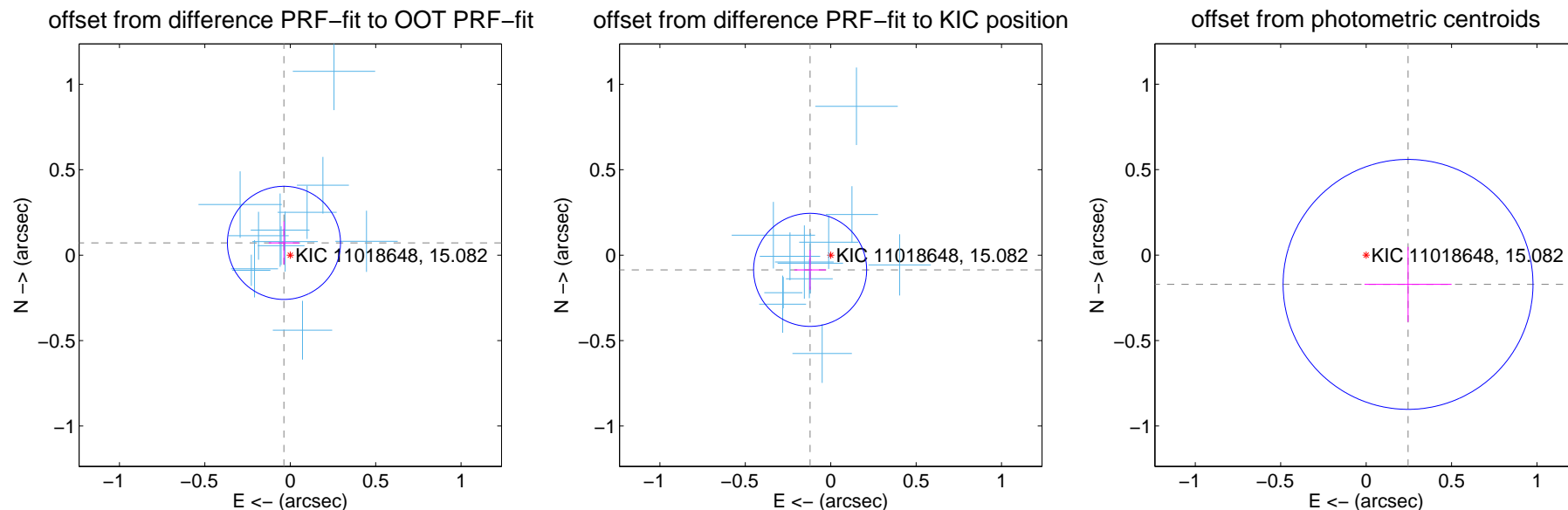
DV Centroid Data

Supplemental centroid analysis for 011018648-01. Kepler magnitude: 15.08. Transit SNR 63.75

There are 12 quarters with good PRF difference image offsets

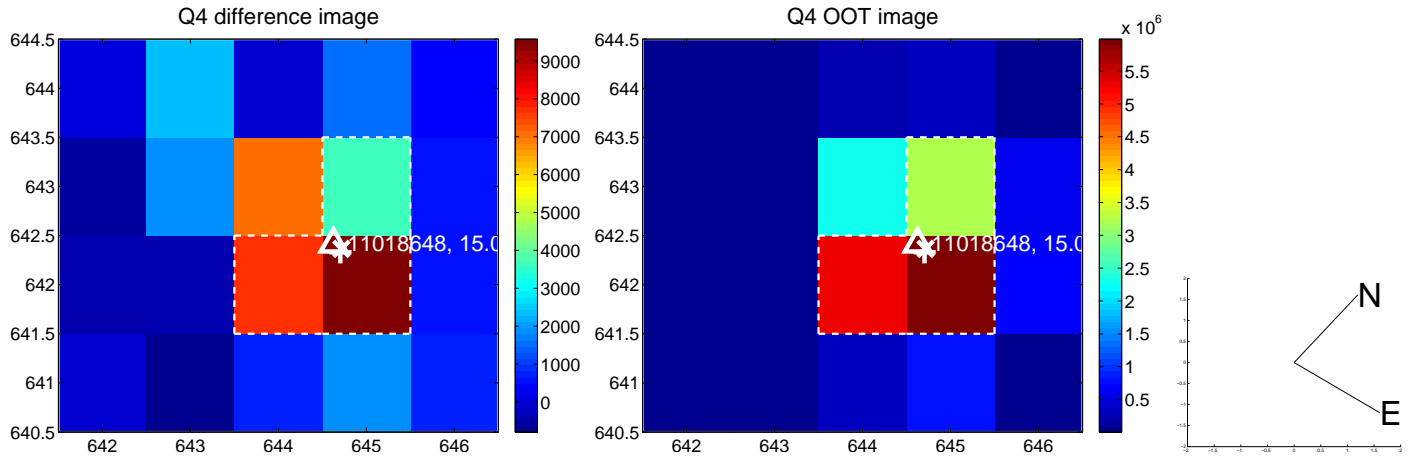
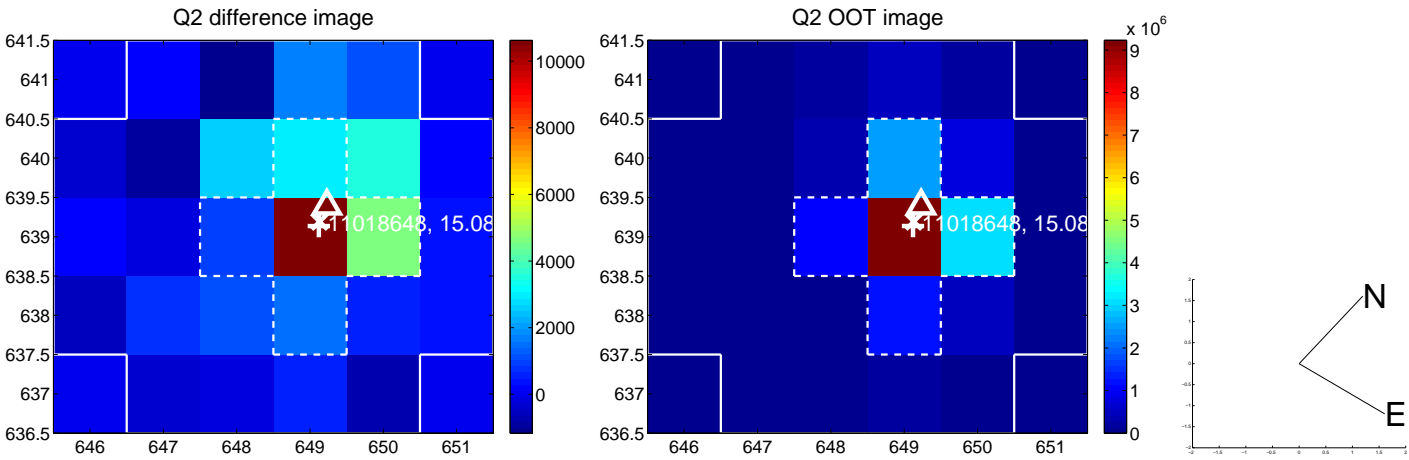
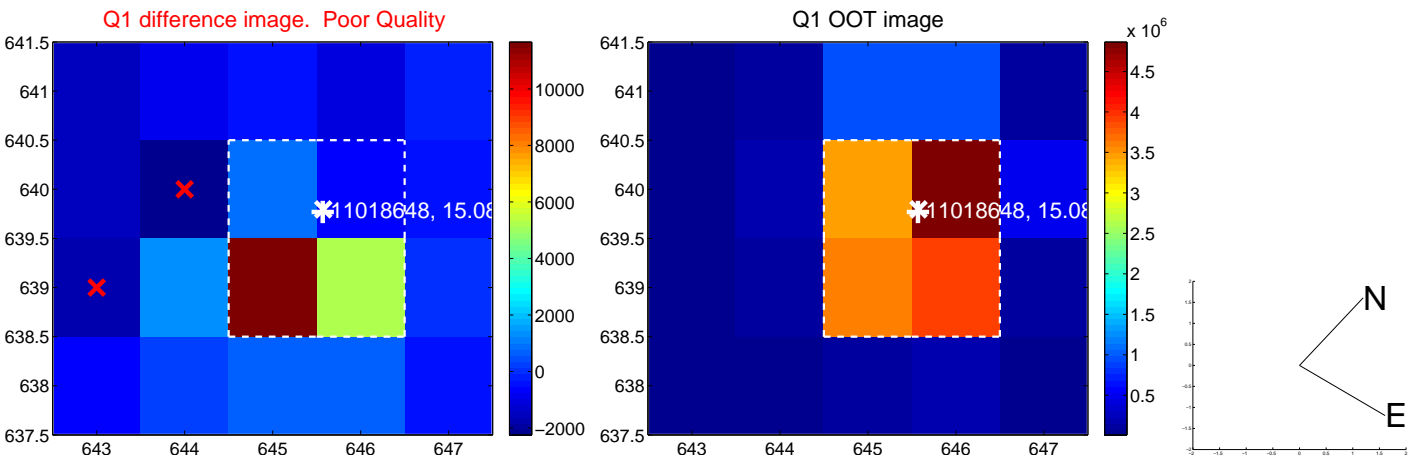
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.081 ± 0.110	0.73	0.037 ± 0.089	0.072 ± 0.125
PRF-fit source offset from KIC position	0.148 ± 0.110	1.34	0.121 ± 0.093	-0.086 ± 0.116
photometric centroid source offset	0.30 ± 0.24	1.23	-0.25 ± 0.26	-0.17 ± 0.22

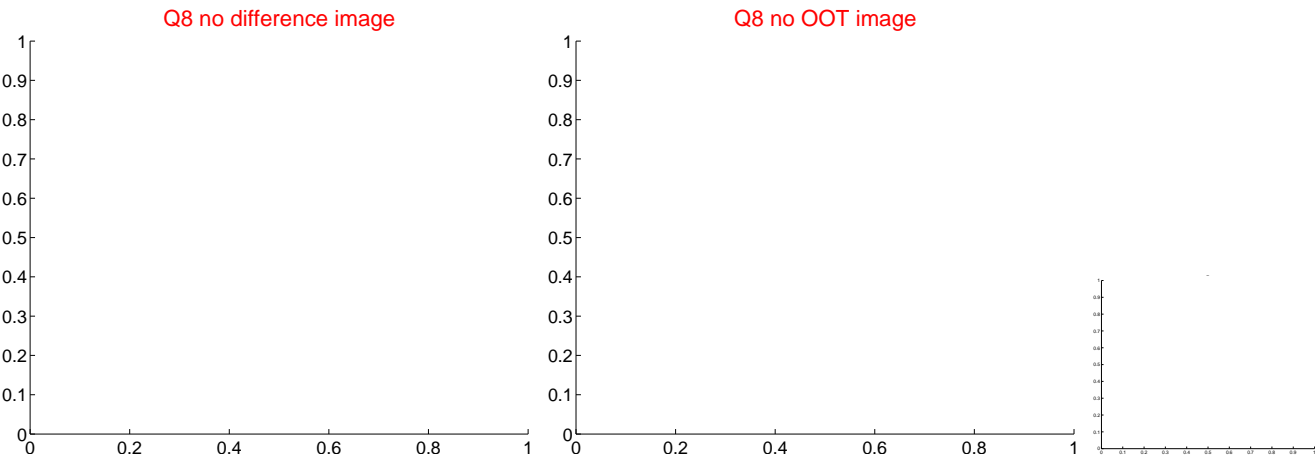
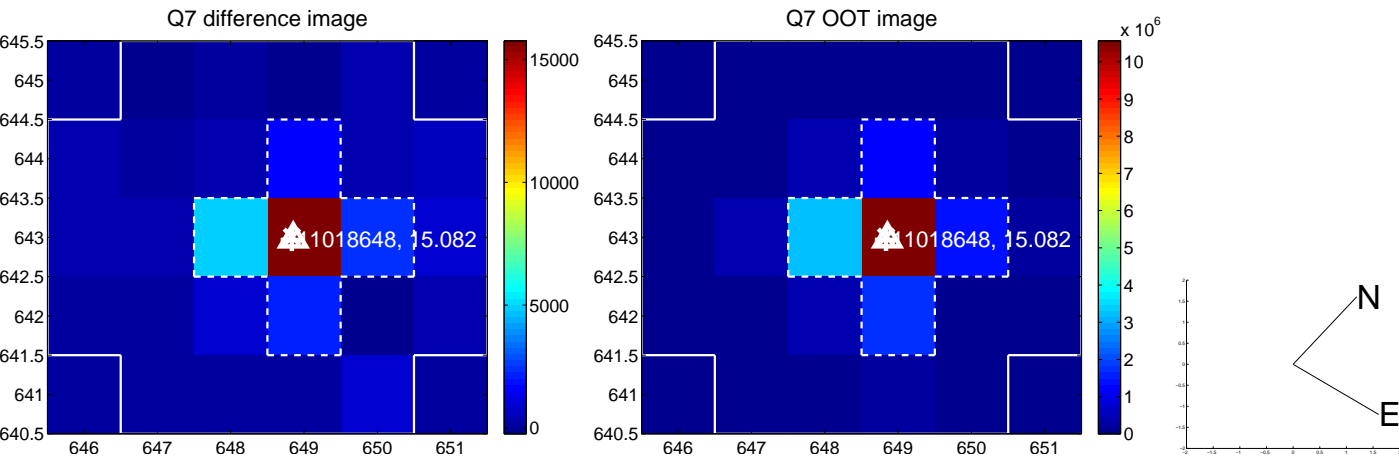
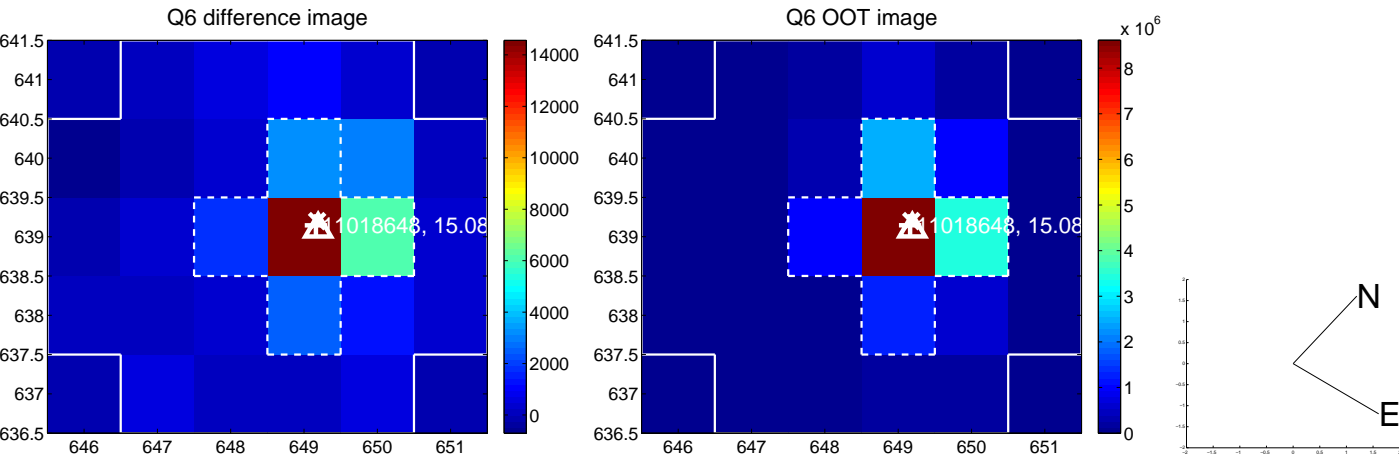
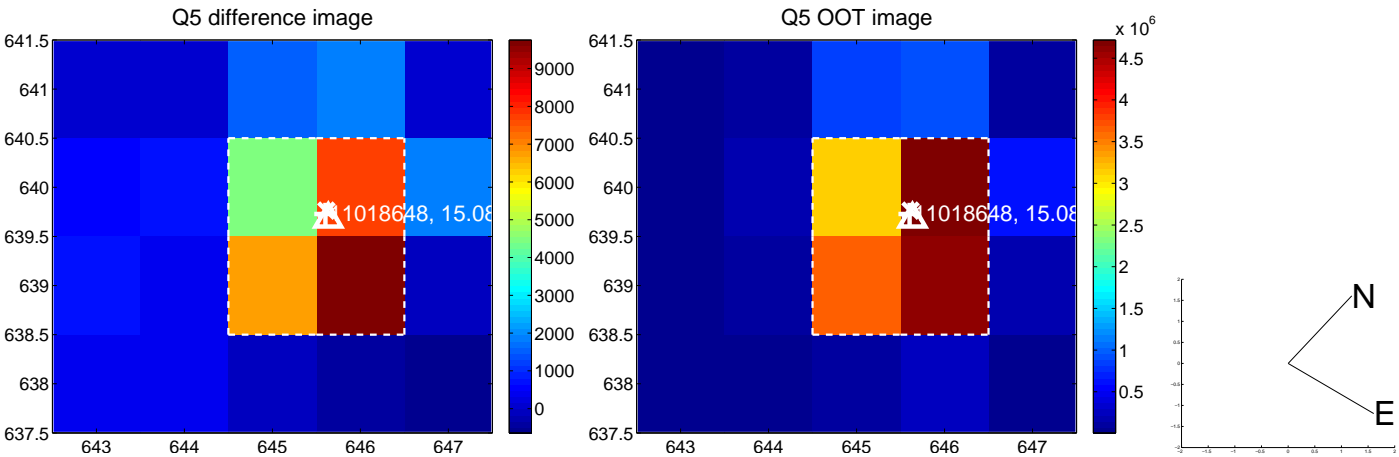


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

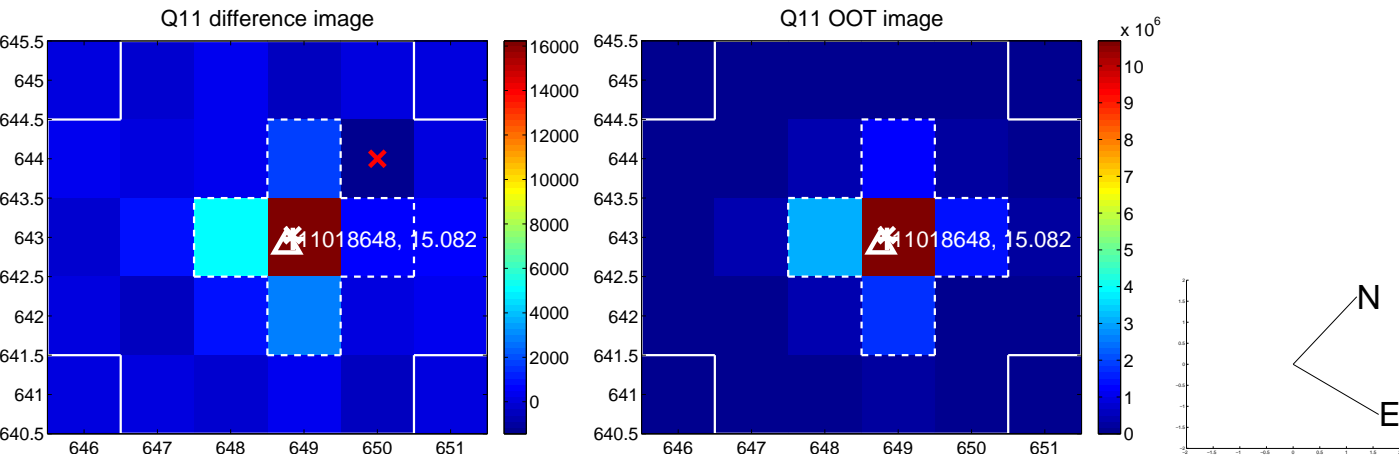
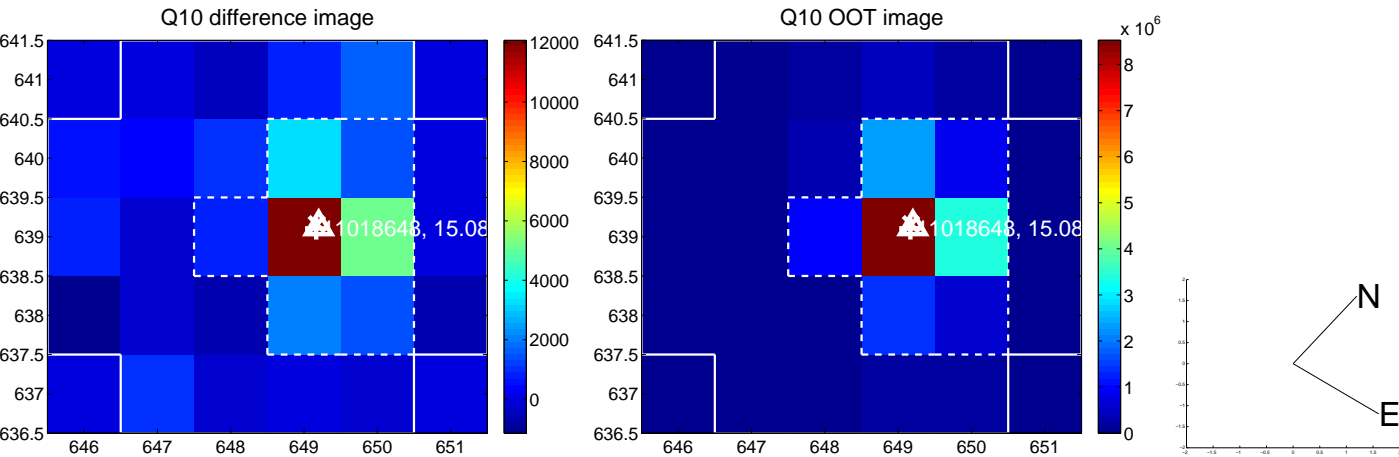
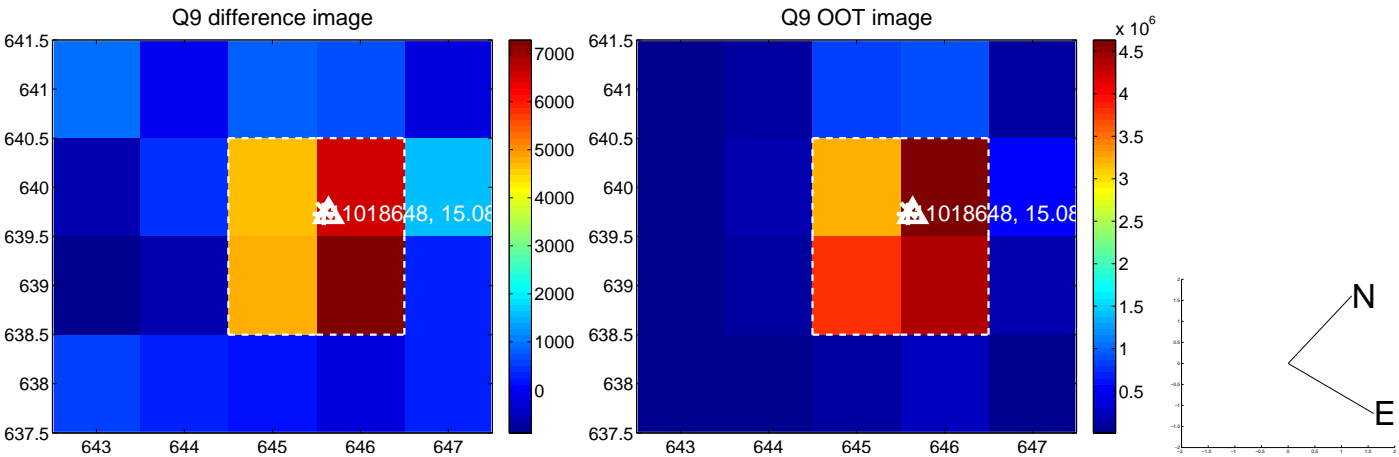
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



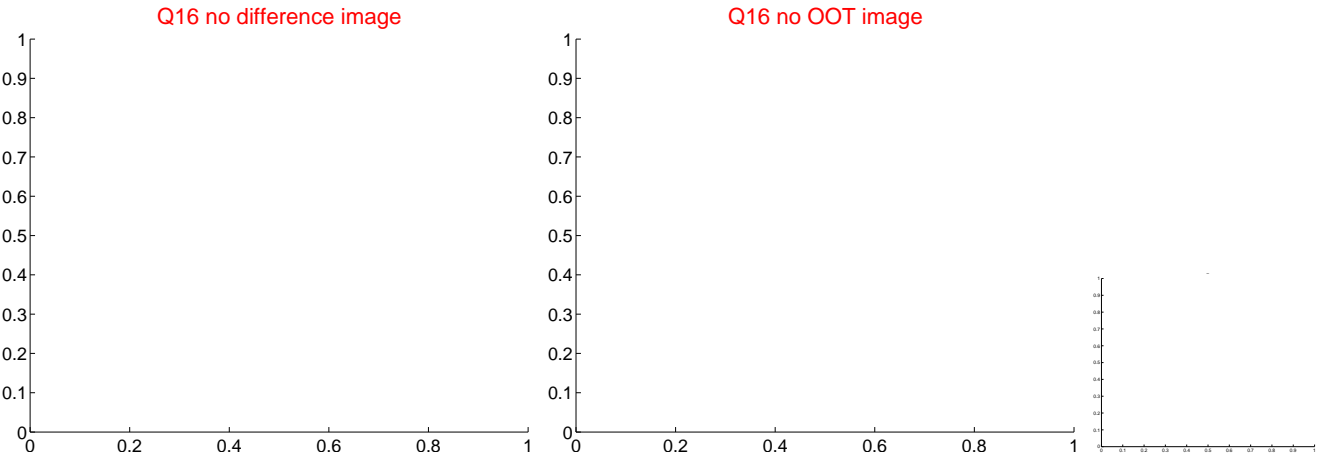
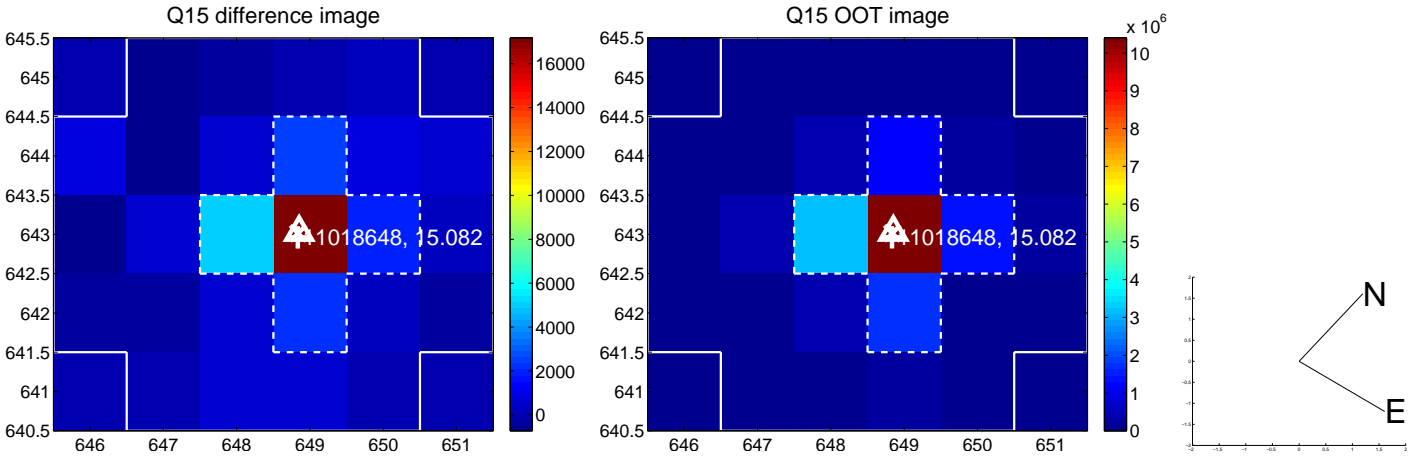
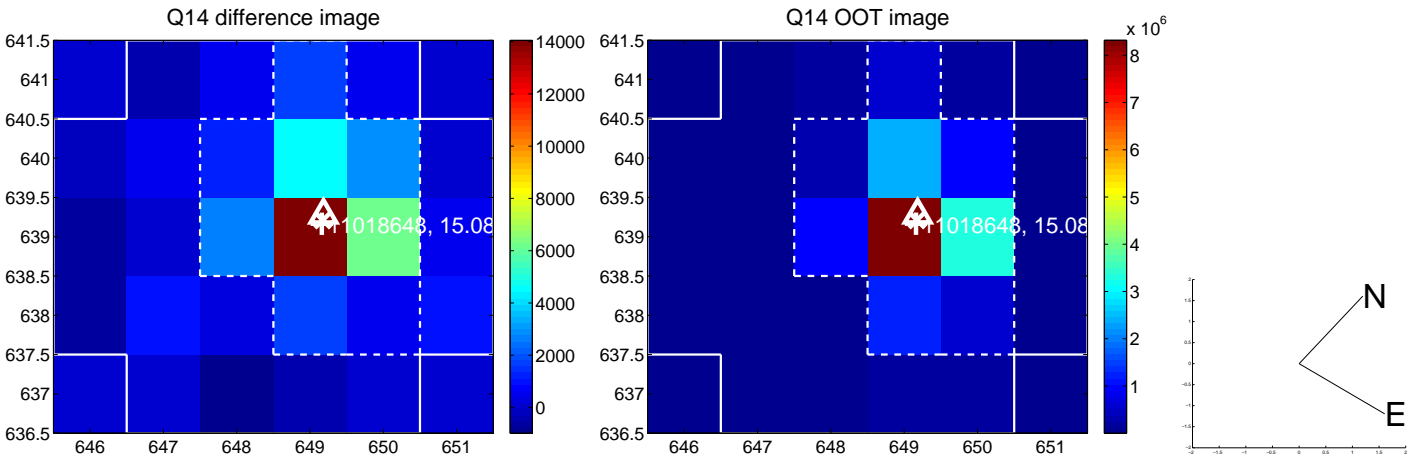
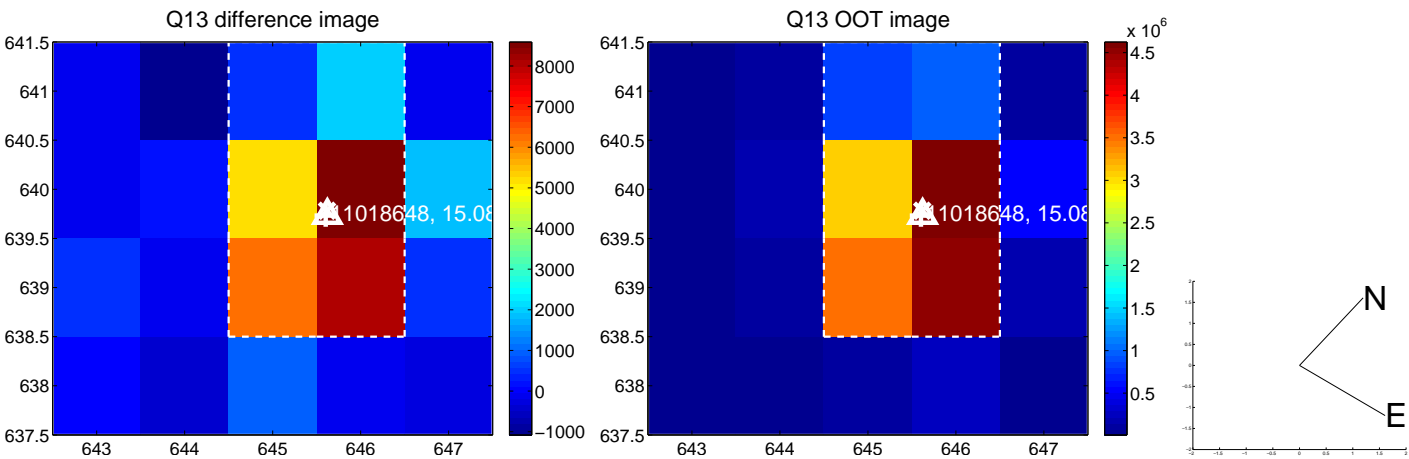
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



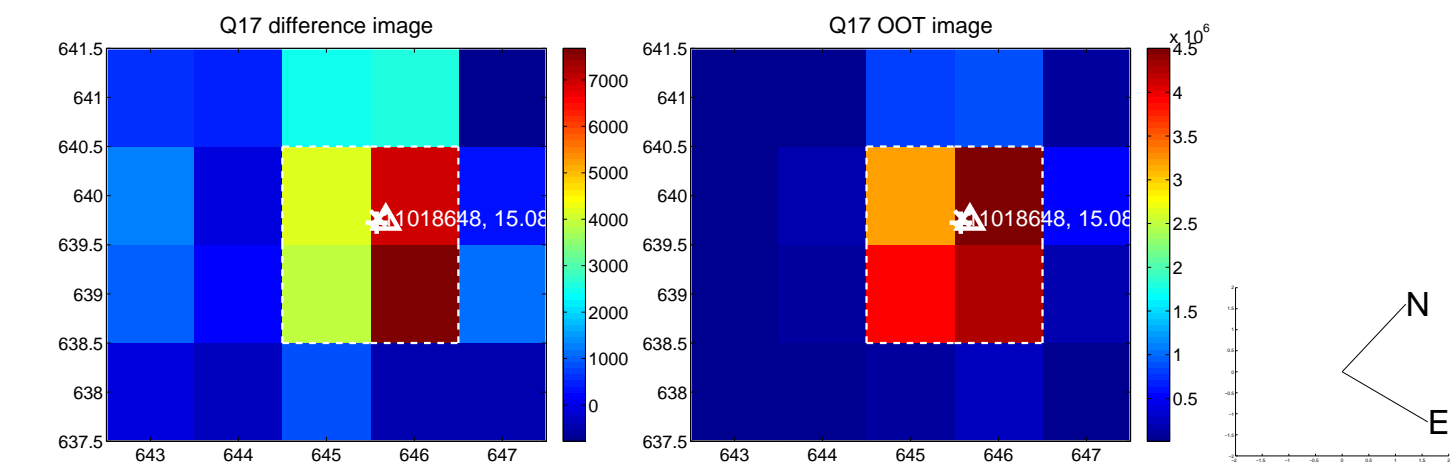
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



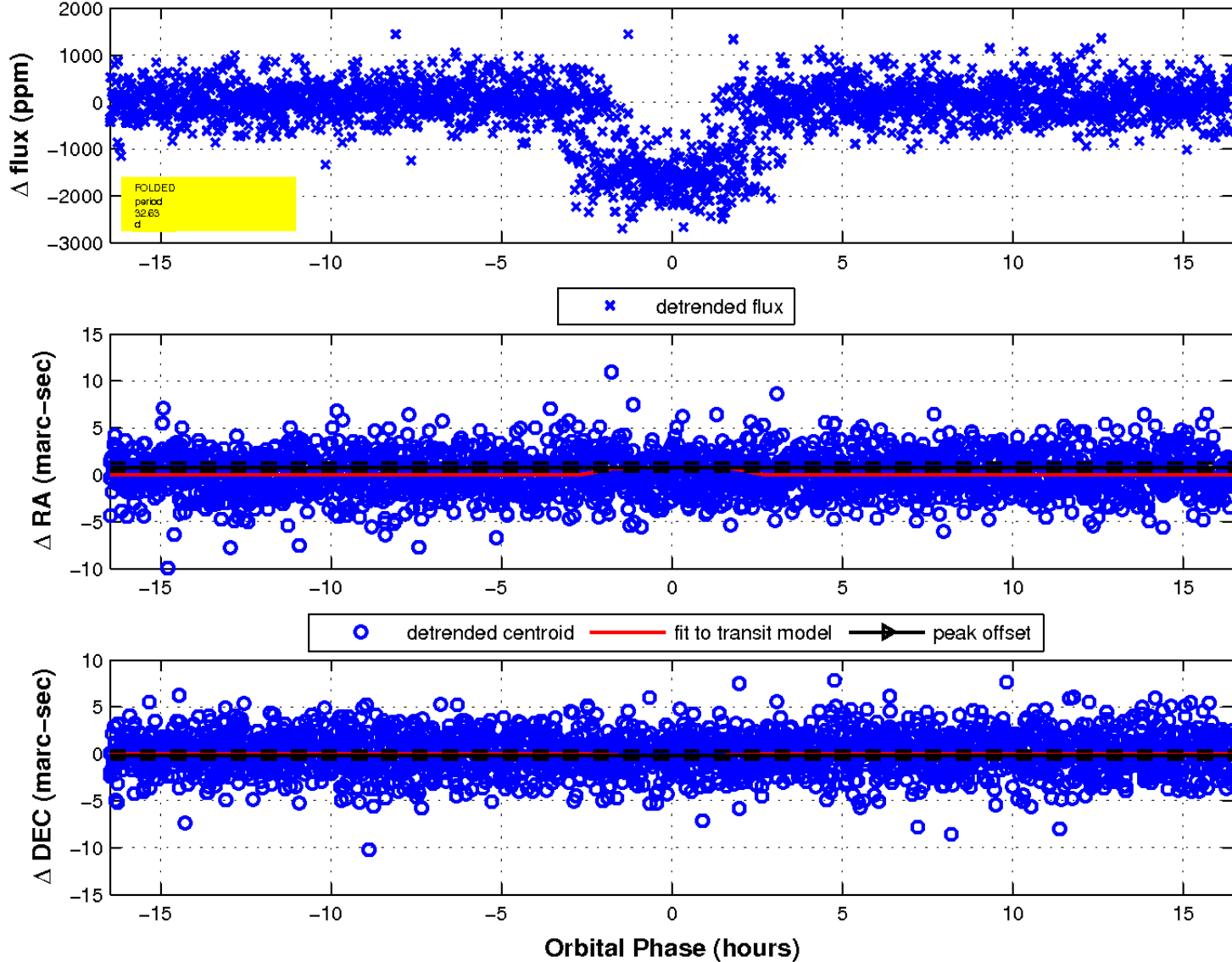
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

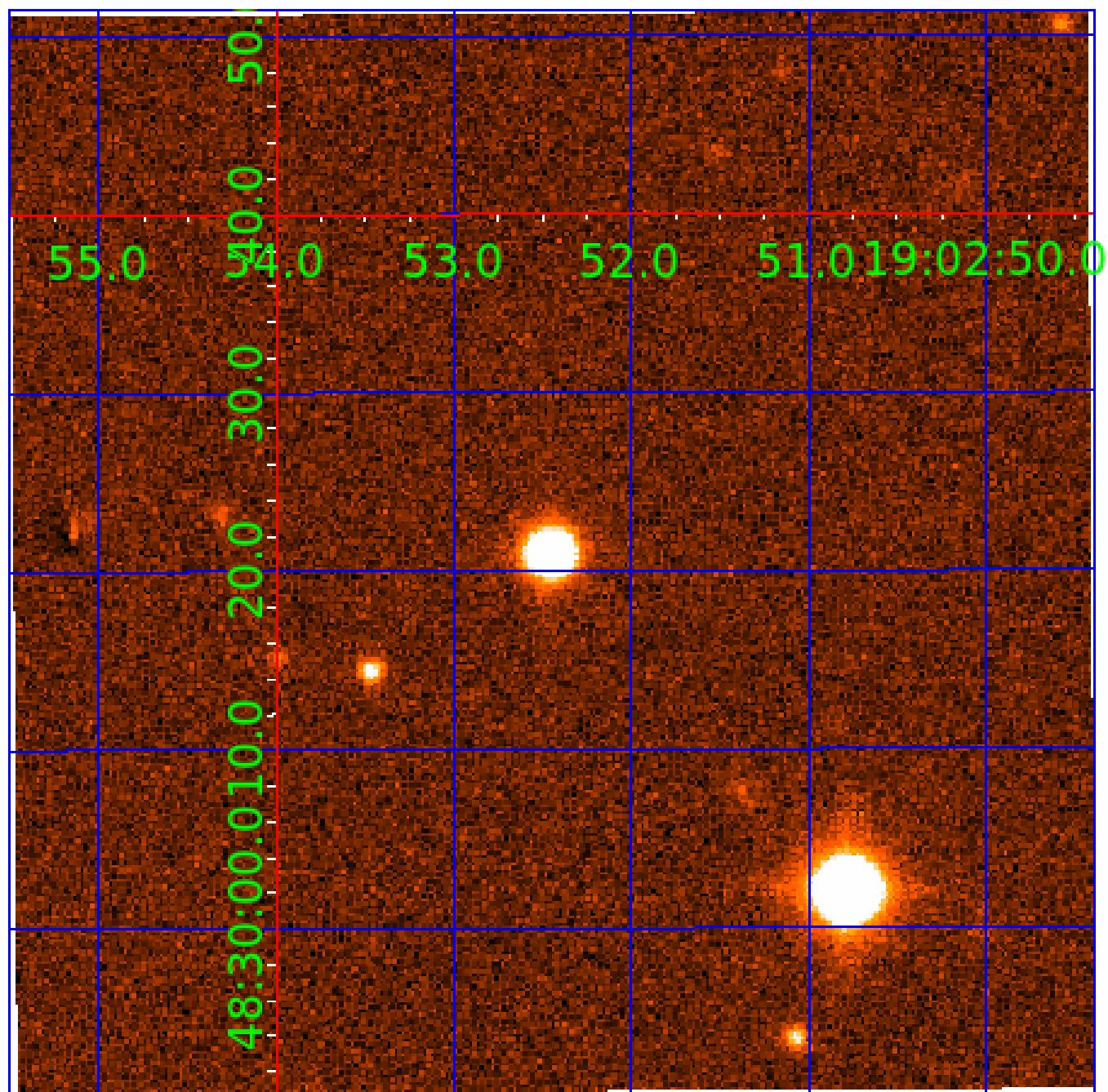


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011018648

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})
011018648-01	OBS	0759.01	32.629377	161.461768	1703.5	5.499	61.4	63.7	0.80	5586	3.90	15.58
011018648-02	OBS	0759.02	91.772588	193.840096	596.1	6.402	14.7	15.4	0.80	5586	2.14	3.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011018648-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011018648-02	OBS	PC	0.98	0	0	0	0	NO_COMMENT

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

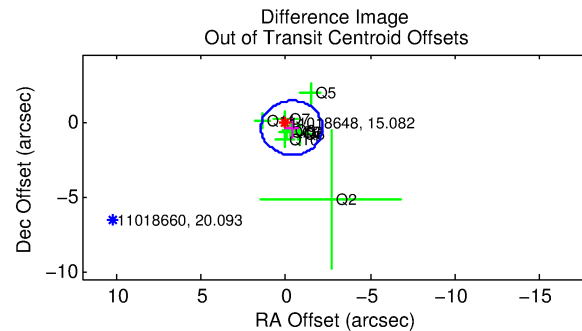
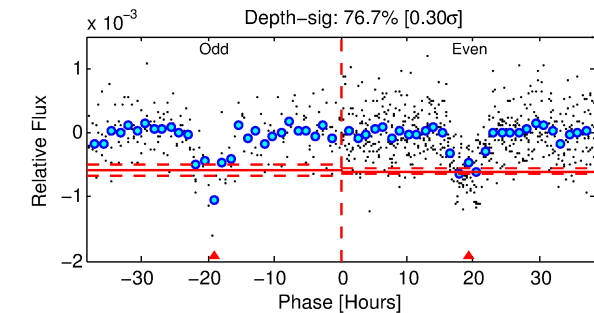
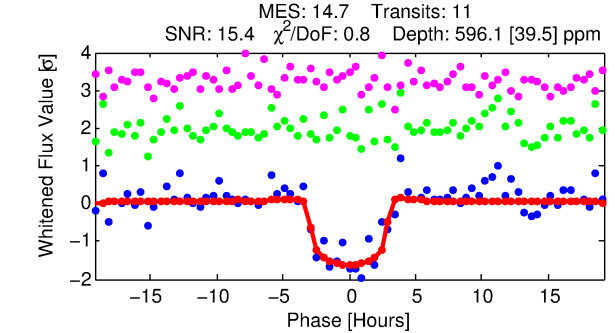
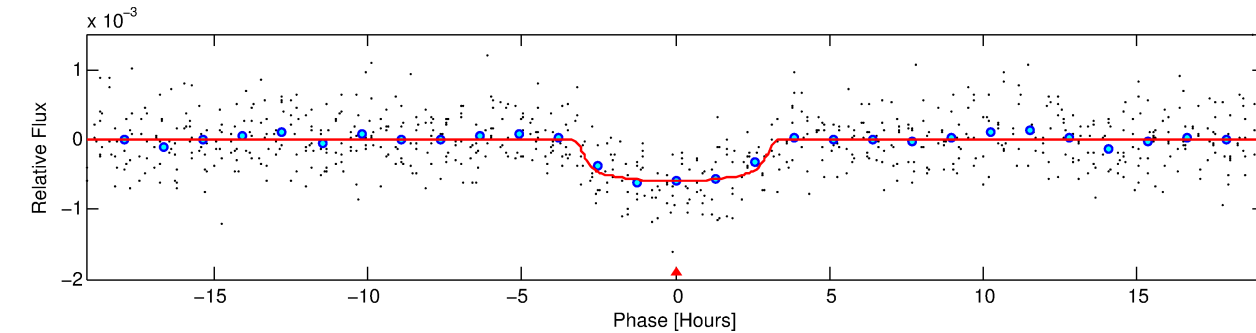
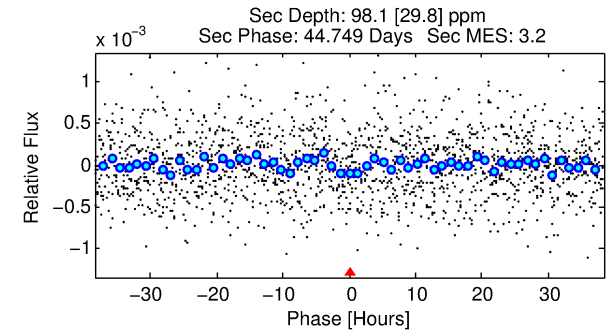
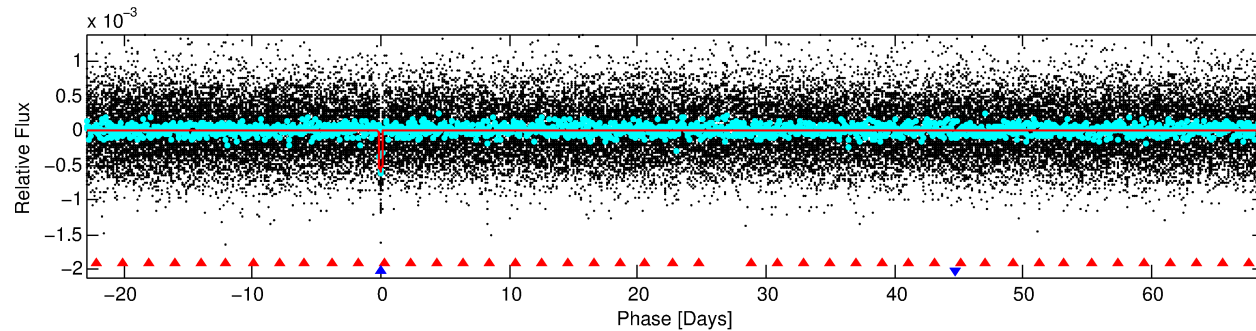
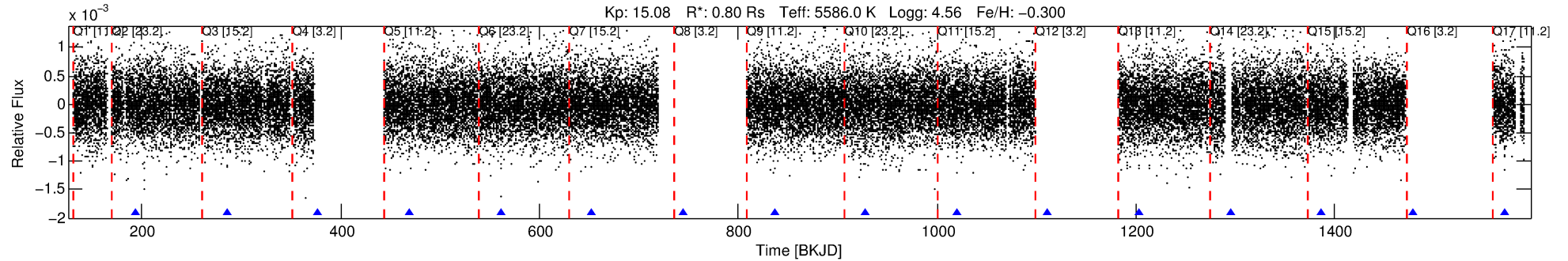
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011018648-02

No Significant Match Found

DV One-Page Summary

KIC: 11018648 Candidate: 2 of 2 Period: 91.773 d
KOI: K00759.02 Name: Kepler-230c Corr: 0.979



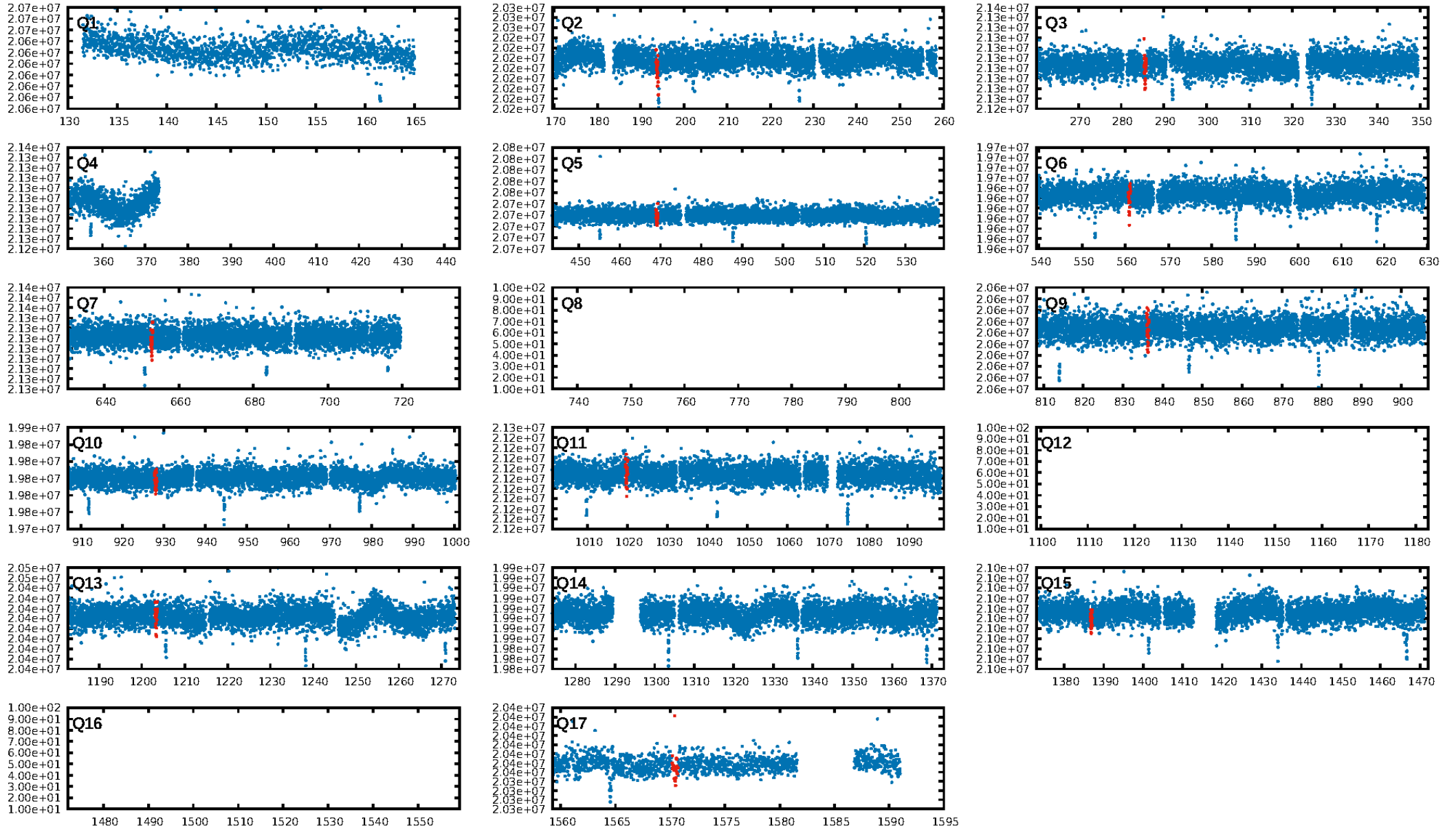
DV Fit Results:

Period = 91.77259 [0.00093] d
Epoch = 193.8401 [0.0083] BKJD
Rp/R* = 0.0246 [0.0075]
a/R* = 72.77 [95.74]
b = 0.78 [0.67]
Seff = 3.92 [1.16]
Teq = 359 [27] K
Rp = 2.14 [0.81] Re
a = 0.3763 [0.0715] AU
Ag = 1663.55 [1216.53] [1.37σ]
Teffp = 3544 [608] K [5.23σ]

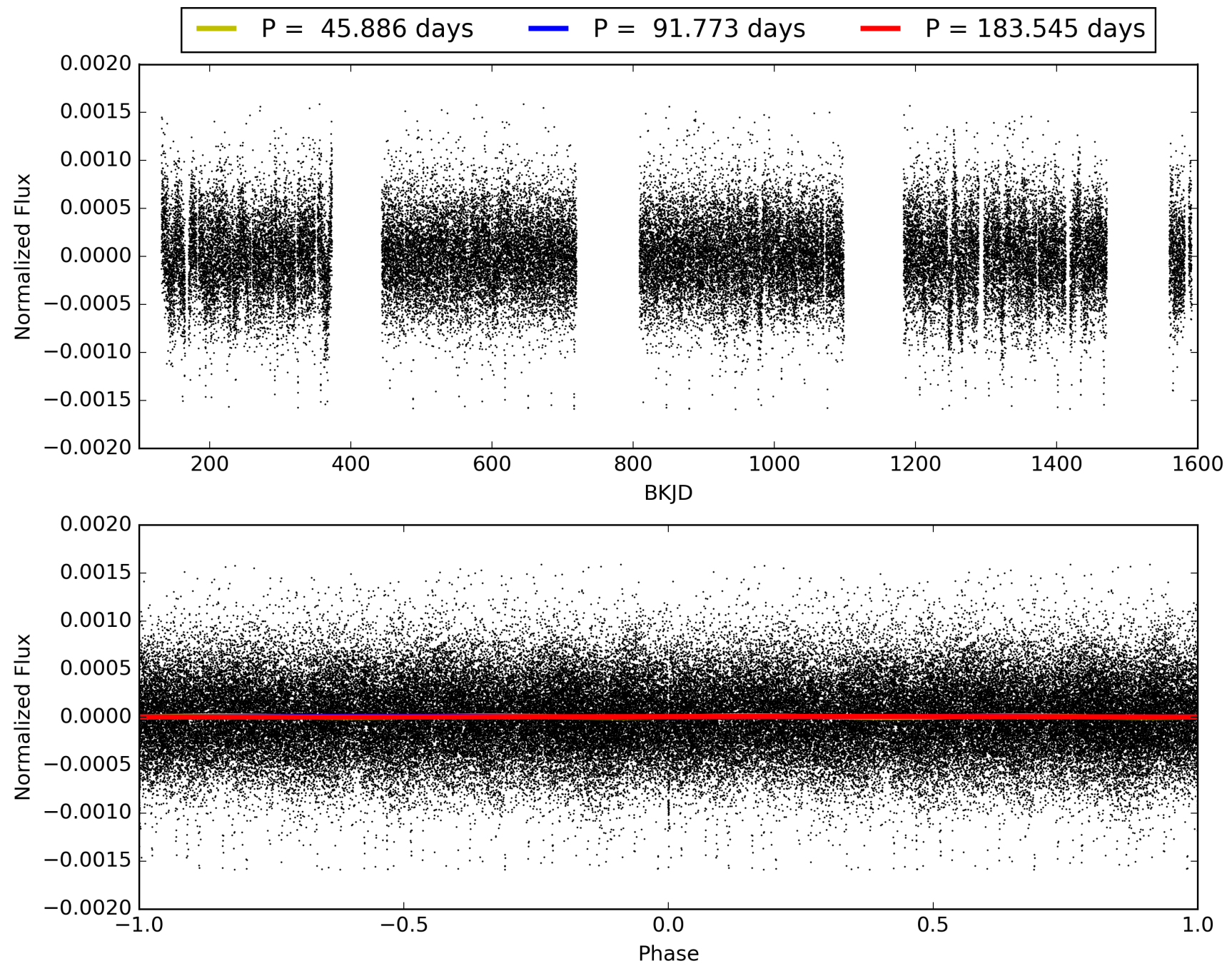
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [168.19σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.34e-44
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: 5.472
Centroid-sig: 59.9%
Centroid-so: 0.708 arcsec [0.70σ]
OotOffset-rm: 0.549 arcsec [0.91σ]
KicOffset-rm: 0.652 arcsec [0.99σ]
OotOffset-st: 3/3/0/3 [9]
KicOffset-st: 3/3/0/3 [9]
DiffImageQuality-fgm: 0.89 [8/9]
DiffImageOverlap-fno: 0.90 [9/10]

TCE 011018648-02, PDC Light Curves

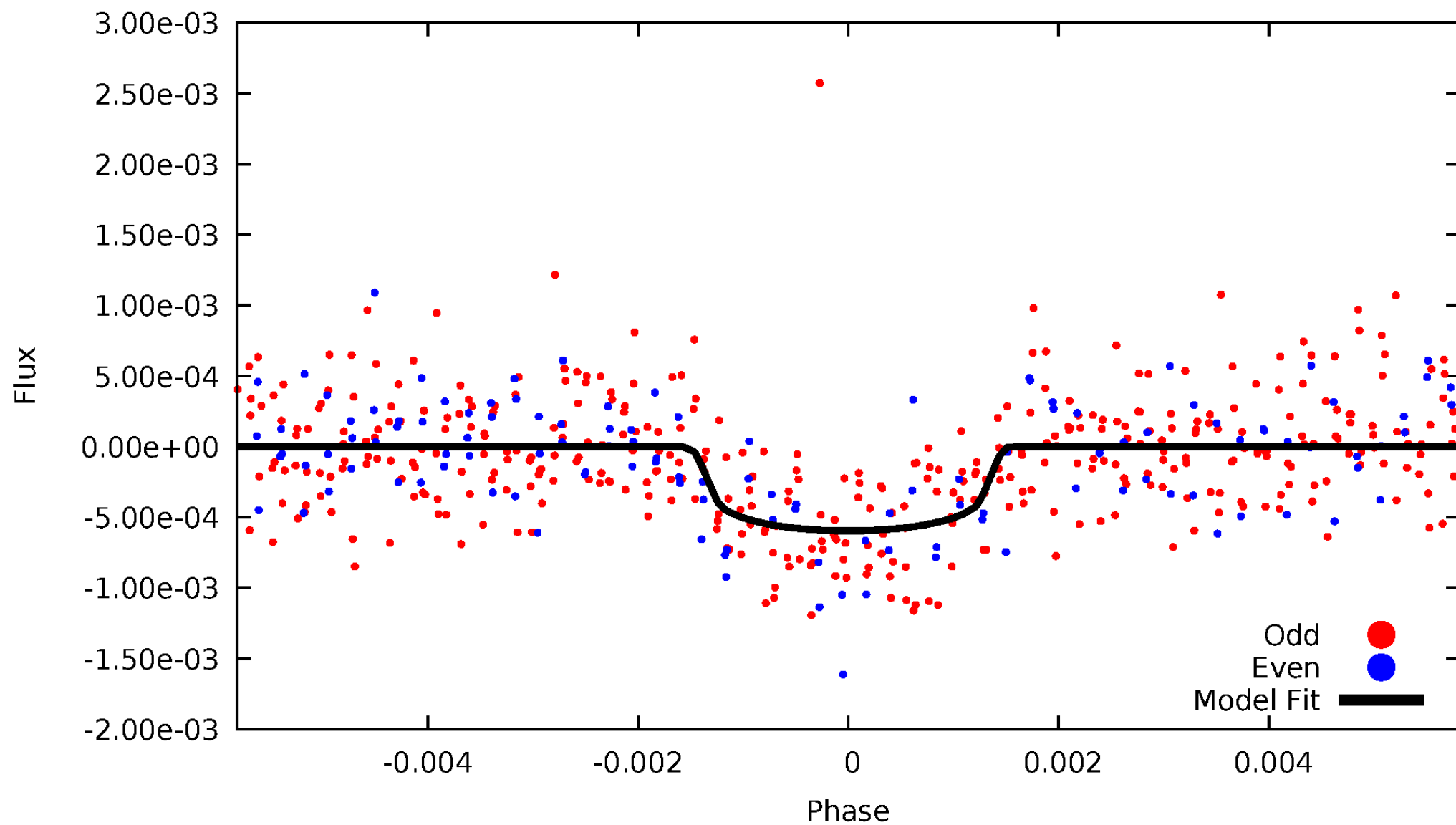


TCE 011018648-02



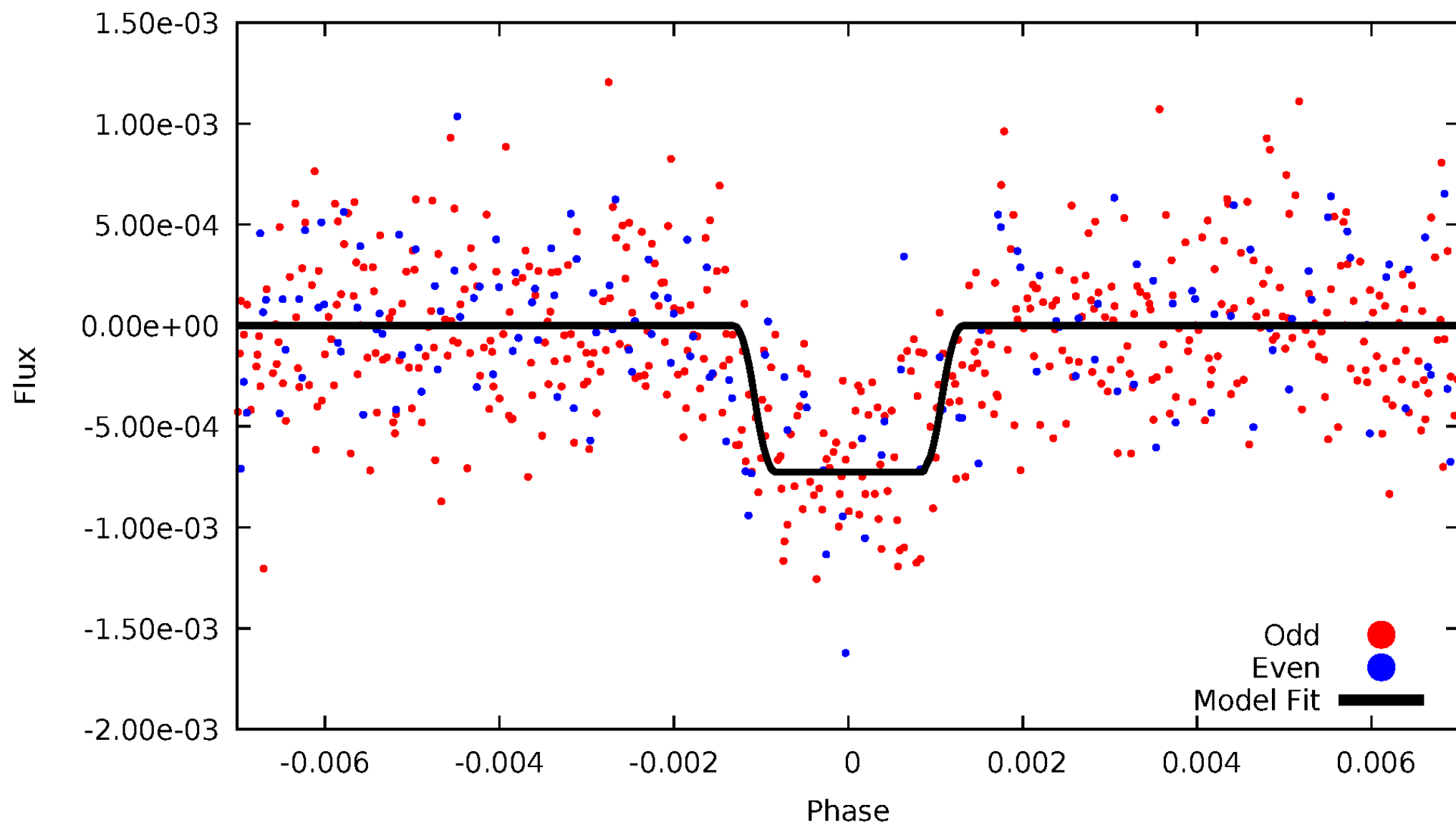
DV Odd/Even

TCE 011018648-02



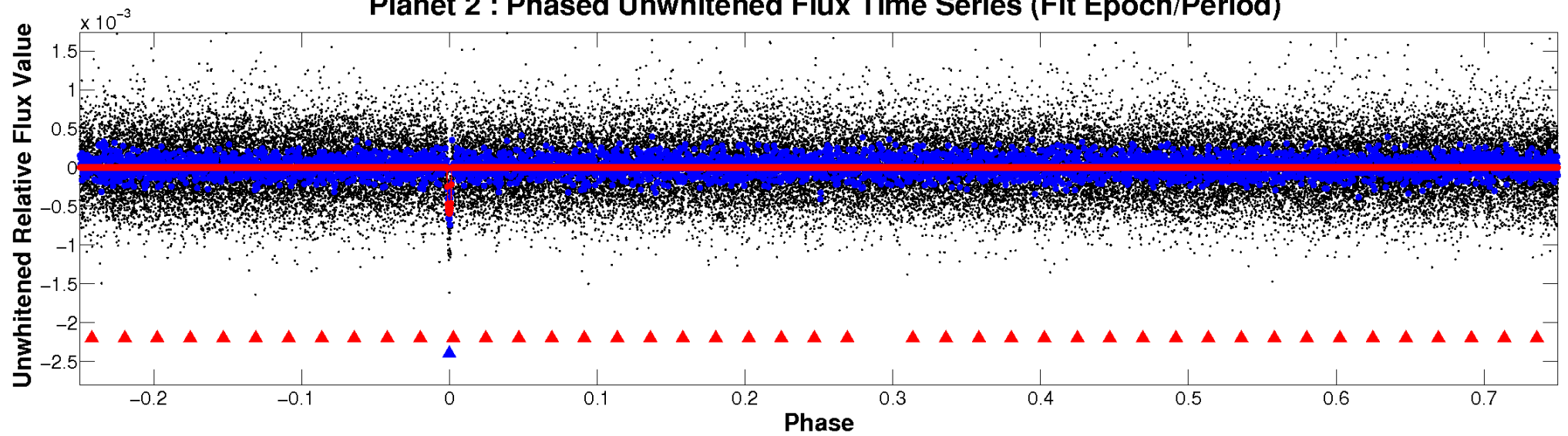
ALT Odd/Even

TCE 011018648-02

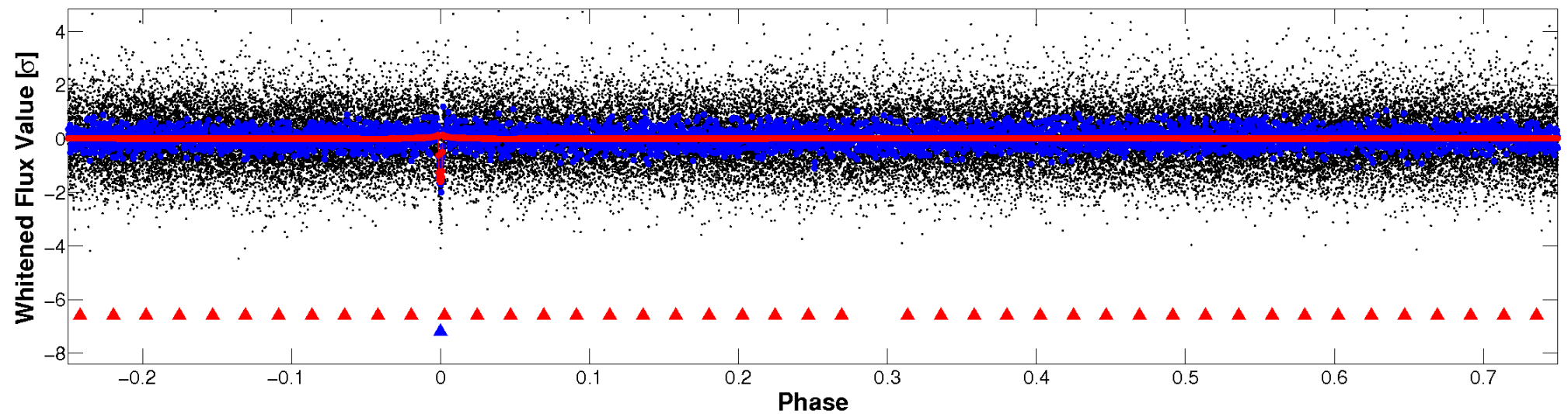


Non-Whitened Vs. Whitened Light Curve

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

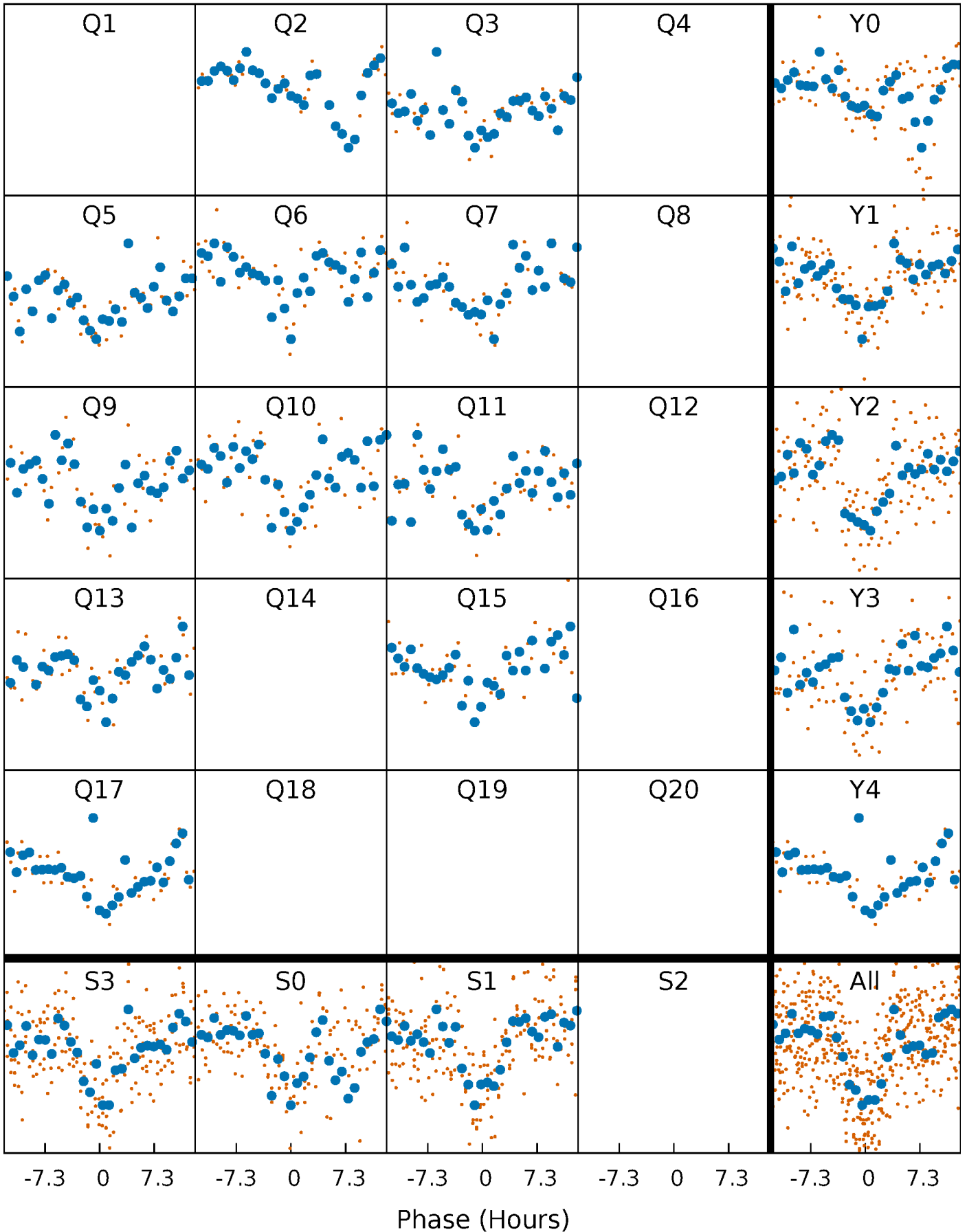


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



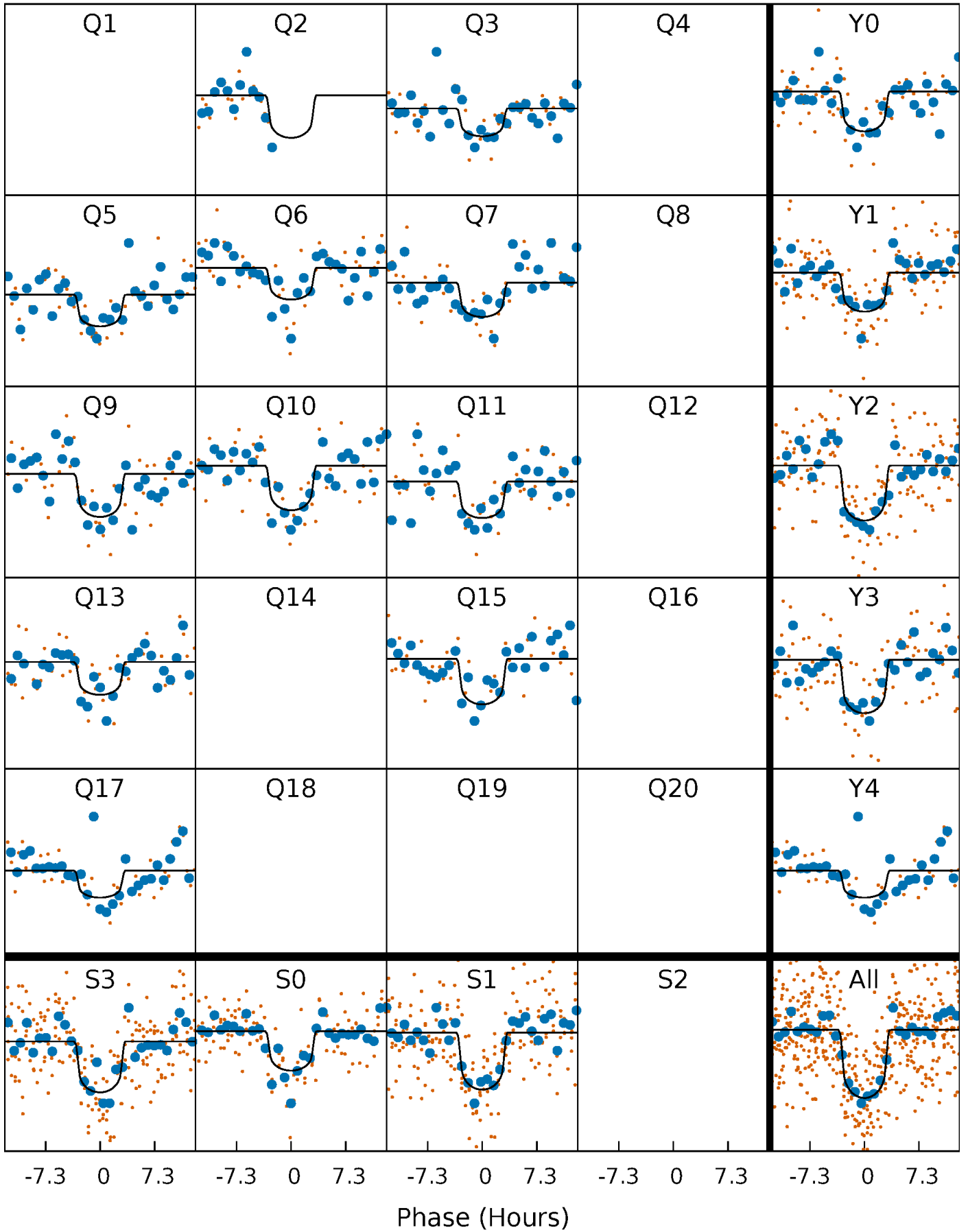
PDC Quarter-Phased Transit Curves

TCE 011018648-02 P= 91.772588 Days $T_0=193.840096$ (BKJD)



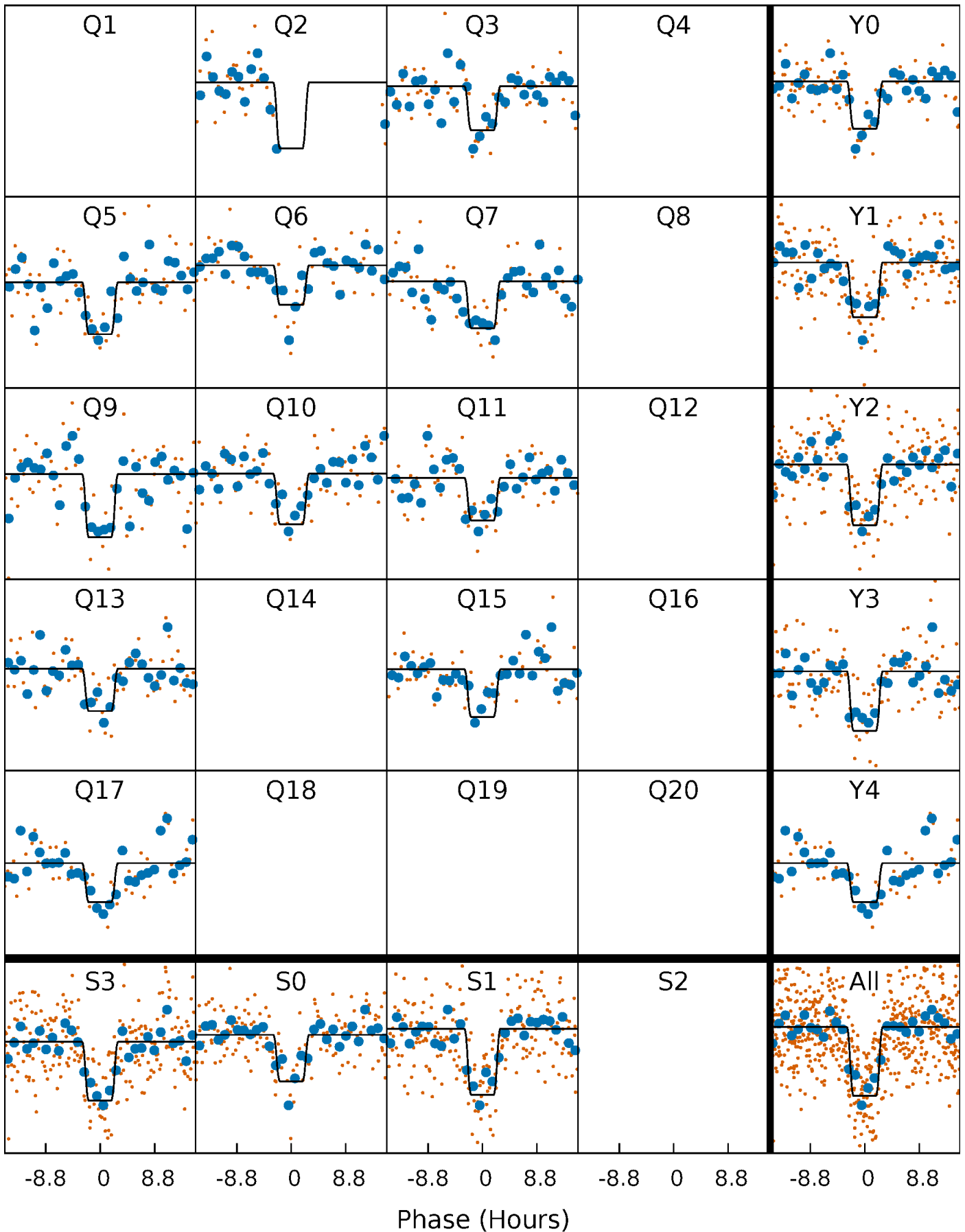
DV Quarter-Phased Transit Curves

TCE 011018648-02 P= 91.772588 Days $T_0=193.840096$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

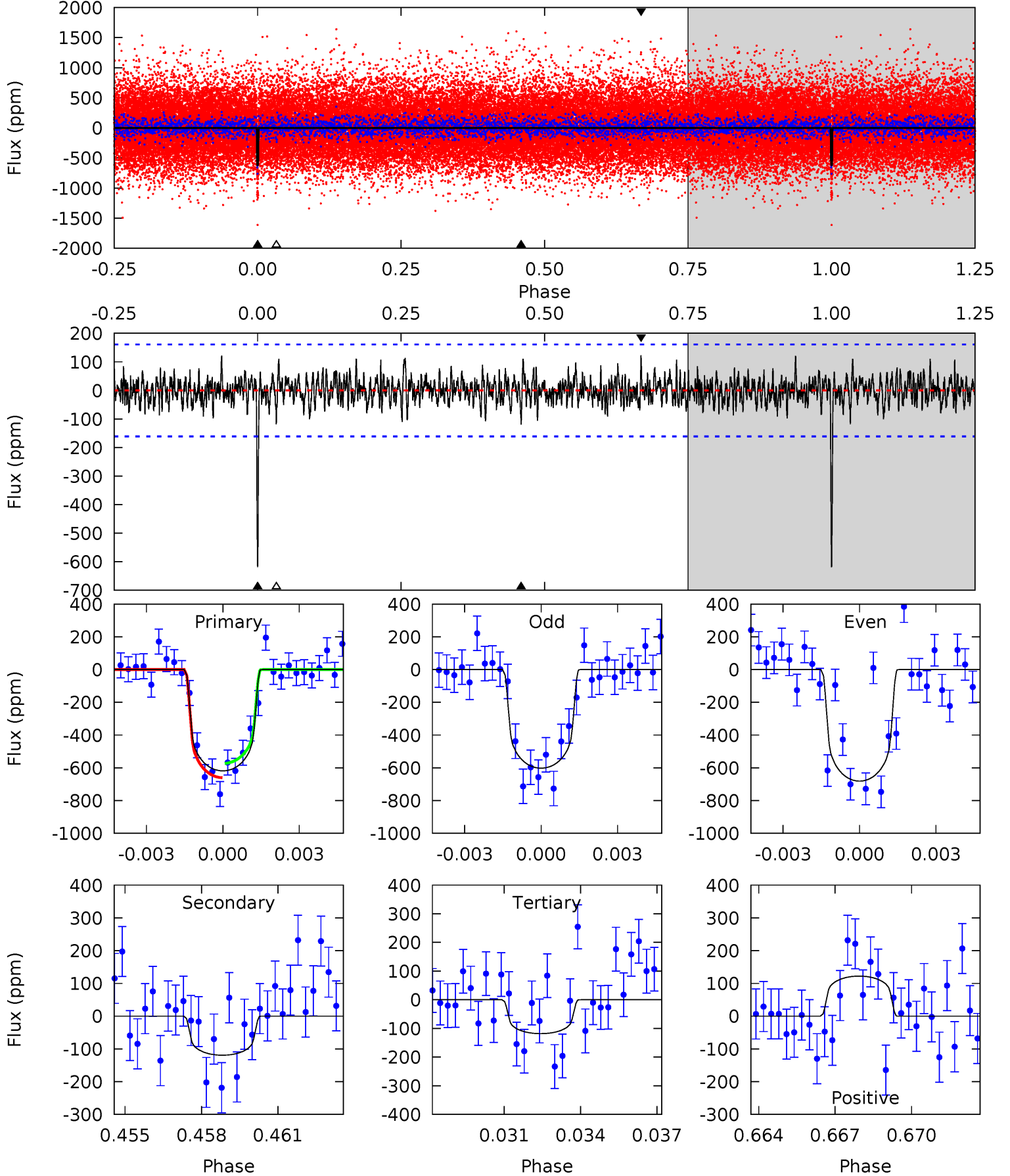
TCE 011018648-02 P= 91.773158 Days $T_0=193.836051$ (BKJD)



DV Model-Shift Uniqueness Test

011018648-02, $P = 91.772588$ Days, $E = 102.067508$ Days

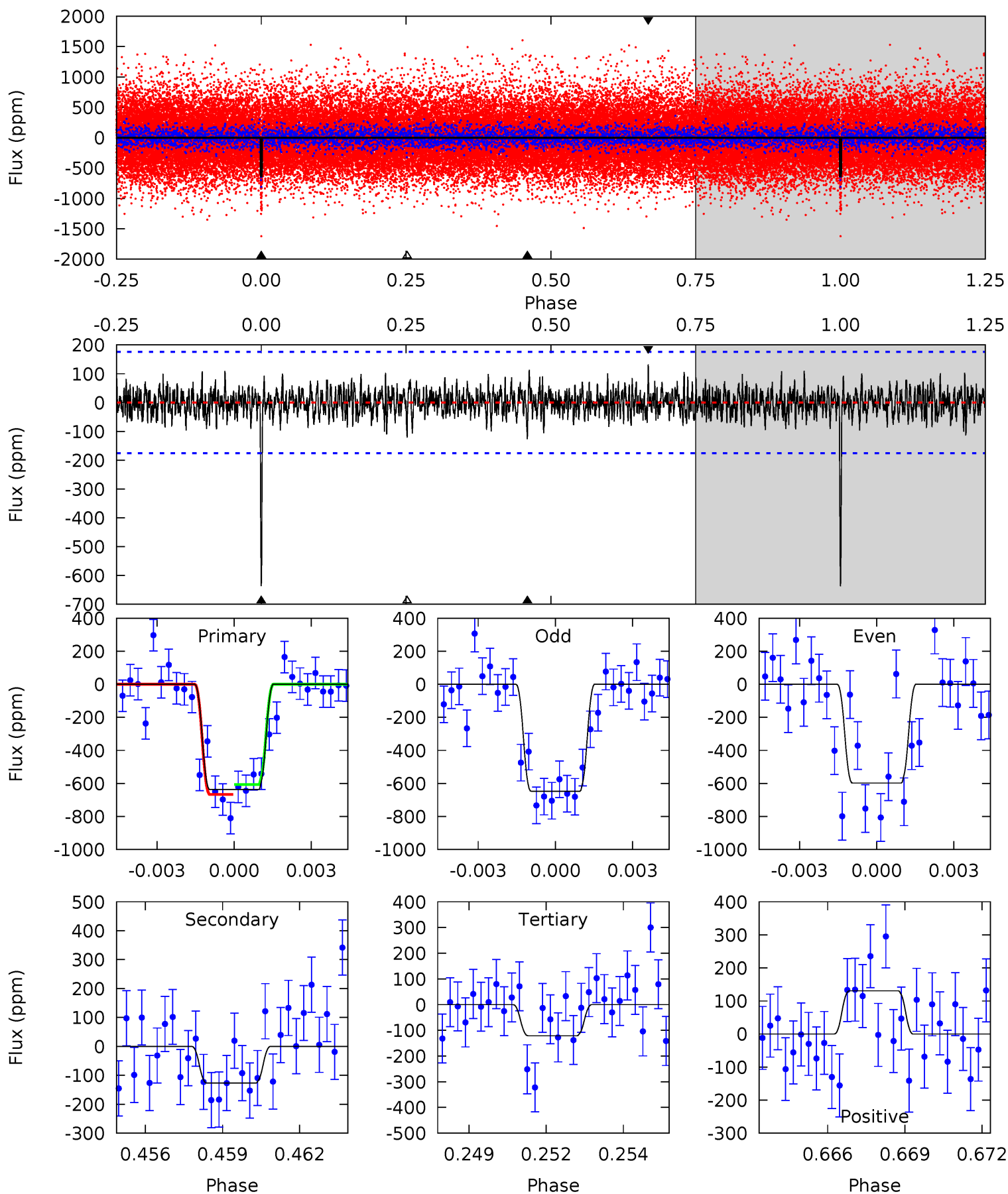
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	3.89	3.86	3.99	5.25	2.96	1.16	16.3	16.2	0.03	-0.09	1.05	1.00	0.16	1.42



Alt Model-Shift Uniqueness Test

011018648-02, P = 91.773158 Days, E = 102.062893 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	3.81	3.64	3.92	5.28	3.01	1.06	15.5	15.2	0.17	-0.11	0.61	0.99	0.17	0.90



Stellar Parameters For KIC 011018648

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5586^{+152}_{-152}	$4.560^{+0.050}_{-0.150}$	$-0.300^{+0.300}_{-0.300}$	$0.798^{+0.181}_{-0.077}$	$0.844^{+0.097}_{-0.078}$	$2.342^{+0.478}_{-1.002}$
	+3%/-3%	+1%/-3%	+100%/-100%	+23%/-10%	+11%/-9%	+20%/-43%
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 011018648-02 / KOI 0759.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-119 ± 31	$2.21^{+0.76}_{-0.75}$	508^{+29}_{-20}	3999^{+691}_{-417}	1840^{+2347}_{-874}
Alt.	-127 ± 33	$2.40^{+0.75}_{-0.68}$	510^{+27}_{-22}	3958^{+541}_{-384}	1701^{+1667}_{-767}

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 $A_{obs} \gg 1.0$

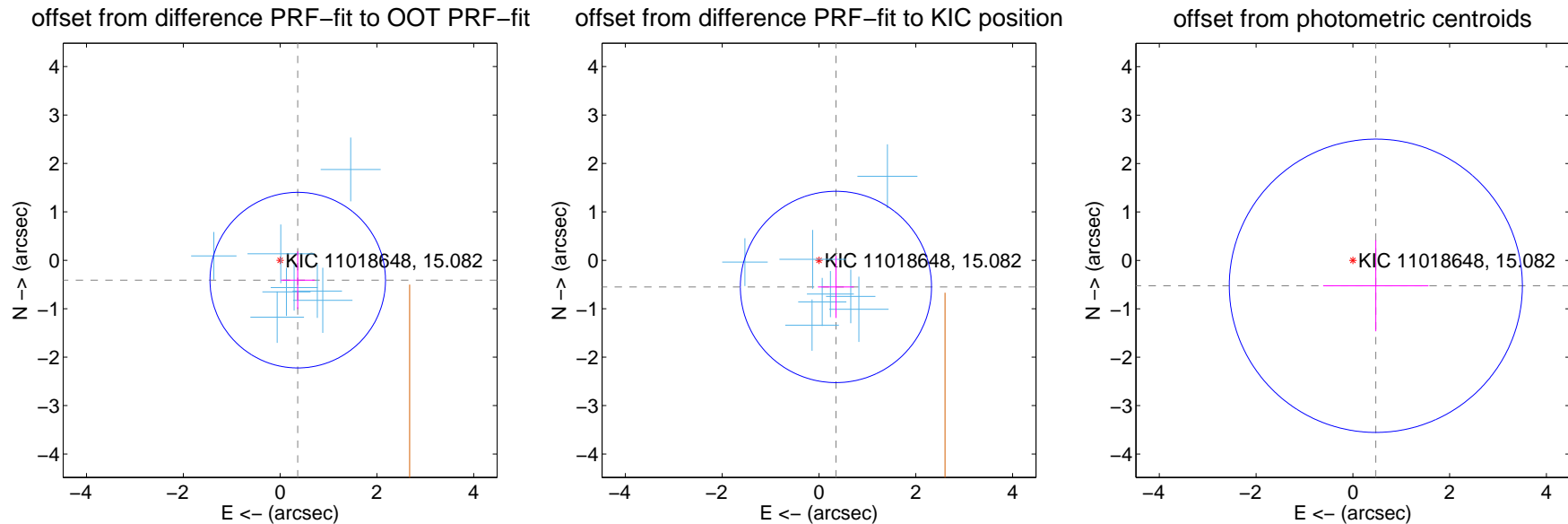
DV Centroid Data

Supplemental centroid analysis for 011018648-02. Kepler magnitude: 15.08. Transit SNR 15.39

There are 8 quarters with good PRF difference image offsets

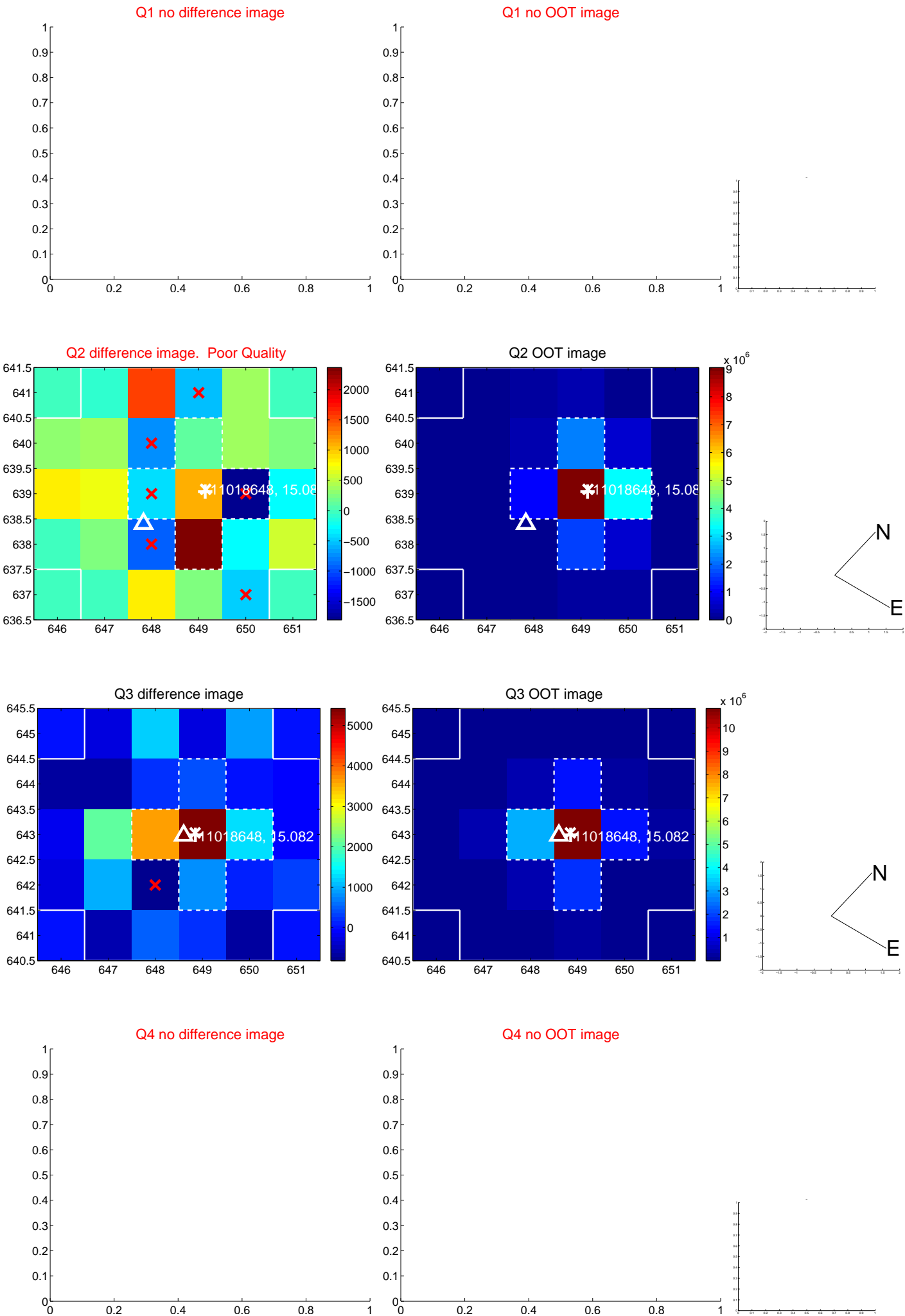
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.549 ± 0.604	0.91	-0.365 ± 0.349	-0.410 ± 0.594
PRF-fit source offset from KIC position	0.652 ± 0.658	0.99	-0.350 ± 0.373	-0.550 ± 0.642
photometric centroid source offset	0.71 ± 1.01	0.70	-0.47 ± 1.09	-0.52 ± 0.94

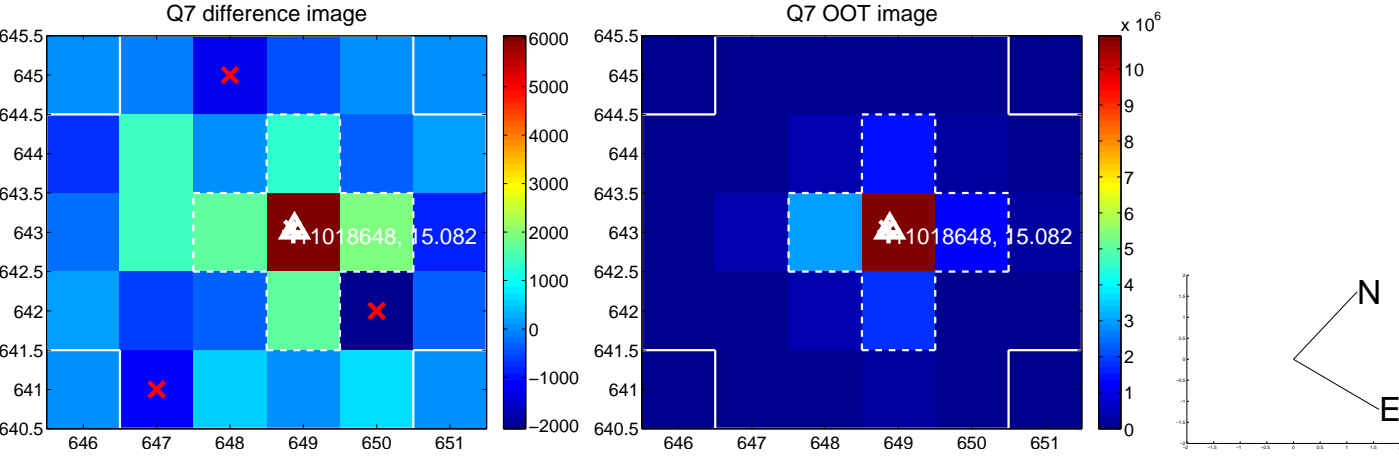
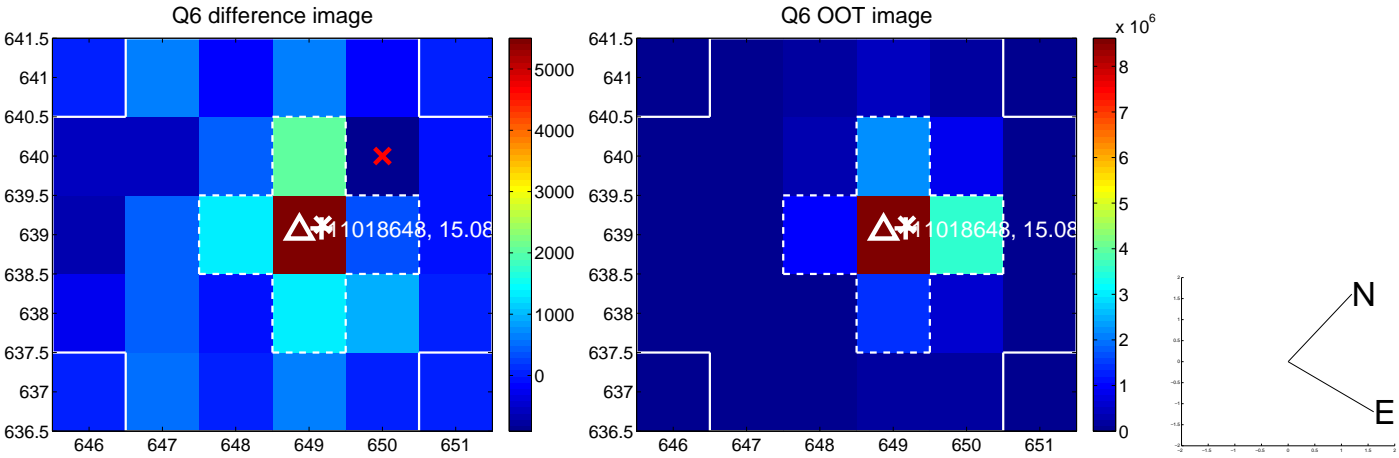
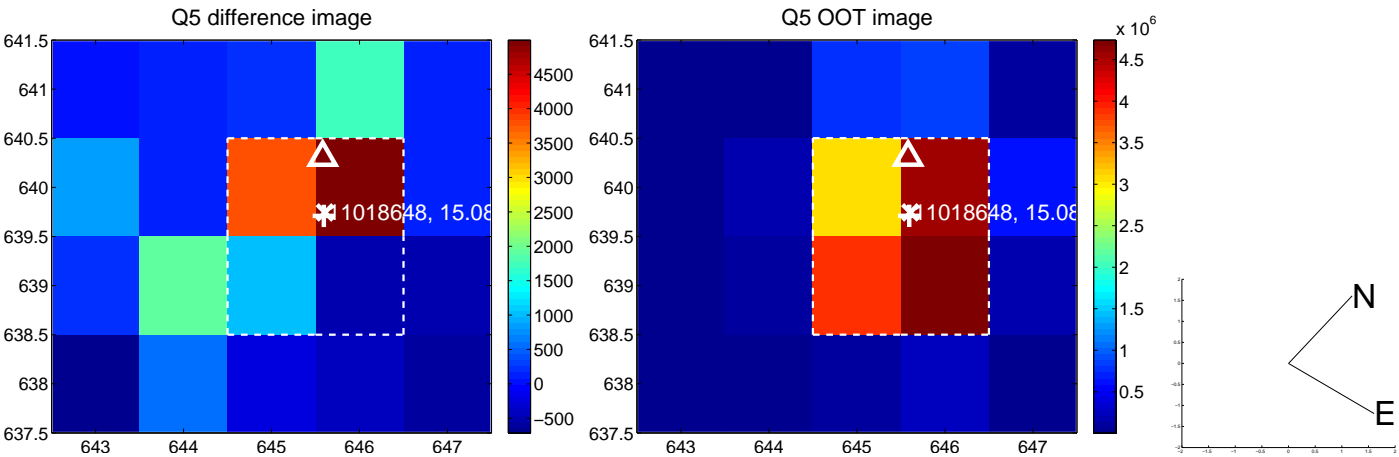


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

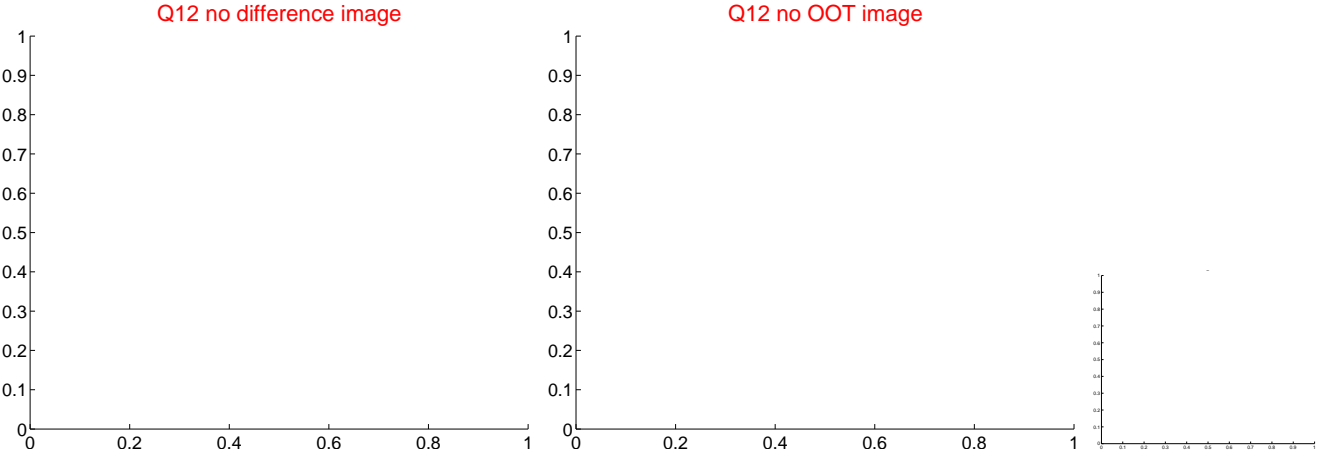
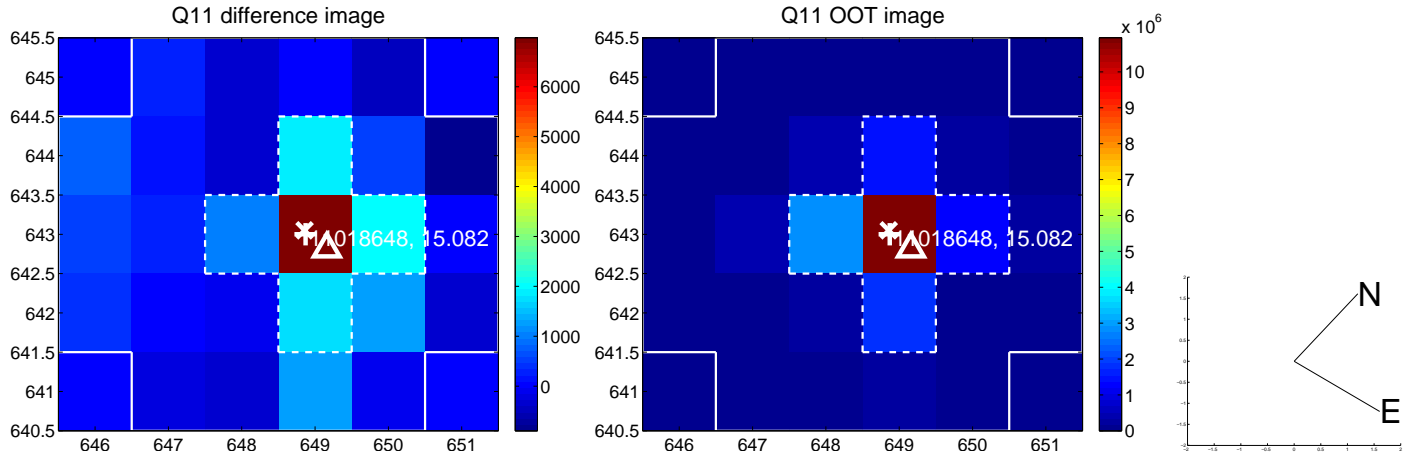
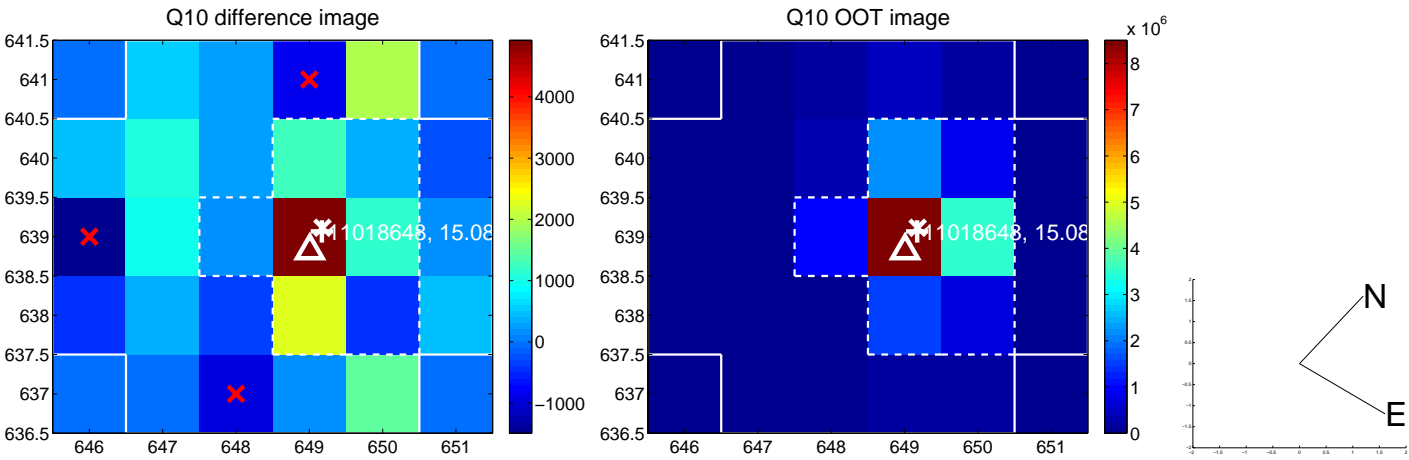
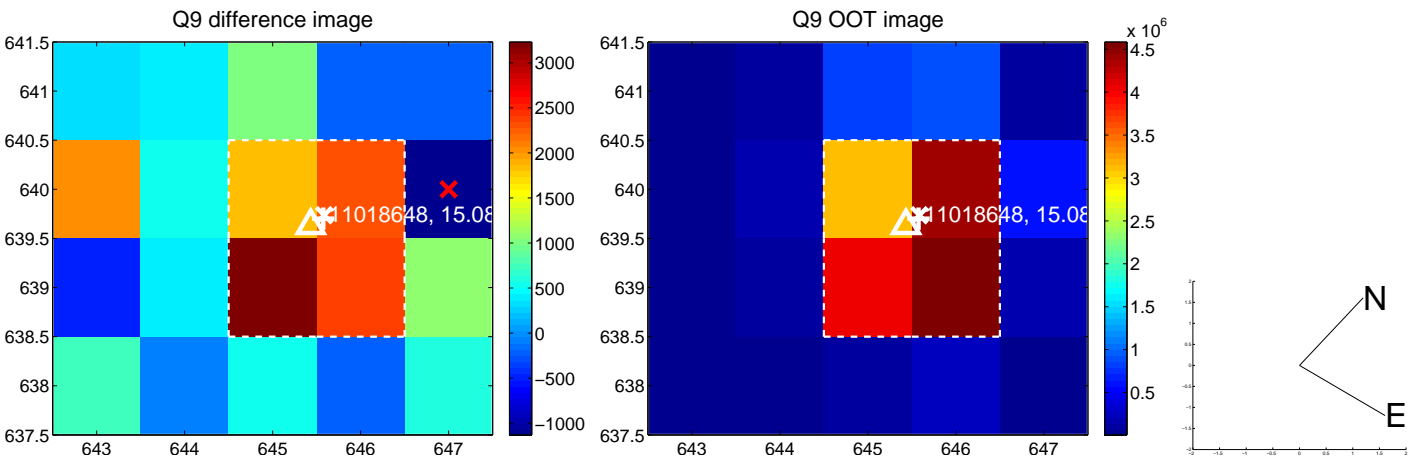
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



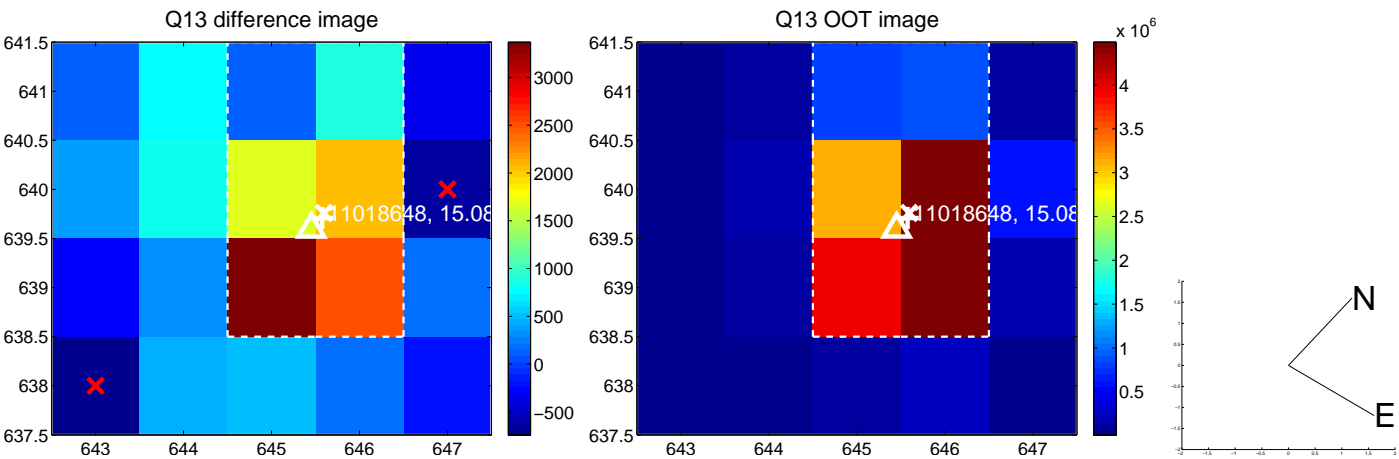
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



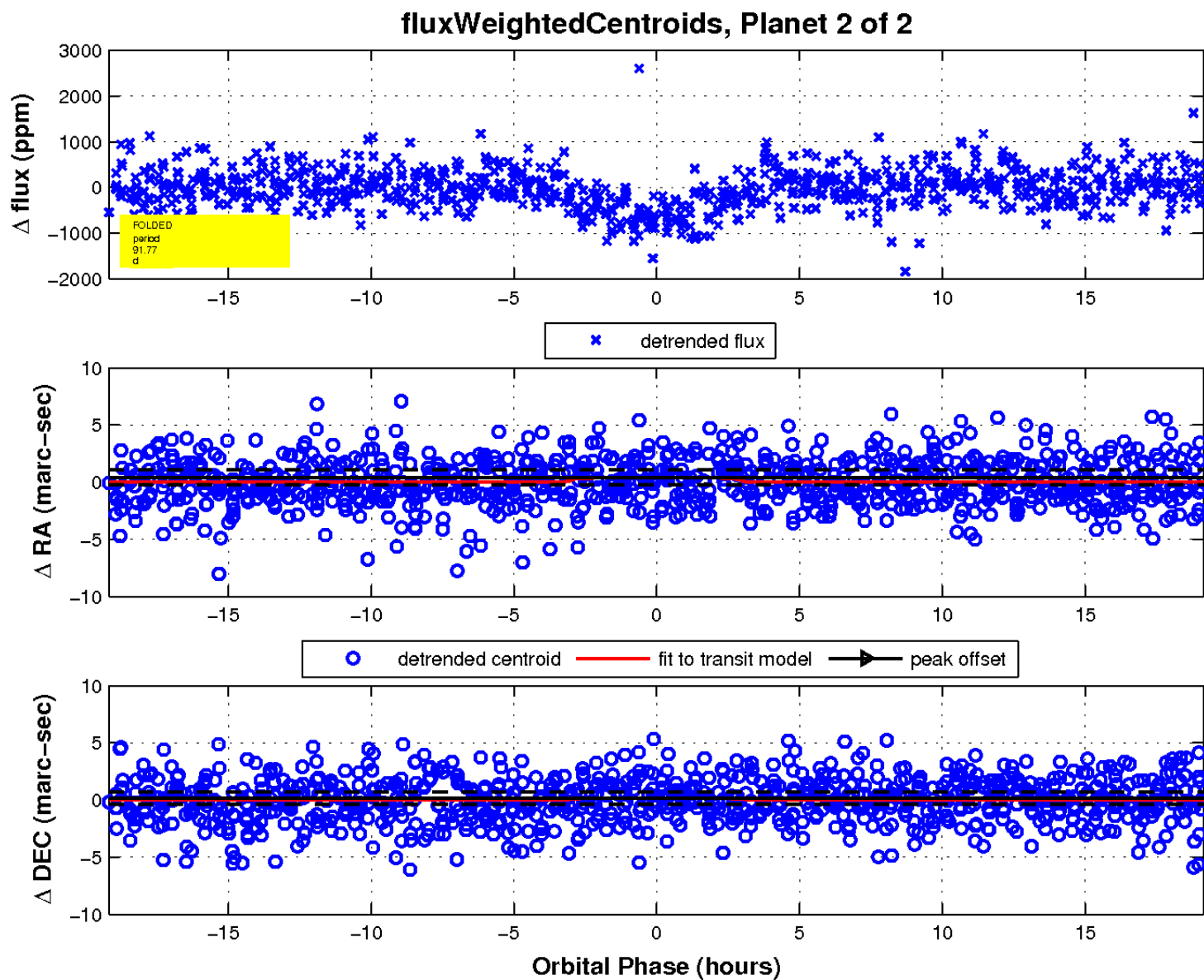
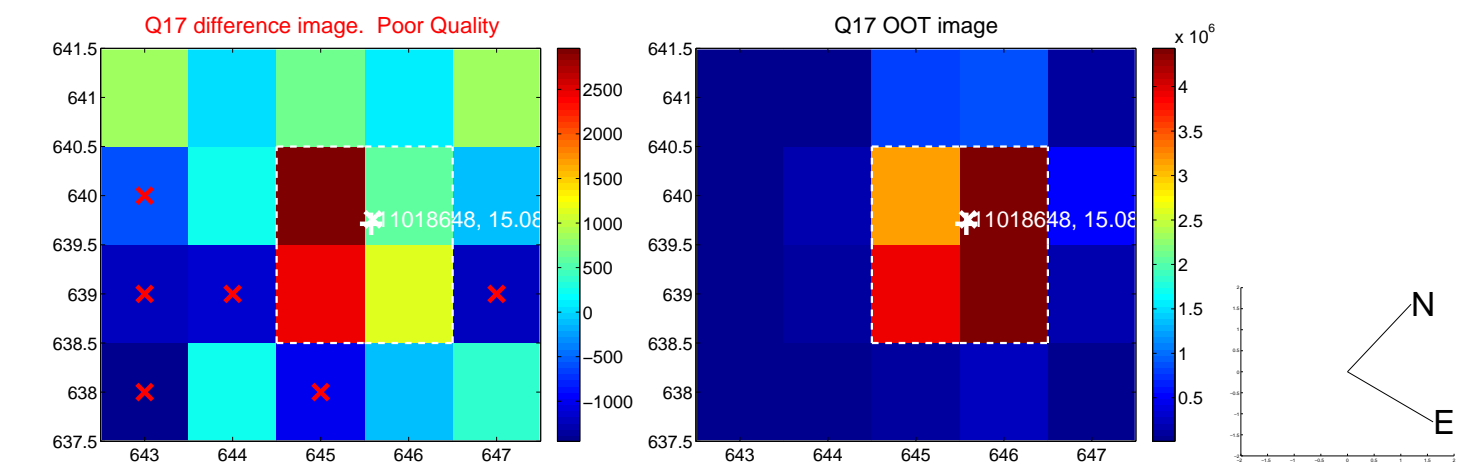
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

