

KIC 007973706

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})
007973706-01	OBS	No	370.887779	385.814652	811.3	14.457	10.3	7.6	0.62	4410	1.83	0.18
007973706-02	OBS	No	570.429917	226.994981	1020.7	10.311	10.7	9.4	0.62	4410	2.04	0.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007973706-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007973706-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

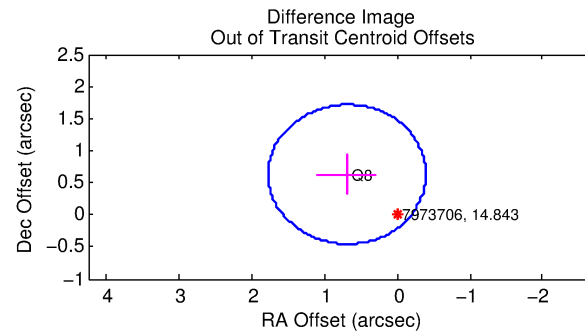
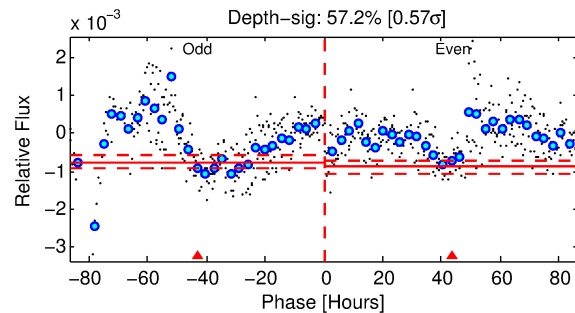
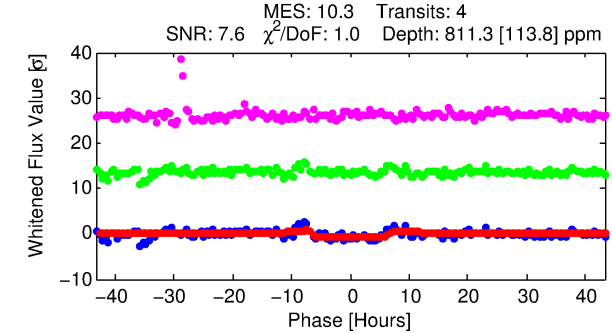
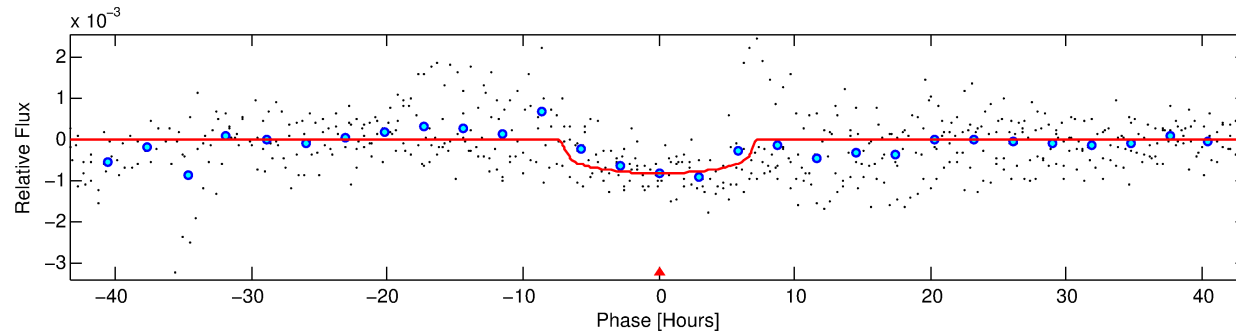
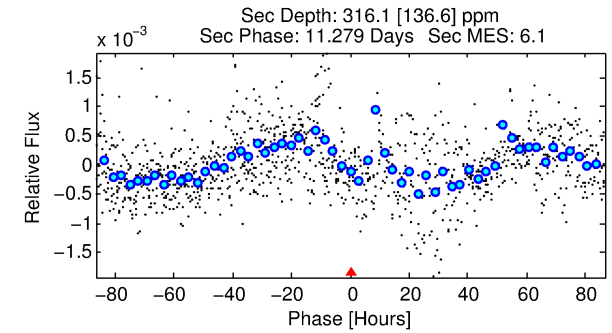
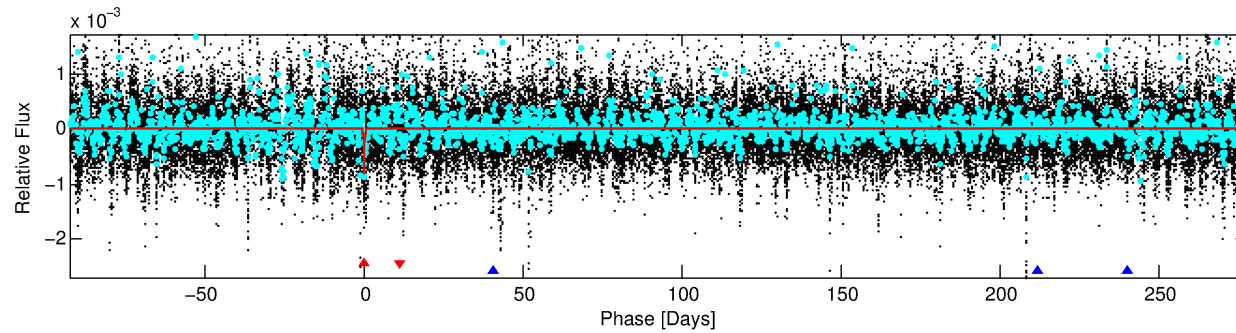
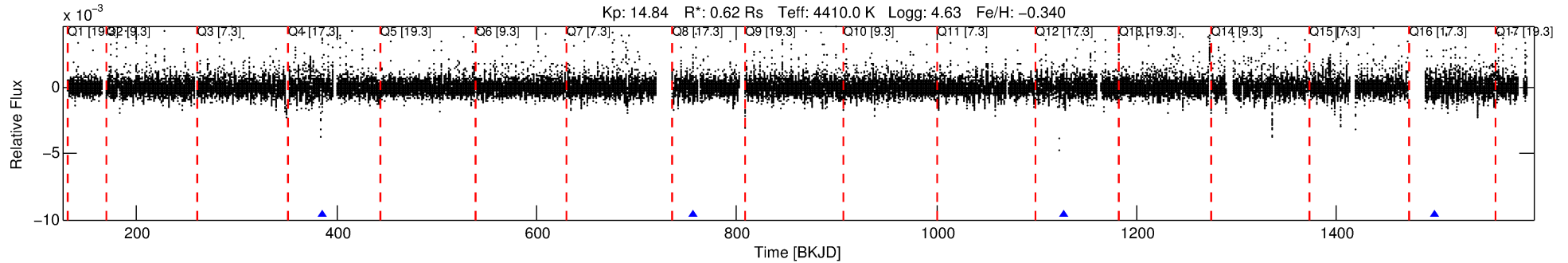
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007973706-01

No Significant Match Found

DV One-Page Summary

KIC: 7973706 Candidate: 1 of 2 Period: 370.888 d



DV Fit Results:

Period = 370.88778 [0.00731] d
Epoch = 385.8147 [0.0140] BKJD
Rp/R* = 0.0271 [0.0087]
a/R* = 160.00 [165.64]
b = 0.62 [1.03]
Seff = 0.18 [0.03]
Teq = 166 [7] K
Rp = 1.83 [0.61] Re
a = 0.8546 [0.0670] AU
Ag = 37768.62 [29466.47] [1.28 σ]
Teffp = 3572 [698] K [4.88 σ]

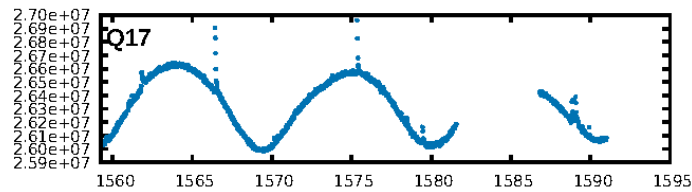
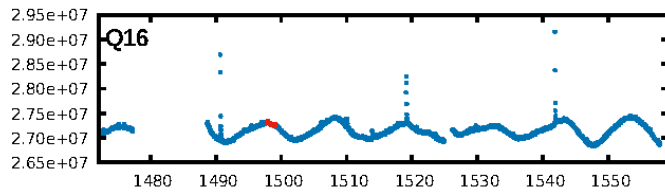
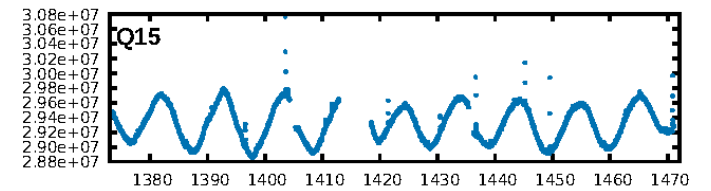
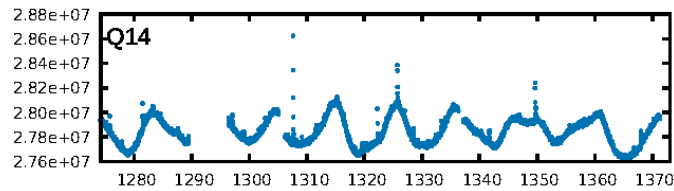
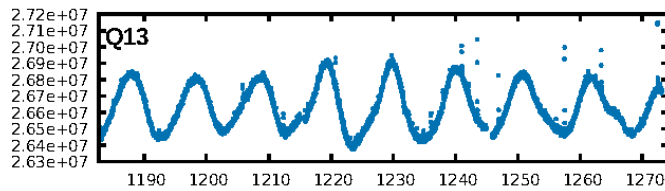
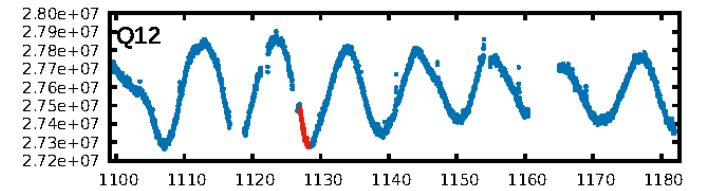
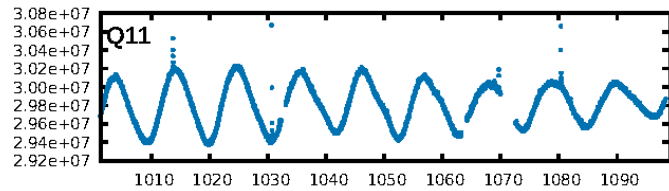
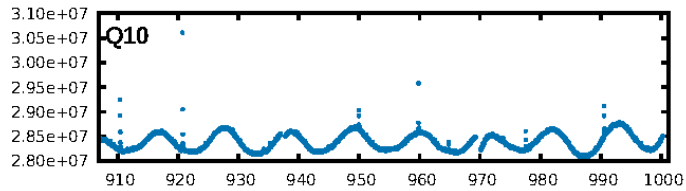
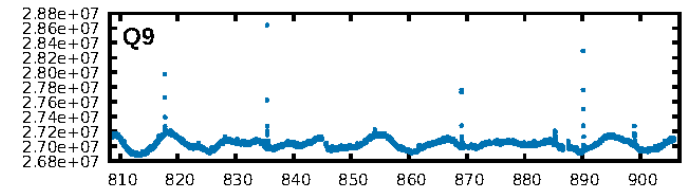
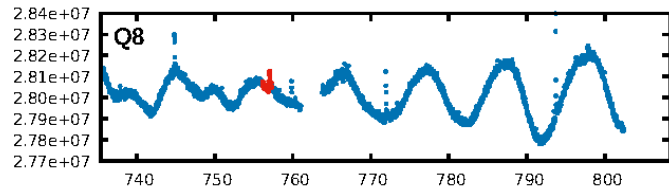
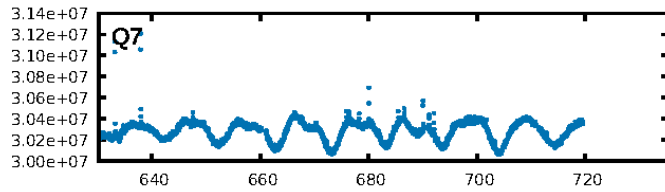
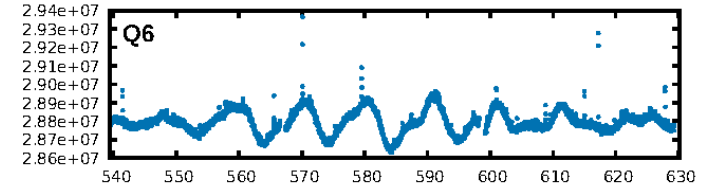
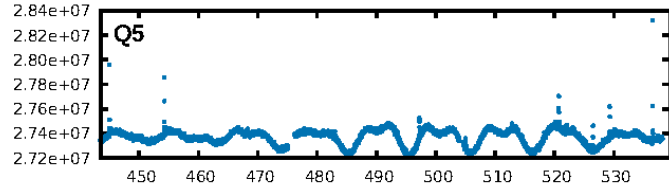
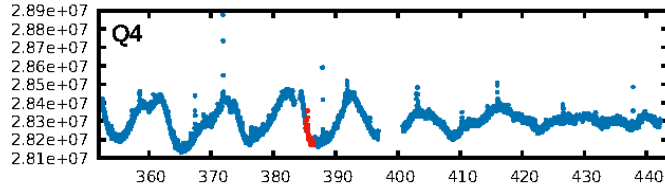
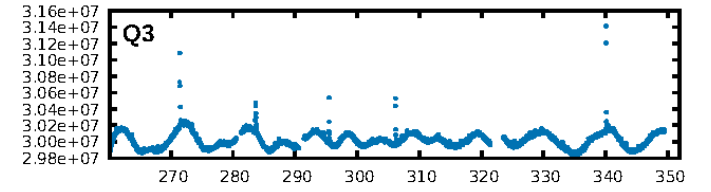
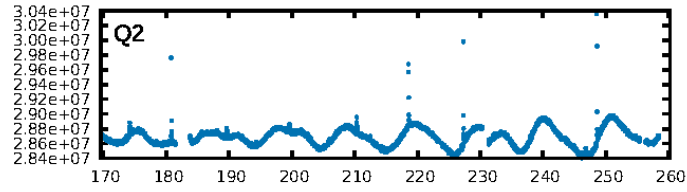
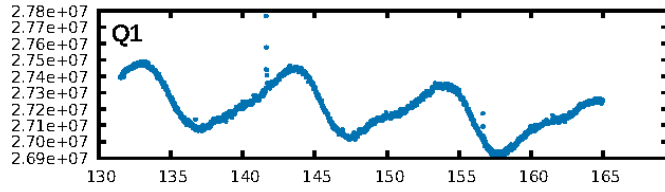
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [269.69 σ]
ModelChiSquare2-sig: 58.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.77e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.3281
Centroid-sig: 42.1%
Centroid-so: 0.763 arcsec [1.12 σ]
OotOffset-rm: 0.934 arcsec [2.58 σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-rm: 1.071 arcsec [2.96 σ]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [1/1]

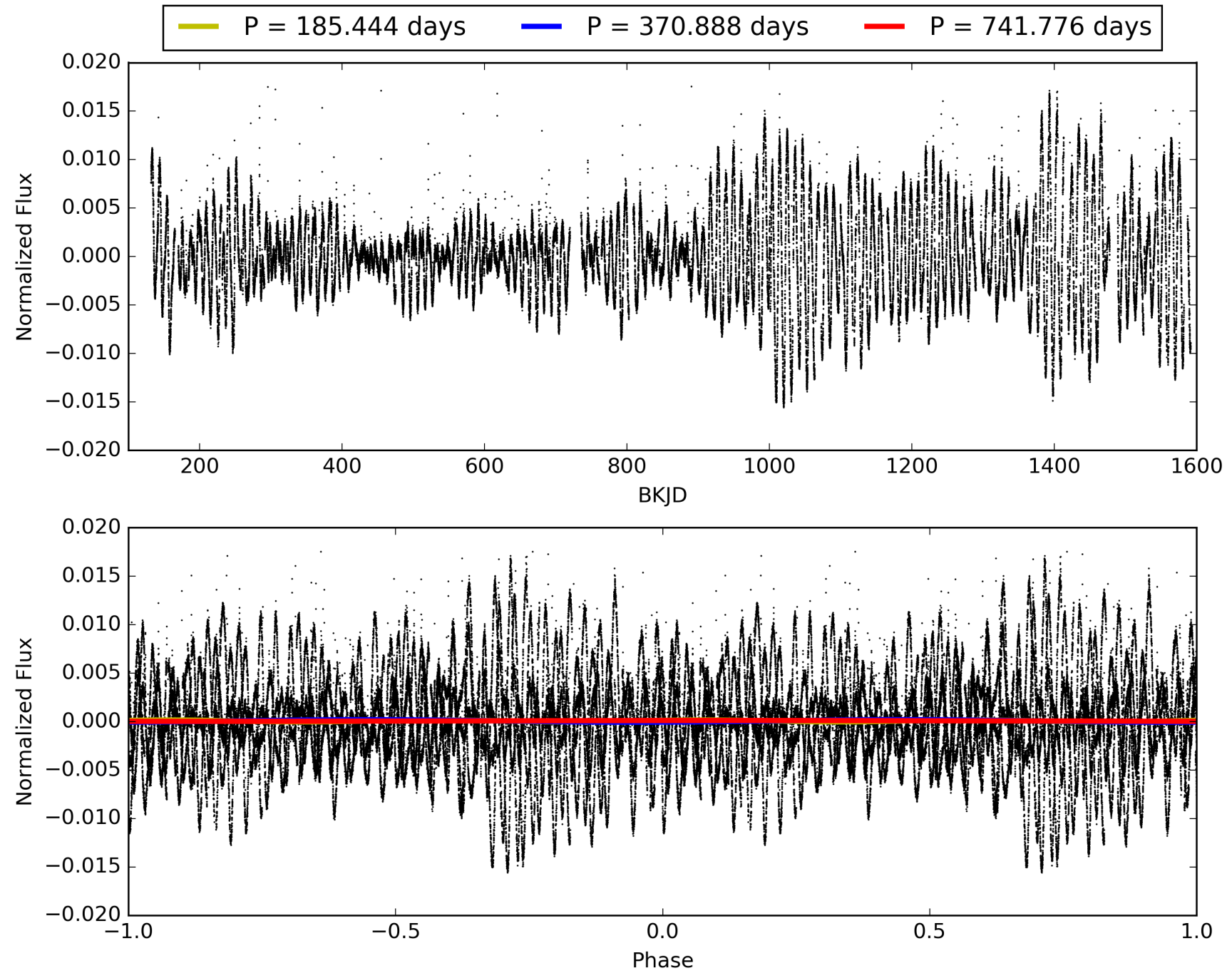
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007973706-01, PDC Light Curves

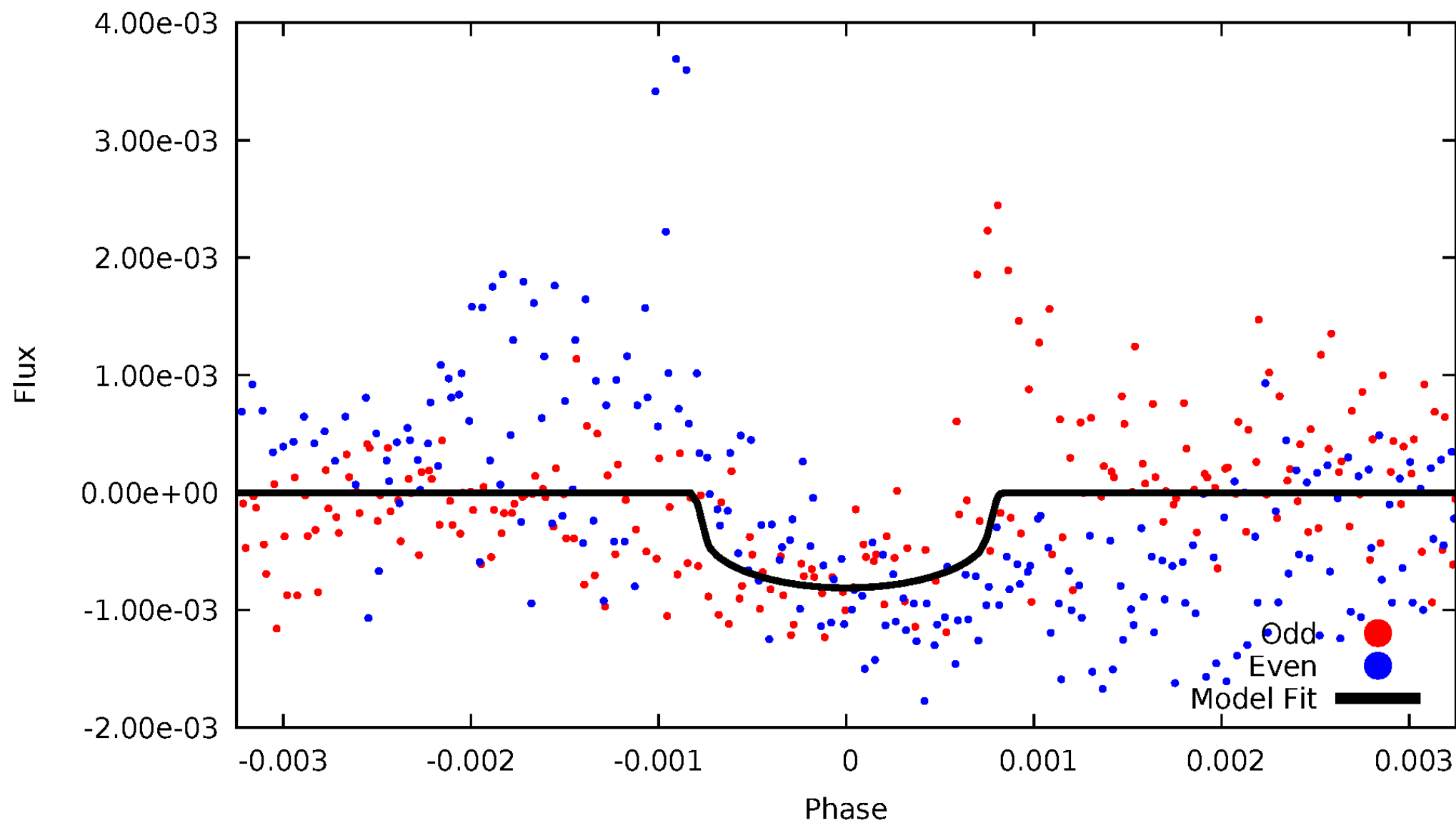


TCE 007973706-01



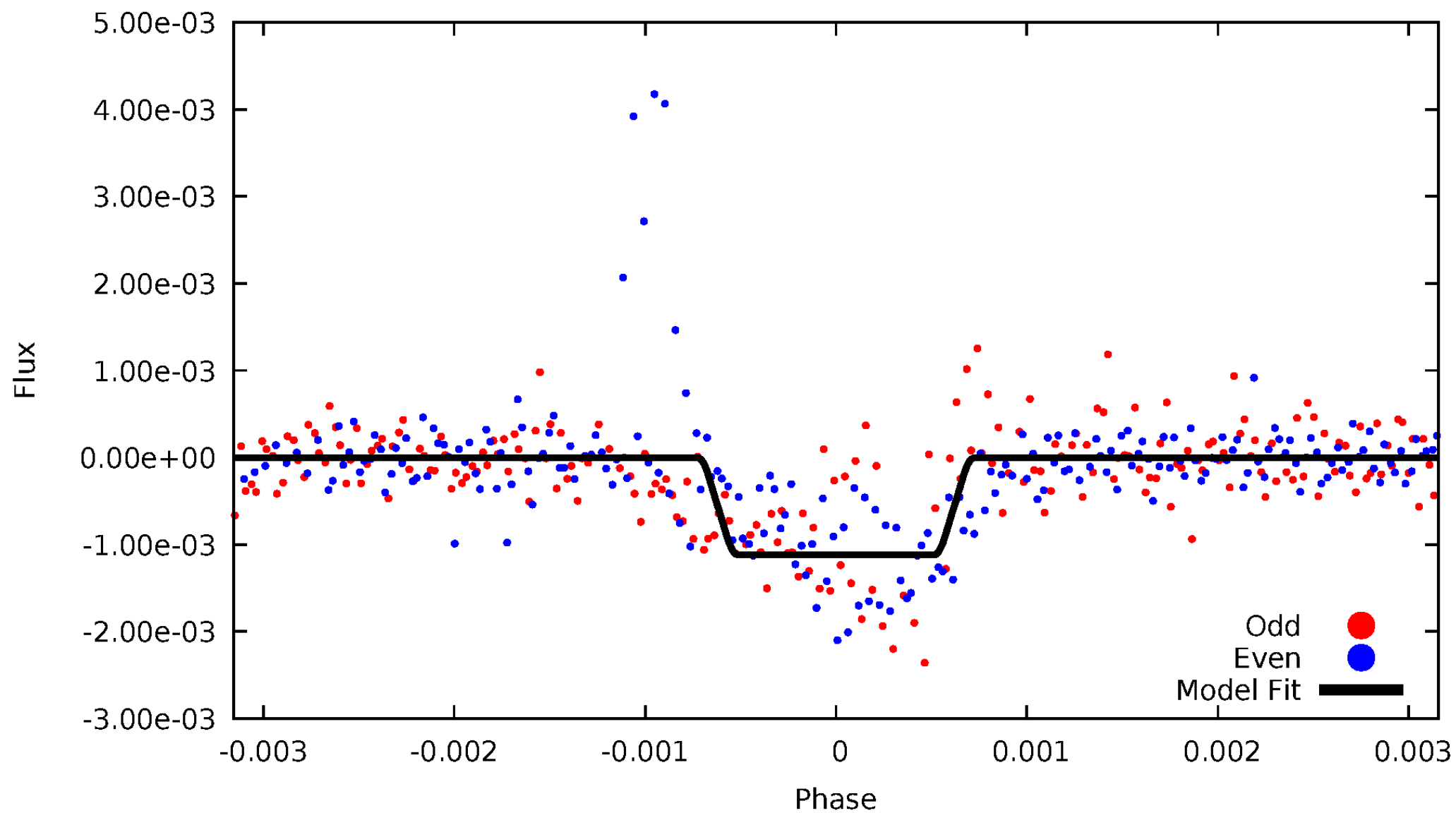
DV Odd/Even

TCE 007973706-01



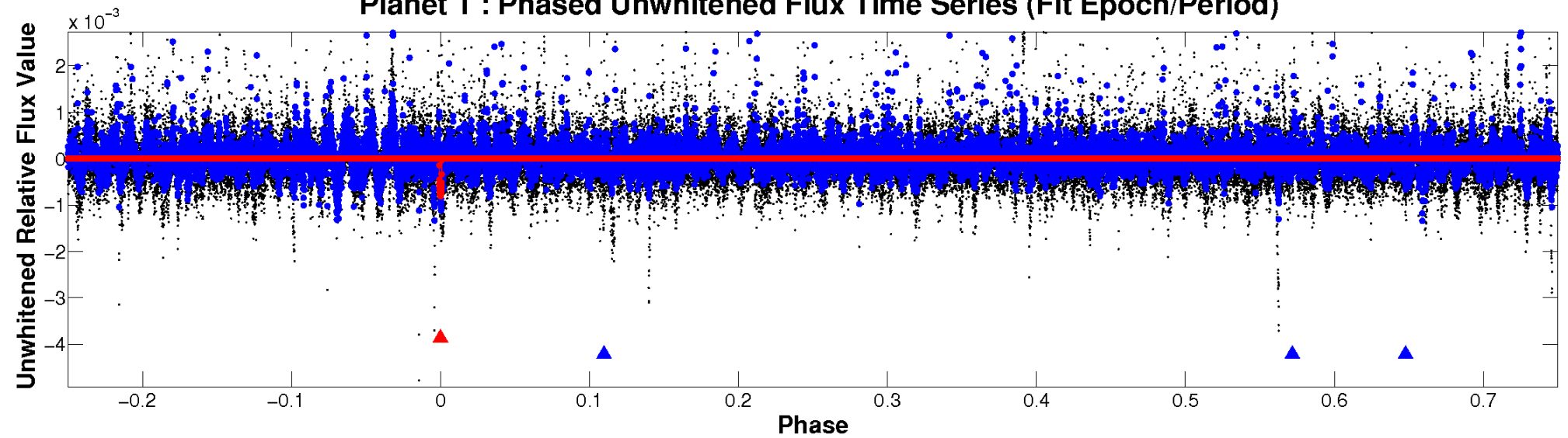
ALT Odd/Even

TCE 007973706-01

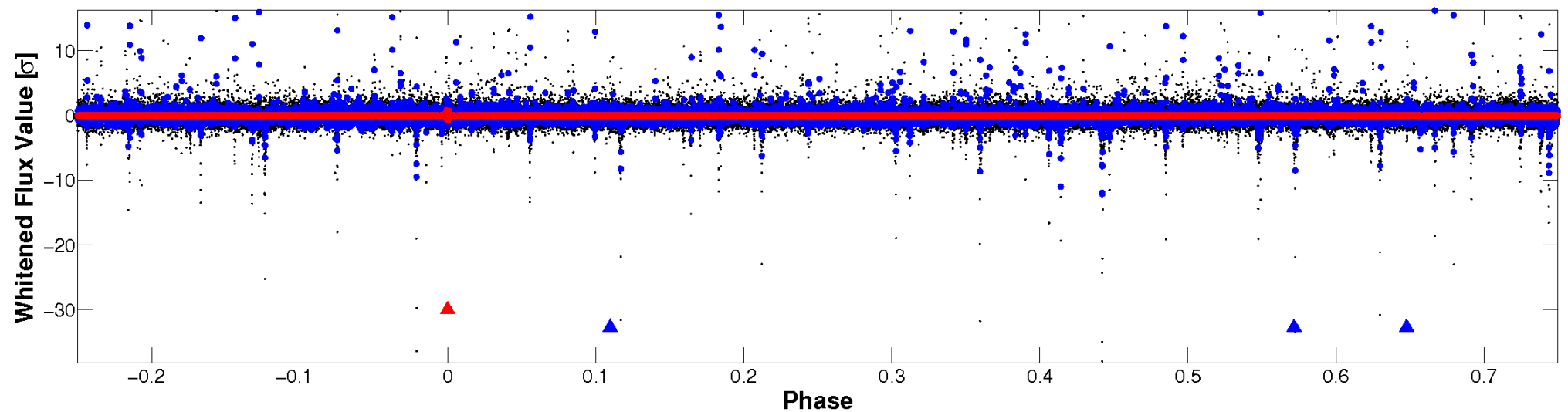


Non-Whitened Vs. Whitened Light Curve

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

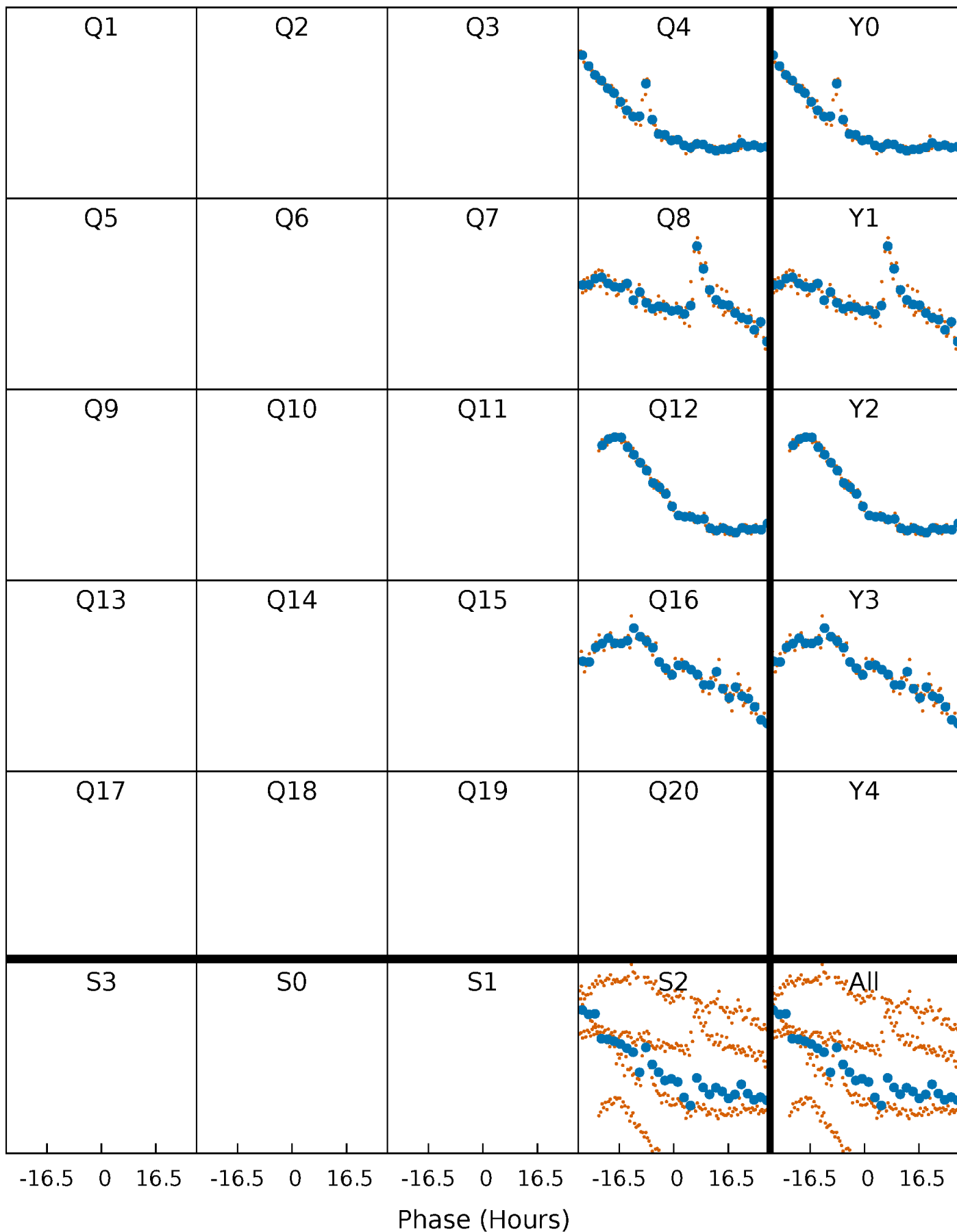


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



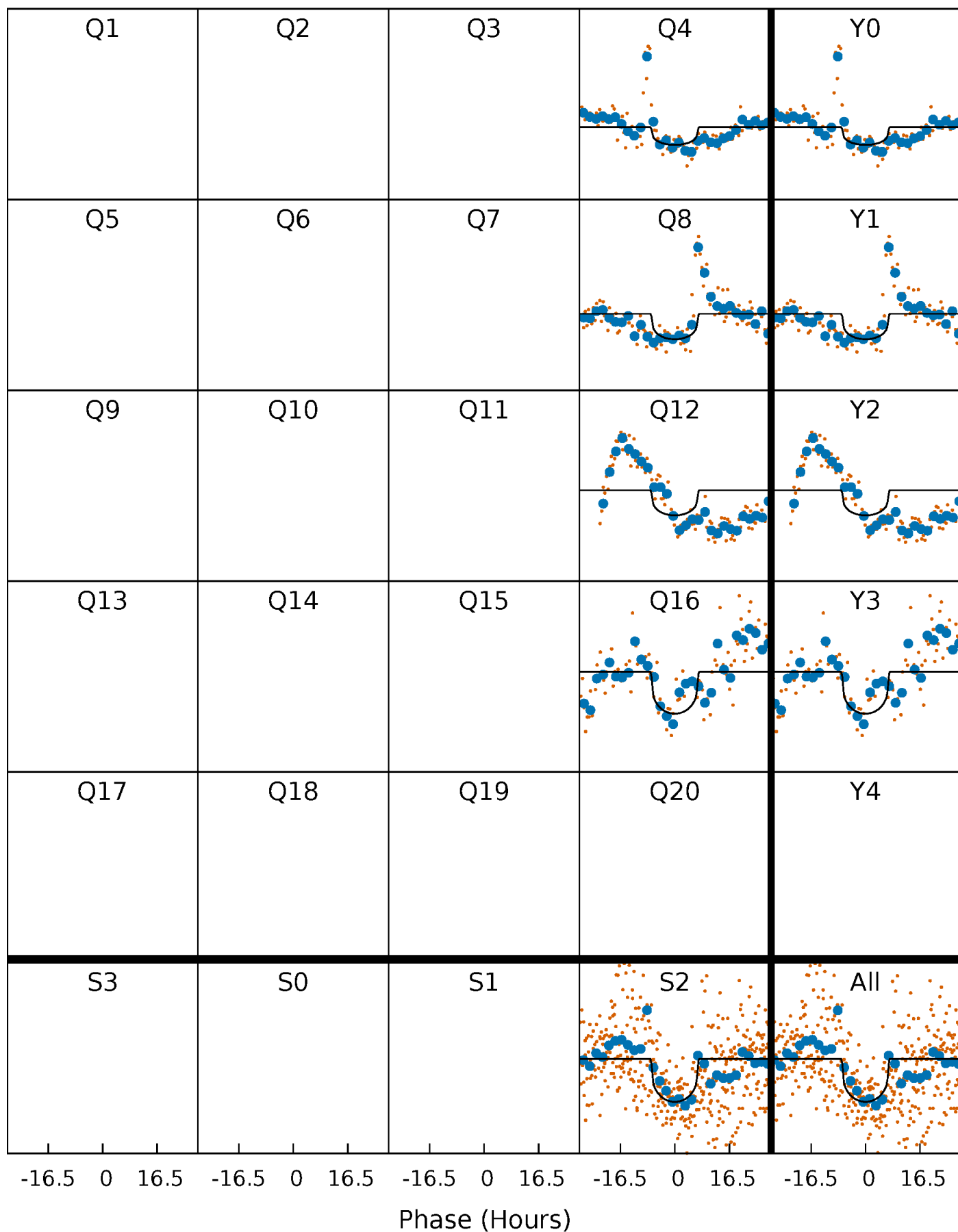
PDC Quarter-Phased Transit Curves

TCE 007973706-01 P=370.887779 Days $T_0=385.814653$ (BKJD)



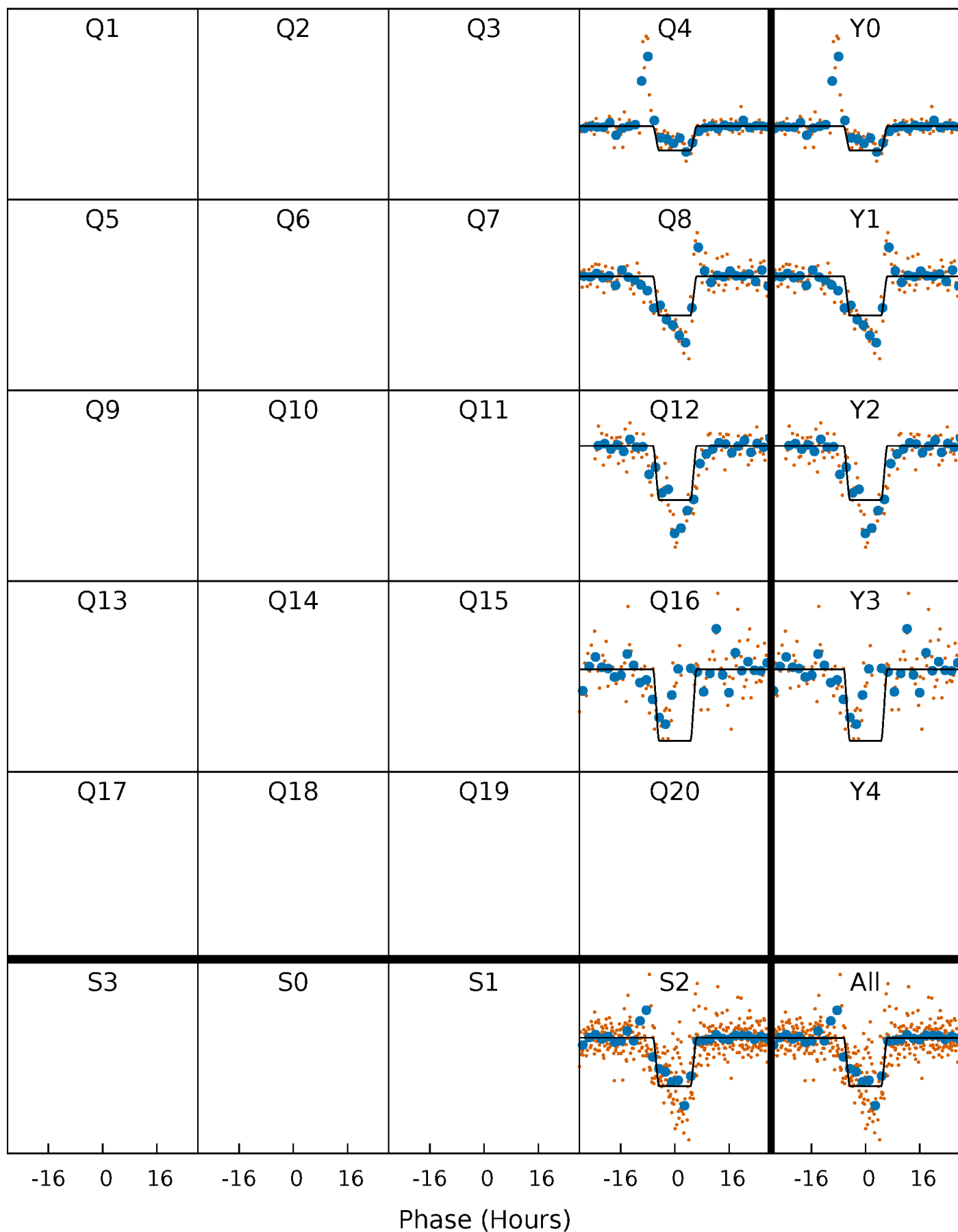
DV Quarter-Phased Transit Curves

TCE 007973706-01 P=370.887779 Days $T_0=385.814653$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

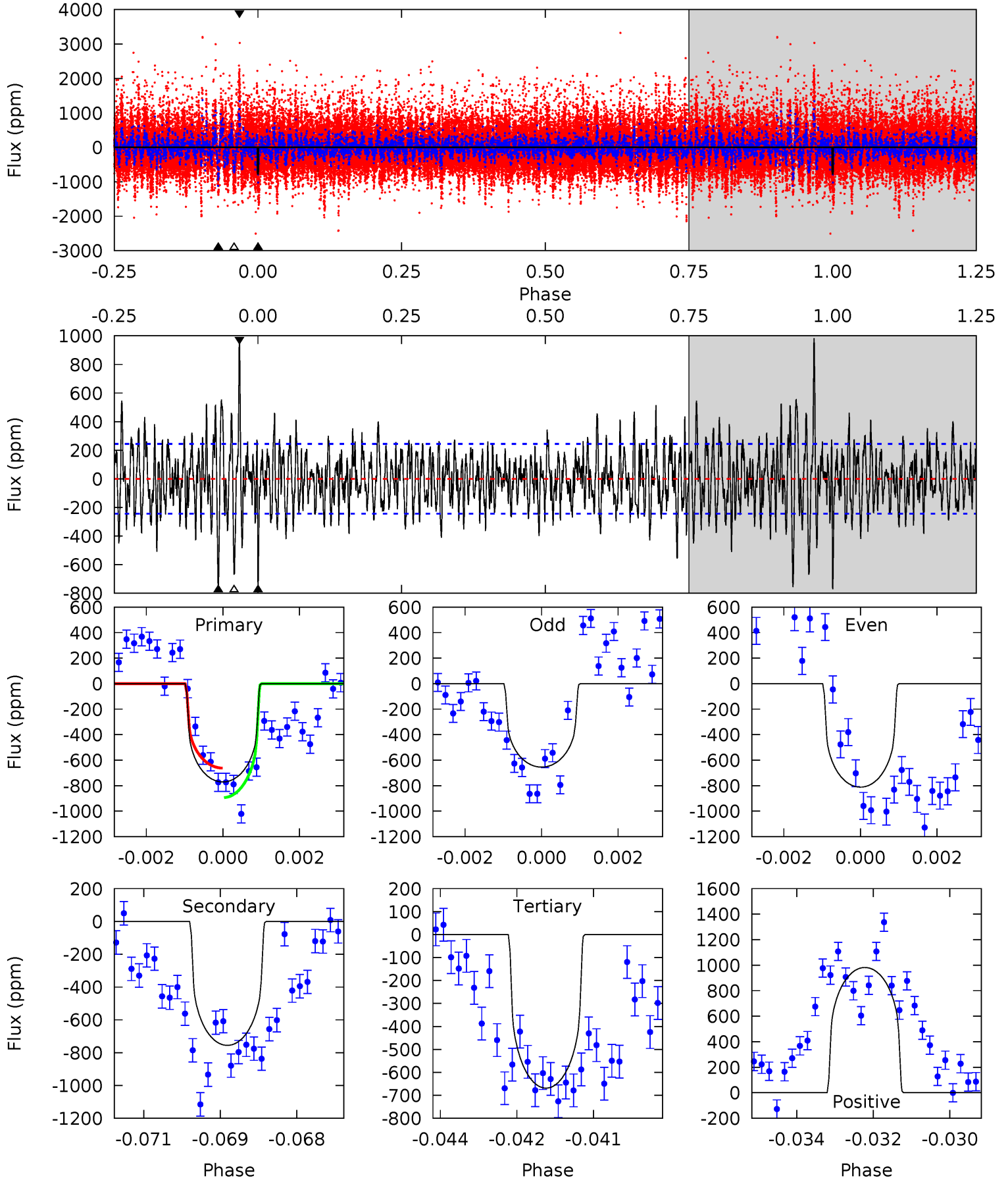
TCE 007973706-01 P=370.896359 Days $T_0=385.831162$ (BKJD)



DV Model-Shift Uniqueness Test

007973706-01, $P = 370.887779$ Days, $E = 14.926874$ Days

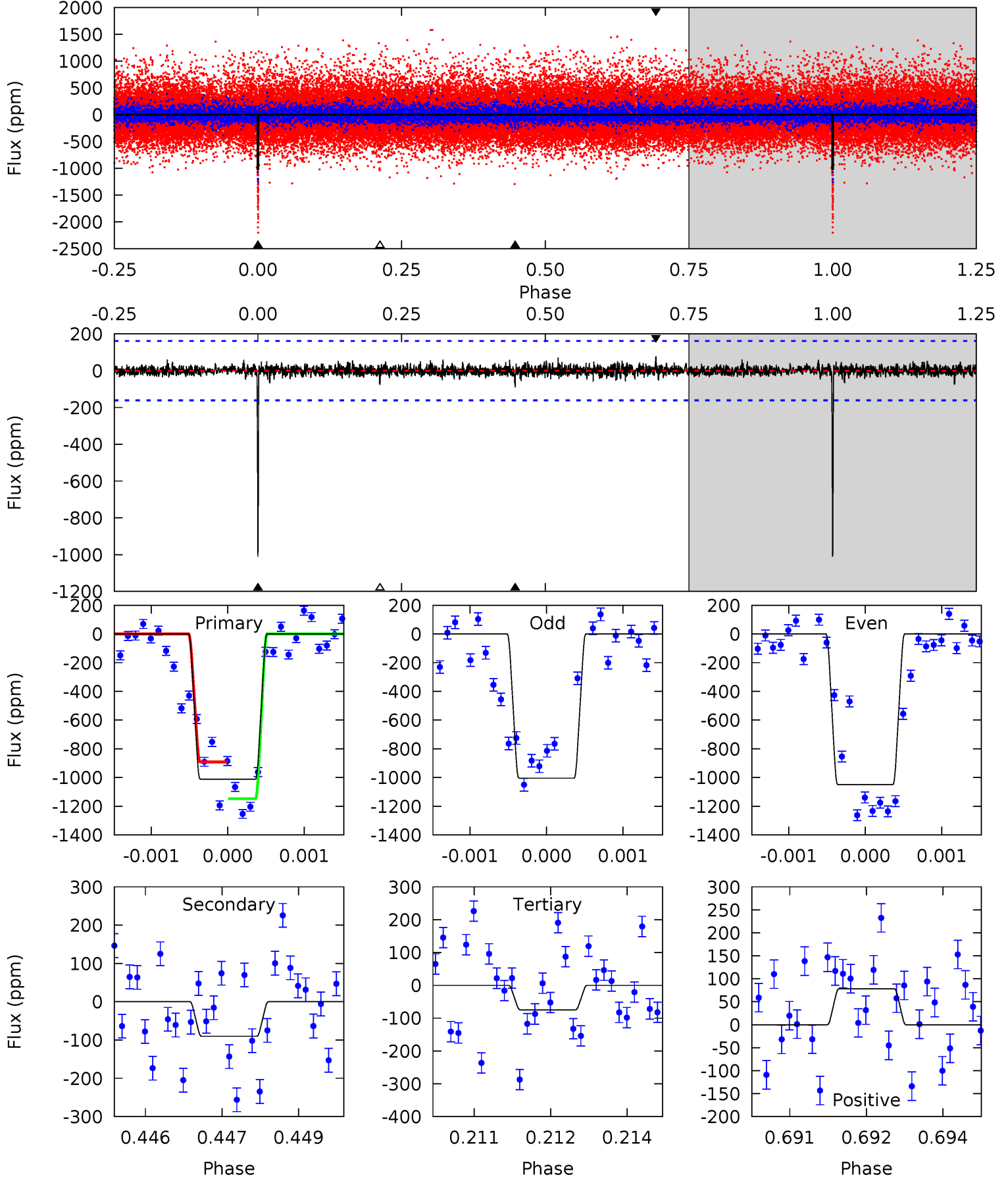
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	16.6	14.7	21.6	5.36	3.14	3.89	2.25	-4.63	1.91	-4.97	1.50	1.04	0.56	2.55



Alt Model-Shift Uniqueness Test

007973706-01, $P = 370.896359$ Days, $E = 14.934803$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.8	3.02	2.50	2.61	5.39	3.19	0.53	31.3	31.2	0.52	0.41	0.74	0.94	0.07	4.29



Stellar Parameters For KIC 007973706

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4410^{+118}_{-131}	$4.635^{+0.056}_{-0.024}$	$-0.340^{+0.350}_{-0.300}$	$0.620^{+0.045}_{-0.061}$	$0.605^{+0.070}_{-0.047}$	$3.583^{+0.898}_{-0.406}$
	+3%/-3%	+1%/-1%	+103%/-88%	+7%/-10%	+12%/-8%	+25%/-11%
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 007973706-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-755 ± 46	$1.80^{+0.62}_{-0.54}$	230^{+7}_{-8}	4433^{+701}_{-468}	95651^{+98237}_{-42606}
Alt.	-90 ± 30	$2.17^{+0.63}_{-0.56}$	230^{+7}_{-8}	2943^{+342}_{-245}	7419^{+8498}_{-3533}

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

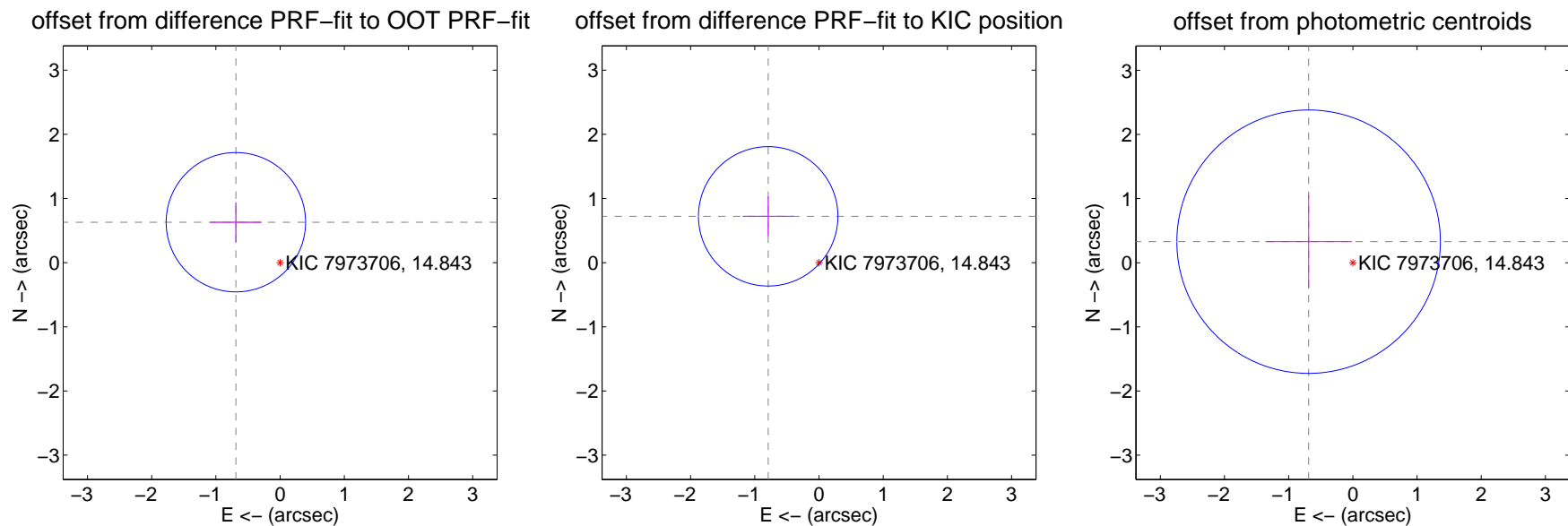
DV Centroid Data

Supplemental centroid analysis for 007973706-01. Kepler magnitude: 14.84. Transit SNR 7.63

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.934 ± 0.362	2.58	0.689 ± 0.400	0.630 ± 0.310
PRF-fit source offset from KIC position	1.071 ± 0.362	2.96	0.791 ± 0.400	0.722 ± 0.310
photometric centroid source offset	0.76 ± 0.68	1.12	0.69 ± 0.67	0.33 ± 0.73

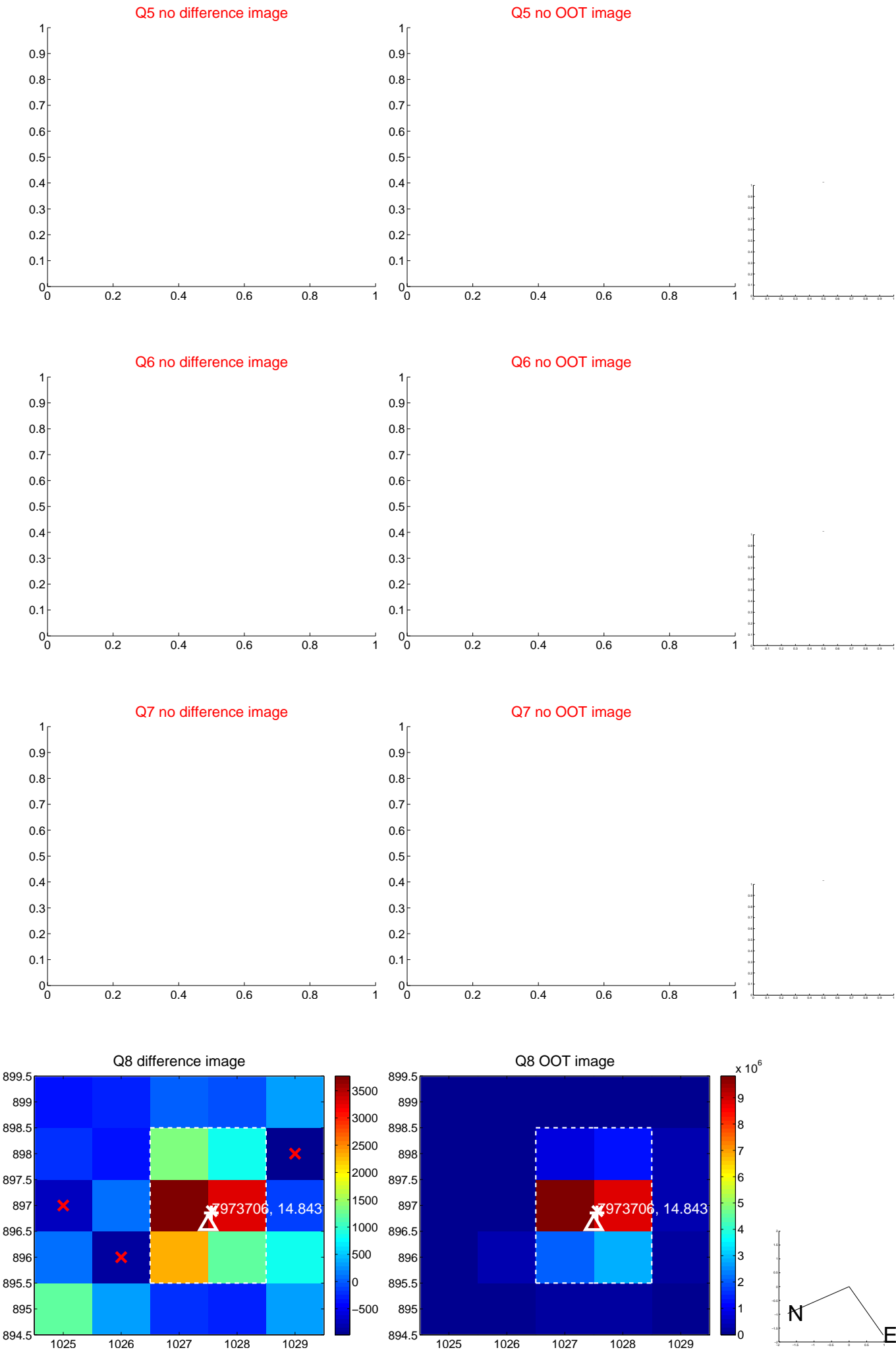


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



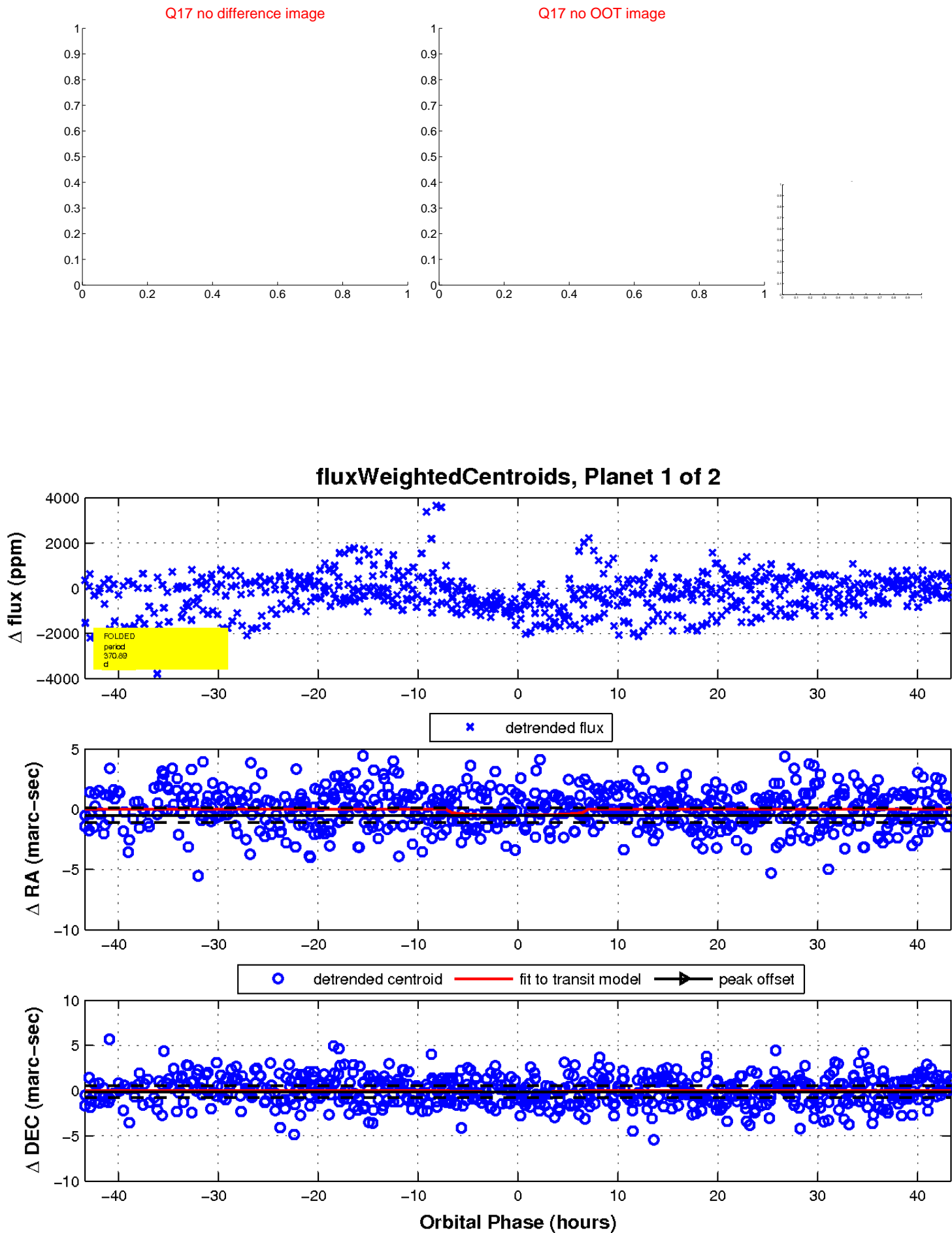
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

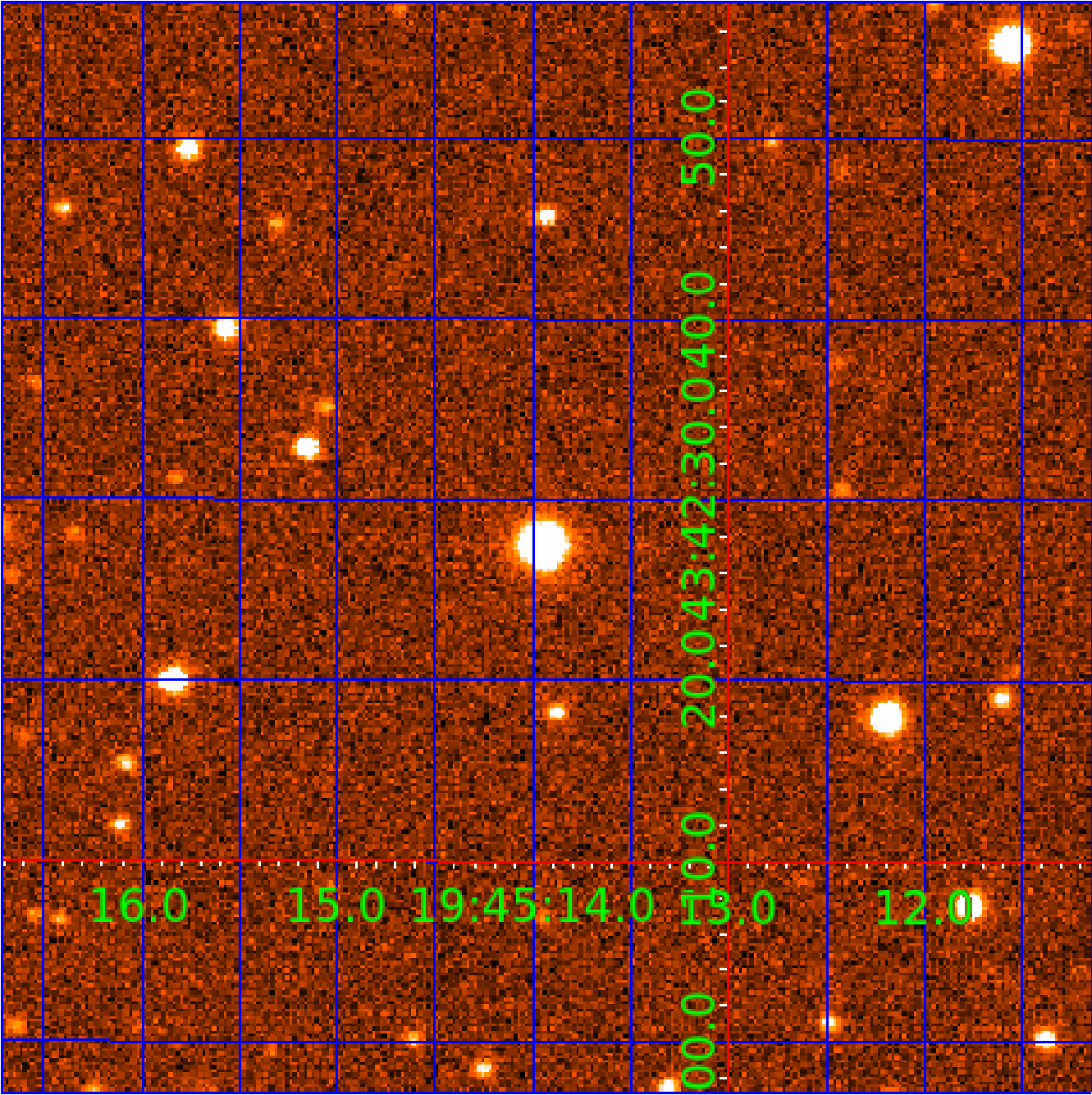


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007973706

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007973706-01	OBS	FP	0.00	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007973706-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

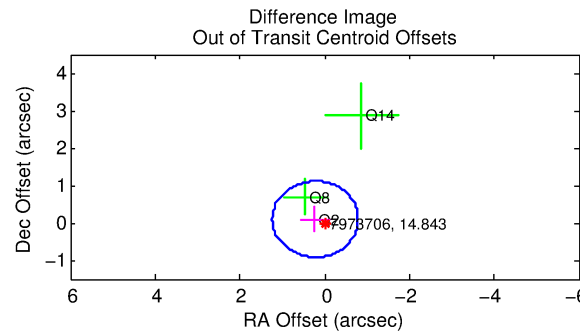
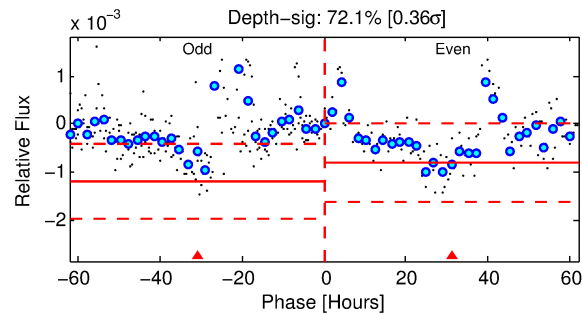
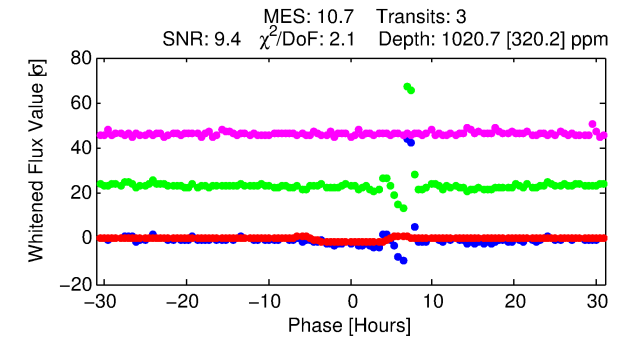
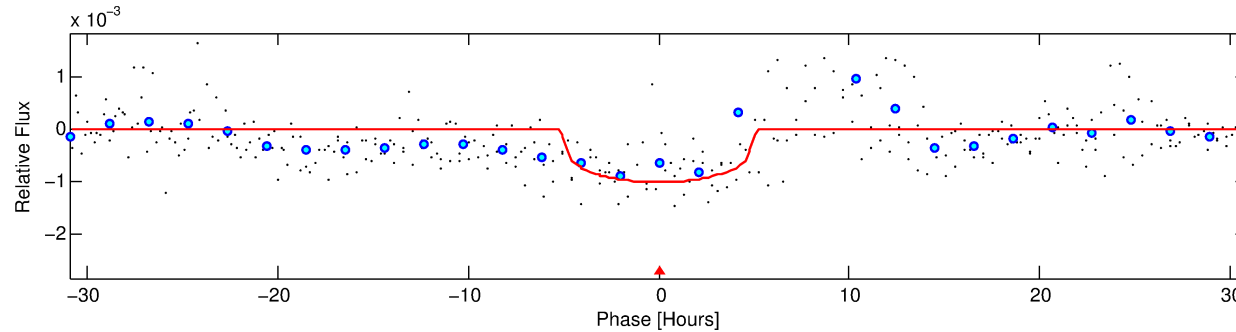
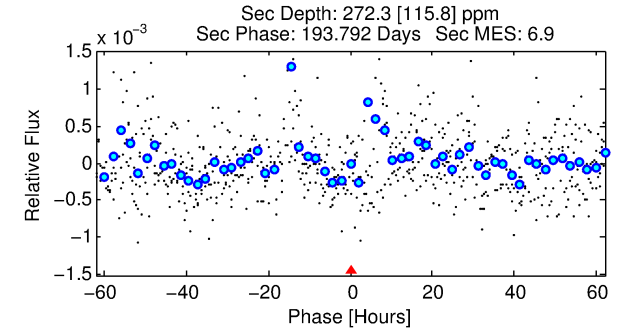
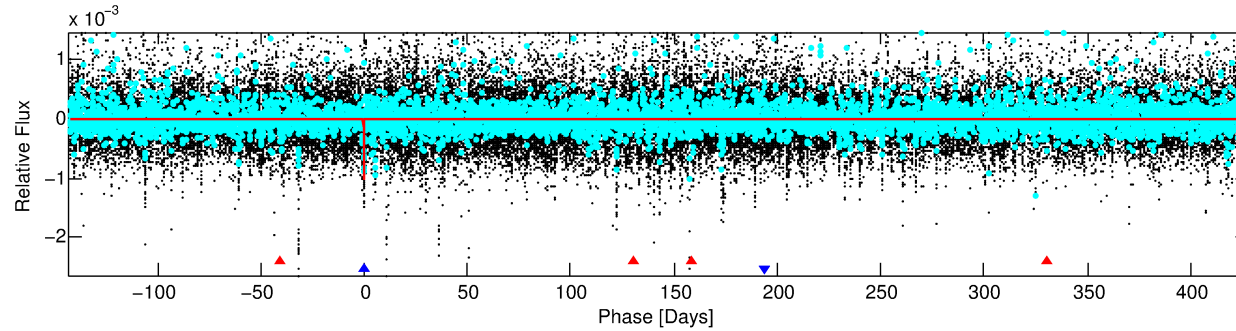
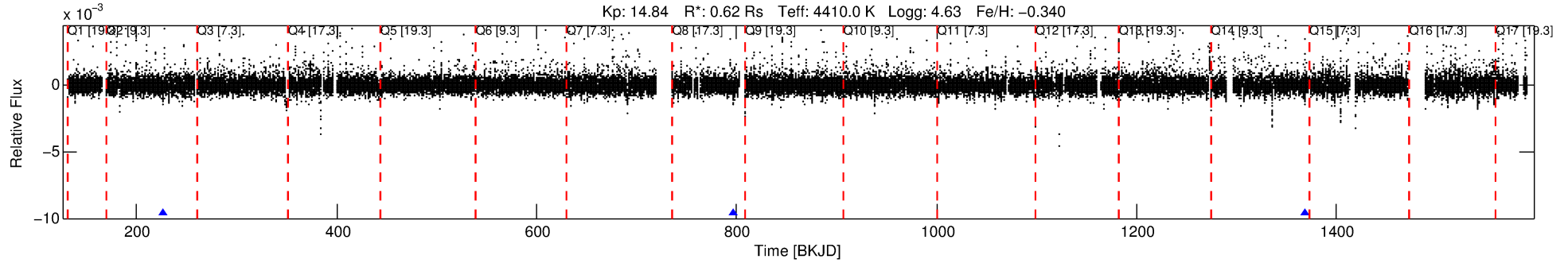
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007973706-02

No Significant Match Found

DV One-Page Summary

KIC: 7973706 Candidate: 2 of 2 Period: 570.430 d



DV Fit Results:

Period = 570.42992 [0.02302] d
Epoch = 226.9950 [0.0292] BKJD
Rp/R* = 0.0301 [0.0439]
a/R* = 356.03 [1716.48]
b = 0.59 [5.35]
Seff = 0.10 [0.02]
Teq = 144 [6] K
Rp = 2.04 [2.97] Re
a = 1.1387 [0.0893] AU
Ag = 46716.41 [137477.15] [0.34 σ]
Teffp = 3263 [2401] K [1.30 σ]

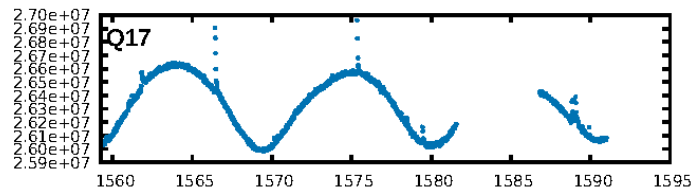
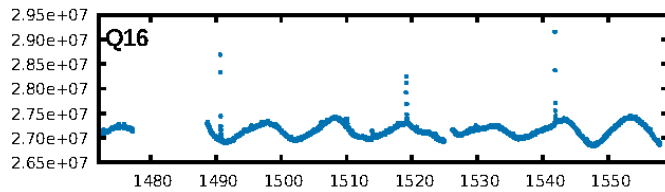
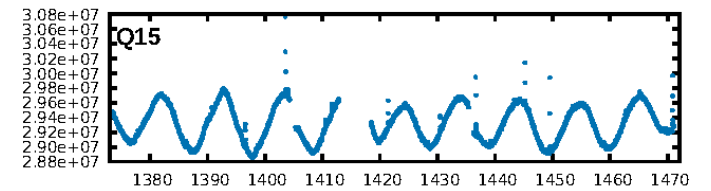
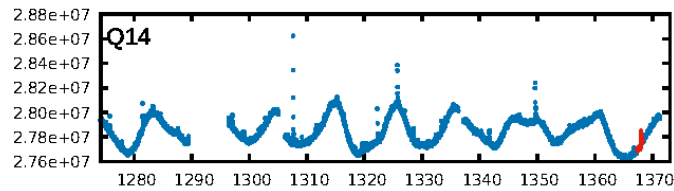
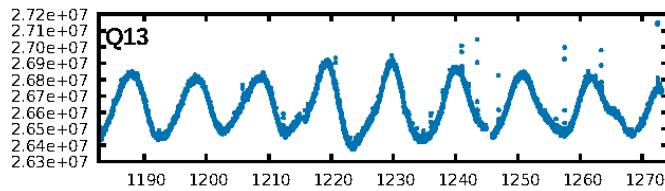
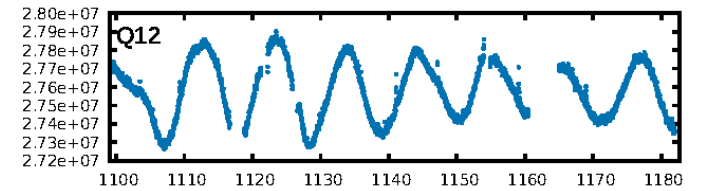
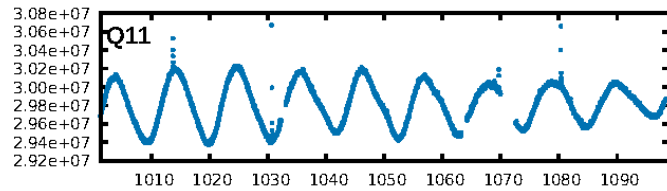
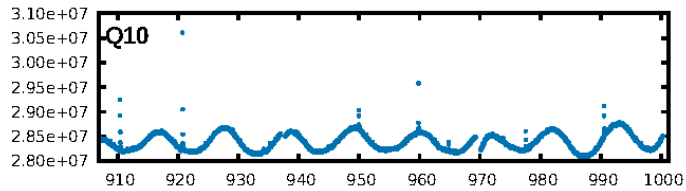
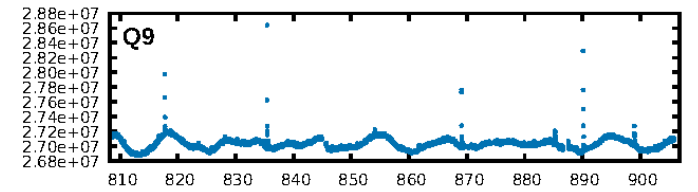
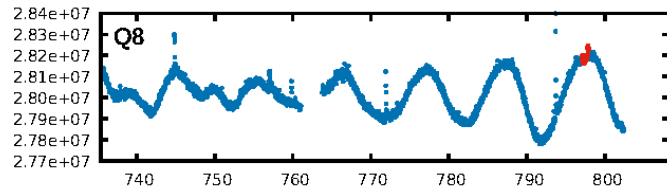
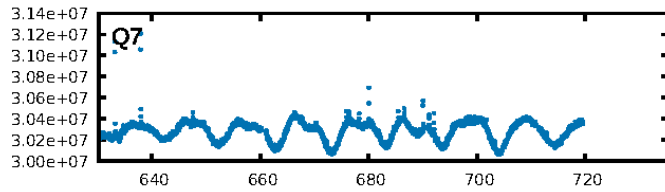
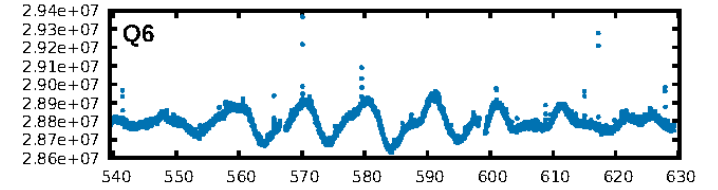
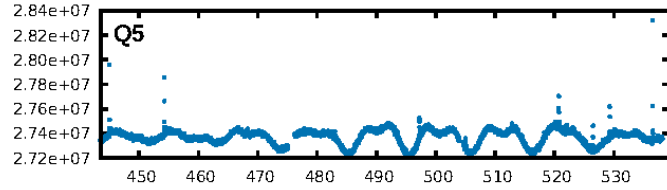
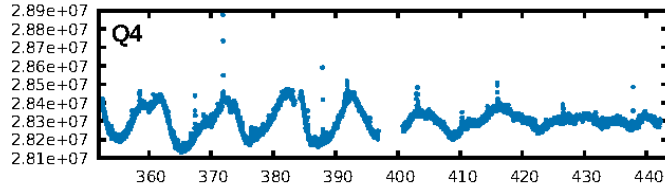
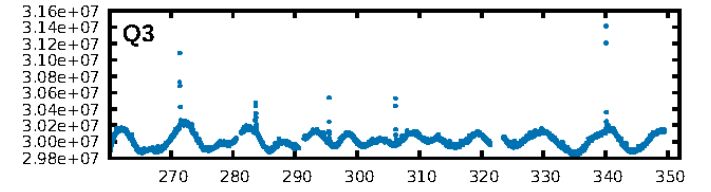
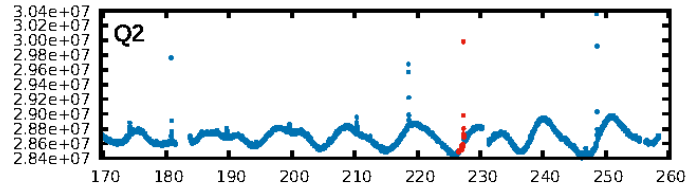
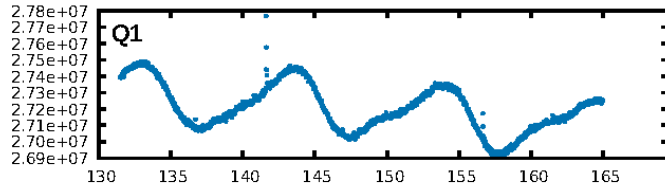
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [269.69 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.9%
Bootstrap-pfa: 1.11e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7255
Centroid-sig: 14.6%
Centroid-so: 0.801 arcsec [1.36 σ]
OotOffset-rm: 0.241 arcsec [0.71 σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-rm: 0.375 arcsec [1.11 σ]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

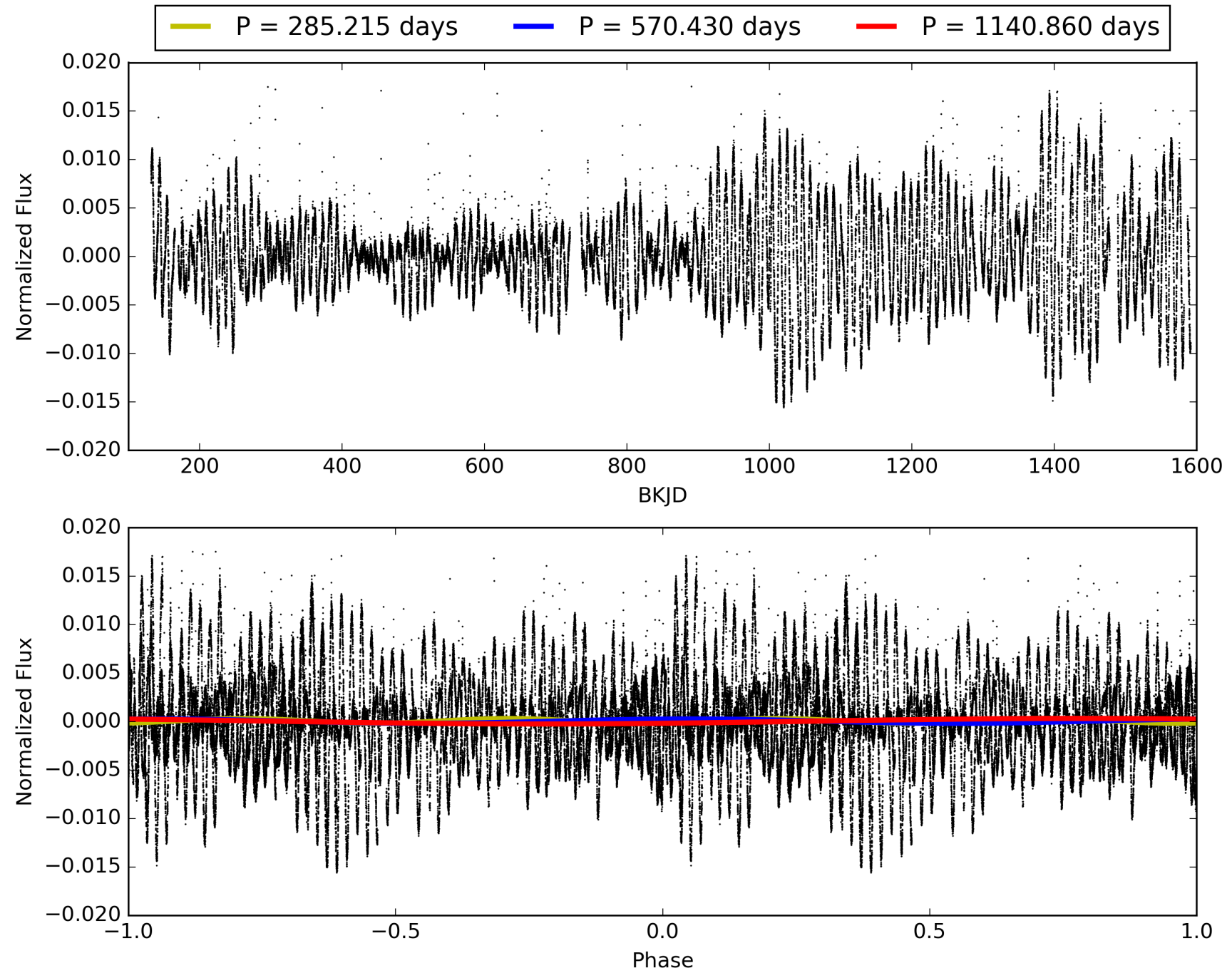
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:09:58 Z

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

TCE 007973706-02, PDC Light Curves

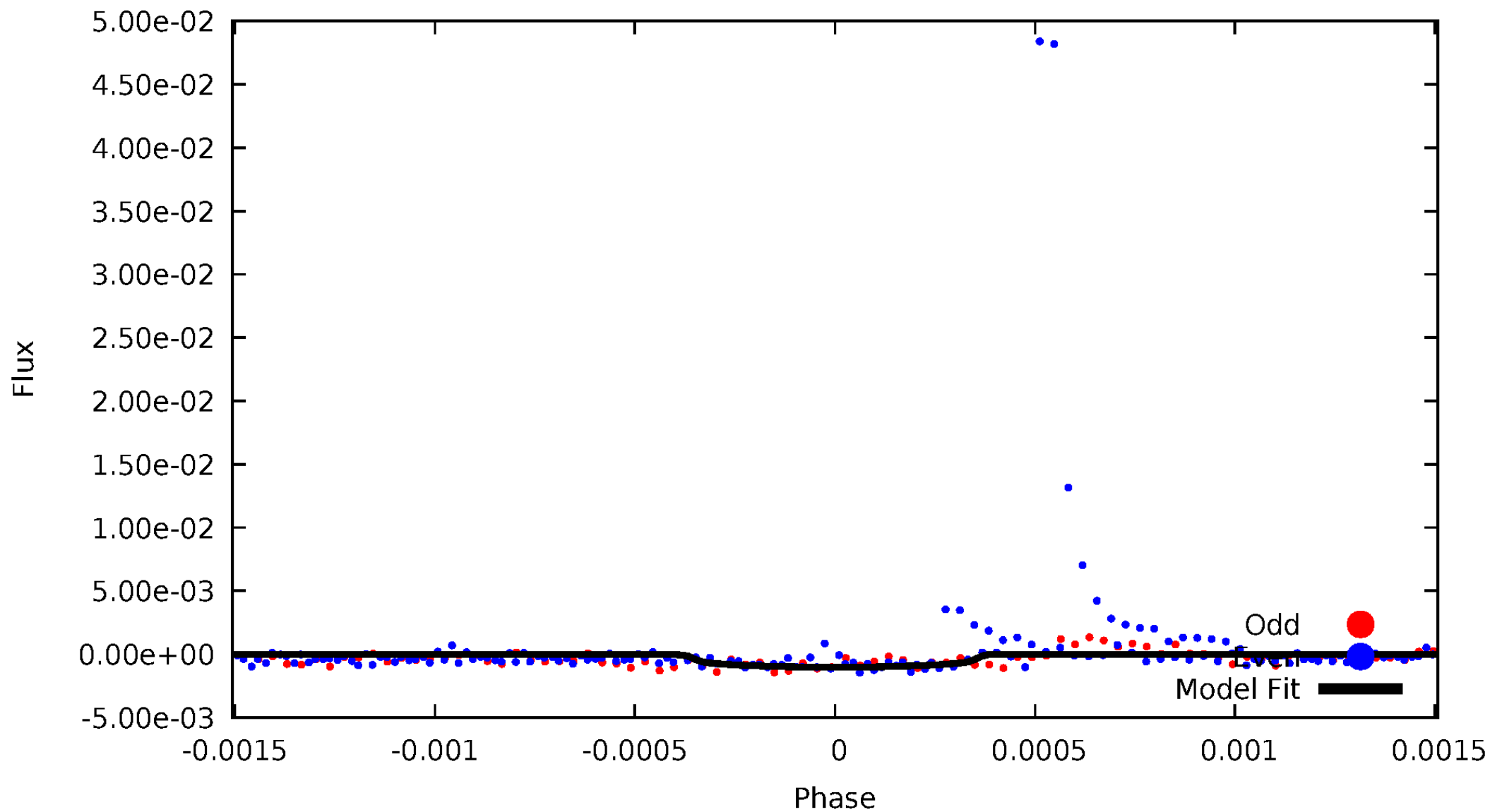


TCE 007973706-02



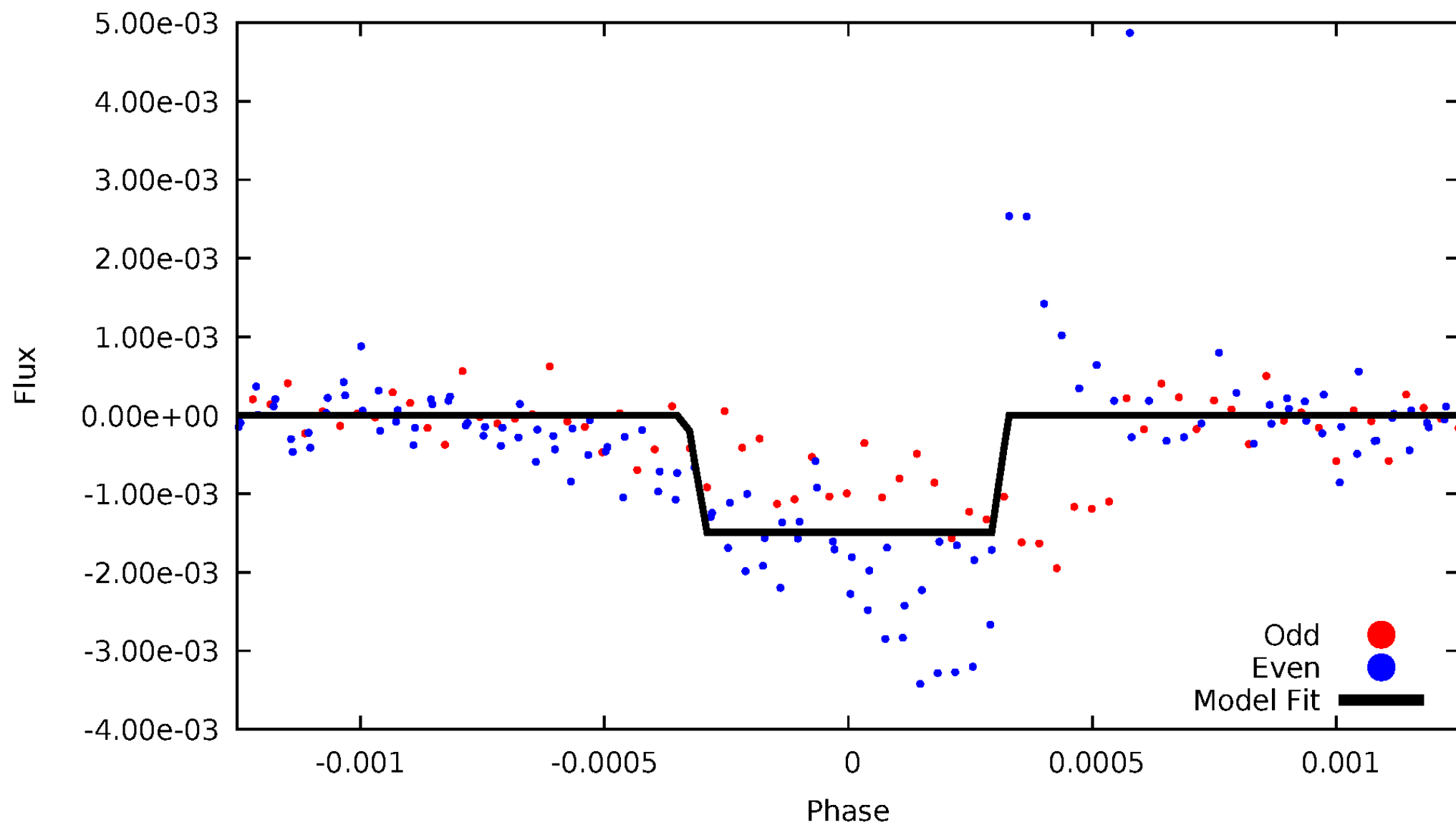
DV Odd/Even

TCE 007973706-02



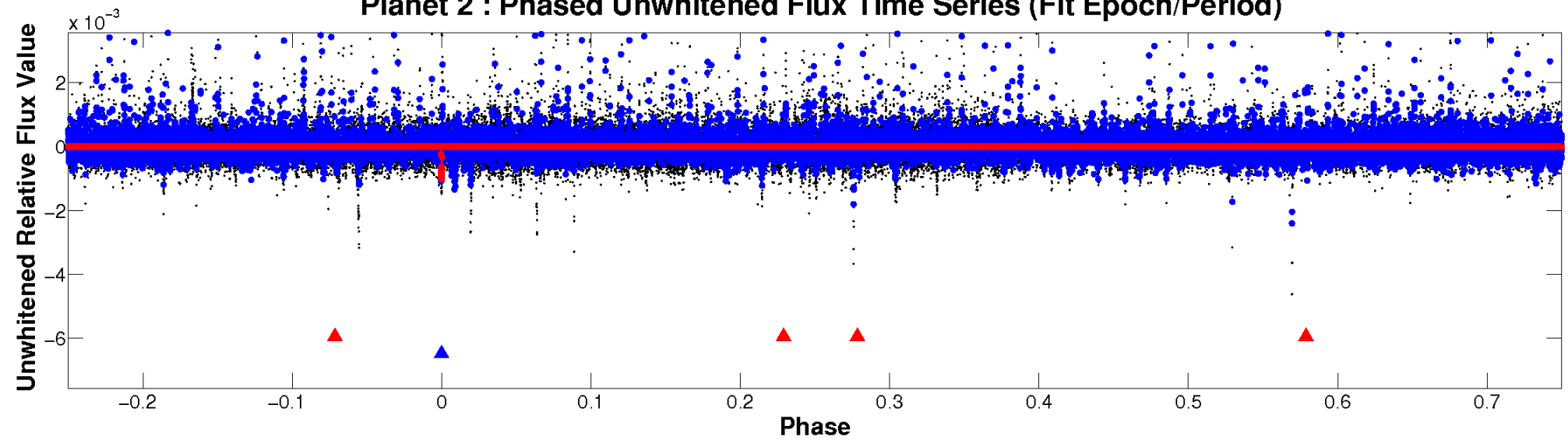
ALT Odd/Even

TCE 007973706-02

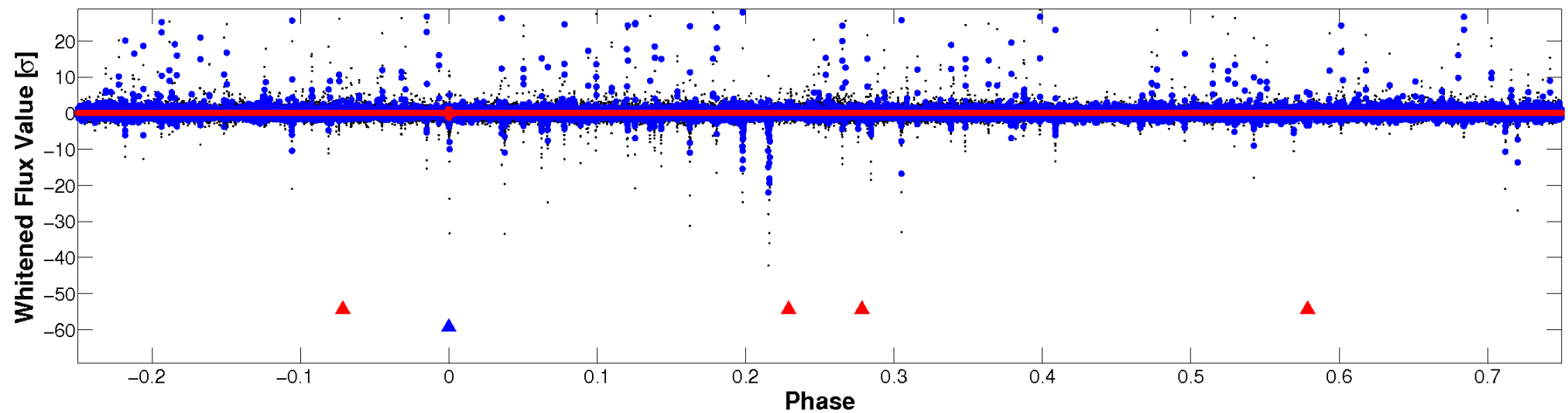


Non-Whitened Vs. Whitened Light Curve

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

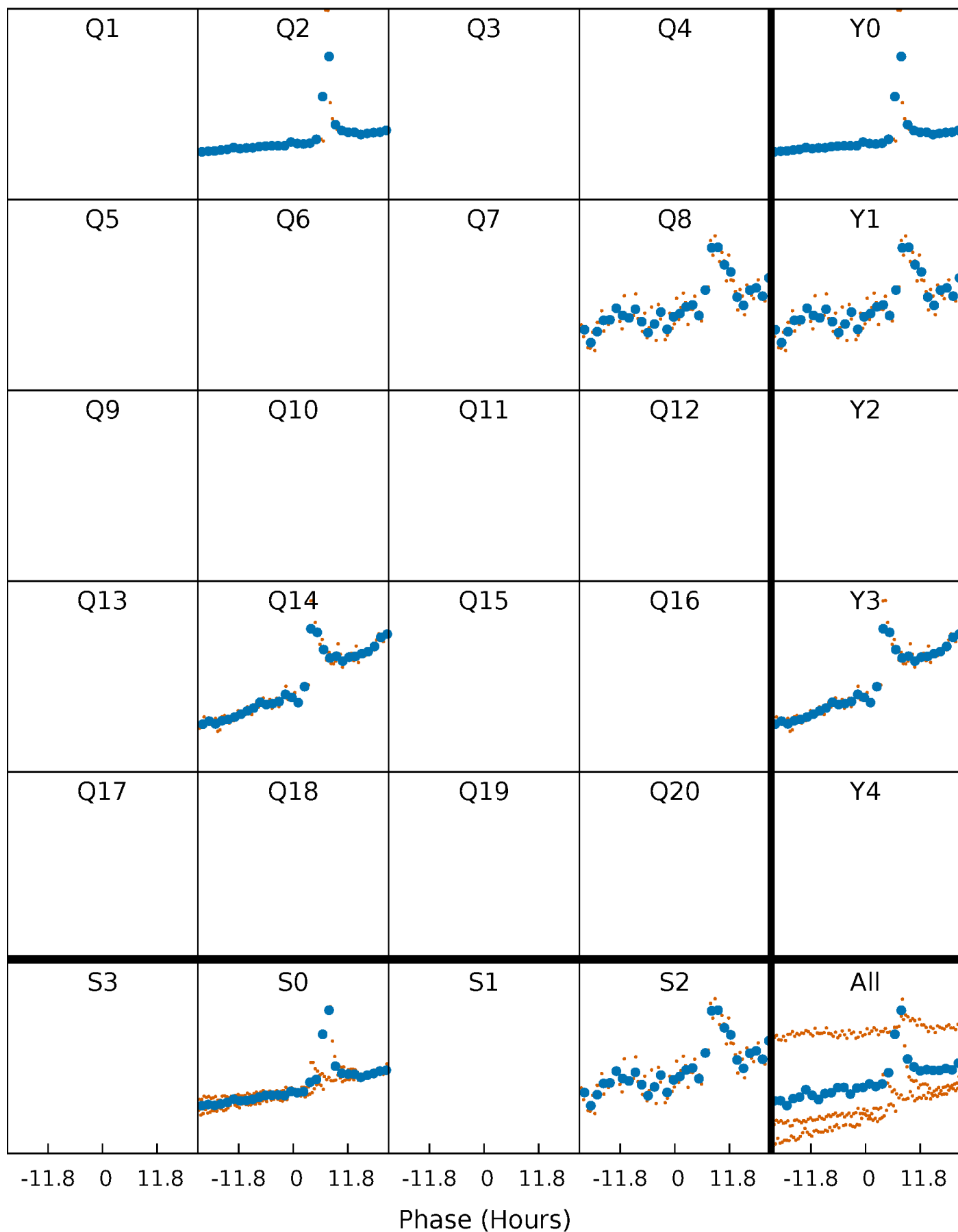


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



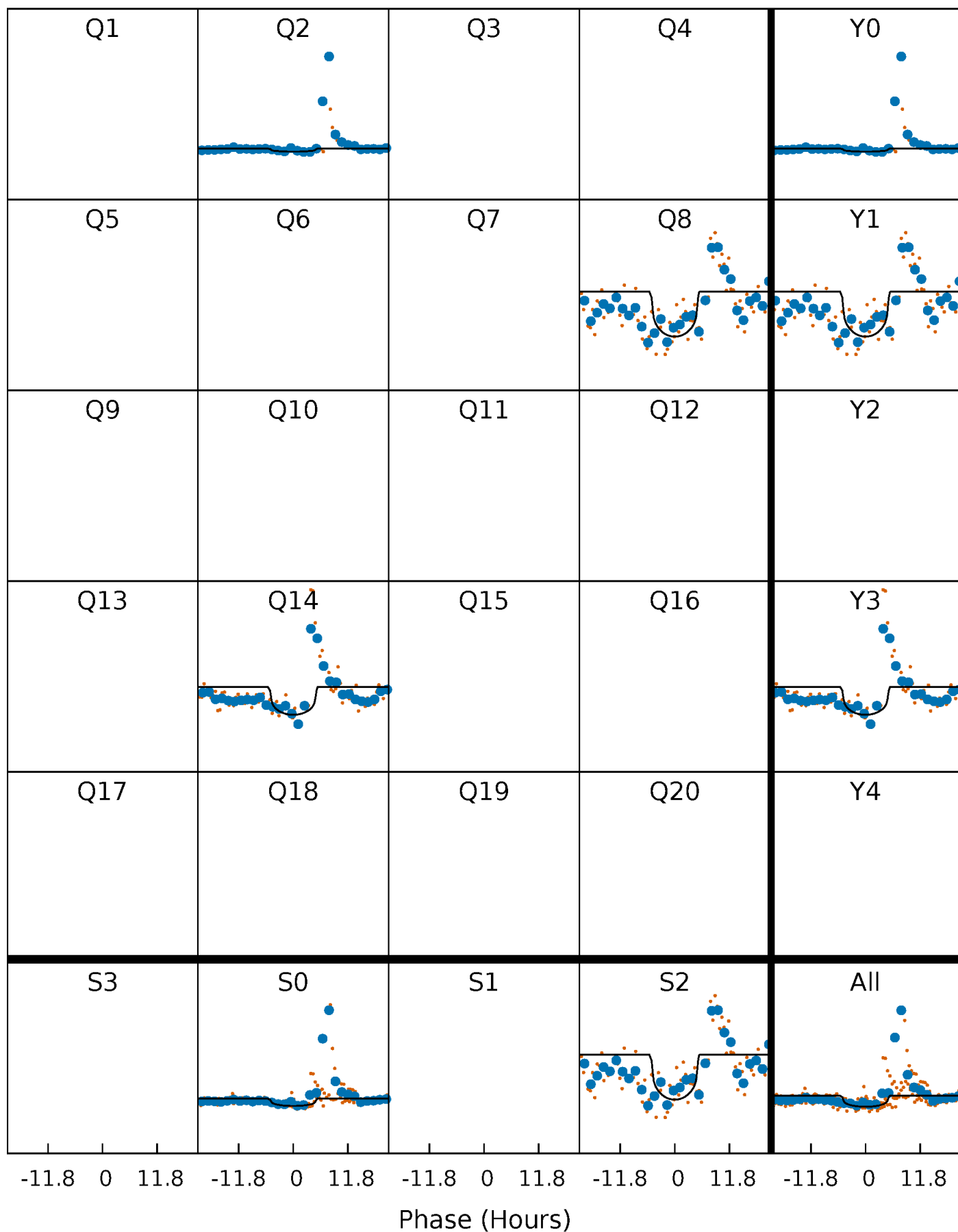
PDC Quarter-Phased Transit Curves

TCE 007973706-02 P=570.429917 Days $T_0=226.994981$ (BKJD)



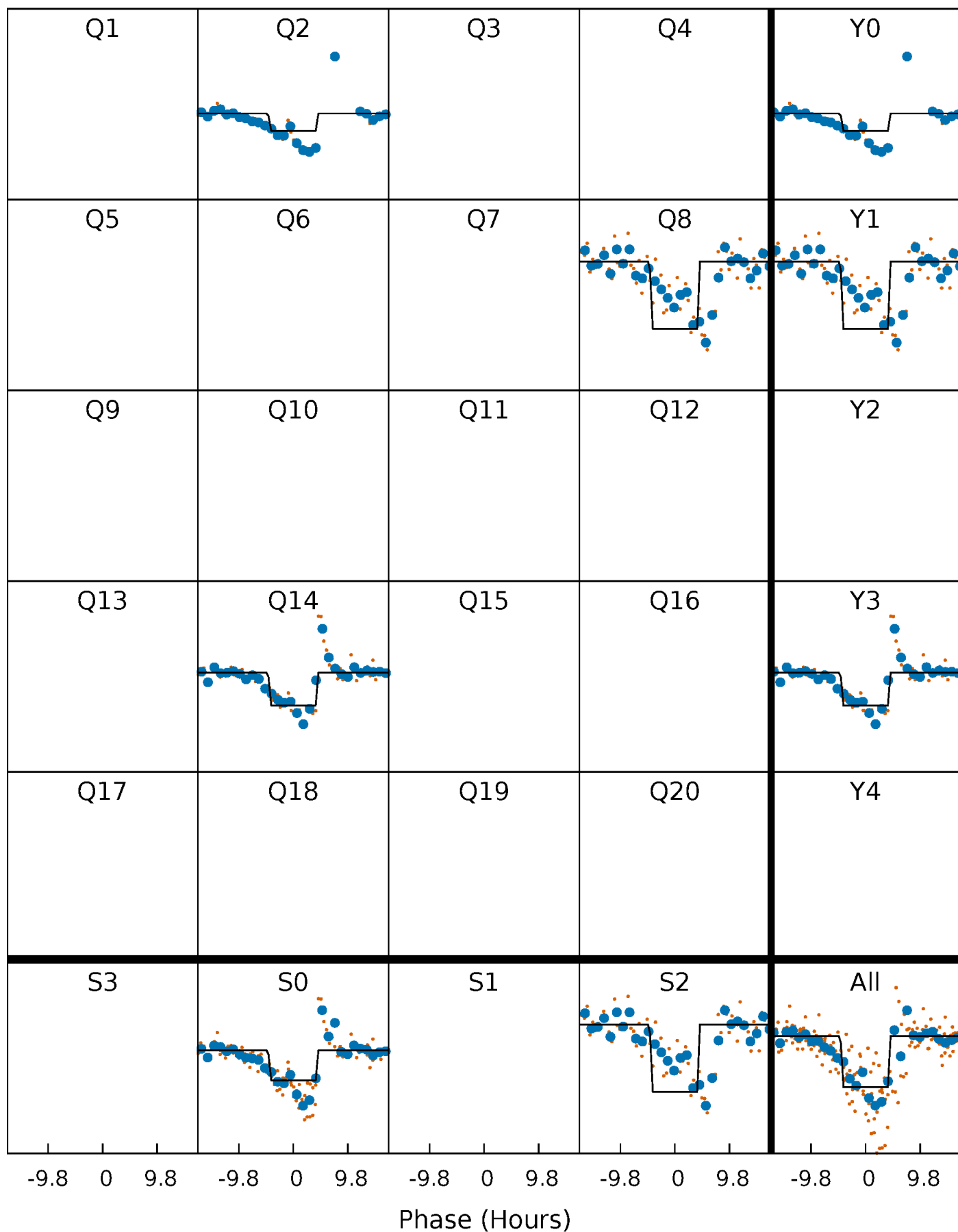
DV Quarter-Phased Transit Curves

TCE 007973706-02 P=570.429917 Days $T_0=226.994981$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

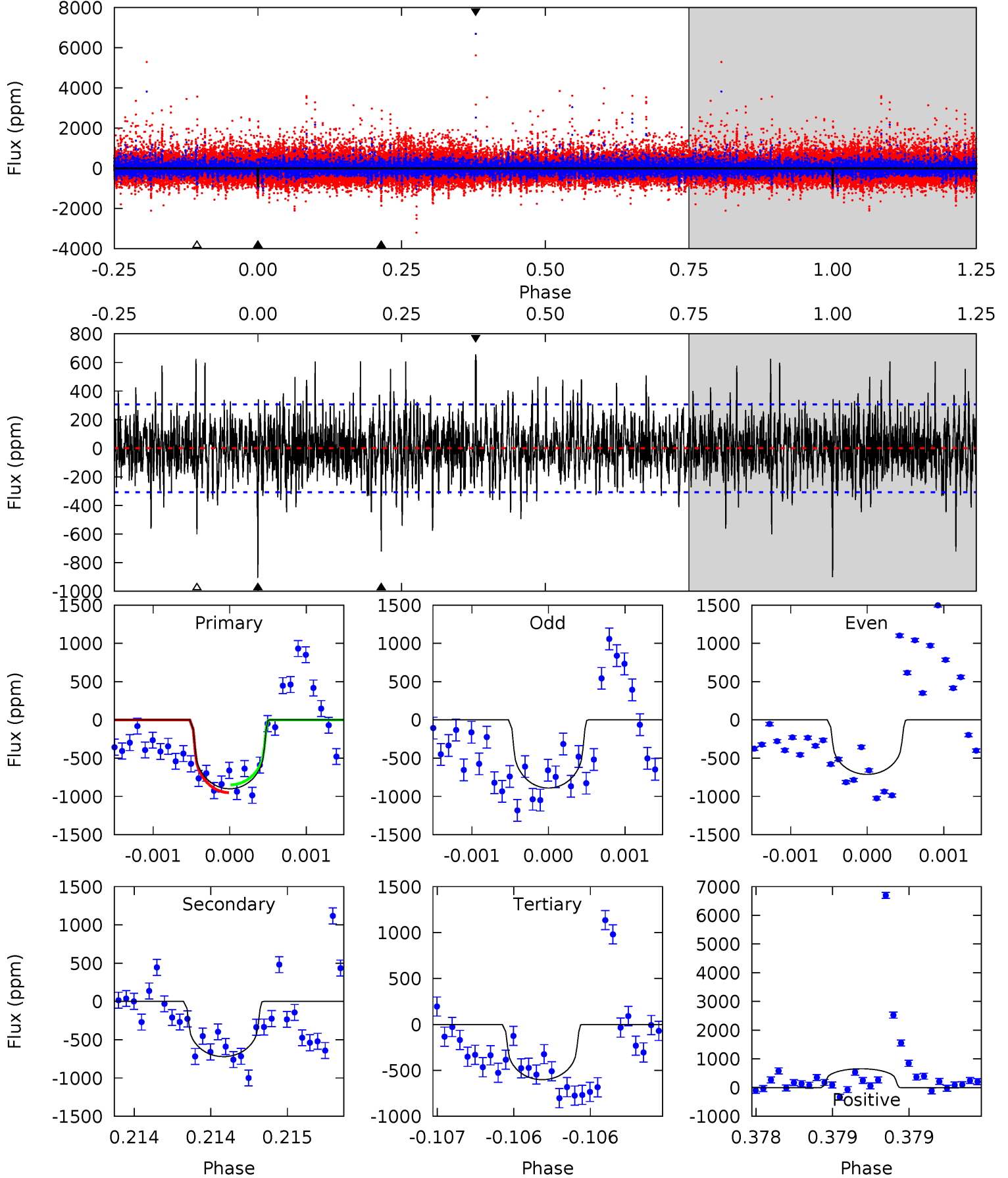
TCE 007973706-02 P=570.402827 Days $T_0=227.018659$ (BKJD)



DV Model-Shift Uniqueness Test

007973706-02, P = 570.429917 Days, E = 226.994981 Days

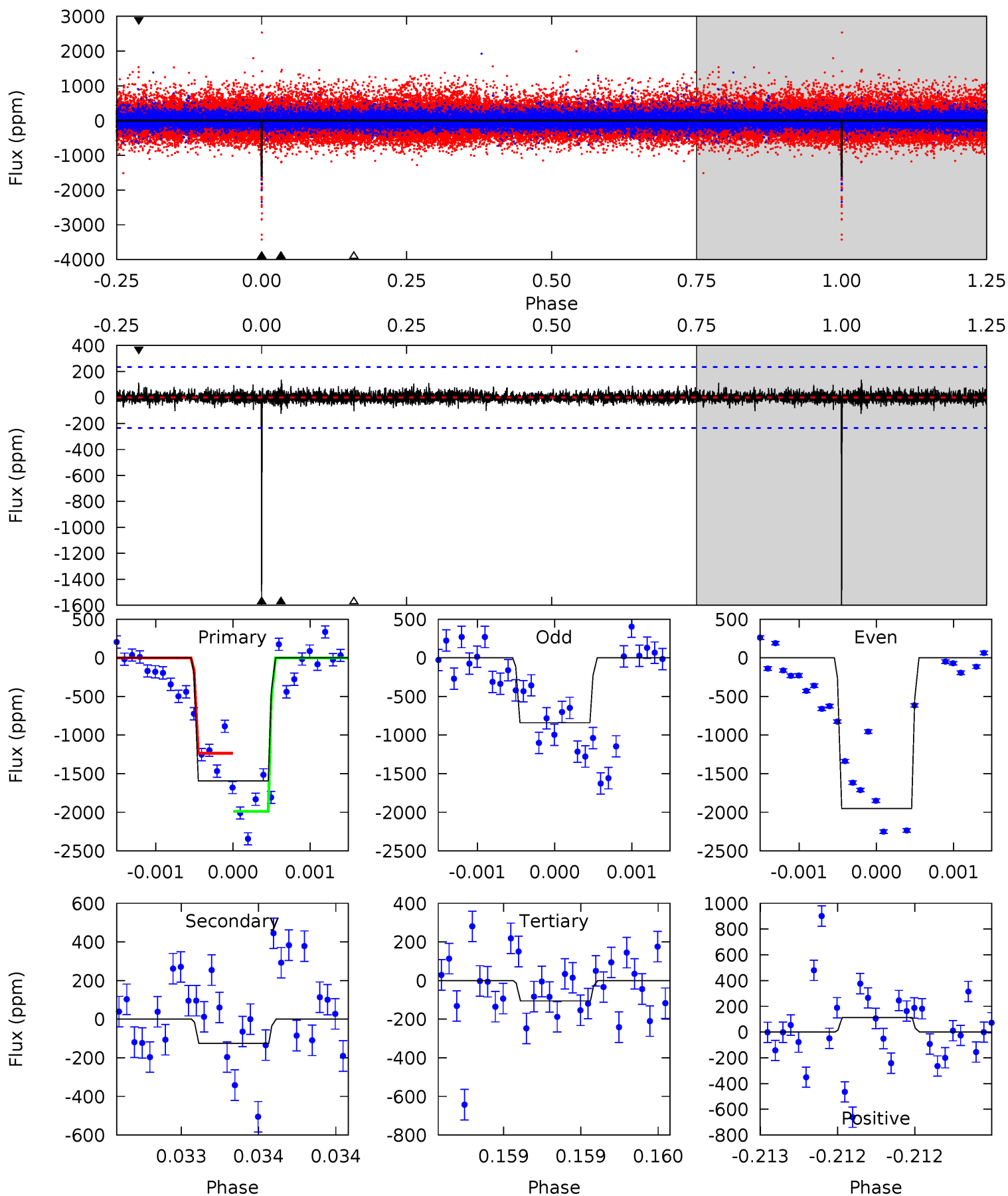
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	12.9	10.8	11.7	5.50	3.36	2.70	5.35	4.38	2.13	1.17	0.87	0.94	0.42	0.92



Alt Model-Shift Uniqueness Test

007973706-02, P = 570.402827 Days, E = 227.018659 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.6	2.95	2.48	2.66	5.53	3.41	0.55	35.1	34.9	0.47	0.29	12.2	0.99	0.08	8.90



Stellar Parameters For KIC 007973706

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4410^{+118}_{-131}	$4.635^{+0.056}_{-0.024}$	$-0.340^{+0.350}_{-0.300}$	$0.620^{+0.045}_{-0.061}$	$0.605^{+0.070}_{-0.047}$	$3.583^{+0.898}_{-0.406}$
	+3%/-3%	+1%/-1%	+103%/-88%	+7%/-10%	+12%/-8%	+25%/-11%
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 007973706-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-721 ± 56	$3.04^{+2.58}_{-2.03}$	199^{+6}_{-7}	3682^{+1883}_{-638}	$57927^{+459699}_{-41437}$
Alt.	-125 ± 42	$3.08^{+2.68}_{-1.92}$	199^{+6}_{-7}	2778^{+897}_{-414}	8646^{+53309}_{-6222}

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 $A_{obs} \gg 1.0$

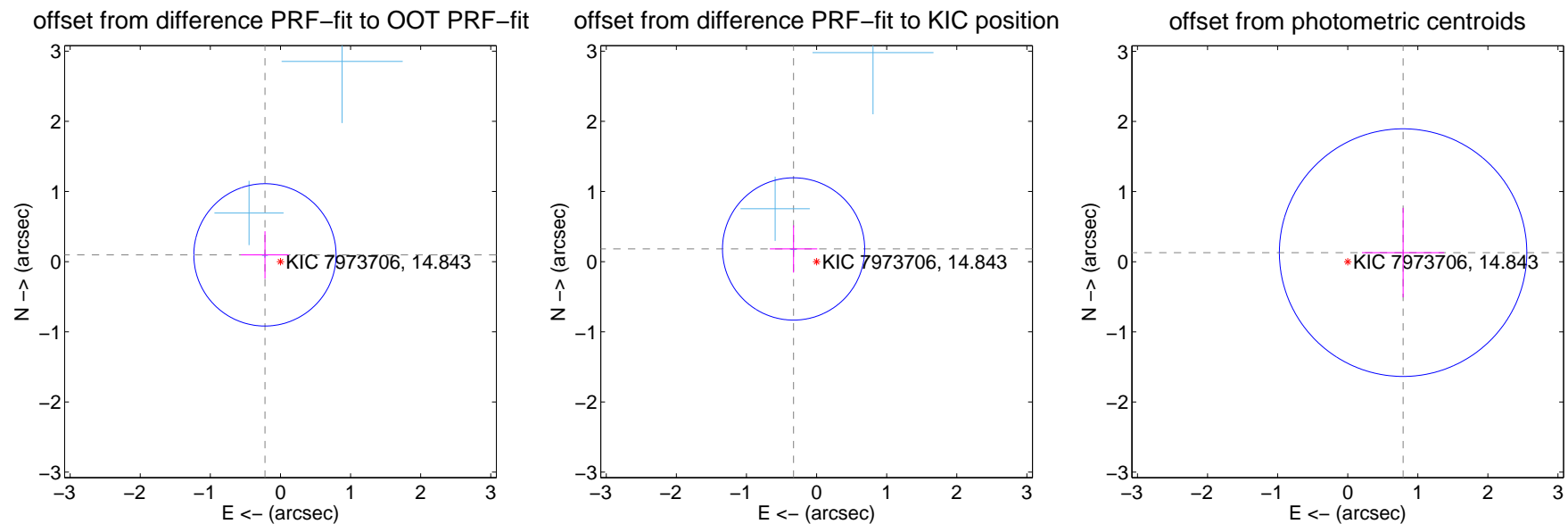
DV Centroid Data

Supplemental centroid analysis for 007973706-02. Kepler magnitude: 14.84. Transit SNR 9.45

There are 3 quarters with good PRF difference image offsets

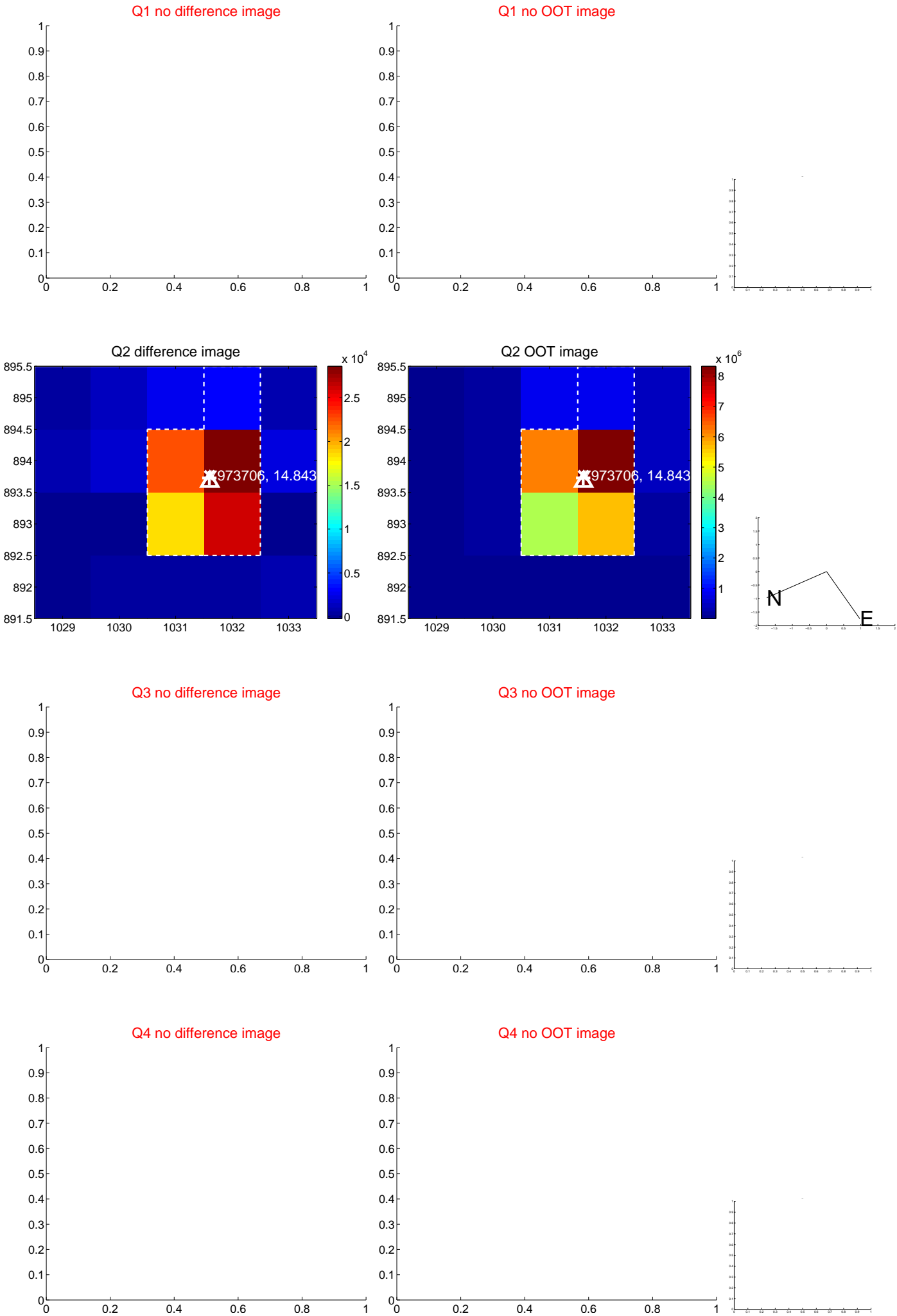
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.241 ± 0.338	0.71	0.221 ± 0.338	0.097 ± 0.337
PRF-fit source offset from KIC position	0.375 ± 0.338	1.11	0.328 ± 0.338	0.181 ± 0.337
photometric centroid source offset	0.80 ± 0.59	1.36	-0.79 ± 0.59	0.13 ± 0.64

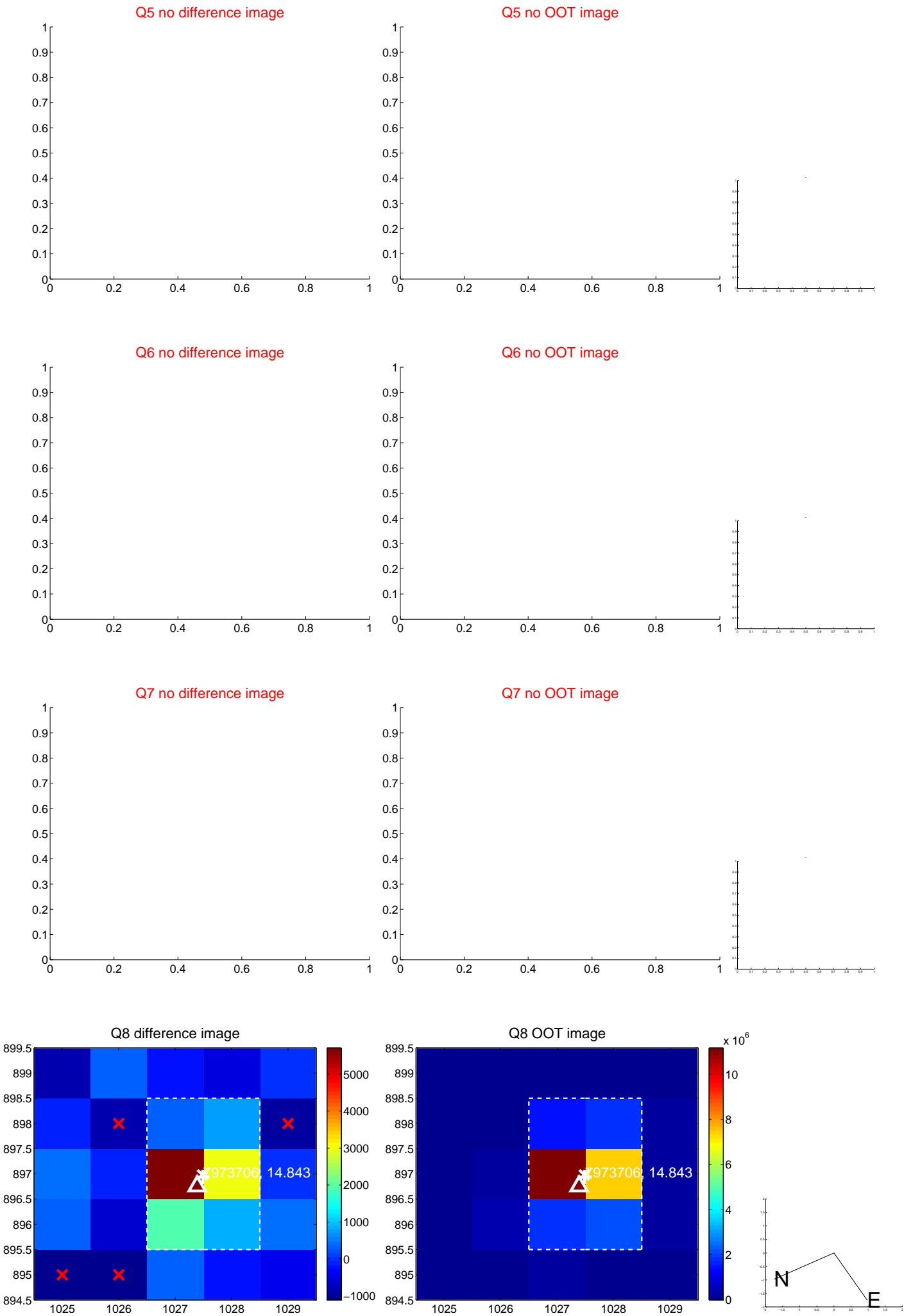


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



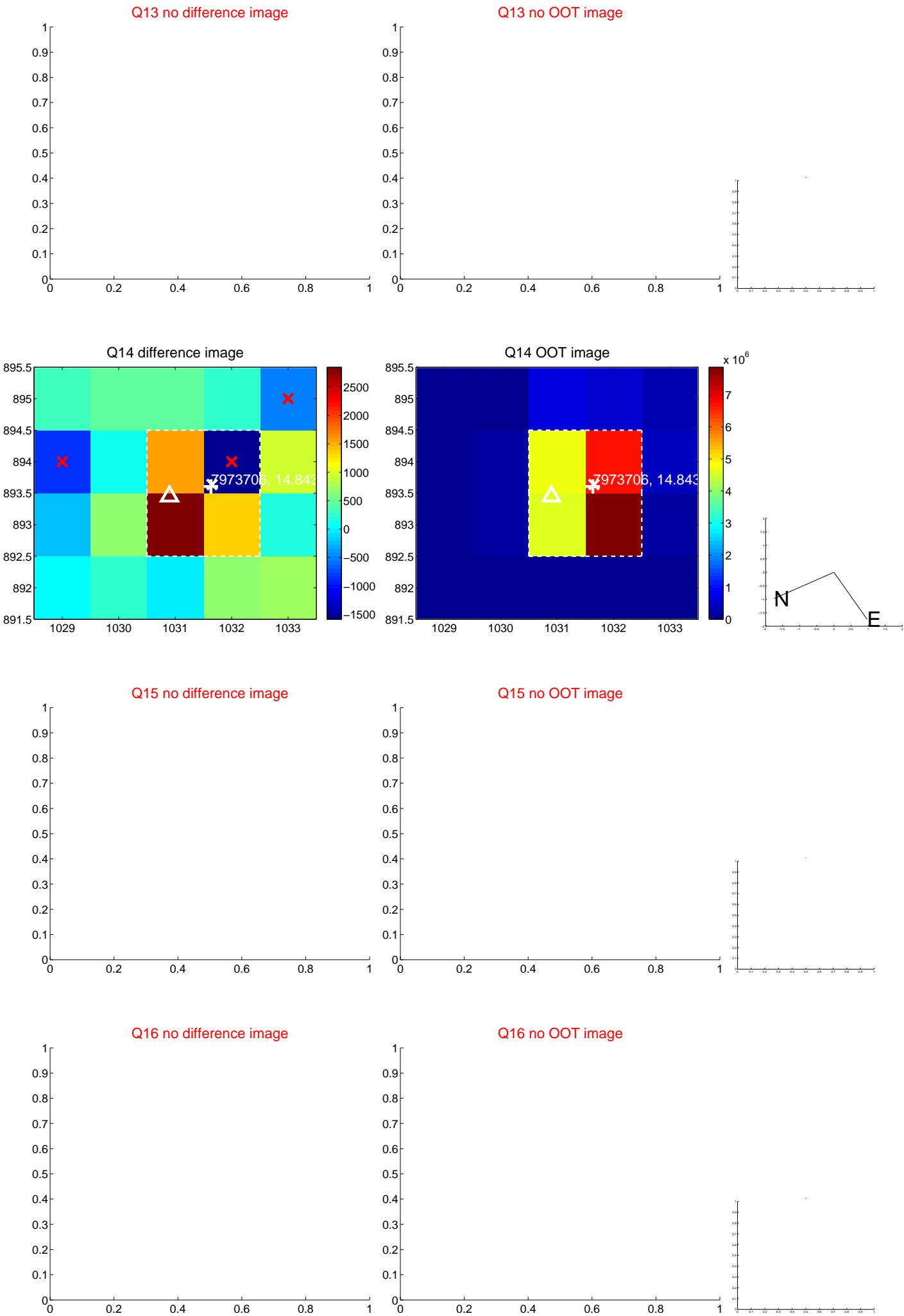
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



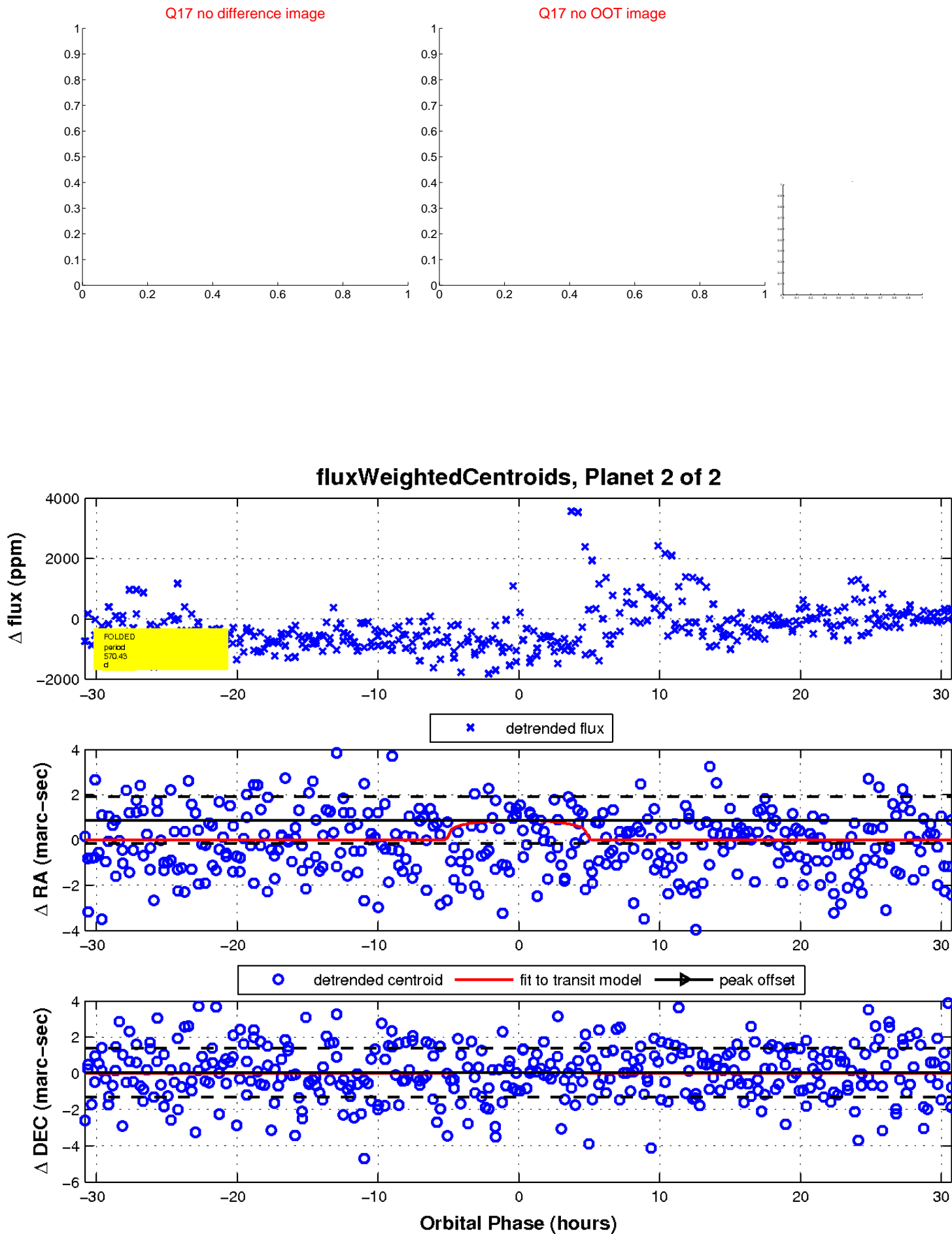
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

