

KIC 002975770

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})
002975770-01	OBS	1788.01	71.525370	191.690821	5929.5	5.998	110.0	111.5	0.78	4855	5.94	3.15
002975770-02	OBS	1788.02	369.065073	298.392945	1111.0	6.593	14.4	15.0	0.78	4855	3.32	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002975770-01	OBS	PC	0.93	0	0	0	0	NO_COMMENT
002975770-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE

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.

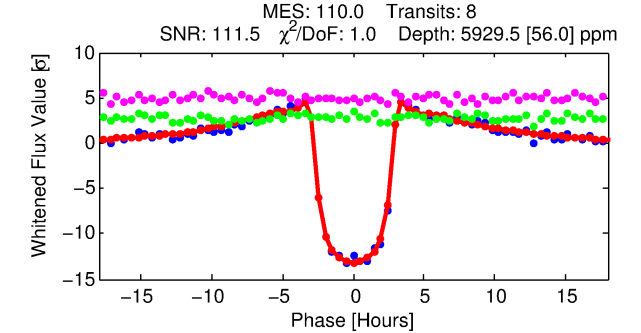
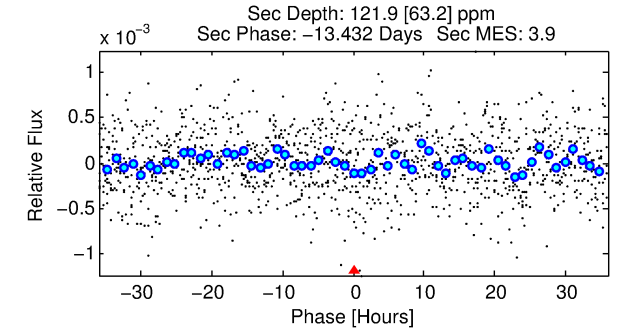
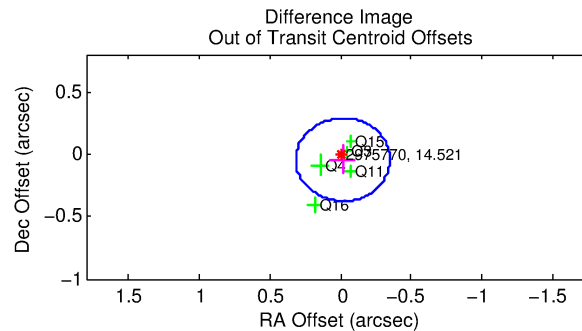
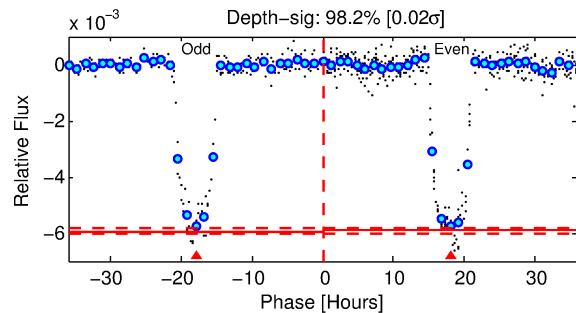
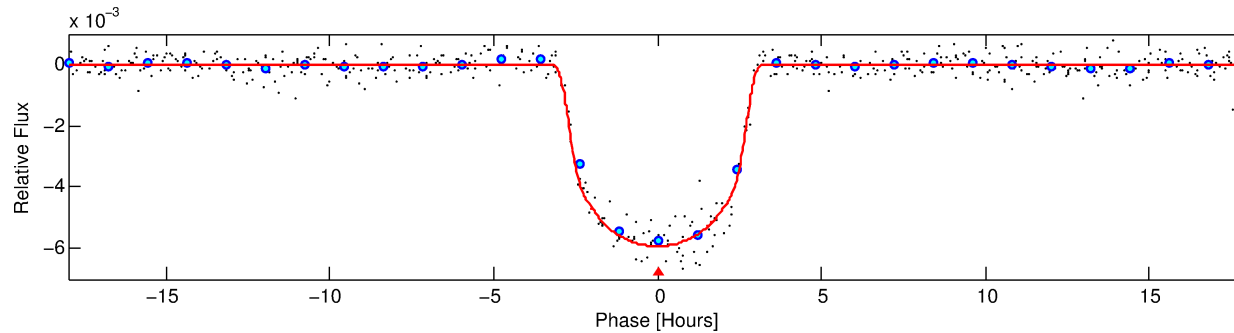
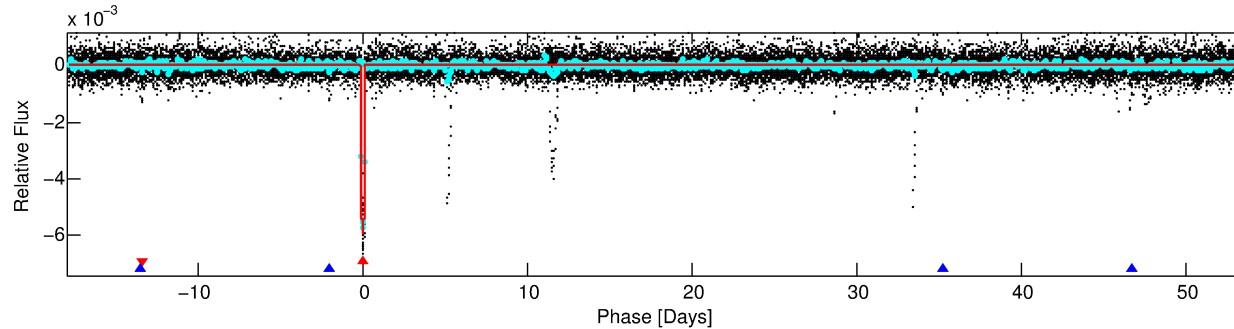
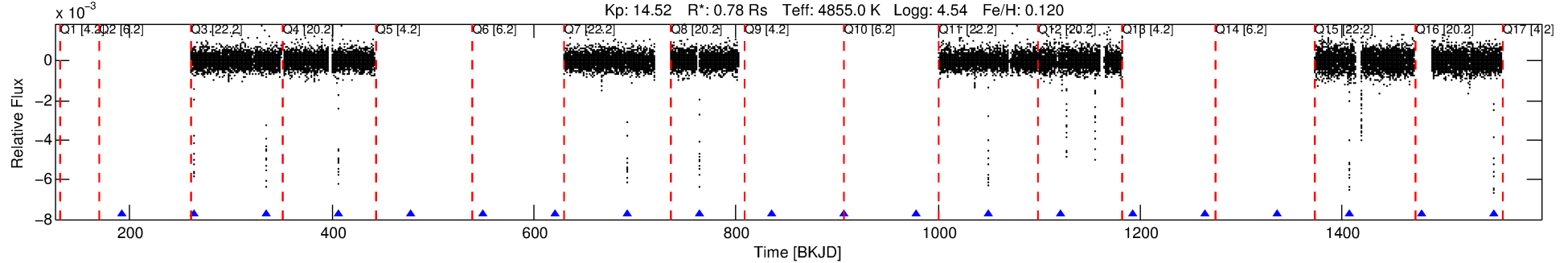
Ephemeris Match Information For 002975770-01

No Significant Match Found

DV One-Page Summary

KIC: 2975770 Candidate: 1 of 2 Period: 71.525 d
KOI: K01788.01 Corr: 0.995

Kp: 14.52 R*: 0.78 Rs Teff: 4855.0 K Logg: 4.54 Fe/H: 0.120



DV Fit Results:

Period = 71.52537 [0.00008] d
Epoch = 191.6908 [0.0008] BKJD
Rp/R* = 0.0700 [0.0038]
a/R* = 89.50 [15.17]
b = 0.42 [0.33]
Seff = 3.16 [0.38]
Teff = 340 [10] K
Rp = 5.94 [0.48] Re
a = 0.3090 [0.0182] AU
Ag = 181.35 [97.58] [1.85σ]
Teffp = 1928 [258] K [6.16σ]

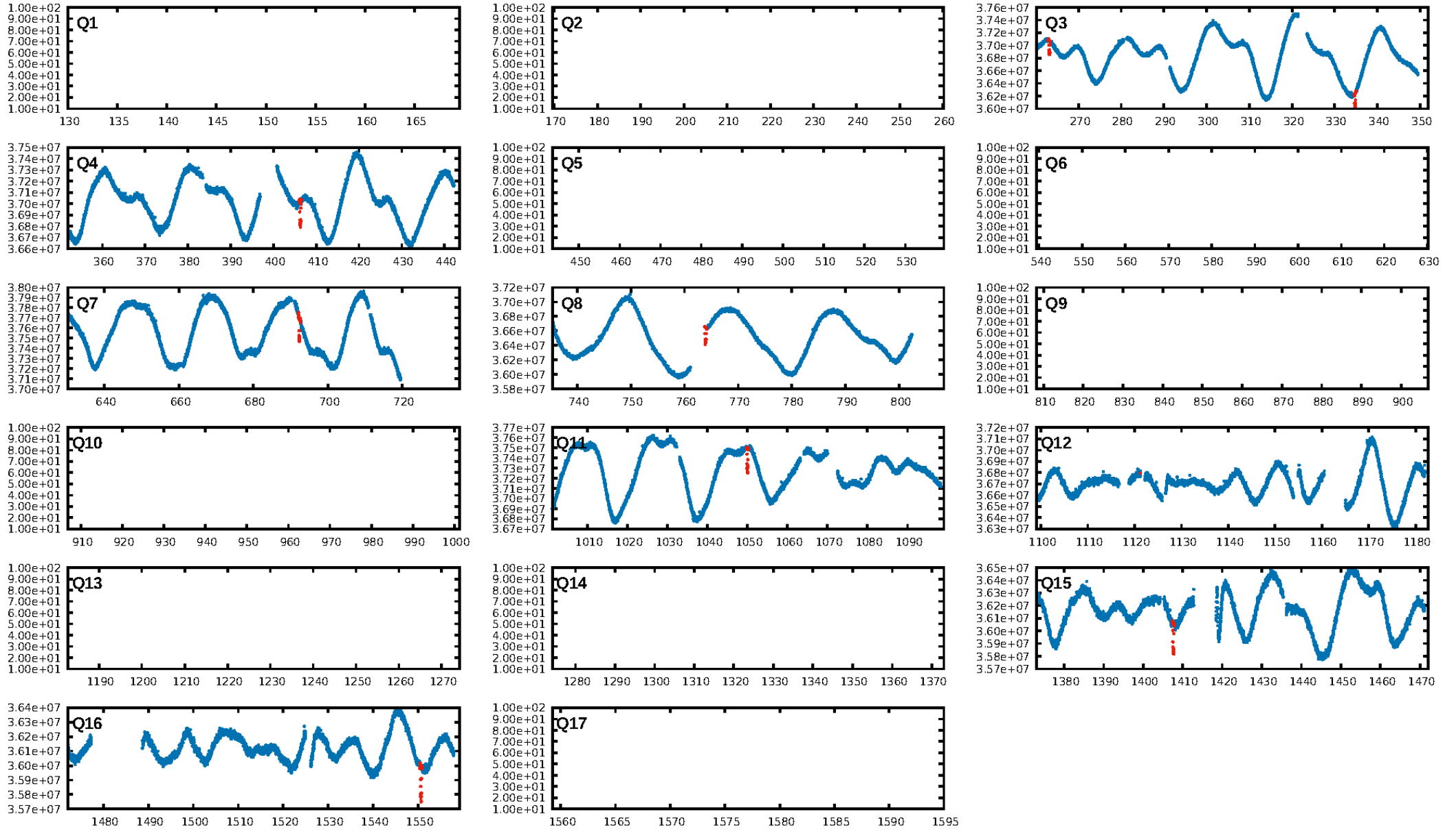
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [801.21σ]
ModelChiSquare2-sig: 10.3%
ModelChiSquareGof-sig: 94.5%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 2.093
Centroid-sig: 0.0%
Centroid-so: 0.221 arcsec [1.99σ]
OotOffset-rm: 0.047 arcsec [0.42σ]
KicOffset-rm: 0.109 arcsec [0.75σ]
OotOffset-st: 0/3/2/0 [5]
KicOffset-st: 0/3/2/0 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [5/5]

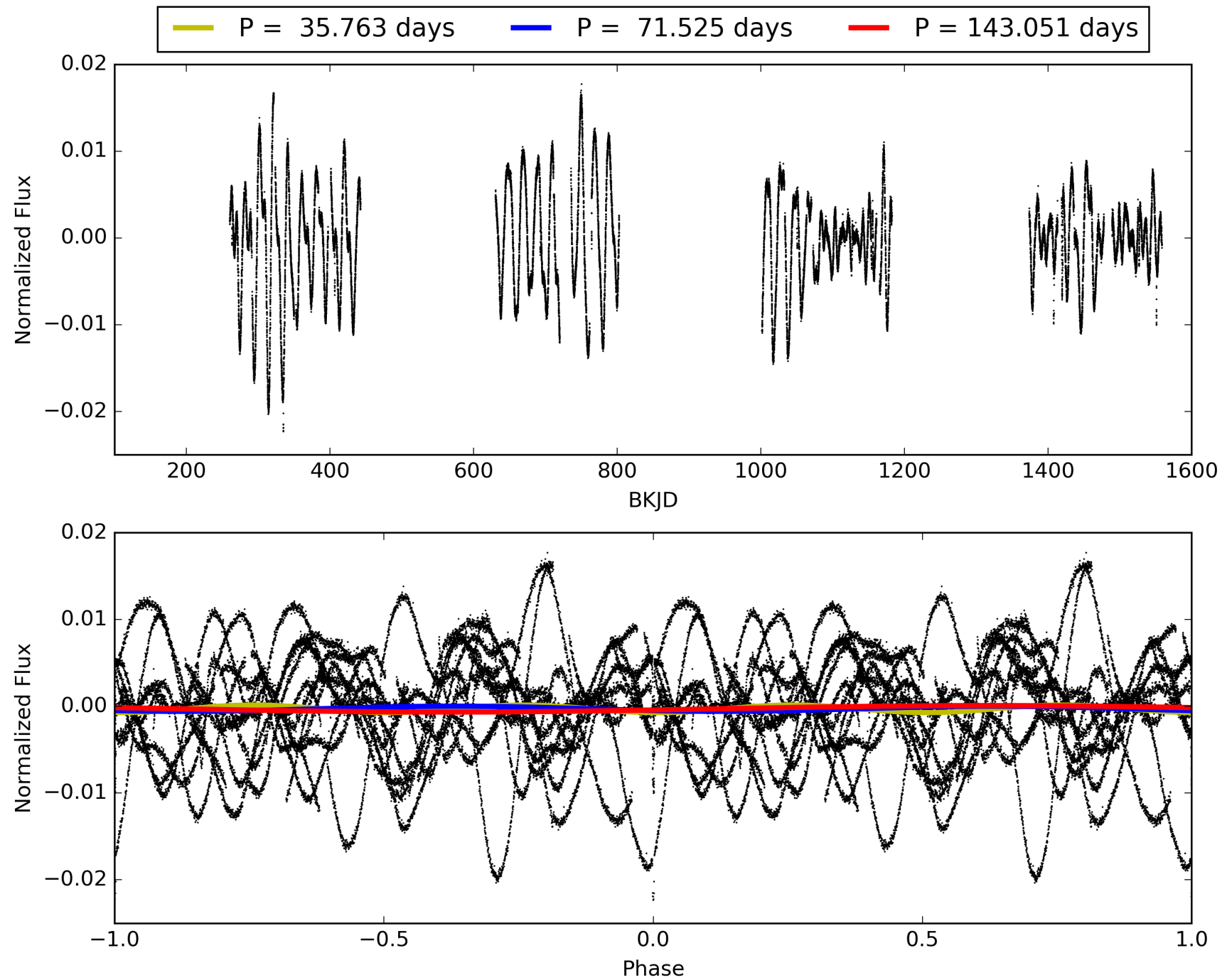
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:55:03 Z

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

TCE 002975770-01, PDC Light Curves

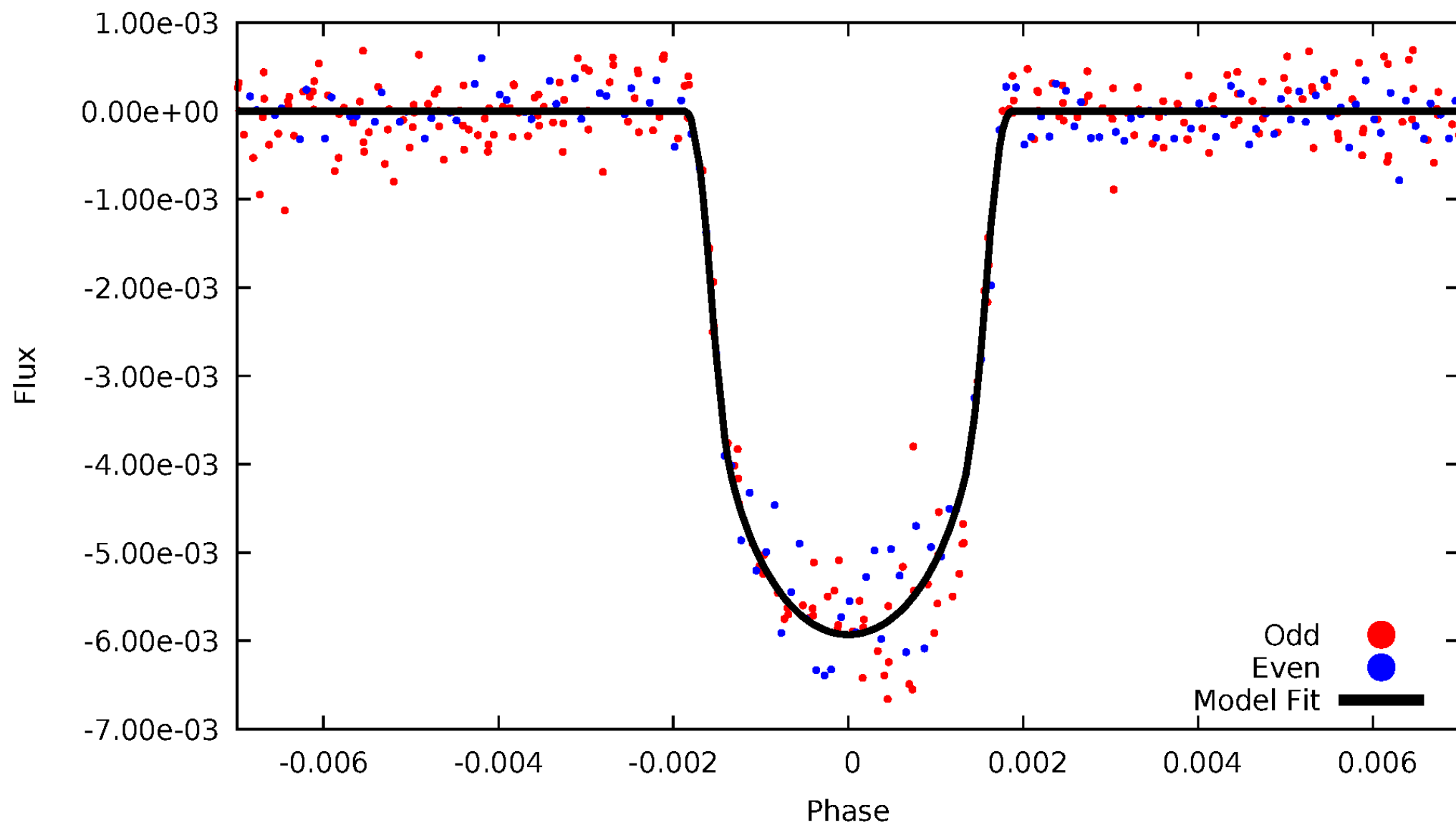


TCE 002975770-01



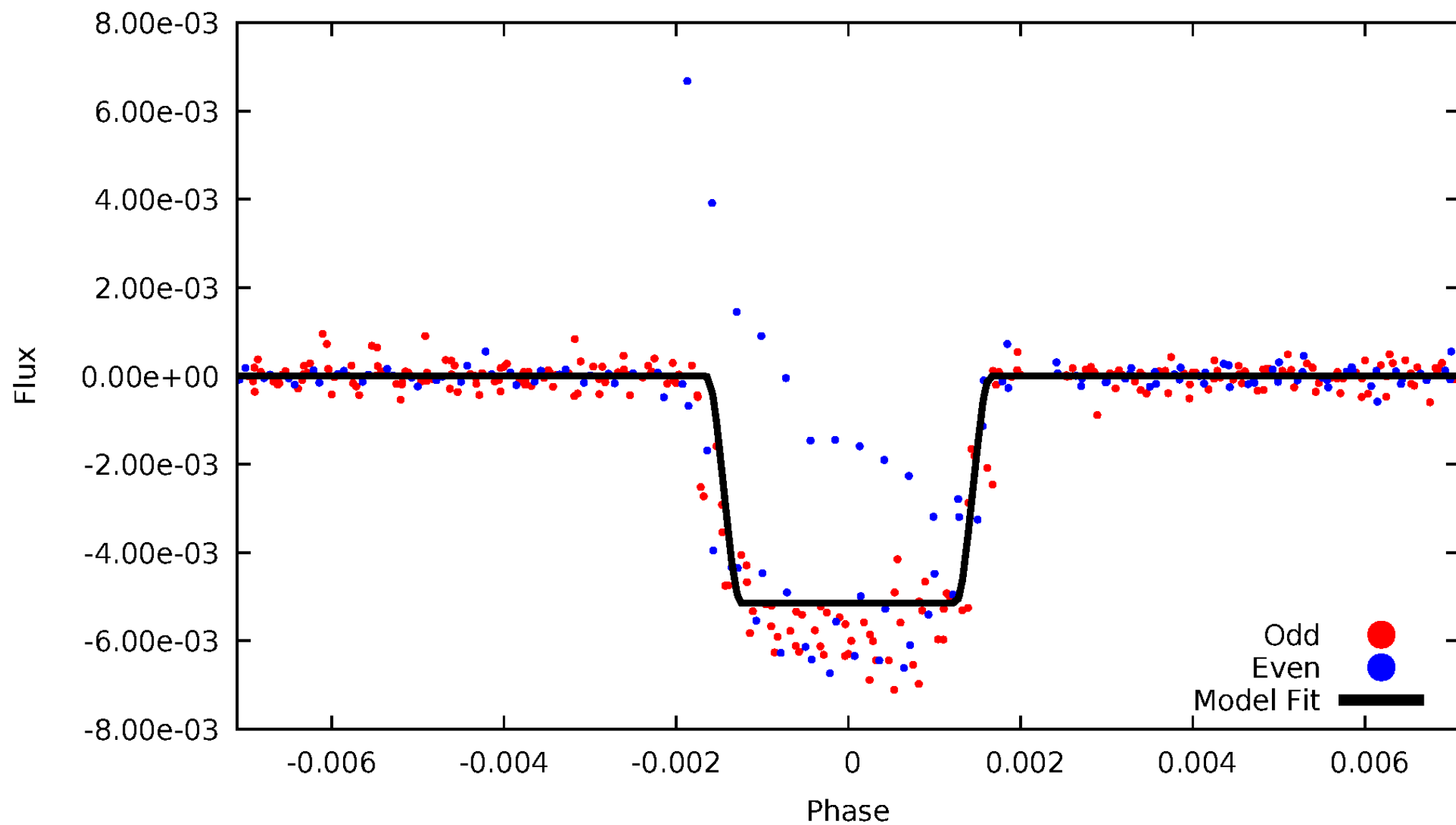
DV Odd/Even

TCE 002975770-01

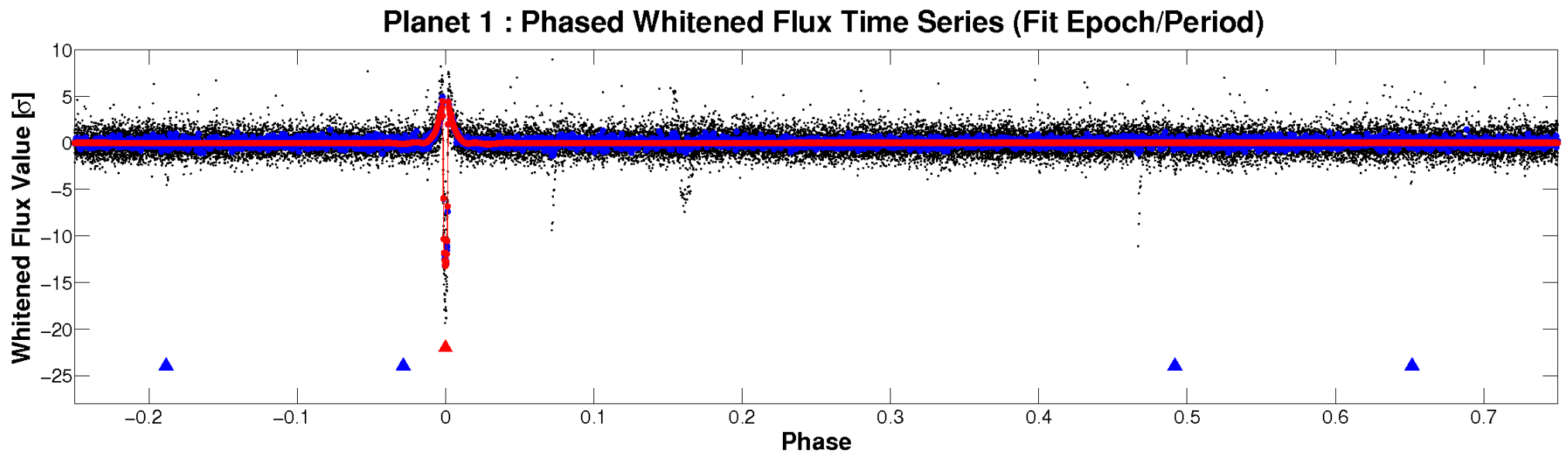
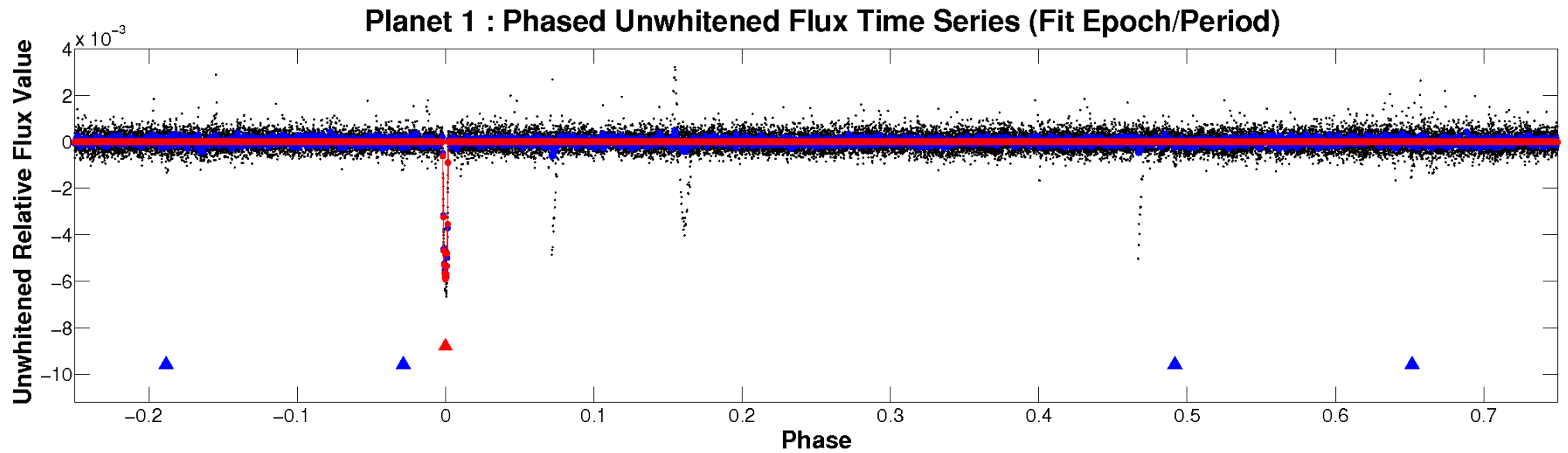


ALT Odd/Even

TCE 002975770-01

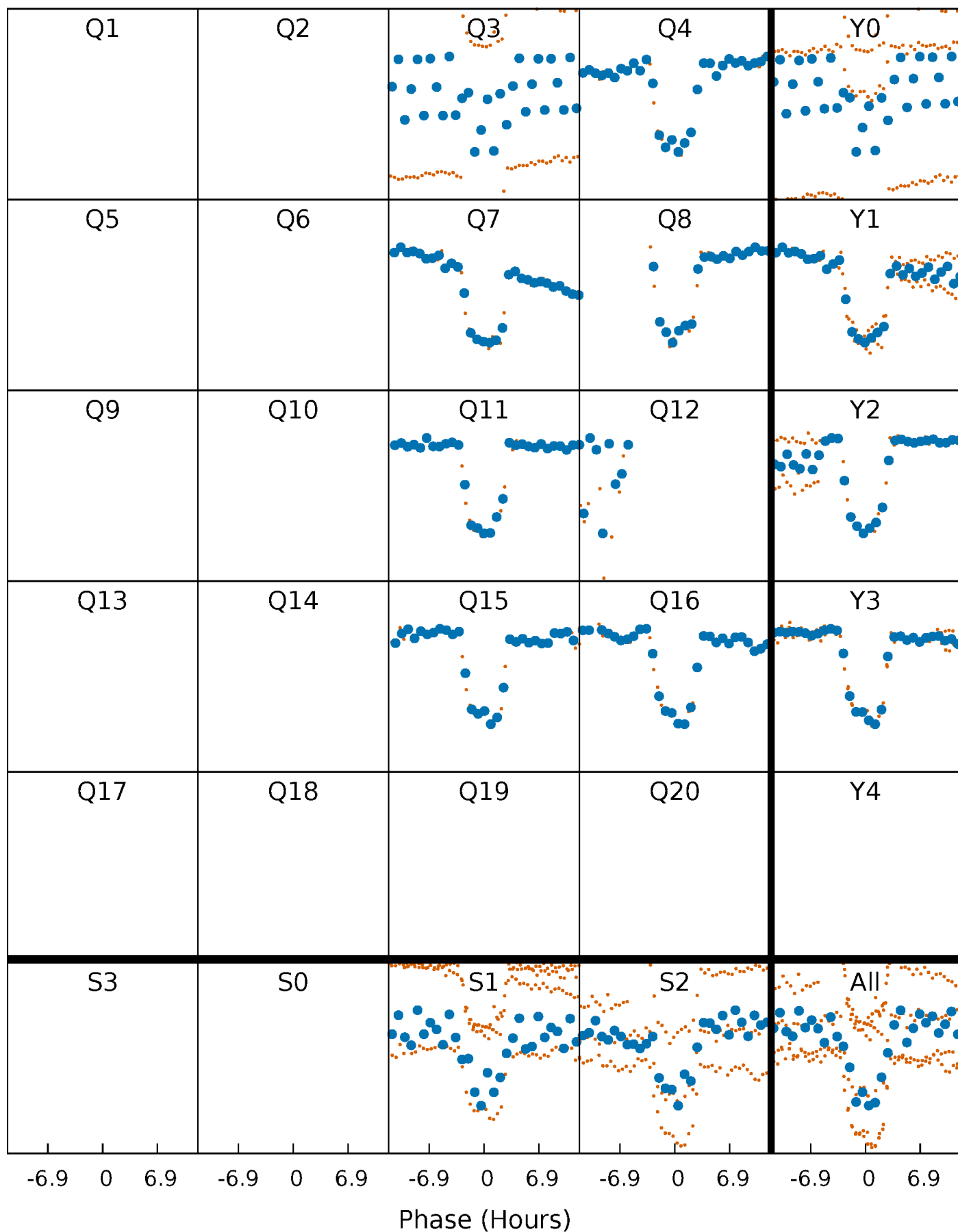


Non-Whitened Vs. Whitened Light Curve



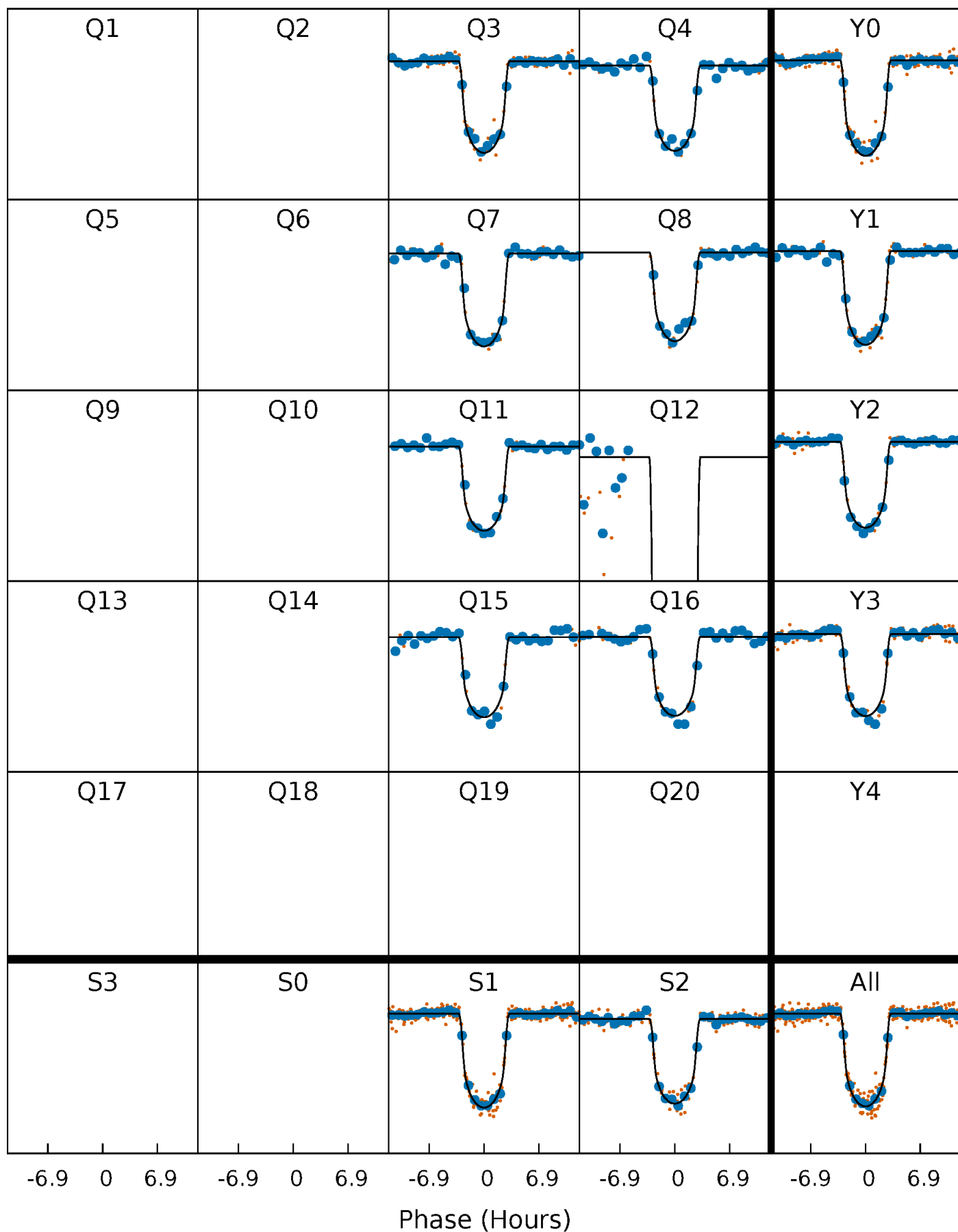
PDC Quarter-Phased Transit Curves

TCE 002975770-01 P= 71.525370 Days $T_0=191.690821$ (BKJD)



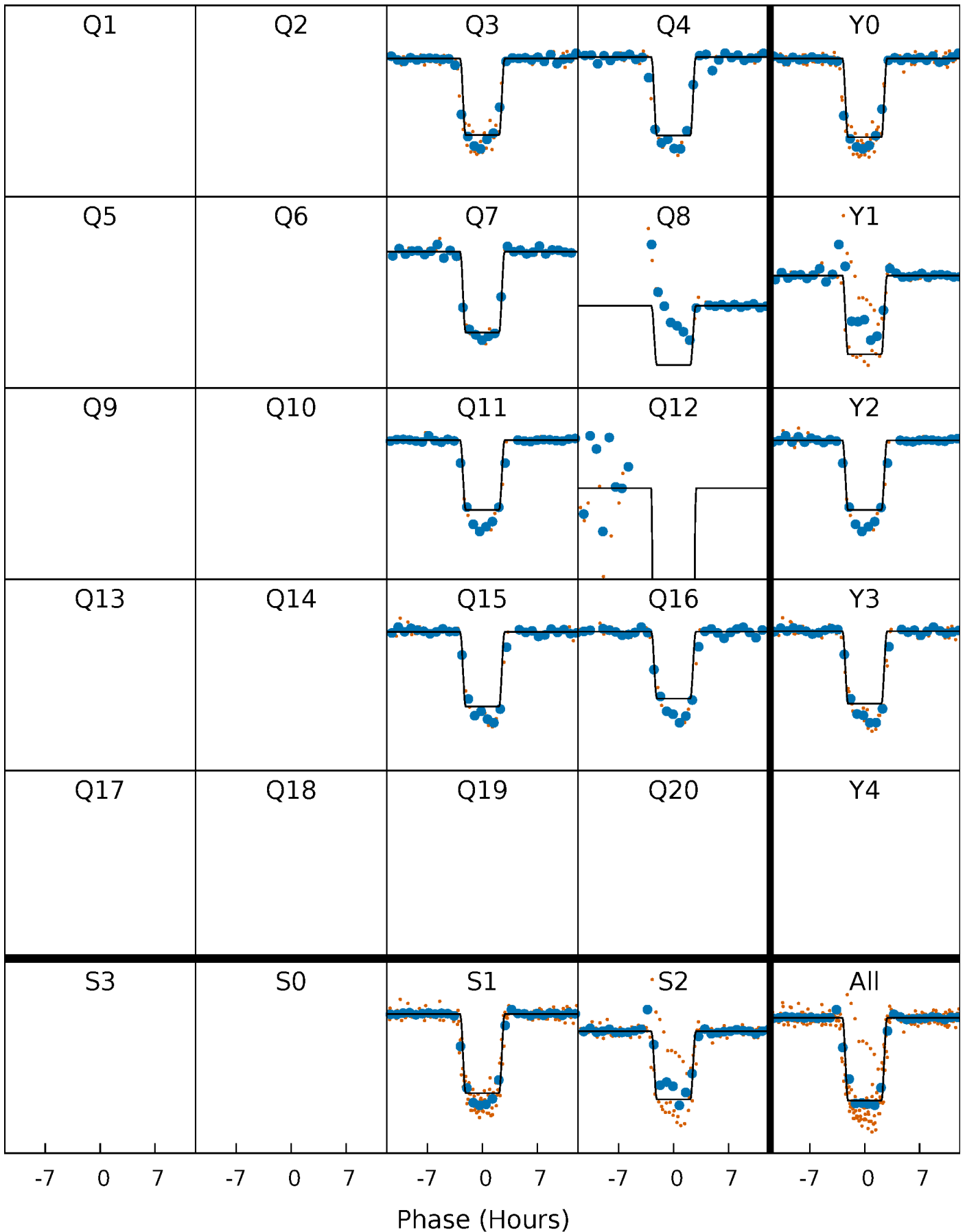
DV Quarter-Phased Transit Curves

TCE 002975770-01 P= 71.525370 Days $T_0=191.690821$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

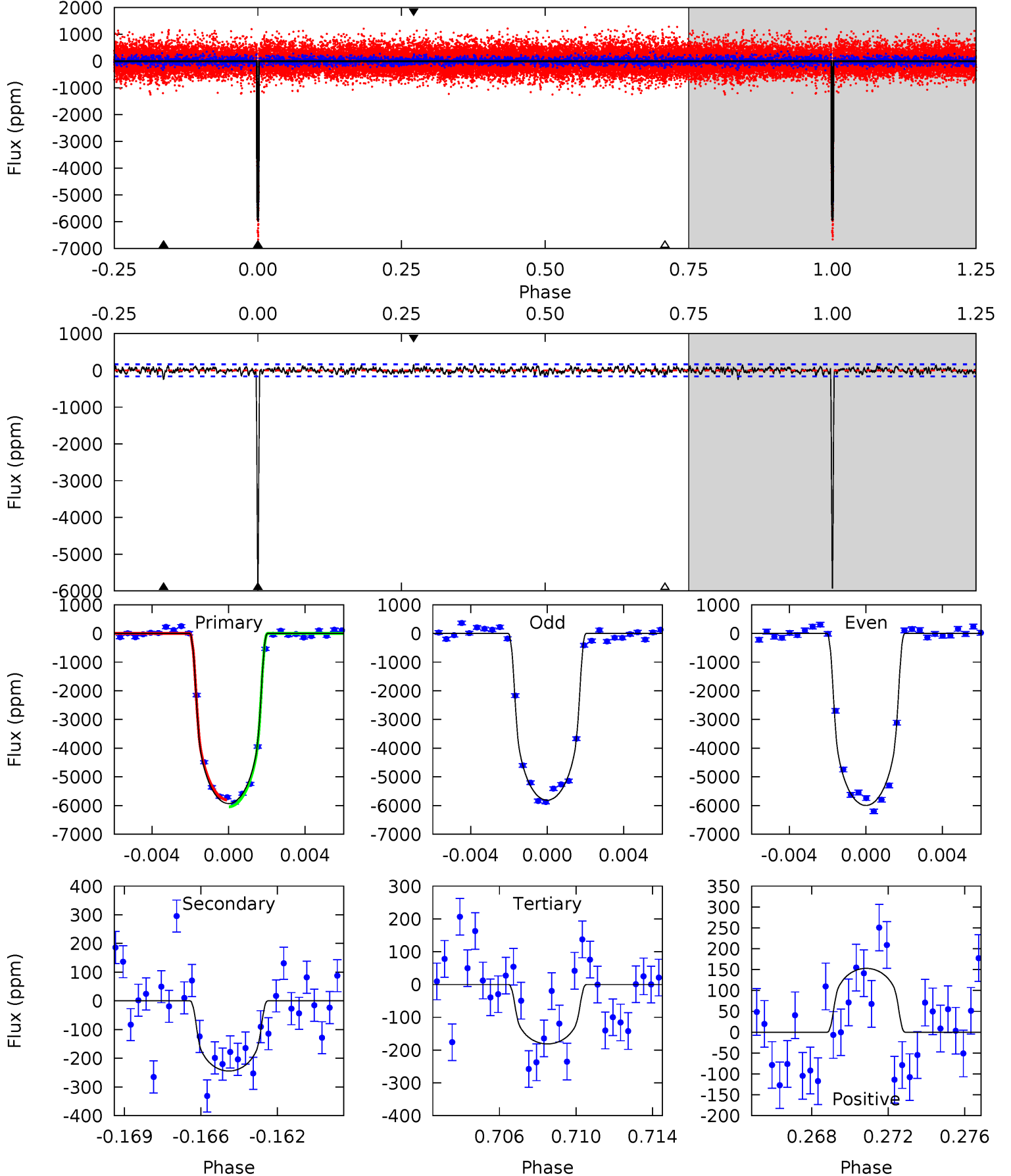
TCE 002975770-01 P= 71.524360 Days $T_0=191.704055$ (BKJD)



DV Model-Shift Uniqueness Test

002975770-01, P = 71.525370 Days, E = 191.690821 Days

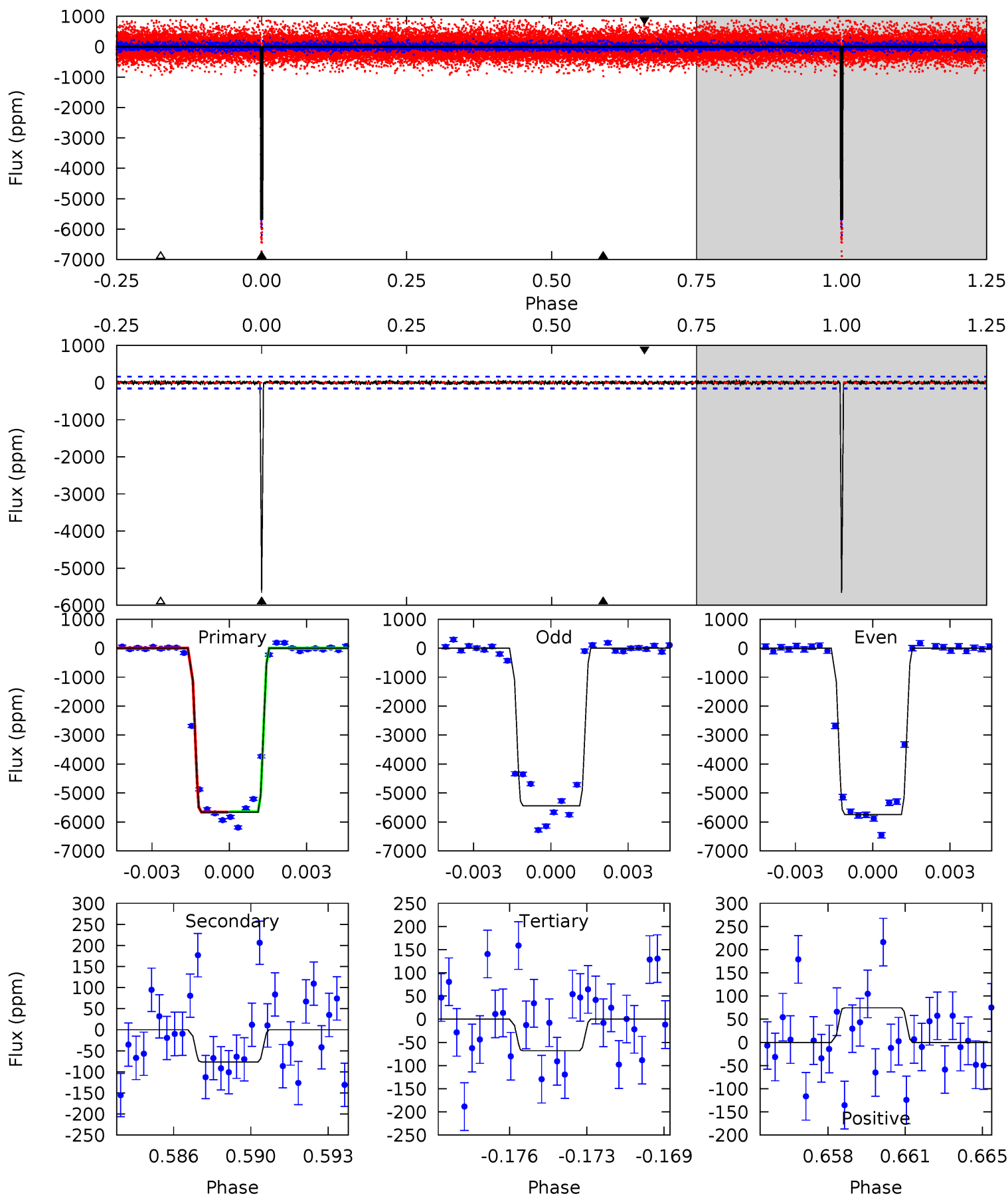
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
190.0	7.83	5.81	4.90	5.21	2.90	1.58	184.2	185.1	2.02	2.93	2.90	1.01	0.03	3.74



Alt Model-Shift Uniqueness Test

002975770-01, P = 71.524360 Days, E = 191.704055 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
185.8	2.51	2.24	2.45	5.24	2.94	0.62	183.6	183.4	0.27	0.06	4.29	0.91	0.01	0.22



Stellar Parameters For KIC 002975770

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4855^{+77}_{-87}	$4.542^{+0.056}_{-0.020}$	$0.120^{+0.150}_{-0.150}$	$0.778^{+0.029}_{-0.047}$	$0.769^{+0.048}_{-0.028}$	$2.296^{+0.455}_{-0.184}$
	+2%/-2%	+1%/-0%	+125%/-125%	+4%/-6%	+6%/-4%	+20%/-8%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 002975770-01 / KOI 1788.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-244 ± 31	$5.90^{+0.37}_{-0.40}$	472^{+10}_{-11}	2934^{+79}_{-75}	372^{+75}_{-60}
Alt.	-76 ± 30	$6.06^{+0.41}_{-0.36}$	472^{+10}_{-11}	2496^{+124}_{-146}	108^{+49}_{-43}

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

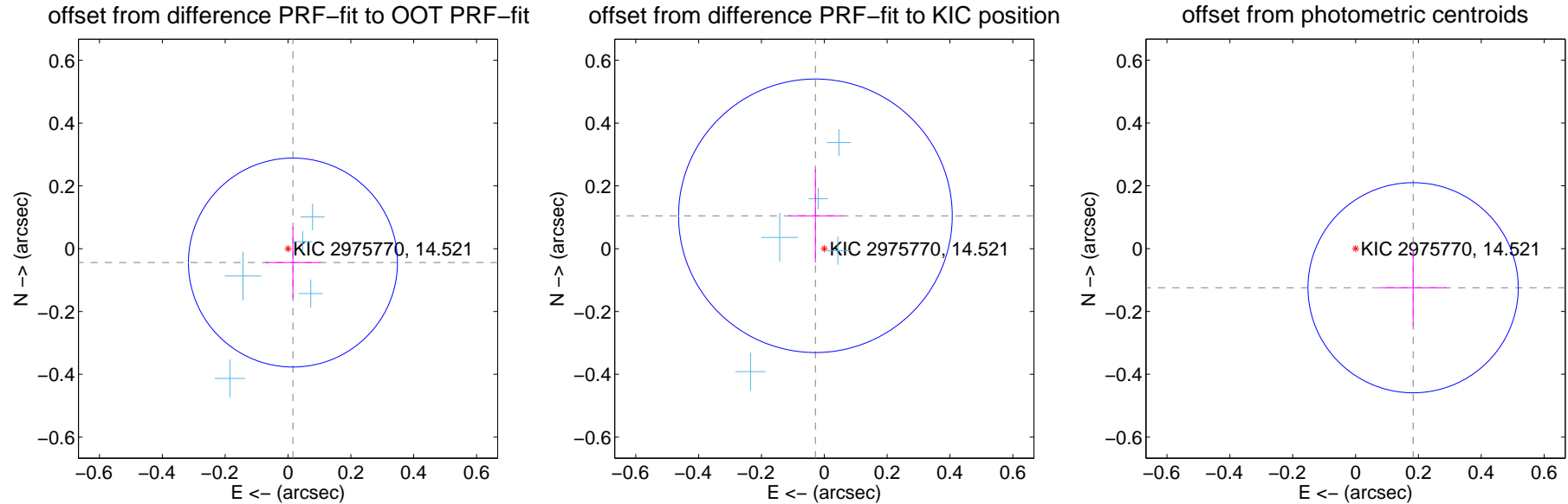
DV Centroid Data

Supplemental centroid analysis for 002975770-01. Kepler magnitude: 14.52. Transit SNR 111.46

There are 5 quarters with good PRF difference image offsets

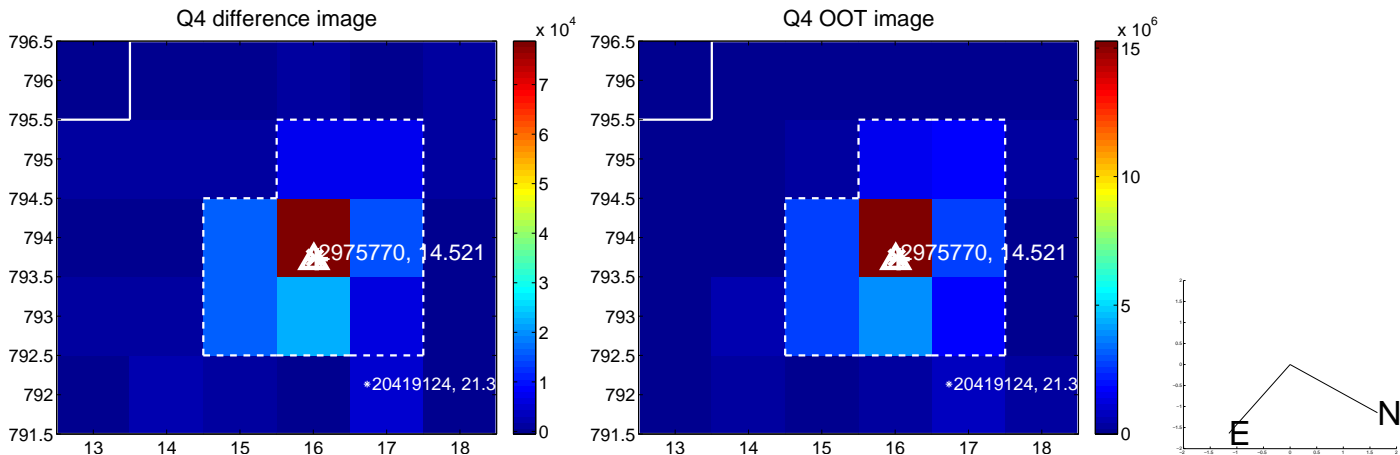
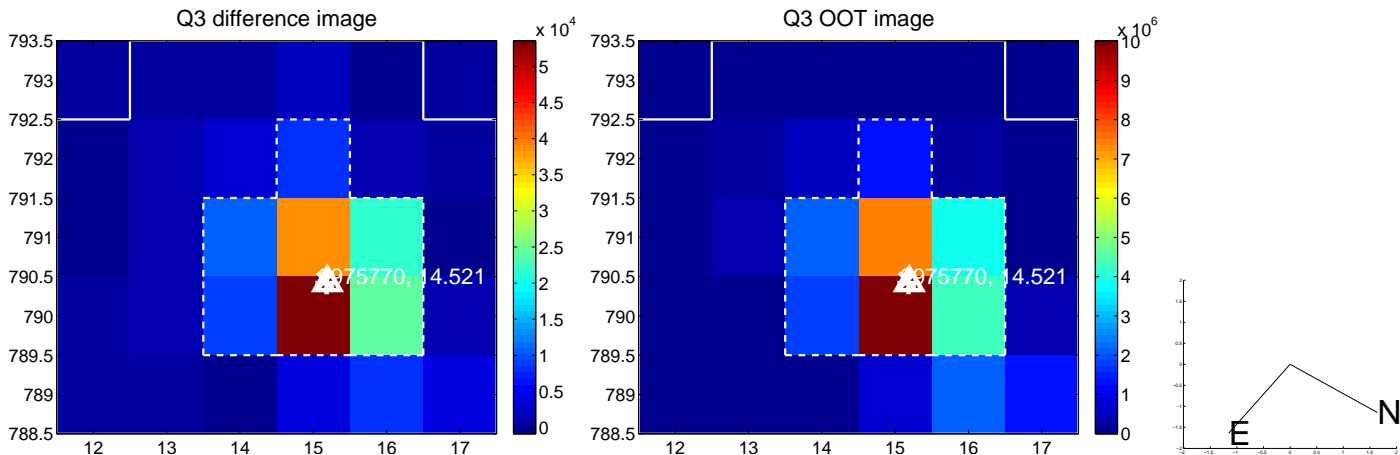
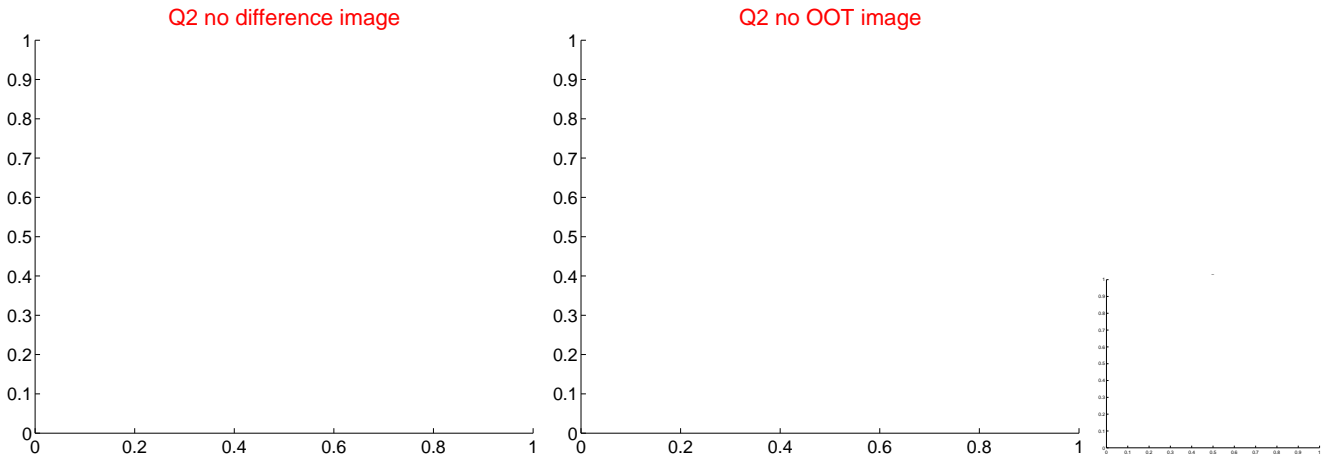
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.047 ± 0.111	0.42	-0.016 ± 0.089	-0.044 ± 0.113
PRF-fit source offset from KIC position	0.109 ± 0.145	0.75	0.028 ± 0.086	0.105 ± 0.149
photometric centroid source offset	0.22 ± 0.11	1.99	-0.18 ± 0.11	-0.12 ± 0.12



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.

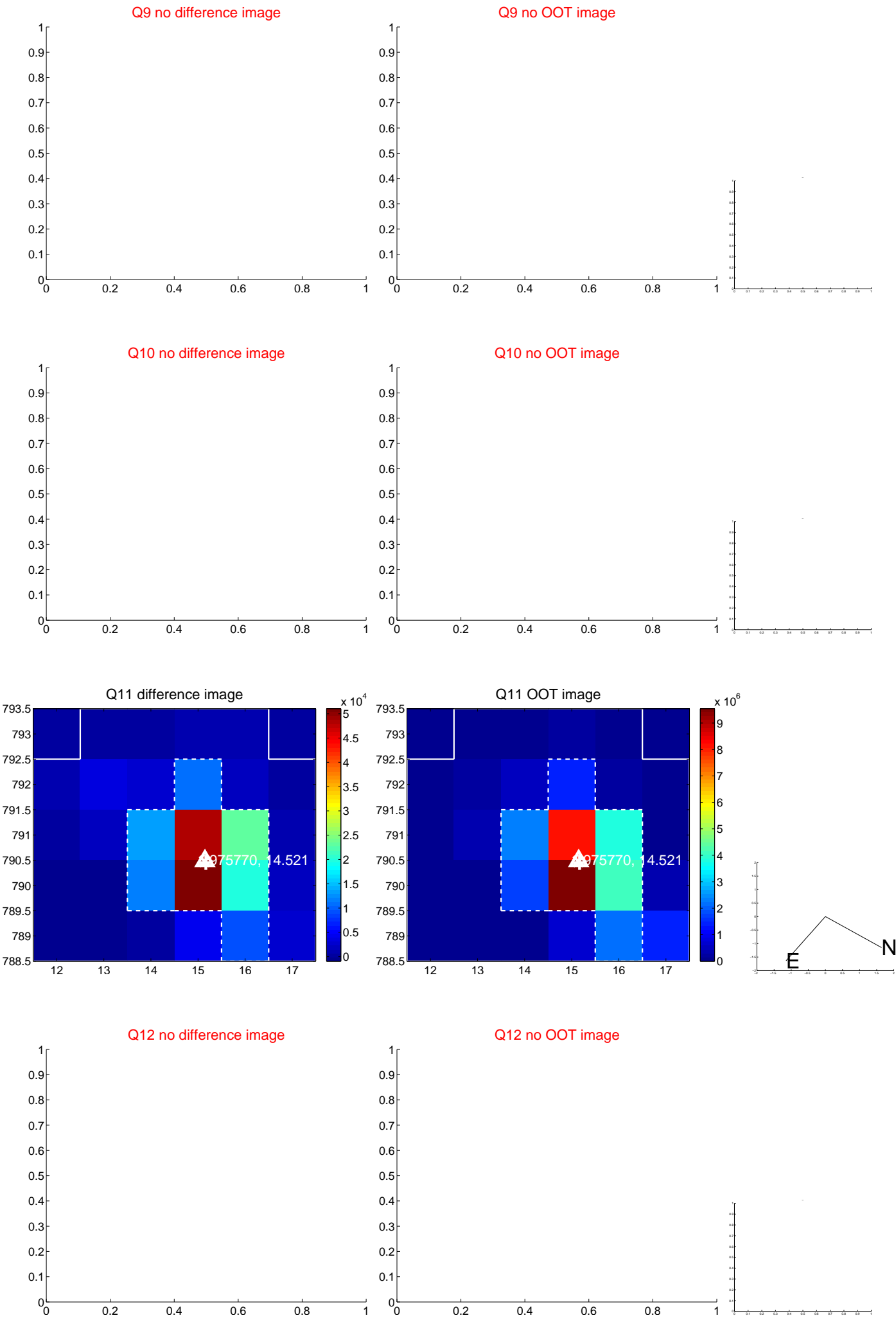
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



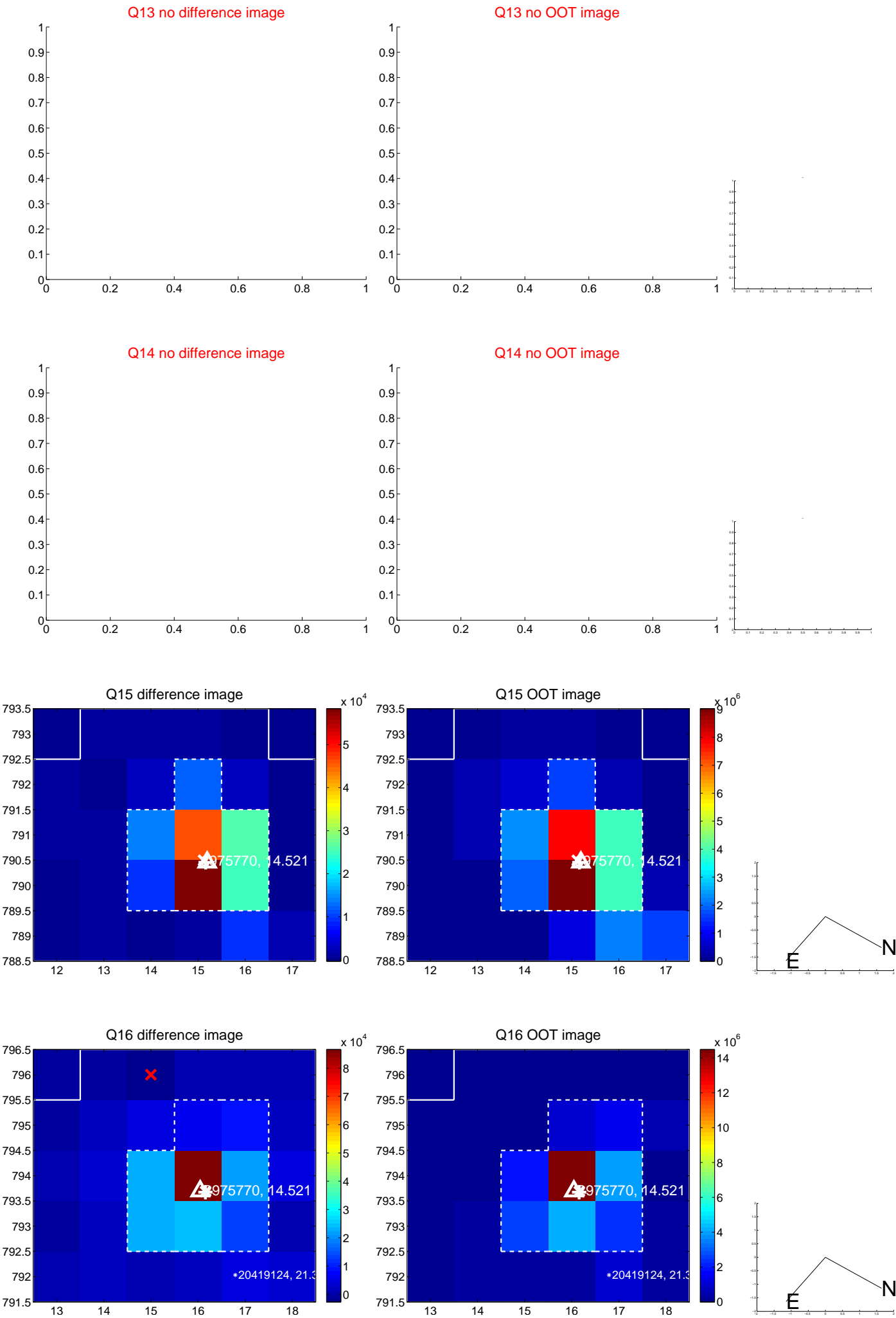
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



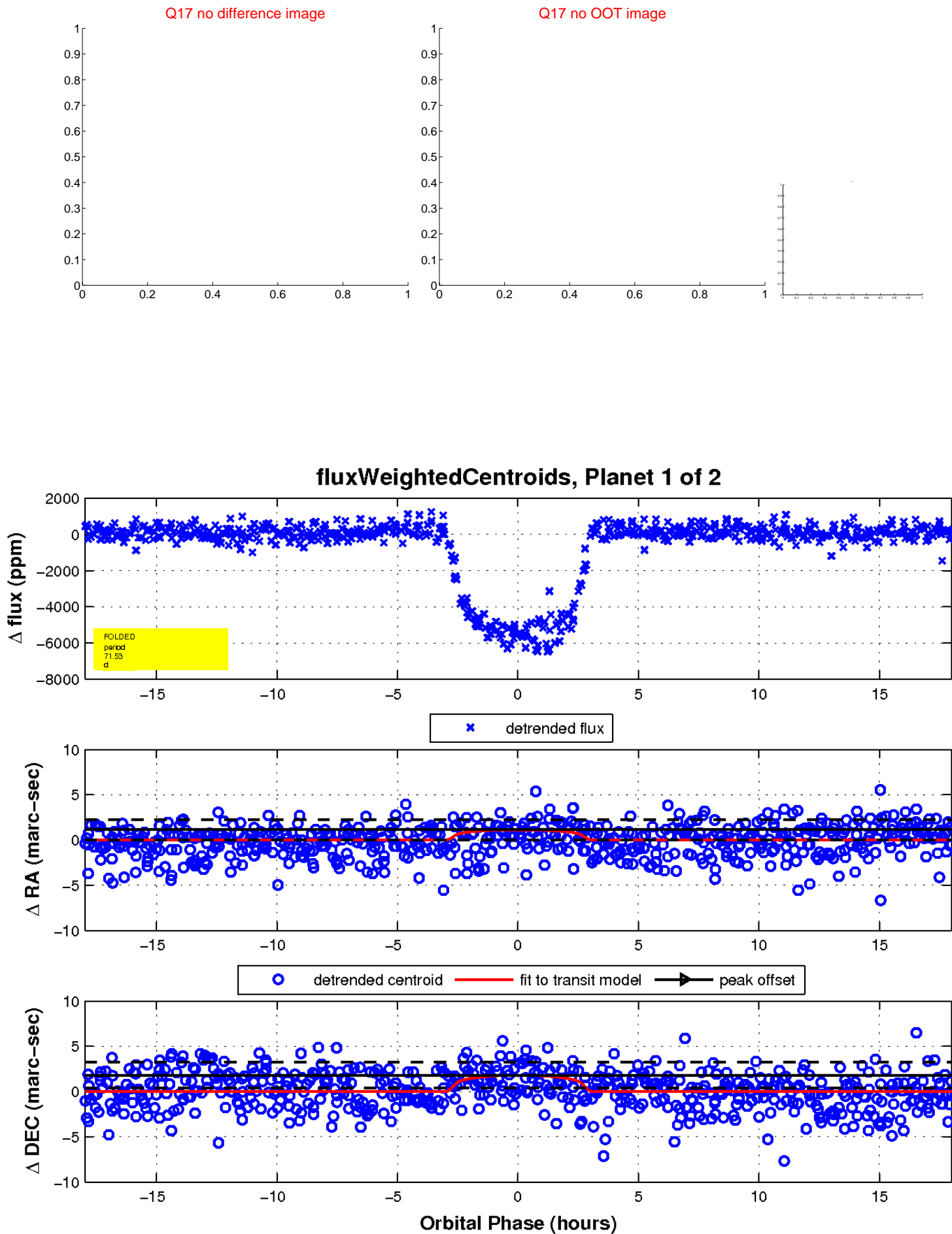
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

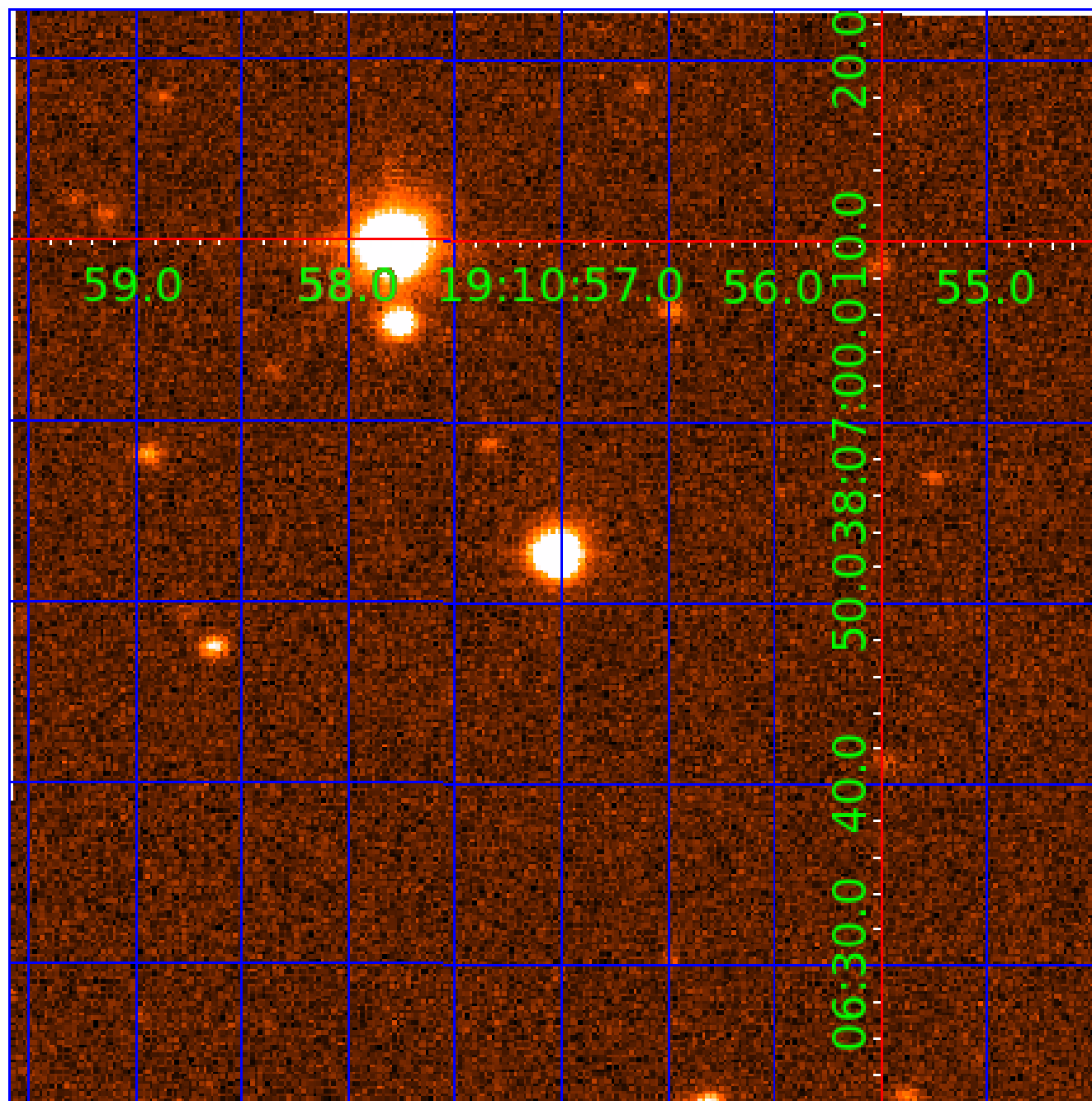


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002975770

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})
002975770-01	OBS	1788.01	71.525370	191.690821	5929.5	5.998	110.0	111.5	0.78	4855	5.94	3.15
002975770-02	OBS	1788.02	369.065073	298.392945	1111.0	6.593	14.4	15.0	0.78	4855	3.32	0.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002975770-01	OBS	PC	0.93	0	0	0	0	NO_COMMENT
002975770-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE

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

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

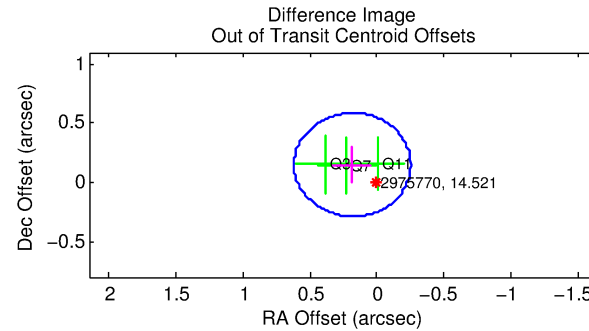
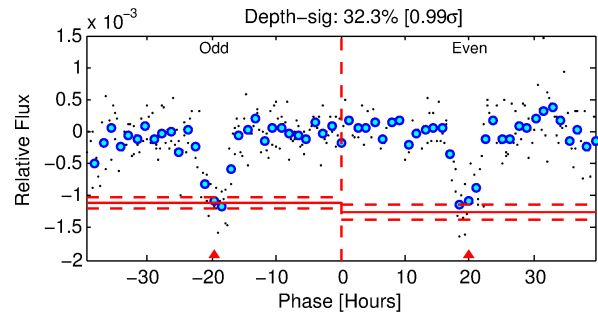
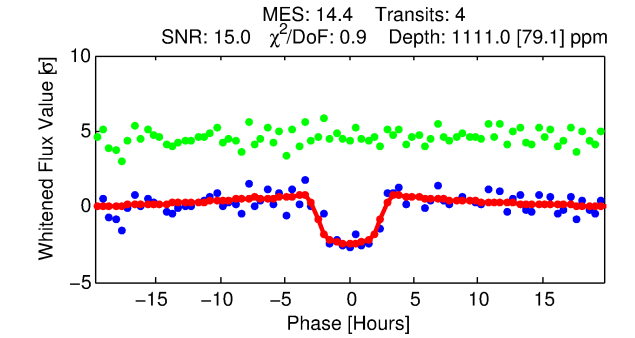
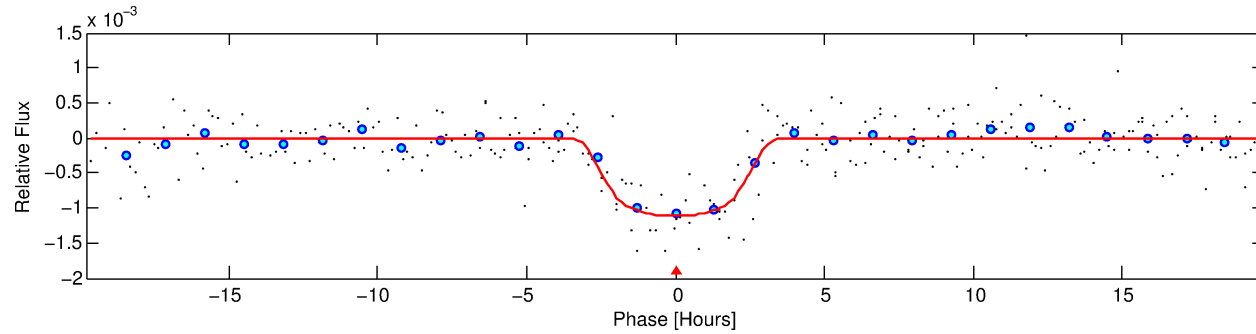
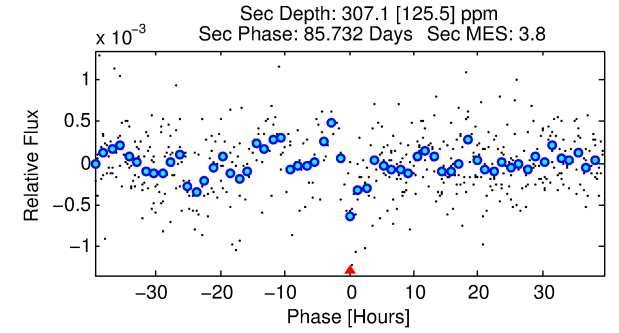
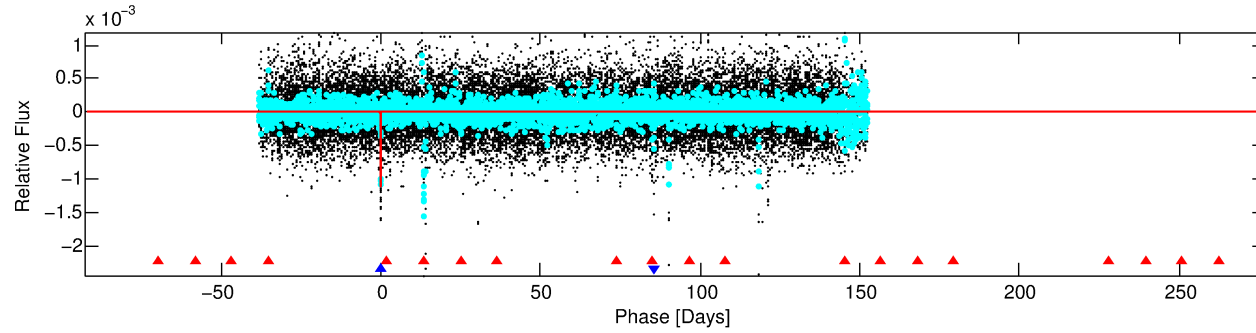
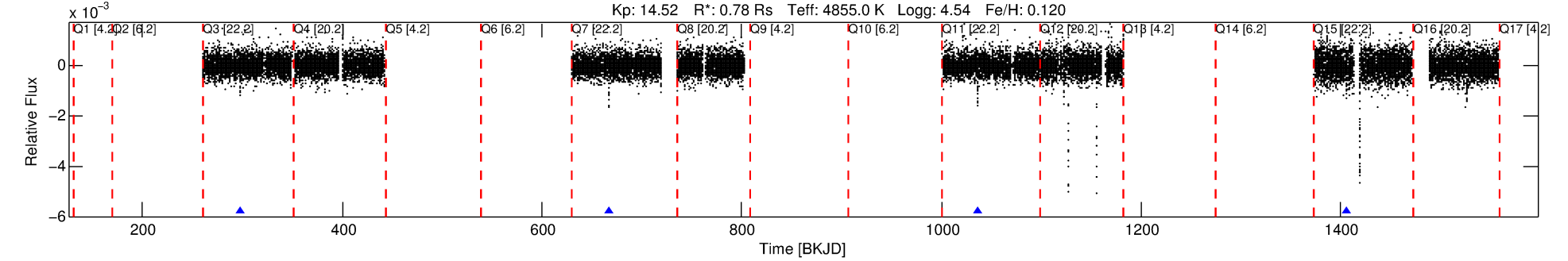
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002975770-02

No Significant Match Found

DV One-Page Summary

KIC: 2975770 Candidate: 2 of 2 Period: 369.065 d
KOI: K01788.02 Corr: 0.937



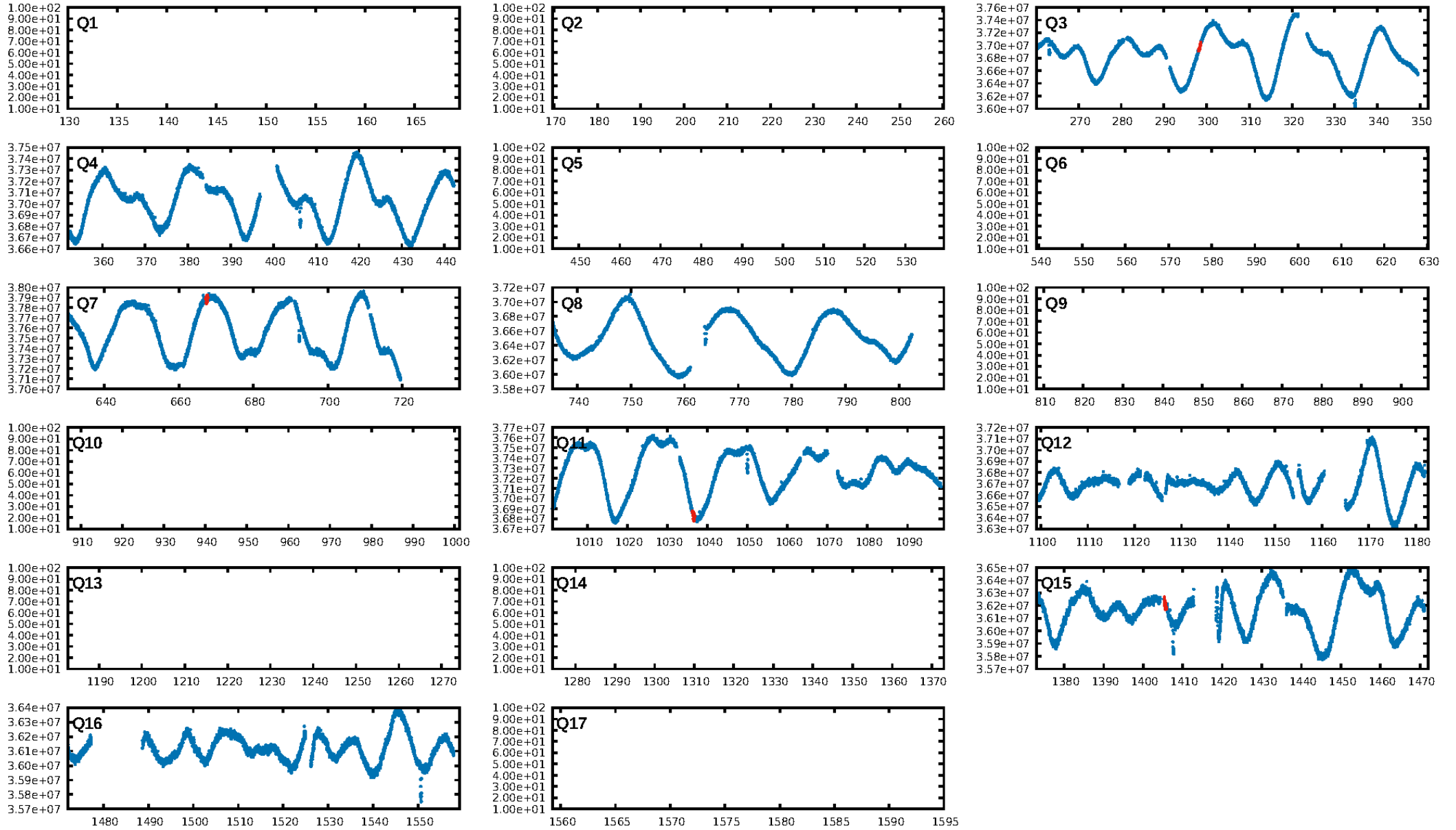
DV Fit Results:

Period = 369.06507 [0.00398] d
Epoch = 298.3929 [0.0063] BKJD
Rp/R* = 0.0391 [0.0025]
a/R* = 198.22 [33.62]
b = 0.93 [0.03]
Seff = 0.35 [0.04]
Teq = 197 [6] K
Rp = 3.32 [0.29] Re
a = 0.9228 [0.0544] AU
Ag = 13050.00 [5725.70] [2.28 σ]
Teffp = 3250 [353] K [8.65 σ]

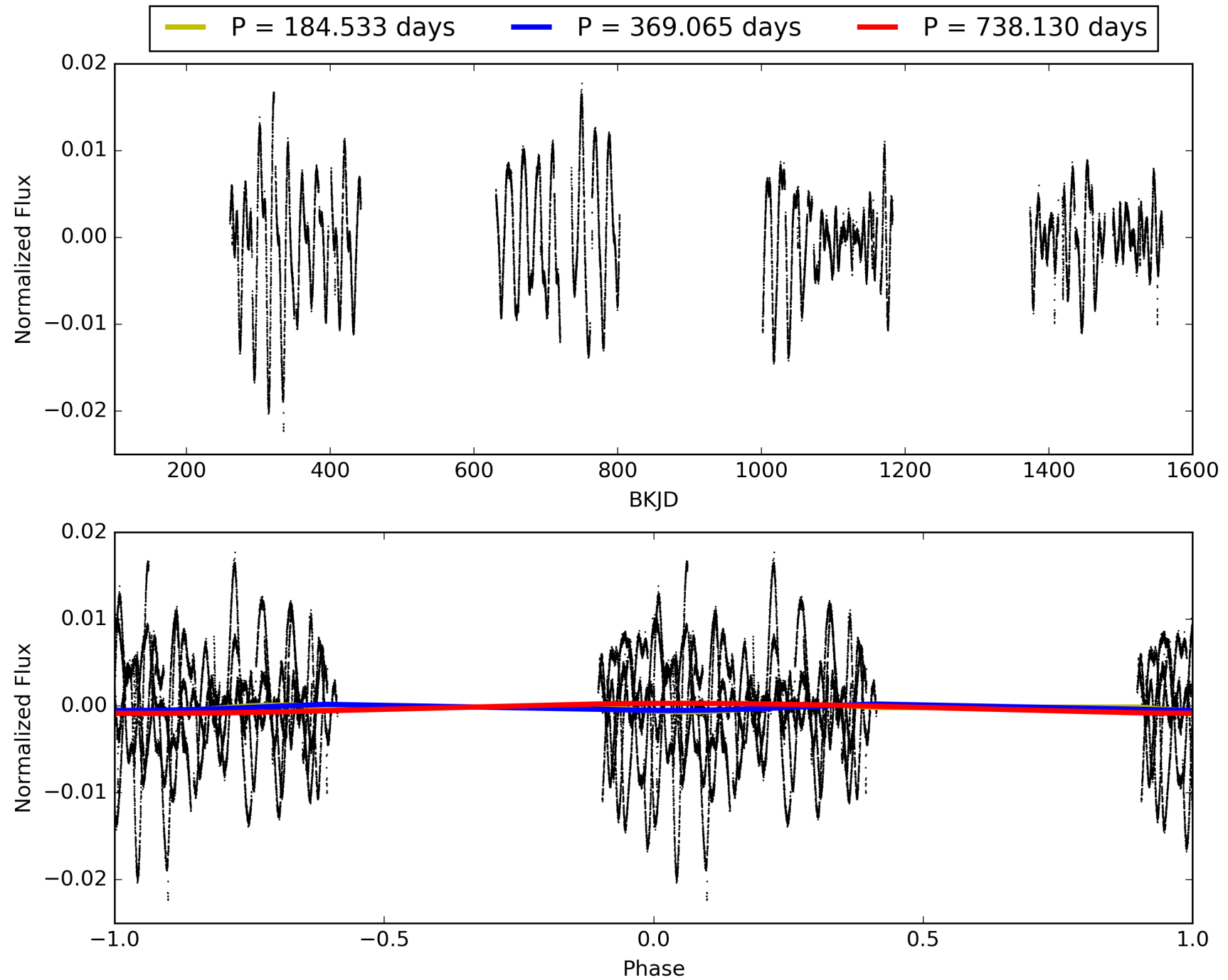
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [801.21 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 95.9%
ModelChiSquareGof-sig: 97.1%
Bootstrap-pfa: 7.16e-45
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.246
Centroid-sig: 15.1%
Centroid-so: 1.226 arcsec [1.66 σ]
OotOffset-rm: 0.236 arcsec [1.62 σ]
KicOffset-rm: 0.347 arcsec [2.35 σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 002975770-02, PDC Light Curves

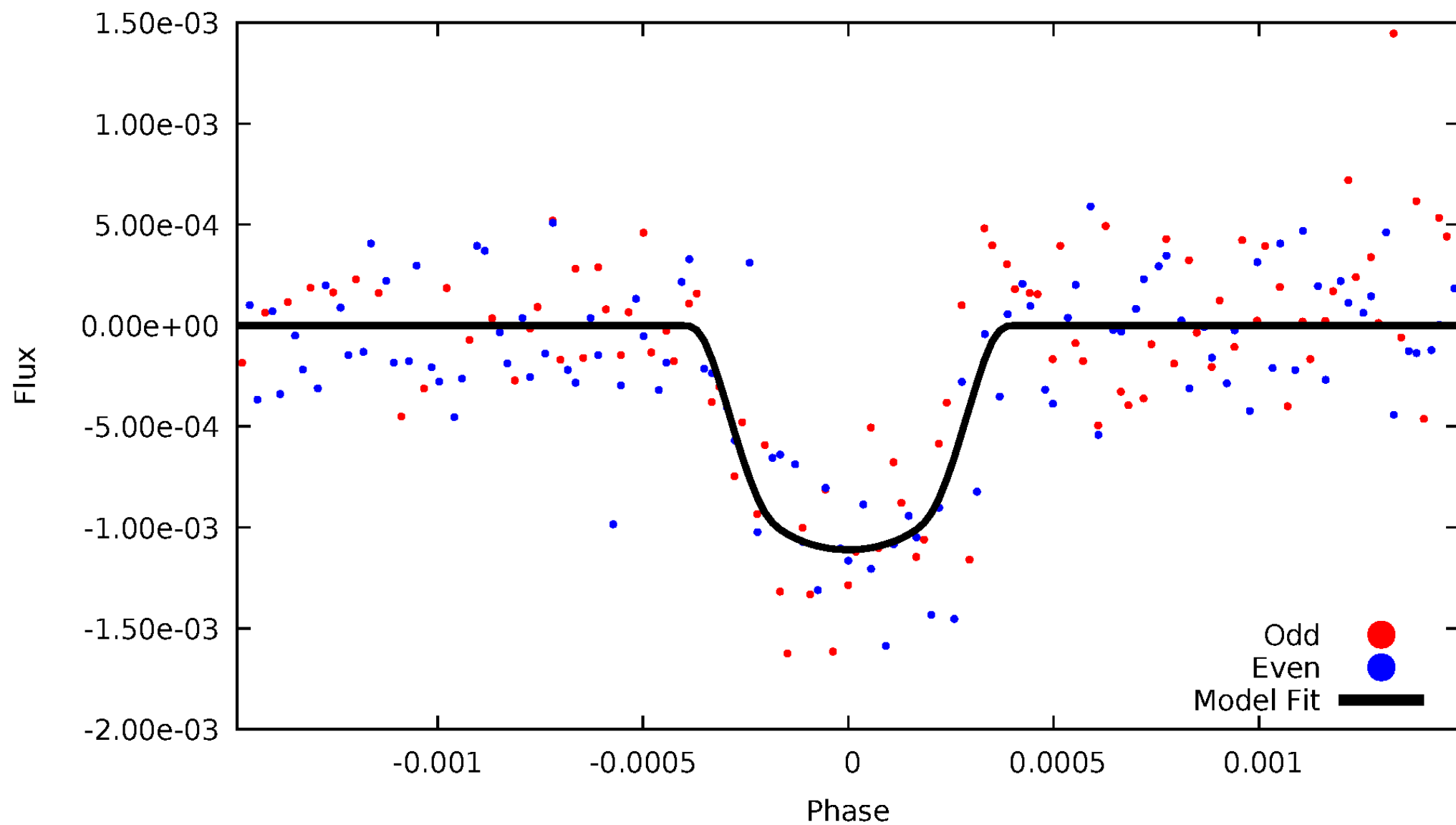


TCE 002975770-02



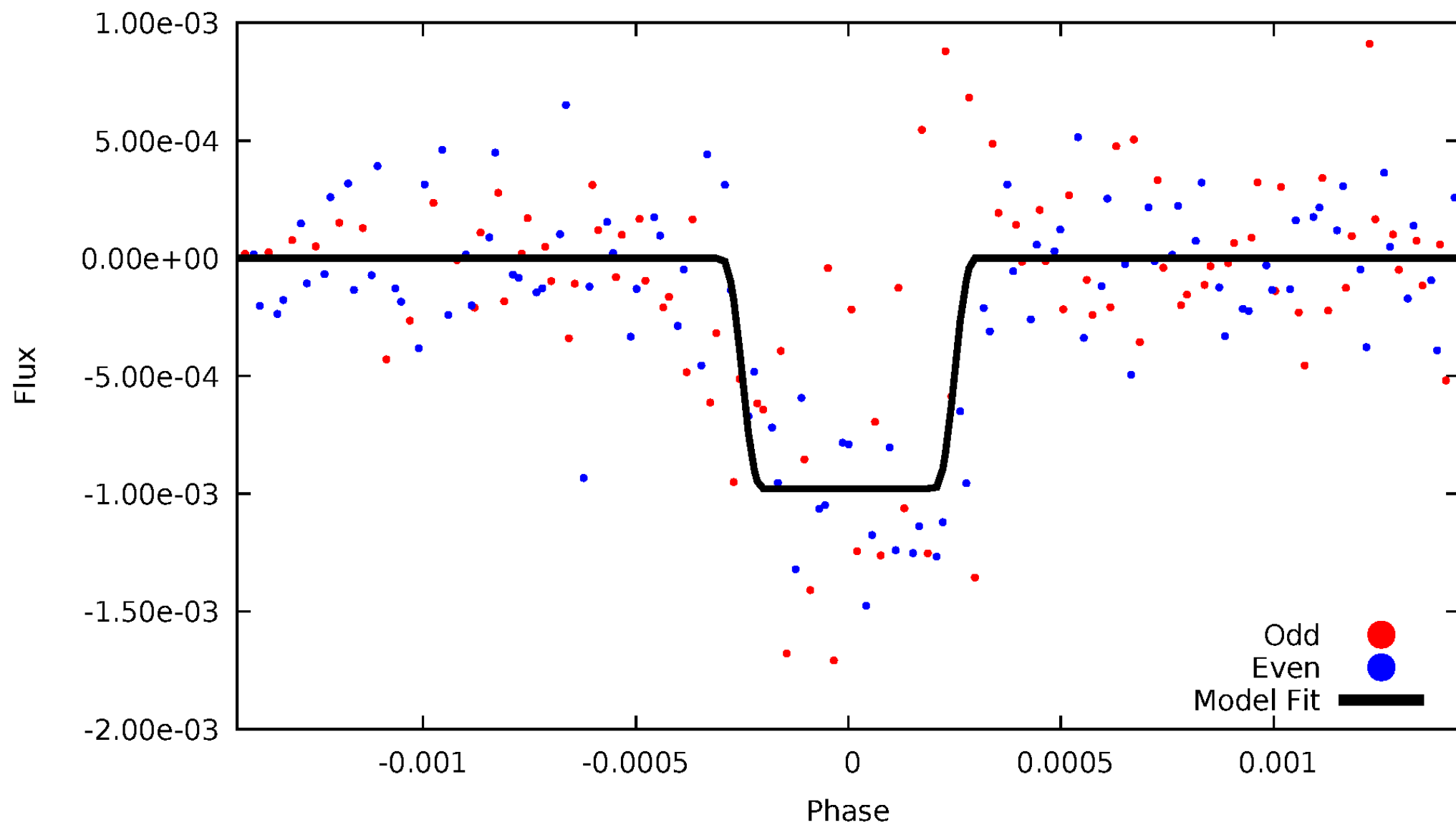
DV Odd/Even

TCE 002975770-02



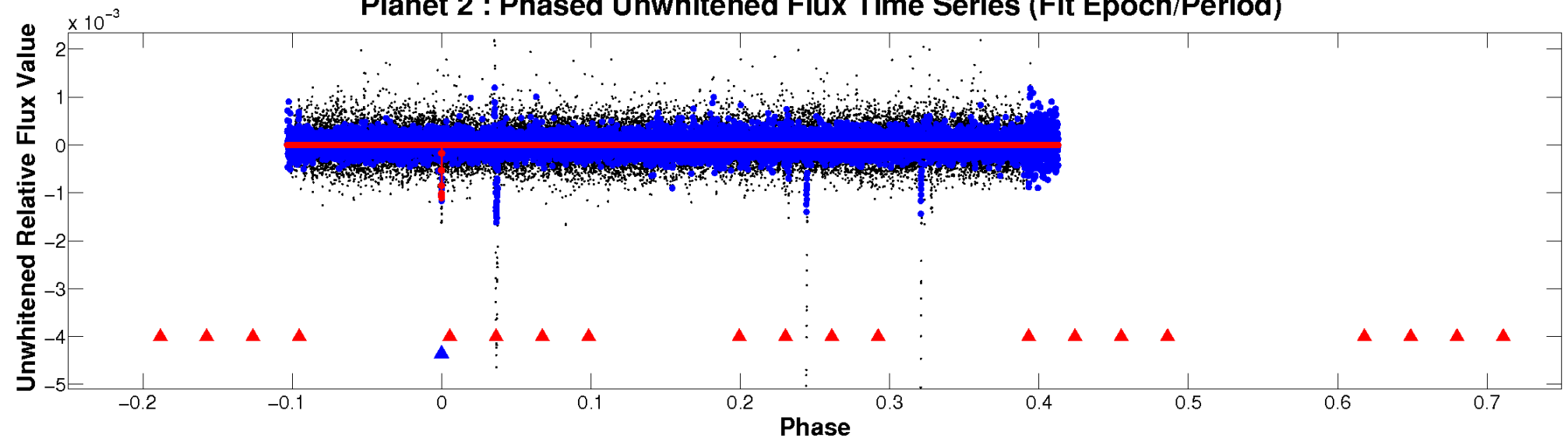
ALT Odd/Even

TCE 002975770-02

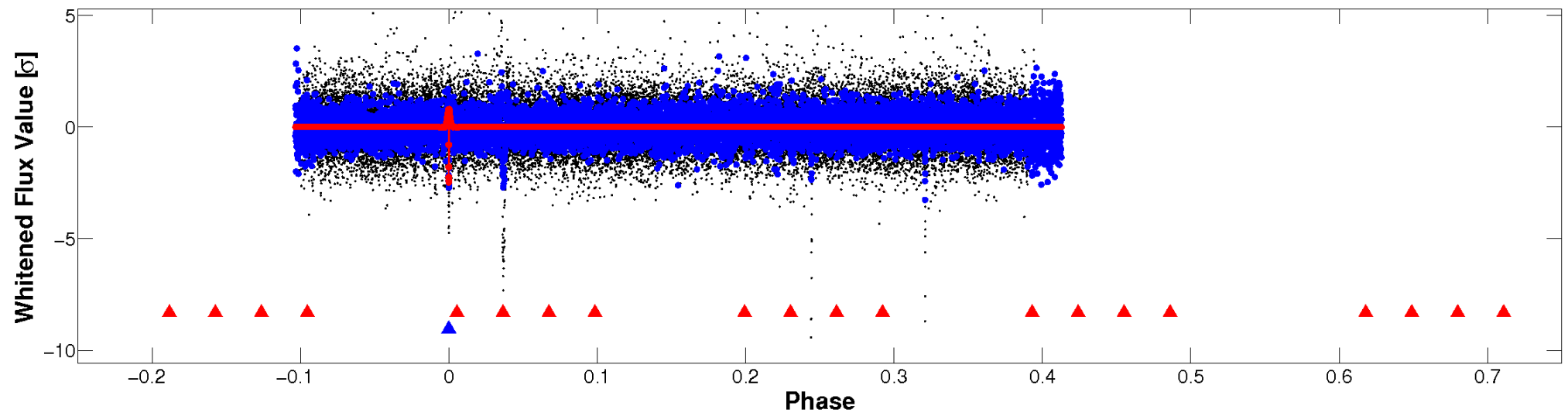


Non-Whitened Vs. Whitened Light Curve

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

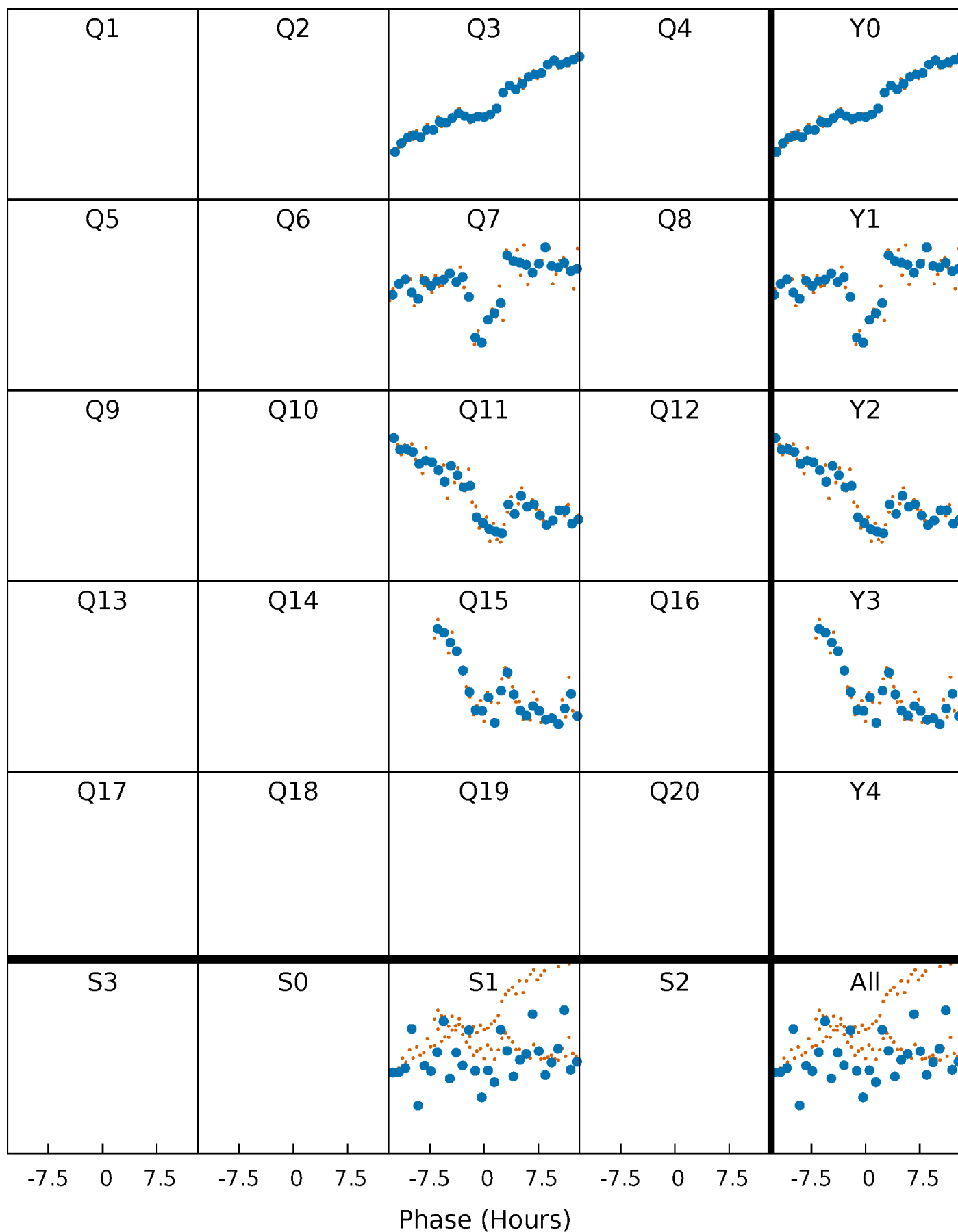


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



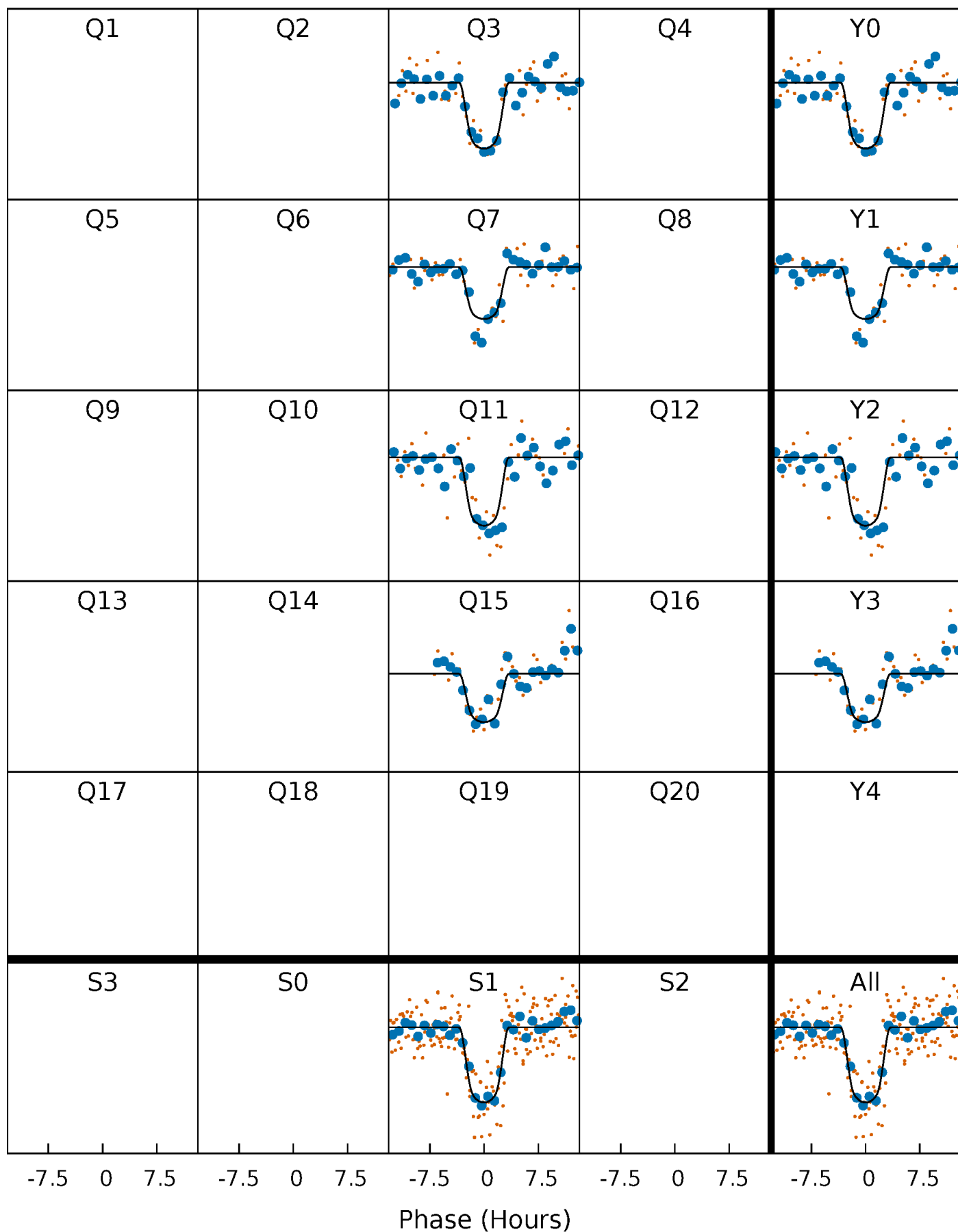
PDC Quarter-Phased Transit Curves

TCE 002975770-02 $P=369.065073$ Days $T_0=298.392945$ (BKJD)



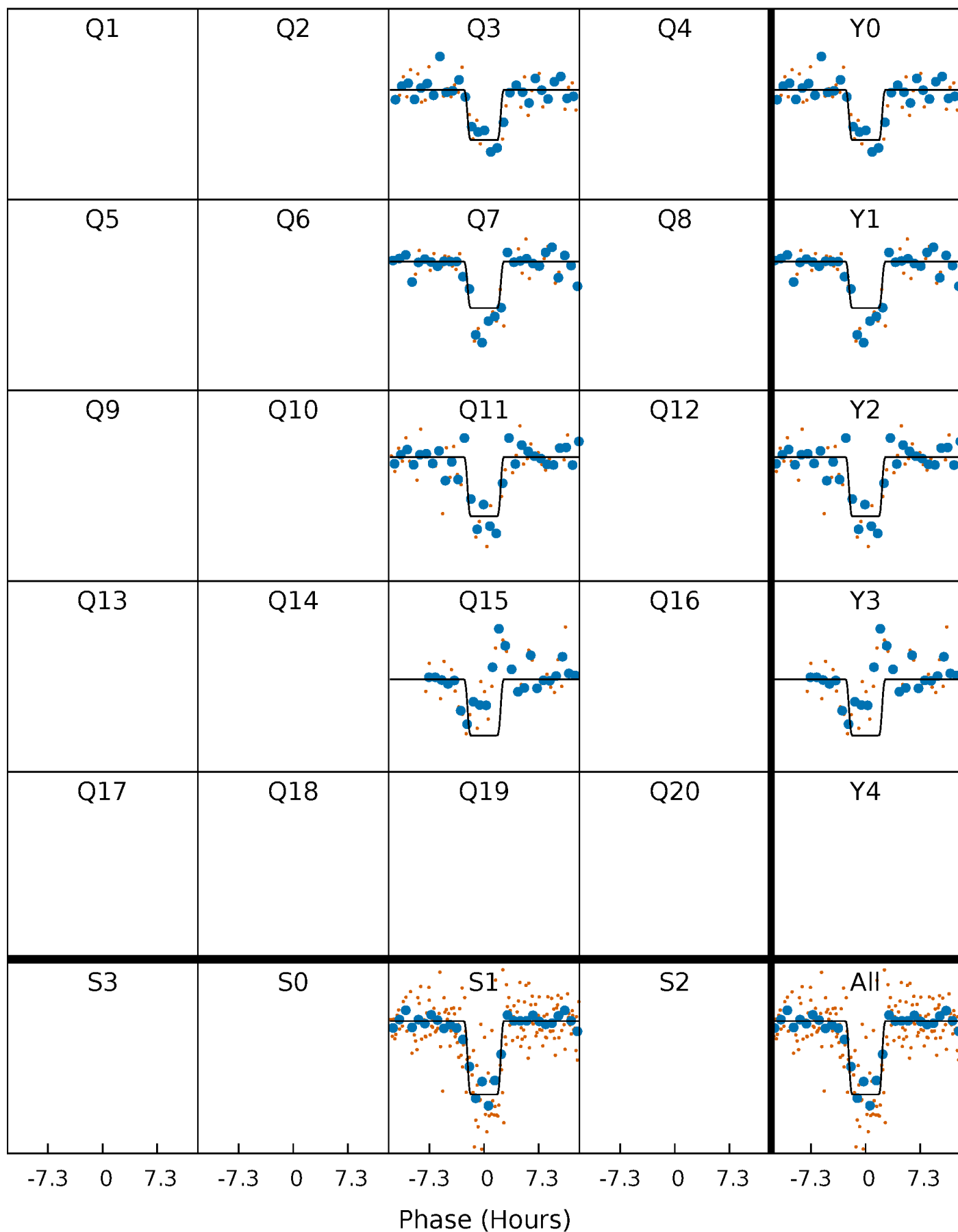
DV Quarter-Phased Transit Curves

TCE 002975770-02 $P=369.065073$ Days $T_0=298.392945$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

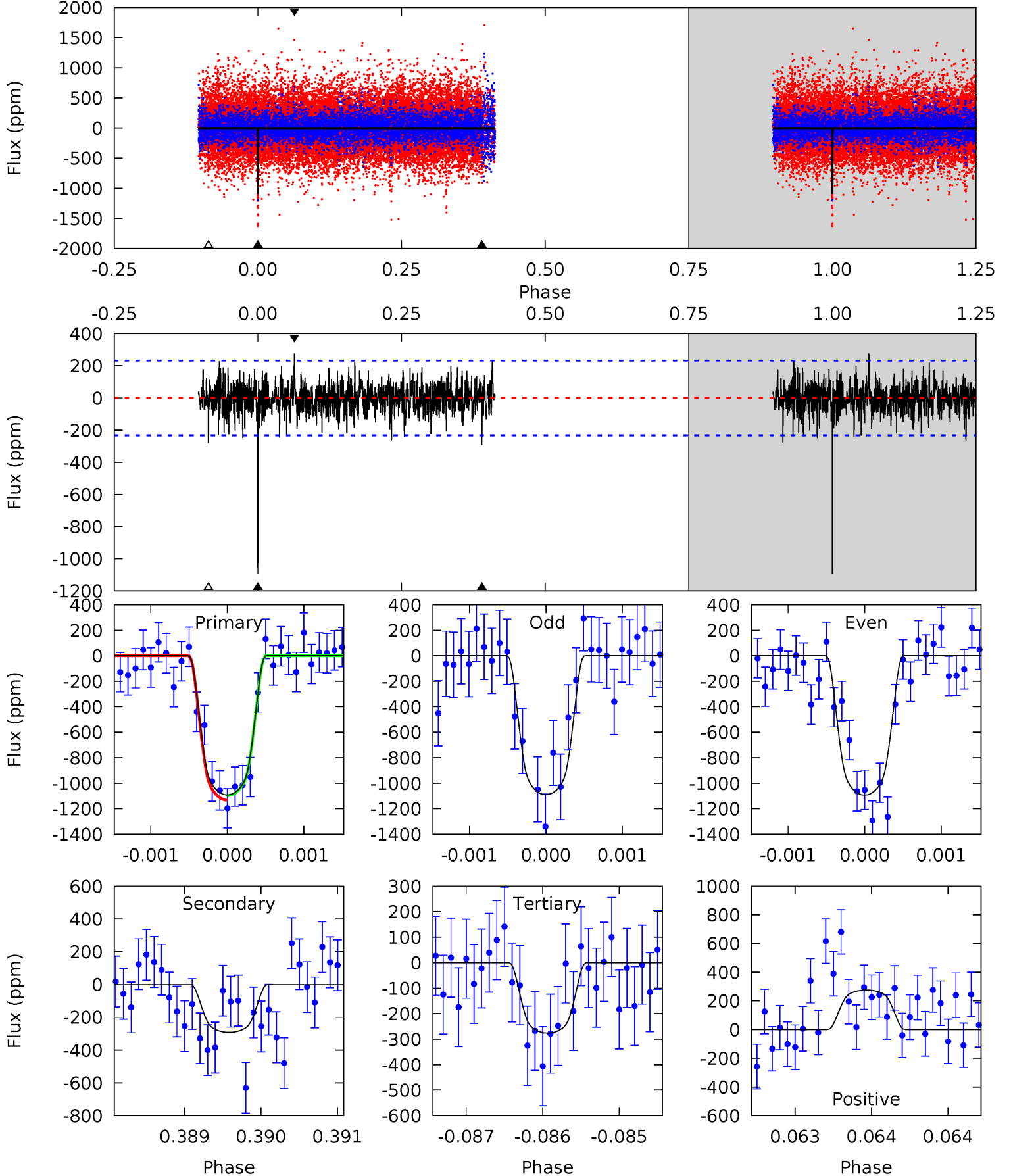
TCE 002975770-02 $P=369.084583$ Days $T_0=298.372408$ (BKJD)



DV Model-Shift Uniqueness Test

002975770-02, P = 369.065073 Days, E = 298.392945 Days

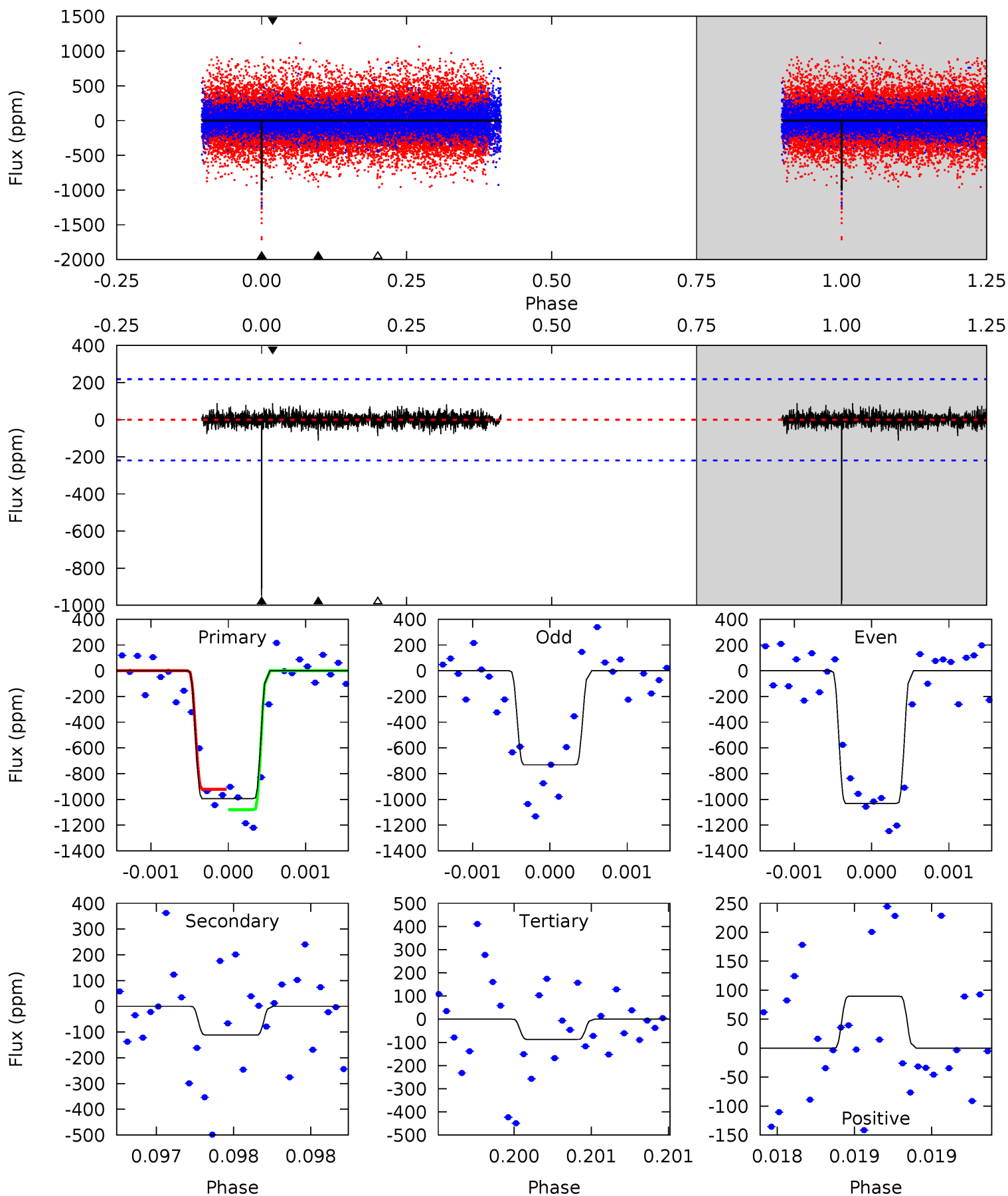
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.8	6.90	6.53	6.52	5.50	3.36	1.75	19.3	19.3	0.37	0.38	0.03	1.00	0.20	0.43



Alt Model-Shift Uniqueness Test

002975770-02, P = 369.084583 Days, E = 298.372408 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	2.83	2.21	2.26	5.54	3.44	0.52	23.0	22.9	0.62	0.56	3.99	0.86	0.08	1.99



Stellar Parameters For KIC 002975770

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4855^{+77}_{-87}	$4.542^{+0.056}_{-0.020}$	$0.120^{+0.150}_{-0.150}$	$0.778^{+0.029}_{-0.047}$	$0.769^{+0.048}_{-0.028}$	$2.296^{+0.455}_{-0.184}$
	+2%/-2%	+1%/-0%	+125%/-125%	+4%/-6%	+6%/-4%	+20%/-8%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 002975770-02 / KOI 1788.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-292 ± 42	$3.29^{+0.25}_{-0.23}$	273^{+6}_{-7}	3583^{+117}_{-120}	12647^{+2690}_{-2347}
Alt.	-112 ± 39	$2.61^{+0.23}_{-0.23}$	273^{+5}_{-6}	3308^{+195}_{-210}	7601^{+3386}_{-2720}

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

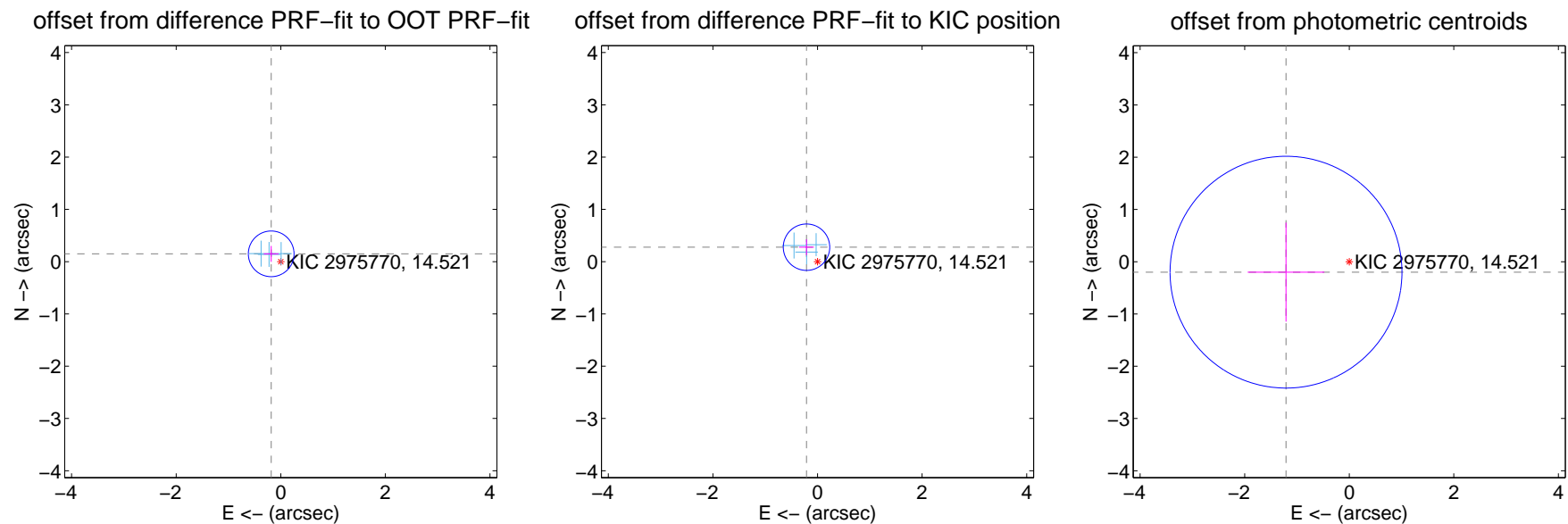
DV Centroid Data

Supplemental centroid analysis for 002975770-02. Kepler magnitude: 14.52. Transit SNR 14.96

There are 3 quarters with good PRF difference image offsets

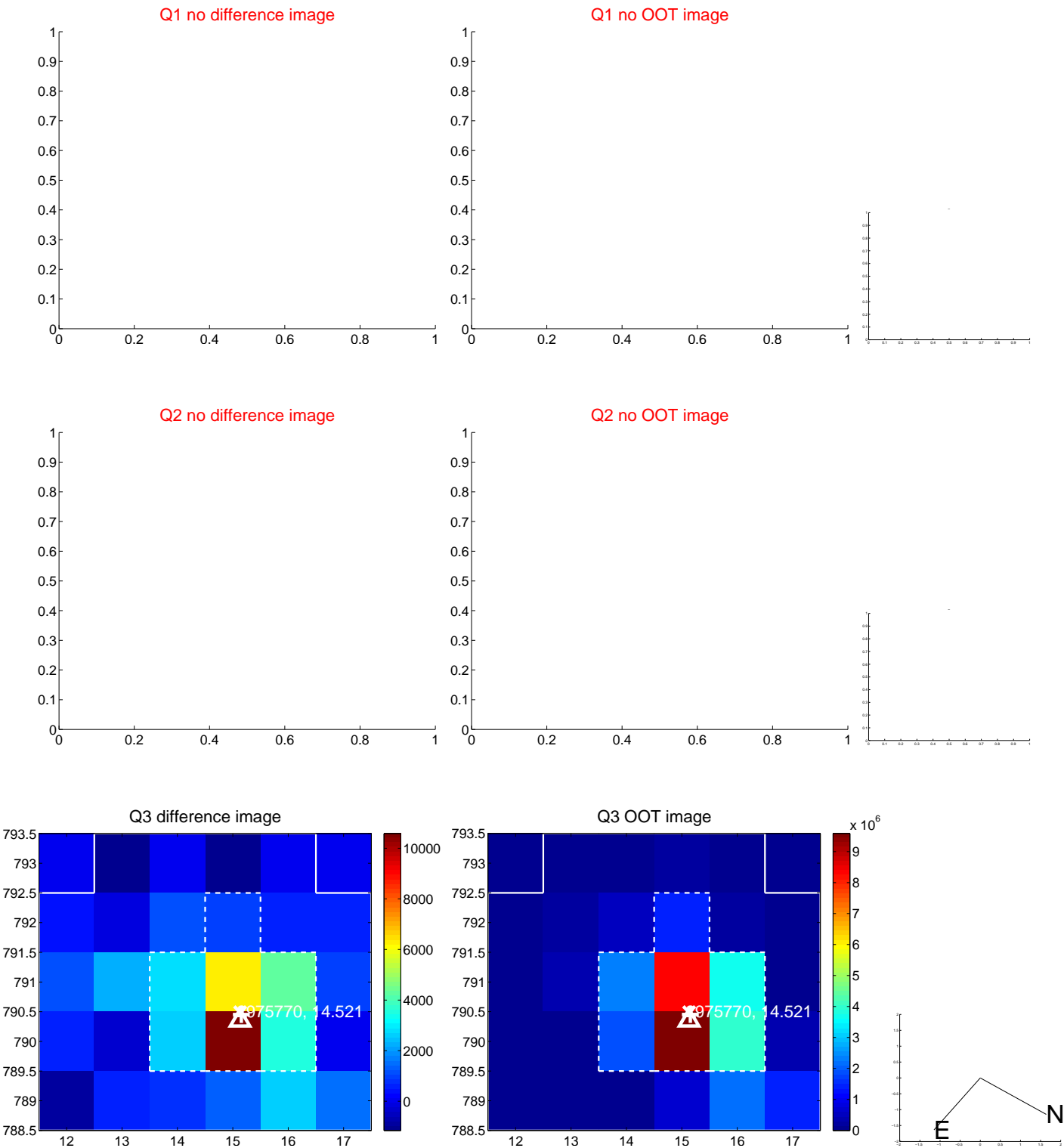
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.236 ± 0.146	1.62	0.183 ± 0.142	0.149 ± 0.152
PRF-fit source offset from KIC position	0.347 ± 0.148	2.35	0.210 ± 0.142	0.276 ± 0.152
photometric centroid source offset	1.23 ± 0.74	1.66	1.21 ± 0.73	-0.20 ± 0.95

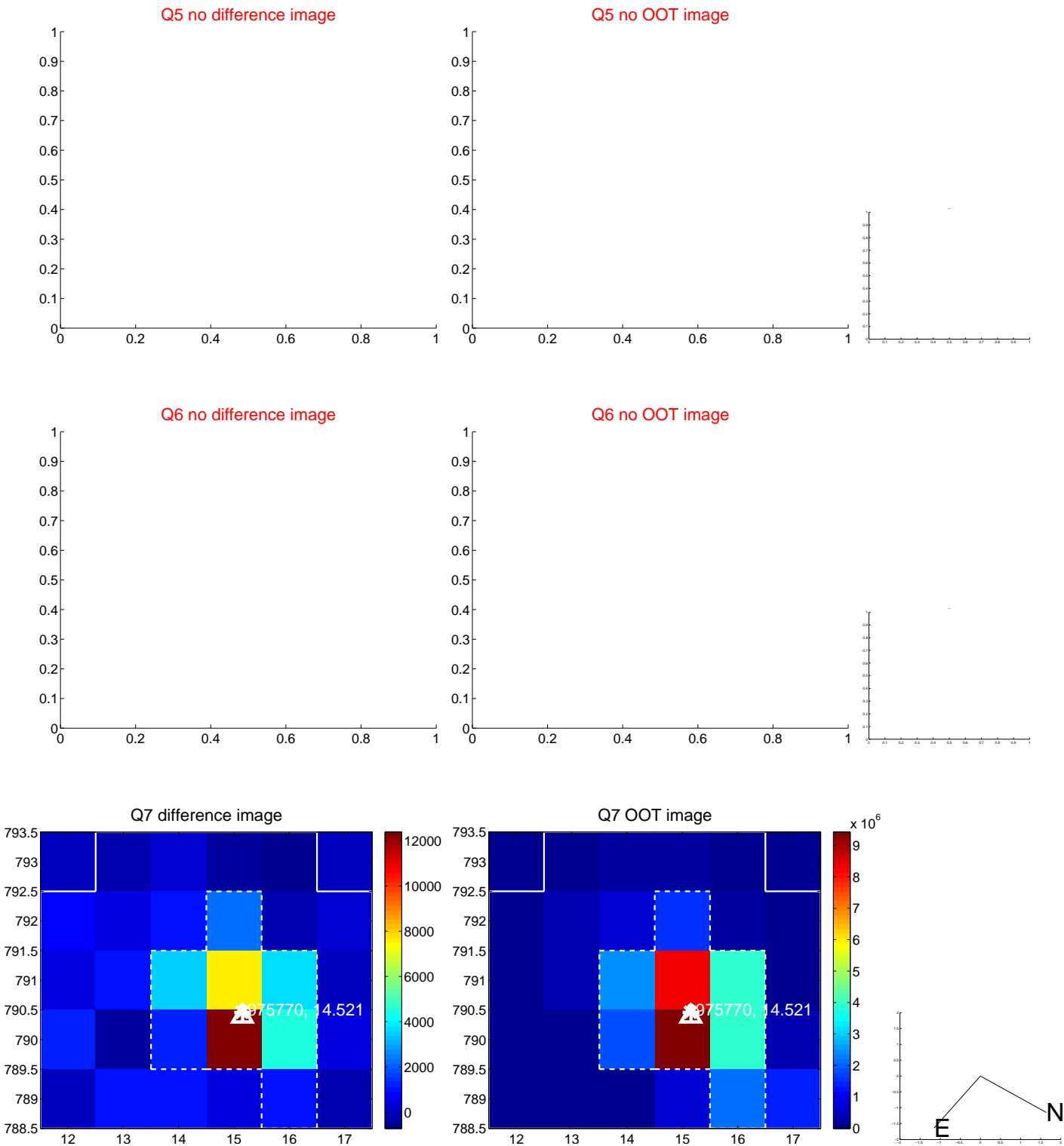


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

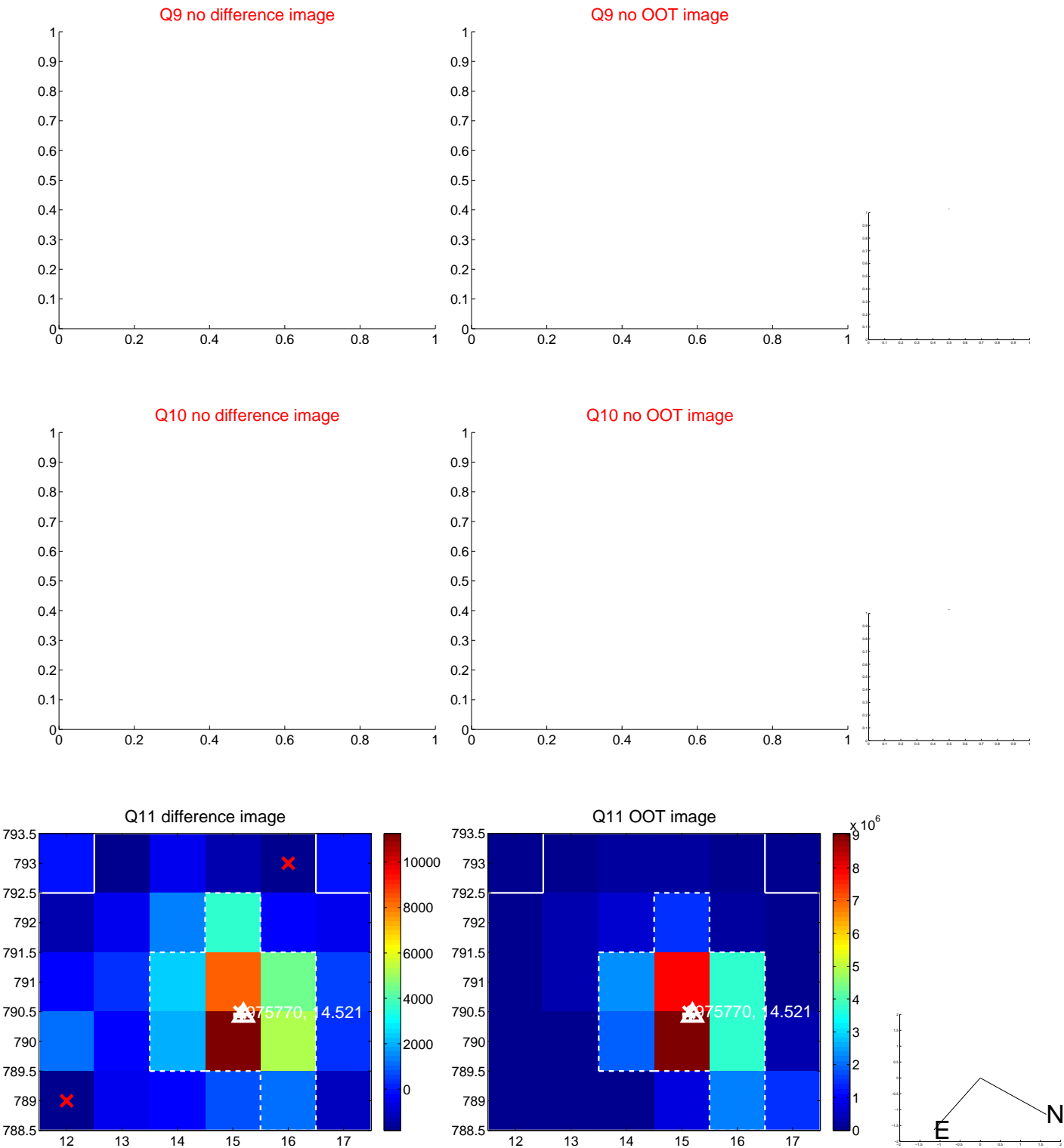
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



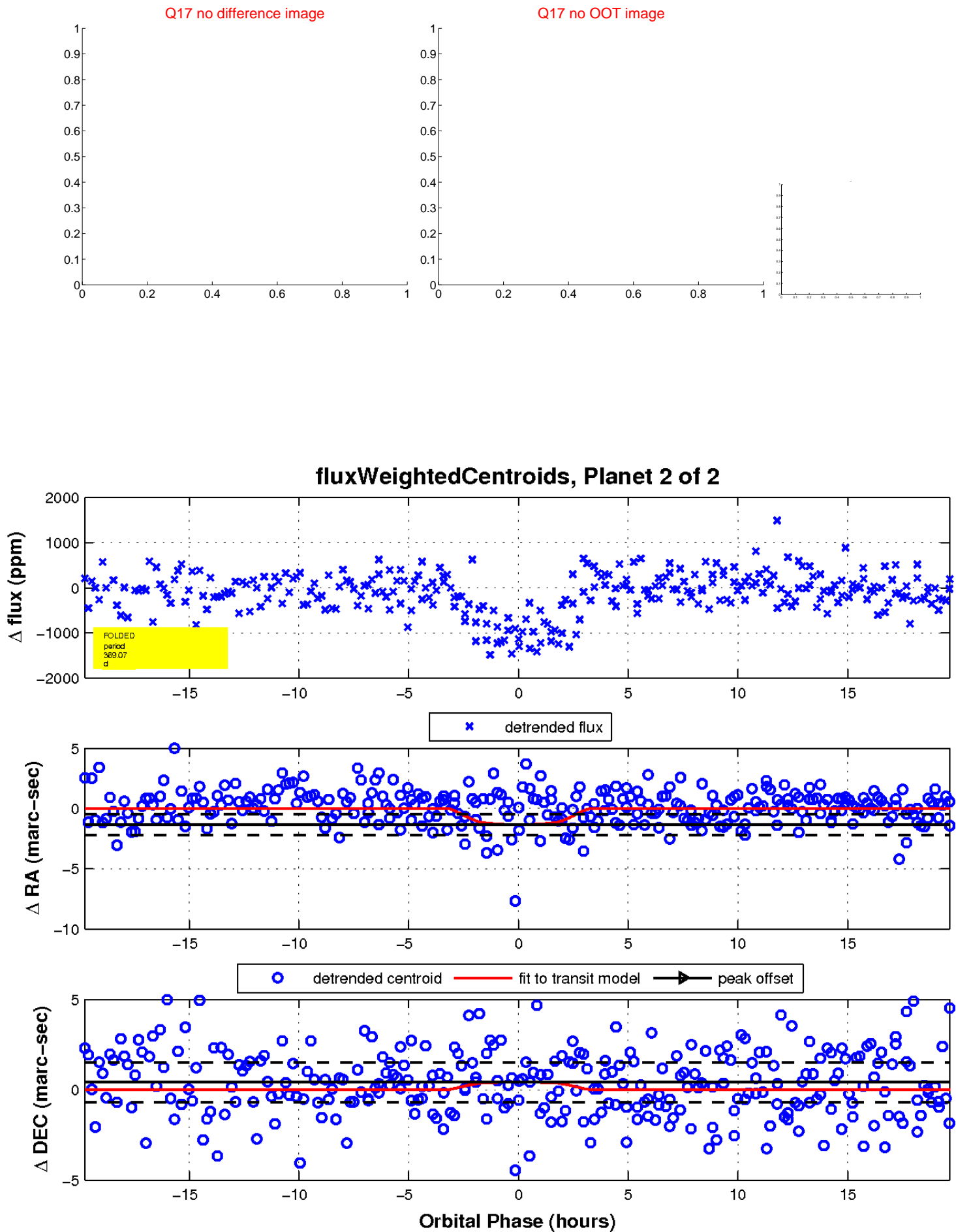
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

