

KIC 004931073

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})
004931073-01	OBS	6473.01	26.951195	150.924637	82743.2	8.614	4129.8	1696.1	2.75	6675	133.59	324.96
004931073-02	OBS	No	26.951264	157.584426	59789.3	7.321	2668.6	2232.8	2.75	6675	113.97	324.96
004931073-03	OBS	No	1.160205	132.588107	30.5	3.030	13.4	9.7	2.75	6675	1.72	21539.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004931073-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004931073-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004931073-03	OBS	FP	0.00	1	0	0	0	LPP_DV

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.

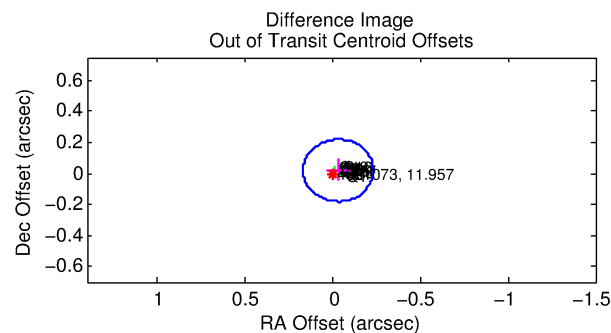
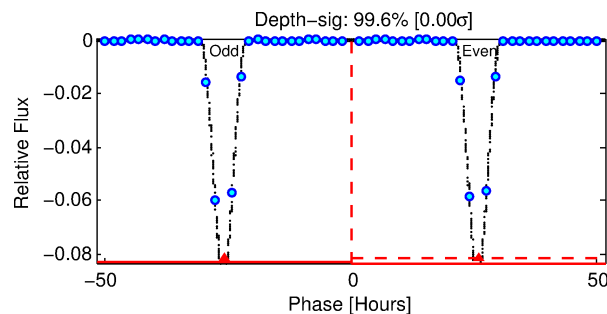
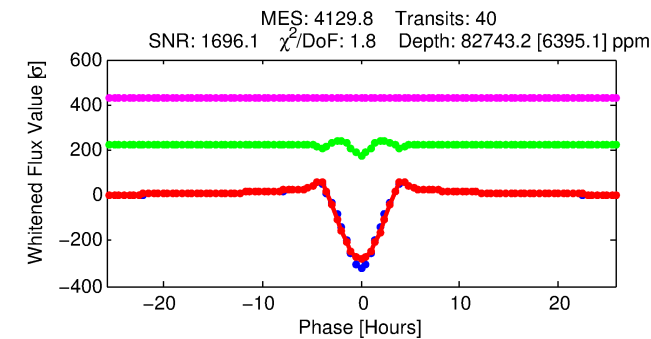
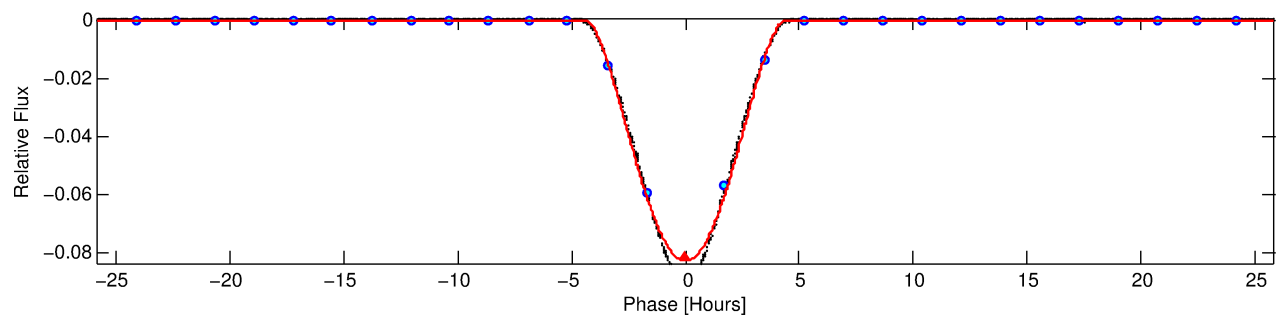
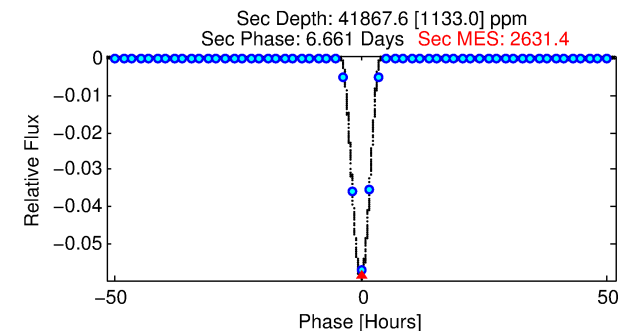
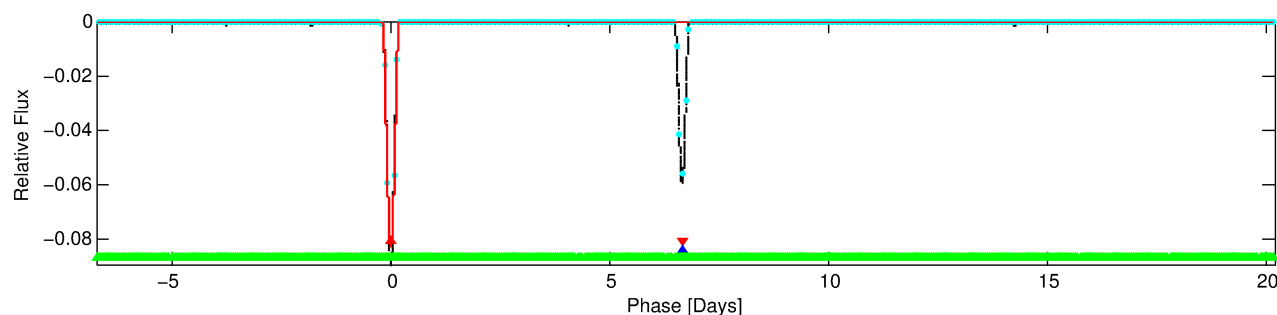
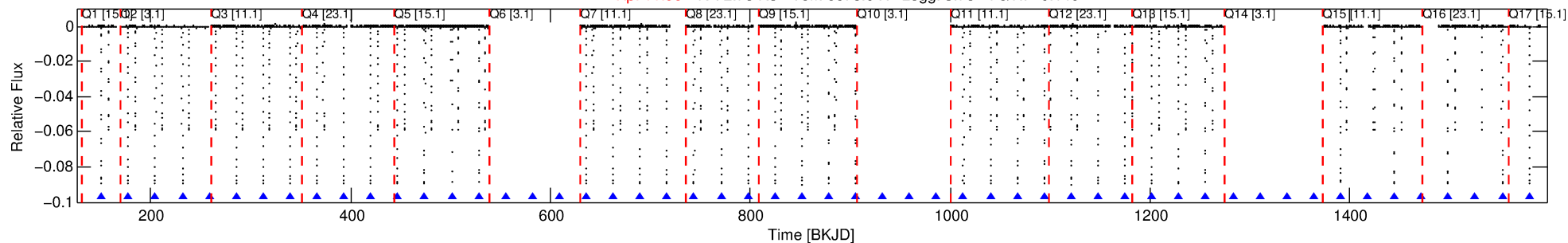
Ephemeris Match Information For 004931073-01

No Significant Match Found

DV One-Page Summary

KIC: 4931073 Candidate: 1 of 3 Period: 26.951 d
KOI: K06473.01 Corr: 0.979

Kp: 11.96 R*: 2.75 Rs Teff: 6675.0 K Logg: 3.75 Fe/H: -0.140



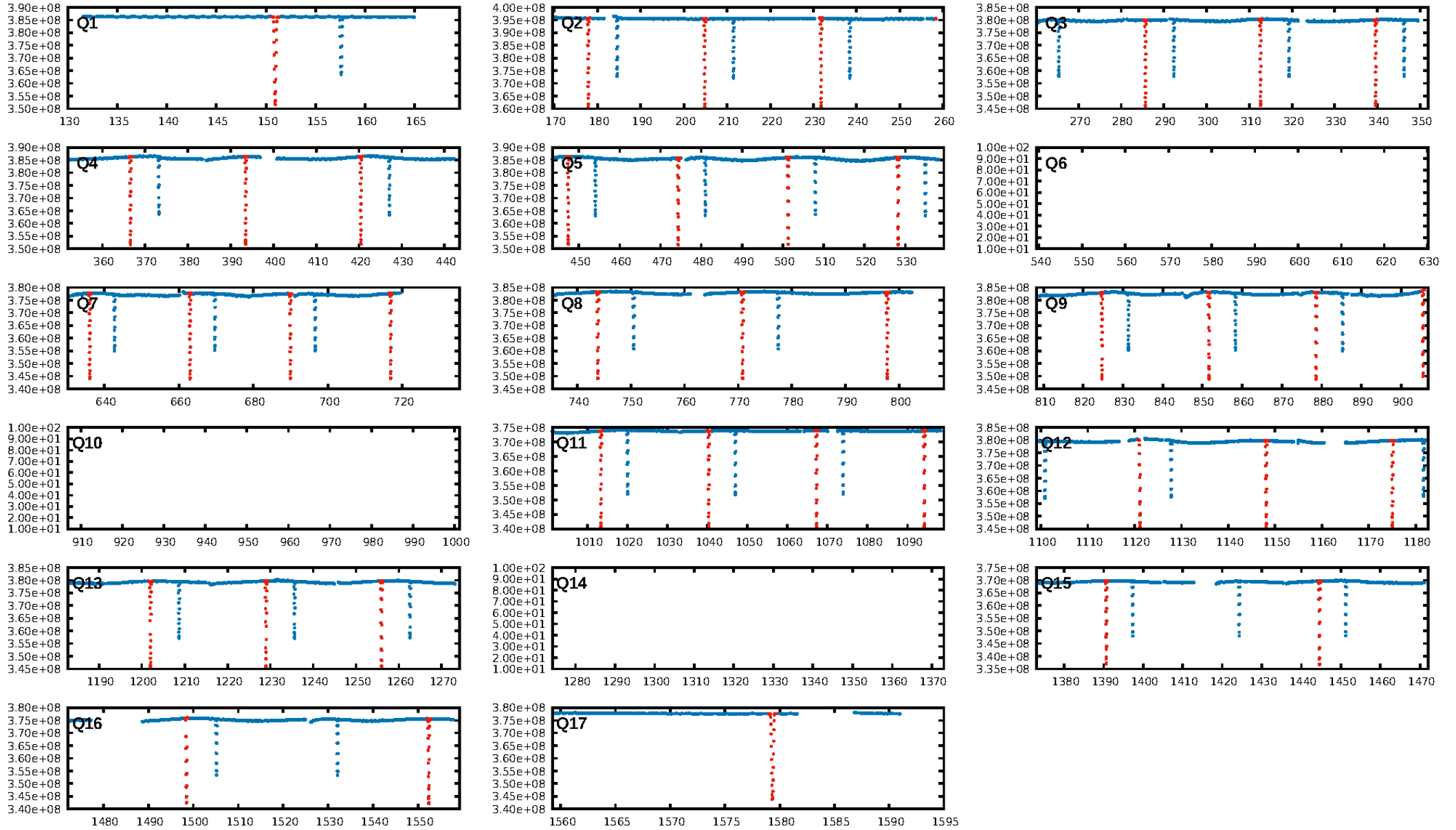
DV Fit Results:

Period = 26.95120 [0.00000] d
Epoch = 150.9246 [0.0001] BKJD
Rp/R* = 0.4457 [0.0237]
a/R* = 24.98 [0.06]
b = 1.00 [0.01]
Seff = 324.96 [163.88]
Teq = 1083 [136] K
Rp = 133.59 [44.72] Re
a = 0.2032 [0.0631] AU
Ag = 53.31 [26.76] [1.95σ]
Teffp = 4523 [184] K [15.0σ]

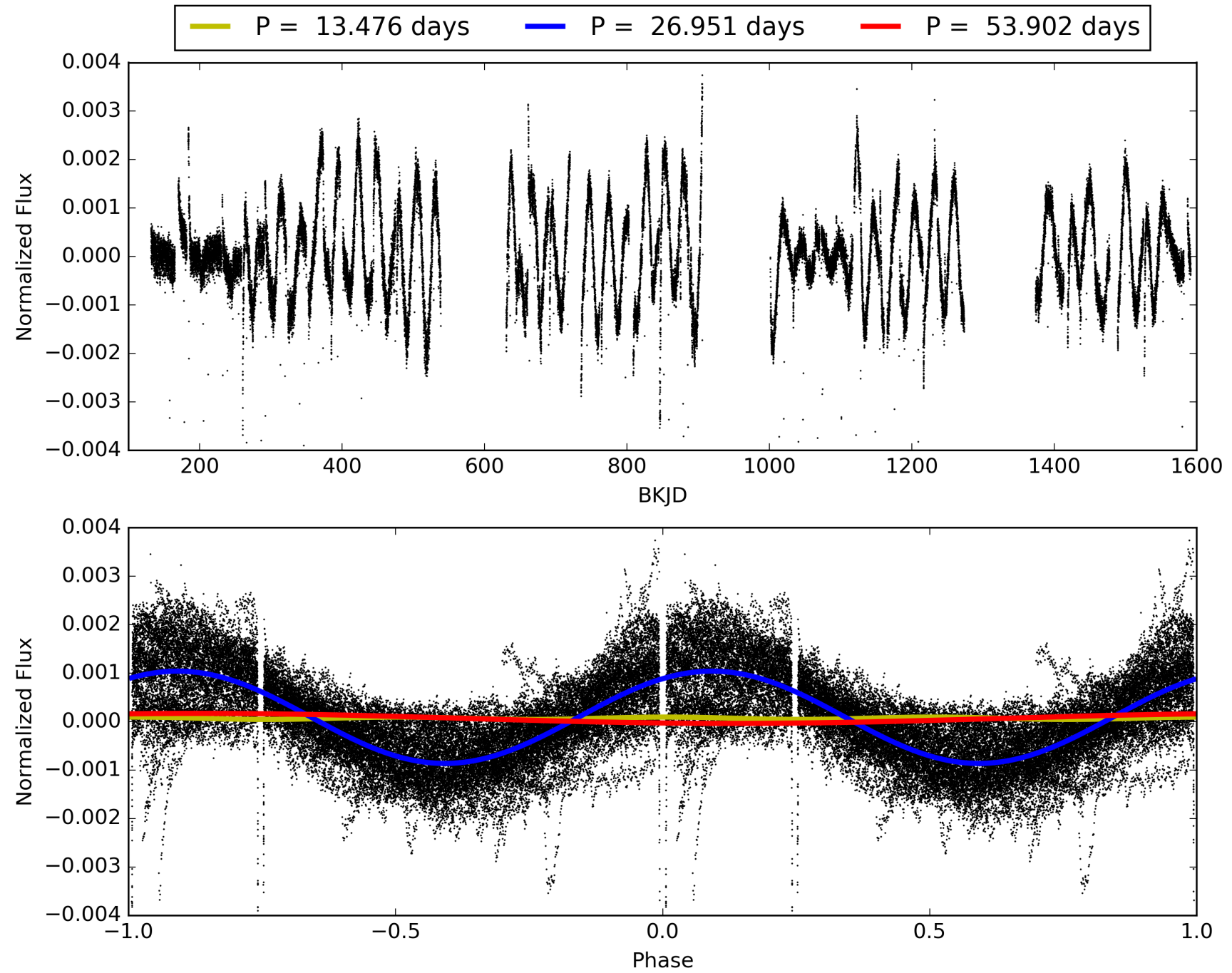
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [67.78σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [38/38]
GhostDiagnostic-chr: 2.562
Centroid-sig: 0.0%
Centroid-so: 0.099 arcsec [126.72σ]
OotOffset-rm: 0.037 arcsec [0.56σ]
KicOffset-rm: 0.111 arcsec [1.65σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 004931073-01, PDC Light Curves

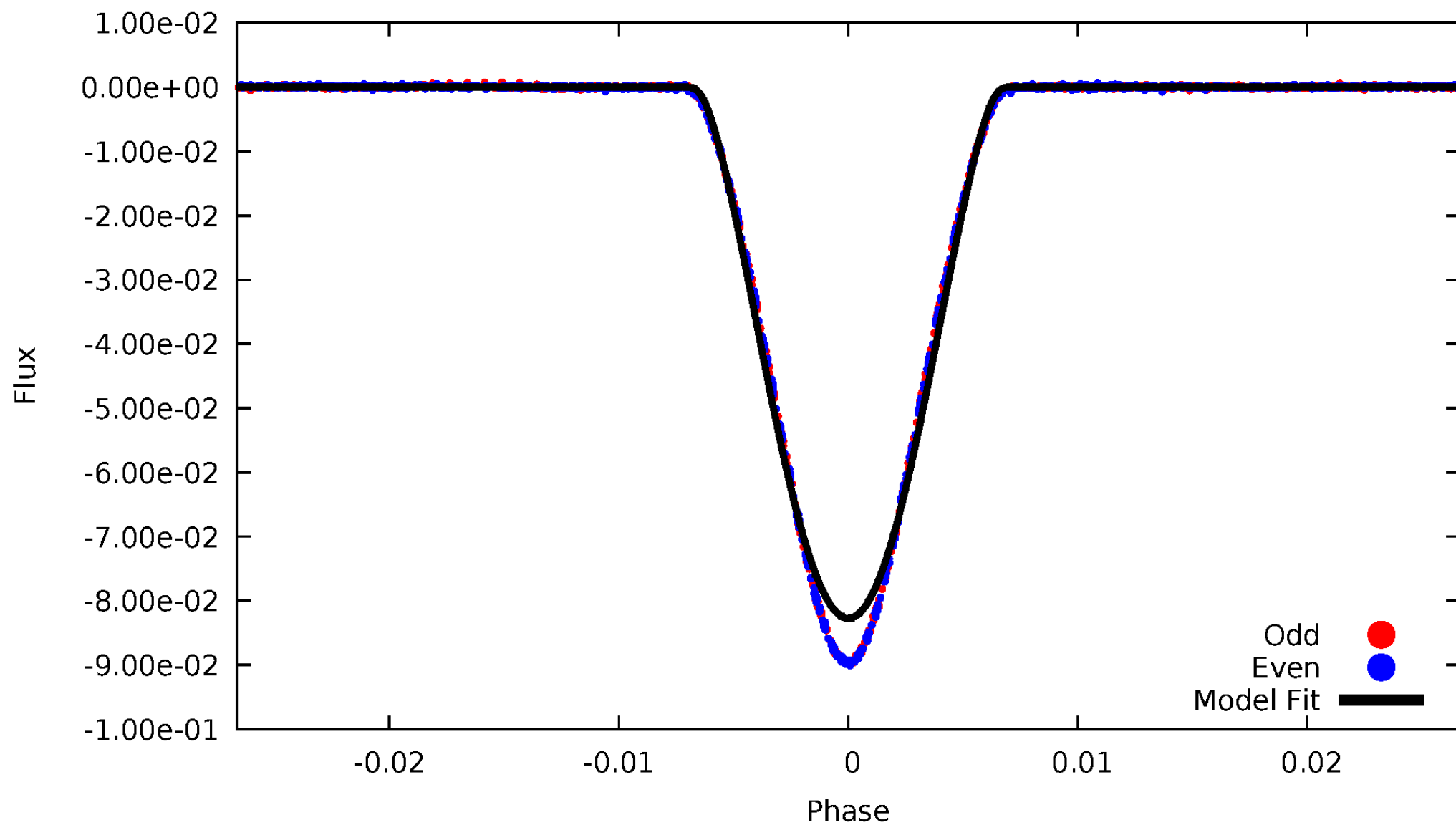


TCE 004931073-01



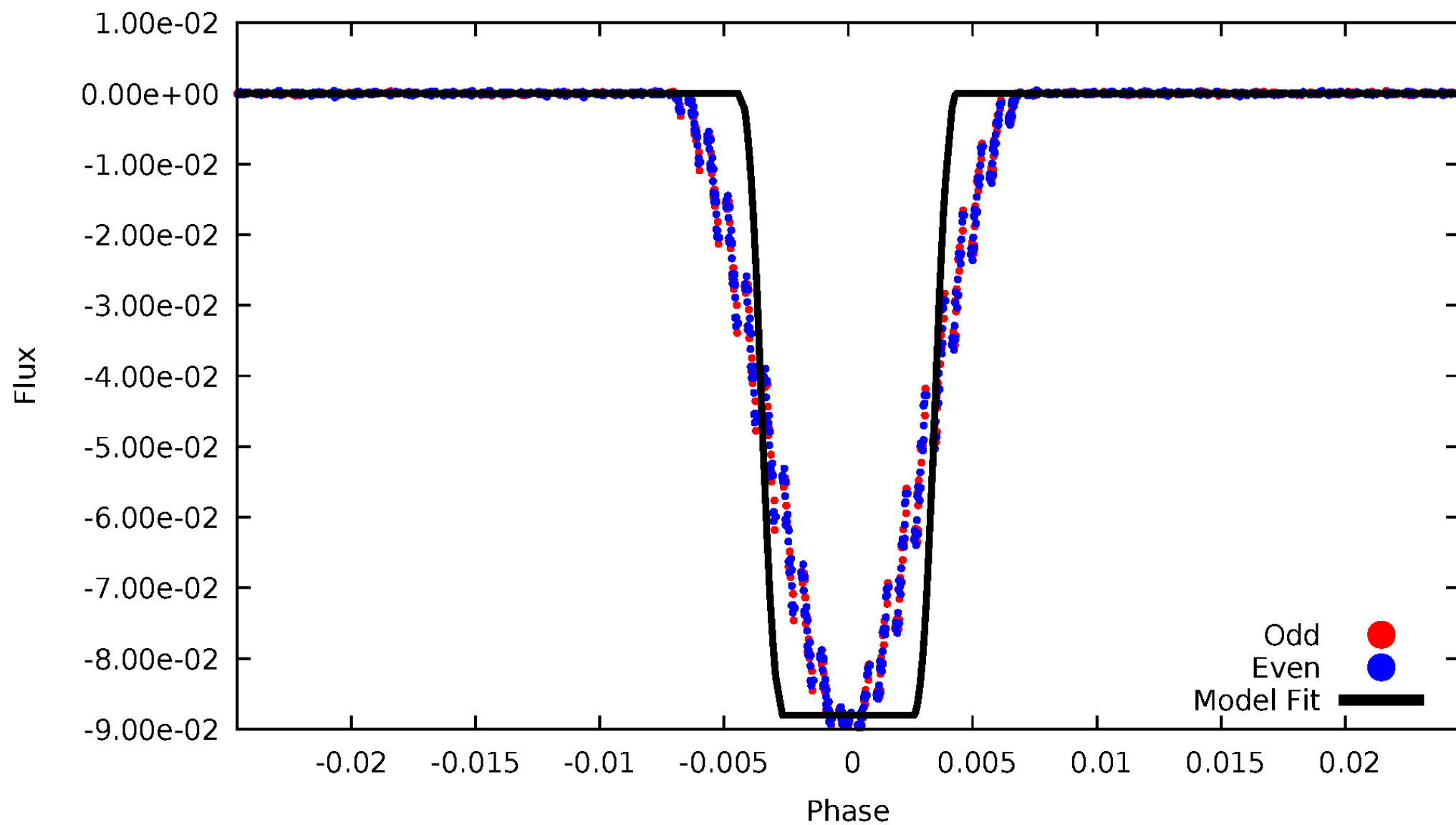
DV Odd/Even

TCE 004931073-01



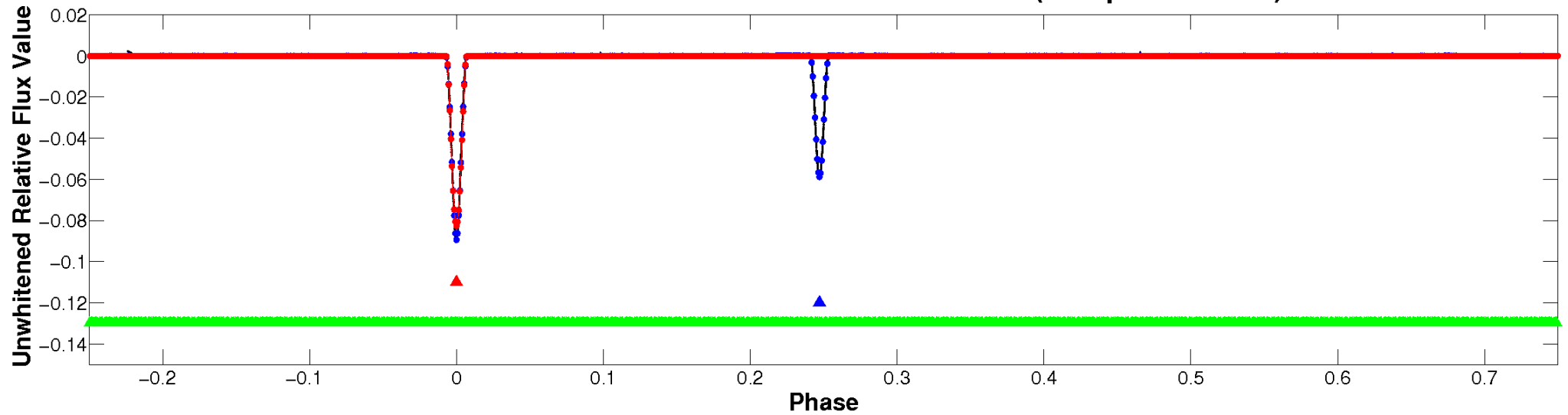
ALT Odd/Even

TCE 004931073-01

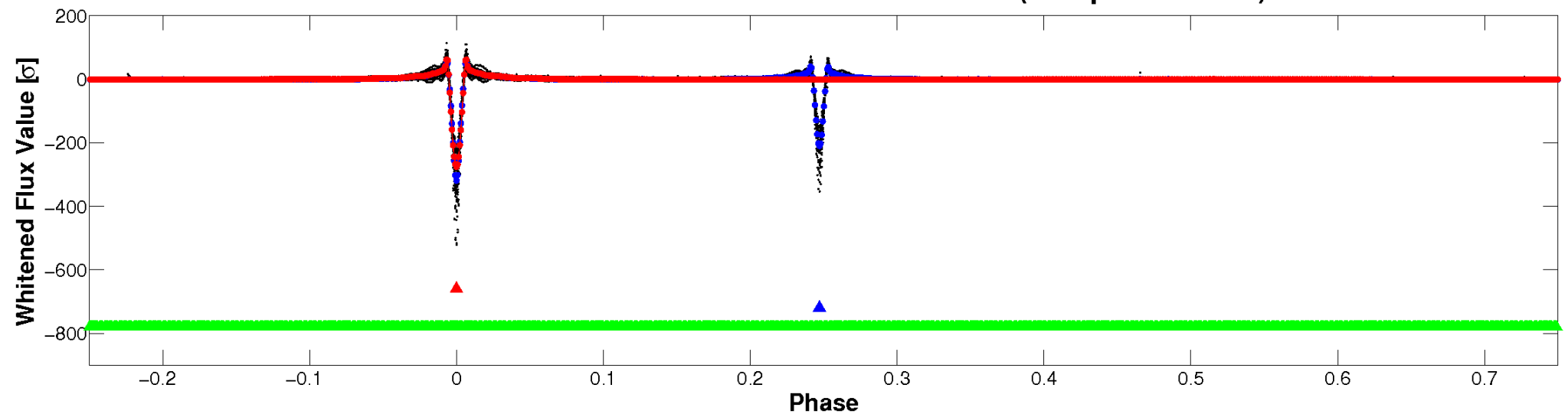


Non-Whitened Vs. Whitened Light Curve

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

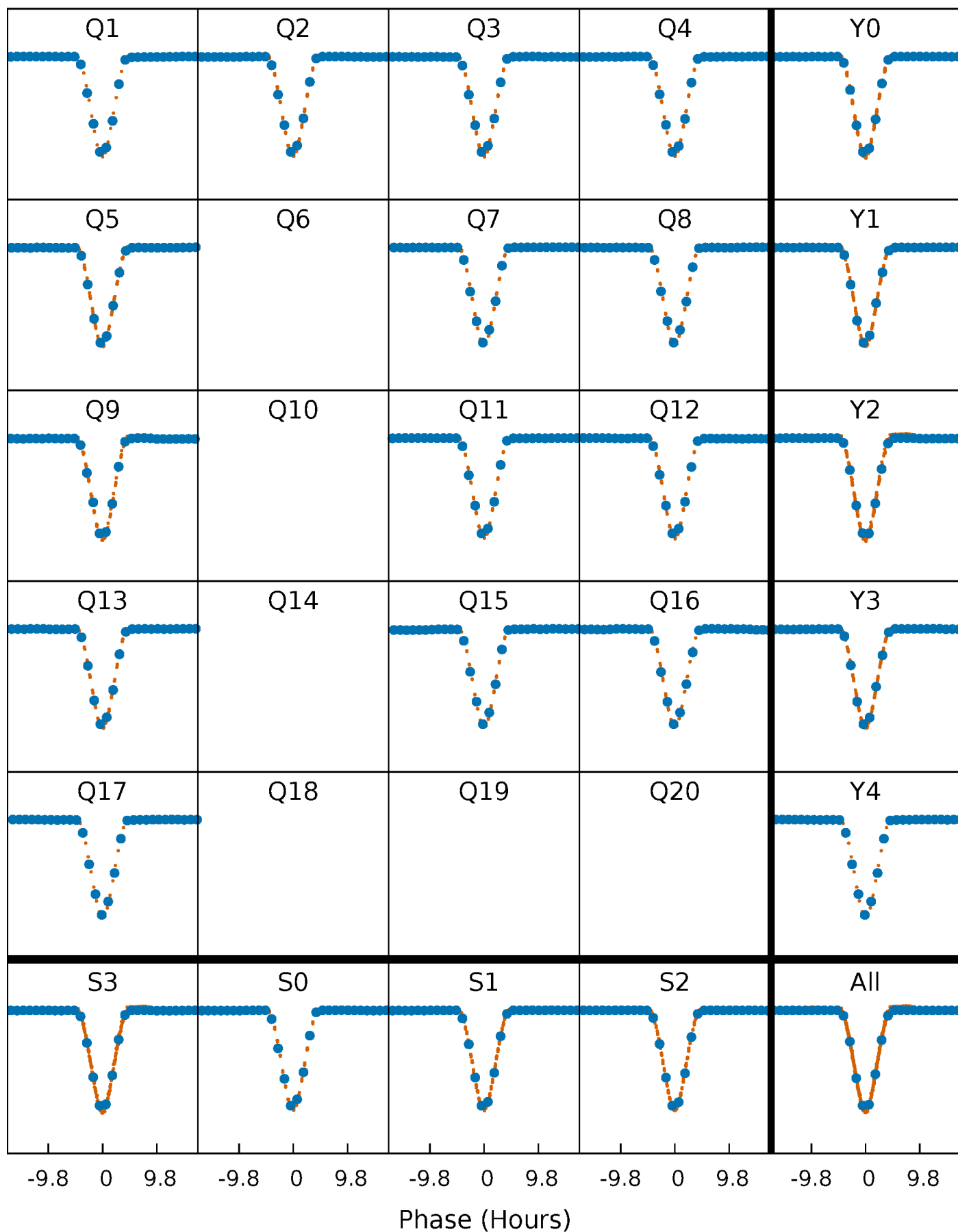


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



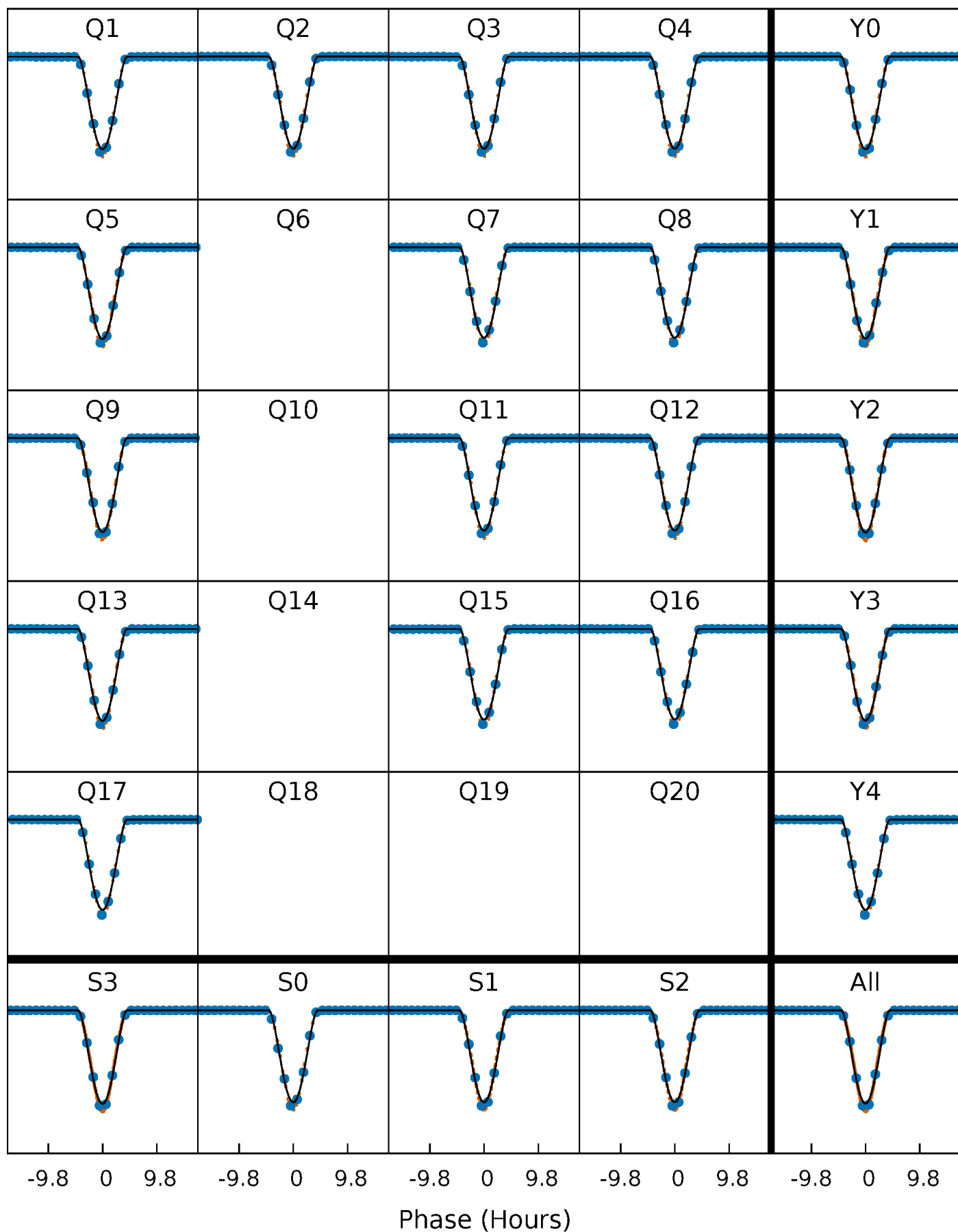
PDC Quarter-Phased Transit Curves

TCE 004931073-01 P= 26.951195 Days $T_0=150.924637$ (BKJD)



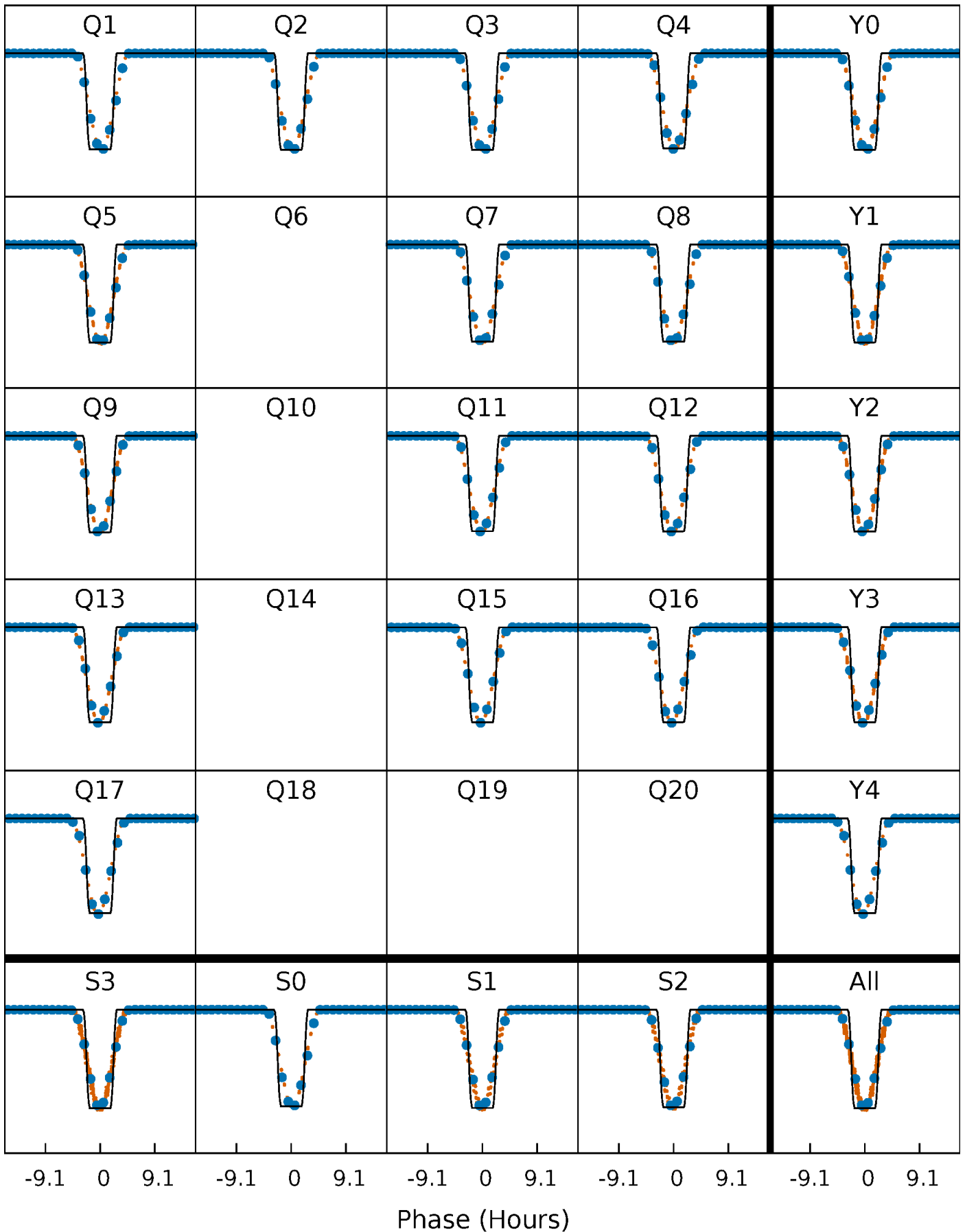
DV Quarter-Phased Transit Curves

TCE 004931073-01 P= 26.951195 Days $T_0=150.924637$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

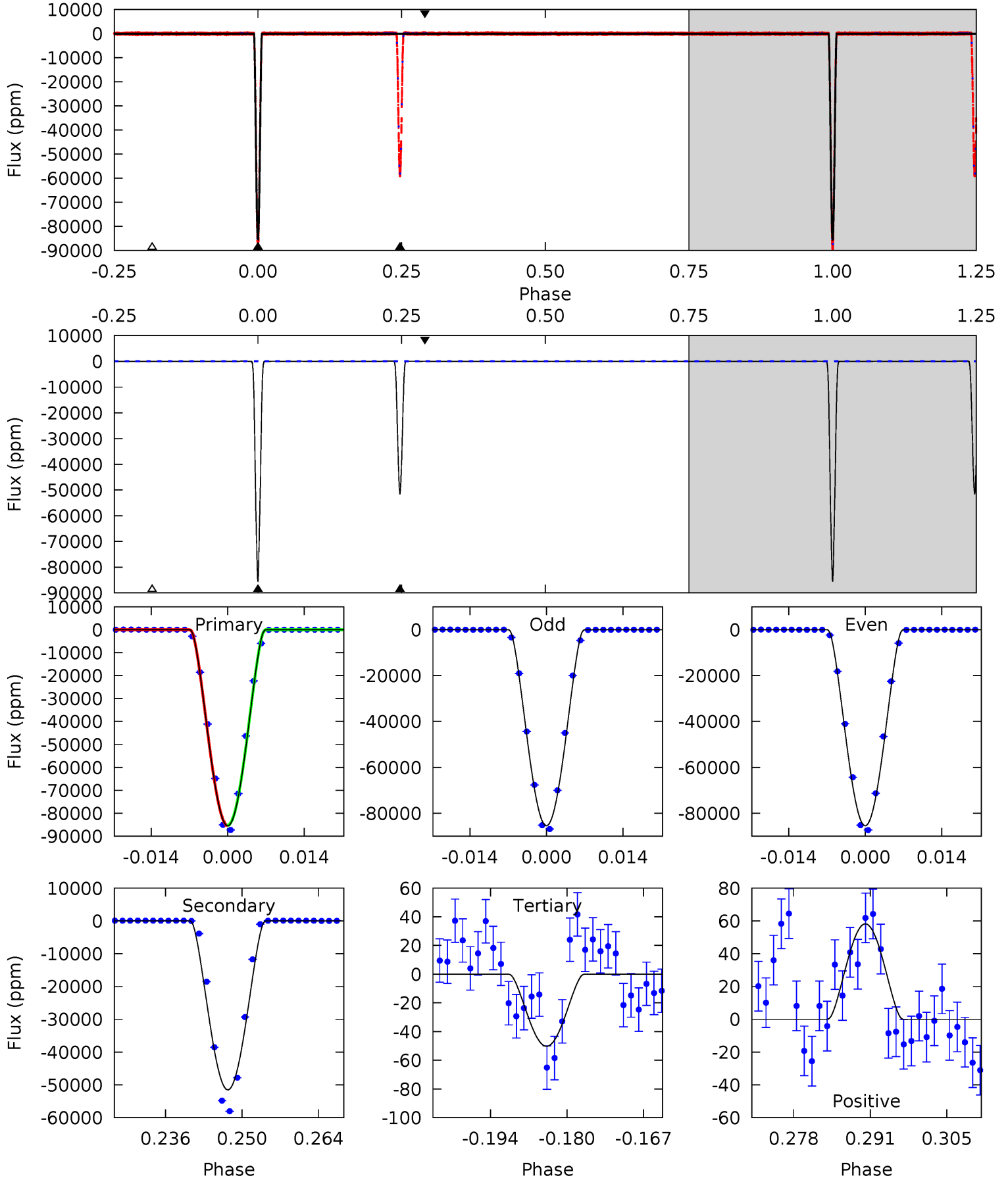
TCE 004931073-01 P= 26.951673 Days $T_0=150.912899$ (BKJD)



DV Model-Shift Uniqueness Test

004931073-01, P = 26.951195 Days, E = 123.973442 Days

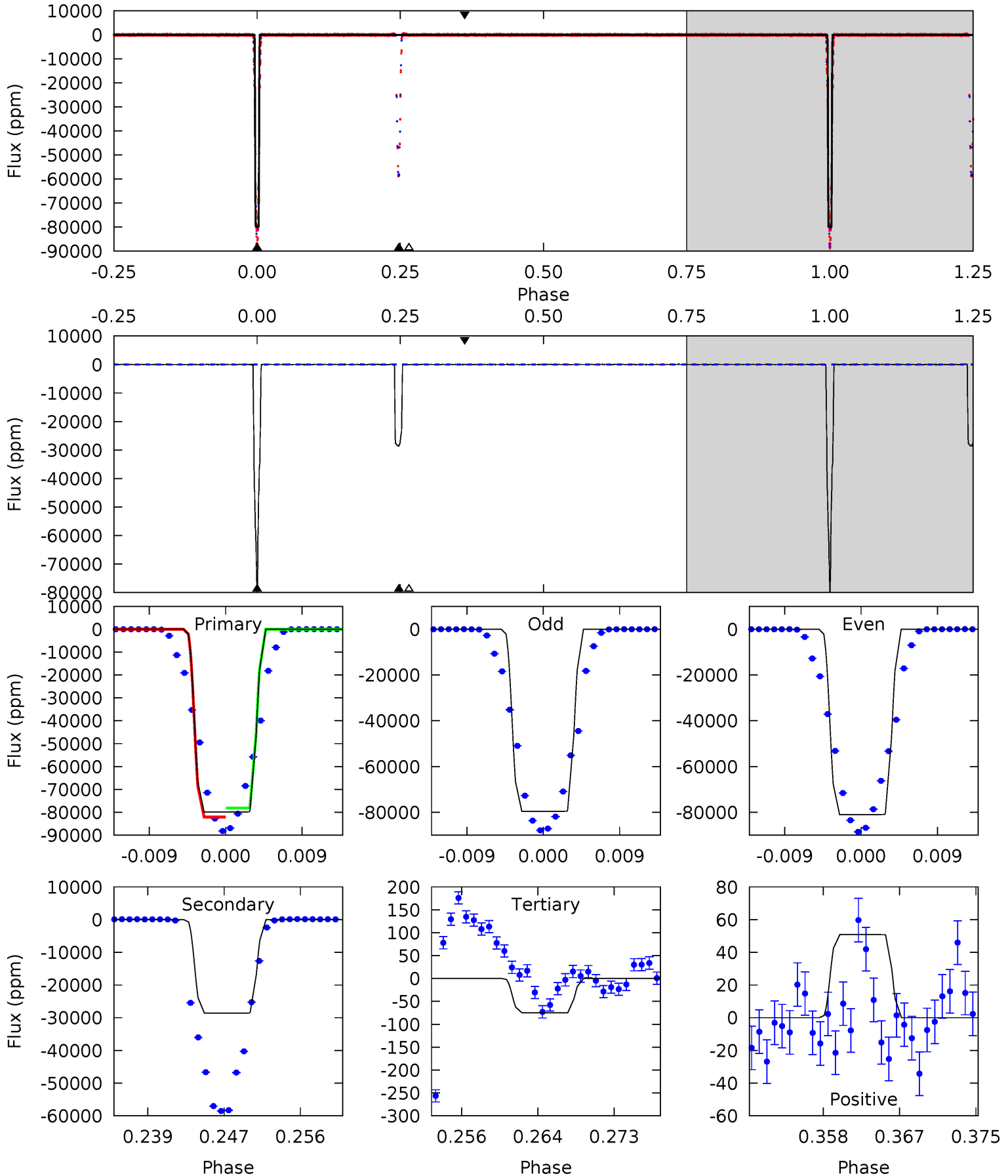
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13879	8366	8.16	9.45	4.96	2.46	3.54	13871	13870	8358	8357	1.54	1.00	0.00	0.57



Alt Model-Shift Uniqueness Test

004931073-01, P = 26.951673 Days, E = 123.961226 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6554	2345	6.17	4.17	5.06	2.63	1.51	6548	6550	2339	2341	56.9	1.00	0.00	11.7



Stellar Parameters For KIC 004931073

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6675^{+160}_{-200}	$3.748^{+0.285}_{-0.095}$	$-0.140^{+0.300}_{-0.250}$	$2.747^{+0.489}_{-0.908}$	$1.540^{+0.238}_{-0.291}$	$0.105^{+0.210}_{-0.032}$
	+2%/-3%	+8%/-3%	+214%/-179%	+18%/-33%	+15%/-19%	+201%/-31%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004931073-01 / KOI 6473.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-51516 ± 6	$131.50^{+17.26}_{-22.47}$	1483^{+89}_{-121}	4900^{+159}_{-149}	74^{+29}_{-15}
Alt.	-28574 ± 12	$85.05^{+14.31}_{-15.07}$	1481^{+86}_{-124}	5127^{+208}_{-214}	92^{+38}_{-21}

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

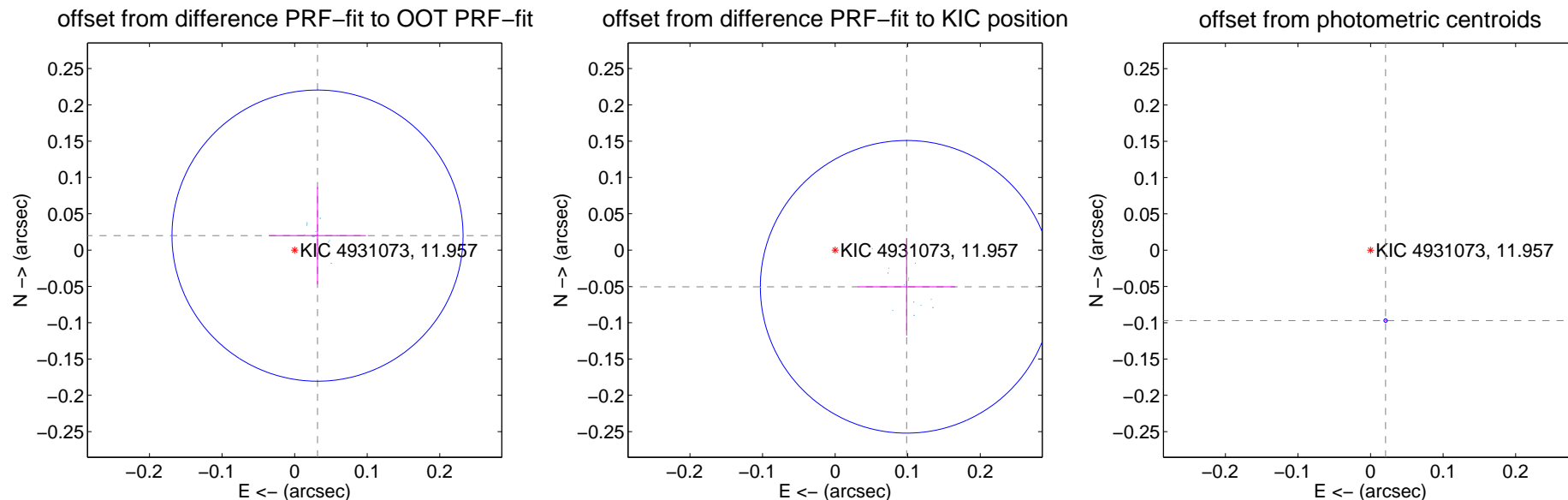
DV Centroid Data

Supplemental centroid analysis for 004931073-01. **Kepler magnitude: 11.96.** Transit SNR 1696.06

There are 14 quarters with good PRF difference image offsets

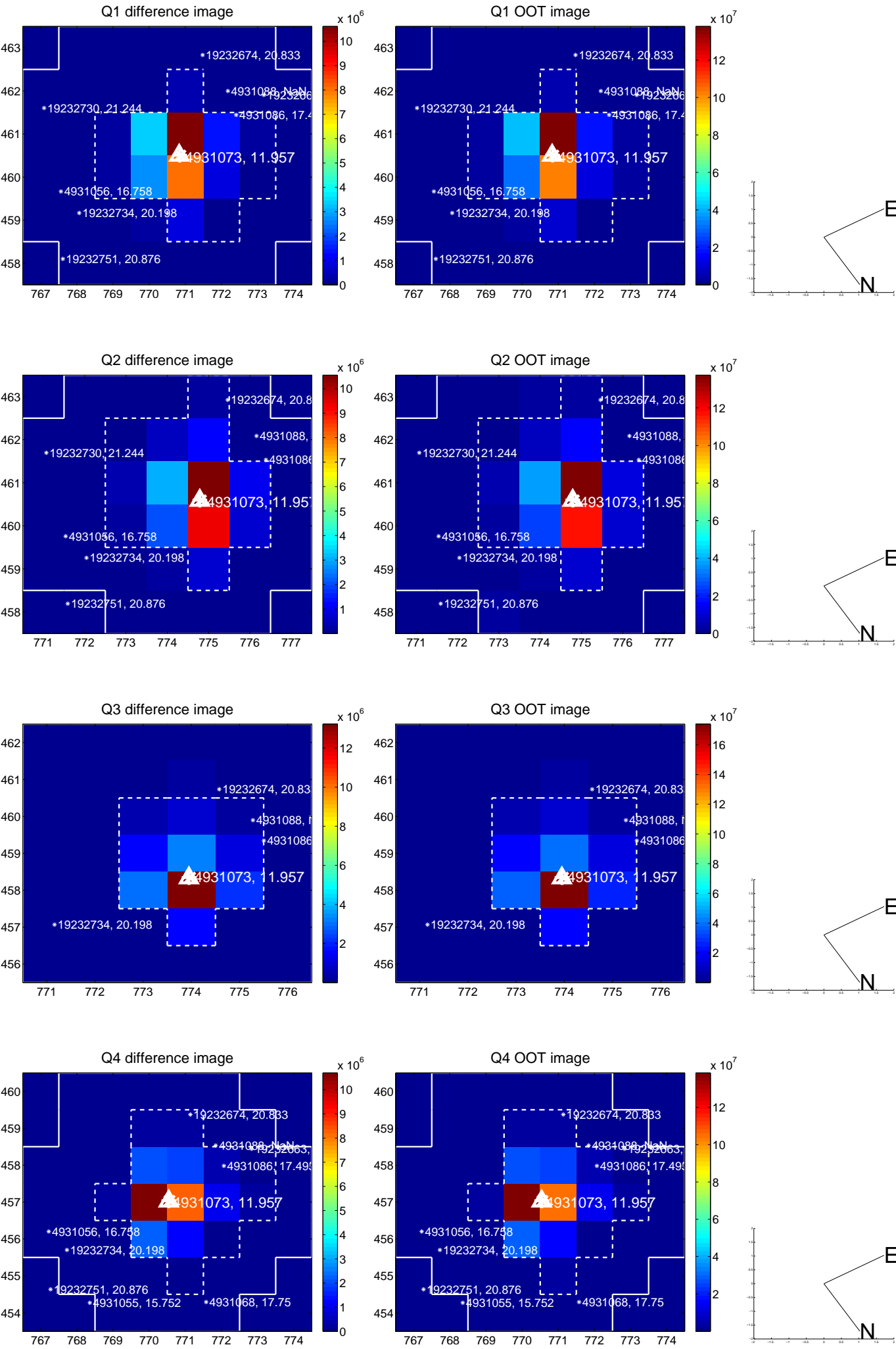
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.037 ± 0.067	0.56	-0.032 ± 0.067	0.020 ± 0.067
PRF-fit source offset from KIC position	0.111 ± 0.067	1.65	-0.099 ± 0.067	-0.051 ± 0.067
photometric centroid source offset	0.10 ± 0.00	126.72	-0.02 ± 0.00	-0.10 ± 0.00

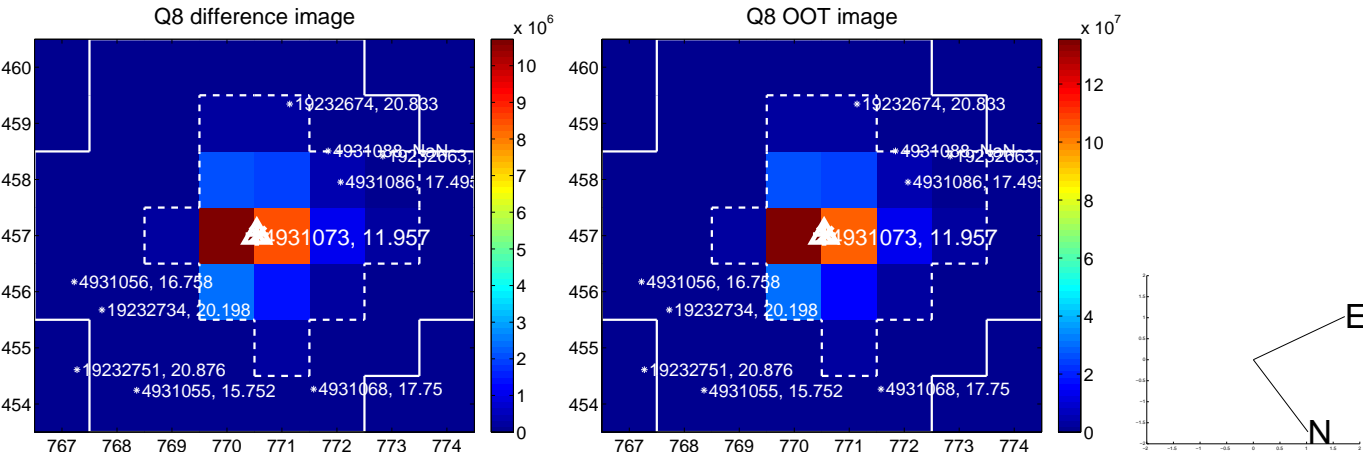
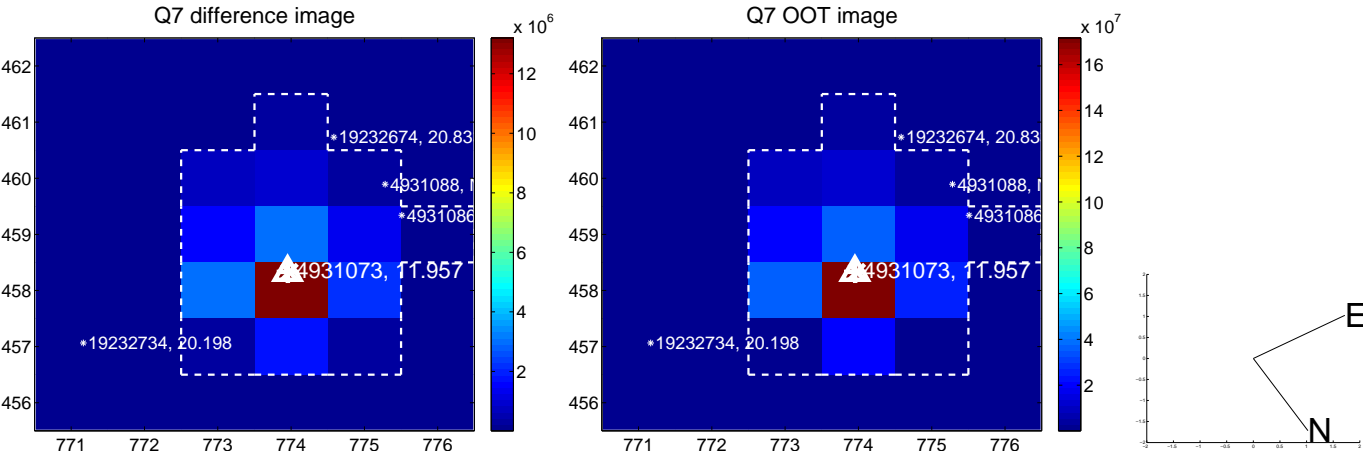
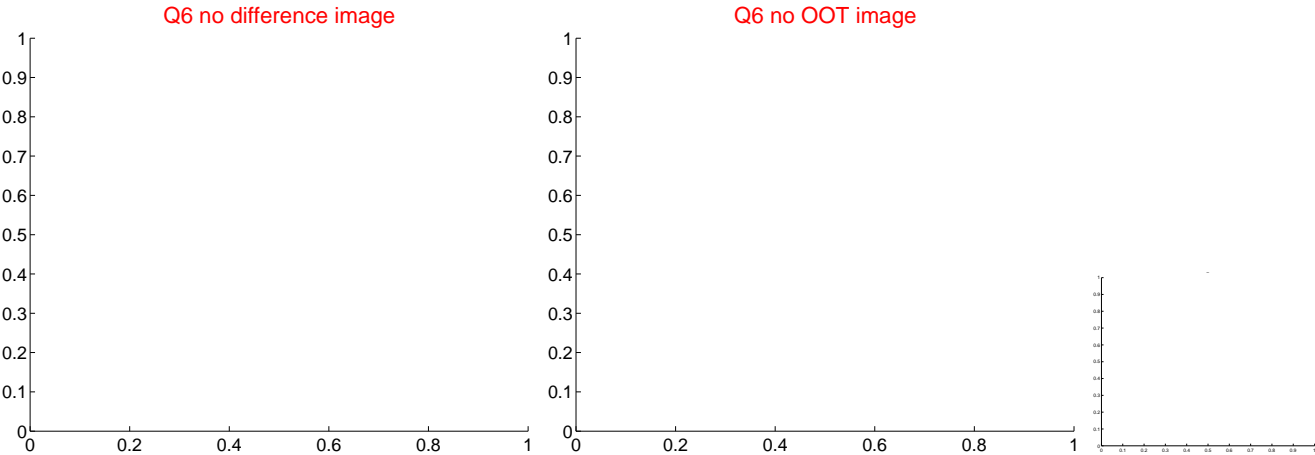
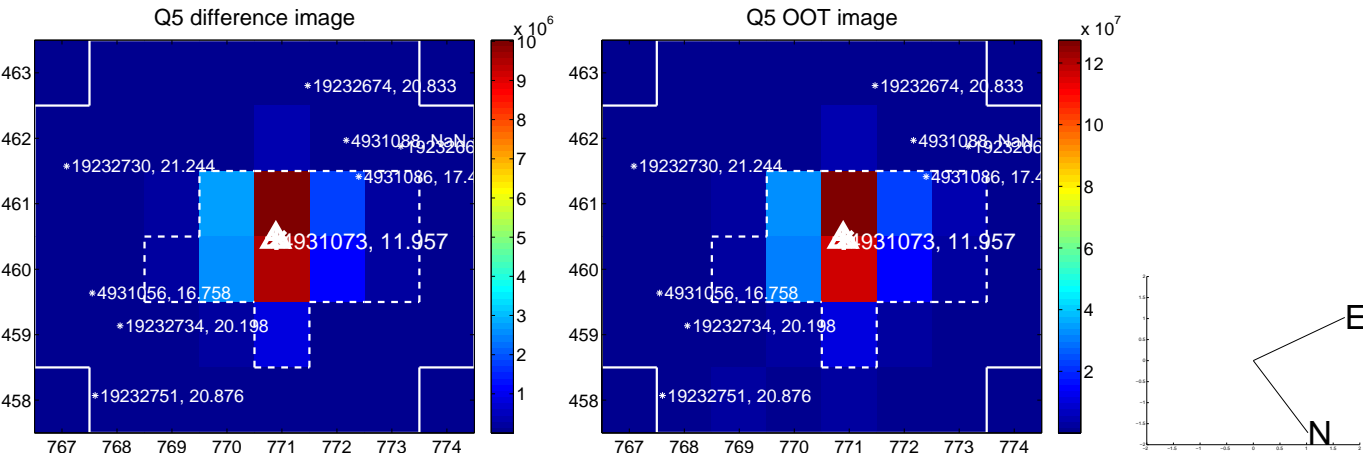


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

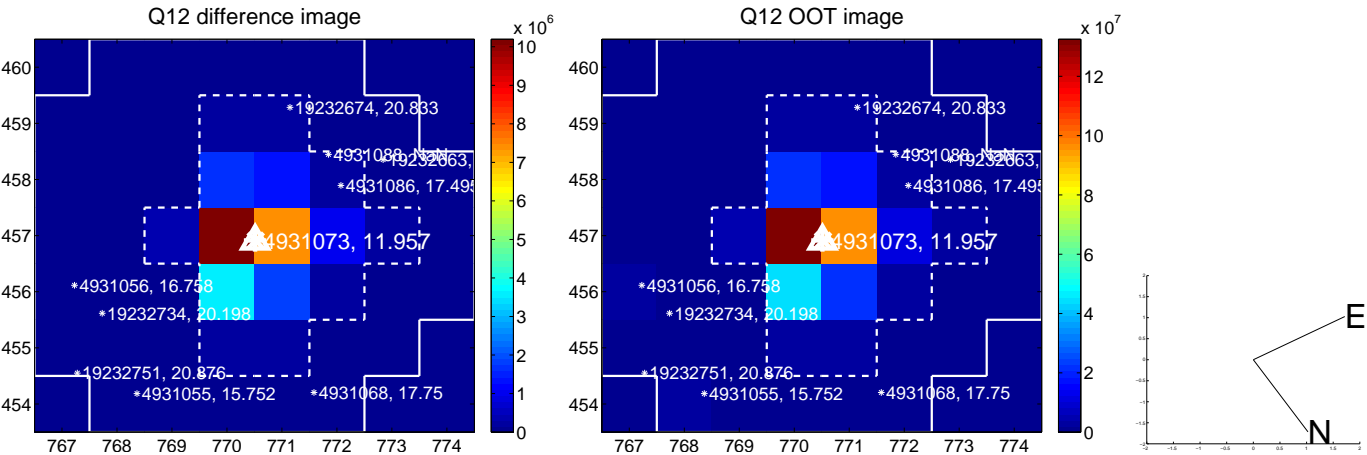
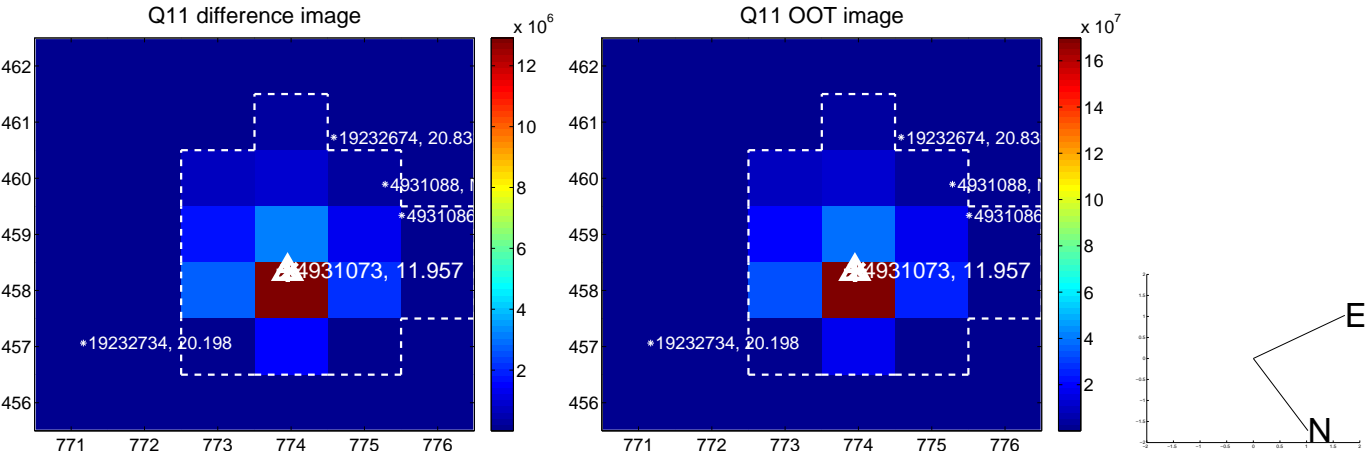
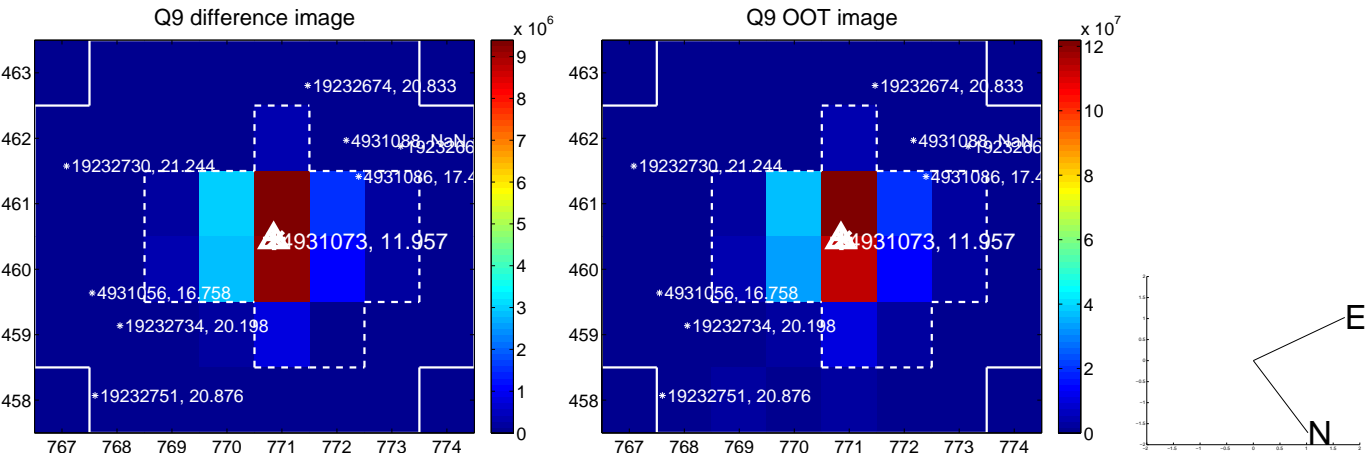
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



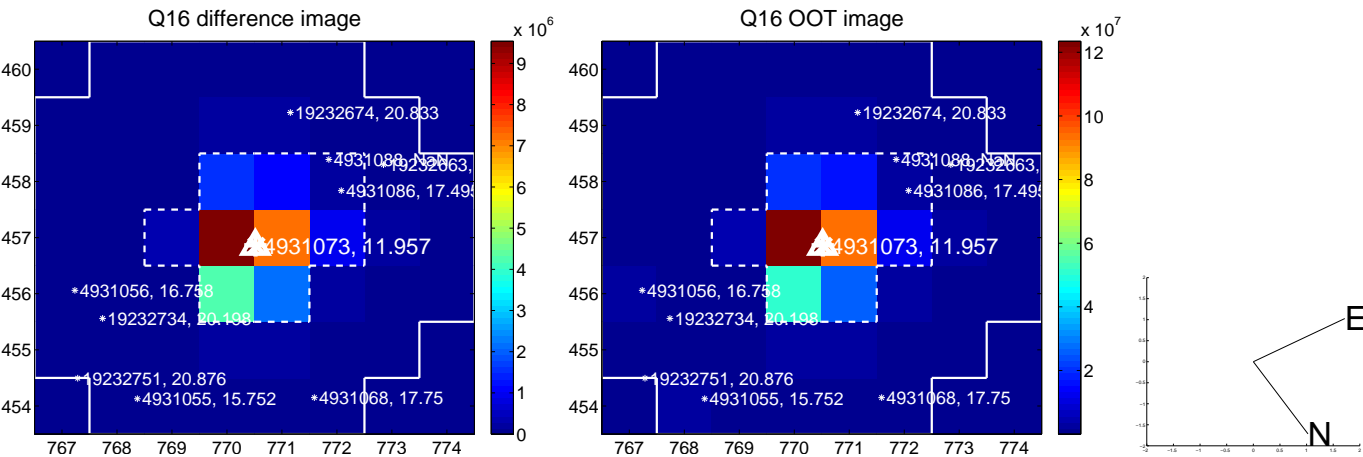
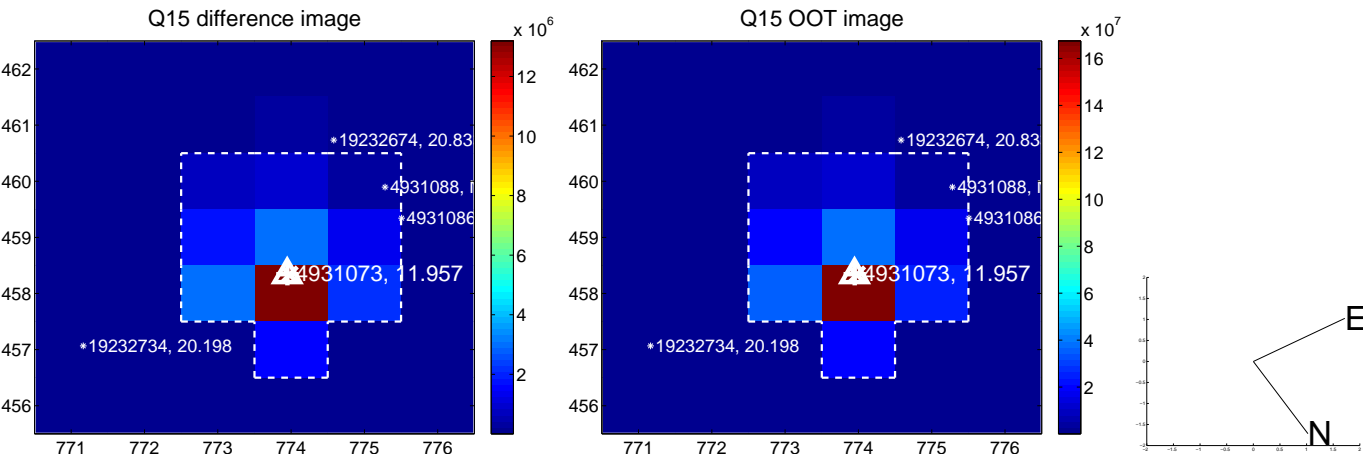
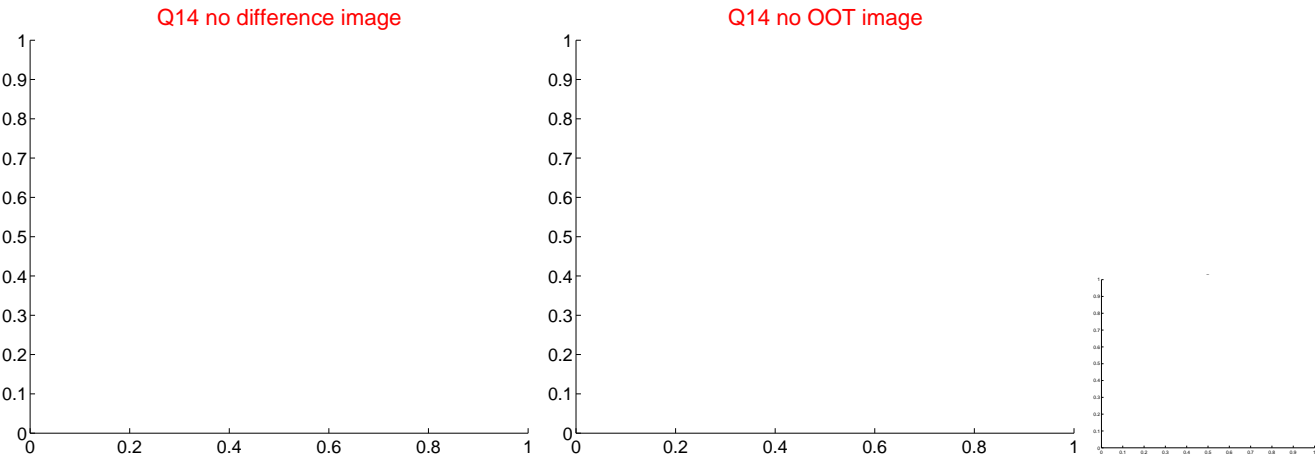
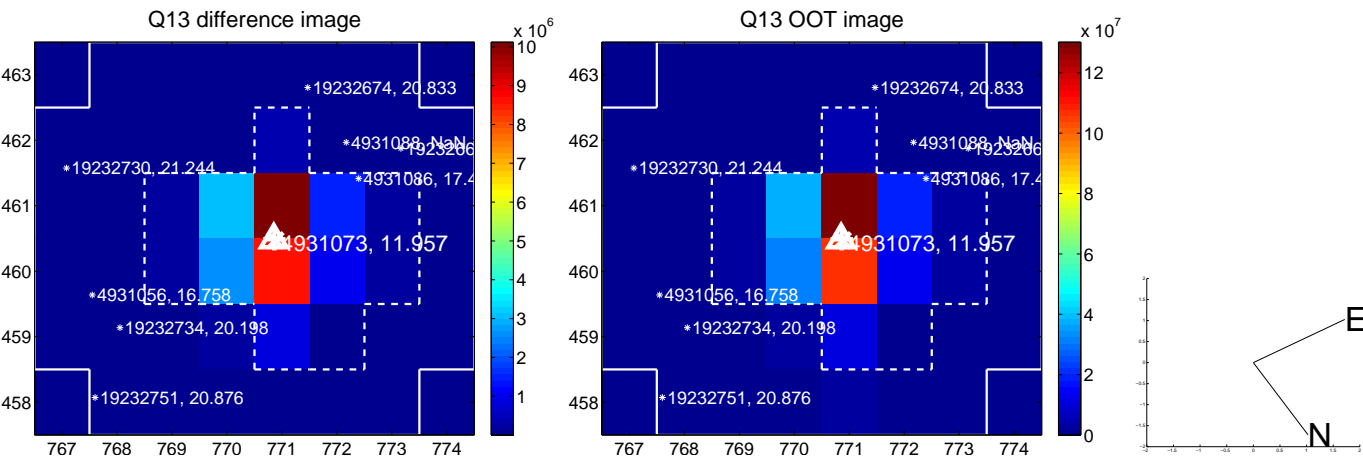
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



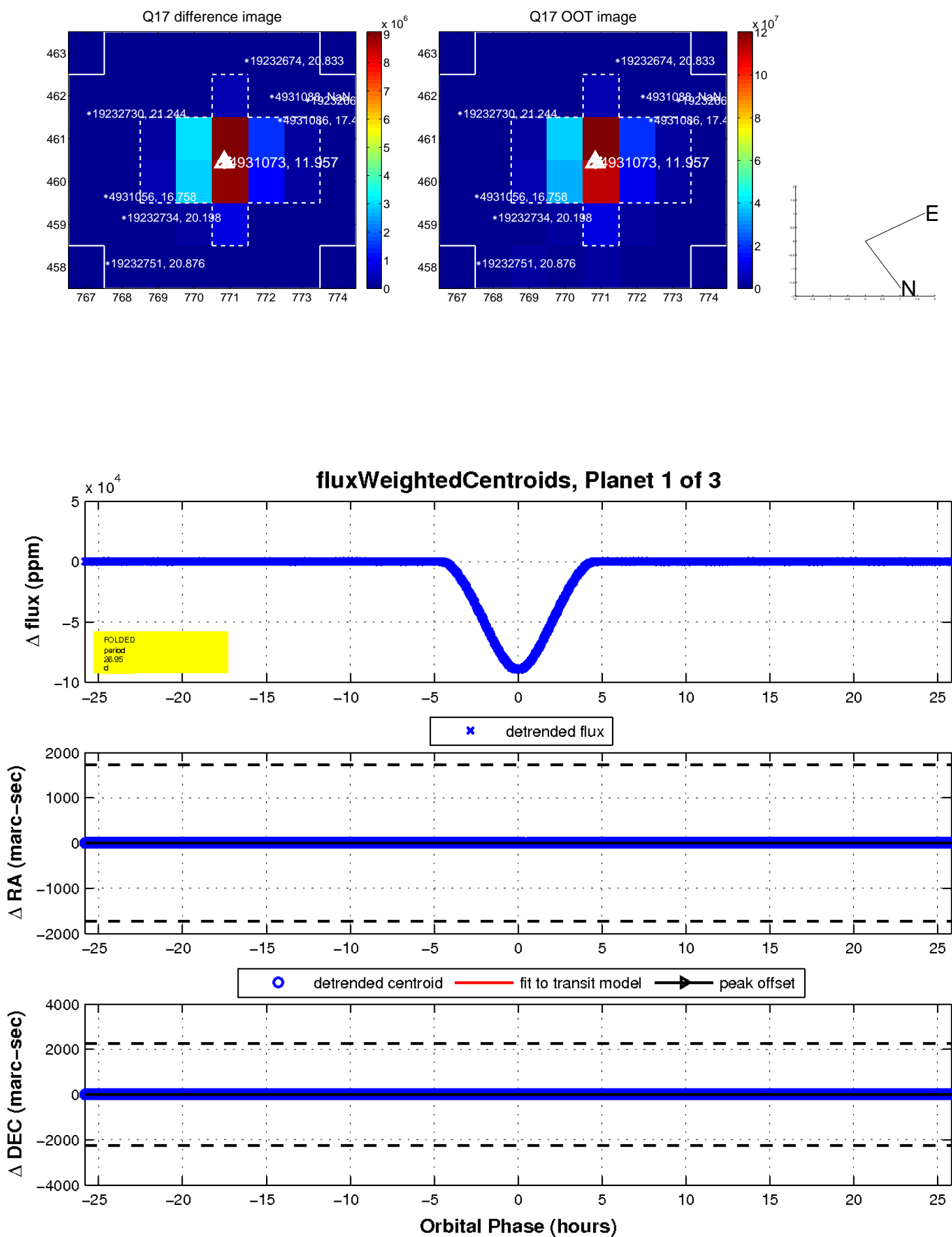
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

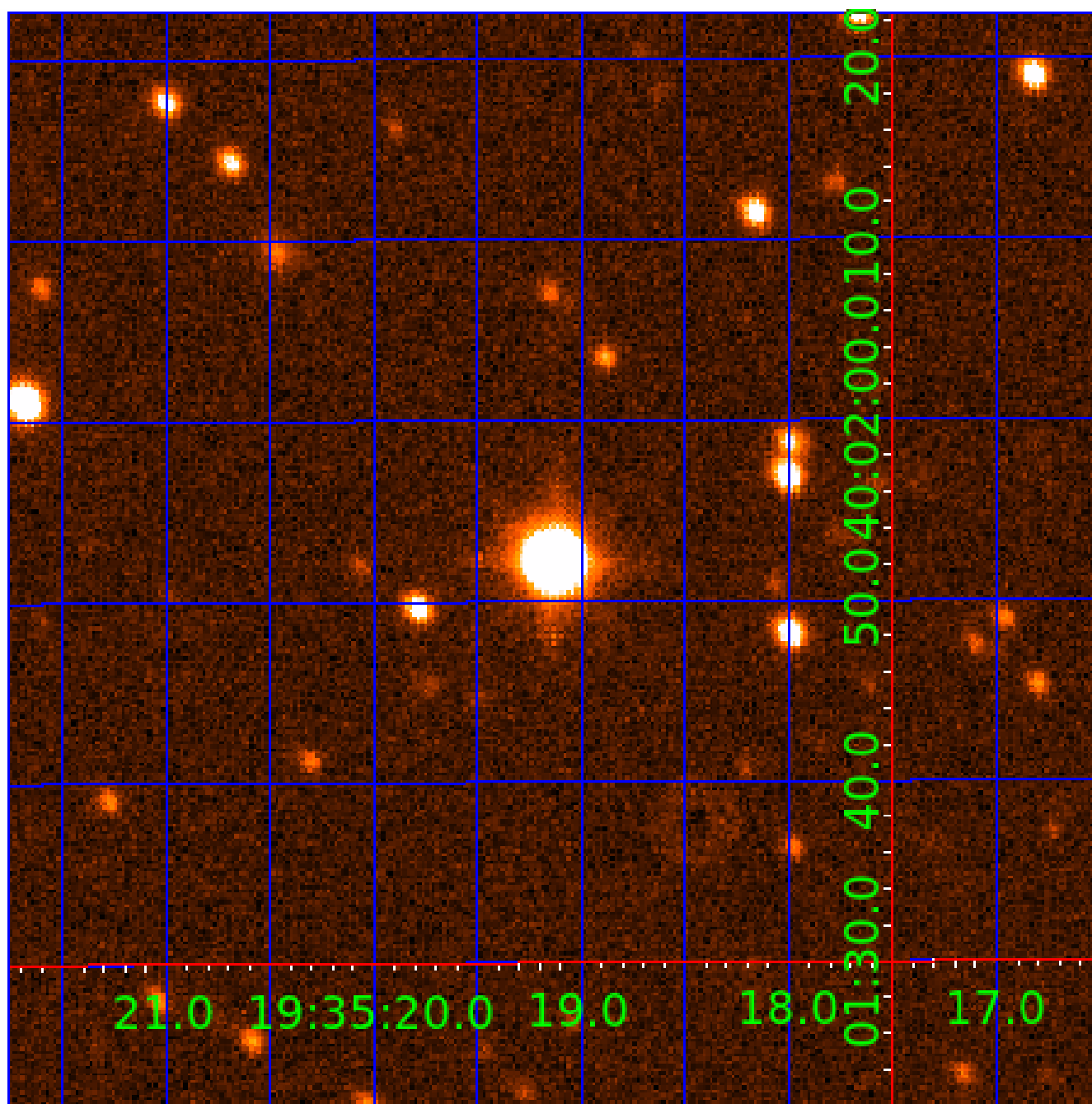


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004931073

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})
004931073-01	OBS	6473.01	26.951195	150.924637	82743.2	8.614	4129.8	1696.1	2.75	6675	133.59	324.96
004931073-02	OBS	No	26.951264	157.584426	59789.3	7.321	2668.6	2232.8	2.75	6675	113.97	324.96
004931073-03	OBS	No	1.160205	132.588107	30.5	3.030	13.4	9.7	2.75	6675	1.72	21539.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004931073-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004931073-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004931073-03	OBS	FP	0.00	1	0	0	0	LPP_DV

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.

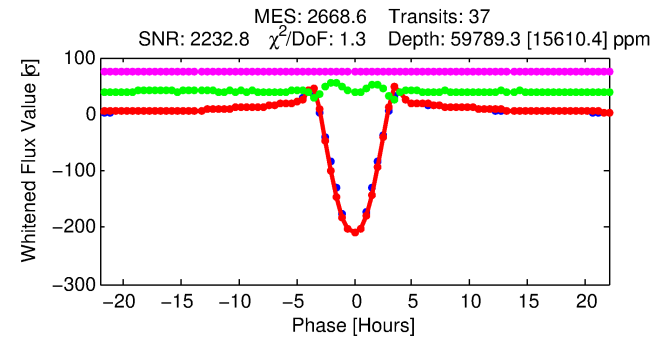
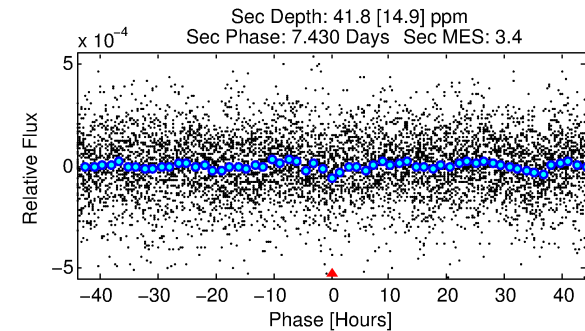
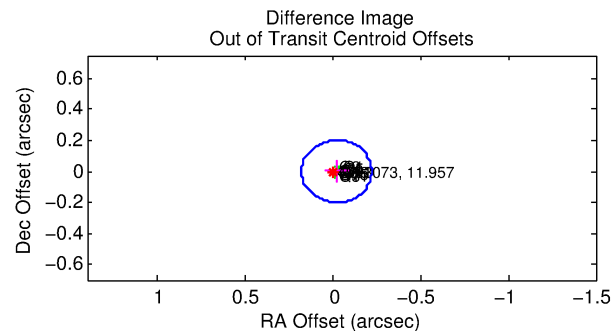
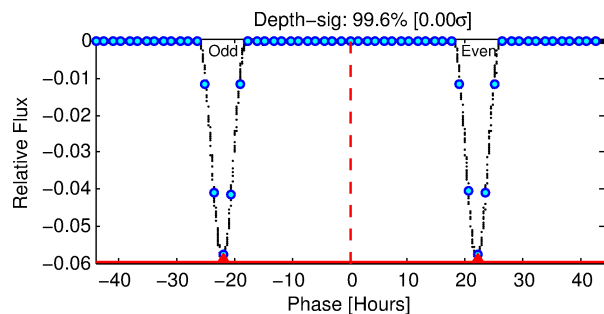
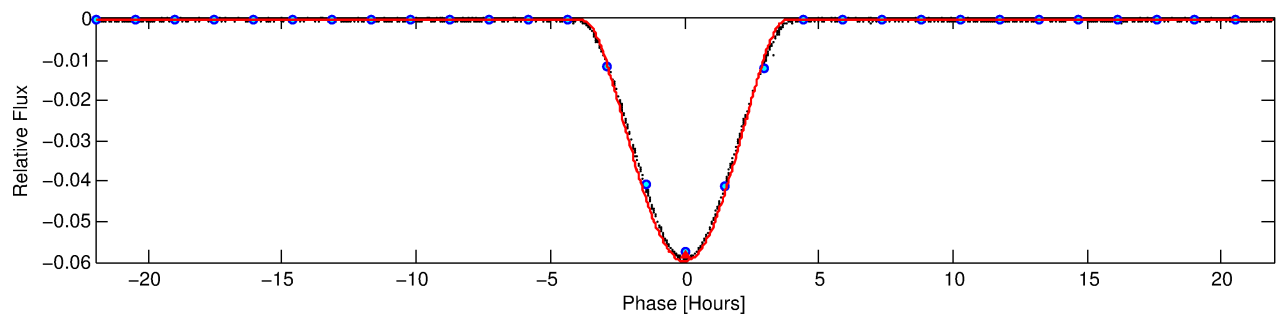
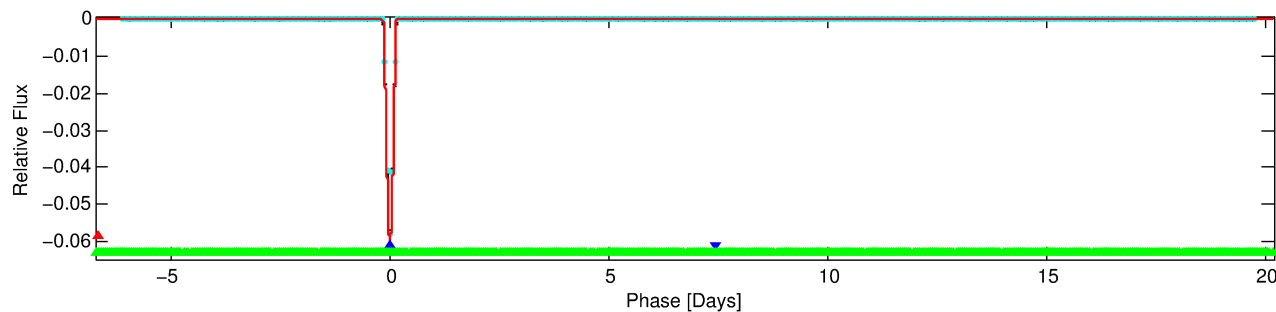
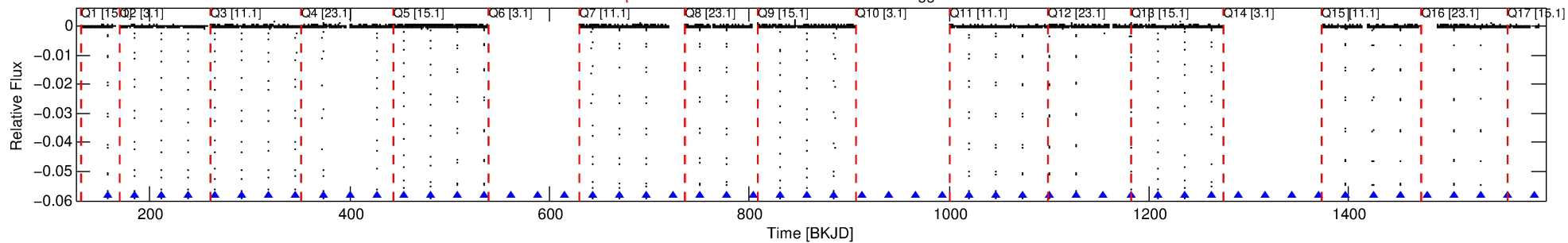
Ephemeris Match Information For 004931073-02

No Significant Match Found

DV One-Page Summary

KIC: 4931073 Candidate: 2 of 3 Period: 26.951 d
KOI: K06473 Corr: No Ephemeris Match

Kp: 11.96 R*: 2.75 Rs Teff: 6675.0 K Logg: 3.75 Fe/H: -0.140



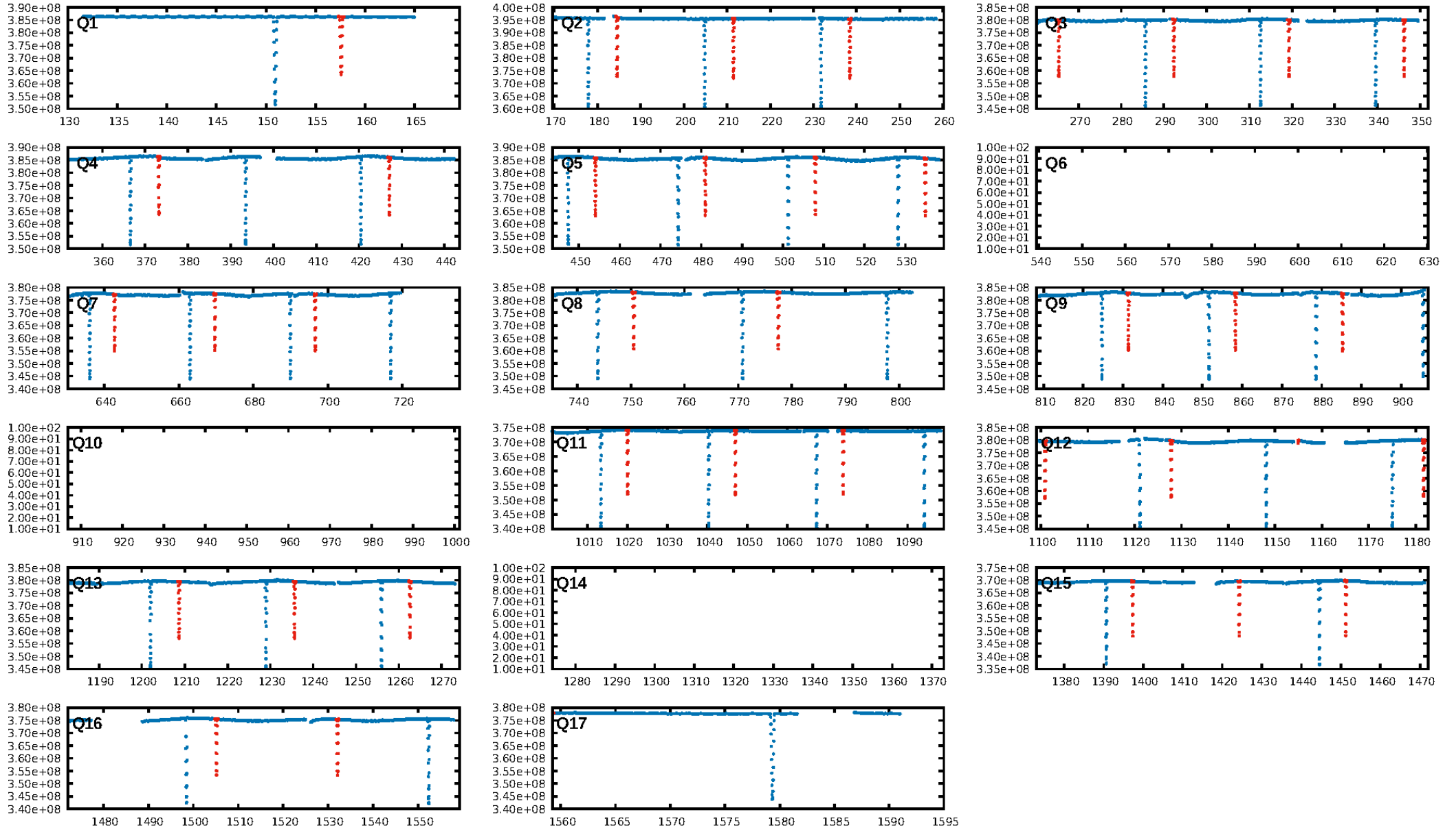
DV Fit Results:

Period = 26.95126 [0.00000] d
Epoch = 157.5844 [0.0000] BKJD
Rp/R* = 0.3802 [0.0105]
a/R* = 26.78 [0.01]
b = 1.00 [0.08]
Seff = 324.96 [163.88]
Teq = 1083 [136] K
Rp = 113.98 [37.81] Re
a = 0.2032 [0.0631] AU
Ag = 0.07 [0.04] [-20.82σ]
Teffp = 870 [83] K [-1.33σ]

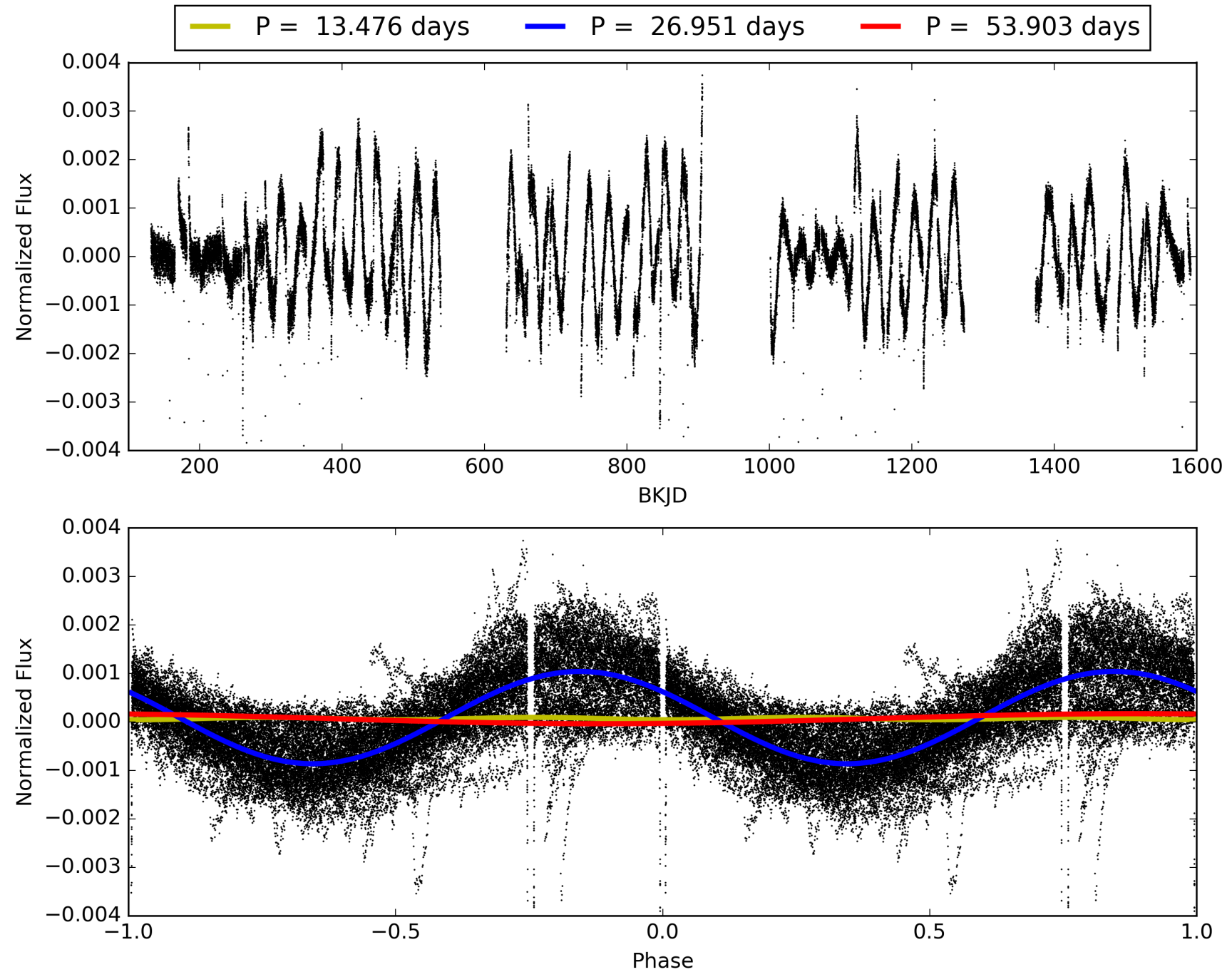
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [36/36]
GhostDiagnostic-chr: 4.751
Centroid-sig: 0.0%
Centroid-so: 0.117 arcsec [98.03σ]
OotOffset-rm: 0.021 arcsec [0.32σ]
KicOffset-rm: 0.116 arcsec [1.74σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 0.00 [0/12]

TCE 004931073-02, PDC Light Curves

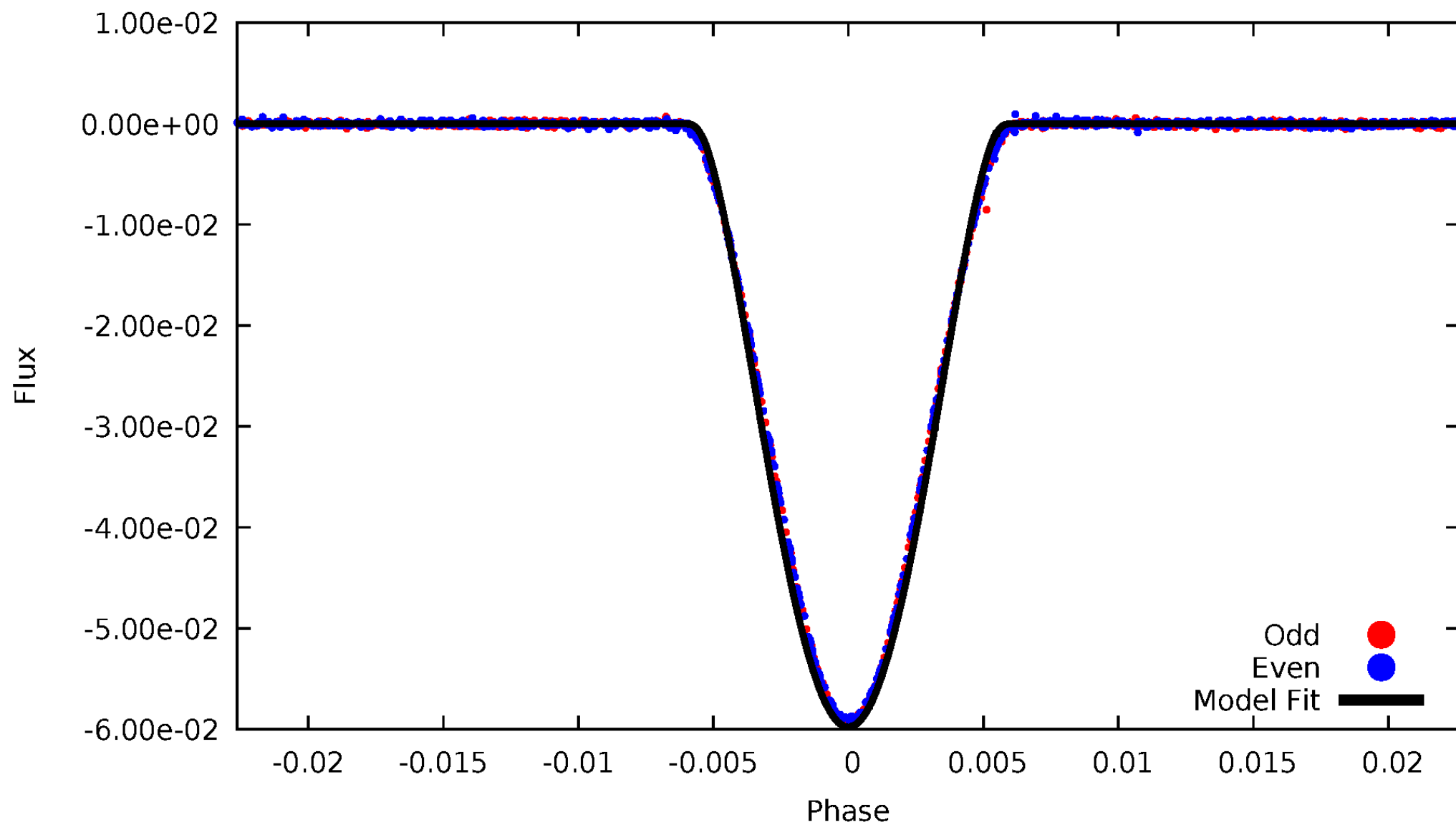


TCE 004931073-02



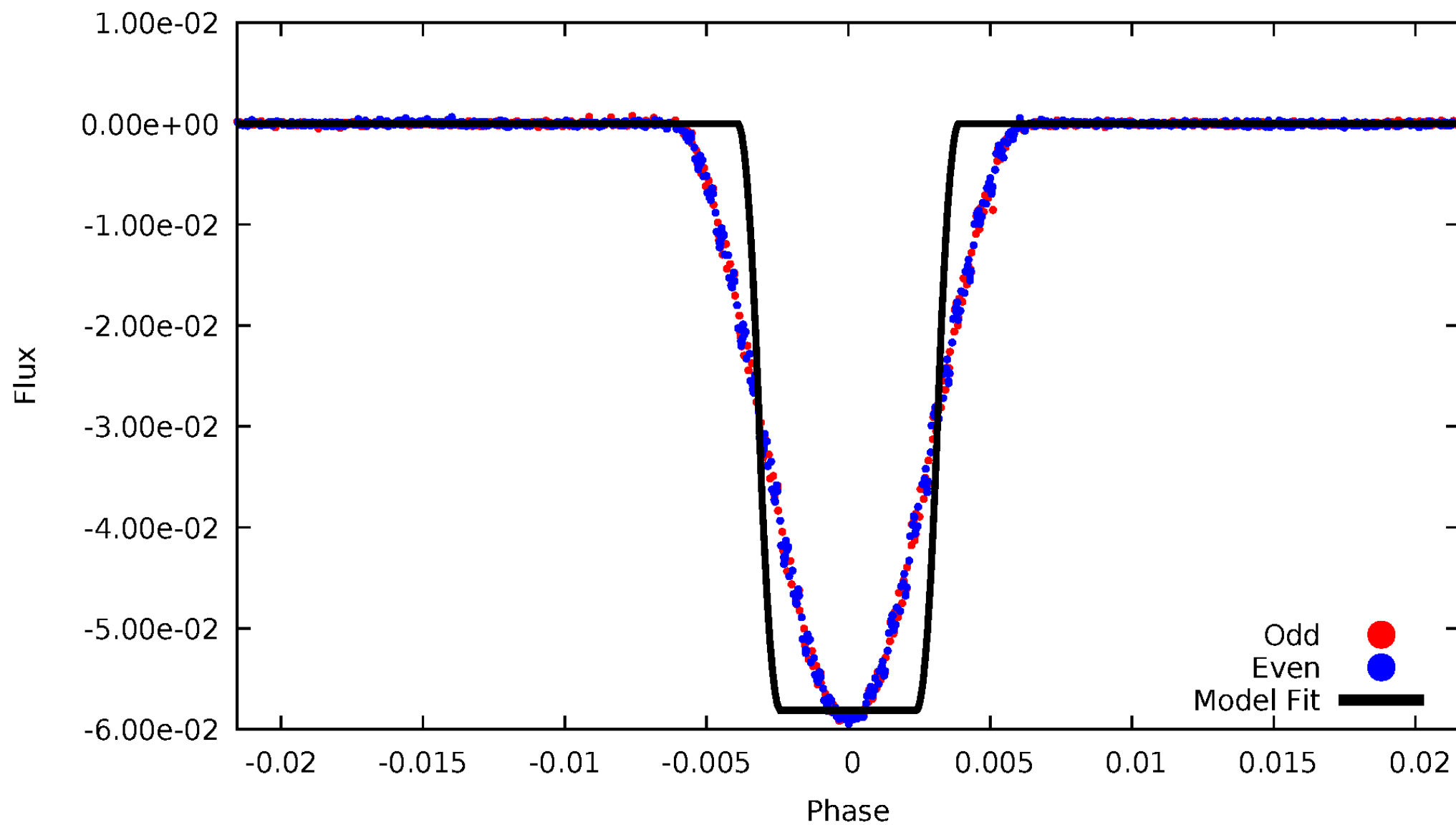
DV Odd/Even

TCE 004931073-02



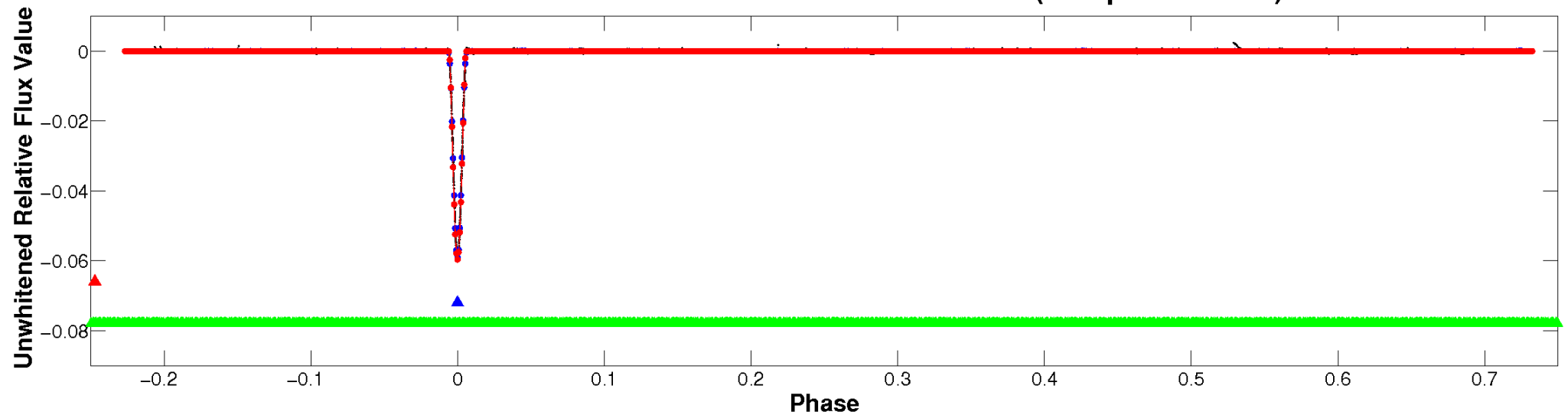
ALT Odd/Even

TCE 004931073-02

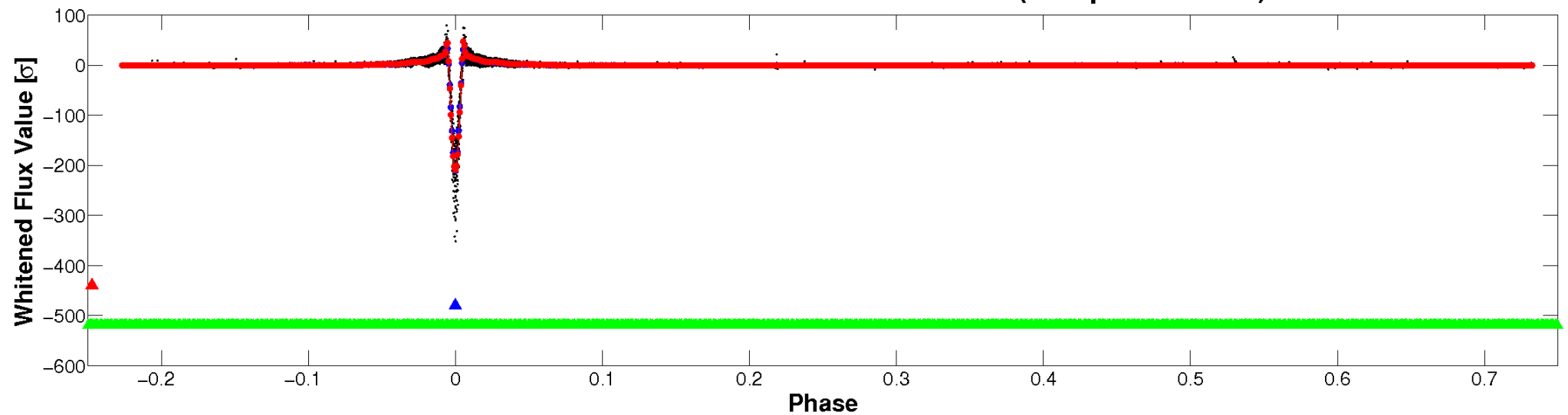


Non-Whitened Vs. Whitened Light Curve

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

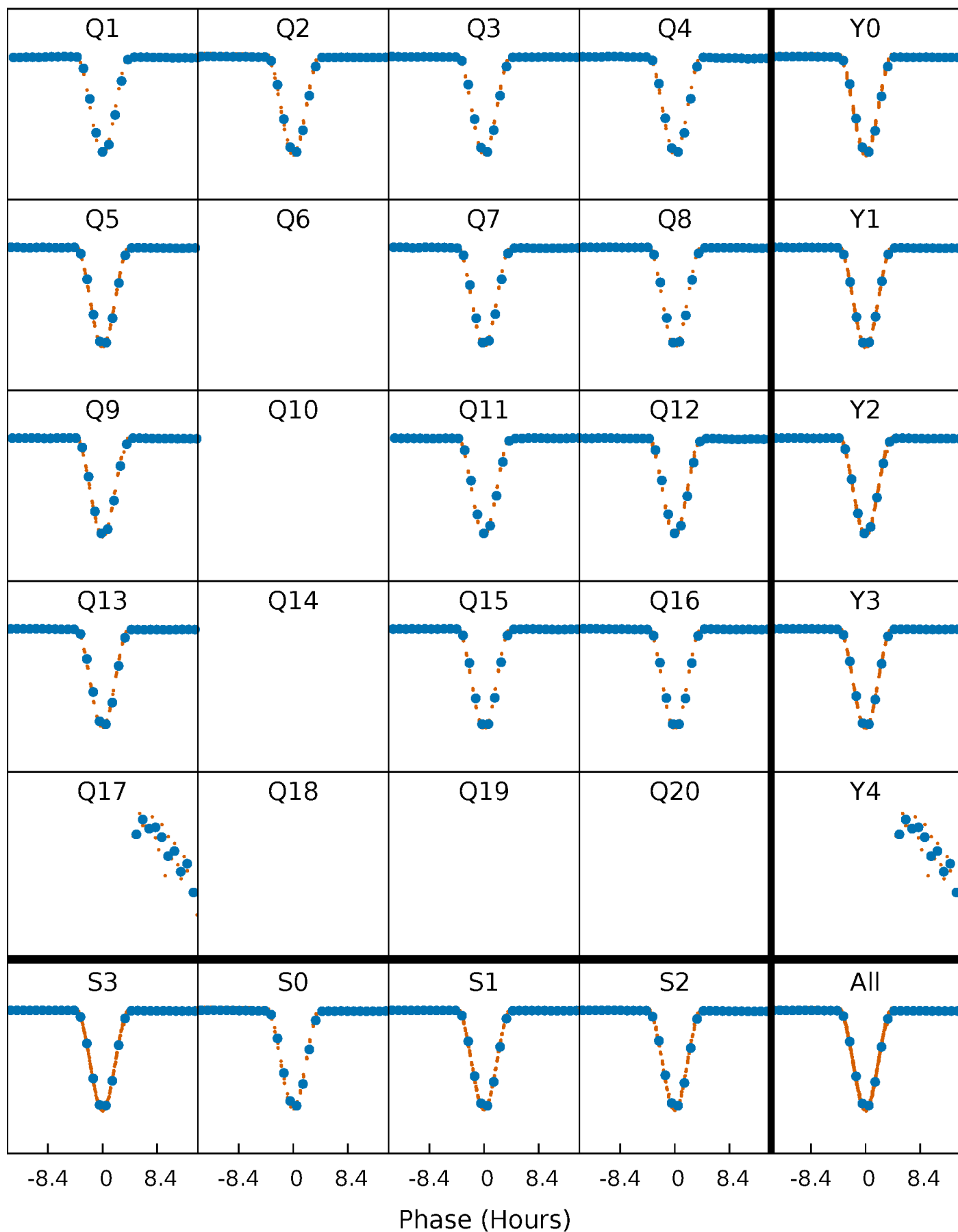


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



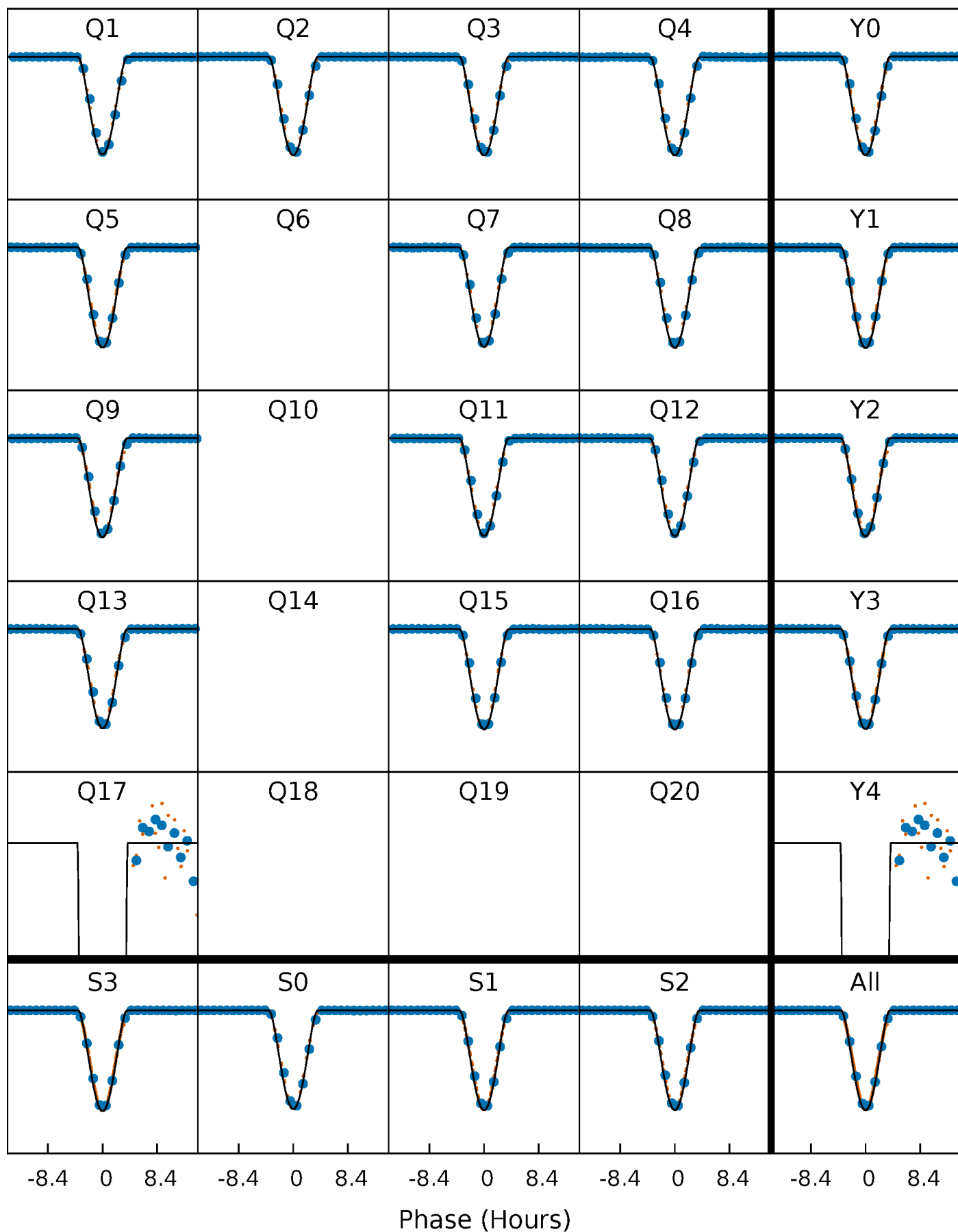
PDC Quarter-Phased Transit Curves

TCE 004931073-02 P= 26.951264 Days $T_0=157.584426$ (BKJD)



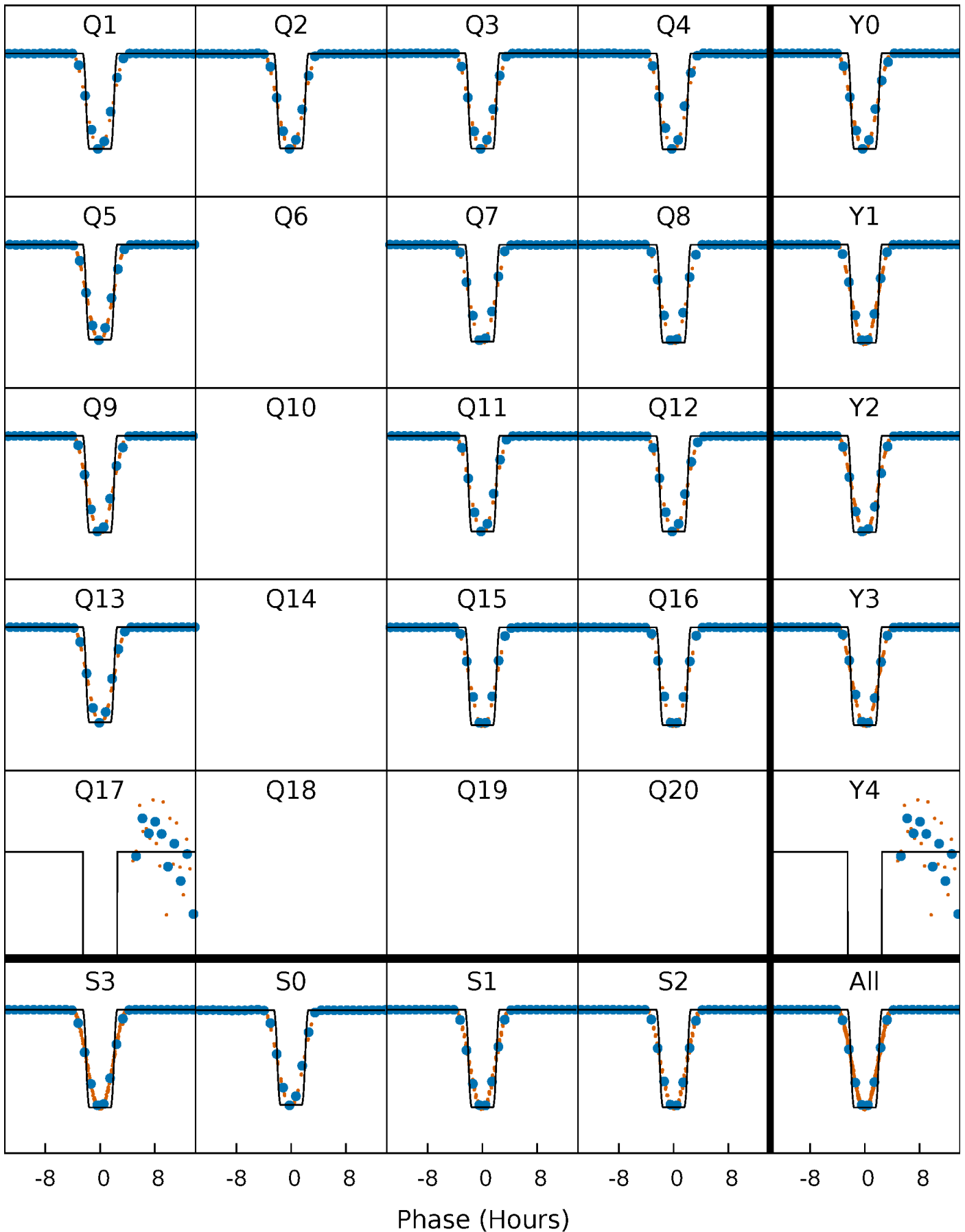
DV Quarter-Phased Transit Curves

TCE 004931073-02 P= 26.951264 Days $T_0=157.584426$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

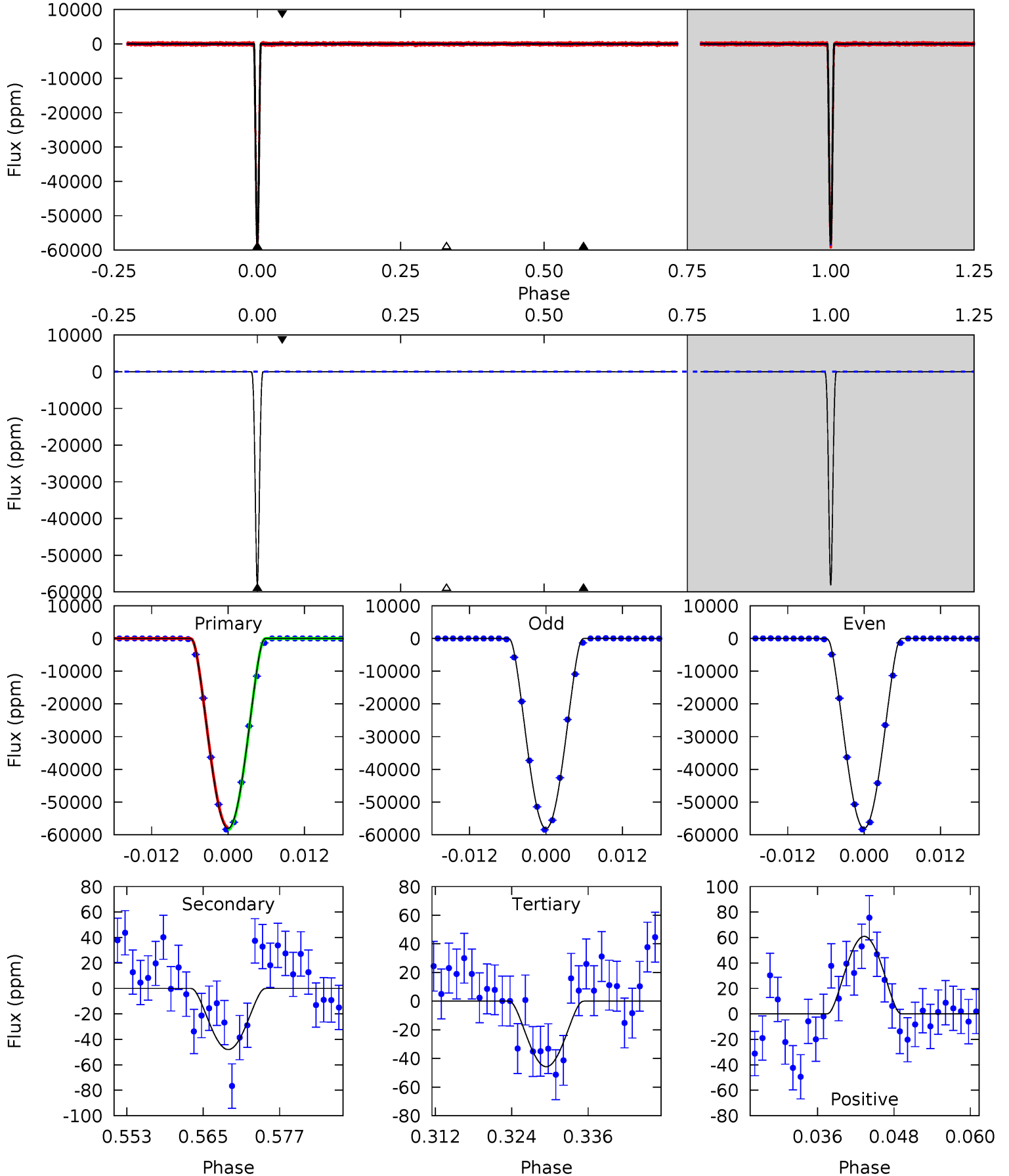
TCE 004931073-02 P= 26.951093 Days $T_0=157.589350$ (BKJD)



DV Model-Shift Uniqueness Test

004931073-02, P = 26.951264 Days, E = 130.633162 Days

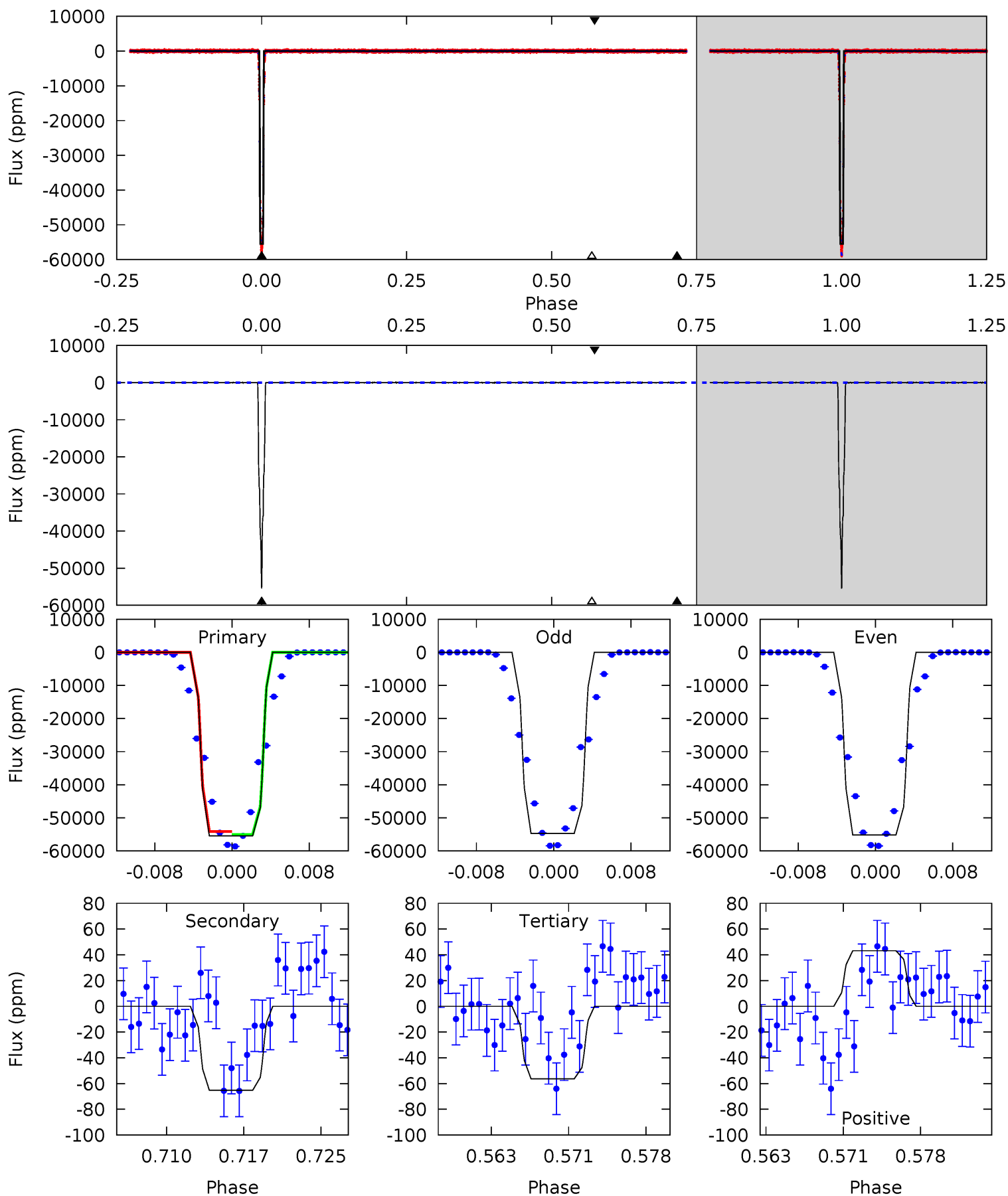
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9162	7.58	7.22	9.61	4.99	2.51	2.89	9154	9152	0.36	-2.03	6.39	1.00	0.00	57.8



Alt Model-Shift Uniqueness Test

004931073-02, P = 26.951093 Days, E = 130.638257 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4980	5.86	5.05	3.87	5.08	2.66	1.42	4975	4976	0.81	1.98	21.5	1.00	0.00	36.6



Stellar Parameters For KIC 004931073

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6675^{+160}_{-200}	$3.748^{+0.285}_{-0.095}$	$-0.140^{+0.300}_{-0.250}$	$2.747^{+0.489}_{-0.908}$	$1.540^{+0.238}_{-0.291}$	$0.105^{+0.210}_{-0.032}$
	+2%/-3%	+8%/-3%	+214%/-179%	+18%/-33%	+15%/-19%	+201%/-31%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004931073-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-48 ± 6	$110.36^{+14.18}_{-19.04}$	1480^{+93}_{-115}	-2087^{+102}_{-71}	$0.092^{+0.035}_{-0.022}$
Alt.	-65 ± 11	$69.83^{+9.43}_{-12.15}$	1484^{+83}_{-128}	1476^{+466}_{-3384}	$0.305^{+0.134}_{-0.076}$

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

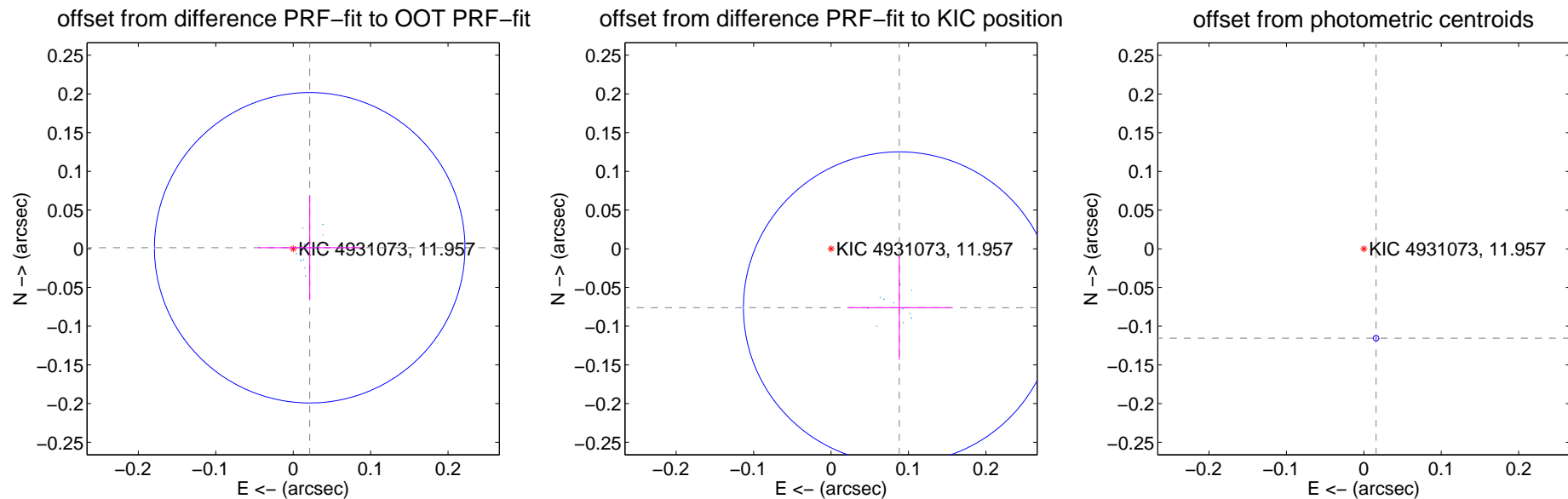
DV Centroid Data

Supplemental centroid analysis for 004931073-02. **Kepler magnitude: 11.96.** Transit SNR 2232.80

There are 12 quarters with good PRF difference image offsets

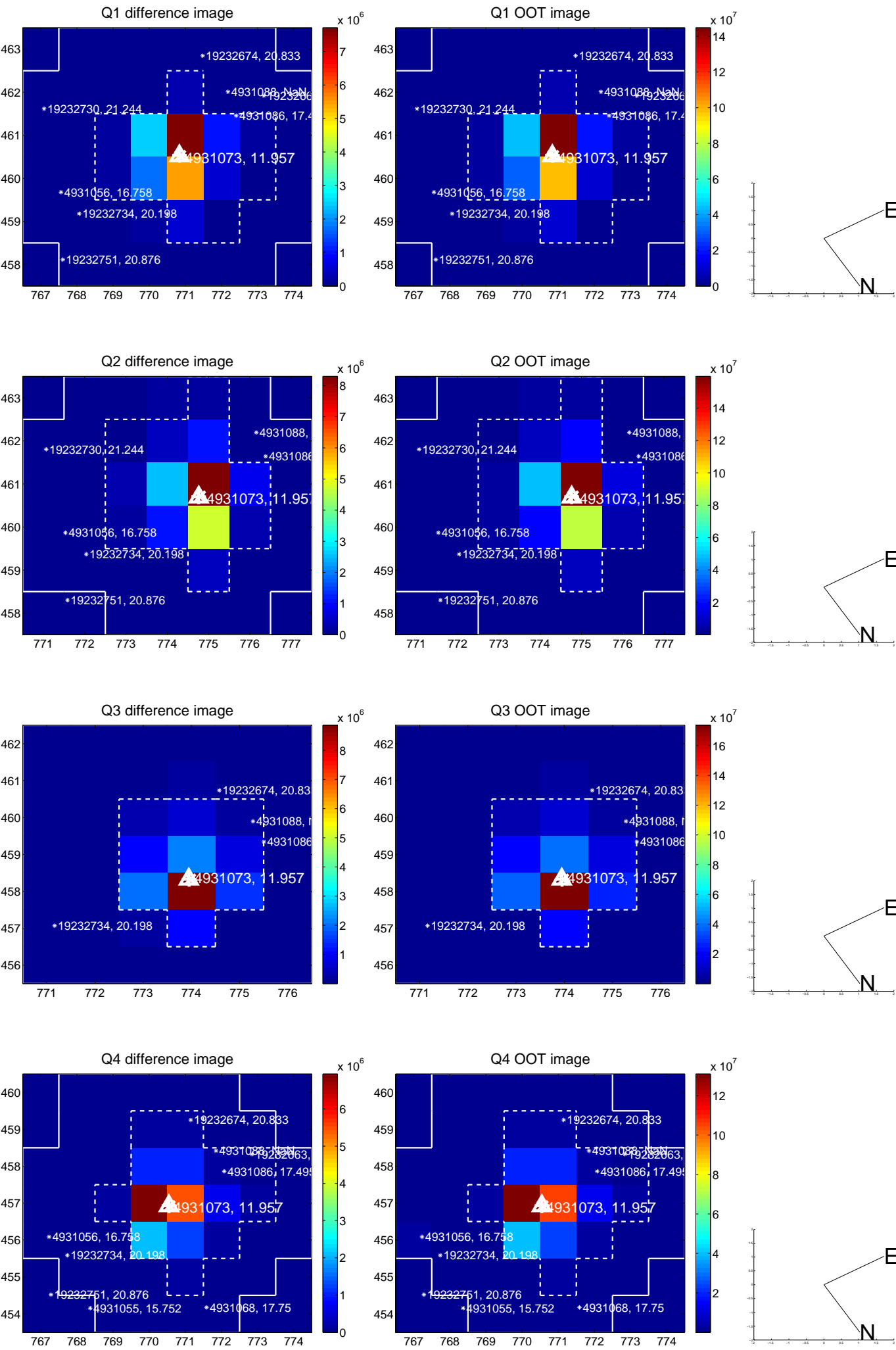
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.021 ± 0.067	0.32	-0.021 ± 0.067	0.001 ± 0.067
PRF-fit source offset from KIC position	0.116 ± 0.067	1.74	-0.088 ± 0.067	-0.076 ± 0.067
photometric centroid source offset	0.12 ± 0.00	98.03	-0.02 ± 0.00	-0.12 ± 0.00

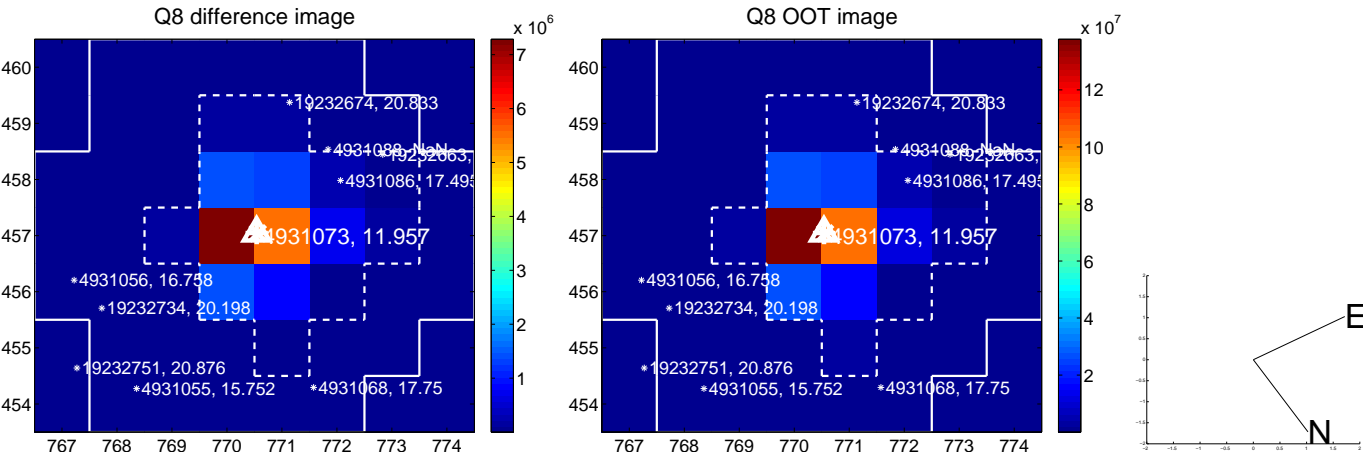
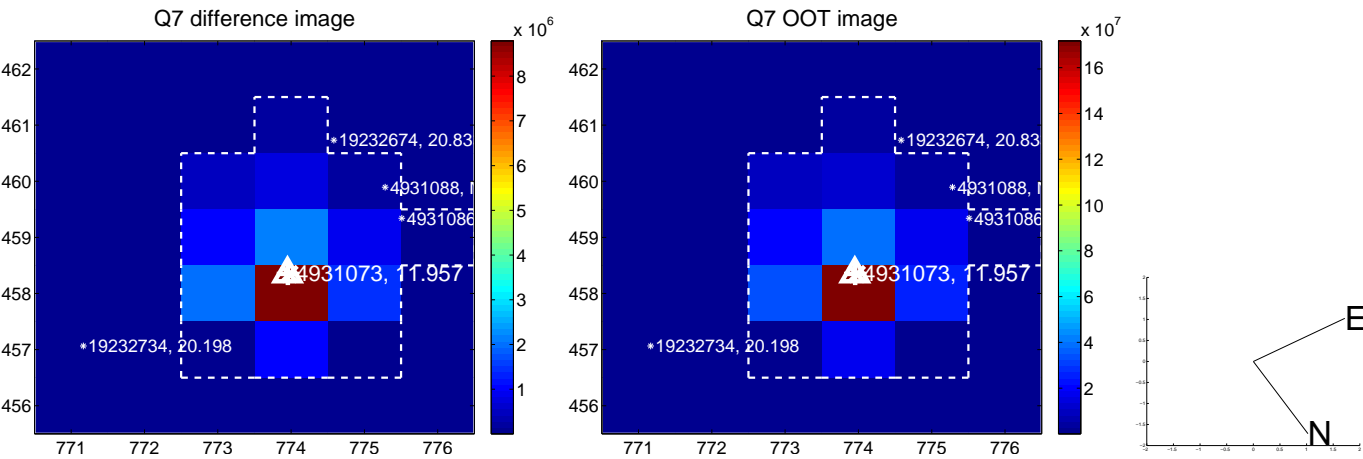
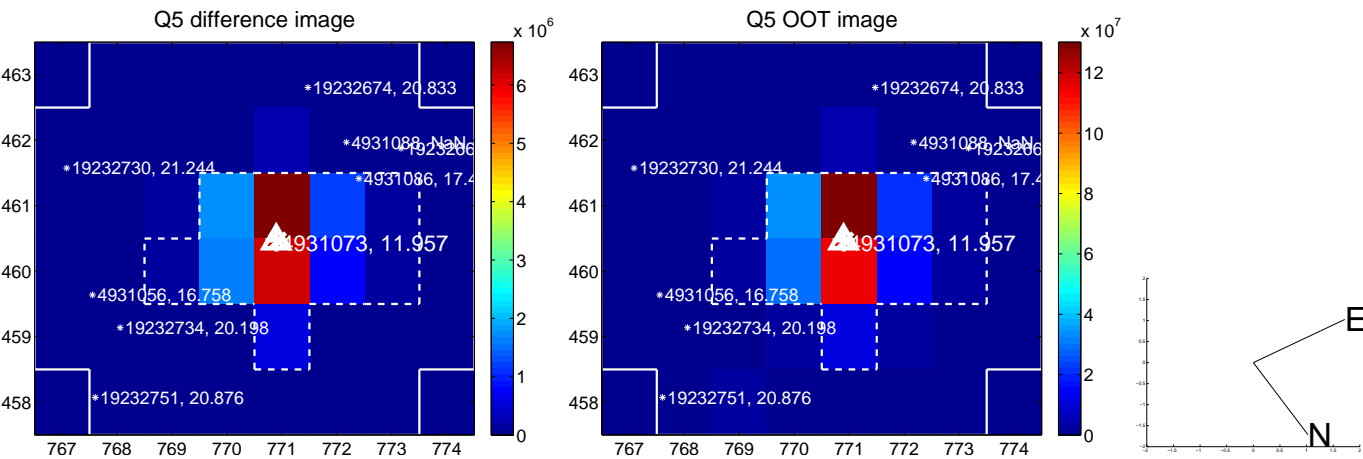


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

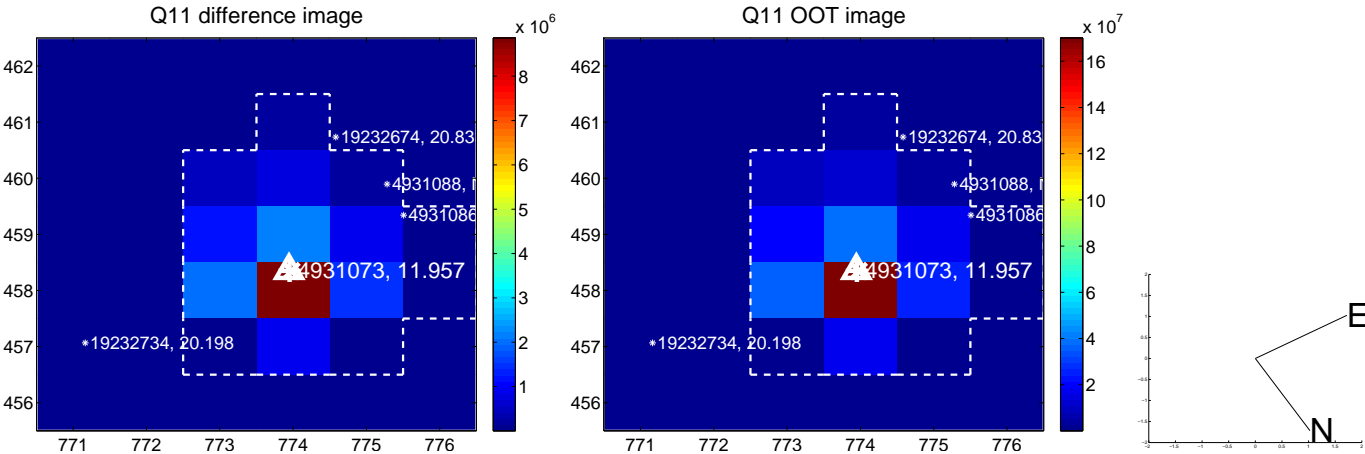
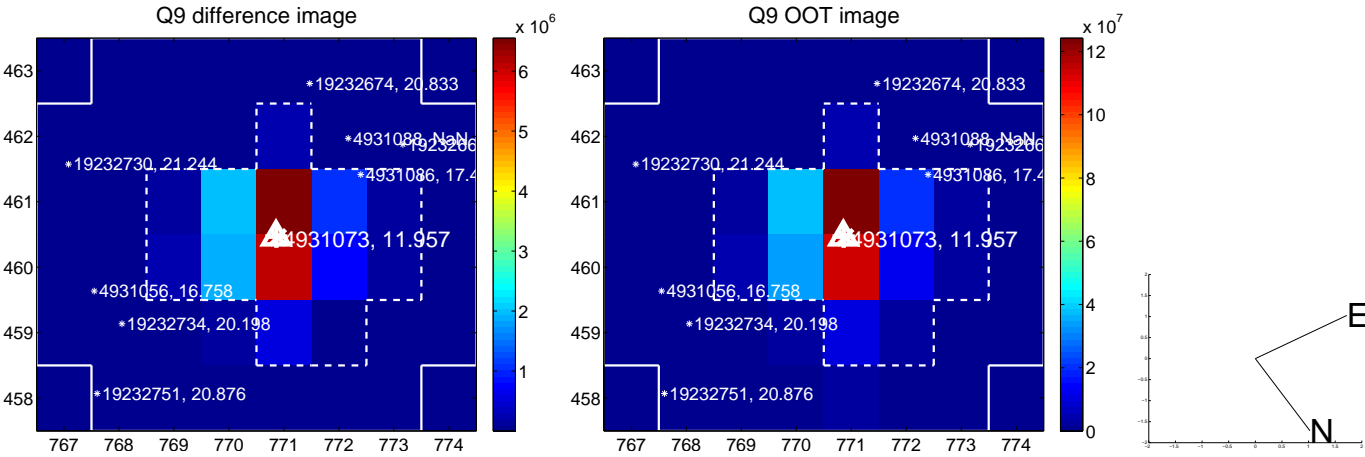
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



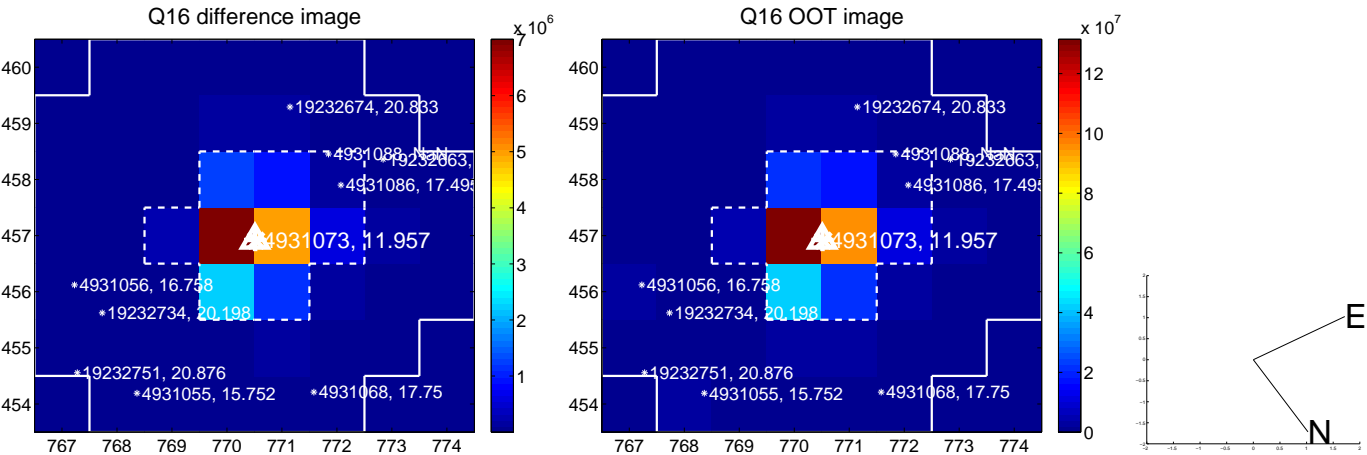
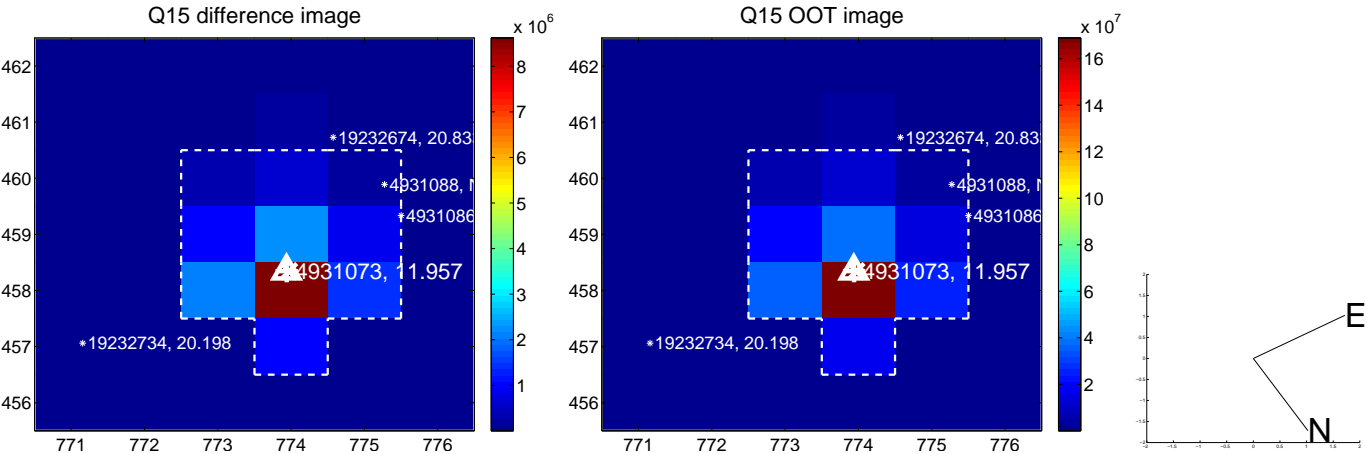
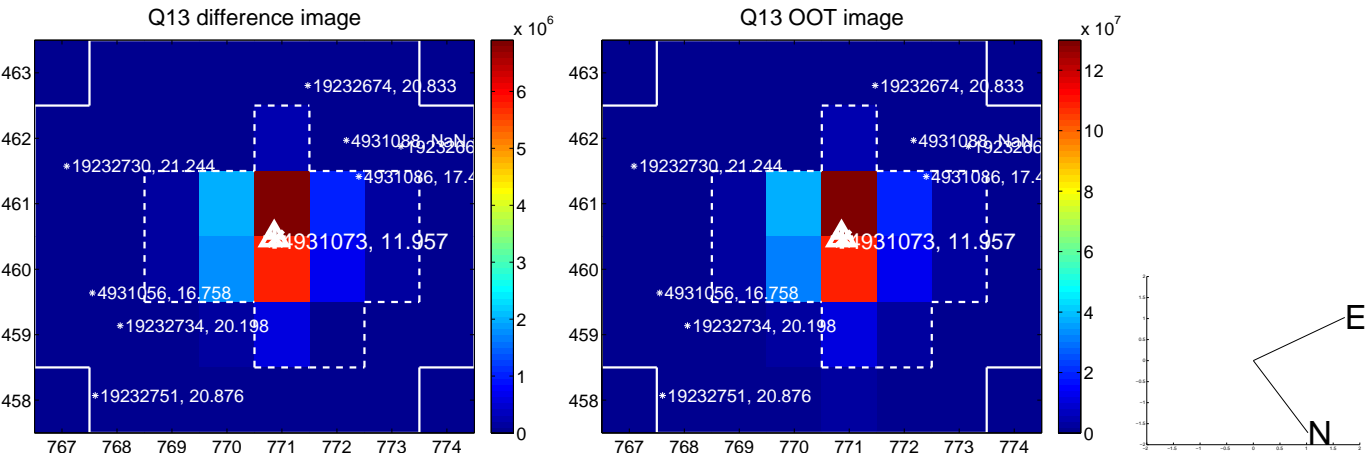
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



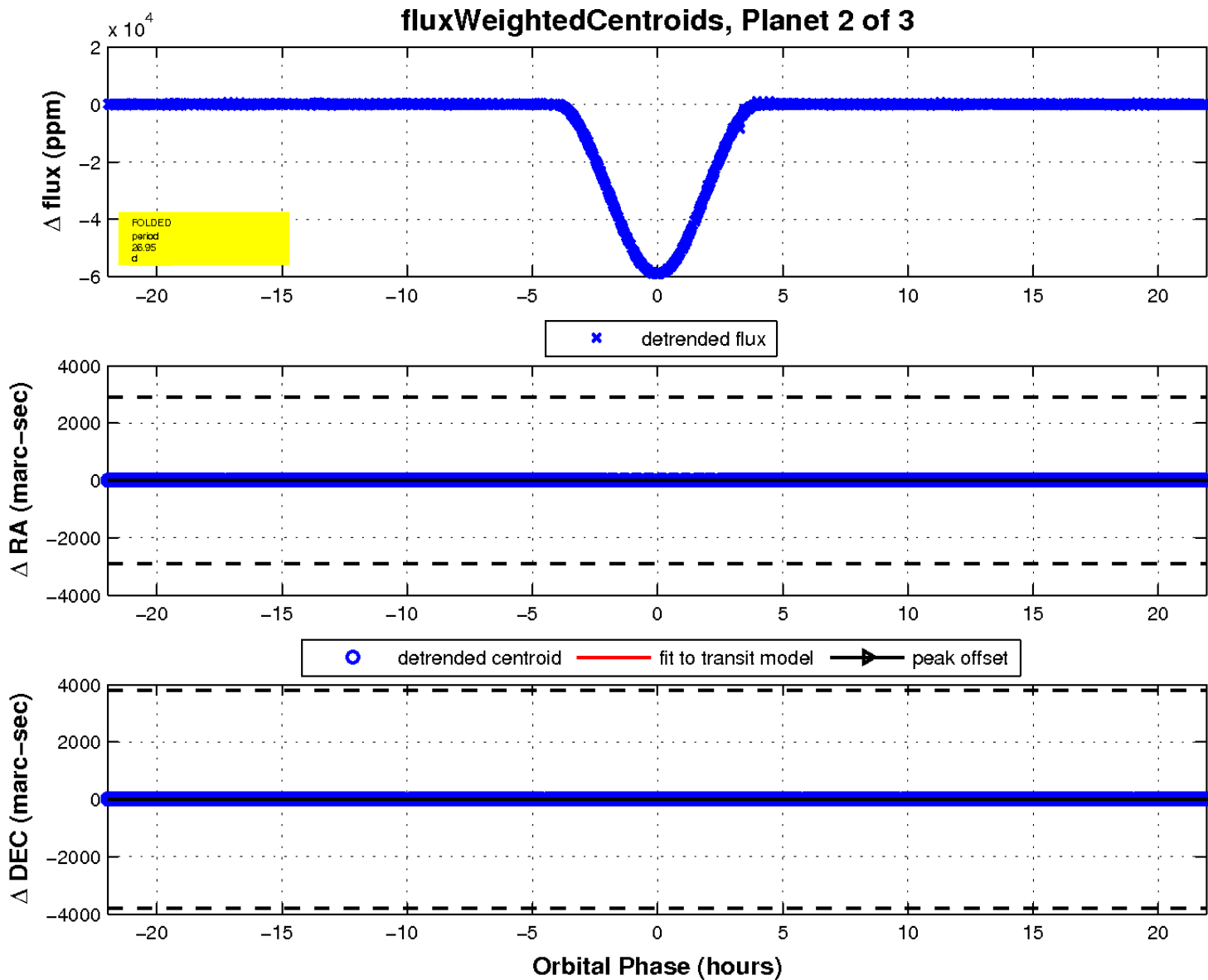
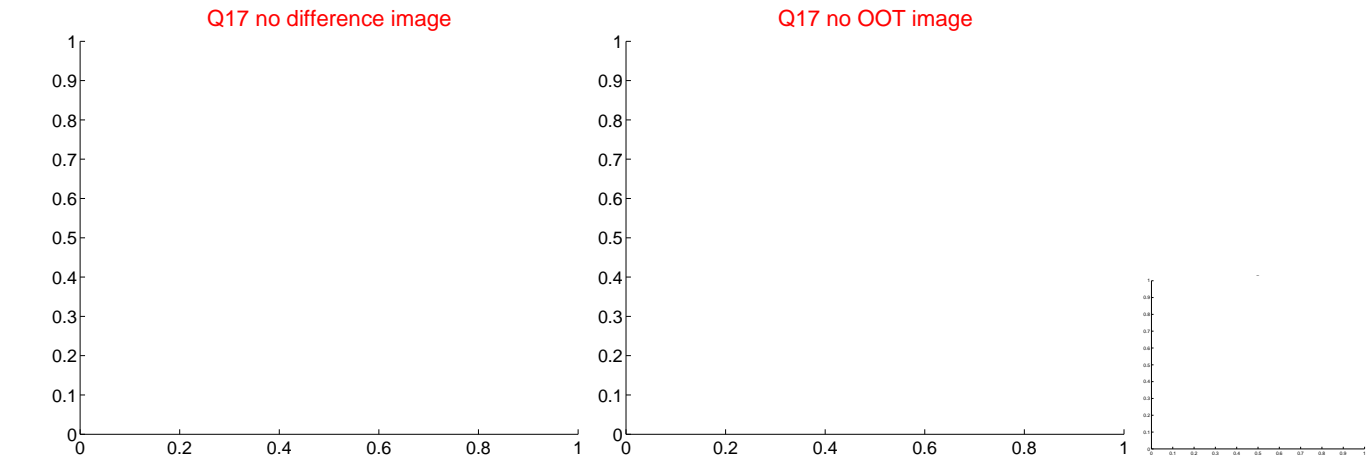
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

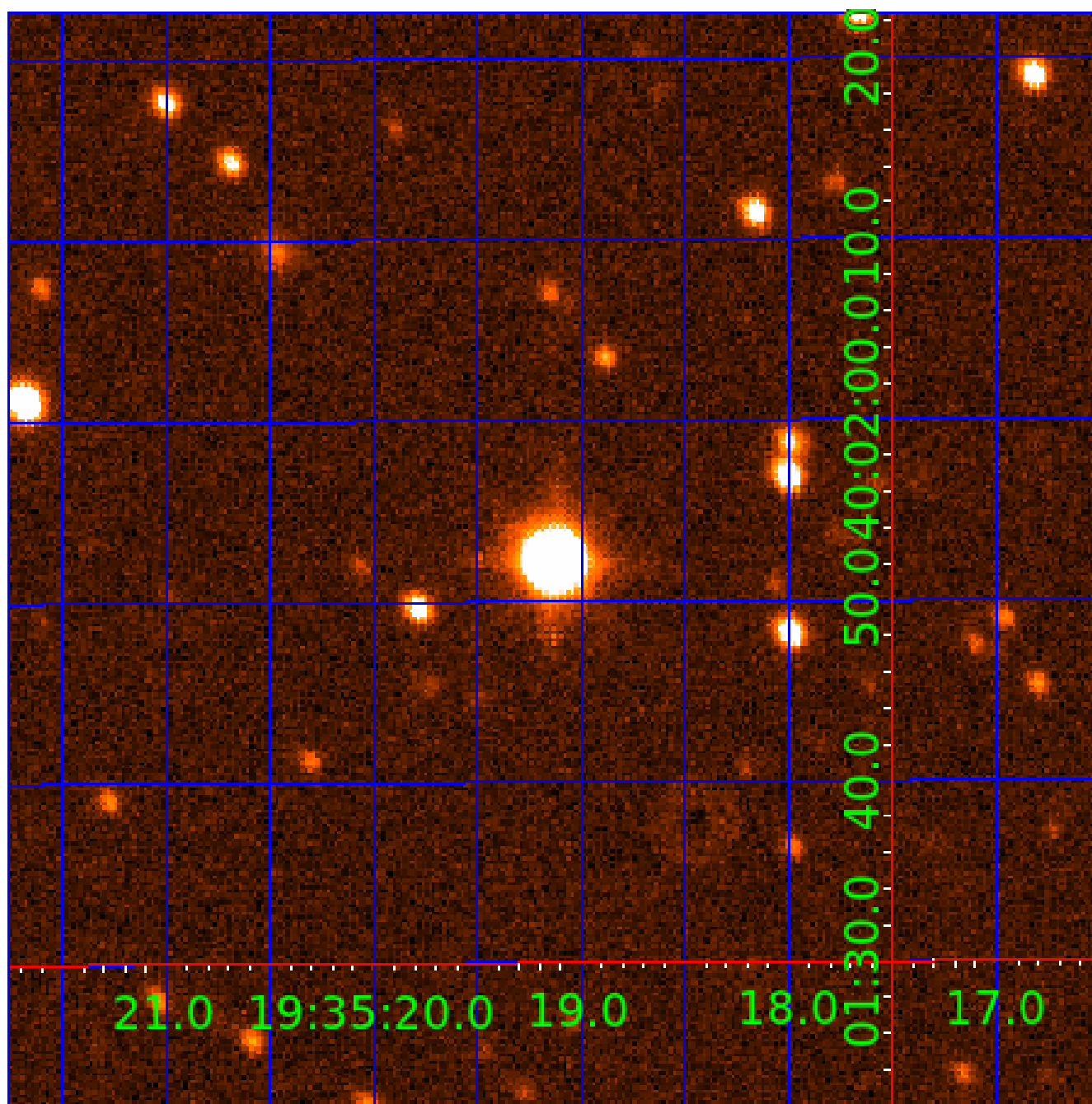


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004931073

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})
004931073-01	OBS	6473.01	26.951195	150.924637	82743.2	8.614	4129.8	1696.1	2.75	6675	133.59	324.96
004931073-02	OBS	No	26.951264	157.584426	59789.3	7.321	2668.6	2232.8	2.75	6675	113.97	324.96
004931073-03	OBS	No	1.160205	132.588107	30.5	3.030	13.4	9.7	2.75	6675	1.72	21539.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004931073-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
004931073-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
004931073-03	OBS	FP	0.00	1	0	0	0	LPP_DV

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 004931073-03

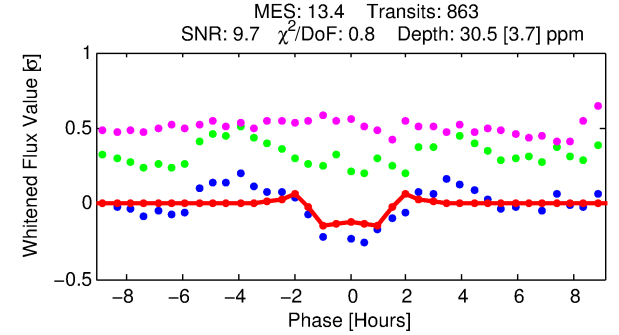
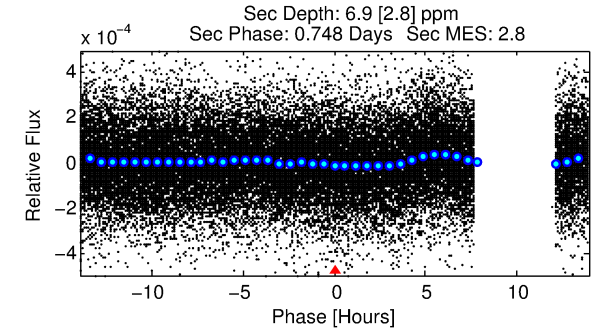
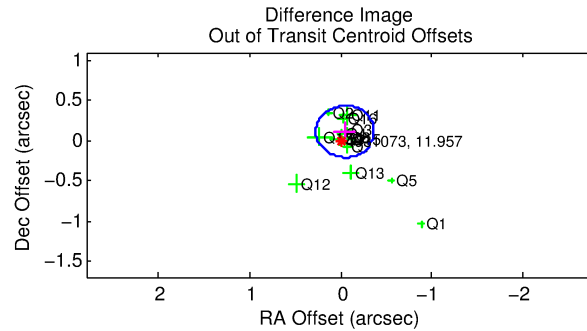
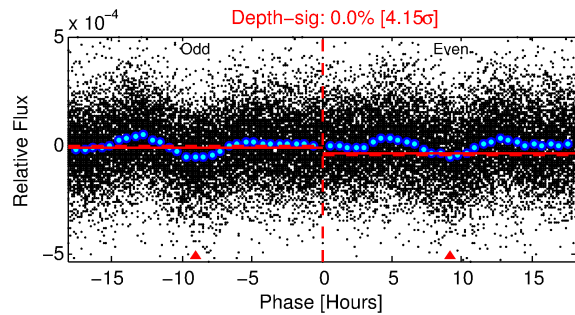
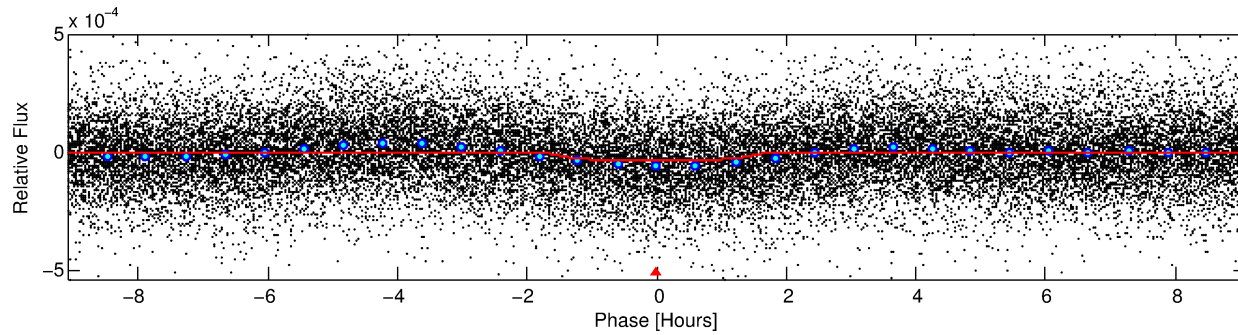
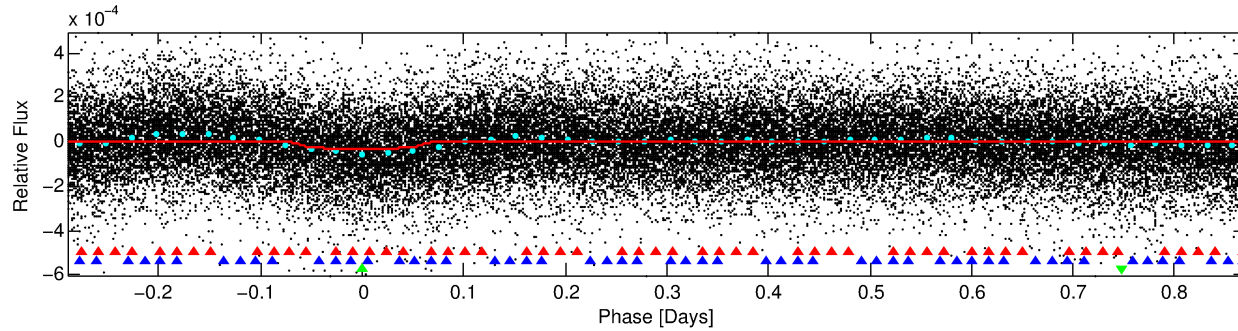
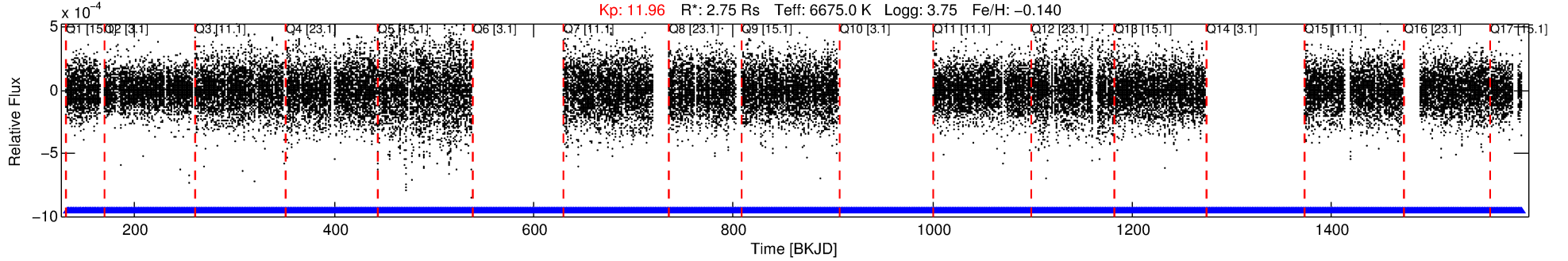
No Significant Match Found

DV One-Page Summary

KIC: 4931073 Candidate: 3 of 3 Period: 1.160 d

KOI: K06473 Corr: No Ephemeris Match

Kp: 11.96 R*: 2.75 Rs Teff: 6675.0 K Logg: 3.75 Fe/H: -0.140



DV Fit Results:

Period = 1.16021 [0.00001] d
Epoch = 132.5881 [0.0022] BKJD
Rp/R* = 0.0058 [0.0012]
a/R* = 1.77 [1.43]
b = 0.86 [0.36]
Seff = 21539.00 [10862.19]
Teq = 3089 [389] K
Rp = 1.72 [0.68] Re
a = 0.0250 [0.0078] AU
Ag = 0.79 [0.60] [-0.34σ]
Teffp = 4505 [673] K [1.82σ]

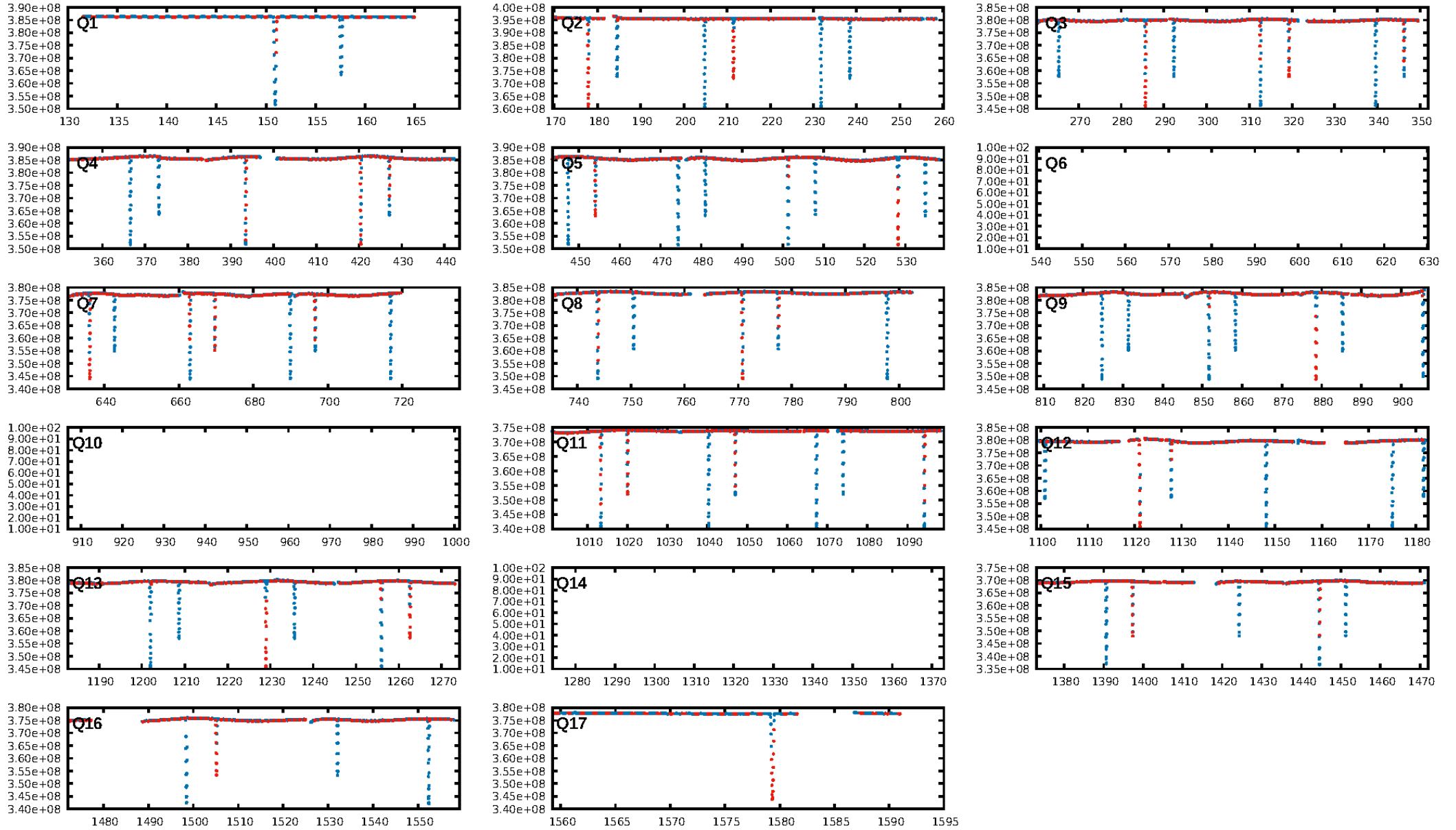
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [67.78σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 3.01e-28
RollingBand-fgt: 1.00 [814/814]
GhostDiagnostic-chr: 1.652
Centroid-sig: 53.1%
Centroid-so: 0.223 arcsec [0.54σ]
OotOffset-rm: 0.121 arcsec [1.13σ]
KicOffset-rm: 0.110 arcsec [1.21σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

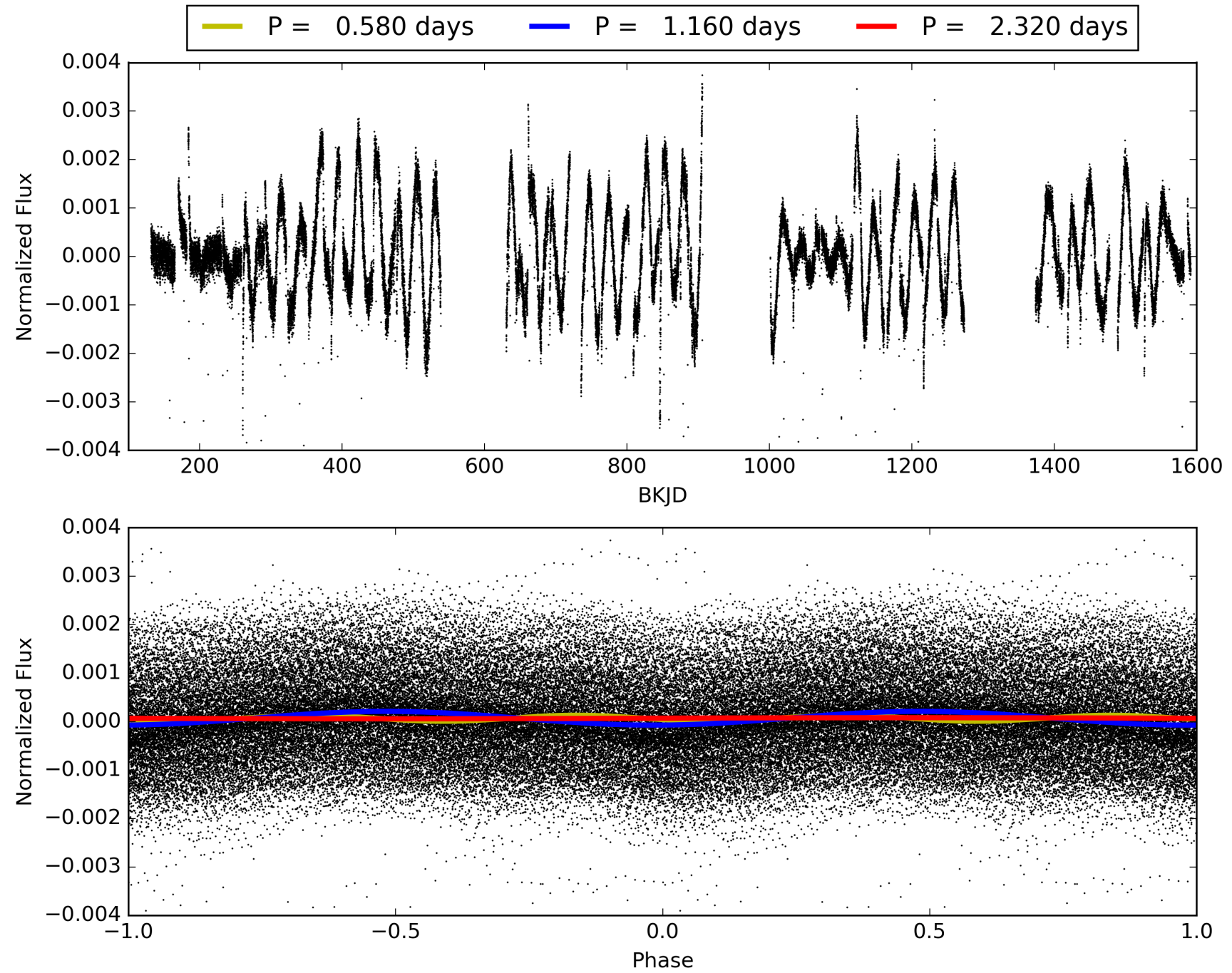
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 03:01:44 Z

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

TCE 004931073-03, PDC Light Curves

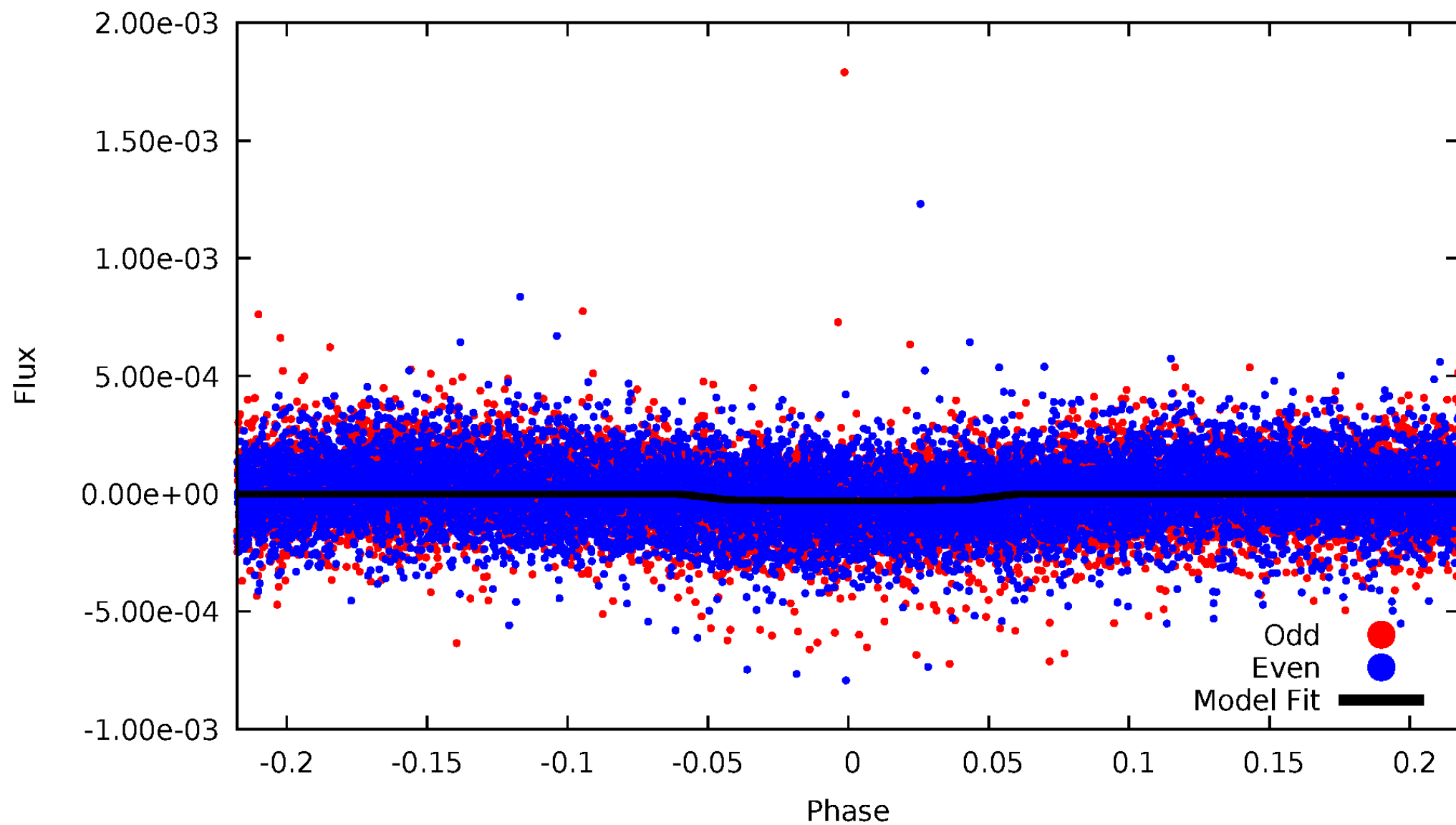


TCE 004931073-03



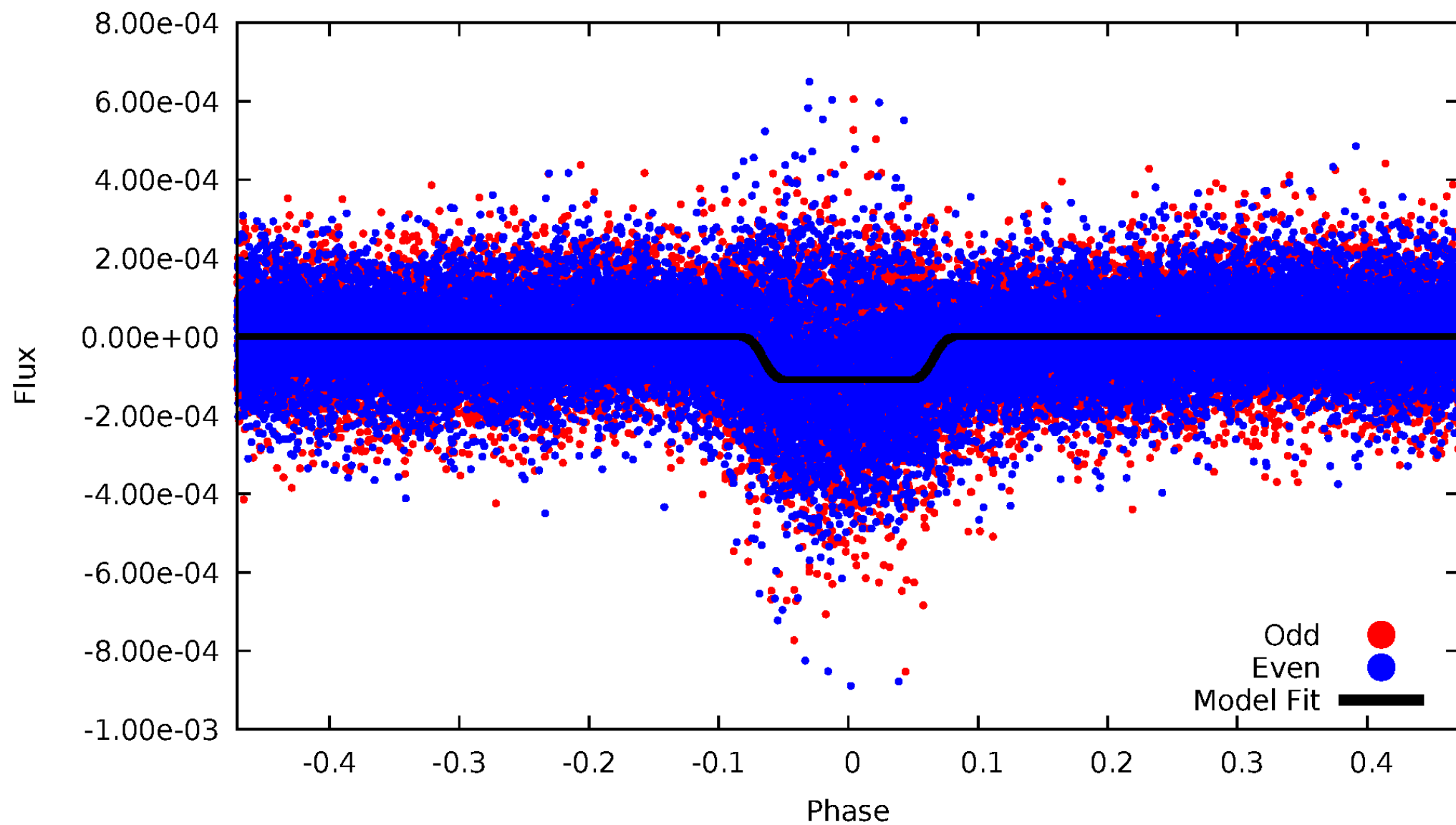
DV Odd/Even

TCE 004931073-03

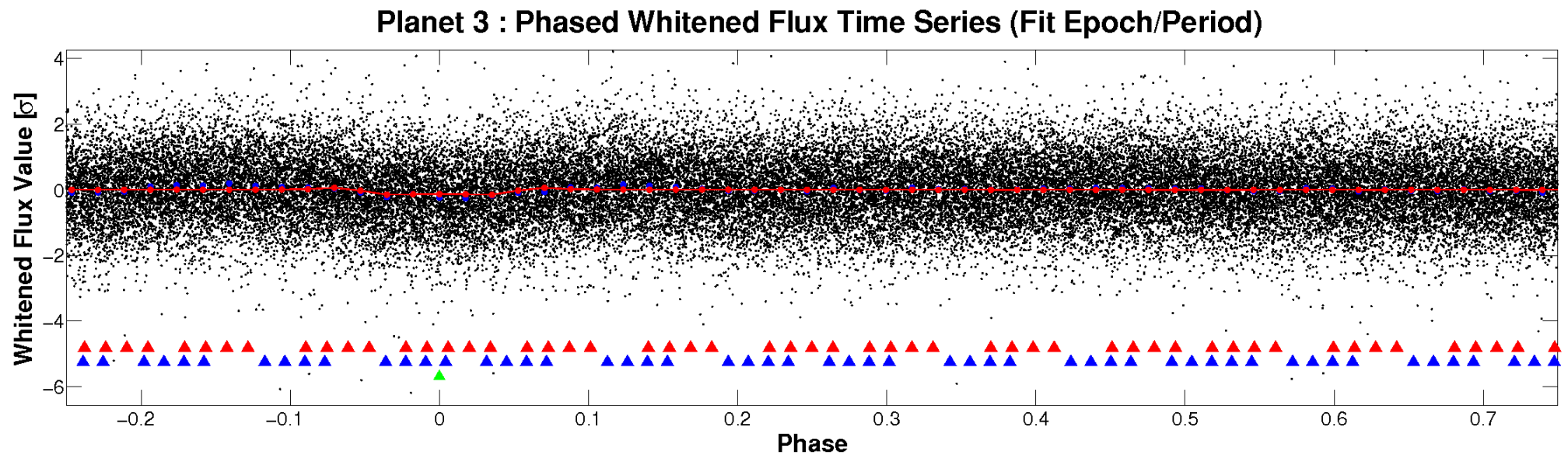
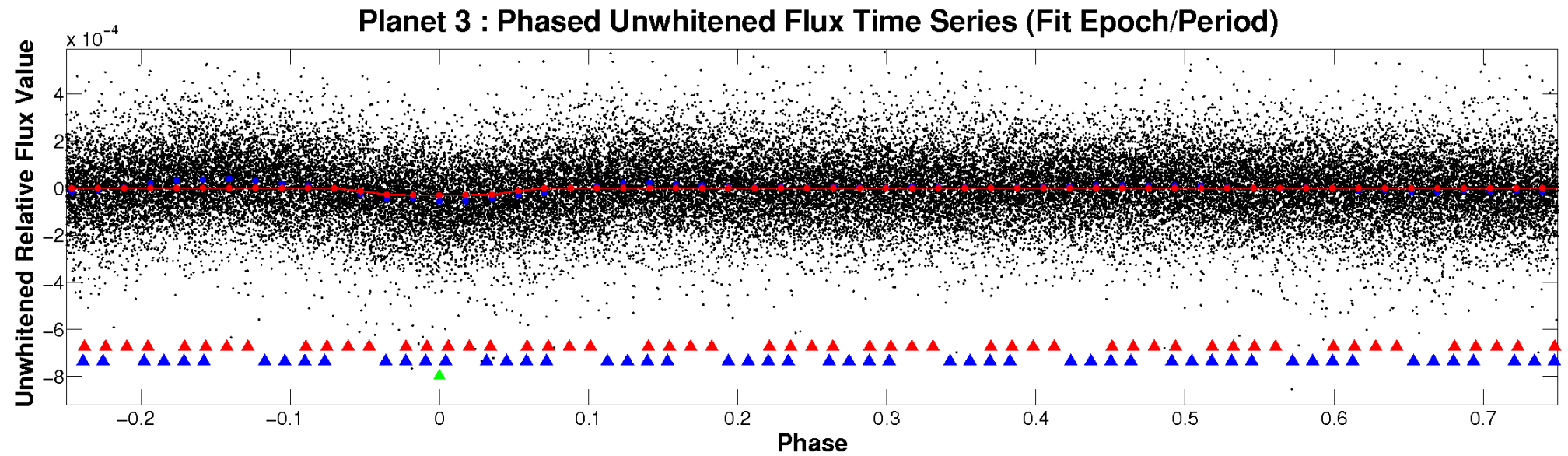


ALT Odd/Even

TCE 004931073-03

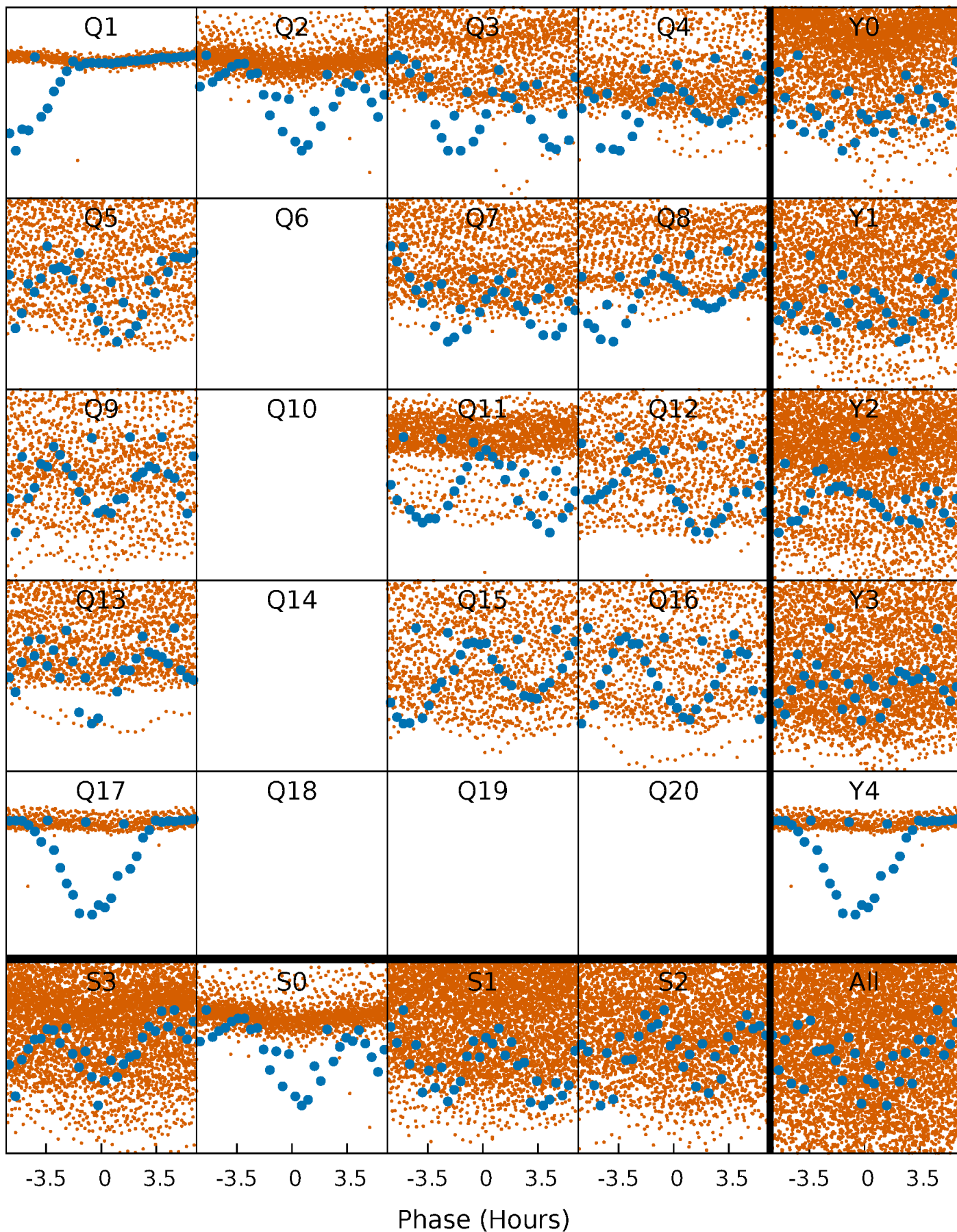


Non-Whitened Vs. Whitened Light Curve



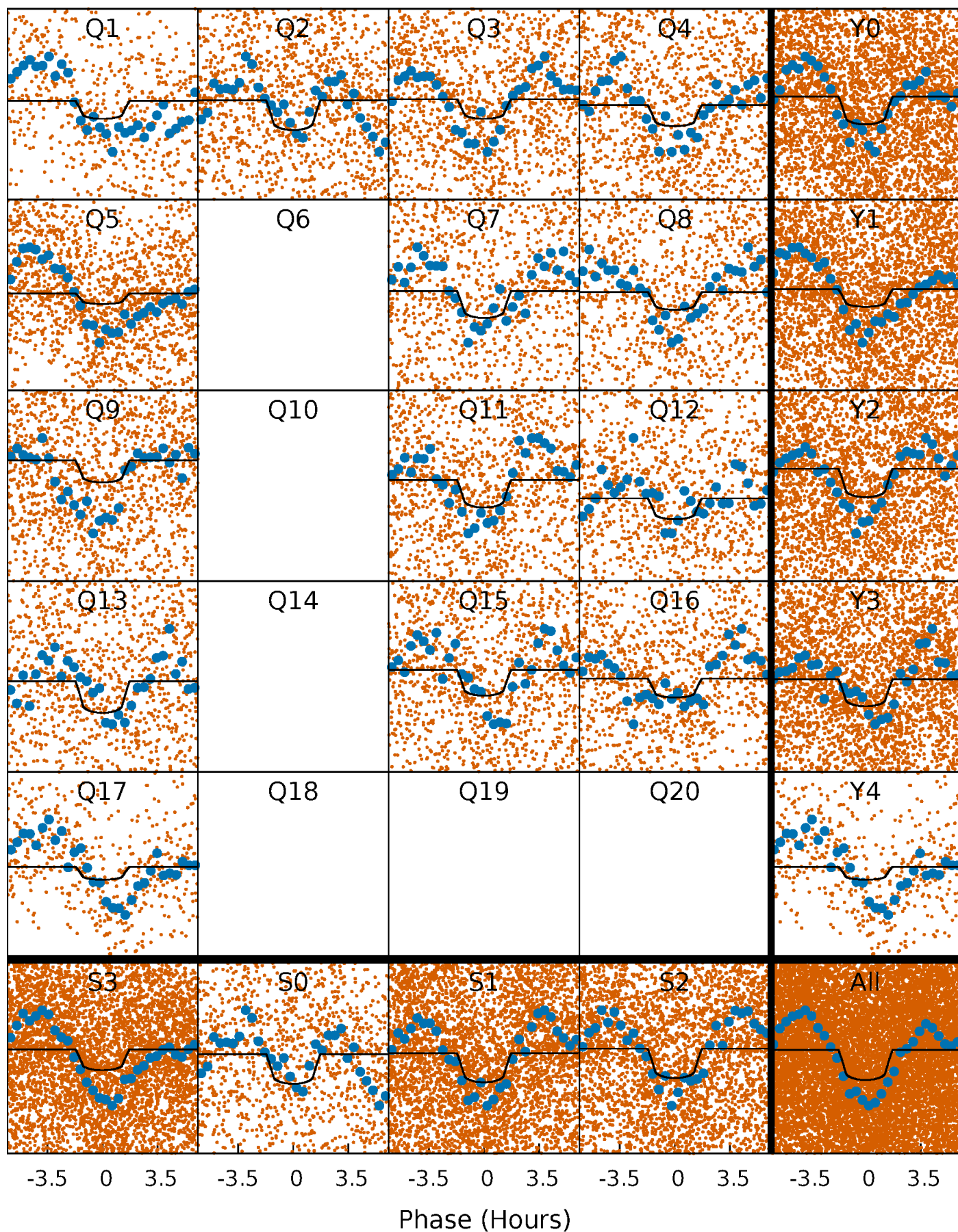
PDC Quarter-Phased Transit Curves

TCE 004931073-03 P= 1.160205 Days $T_0=132.588107$ (BKJD)



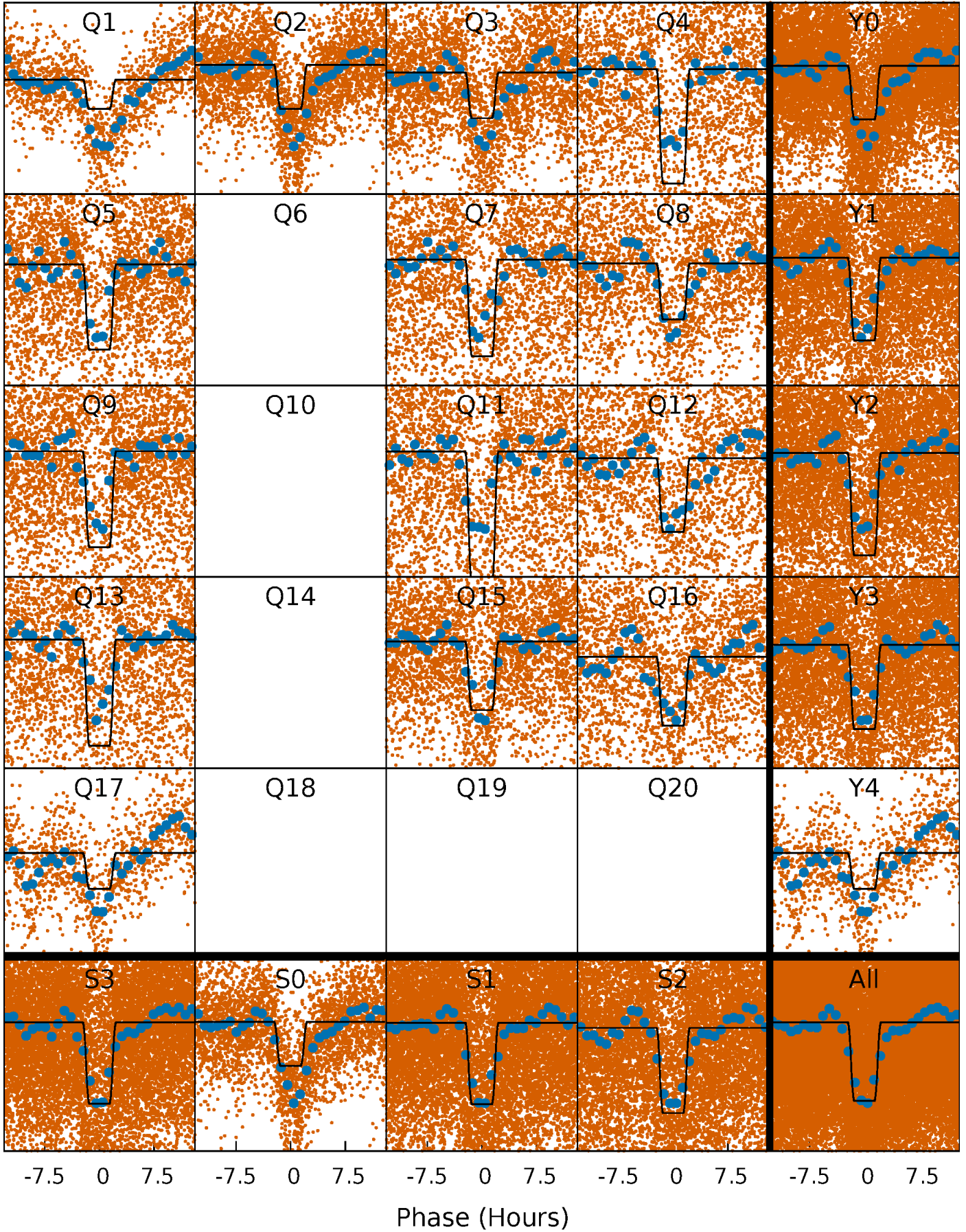
DV Quarter-Phased Transit Curves

TCE 004931073-03 P= 1.160205 Days $T_0=132.588107$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

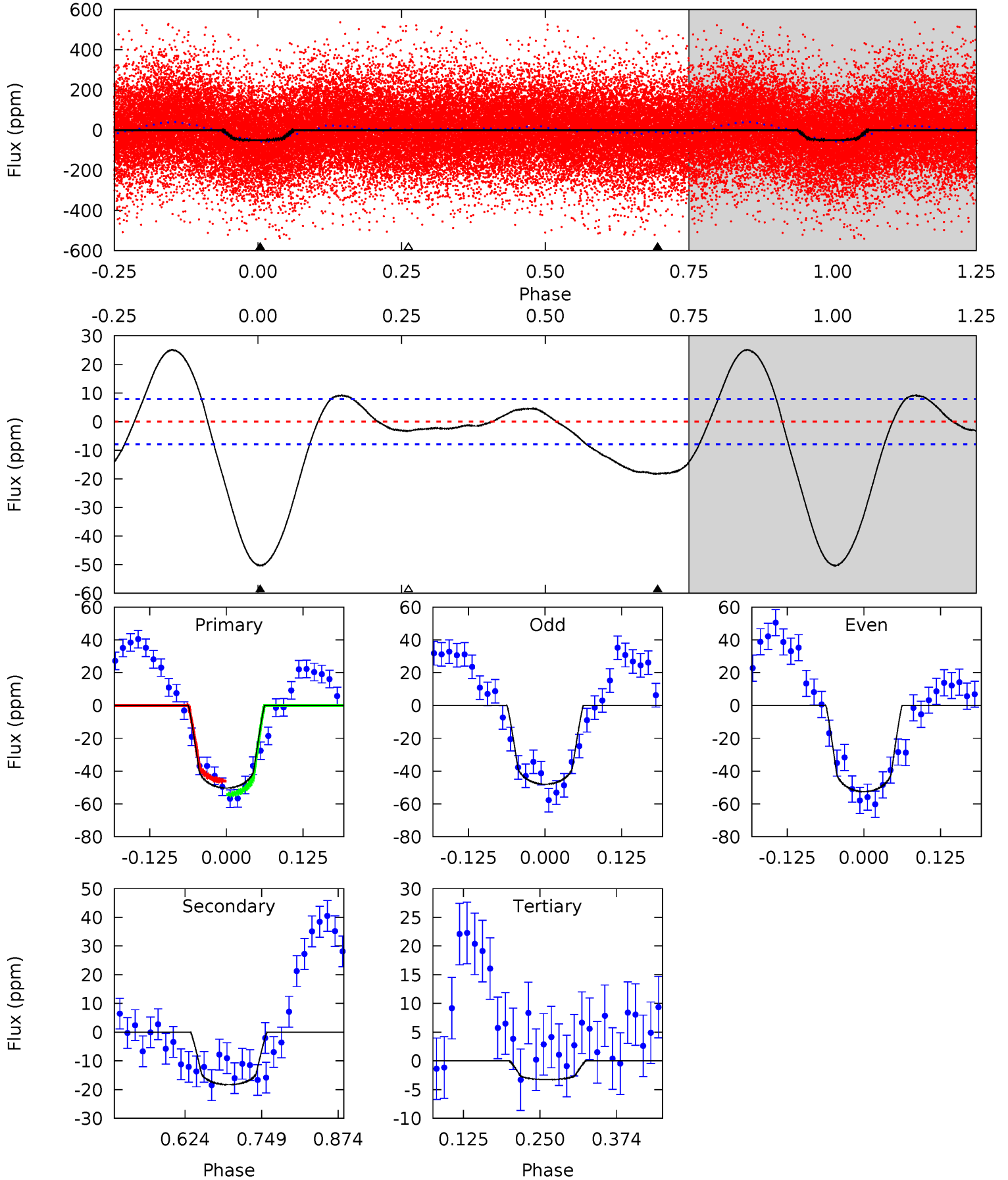
TCE 004931073-03 P= 1.160251 Days $T_0=132.571323$ (BKJD)



DV Model-Shift Uniqueness Test

004931073-03, P = 1.160205 Days, E = 131.427902 Days

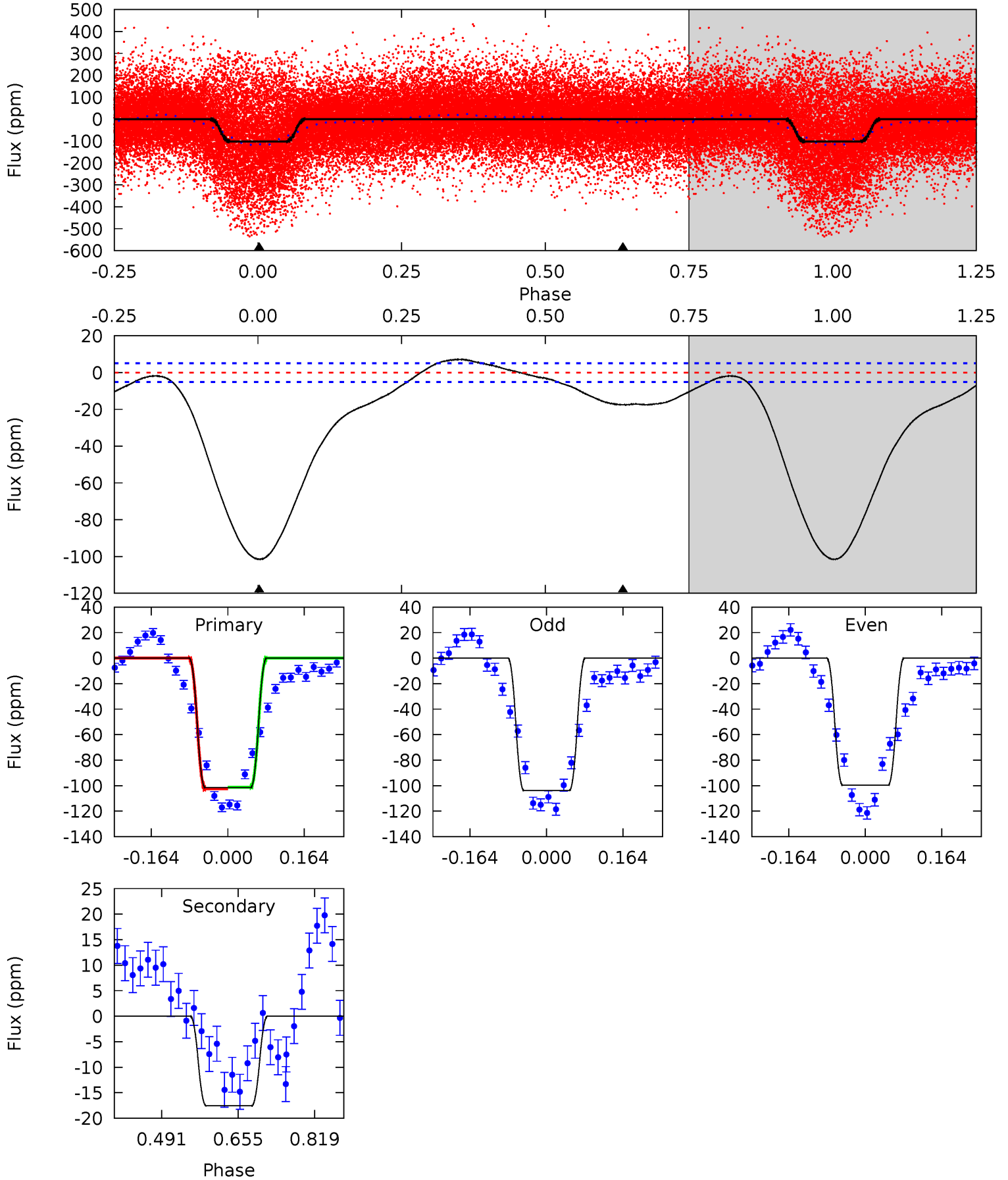
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.8	10.5	1.87	0	4.52	1.53	4.65	27.0	28.8	8.61	10.5	1.30	1.09	0.33	2.34



Alt Model-Shift Uniqueness Test

004931073-03, P = 1.160251 Days, E = 131.411072 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.0	15.4	0	0	4.46	1.39	7.01	89.0	89.0	15.4	15.4	1.81	0.93	0.07	0.54



Stellar Parameters For KIC 004931073

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6675^{+160}_{-200}	$3.748^{+0.285}_{-0.095}$	$-0.140^{+0.300}_{-0.250}$	$2.747^{+0.489}_{-0.908}$	$1.540^{+0.238}_{-0.291}$	$0.105^{+0.210}_{-0.032}$
	+2%/-3%	+8%/-3%	+214%/-179%	+18%/-33%	+15%/-19%	+201%/-31%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004931073-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-18 ± 2	$1.65^{+0.43}_{-0.43}$	4248^{+253}_{-382}	5547^{+815}_{-568}	$2.336^{+1.914}_{-0.878}$
Alt.	-18 ± 1	$3.01^{+0.60}_{-0.55}$	4223^{+263}_{-323}	3946^{+340}_{-345}	$0.668^{+0.319}_{-0.189}$

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 $A_{obs} \gg 1.0$

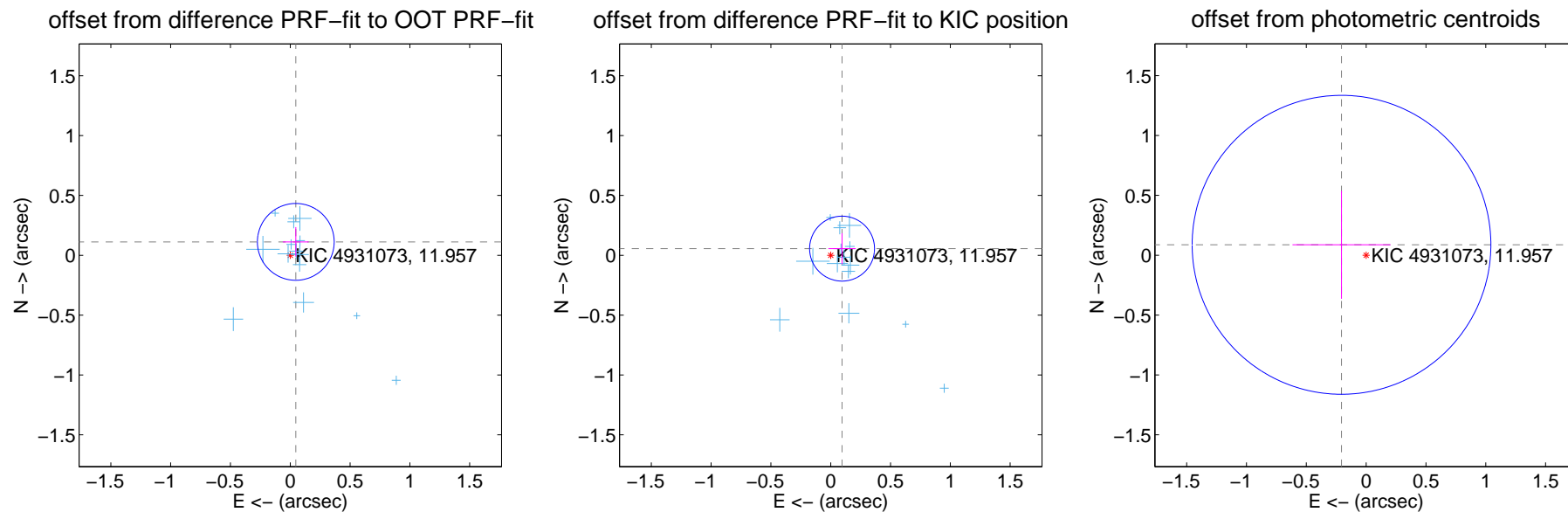
DV Centroid Data

Supplemental centroid analysis for 004931073-03. **Kepler magnitude: 11.96.** Transit SNR 9.75

There are 14 quarters with good PRF difference image offsets

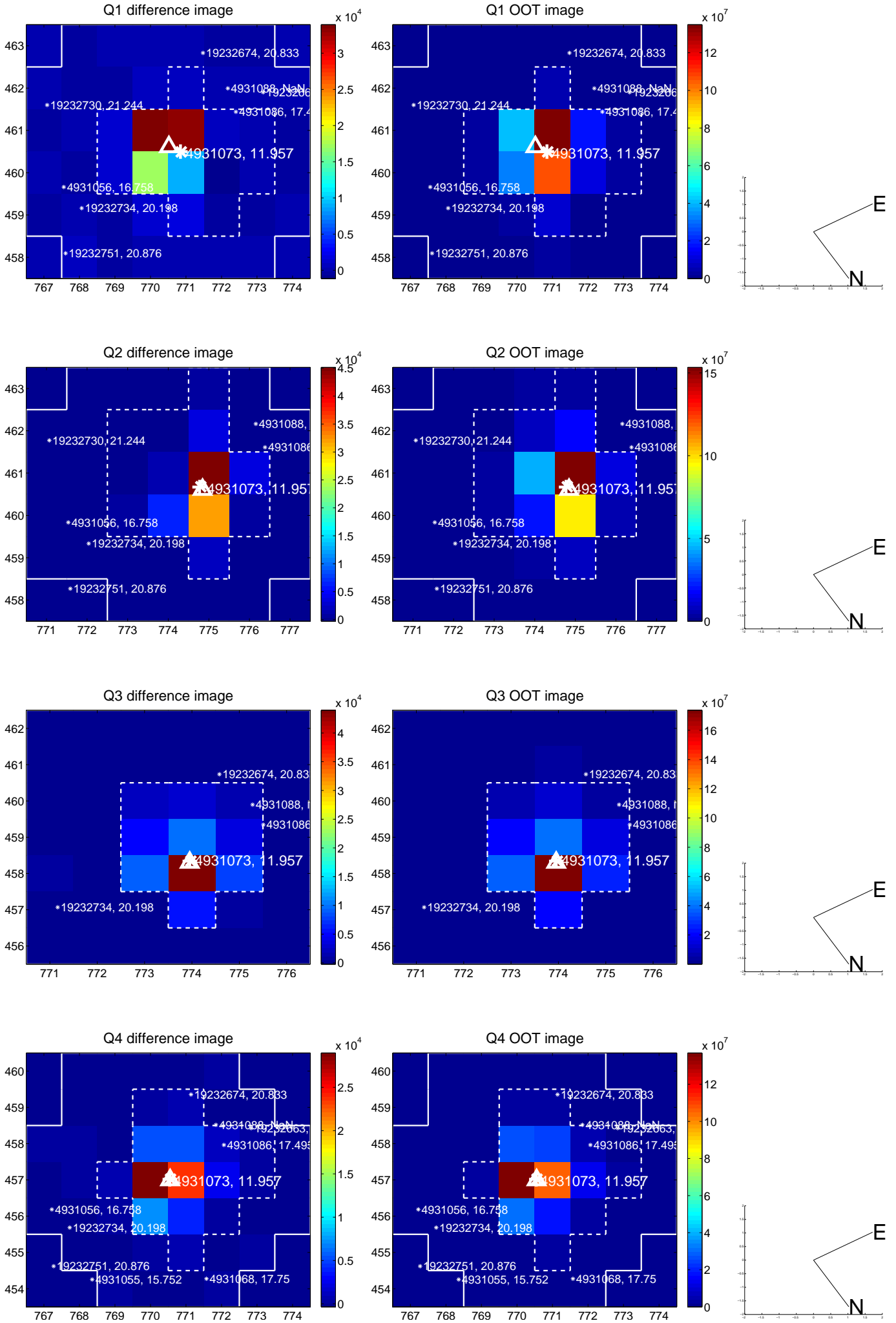
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.121 ± 0.107	1.13	-0.046 ± 0.108	0.112 ± 0.124
PRF-fit source offset from KIC position	0.110 ± 0.090	1.21	-0.095 ± 0.114	0.056 ± 0.129
photometric centroid source offset	0.22 ± 0.42	0.54	0.21 ± 0.41	0.09 ± 0.45

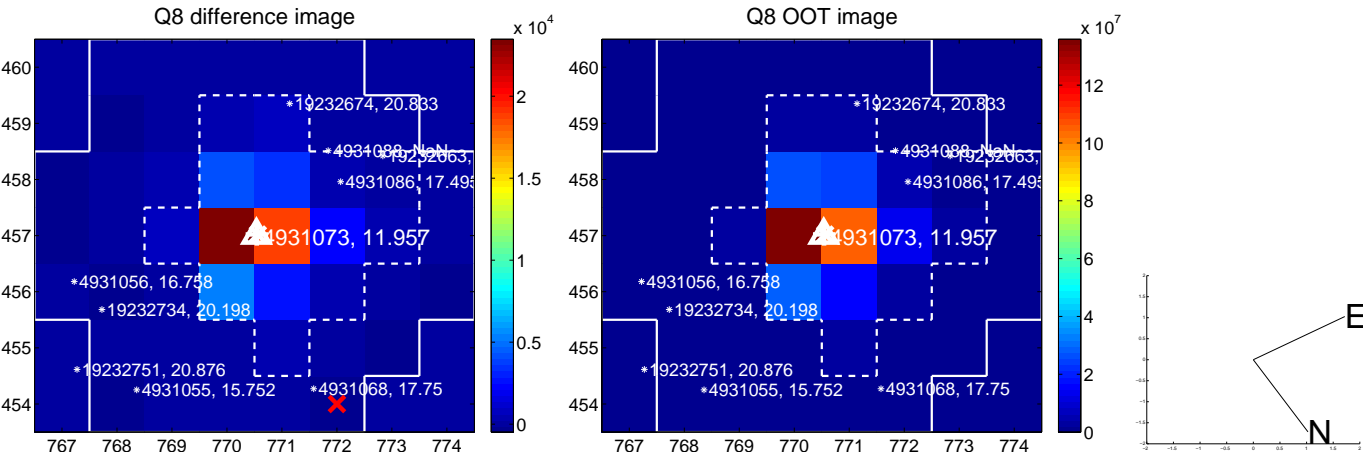
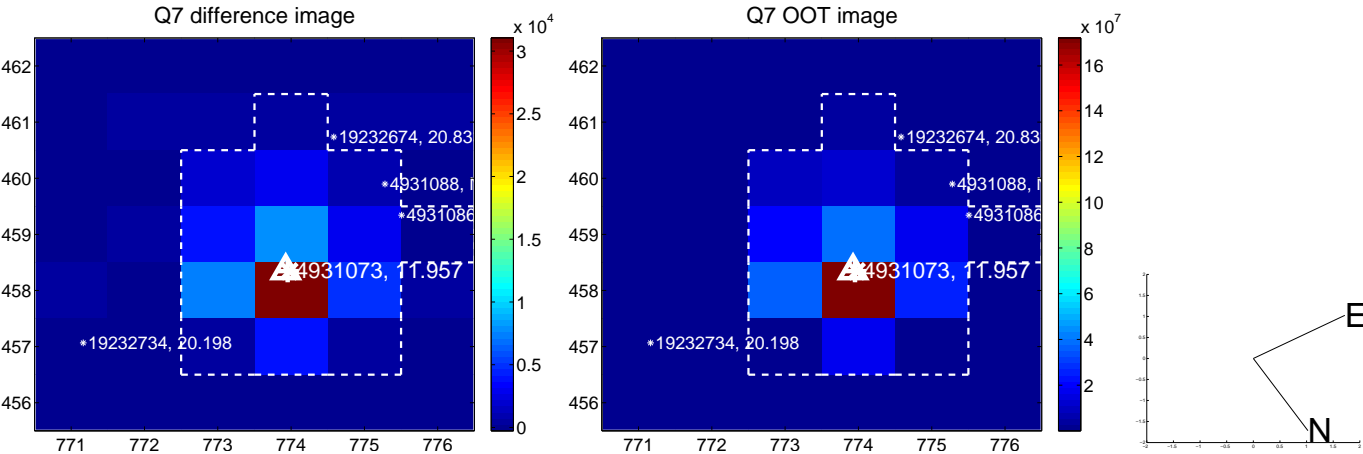
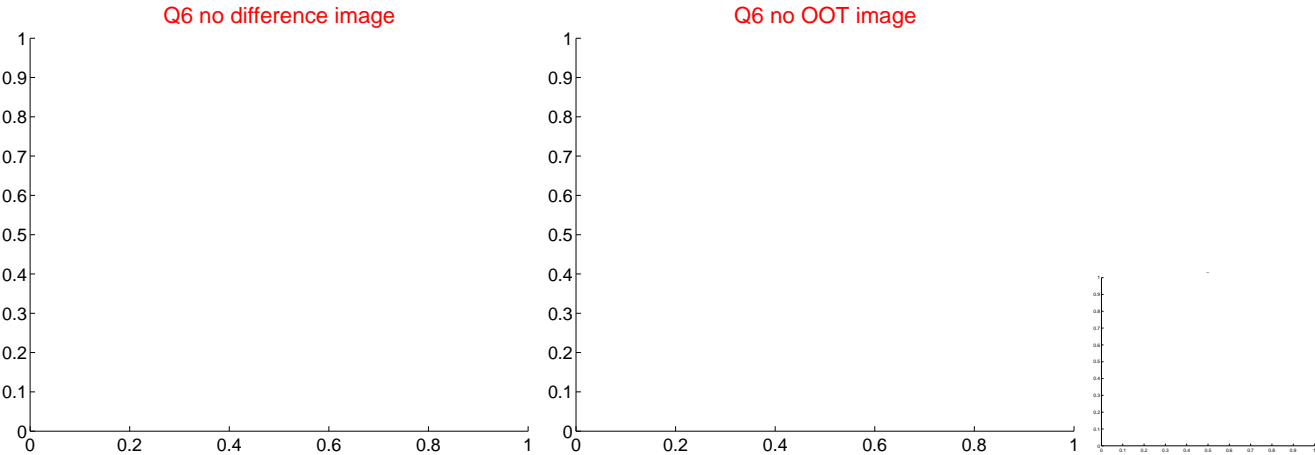
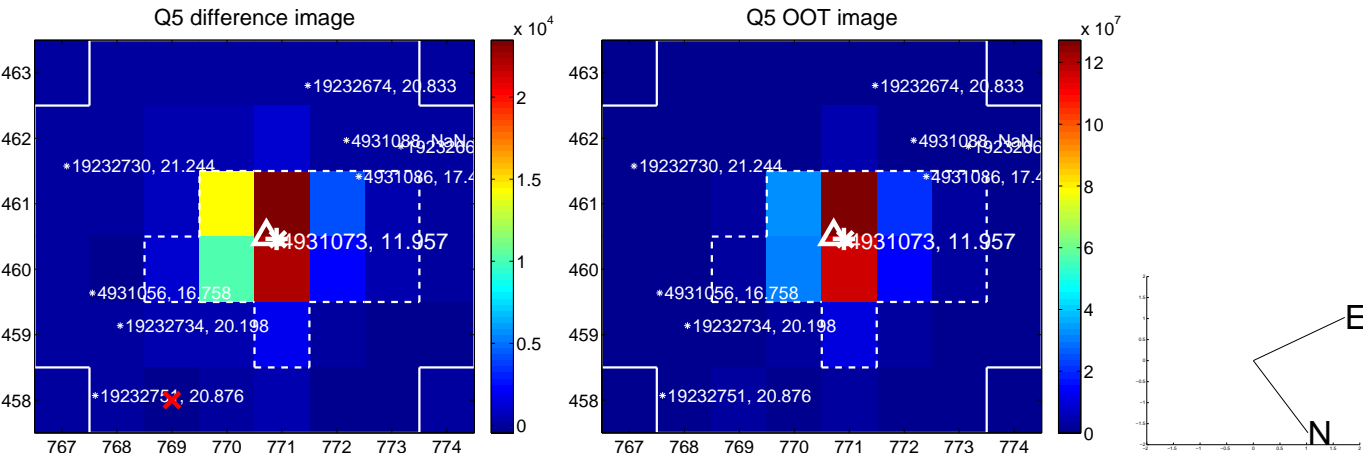


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

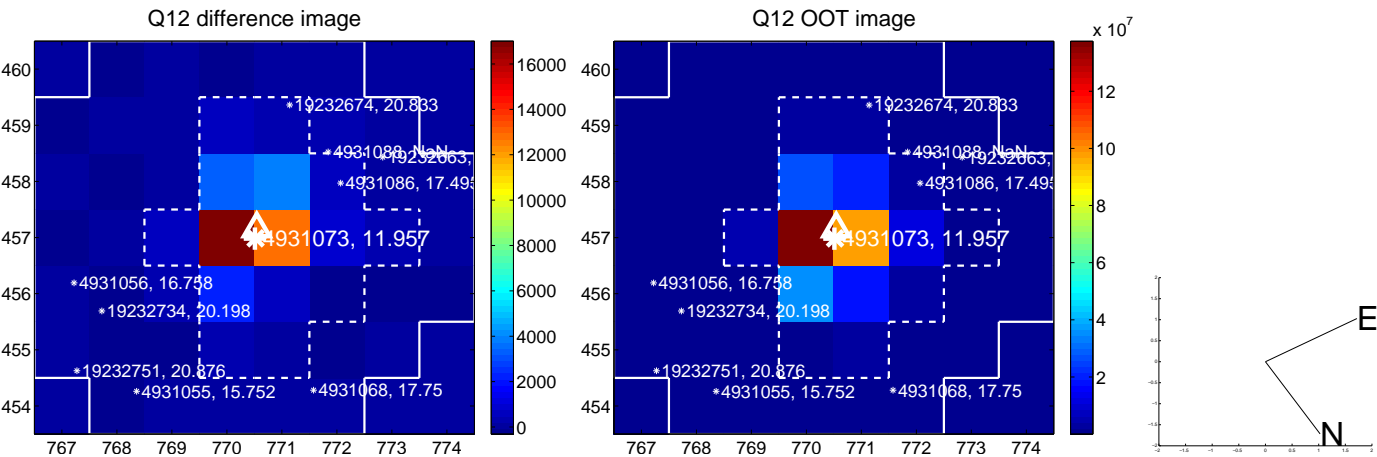
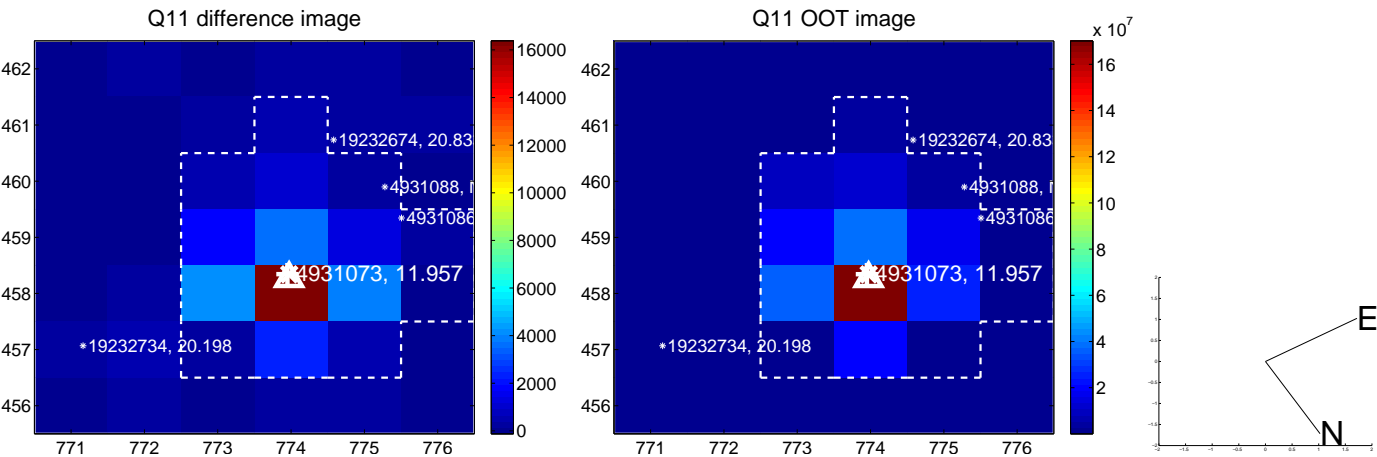
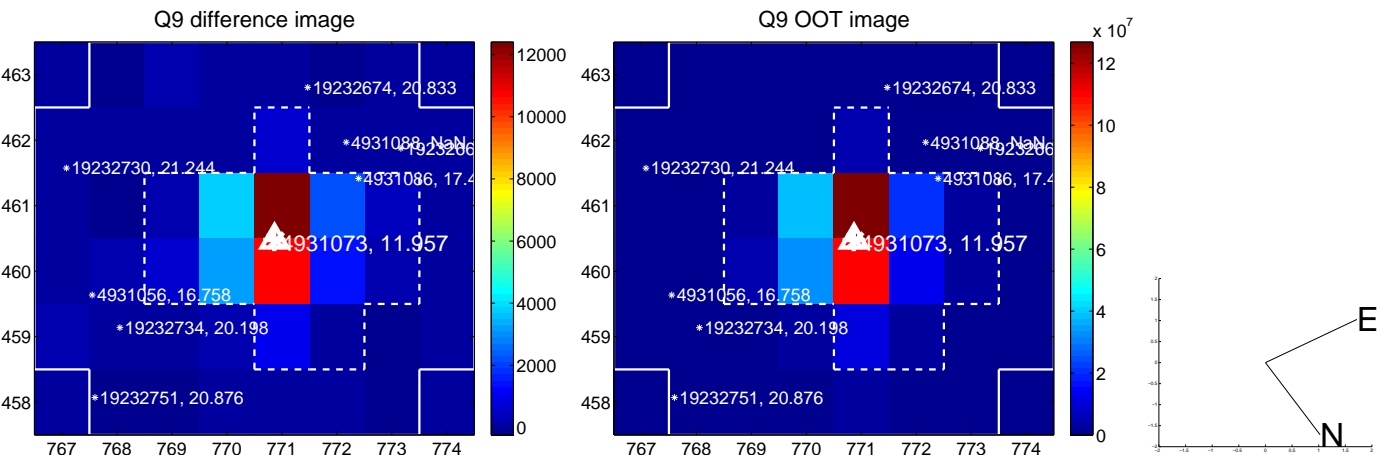
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



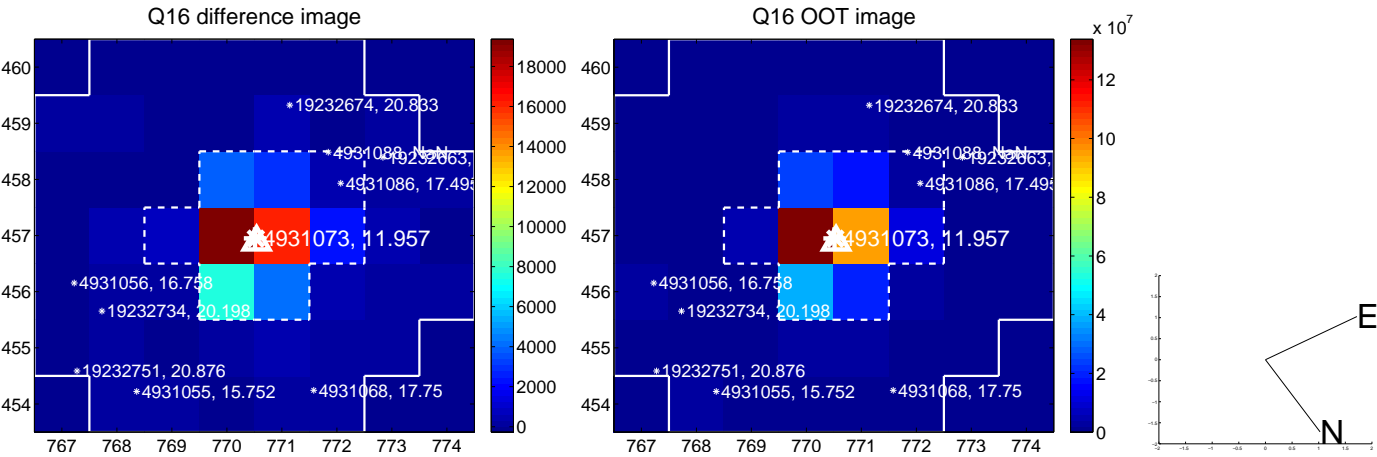
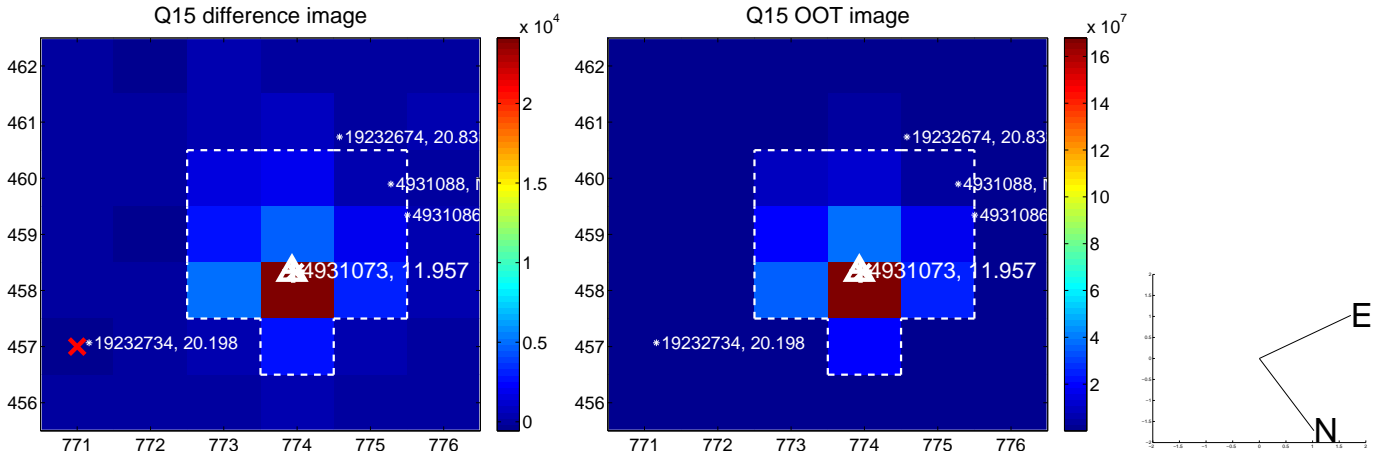
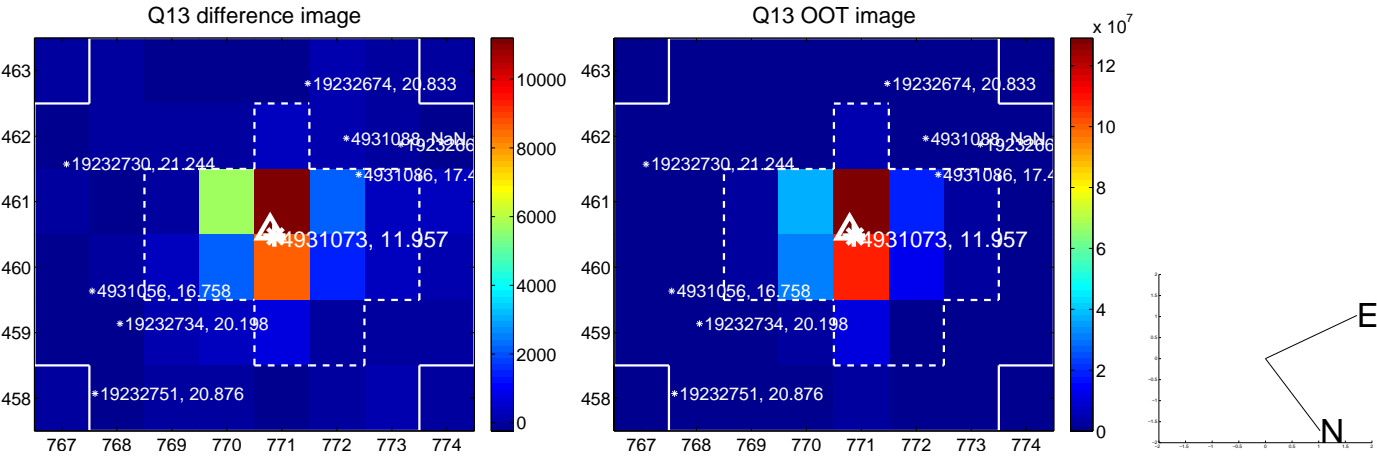
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



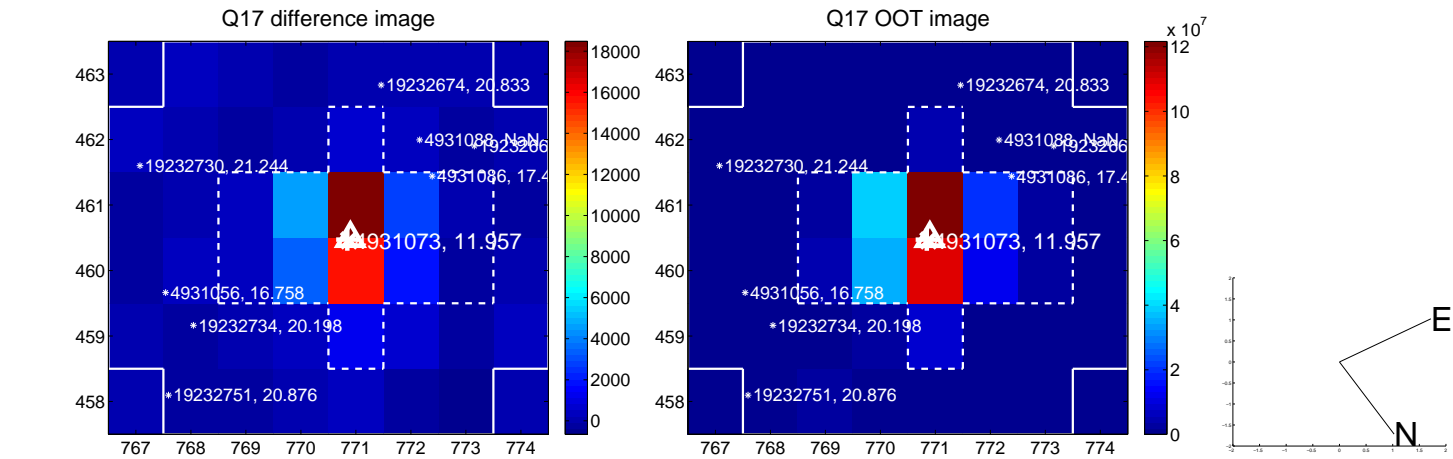
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



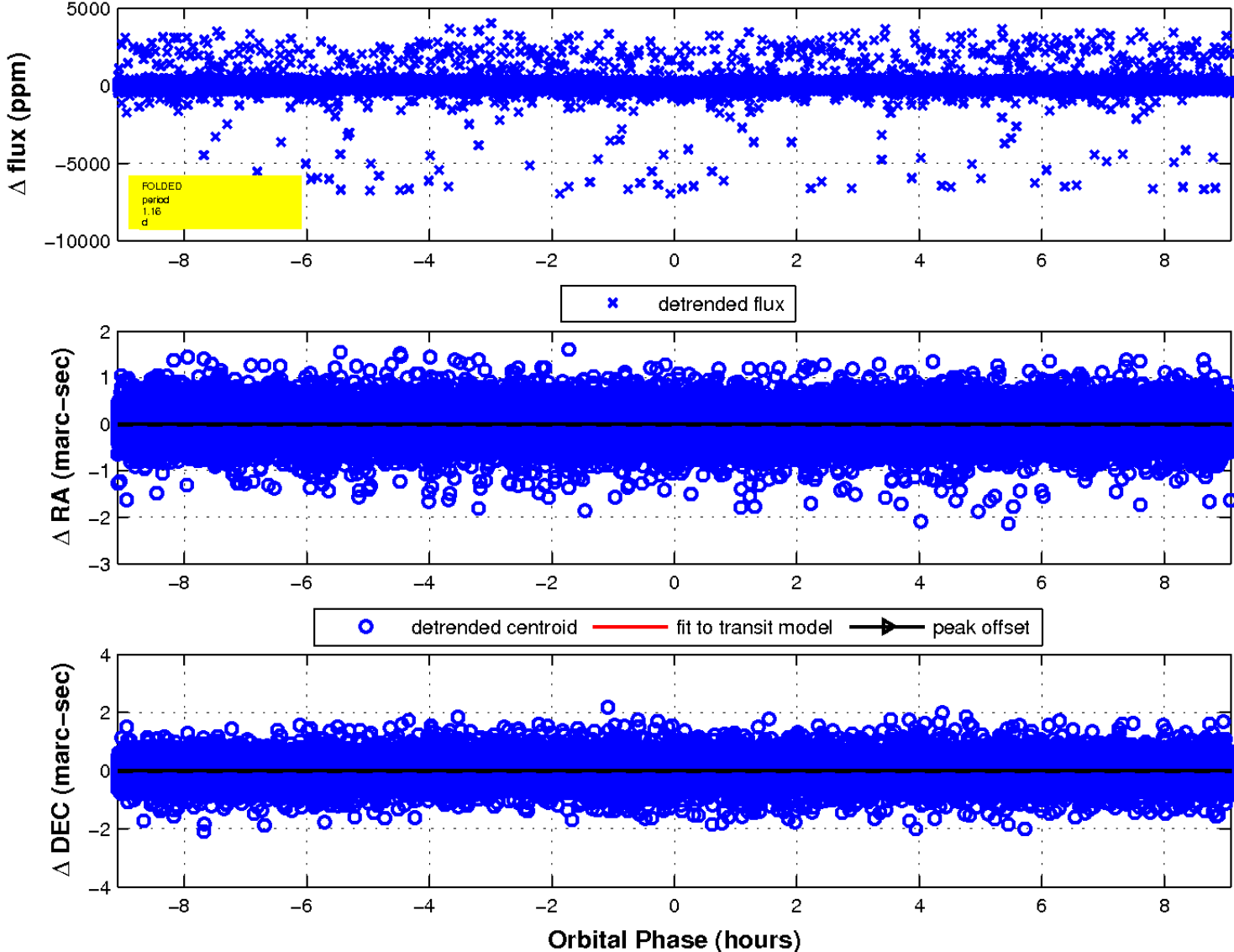
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

