

KIC 008748782

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})
008748782-01	OBS	No	386.377725	281.310564	1052.5	17.846	11.4	9.1	0.87	5629	2.83	0.64
008748782-02	OBS	No	356.709110	325.993601	1236.5	17.157	16.2	11.4	0.87	5629	3.47	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748782-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748782-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

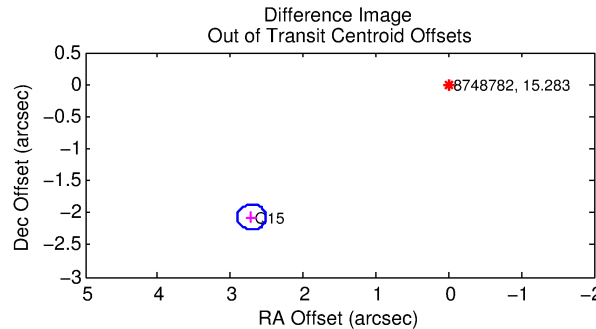
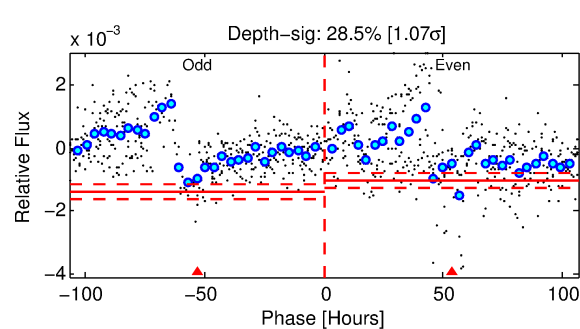
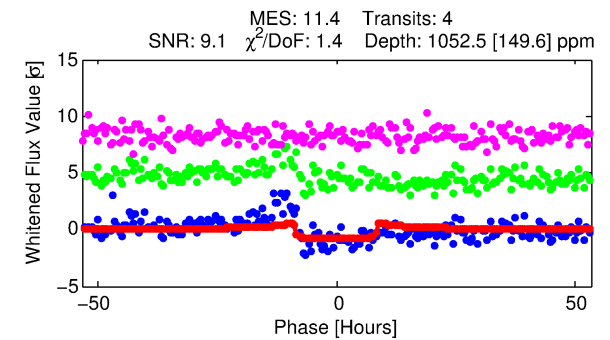
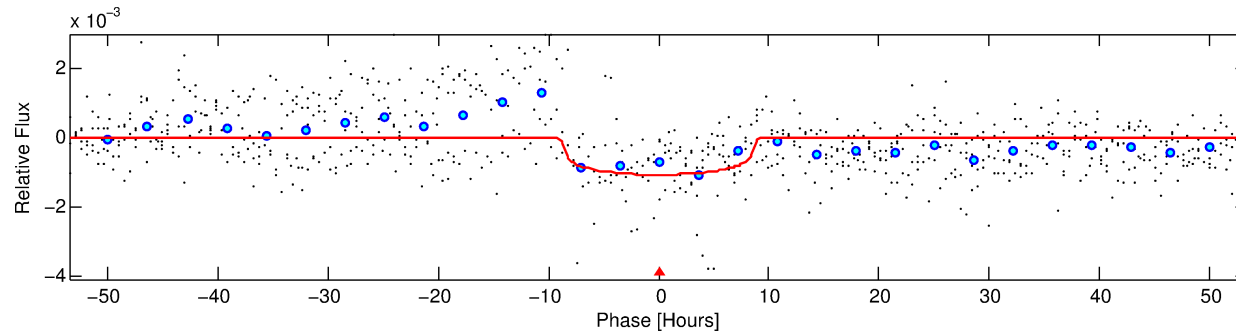
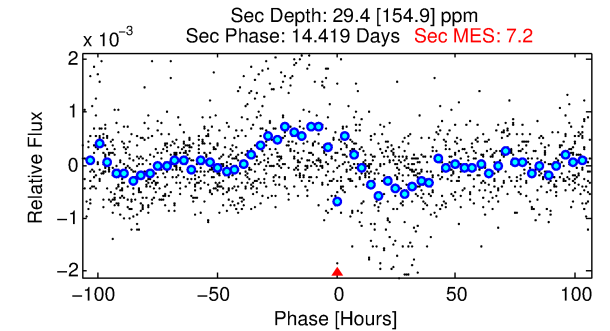
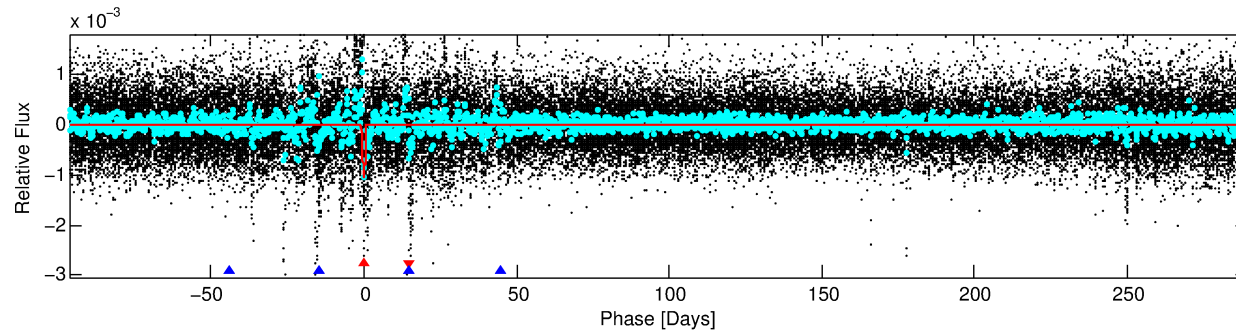
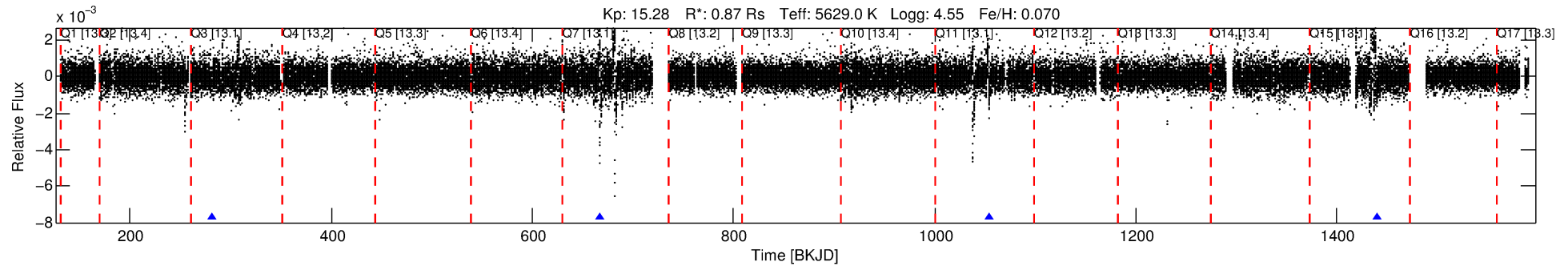
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748782-01

No Significant Match Found

DV One-Page Summary

KIC: 8748782 Candidate: 1 of 2 Period: 386.378 d



DV Fit Results:

Period = 386.37772 [0.01208] d
Epoch = 281.3106 [0.0254] BKJD
Rp/R* = 0.0298 [0.0096]
a/R* = 157.87 [201.77]
b = 0.39 [2.82]
Seff = 0.64 [0.21]
Teq = 228 [18] K
Rp = 2.83 [1.14] Re
a = 1.0337 [0.2123] AU
Ag = 2157.03 [11461.15] [0.19 σ]
Teff = 2400 [3184] K [0.68 σ]

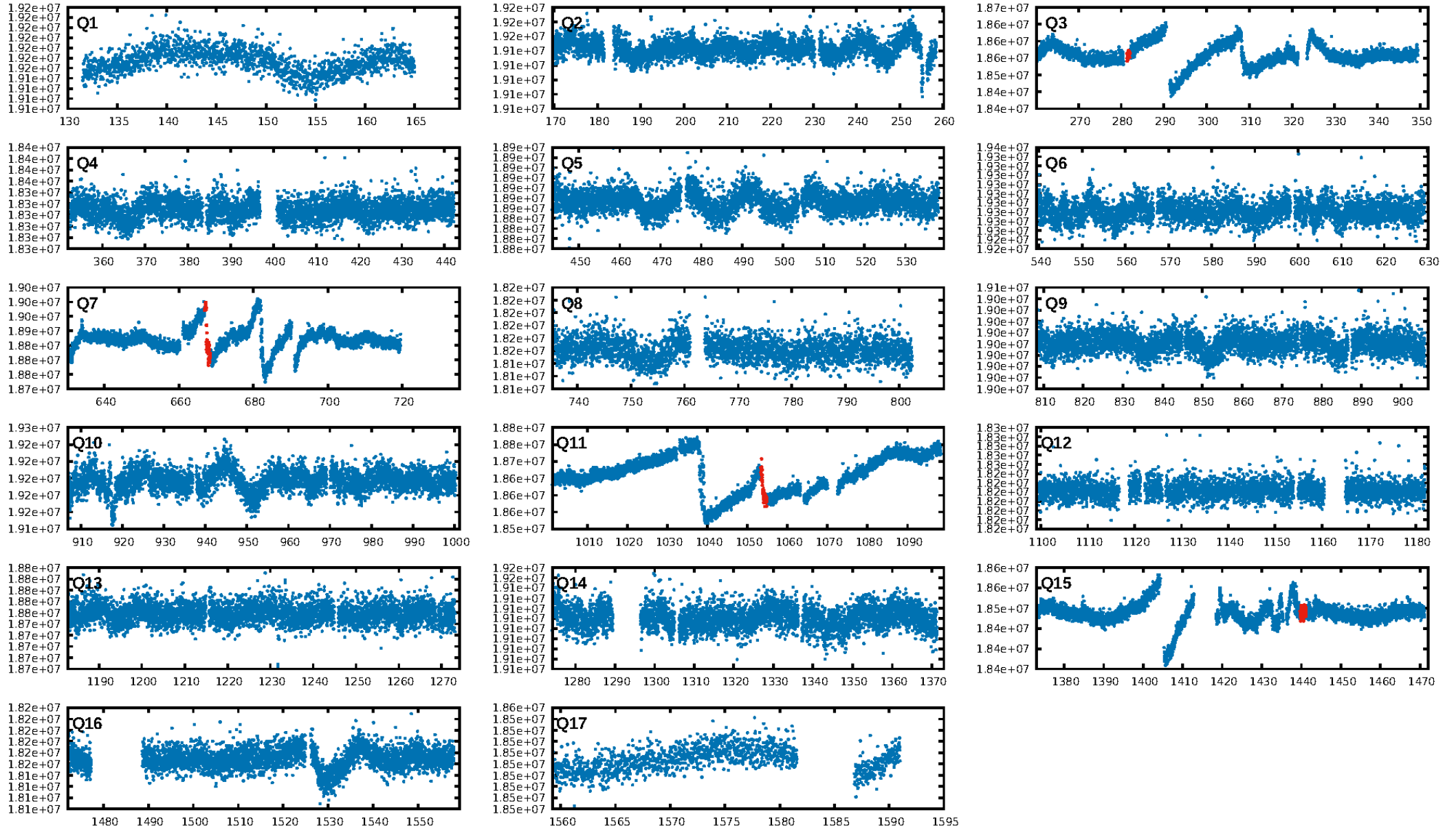
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [28.76 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 94.7%
Bootstrap-pfa: 6.72e-14
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6443
Centroid-sig: N/A
Centroid-so: 6.560 arcsec [1.44 σ]
OotOffset-rm: 3.409 arcsec [51.06 σ]
KicOffset-rm: 8.757 arcsec [131.19 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

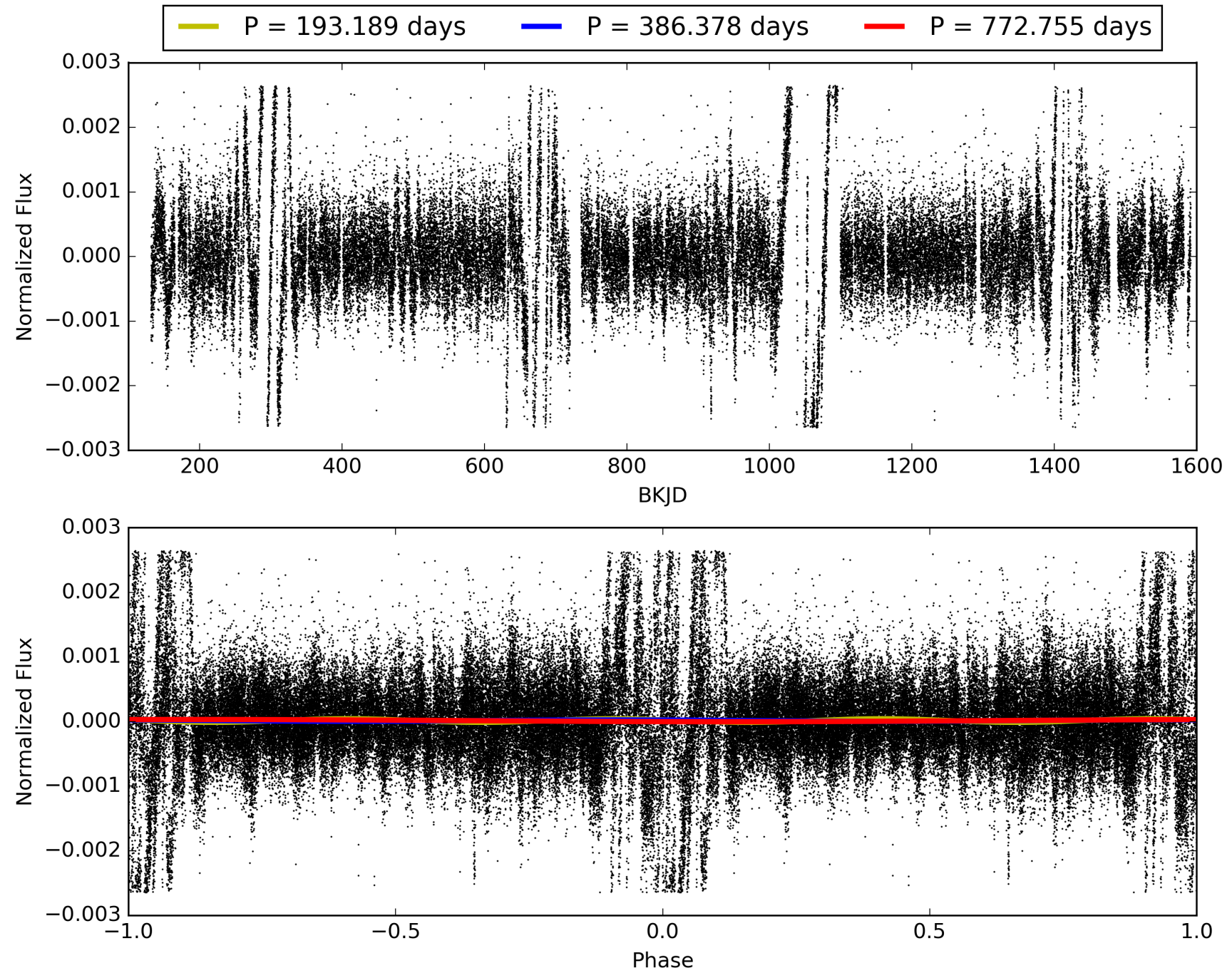
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:55:04 Z

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

TCE 008748782-01, PDC Light Curves

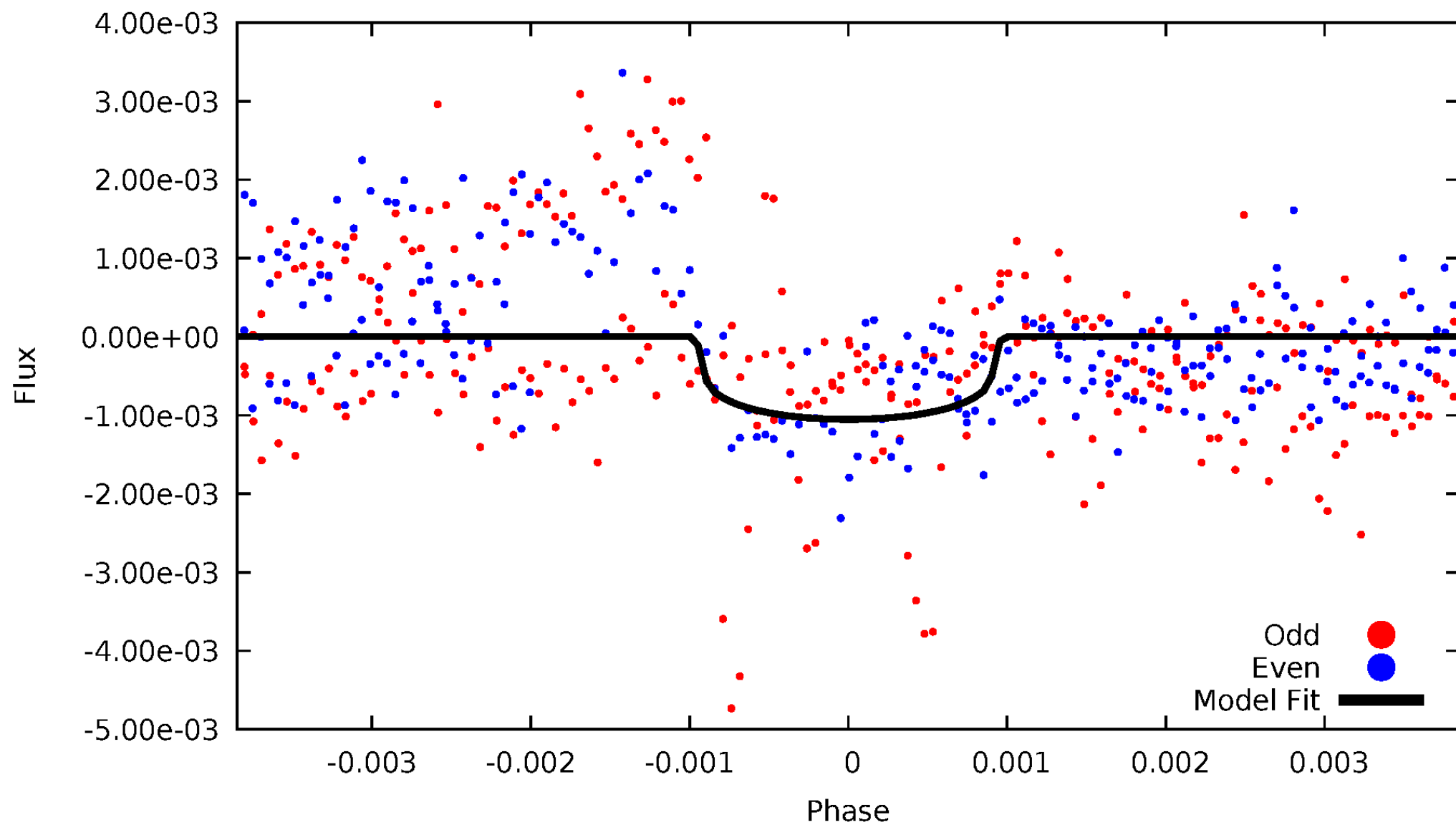


TCE 008748782-01



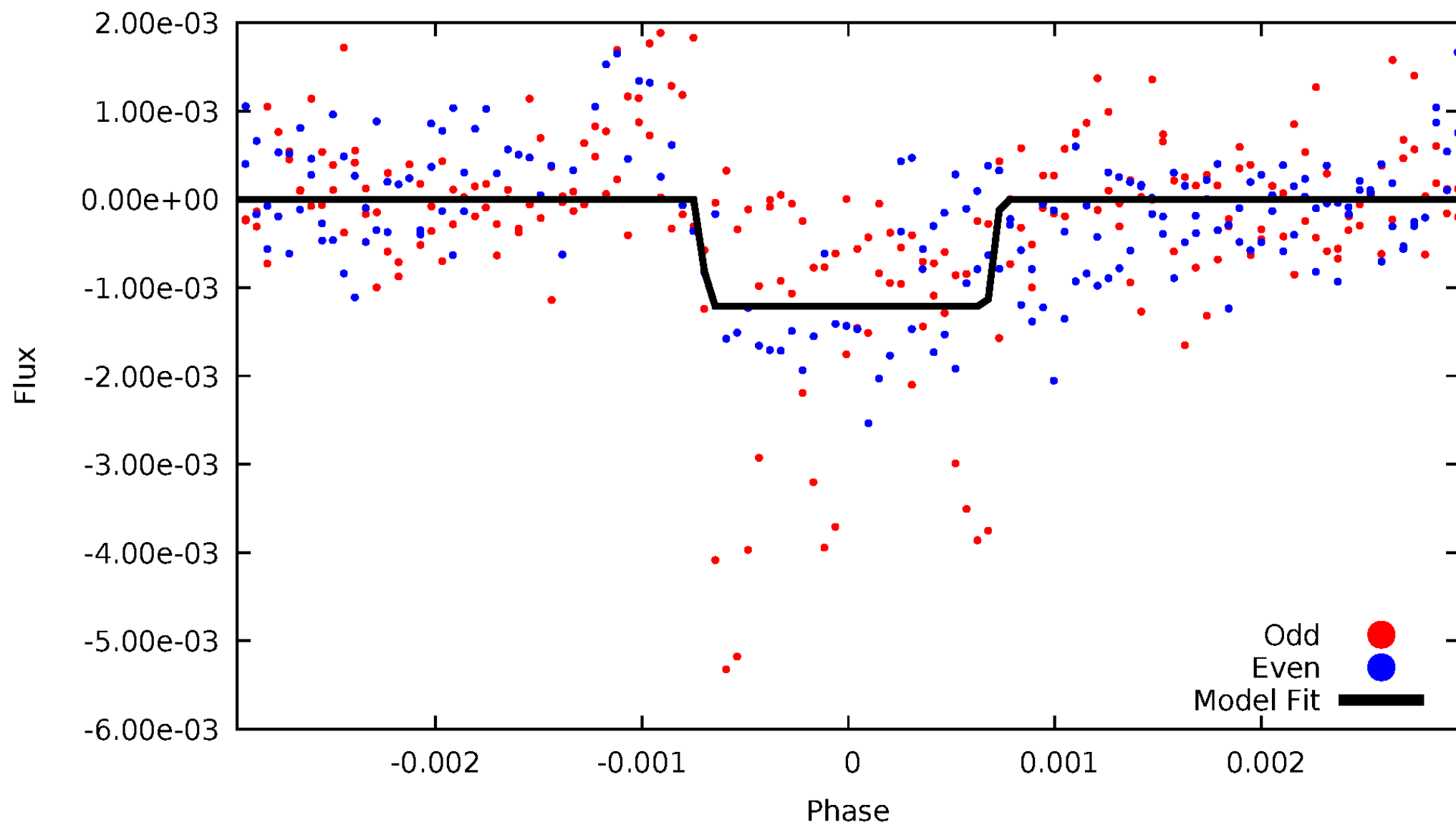
DV Odd/Even

TCE 008748782-01



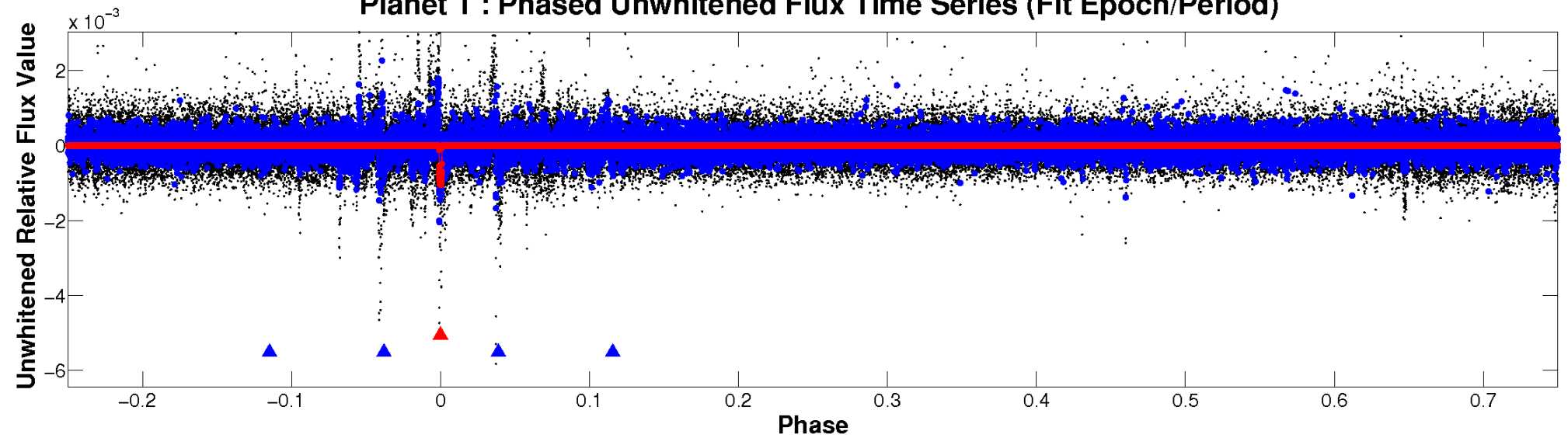
ALT Odd/Even

TCE 008748782-01

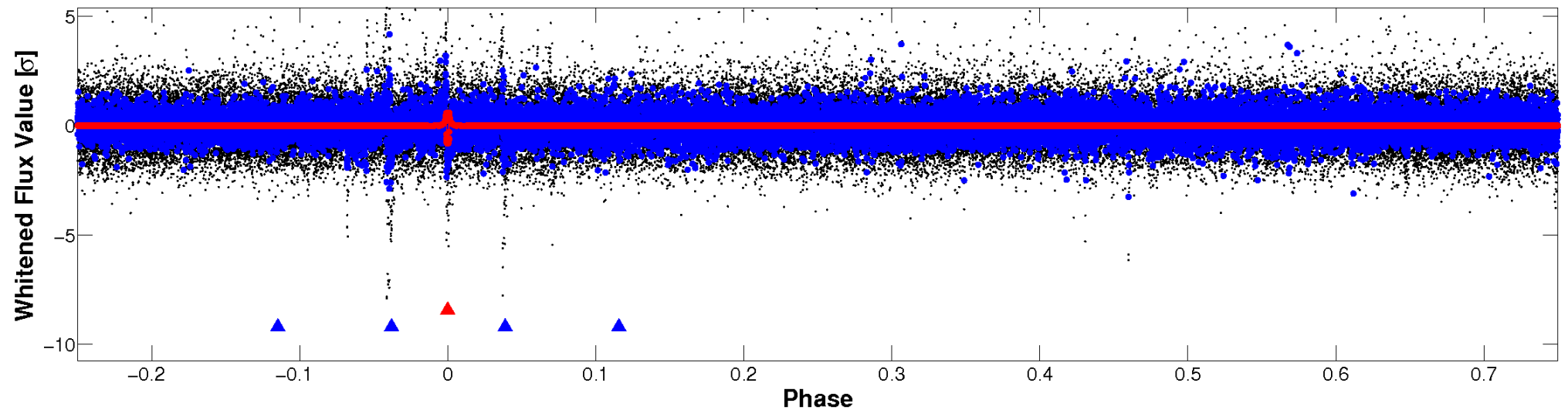


Non-Whitened Vs. Whitened Light Curve

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

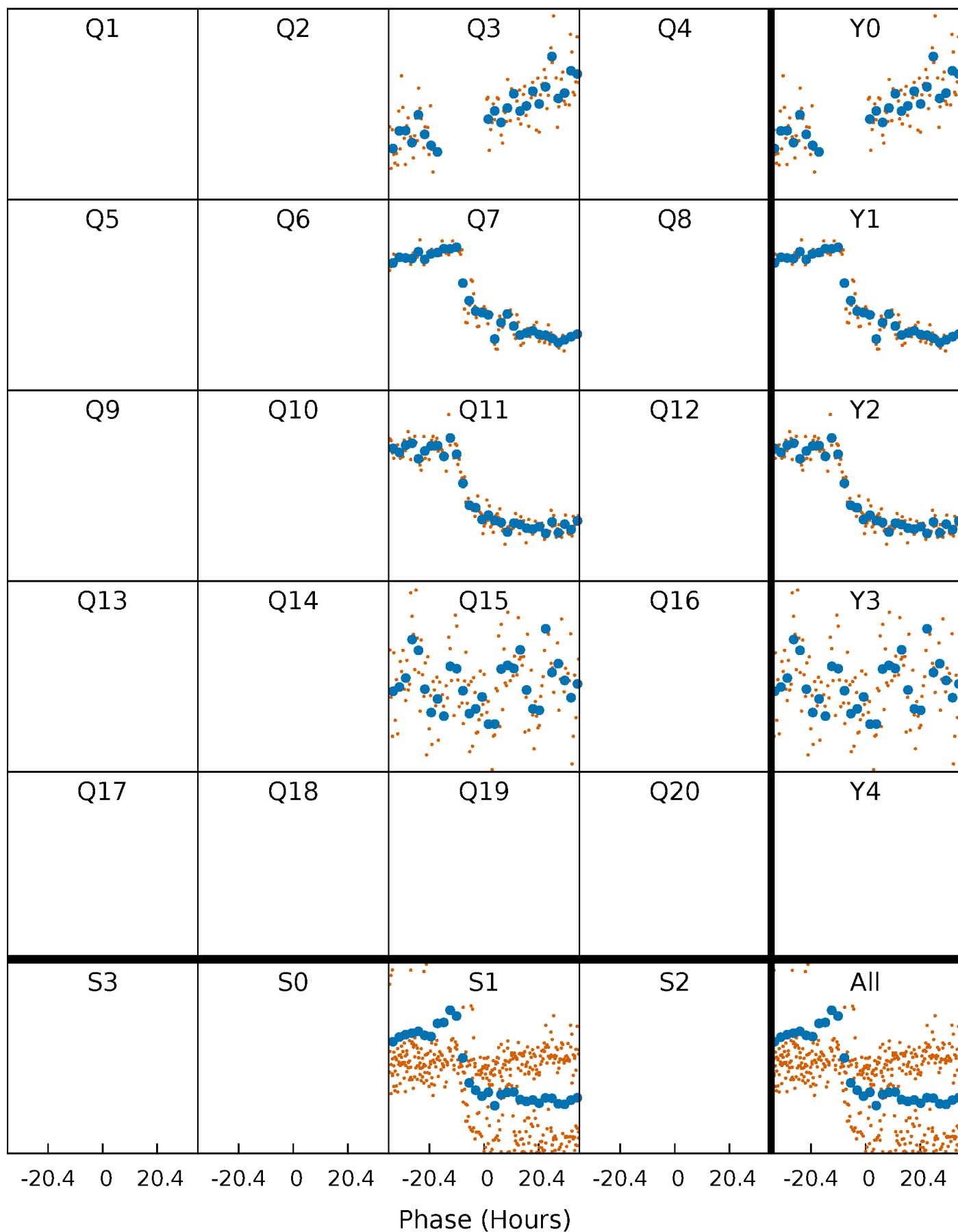


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



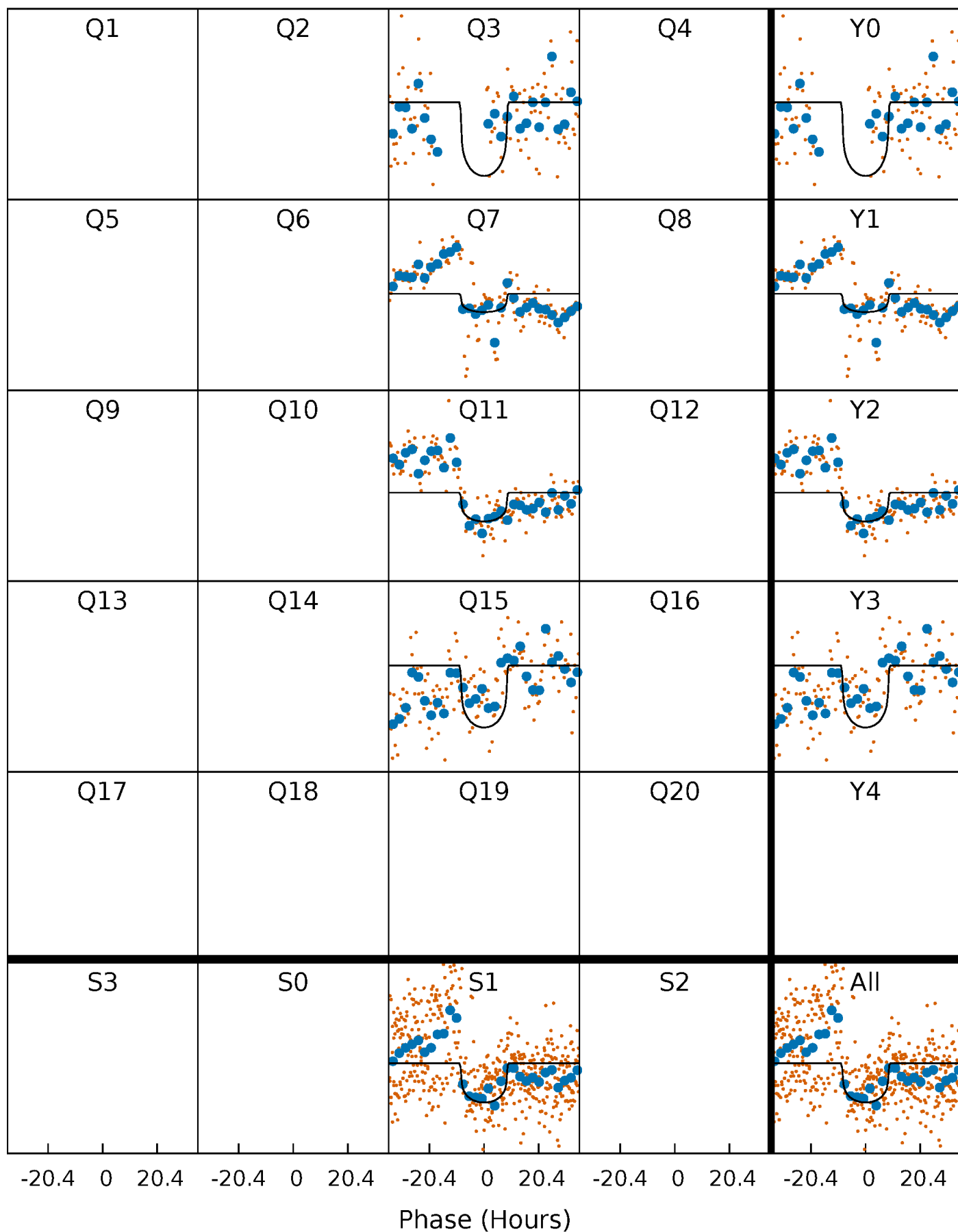
PDC Quarter-Phased Transit Curves

TCE 008748782-01 P=386.377725 Days $T_0=281.310564$ (BKJD)



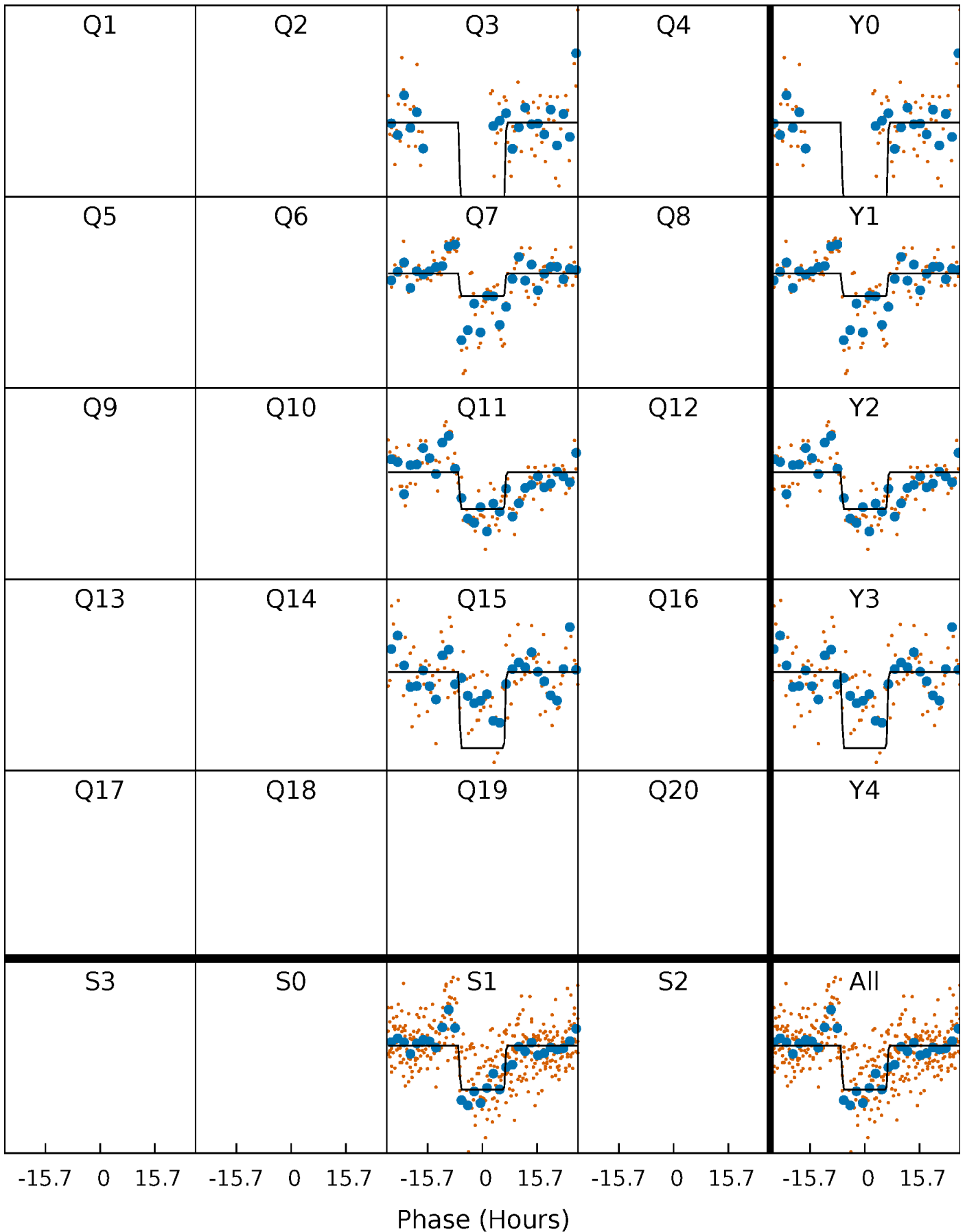
DV Quarter-Phased Transit Curves

TCE 008748782-01 P=386.377725 Days $T_0=281.310564$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

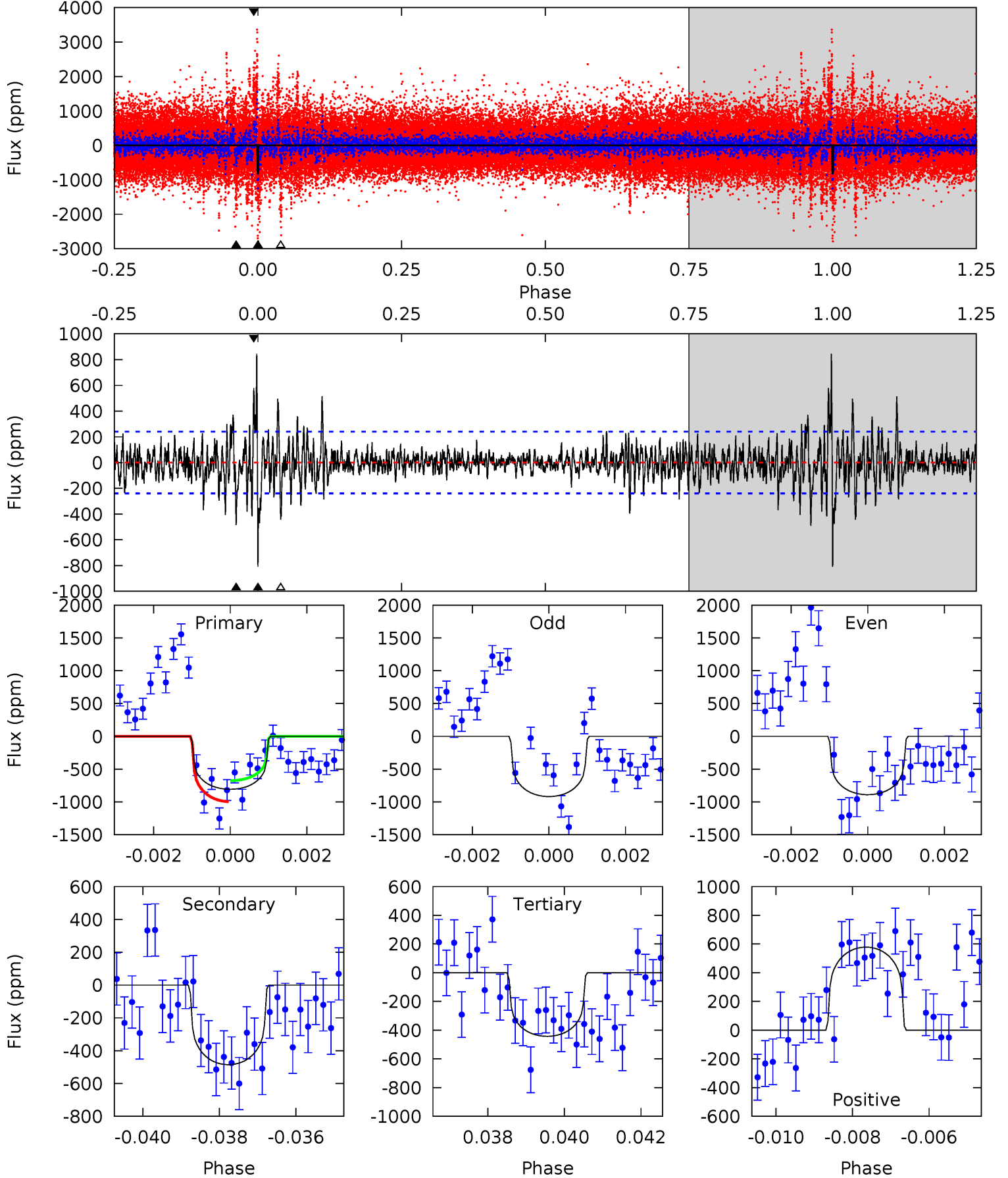
TCE 008748782-01 $P=386.378186$ Days $T_0=281.254132$ (BKJD)



DV Model-Shift Uniqueness Test

008748782-01, P = 386.377725 Days, E = 281.310564 Days

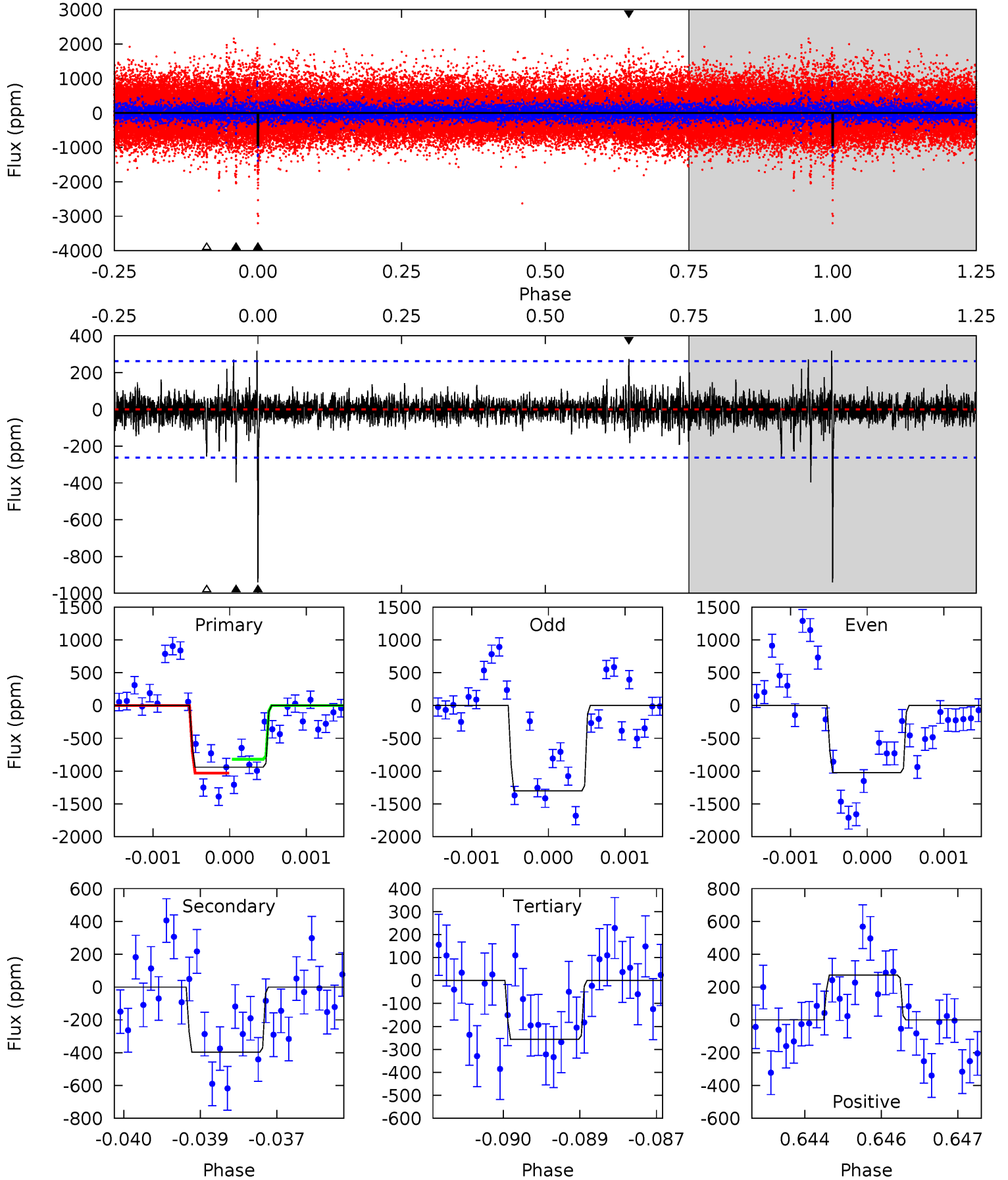
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	10.8	9.87	12.9	5.34	3.10	2.38	8.14	5.11	0.95	-2.08	0.32	1.01	0.51	3.48



Alt Model-Shift Uniqueness Test

008748782-01, P = 386.378186 Days, E = 281.254132 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	8.15	5.27	5.62	5.39	3.19	0.96	14.0	13.7	2.88	2.53	2.93	1.12	0.25	2.12



Stellar Parameters For KIC 008748782

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5629^{+152}_{-152}	$4.553^{+0.030}_{-0.170}$	$0.070^{+0.250}_{-0.300}$	$0.870^{+0.207}_{-0.069}$	$0.987^{+0.085}_{-0.114}$	$2.107^{+0.347}_{-0.963}$
	+3%/-3%	+1%/-4%	+357%/-429%	+24%/-8%	+9%/-12%	+16%/-46%
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 008748782-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-485 ± 45	$2.90^{+1.03}_{-0.90}$	325^{+19}_{-13}	4949^{+951}_{-558}	32790^{+37491}_{-14790}
Alt.	-397 ± 49	$3.43^{+1.03}_{-0.97}$	325^{+18}_{-13}	4447^{+637}_{-393}	19026^{+18186}_{-7642}

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

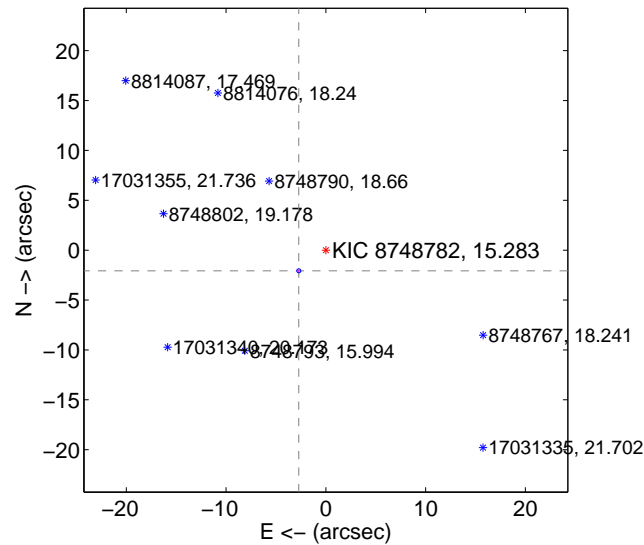
Supplemental centroid analysis for 008748782-01. Kepler magnitude: 15.28. Transit SNR 9.07

There are 1 quarters with good PRF difference image offsets

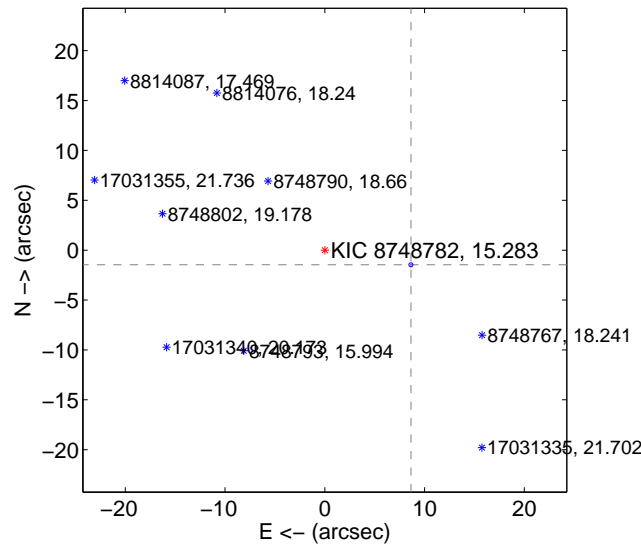
The OOT PRF centroid is offset from the target star catalog position by about 11.36 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.409 ± 0.067	51.06	2.711 ± 0.067	-2.067 ± 0.067
PRF-fit source offset from KIC position	8.757 ± 0.067	131.19	-8.633 ± 0.067	-1.467 ± 0.067
photometric centroid source offset	6.56 ± 4.55	1.44	-2.75 ± 4.68	5.96 ± 4.52

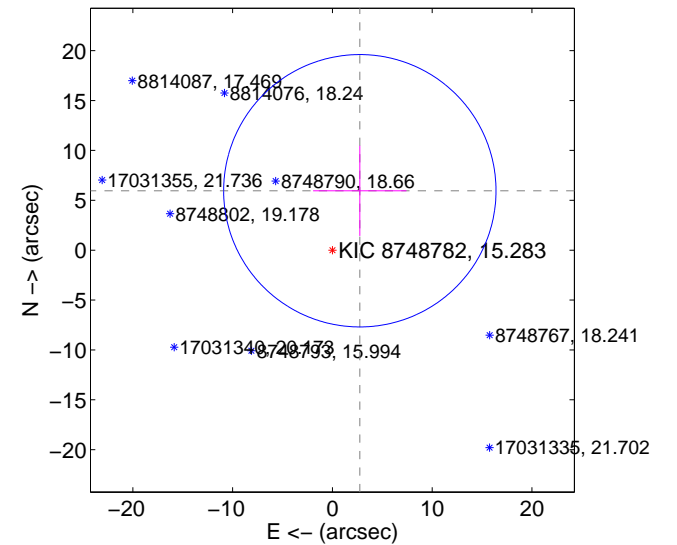
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

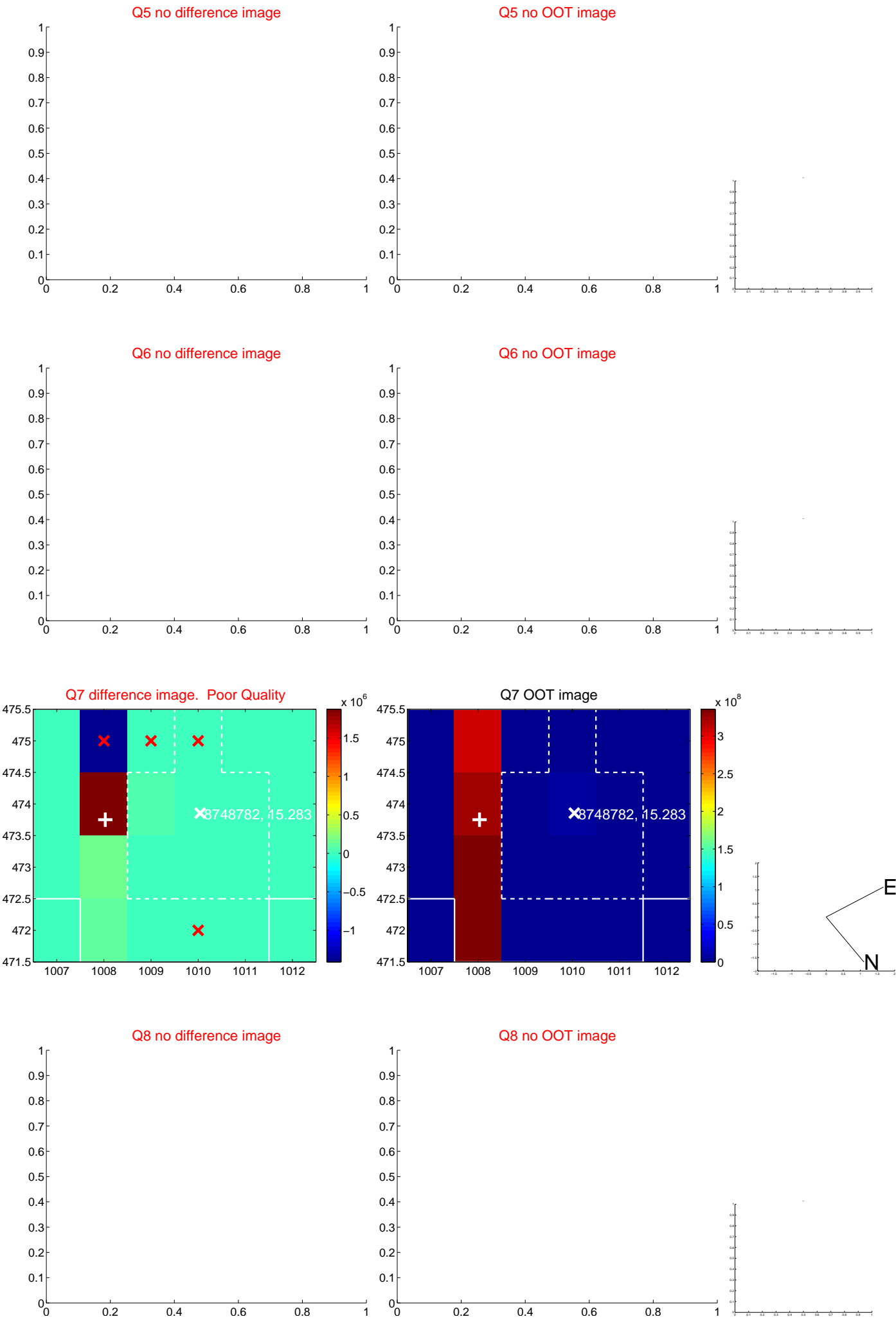


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

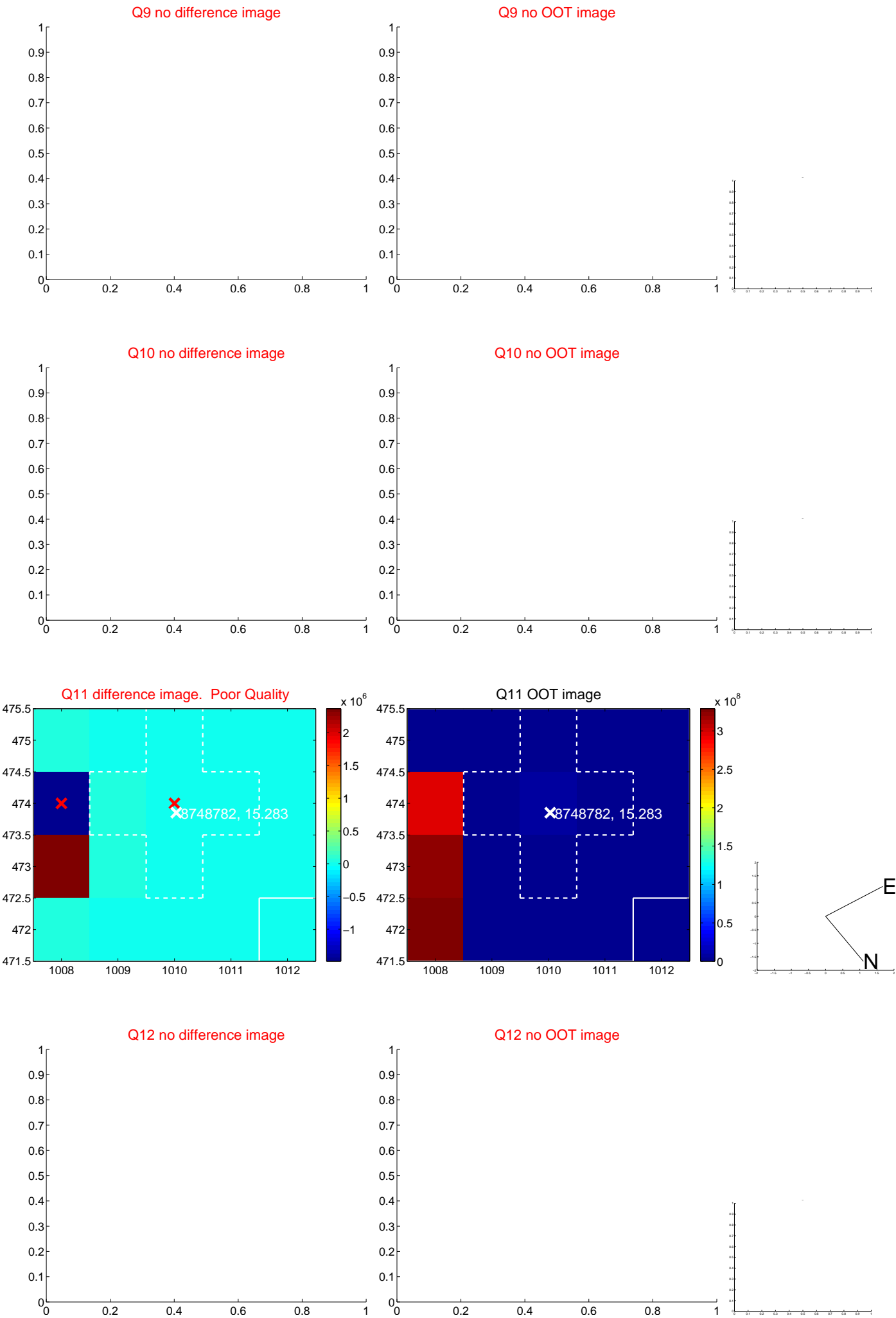
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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; Δ : difference centroid. red \times : large negative pixel value.

Q13 no difference image



Q13 no OOT image



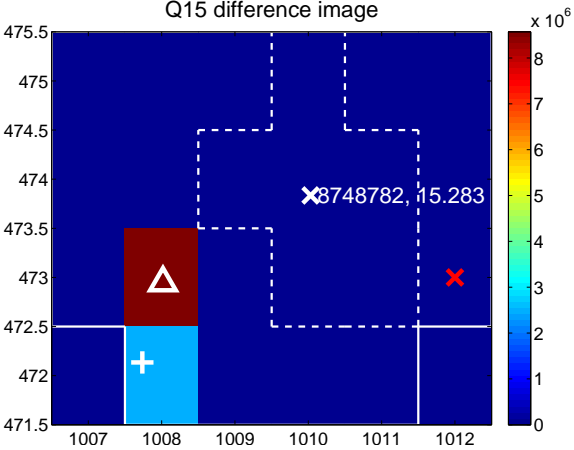
Q14 no difference image



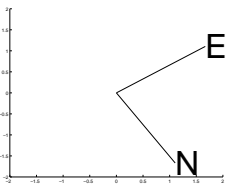
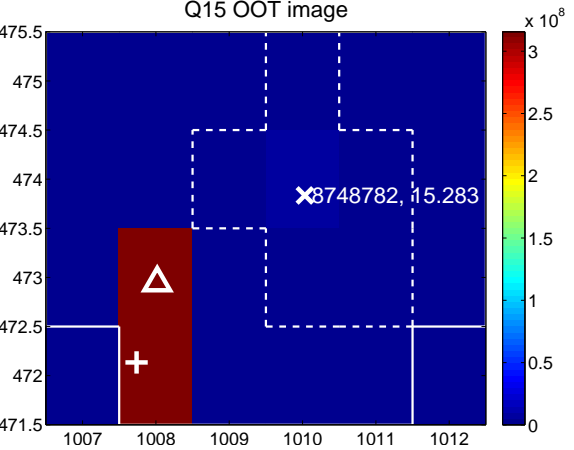
Q14 no OOT image



Q15 difference image



Q15 OOT image



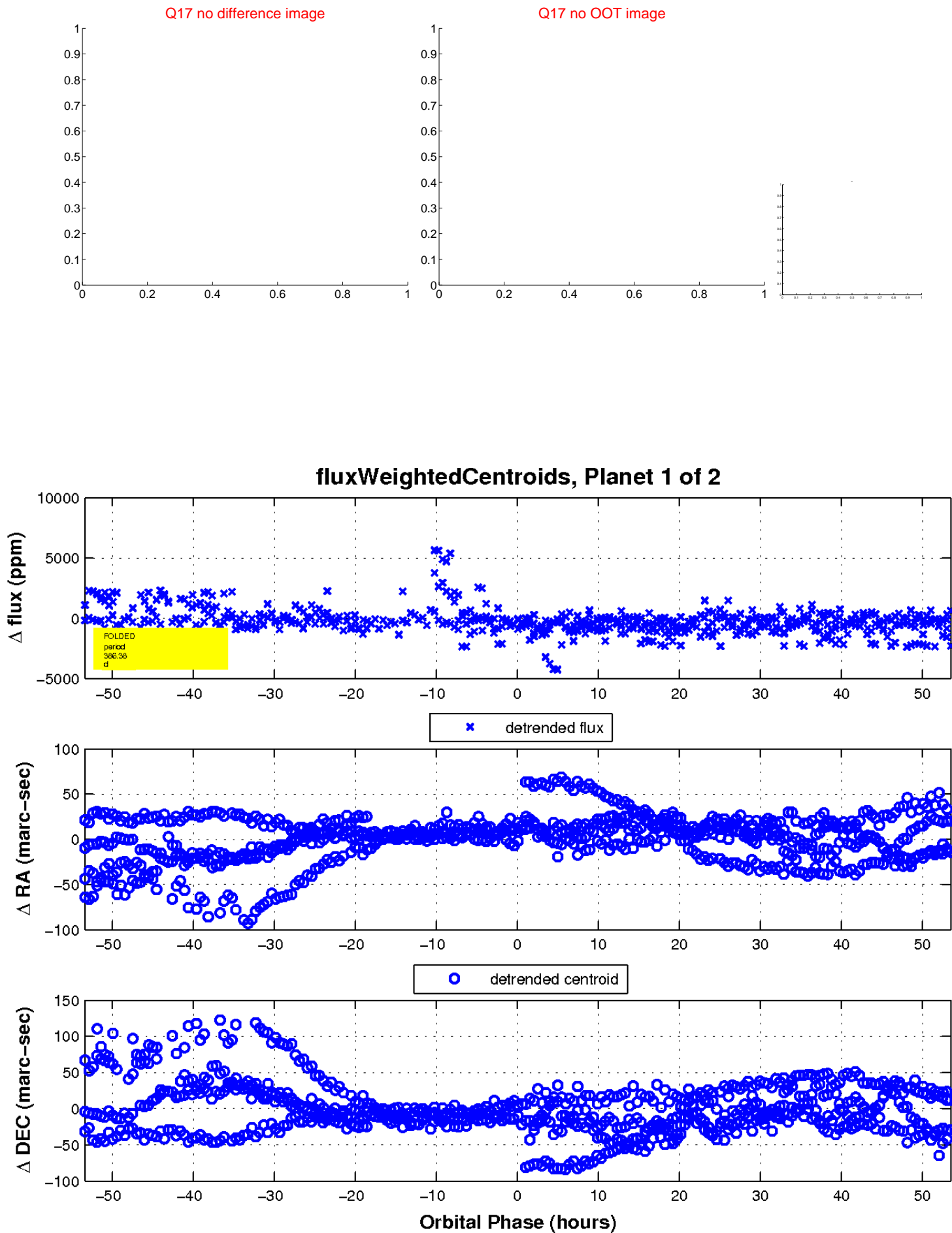
Q16 no difference image



Q16 no OOT image

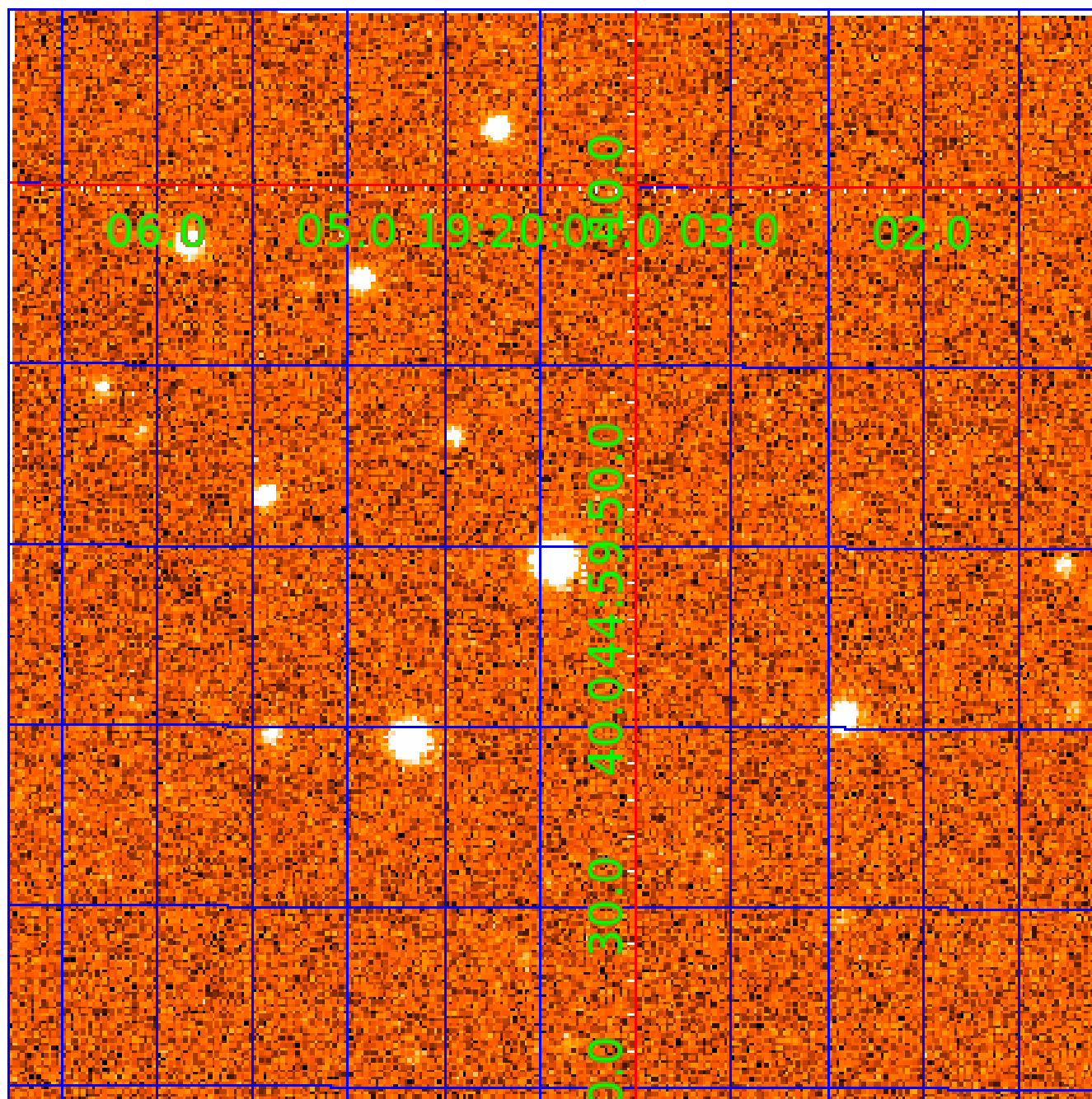


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008748782

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})
008748782-01	OBS	No	386.377725	281.310564	1052.5	17.846	11.4	9.1	0.87	5629	2.83	0.64
008748782-02	OBS	No	356.709110	325.993601	1236.5	17.157	16.2	11.4	0.87	5629	3.47	0.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748782-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748782-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

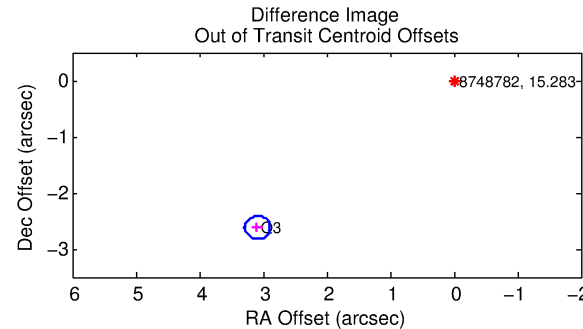
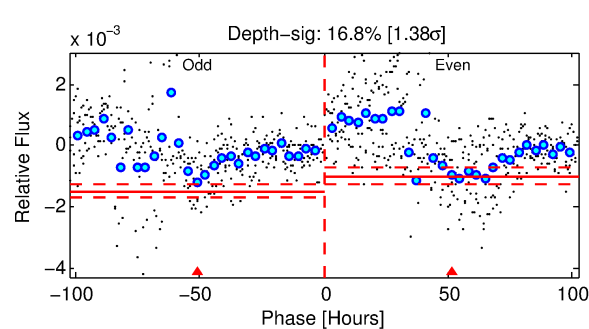
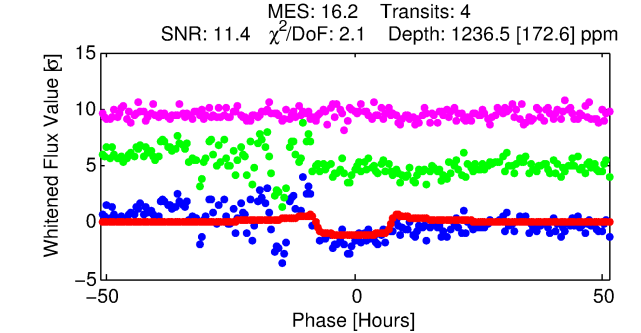
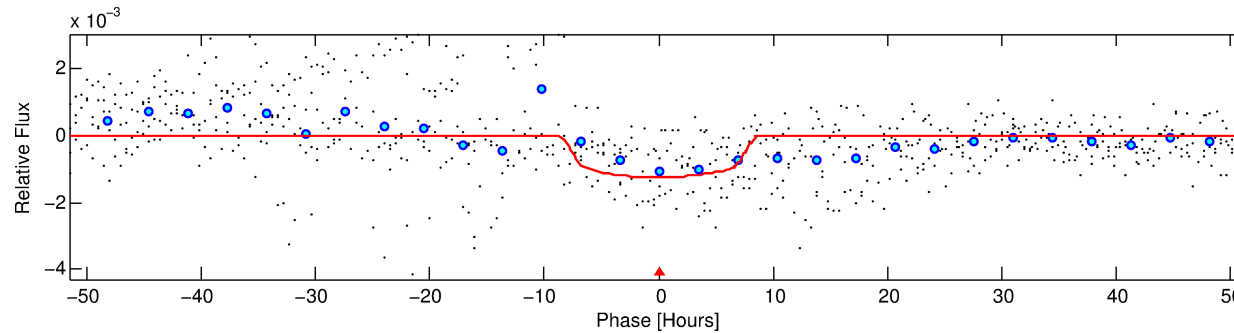
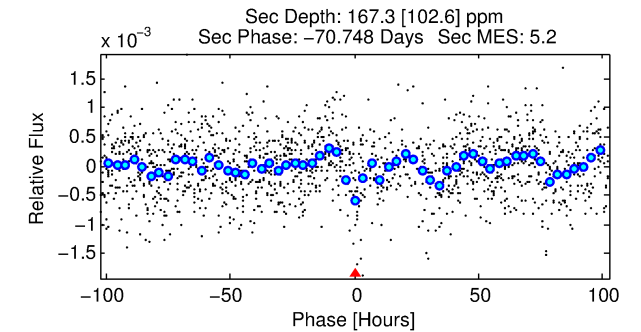
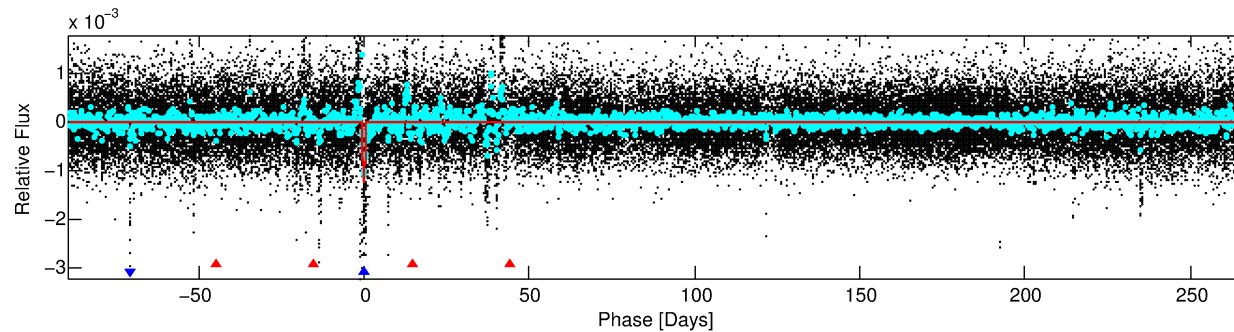
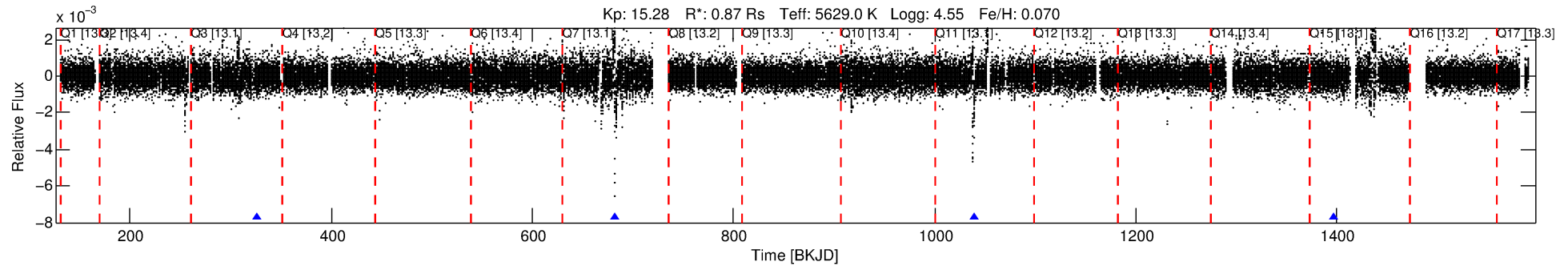
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748782-02

No Significant Match Found

DV One-Page Summary

KIC: 8748782 Candidate: 2 of 2 Period: 356.709 d



DV Fit Results:

Period = 356.70911 [0.01253] d
Epoch = 325.9936 [0.0238] BKJD
Rp/R* = 0.0366 [0.0045]
a/R* = 97.55 [38.97]
b = 0.84 [0.15]
Seff = 0.71 [0.23]
Teq = 234 [19] K
Rp = 3.47 [0.93] Re
a = 0.9801 [0.2013] AU
Ag = 7335.76 [5337.67] [1.37]
Teff = 3348 [560] K [5.56]

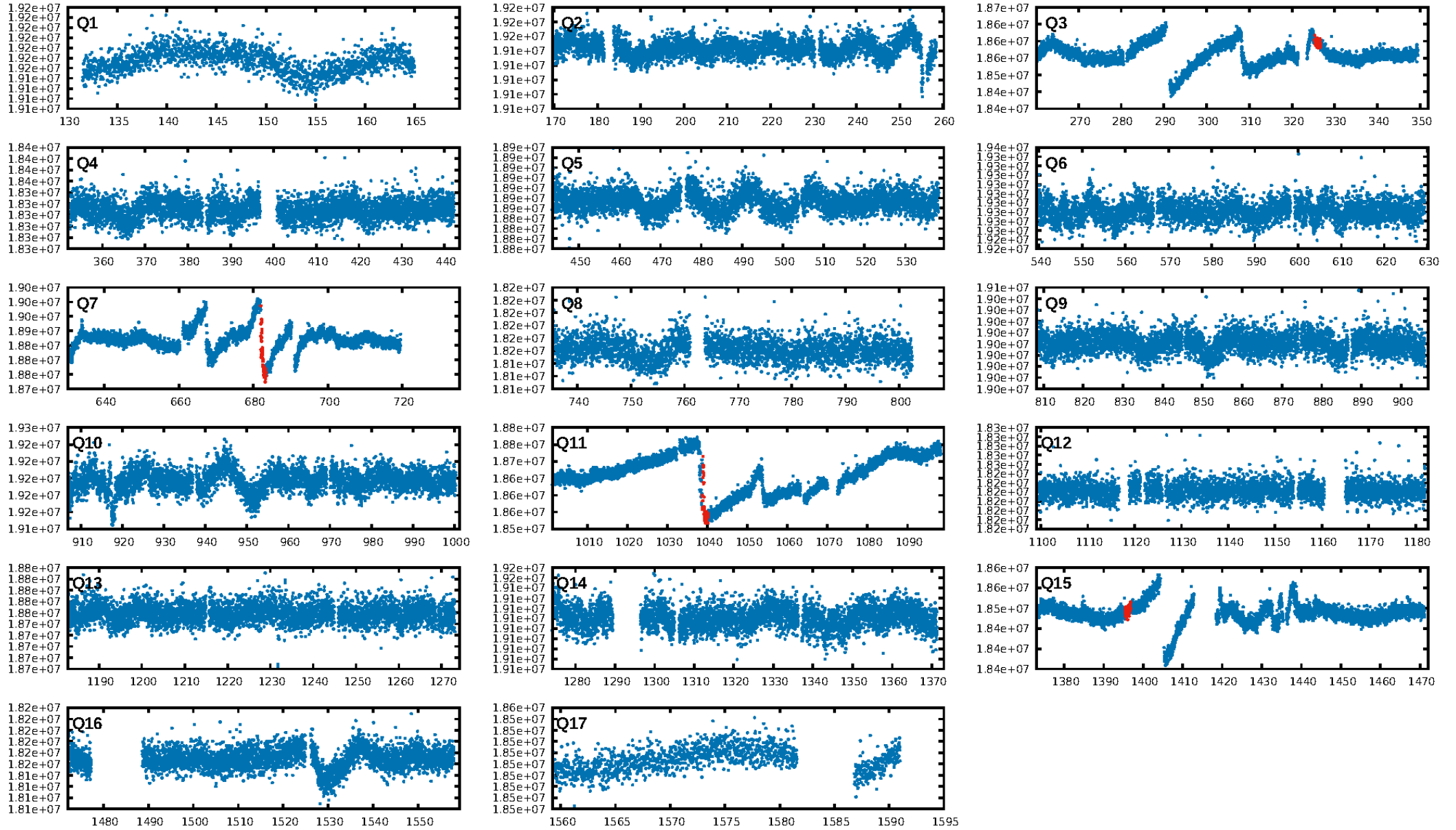
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [28.76]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 3.07e-22
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.808
Centroid-sig: N/A
Centroid-so: 9.955 arcsec [2.65]
OotOffset-rm: 4.053 arcsec [60.09]
KicOffset-rm: 8.503 arcsec [126.47]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

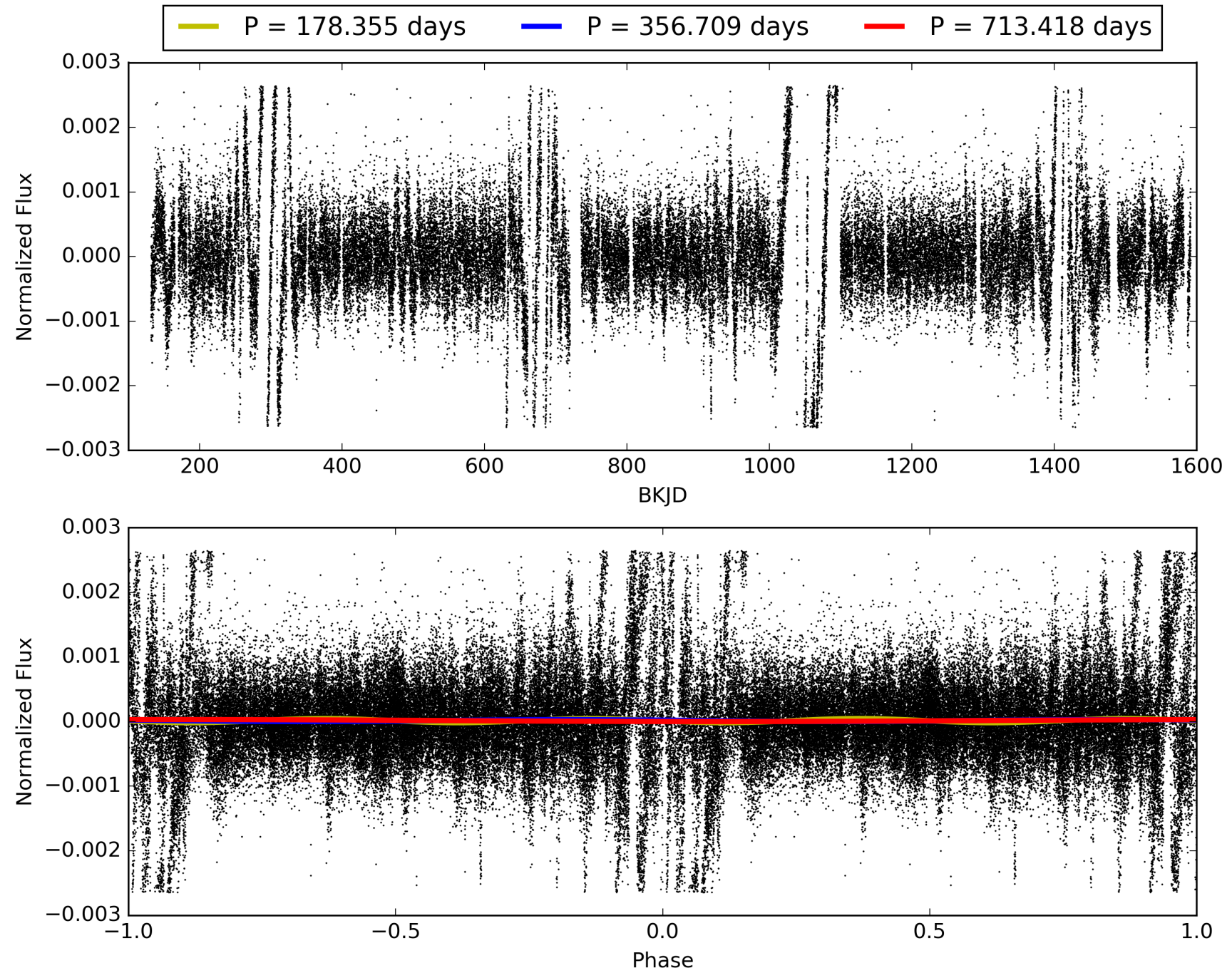
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:55:12 Z

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

TCE 008748782-02, PDC Light Curves

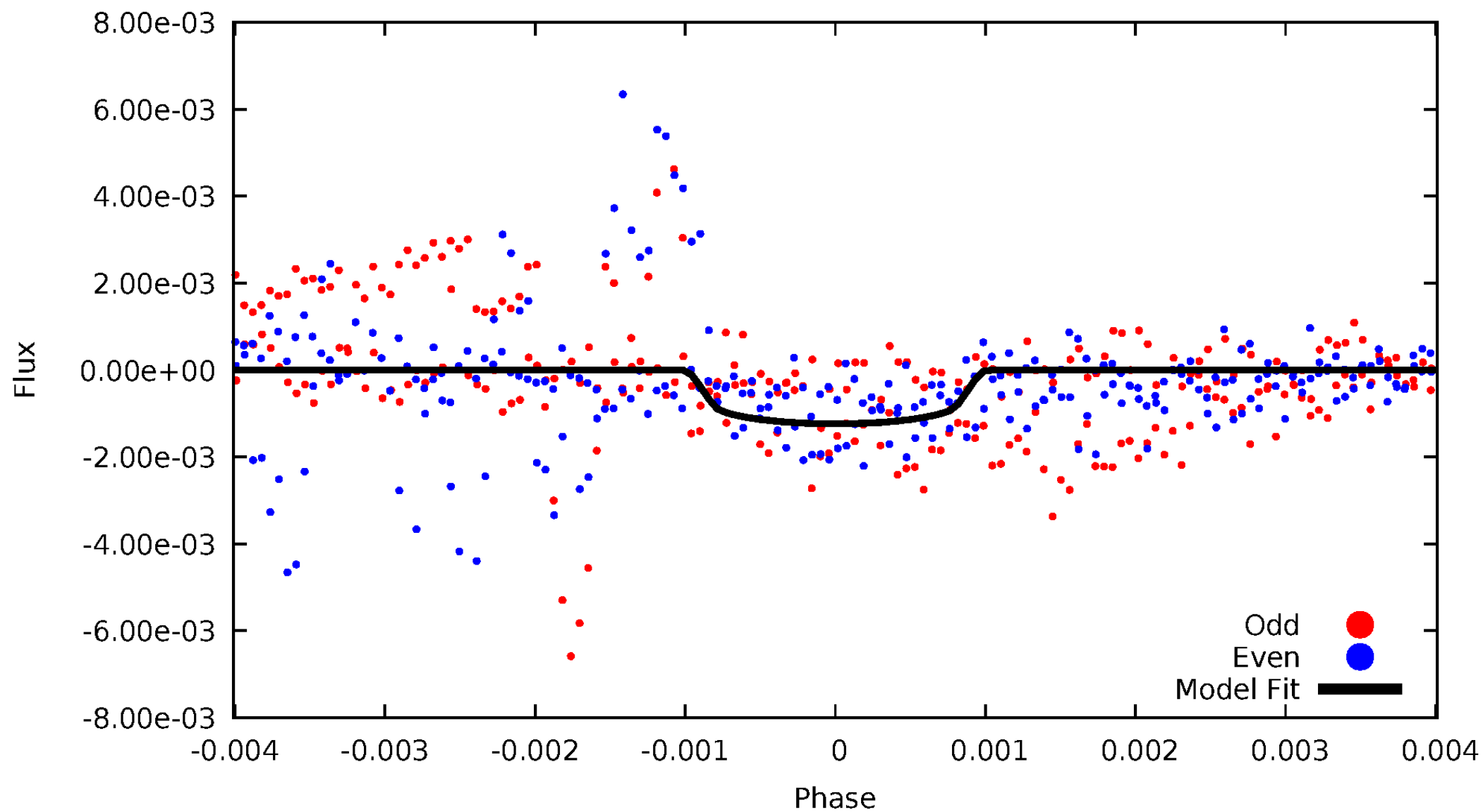


TCE 008748782-02



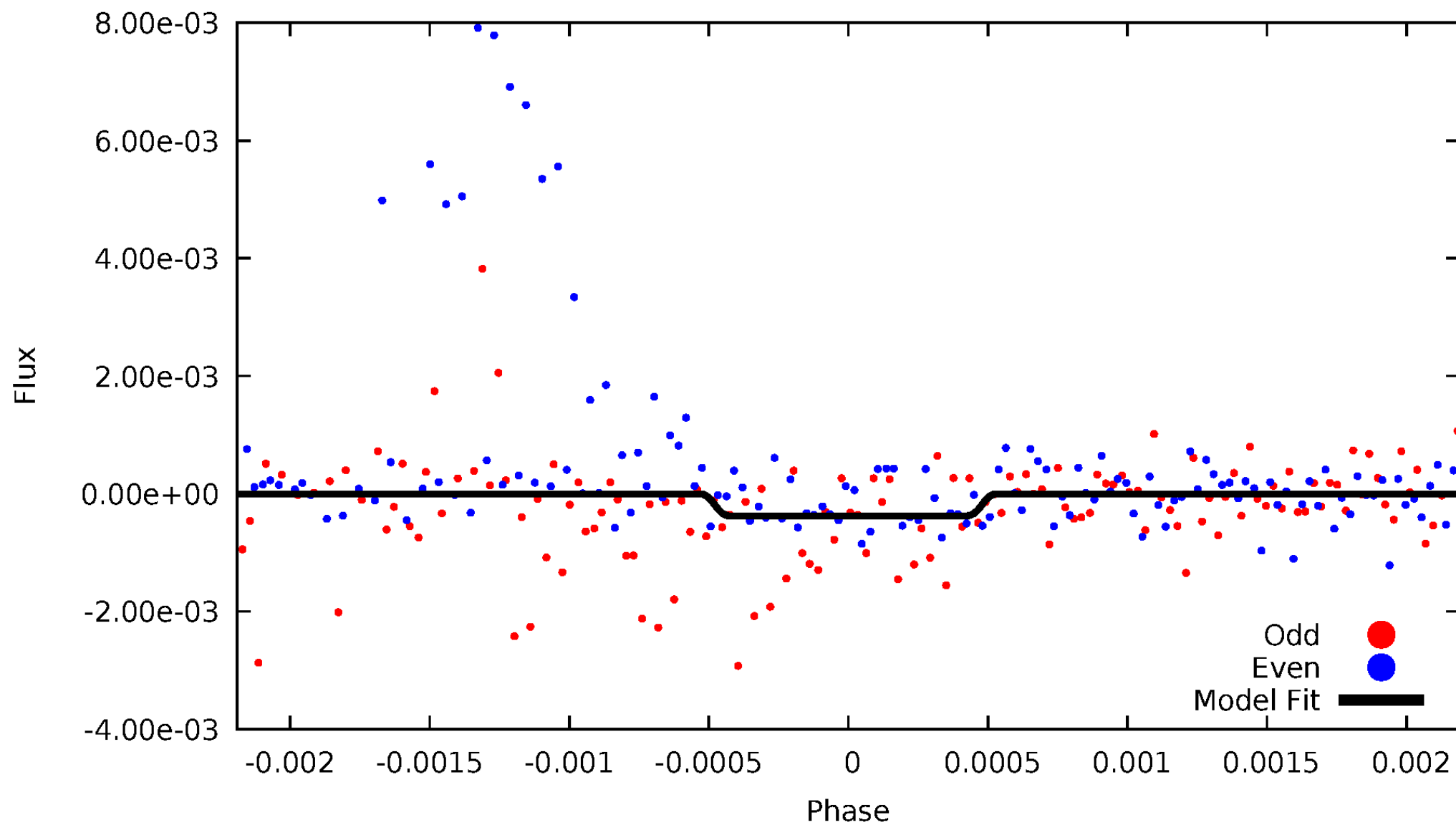
DV Odd/Even

TCE 008748782-02



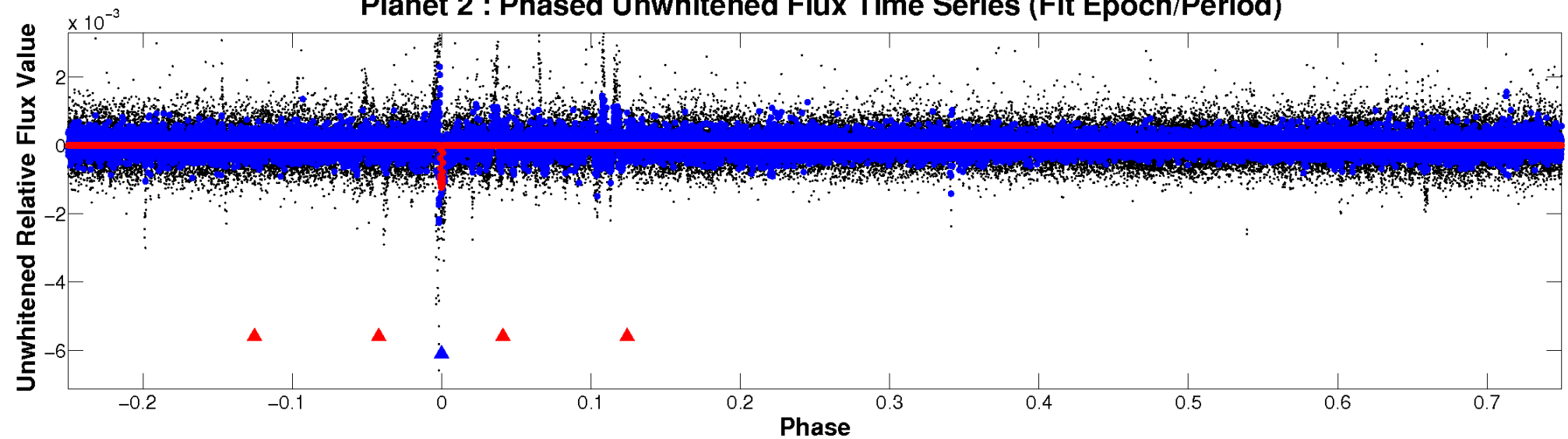
ALT Odd/Even

TCE 008748782-02

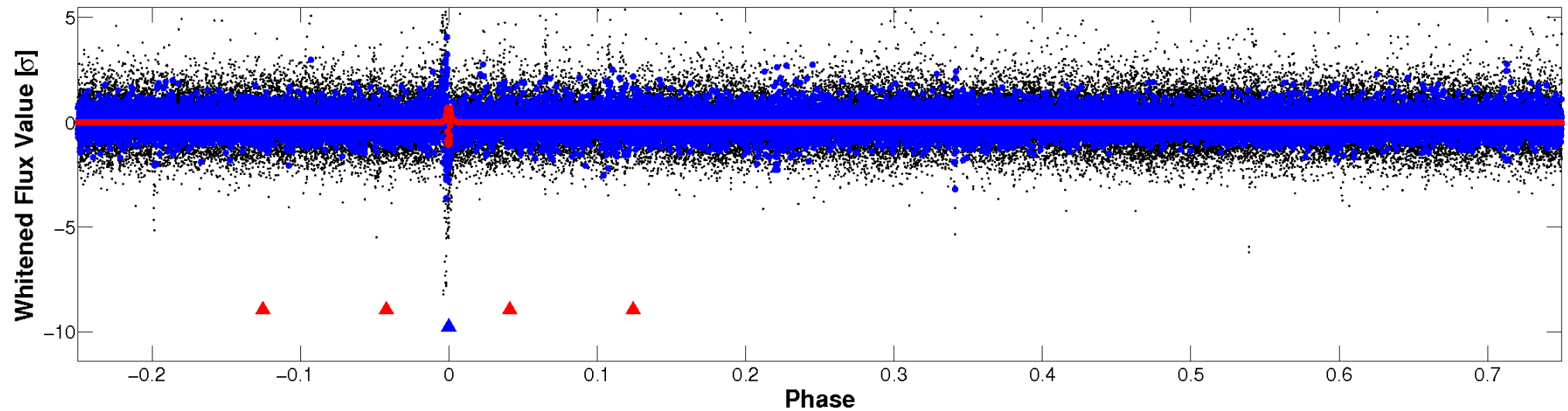


Non-Whitened Vs. Whitened Light Curve

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

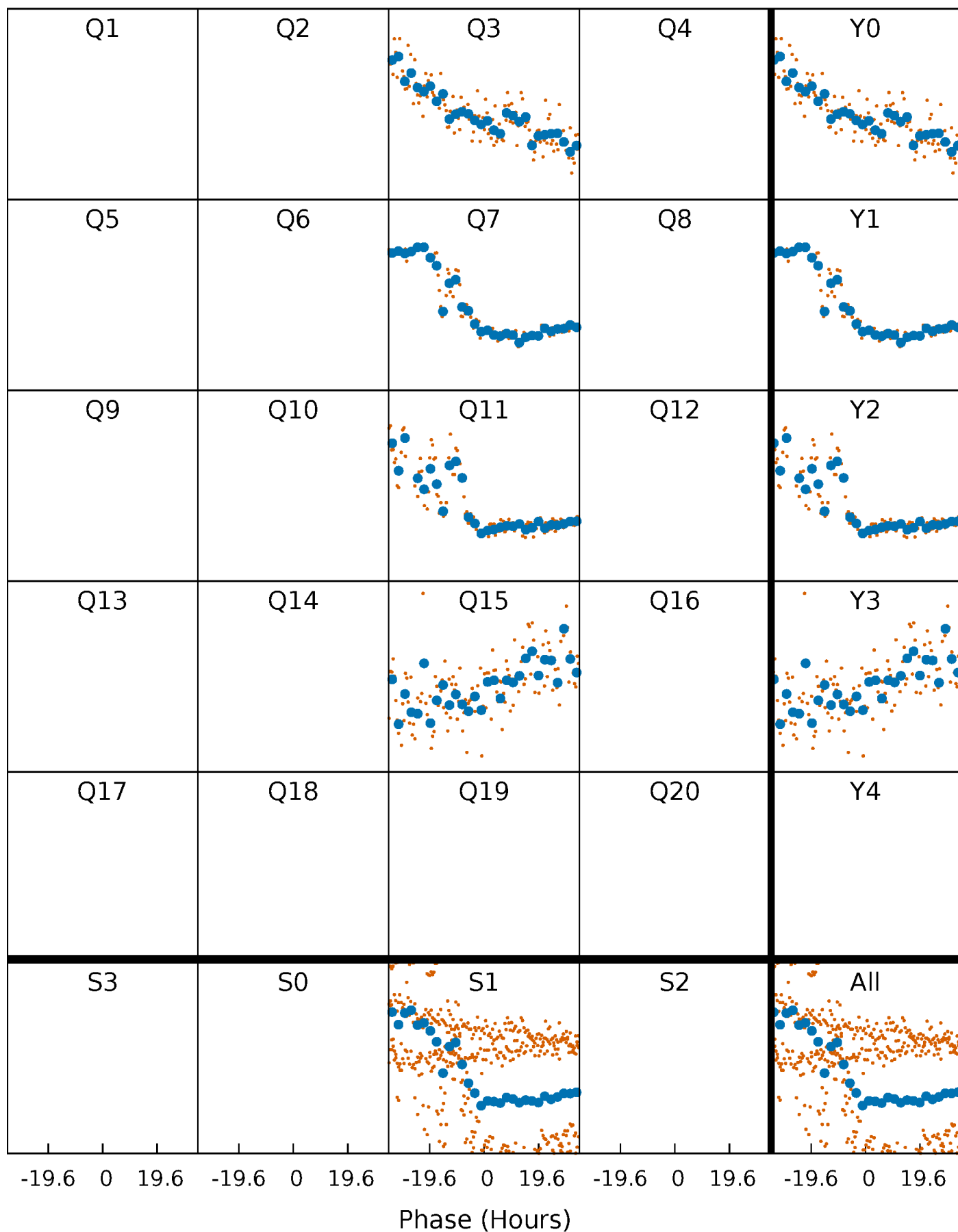


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



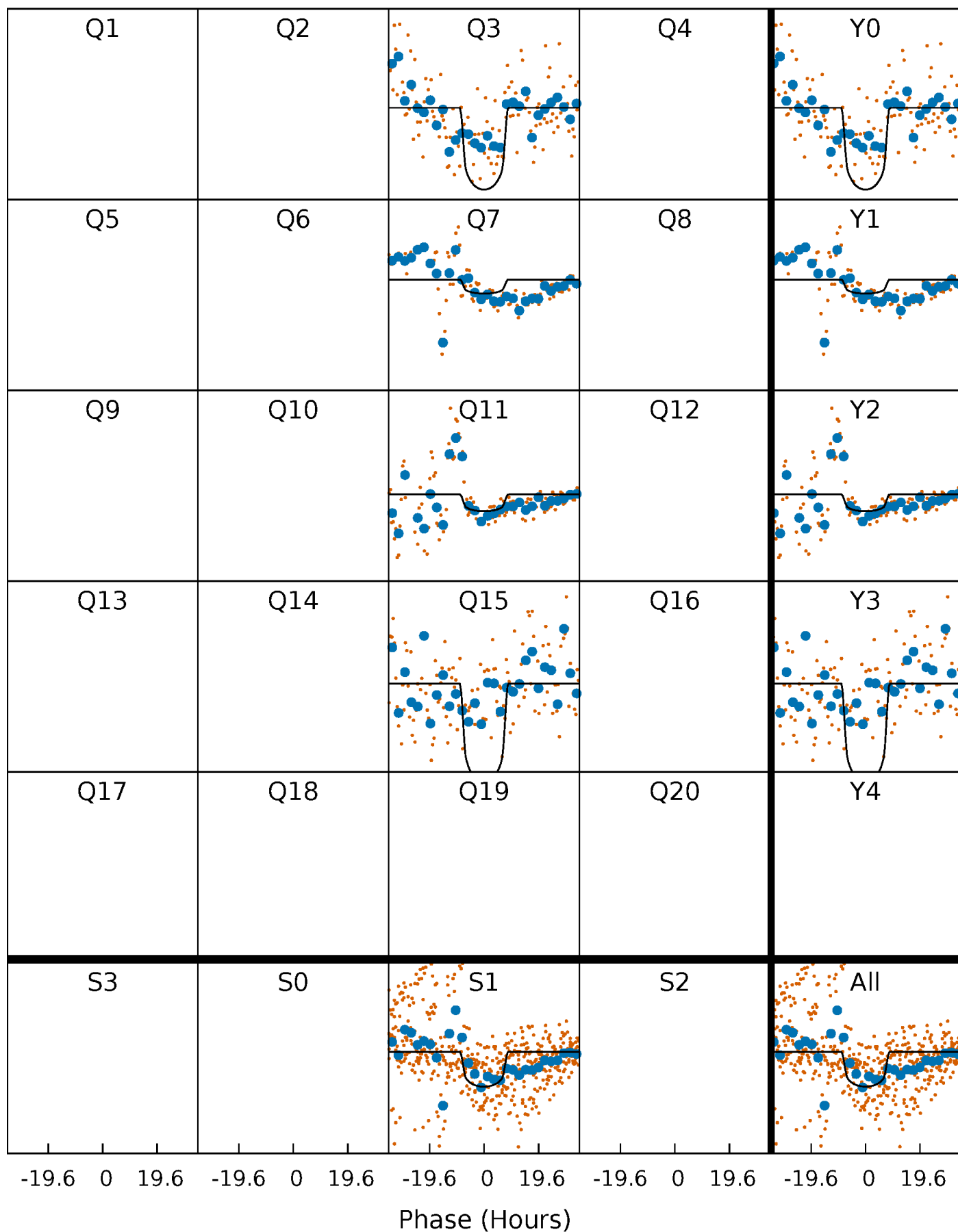
PDC Quarter-Phased Transit Curves

TCE 008748782-02 $P=356.709110$ Days $T_0=325.993601$ (BKJD)



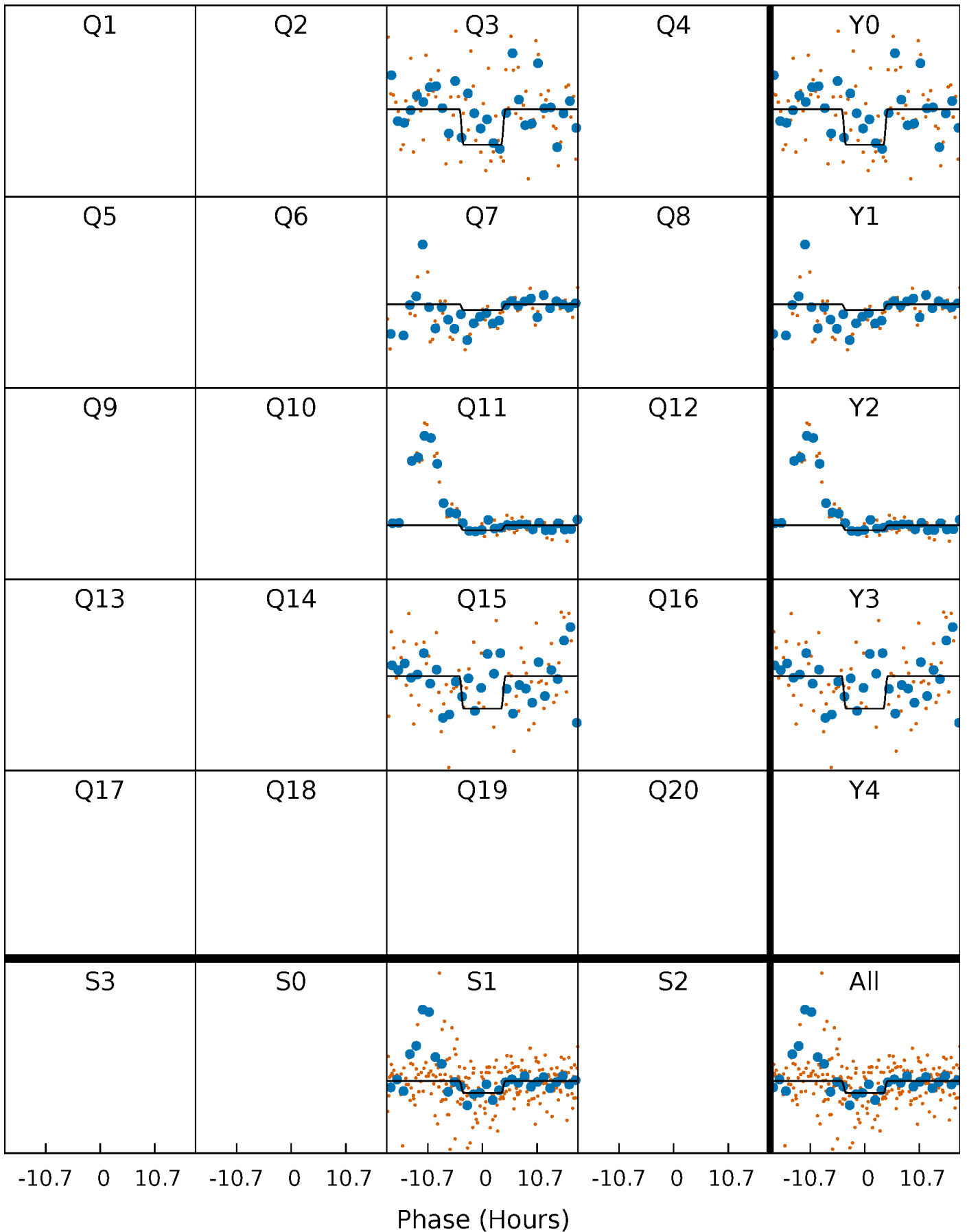
DV Quarter-Phased Transit Curves

TCE 008748782-02 $P=356.709110$ Days $T_0=325.993601$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

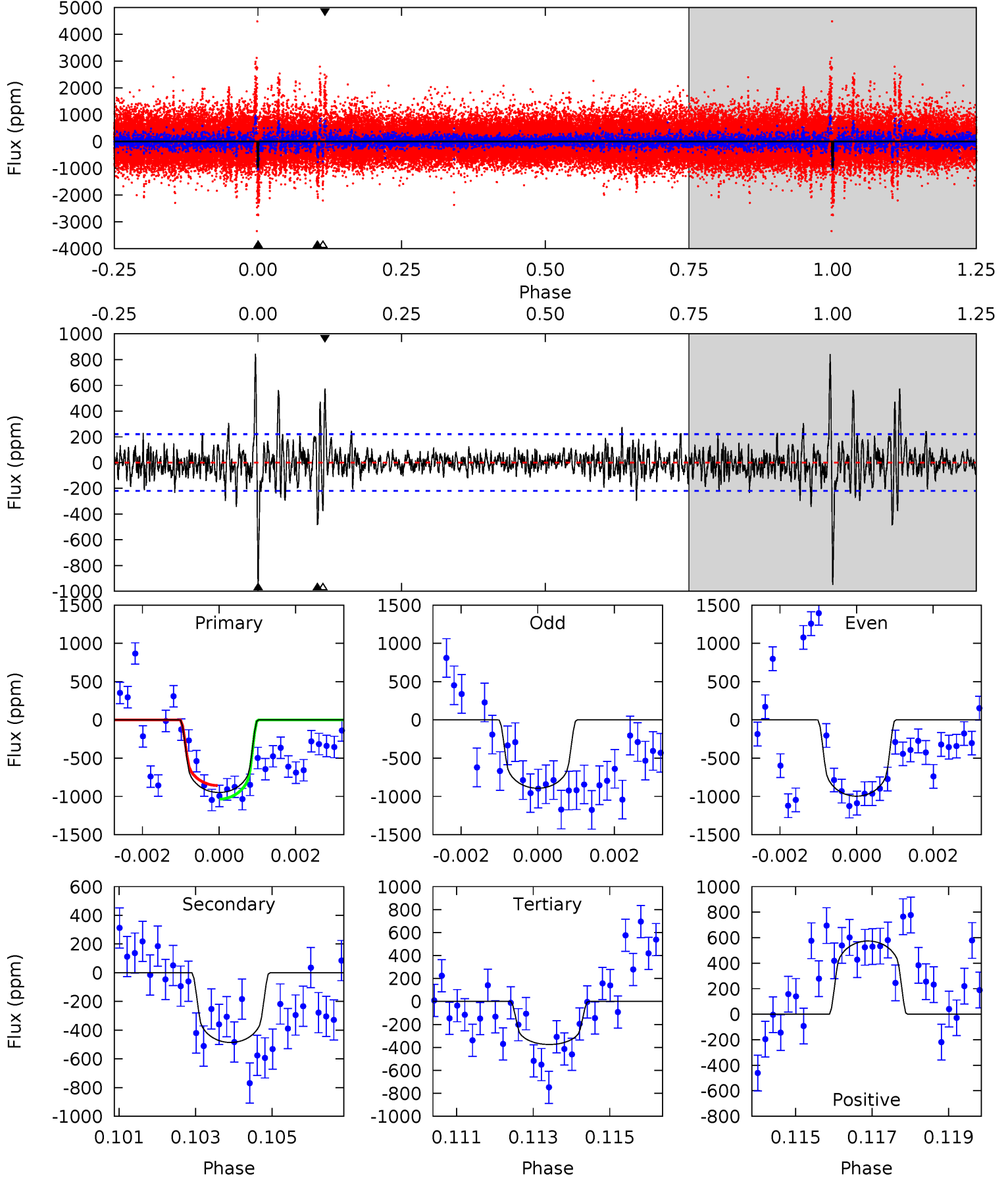
TCE 008748782-02 $P=356.674601$ Days $T_0=326.112641$ (BKJD)



DV Model-Shift Uniqueness Test

008748782-02, P = 356.709110 Days, E = 325.993601 Days

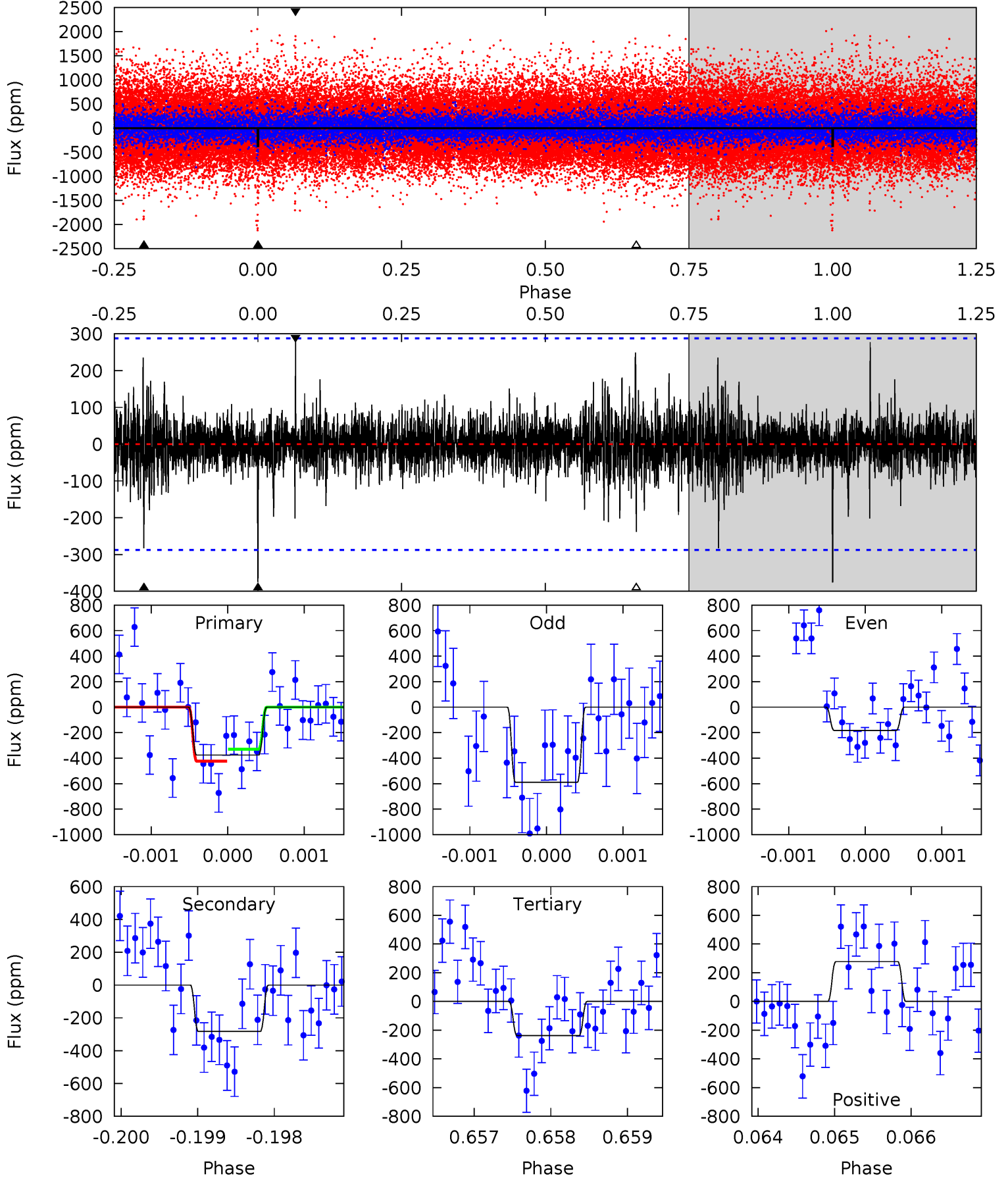
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	11.7	9.06	13.9	5.33	3.09	2.34	13.9	9.06	2.68	-2.13	1.24	0.95	0.47	2.14



Alt Model-Shift Uniqueness Test

008748782-02, P = 356.674601 Days, E = 326.112641 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.11	5.35	4.52	5.25	5.44	3.28	0.93	2.59	1.86	0.84	0.10	3.79	2.21	0.42	0.88



Stellar Parameters For KIC 008748782

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5629^{+152}_{-152}	$4.553^{+0.030}_{-0.170}$	$0.070^{+0.250}_{-0.300}$	$0.870^{+0.207}_{-0.069}$	$0.987^{+0.085}_{-0.114}$	$2.107^{+0.347}_{-0.963}$
	+3%/-3%	+1%/-4%	+357%/-429%	+24%/-8%	+9%/-12%	+16%/-46%
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 008748782-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-486 ± 41	$3.62^{+0.66}_{-0.51}$	335^{+20}_{-14}	4541^{+273}_{-246}	18930^{+7228}_{-4961}
Alt.	-283 ± 53	$1.91^{+0.45}_{-0.47}$	334^{+19}_{-12}	5271^{+766}_{-467}	39331^{+31608}_{-14736}

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

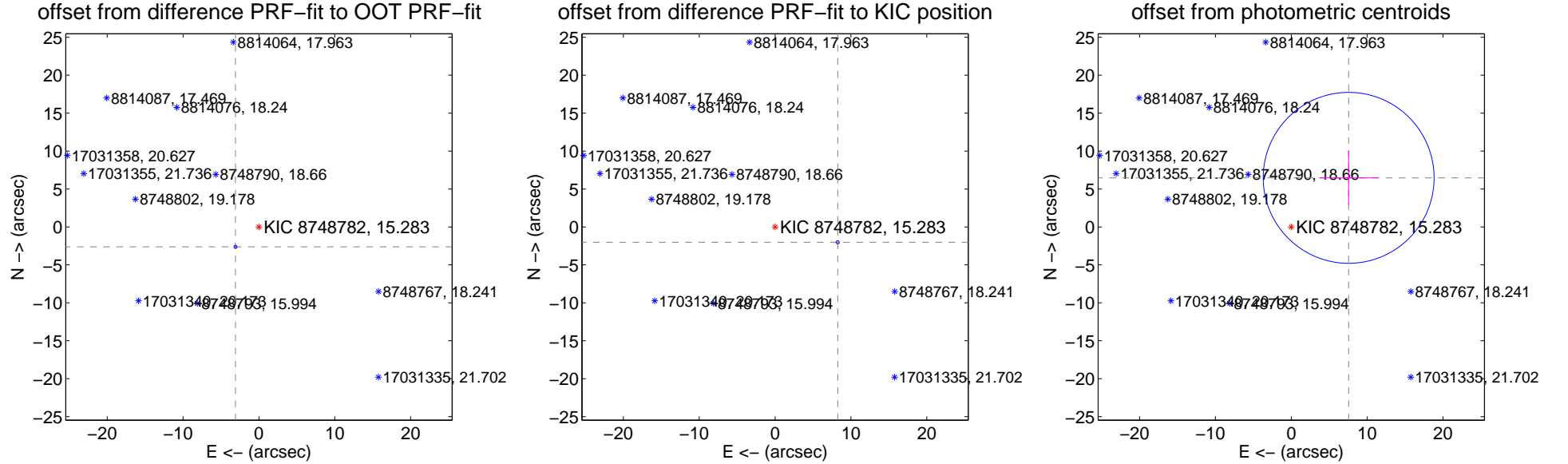
DV Centroid Data

Supplemental centroid analysis for 008748782-02. Kepler magnitude: 15.28. Transit SNR 11.42

There are 0 quarters with good PRF difference image offsets

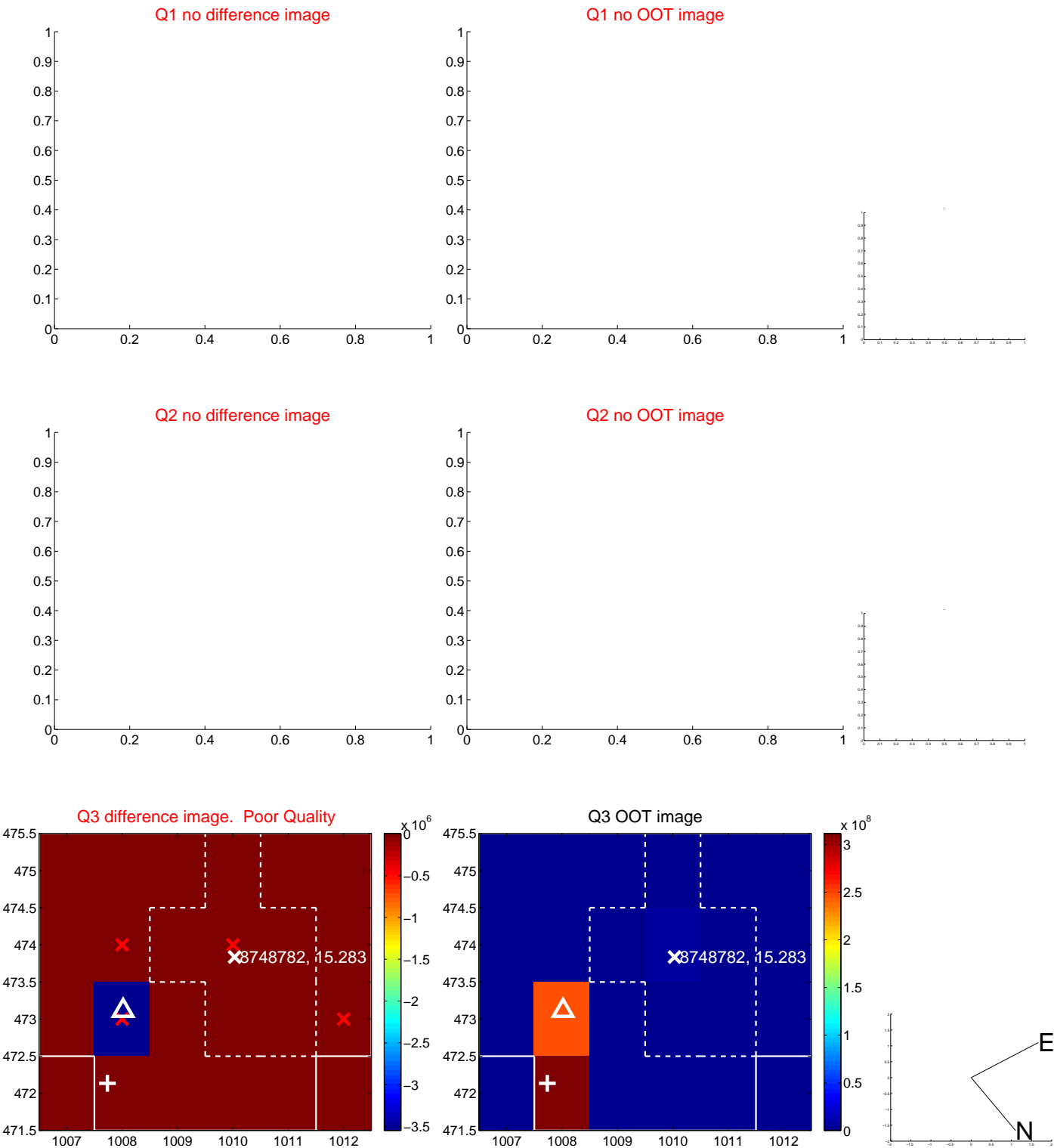
The OOT PRF centroid is offset from the target star catalog position by about 11.37 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.053 ± 0.067	60.09	3.092 ± 0.067	-2.621 ± 0.068
PRF-fit source offset from KIC position	8.503 ± 0.067	126.47	-8.259 ± 0.067	-2.022 ± 0.068
photometric centroid source offset	9.95 ± 3.75	2.65	-7.57 ± 3.89	6.47 ± 3.56



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.

Q5 no difference image



Q5 no OOT image



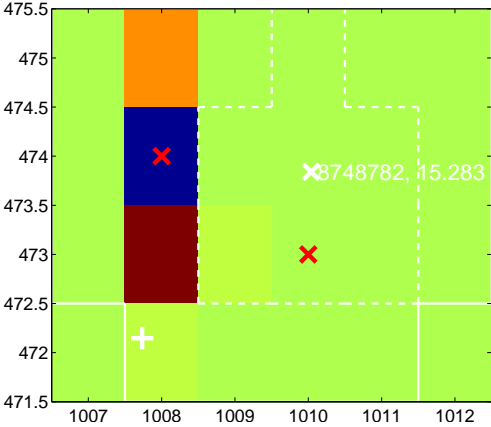
Q6 no difference image



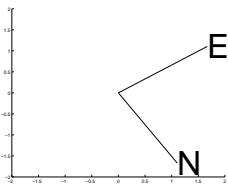
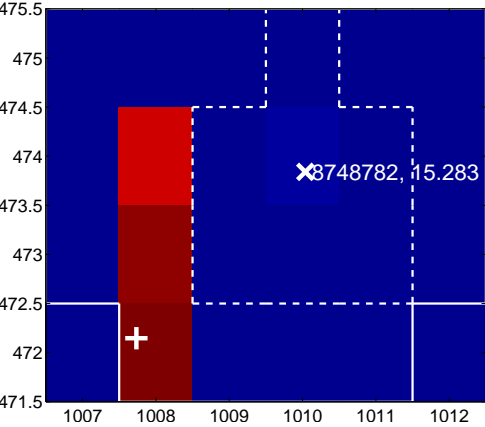
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



Q8 no OOT image



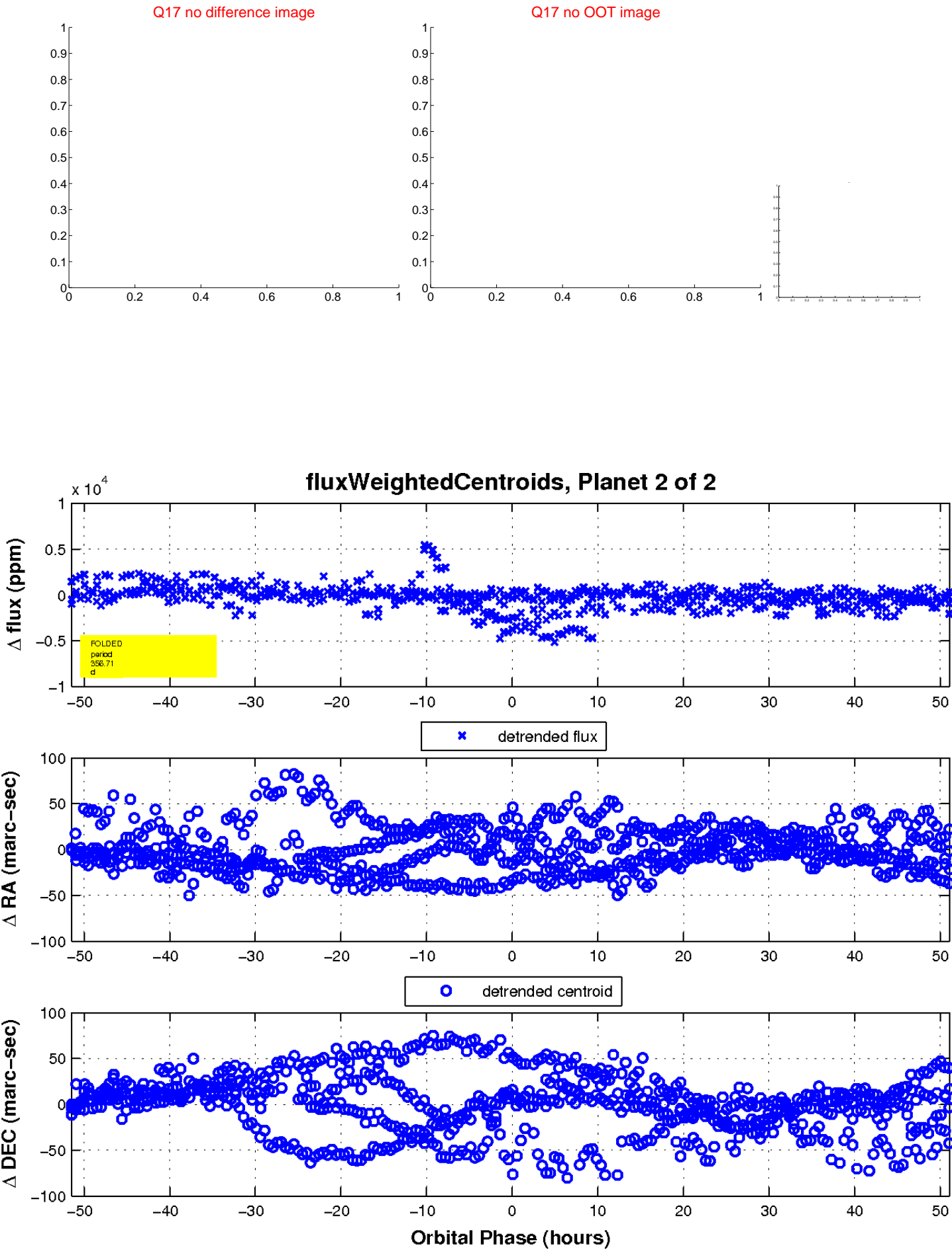
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

