

KIC 003758987

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})
003758987-01	OBS	No	386.740908	339.579069	409.7	7.647	10.9	2.5	0.77	4987	1.96	0.38
003758987-02	OBS	No	503.307459	522.143552	1045.9	10.789	10.3	6.2	0.77	4987	2.52	0.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003758987-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003758987-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

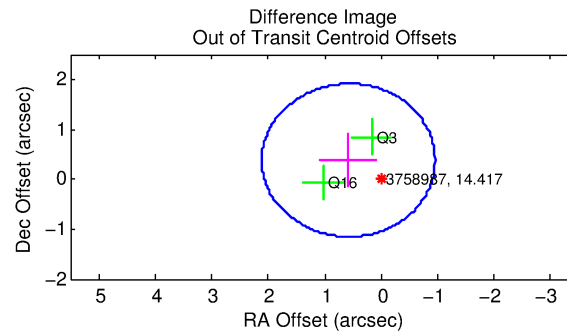
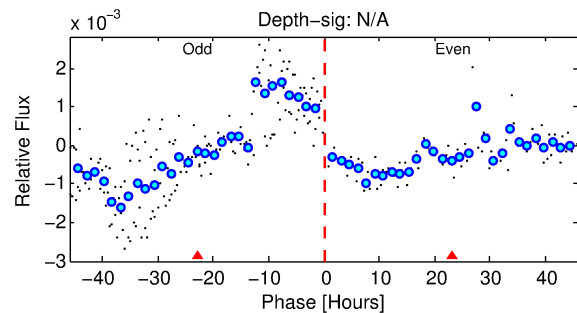
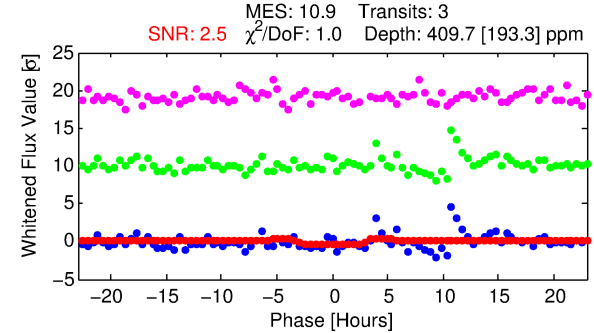
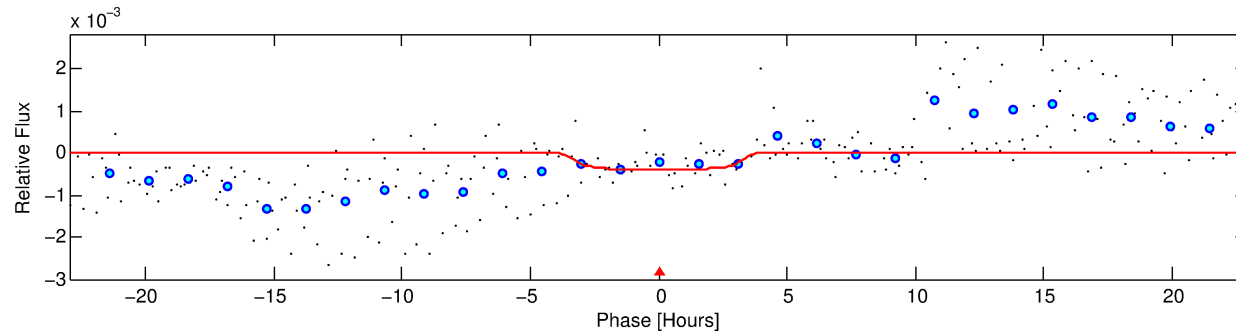
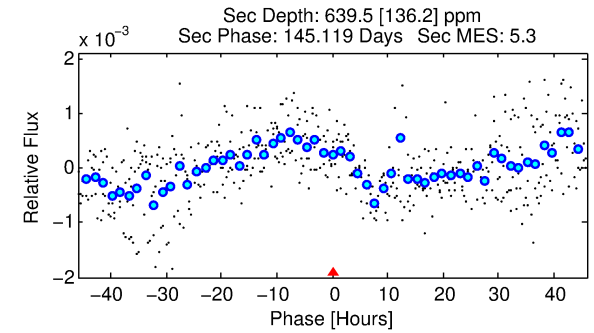
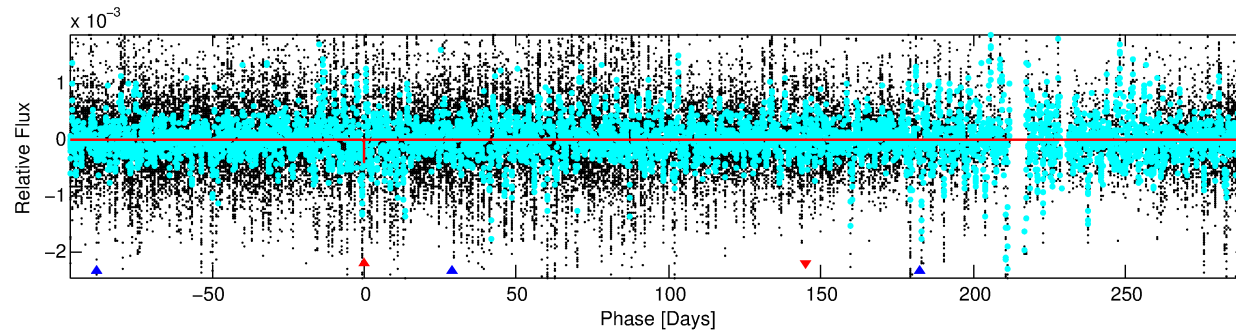
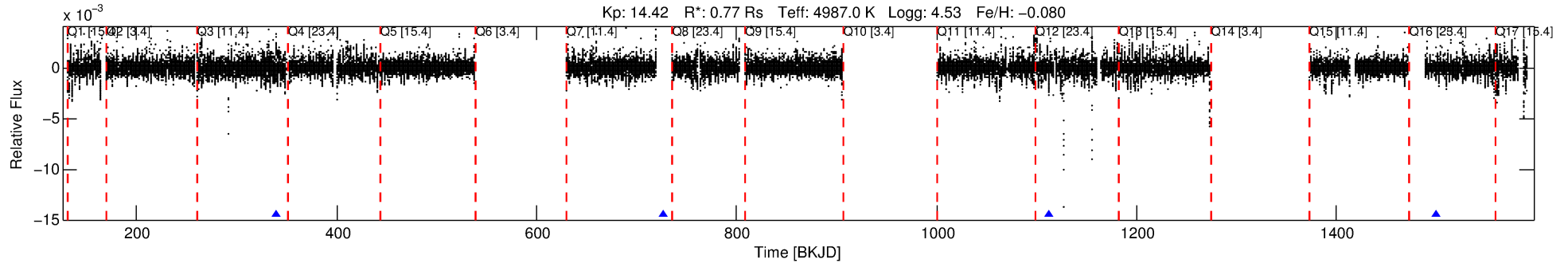
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003758987-01

No Significant Match Found

DV One-Page Summary

KIC: 3758987 Candidate: 1 of 2 Period: 386.741 d



DV Fit Results:

Period = 386.74091 [0.01758] d
Epoch = 339.5791 [0.0375] BKJD
Rp/R* = 0.0232 [0.0087]
a/R* = 172.39 [189.87]
b = 0.92 [0.18]
Seff = 0.37 [0.07]
Teq = 200 [9] K
Rp = 1.96 [0.76] Re
a = 0.9399 [0.0848] AU
Ag = 81214.77 [64203.08] [1.26 σ]
Teffp = 5207 [1026] K [4.88 σ]

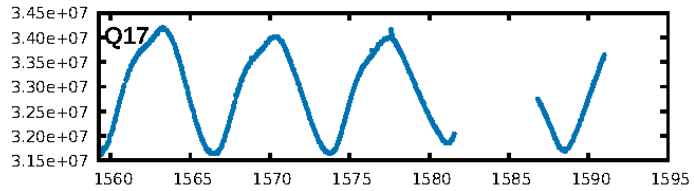
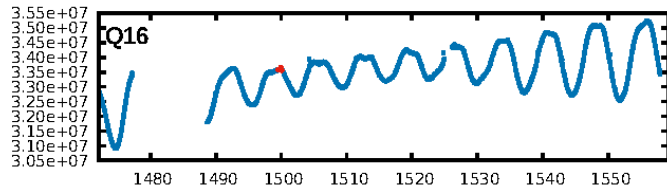
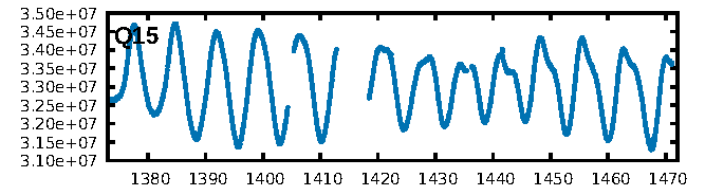
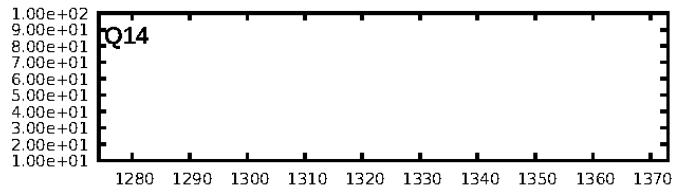
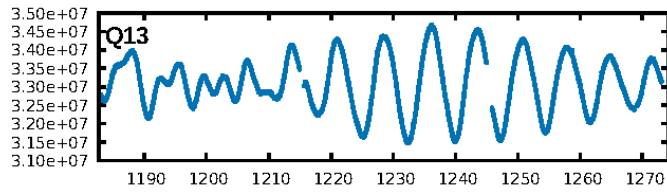
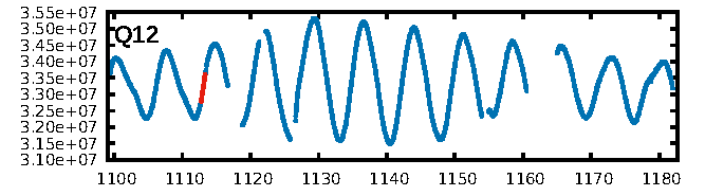
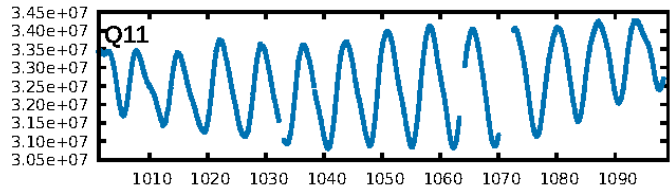
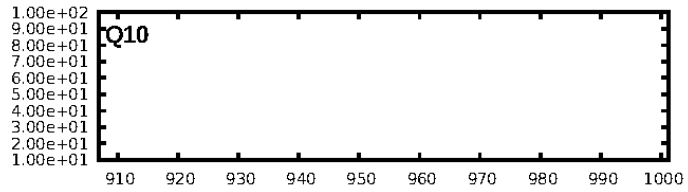
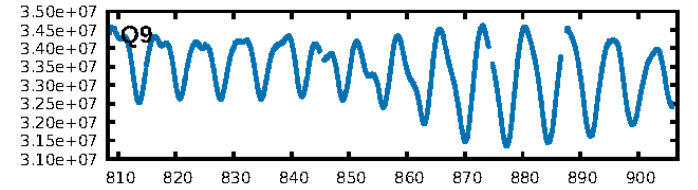
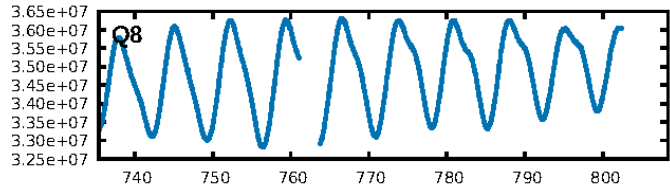
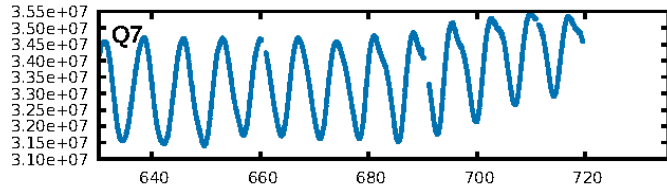
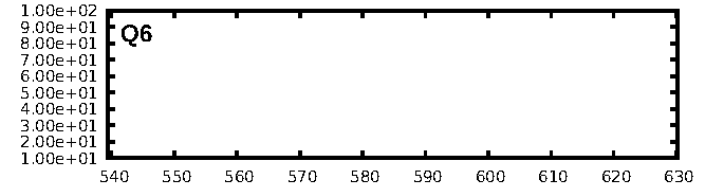
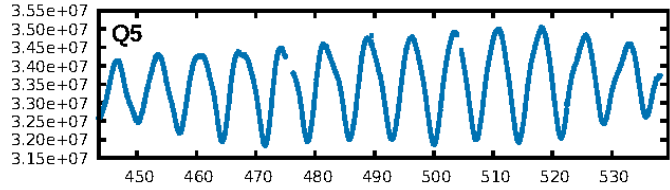
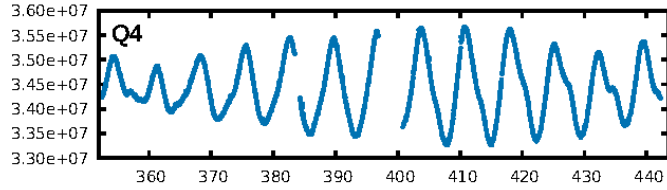
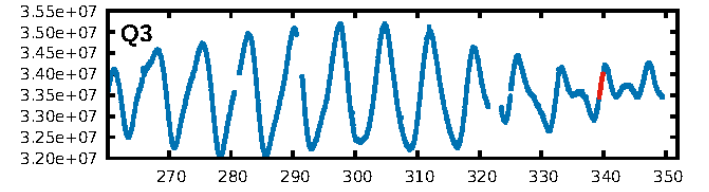
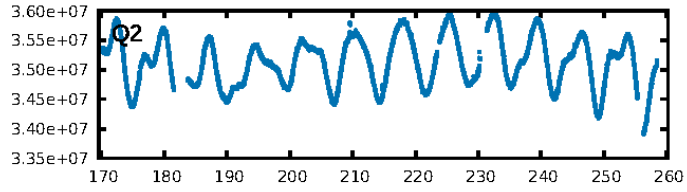
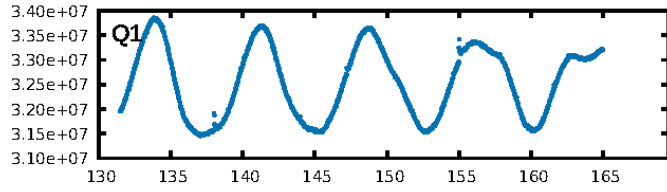
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [211.55 σ]
ModelChiSquare2-sig: 15.0%
ModelChiSquareGof-sig: 99.5%
Bootstrap-pfa: 1.32e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.235
Centroid-sig: 1.2%
Centroid-so: 5.644 arcsec [1.75 σ]
OotOffset-rm: 0.690 arcsec [1.35 σ]
KicOffset-rm: 0.660 arcsec [1.36 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

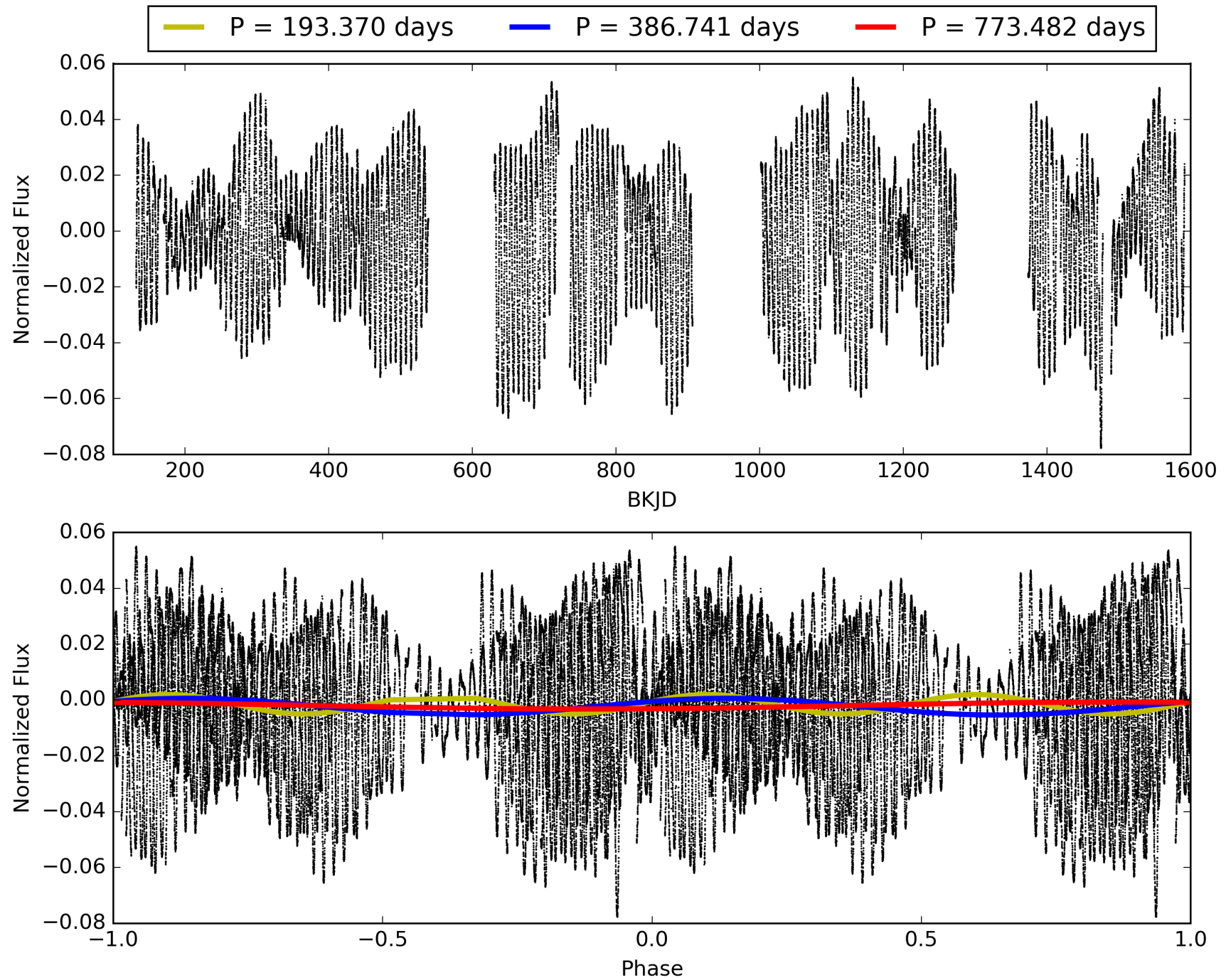
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 003758987-01, PDC Light Curves

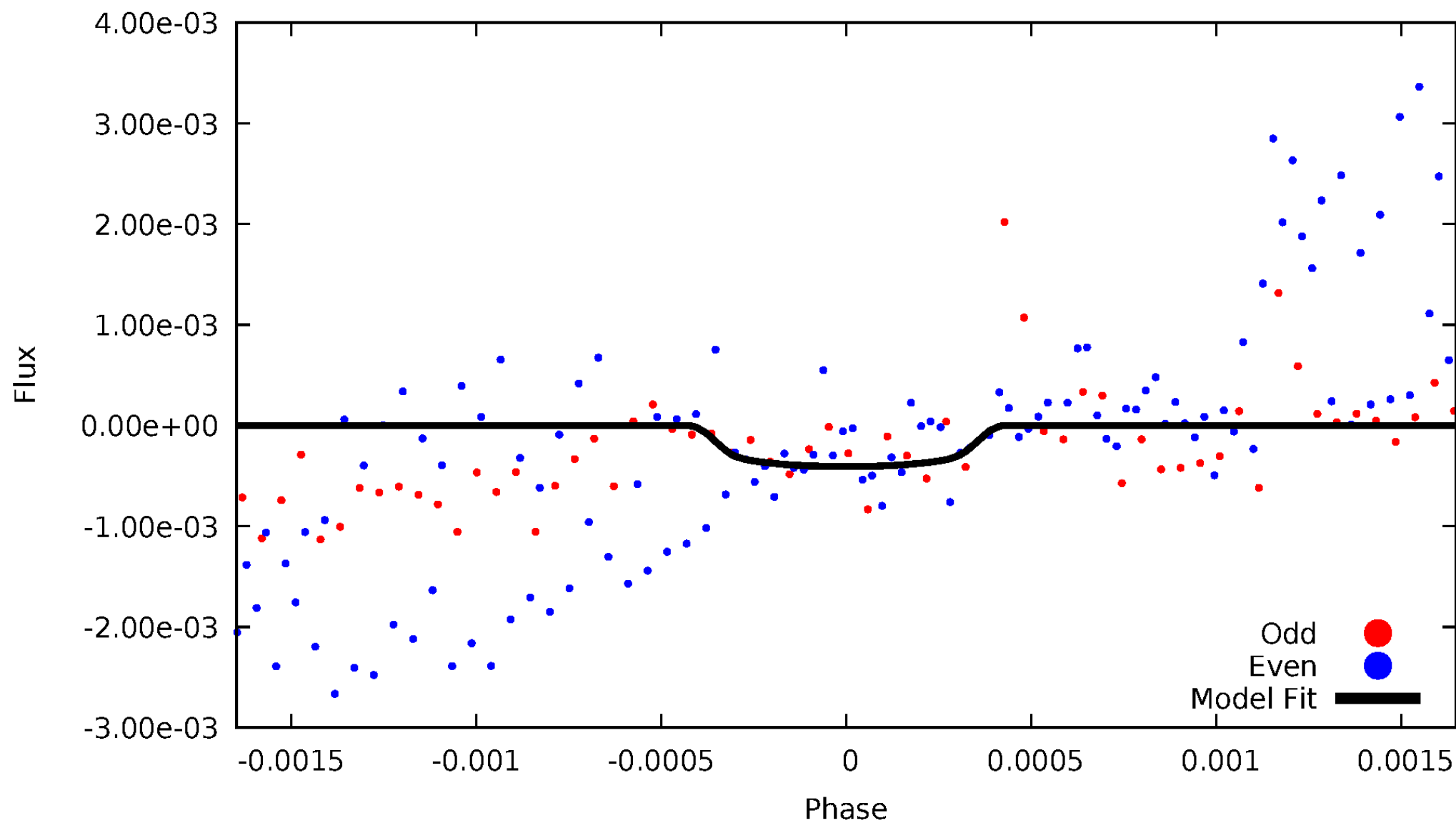


TCE 003758987-01



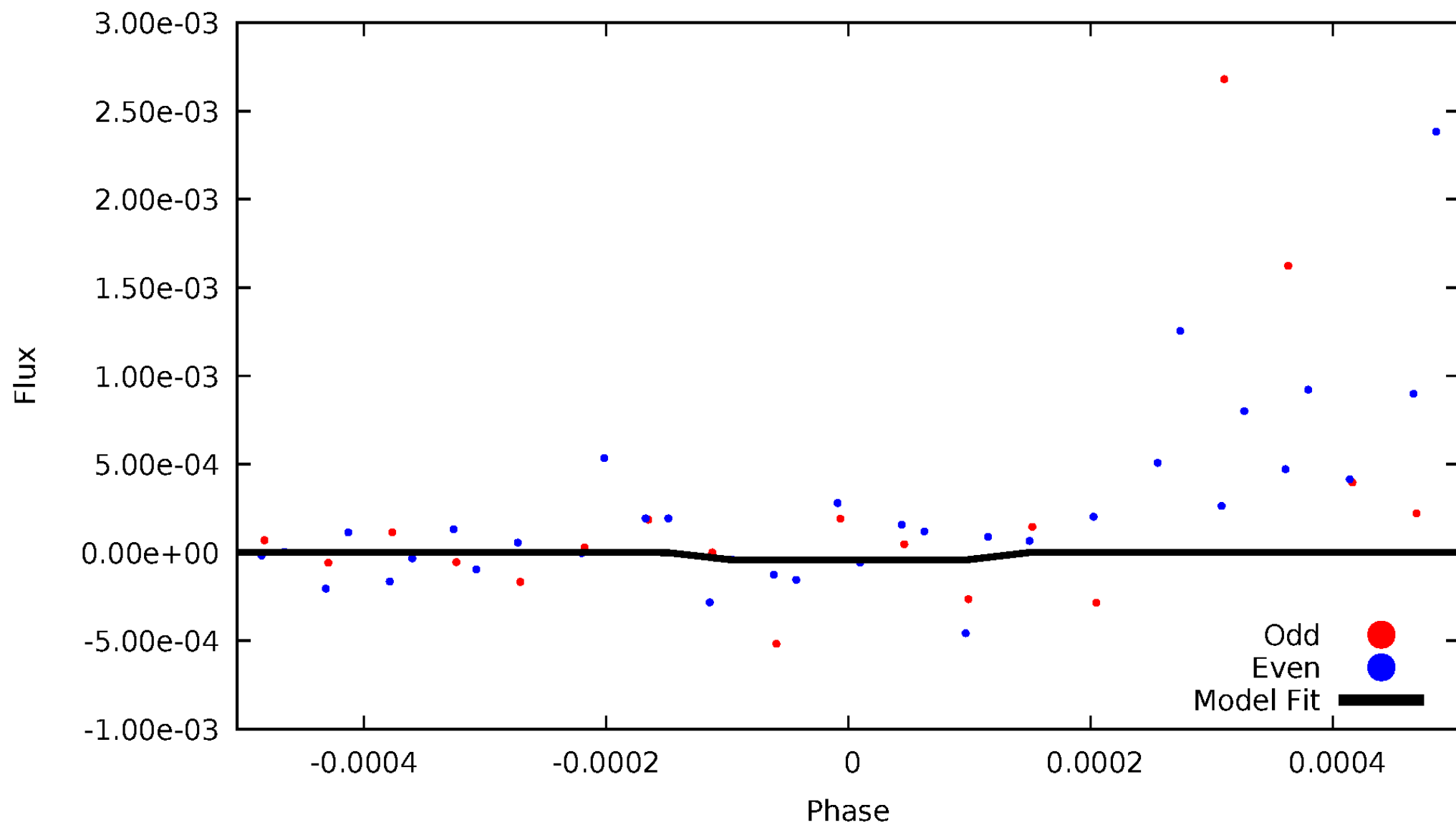
DV Odd/Even

TCE 003758987-01

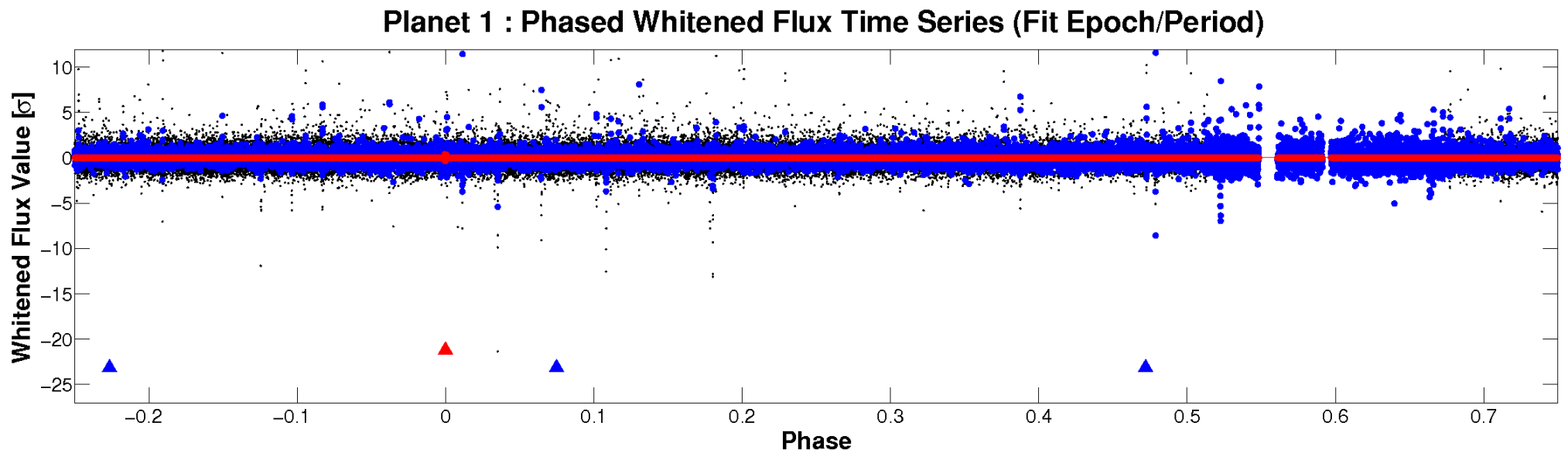
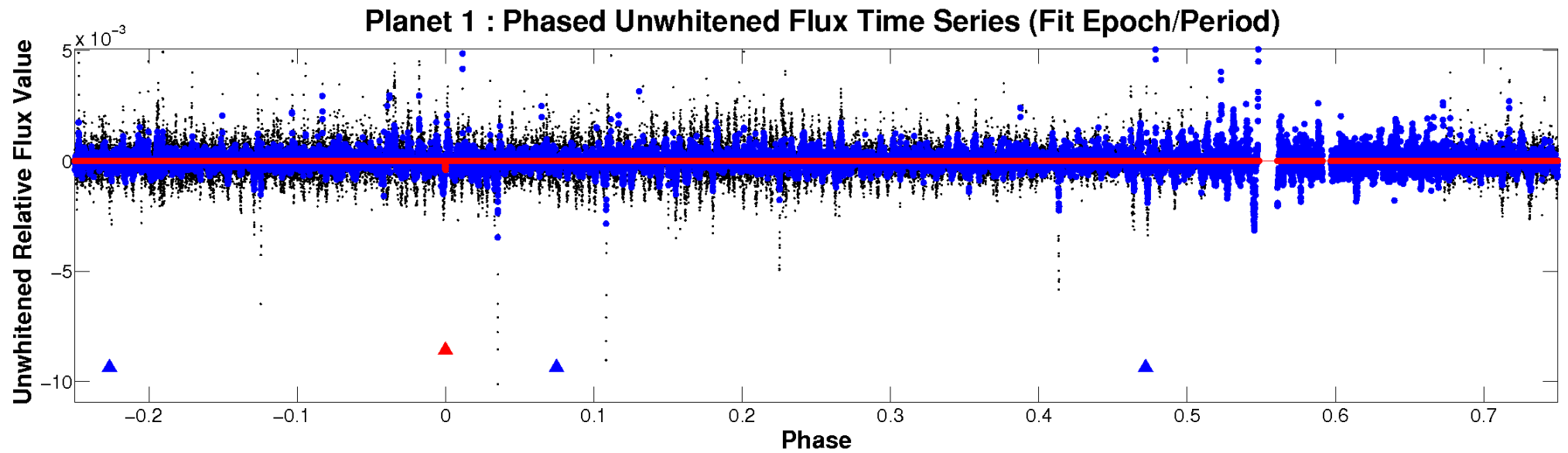


ALT Odd/Even

TCE 003758987-01

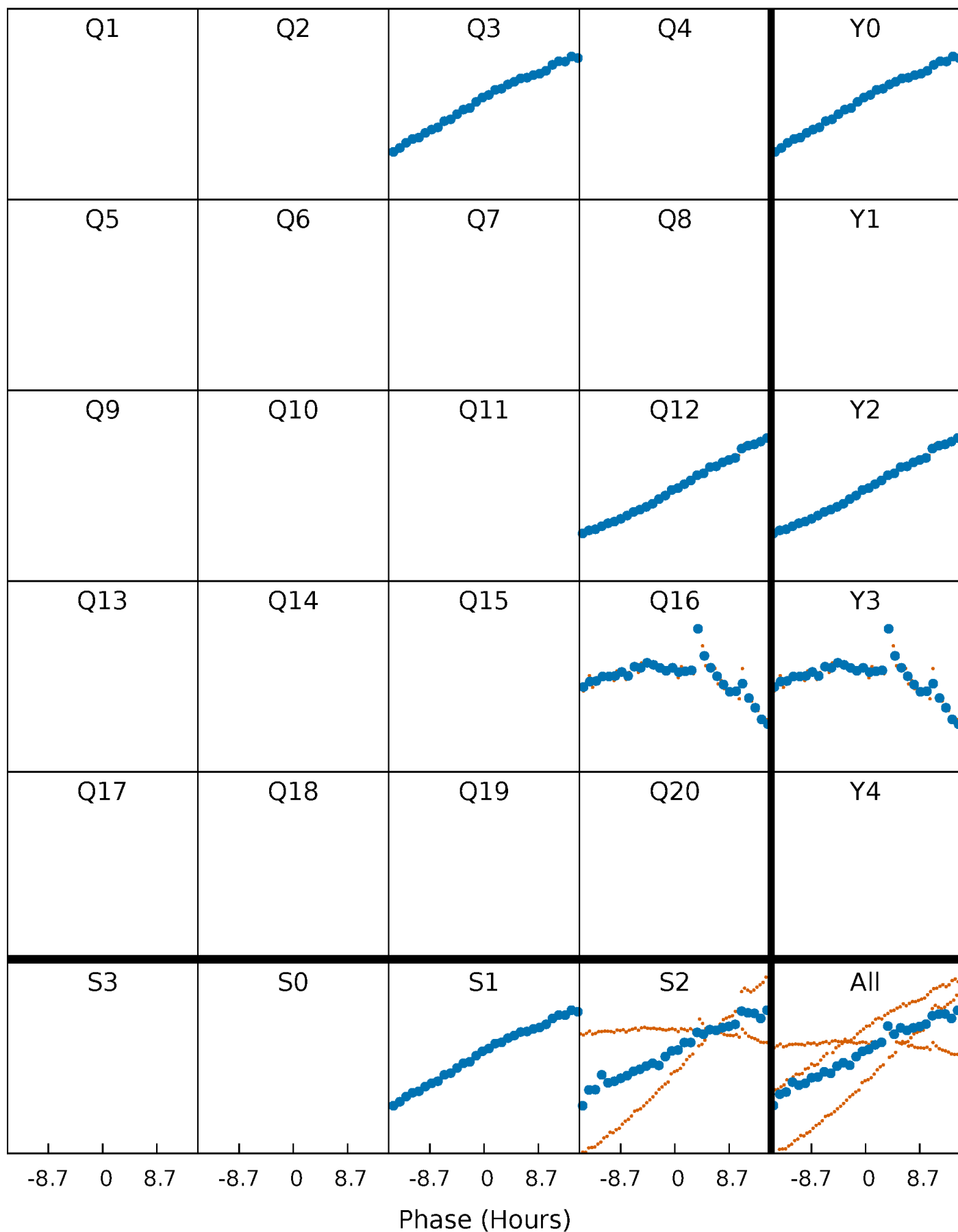


Non-Whitened Vs. Whitened Light Curve



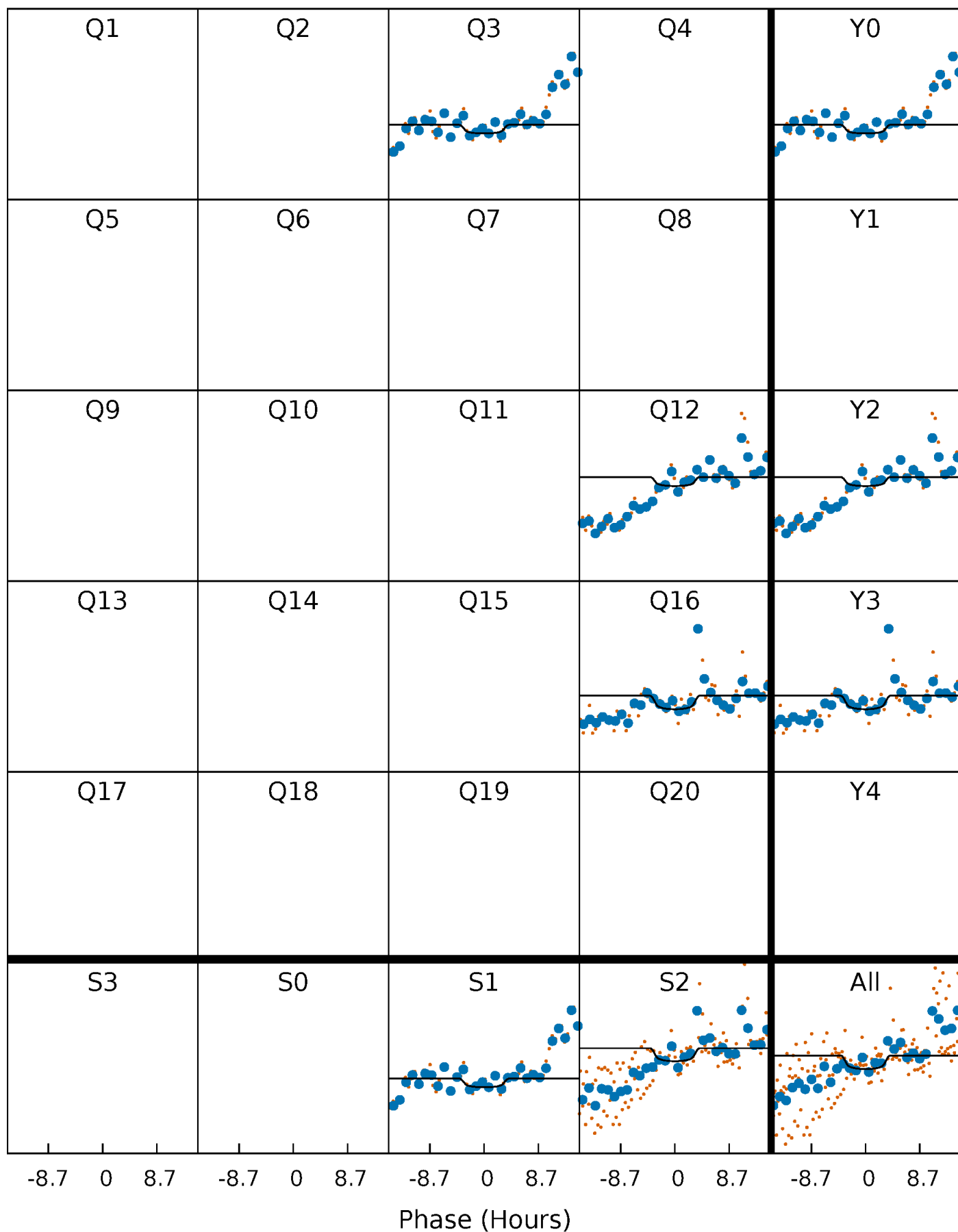
PDC Quarter-Phased Transit Curves

TCE 003758987-01 P=386.740908 Days $T_0=339.579069$ (BKJD)



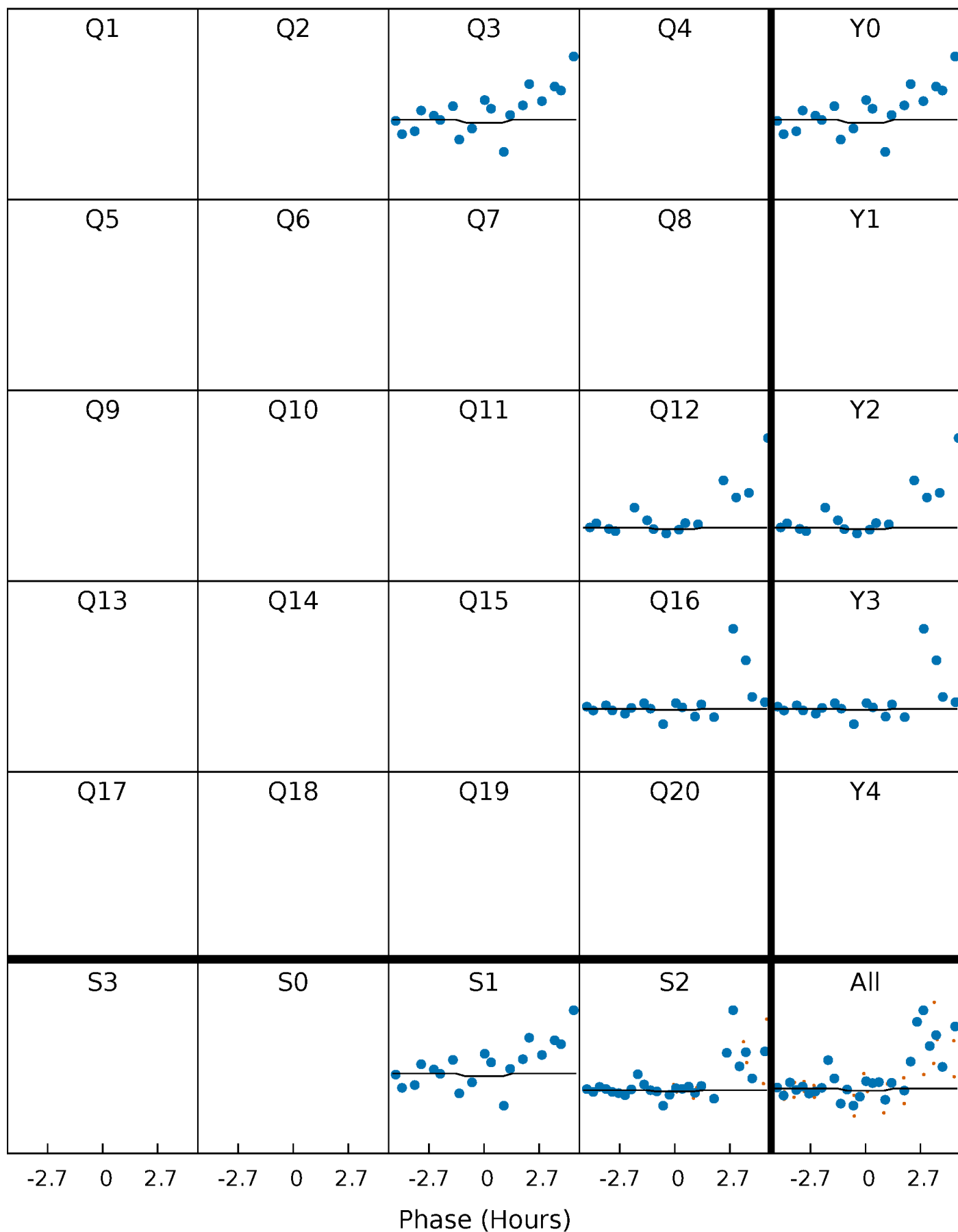
DV Quarter-Phased Transit Curves

TCE 003758987-01 P=386.740908 Days $T_0=339.579069$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

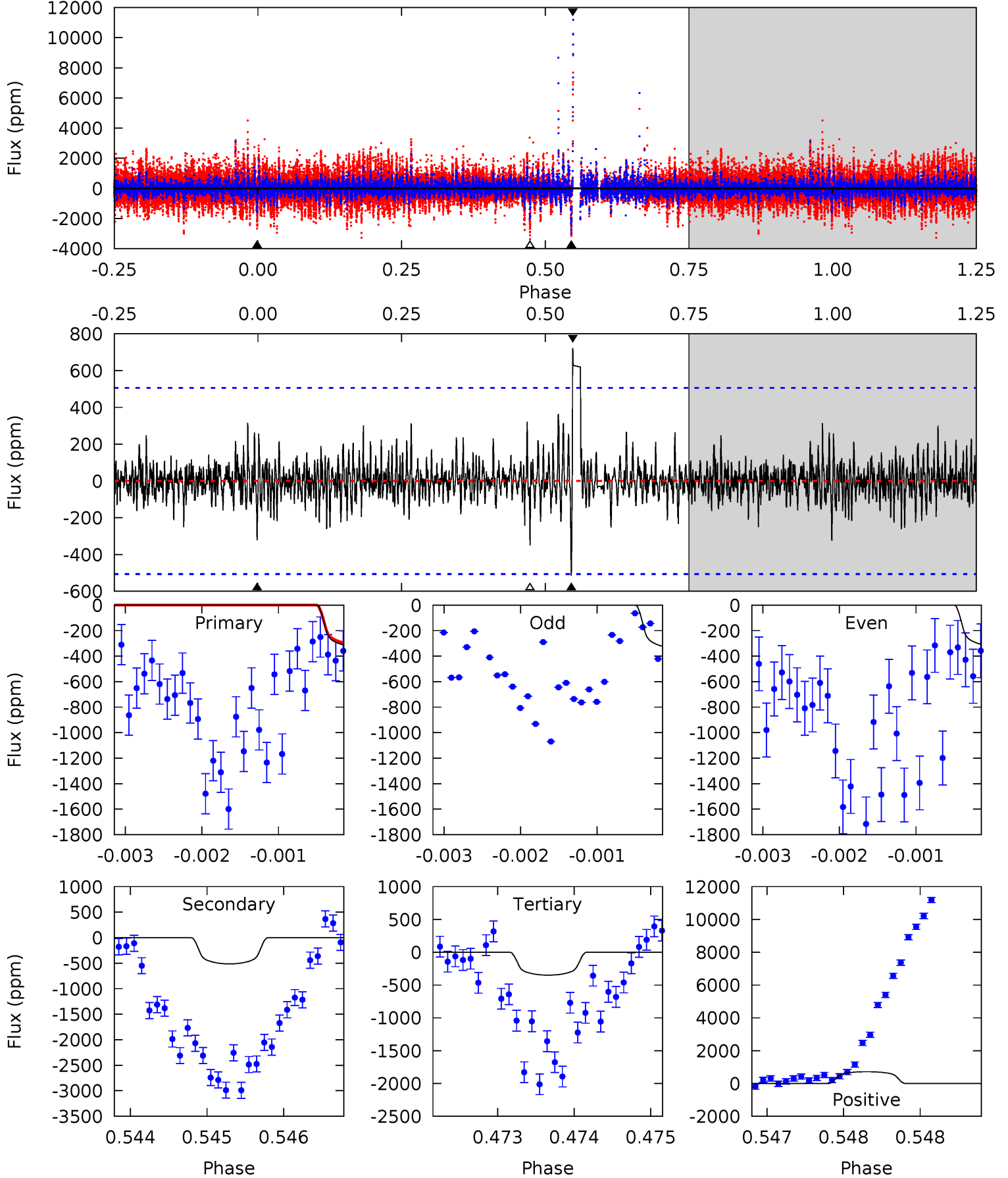
TCE 003758987-01 P=386.732368 Days $T_0=339.650259$ (BKJD)



DV Model-Shift Uniqueness Test

003758987-01, P = 386.740908 Days, E = 339.579069 Days

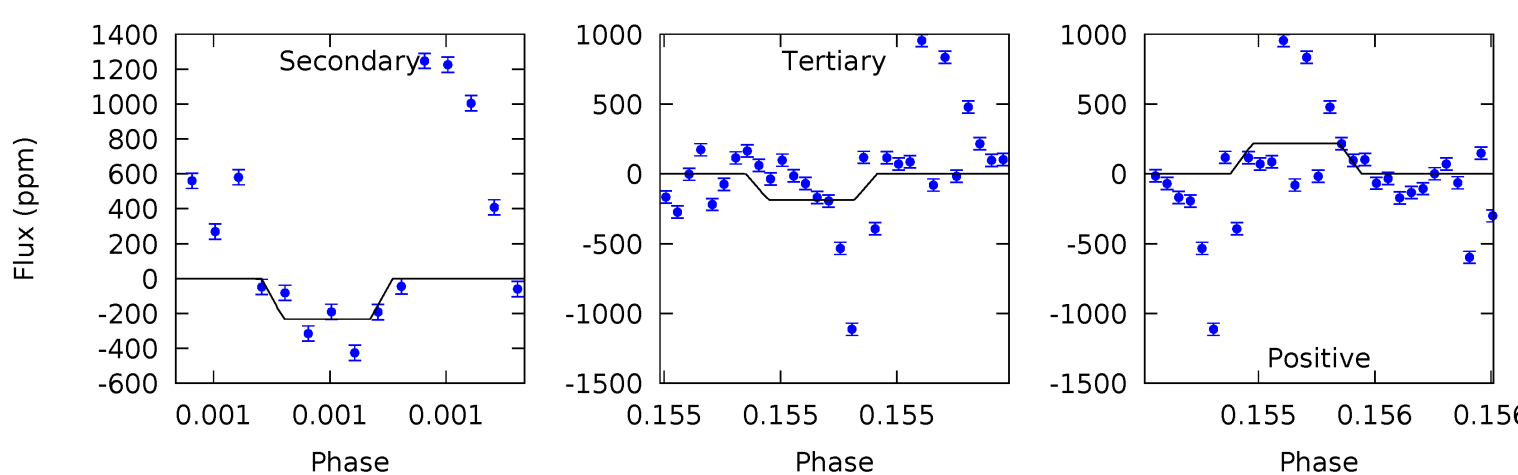
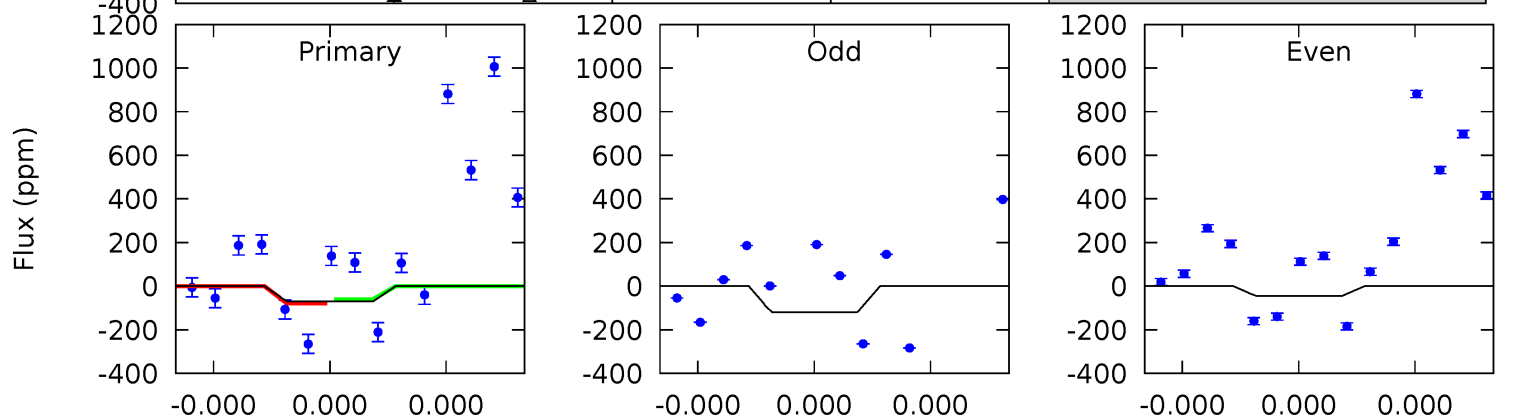
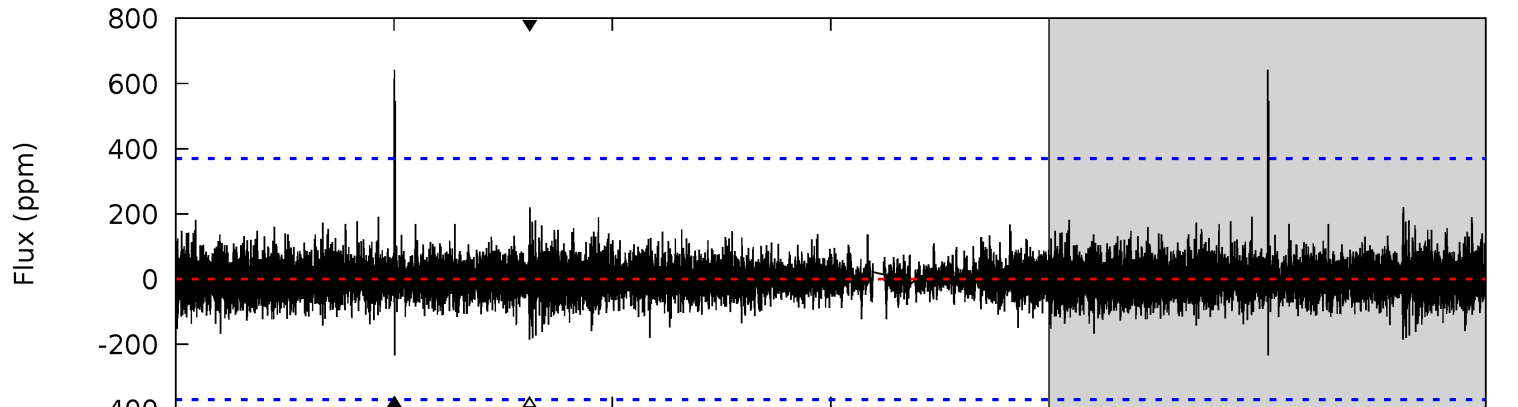
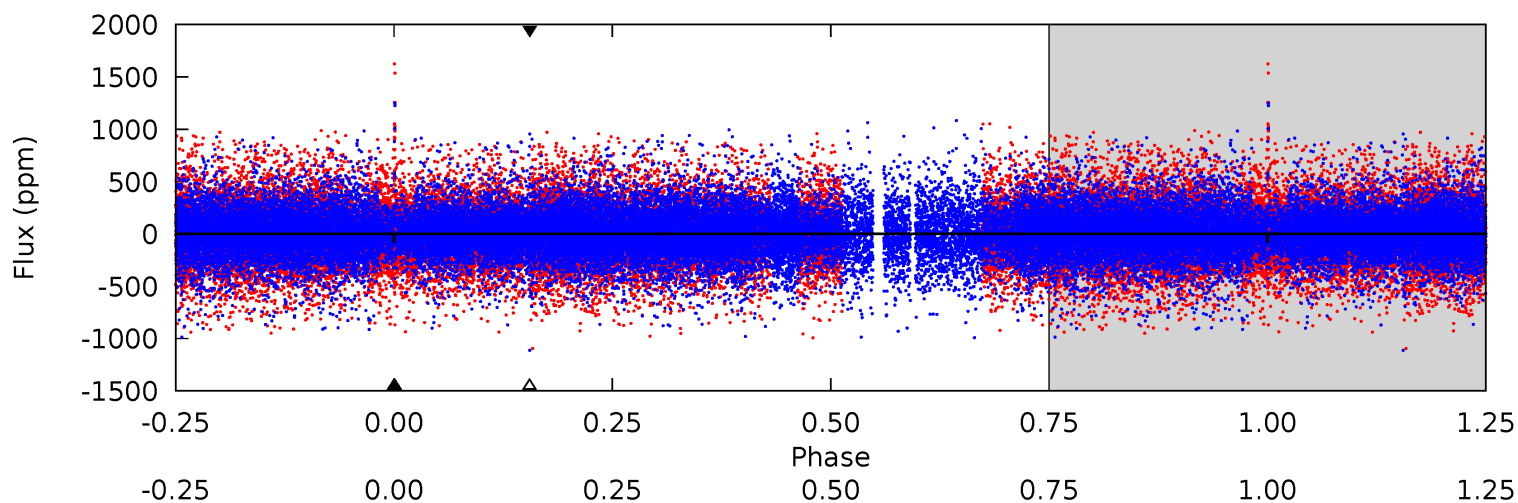
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.49	5.57	3.78	7.77	5.48	3.33	0.87	-0.29	-4.29	1.79	-2.21	0.08	1.00	0.58	0.19



Alt Model-Shift Uniqueness Test

003758987-01, P = 386.732368 Days, E = 339.650259 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.08	3.58	2.85	3.36	5.68	3.65	0.63	-1.77	-2.29	0.73	0.21	0.56	0.94	0.73	0.14



Stellar Parameters For KIC 003758987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4987^{+151}_{-136}	$4.531^{+0.077}_{-0.056}$	$-0.080^{+0.300}_{-0.300}$	$0.773^{+0.072}_{-0.079}$	$0.742^{+0.095}_{-0.055}$	$2.258^{+0.692}_{-0.444}$
	+3%/-3%	+2%/-1%	+375%/-375%	+9%/-10%	+13%/-7%	+31%/-20%
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 003758987-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-514 ± 92	$1.94^{+0.72}_{-0.74}$	278^{+12}_{-11}	4958^{+1265}_{-600}	$68436^{+116955}_{-33375}$
Alt.	-233 ± 65	$0.75^{+0.67}_{-0.51}$	278^{+11}_{-10}	6413^{+7027}_{-1641}	$197844^{+1570127}_{-143507}$

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

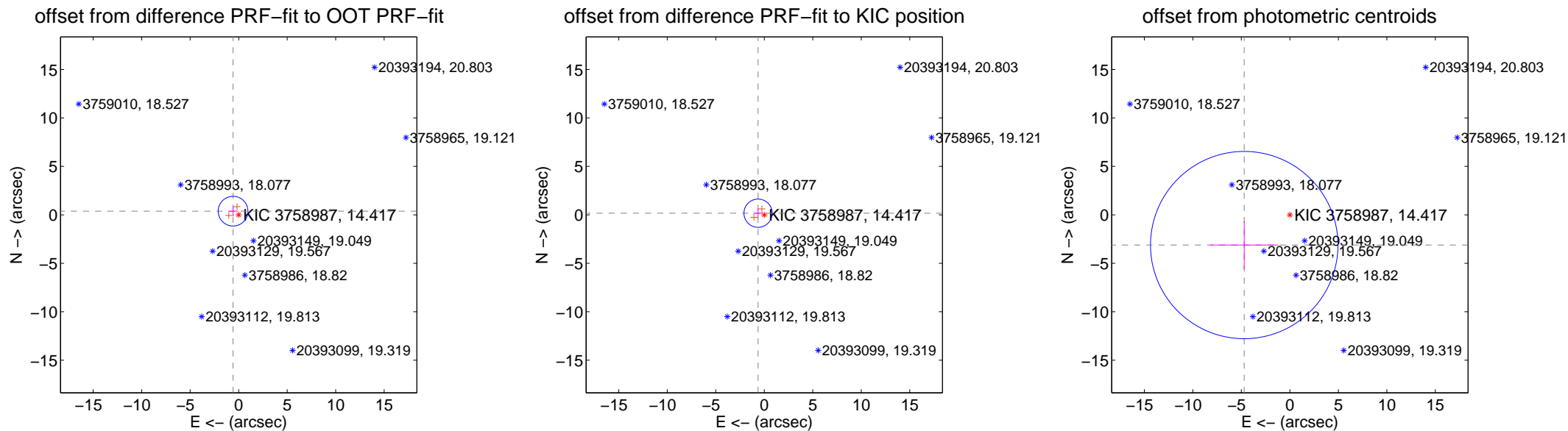
DV Centroid Data

Supplemental centroid analysis for 003758987-01. Kepler magnitude: 14.42. Transit SNR 2.49

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.690 ± 0.511	1.35	0.577 ± 0.499	0.378 ± 0.538
PRF-fit source offset from KIC position	0.660 ± 0.486	1.36	0.638 ± 0.484	0.169 ± 0.513
photometric centroid source offset	5.64 ± 3.22	1.75	4.70 ± 3.50	-3.12 ± 2.48



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q1 no difference image



Q1 no OOT image



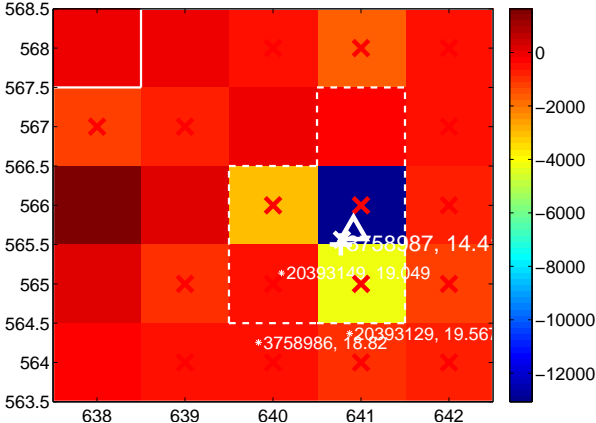
Q2 no difference image



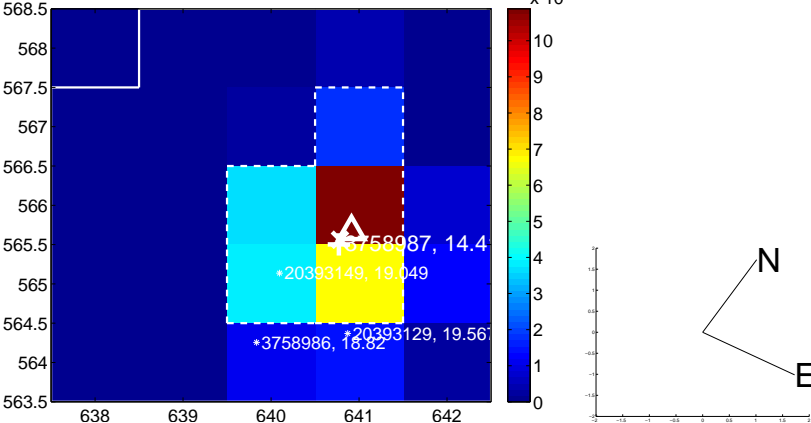
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



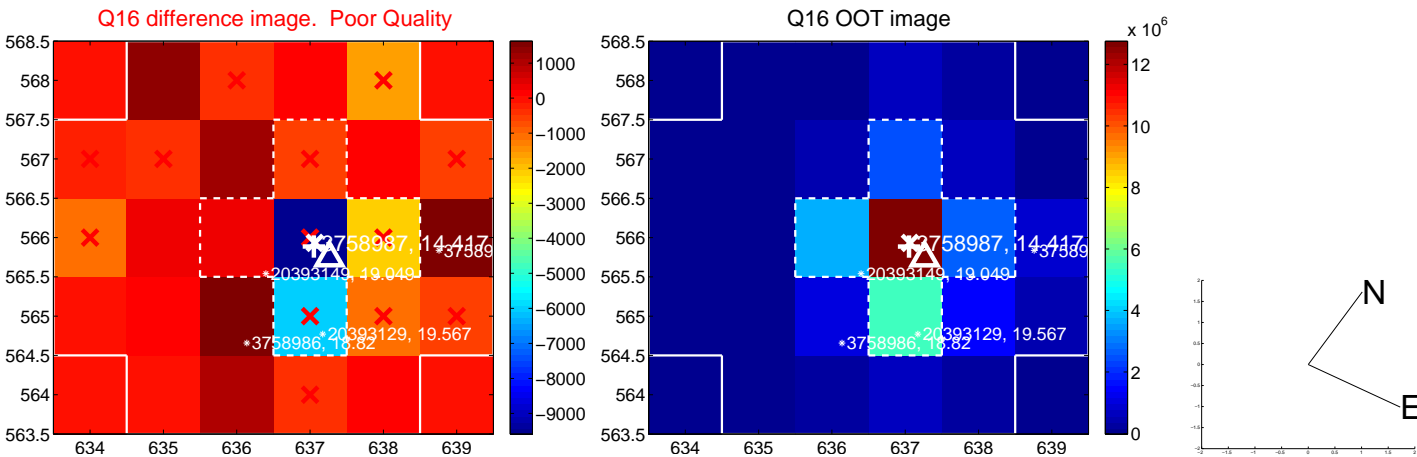
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



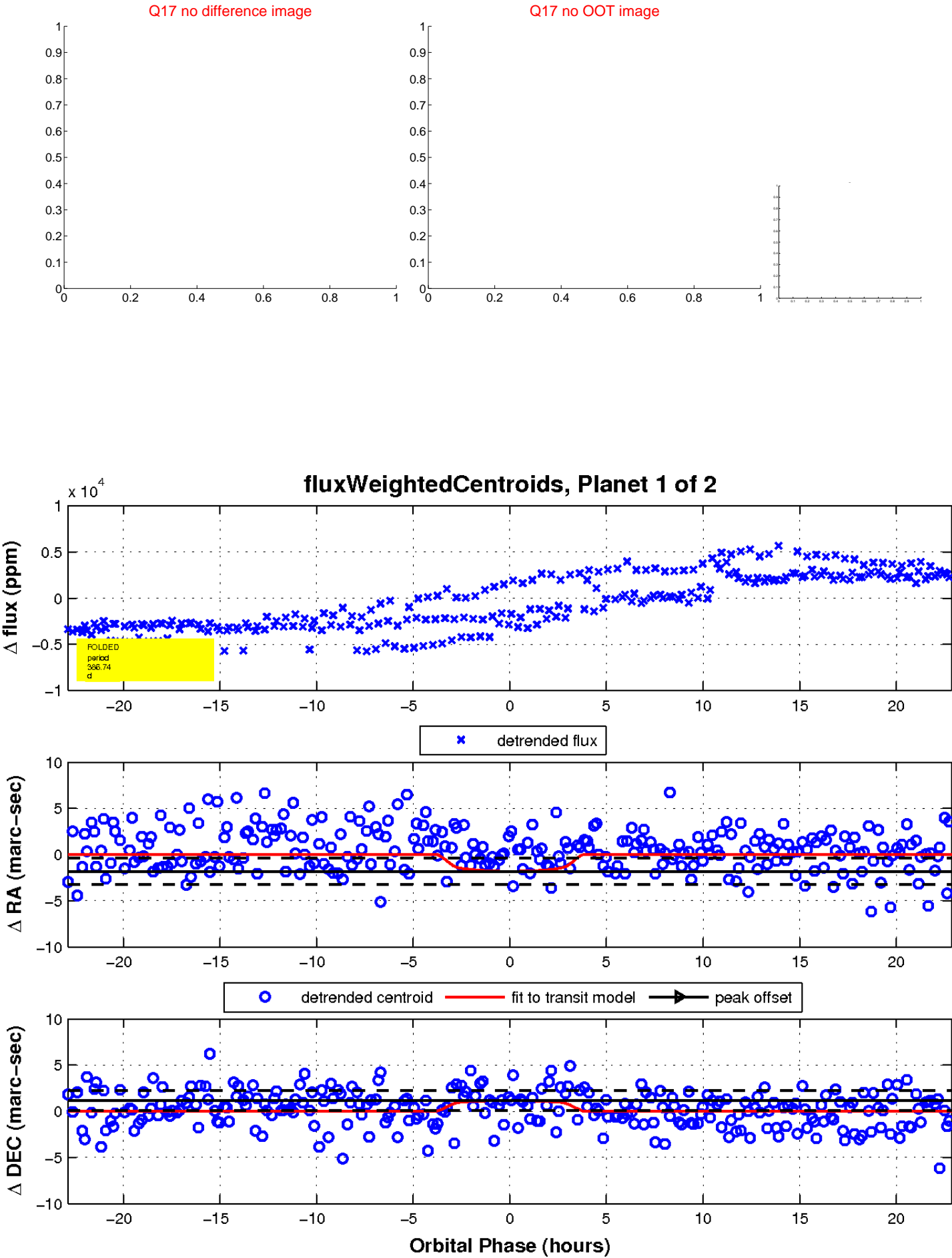
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

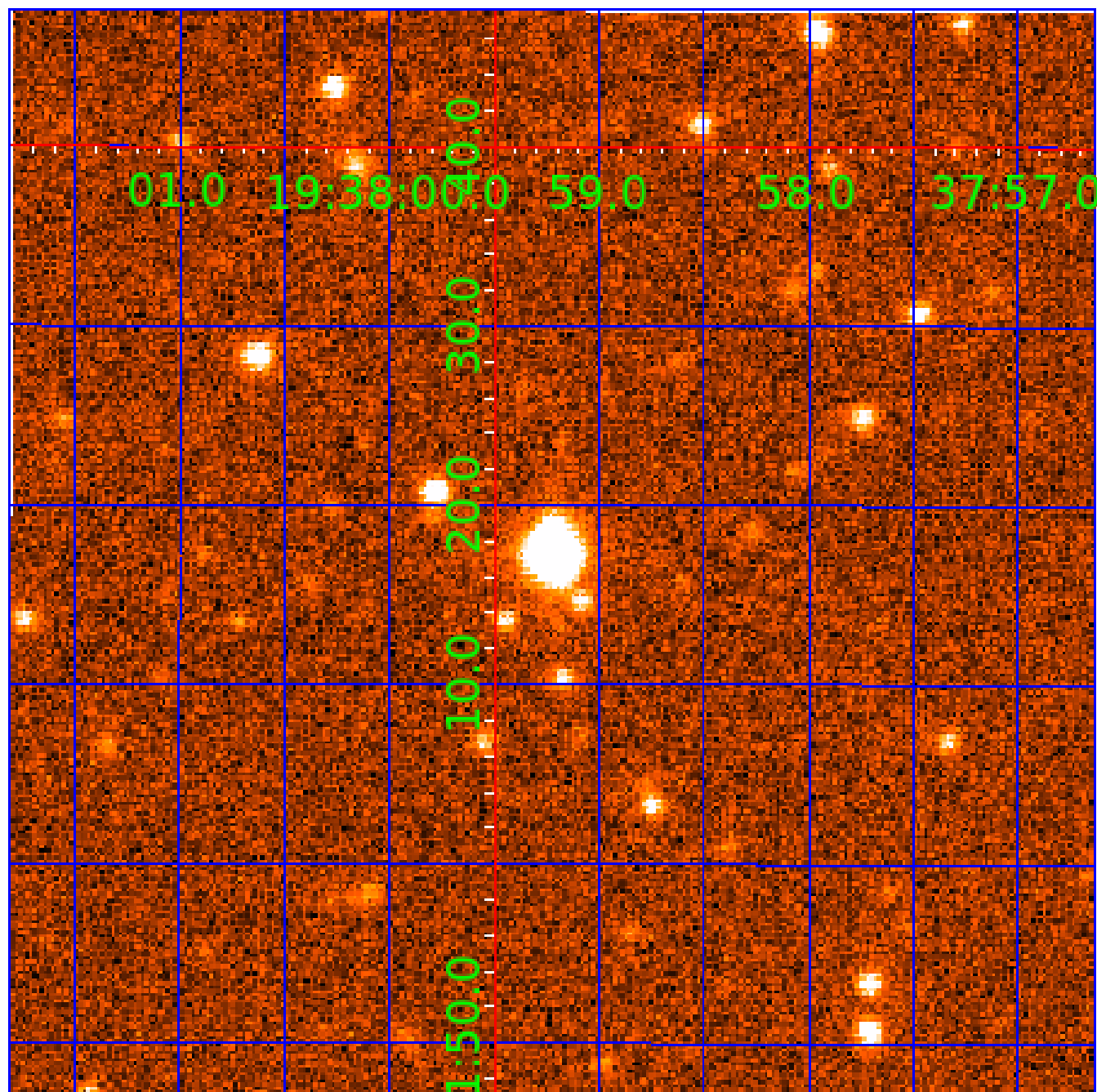


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003758987

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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003758987-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS

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

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

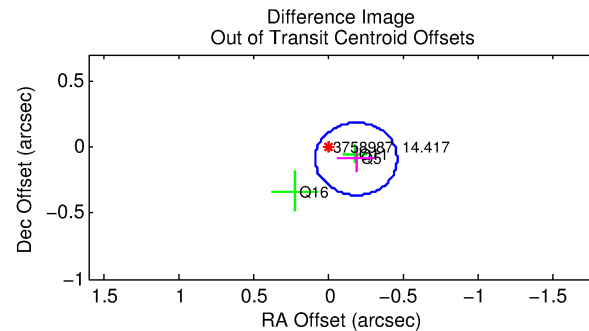
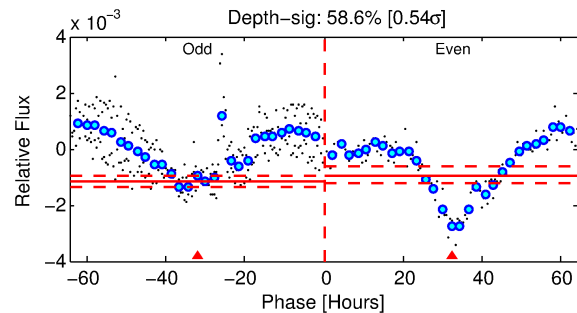
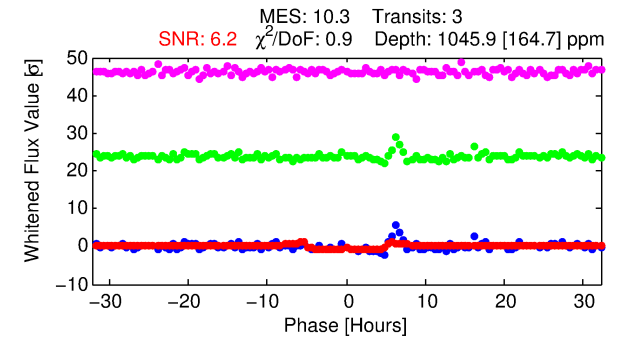
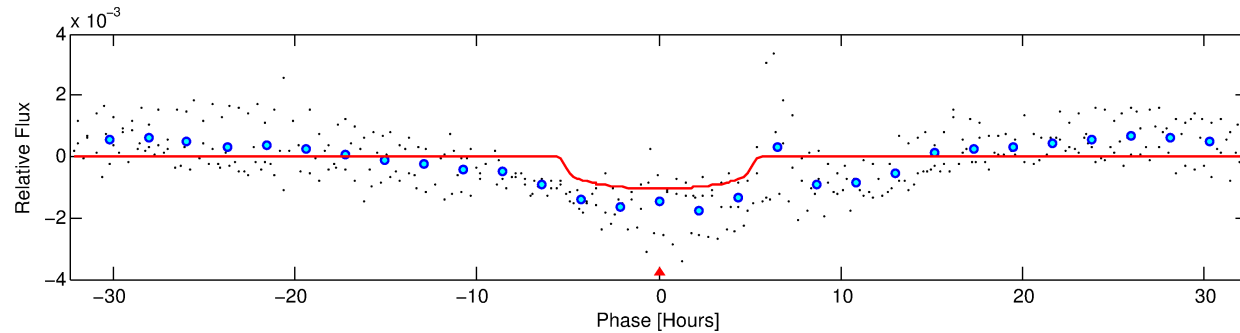
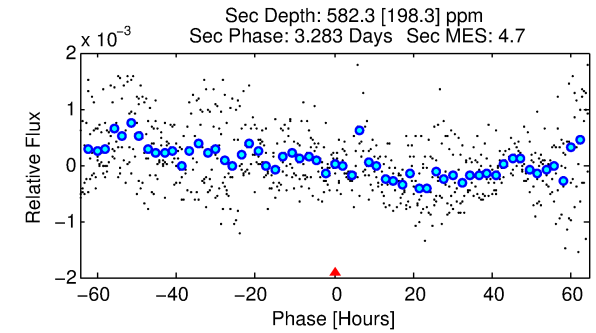
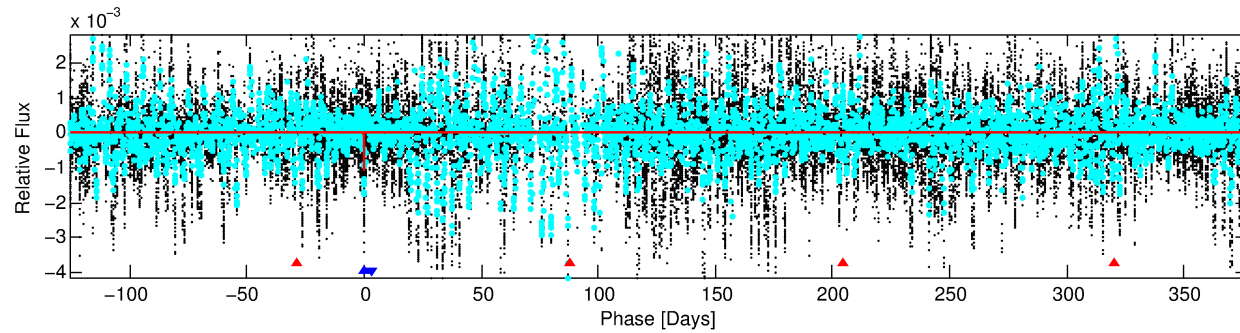
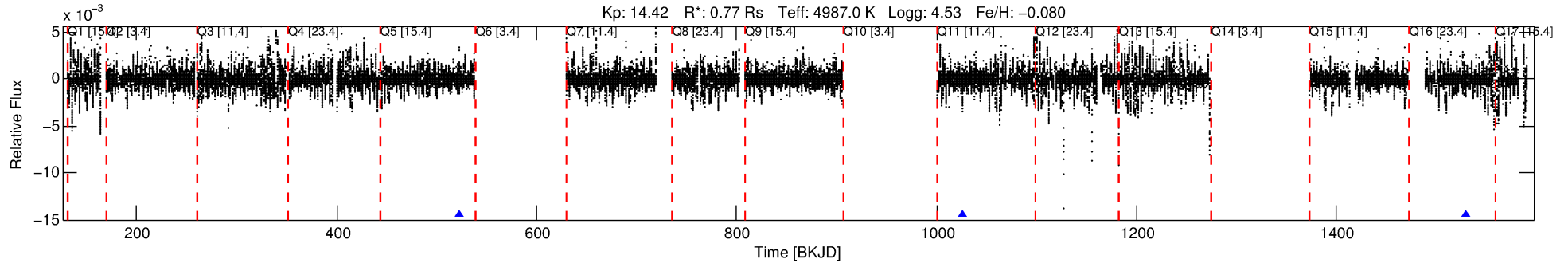
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003758987-02

No Significant Match Found

DV One-Page Summary

KIC: 3758987 Candidate: 2 of 2 Period: 503.307 d



DV Fit Results:

Period = 503.30746 [0.00823] d
Epoch = 522.1436 [0.0103] BKJD
Rp/R* = 0.0298 [0.0127]
a/R* = 323.06 [450.88]
b = 0.49 [2.20]
Seff = 0.26 [0.05]
Teff = 183 [8] K
Rp = 2.52 [1.10] Re
a = 1.1204 [0.1011] AU
Ag = 63552.38 [58790.80] [1.08 σ]
Teffp = 4486 [1035] K [4.16 σ]

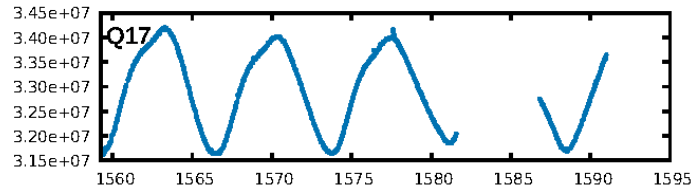
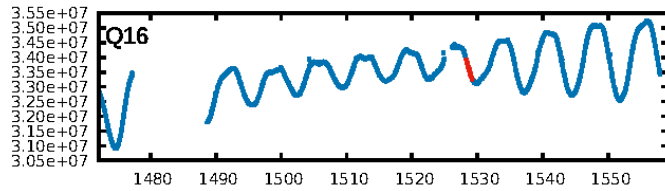
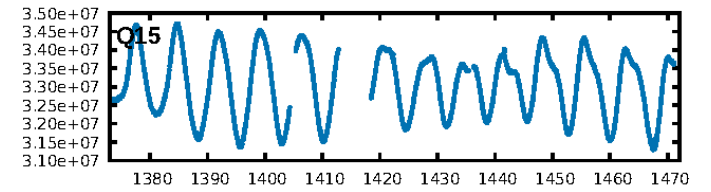
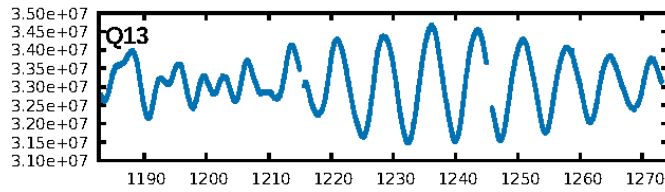
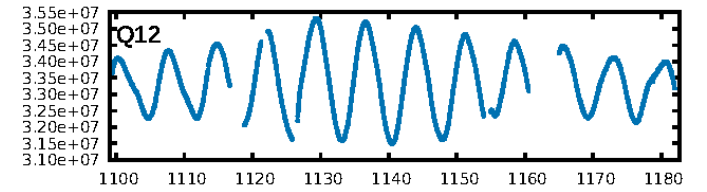
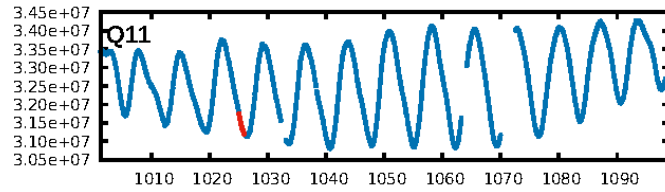
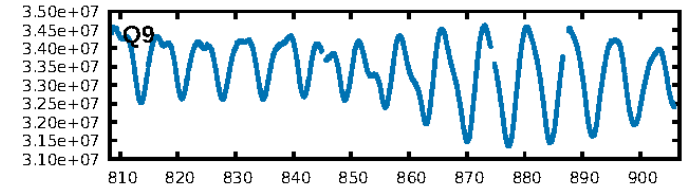
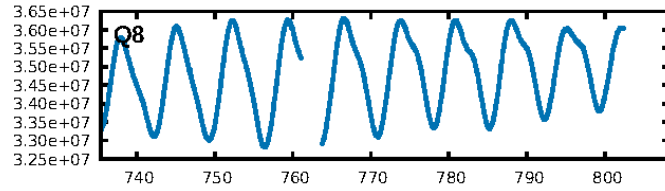
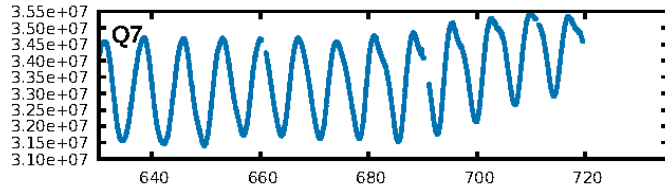
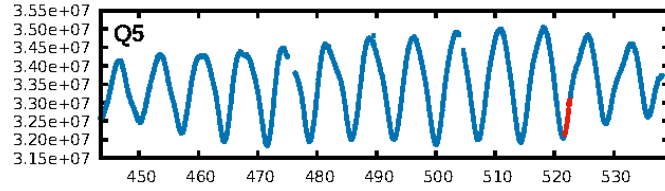
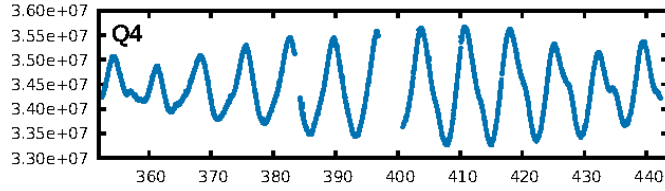
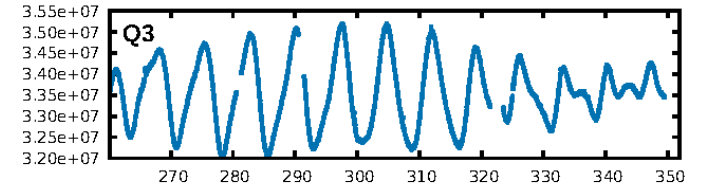
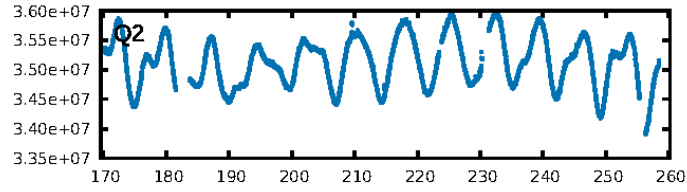
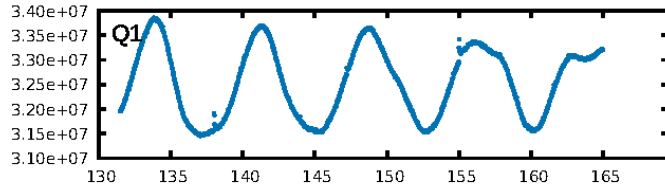
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [211.55 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 91.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.65e-07
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.3539
Centroid-sig: 37.2%
Centroid-so: 1.107 arcsec [0.85 σ]
OotOffset-rm: 0.211 arcsec [2.31 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-rm: 0.380 arcsec [4.27 σ]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

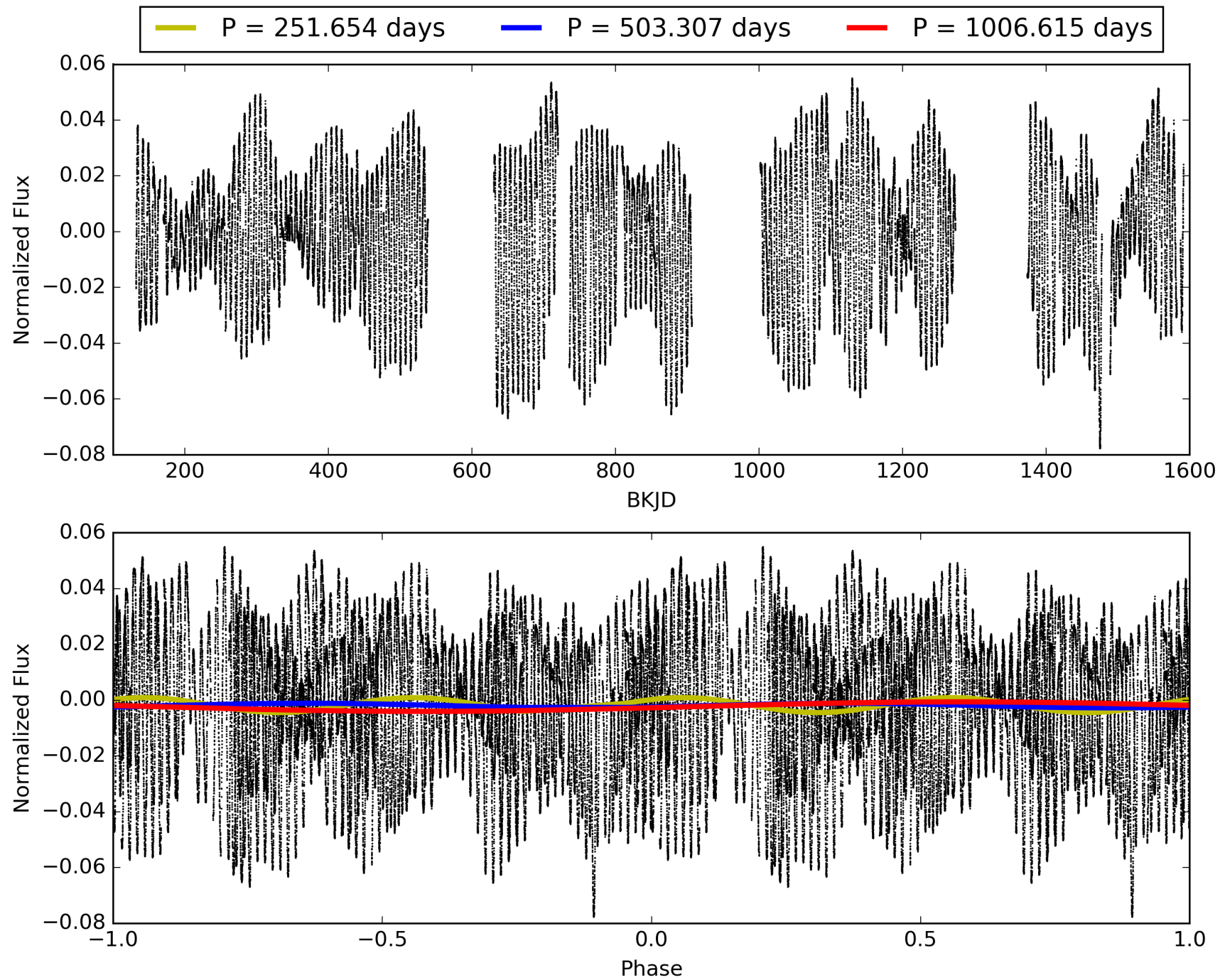
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:55:25 Z

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

TCE 003758987-02, PDC Light Curves

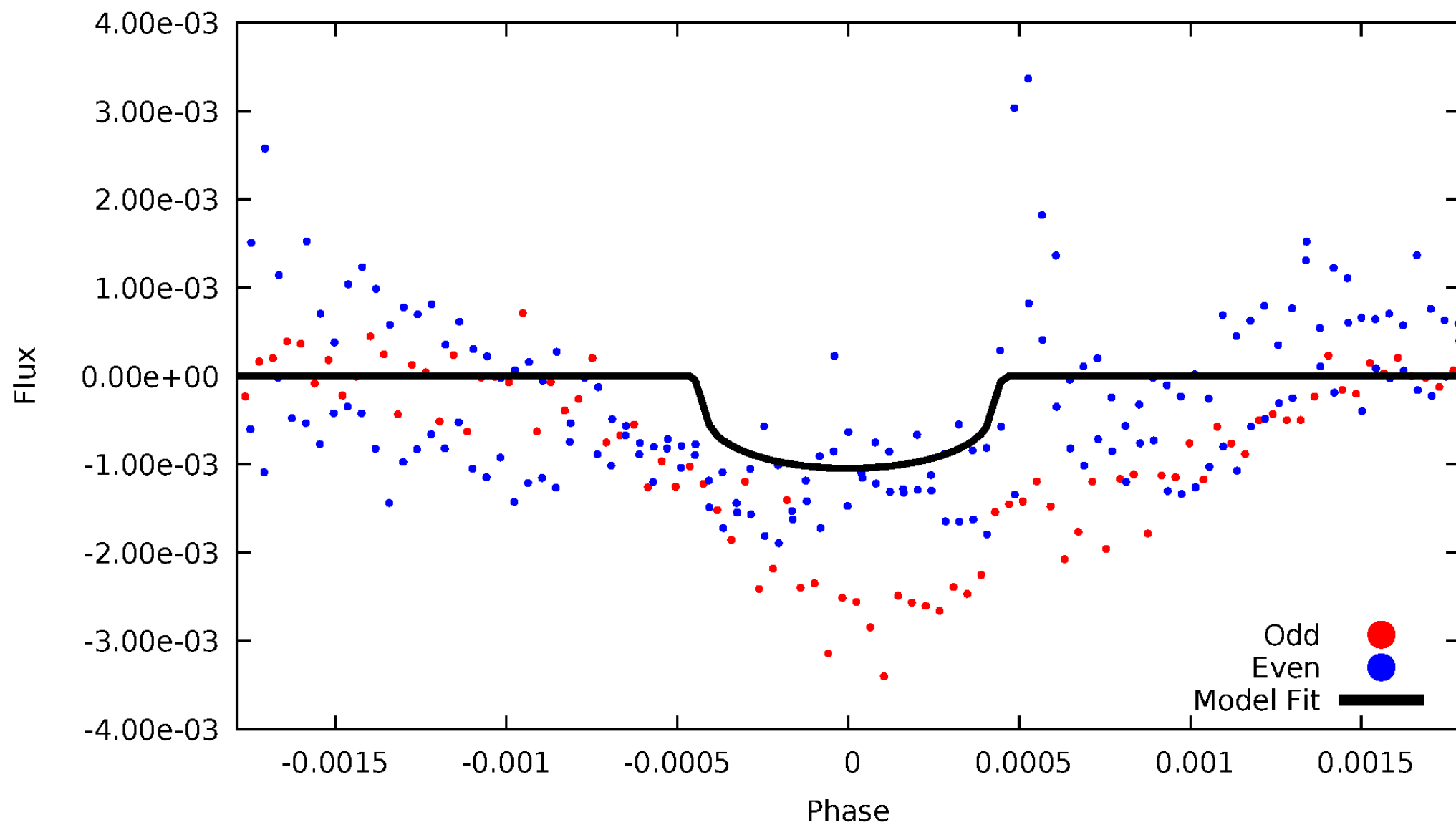


TCE 003758987-02



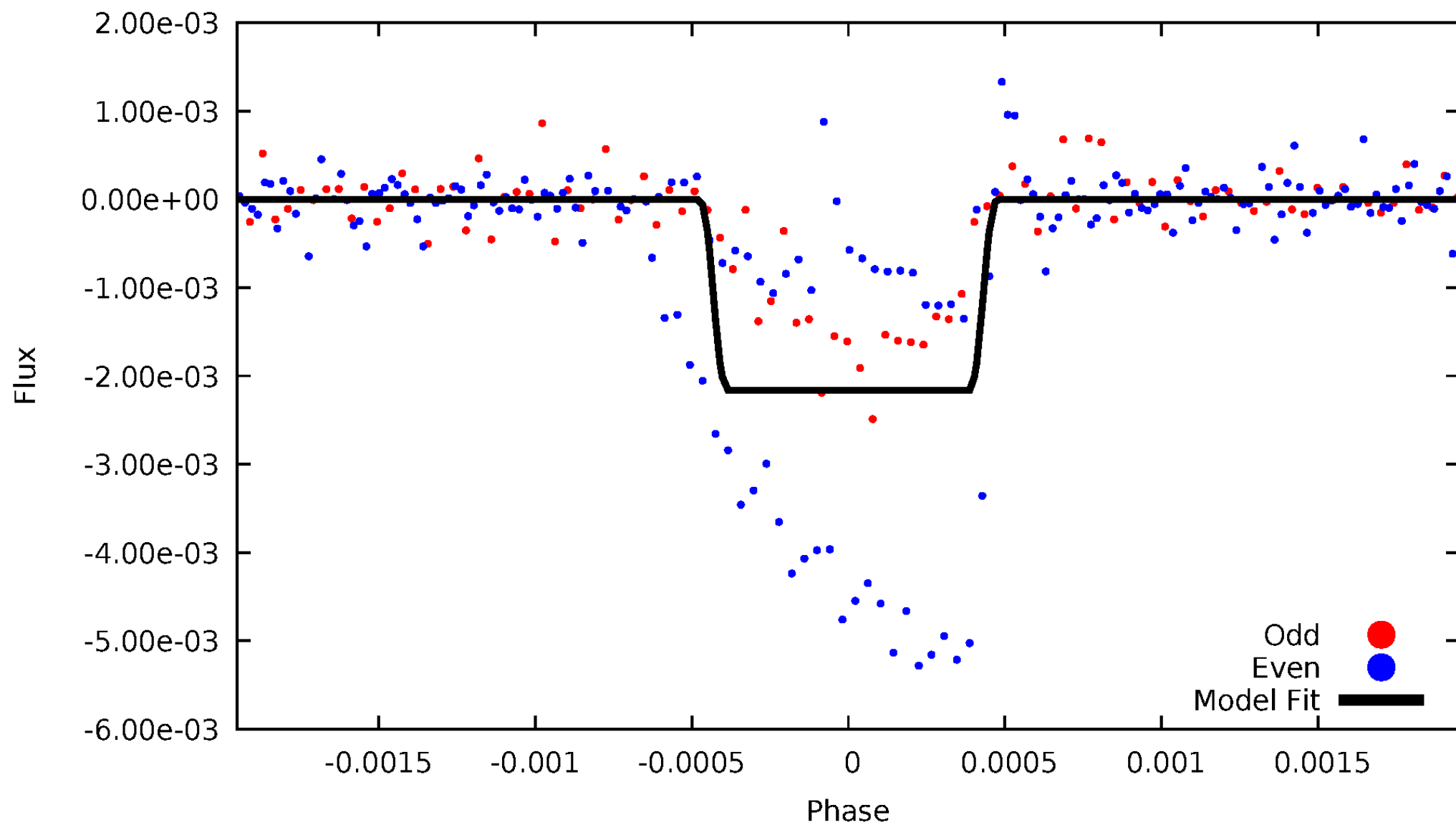
DV Odd/Even

TCE 003758987-02



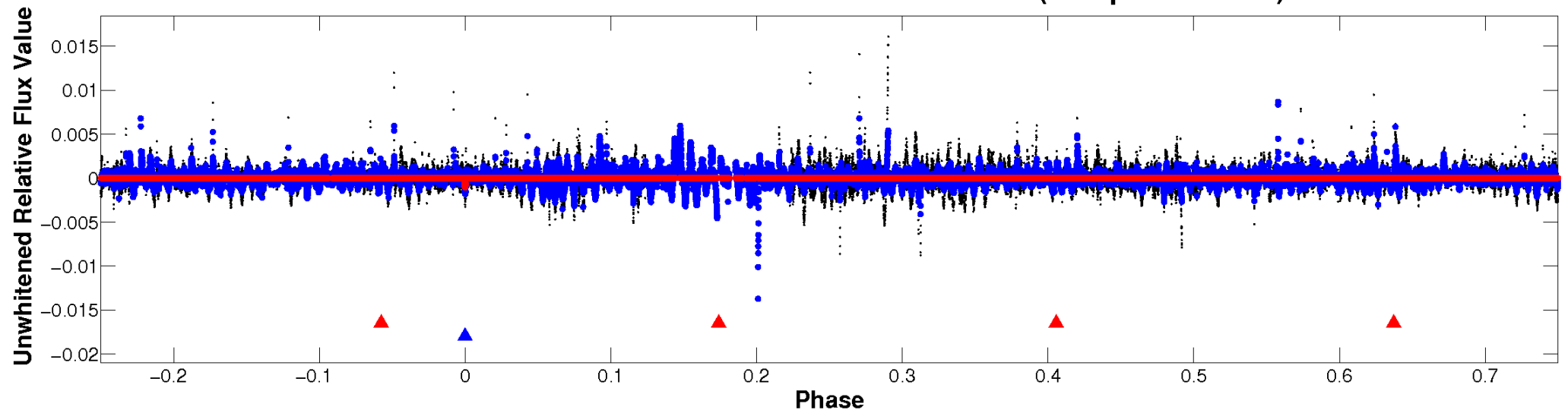
ALT Odd/Even

TCE 003758987-02

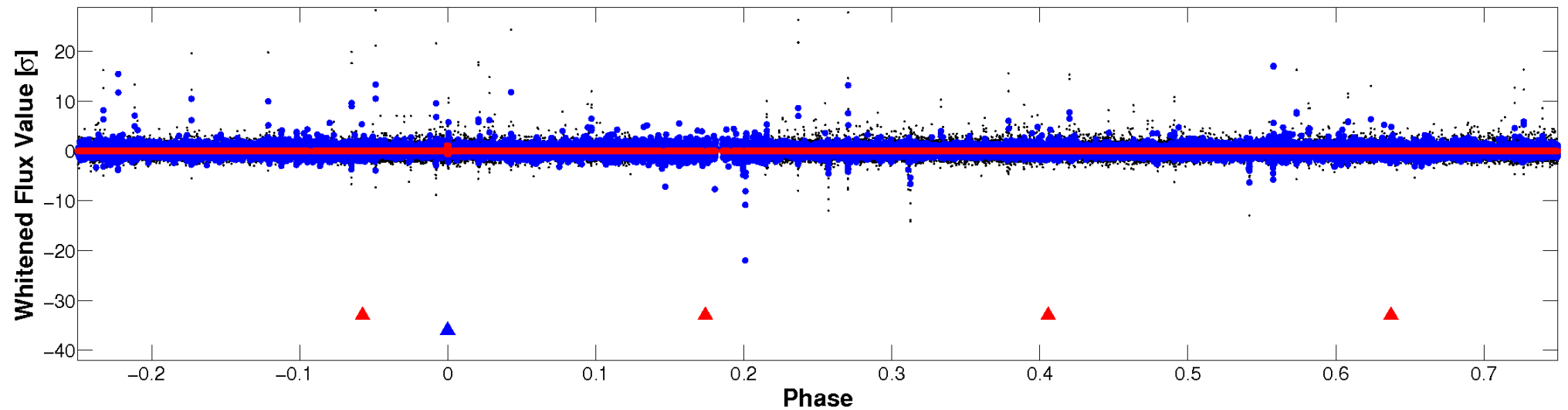


Non-Whitened Vs. Whitened Light Curve

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

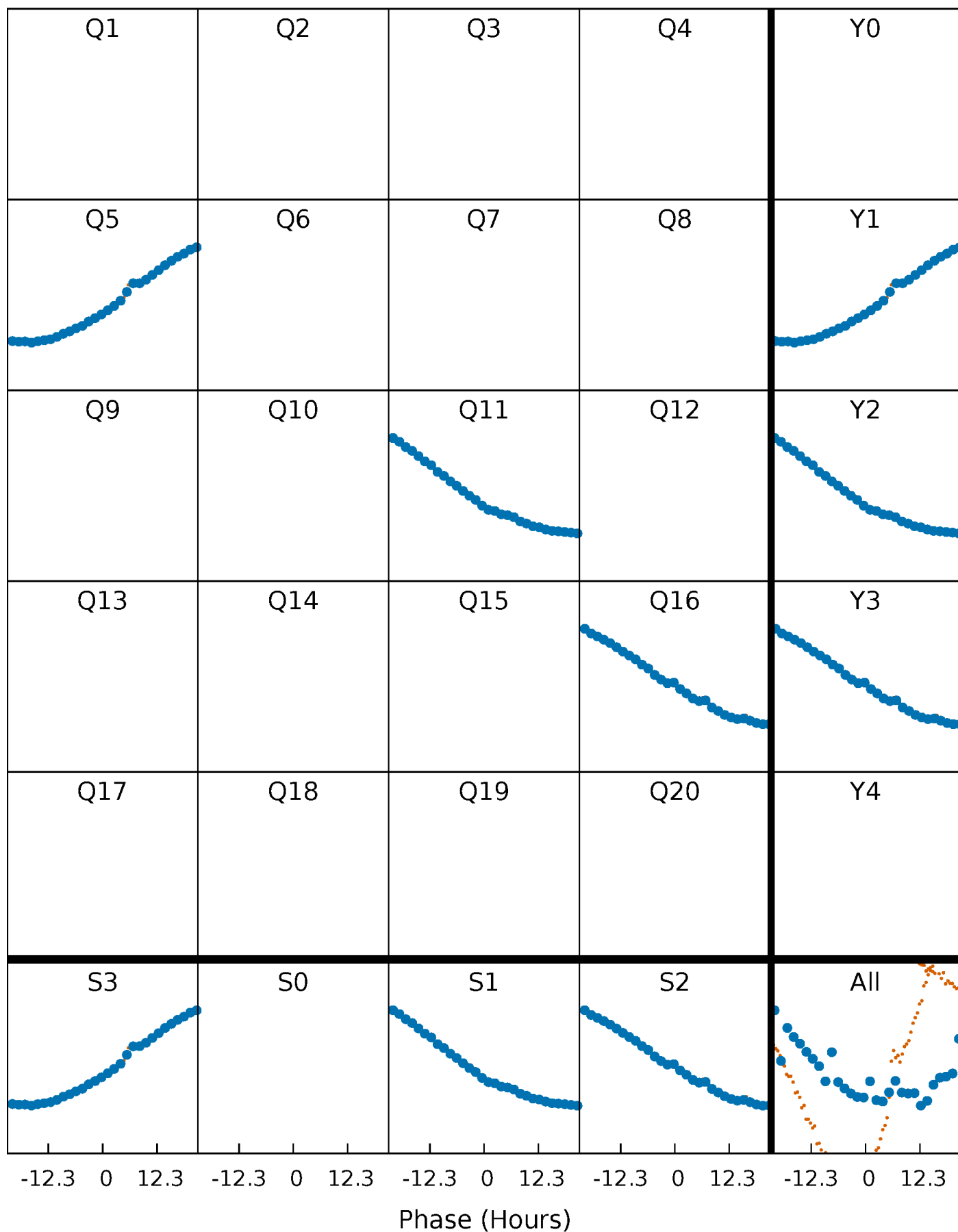


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



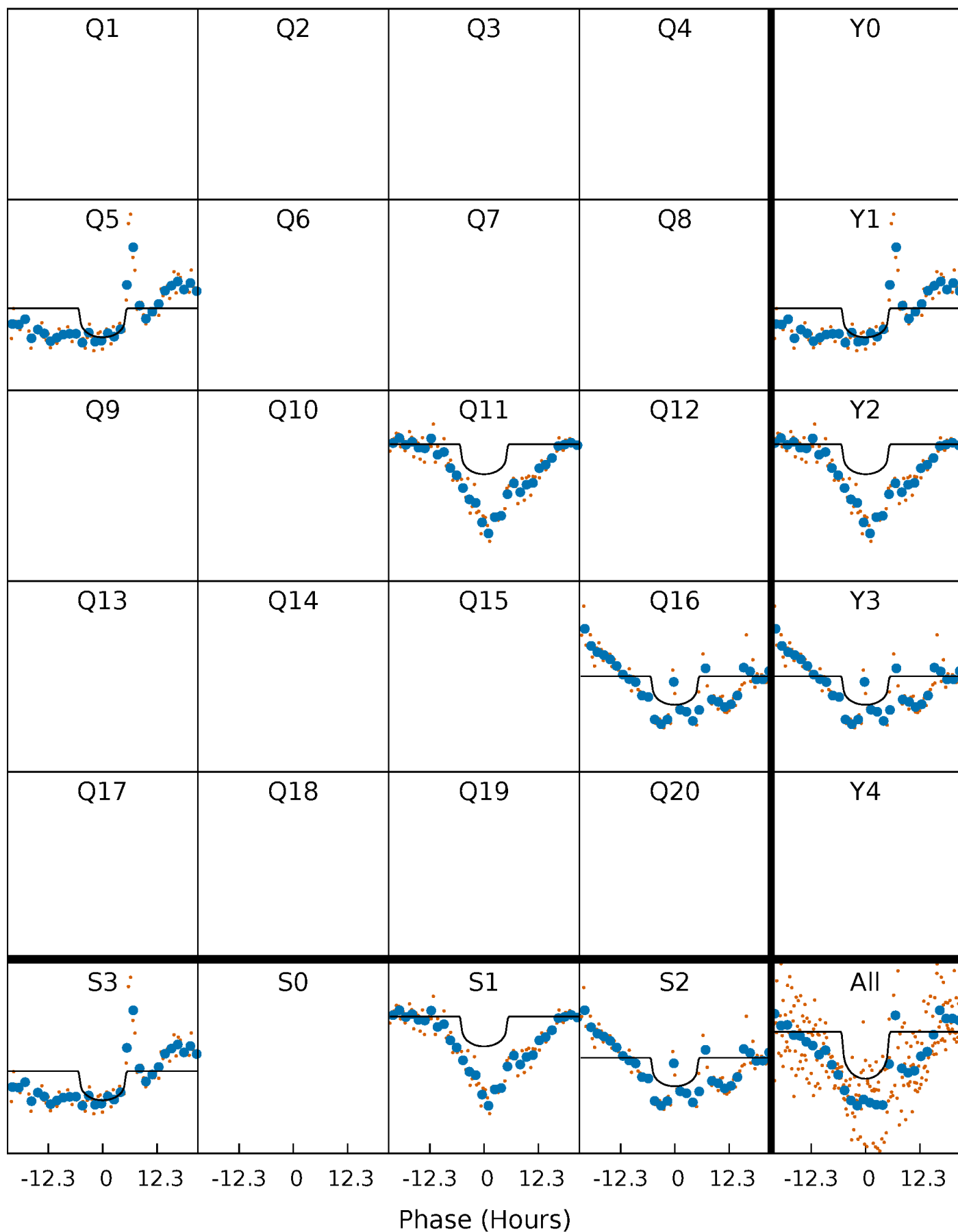
PDC Quarter-Phased Transit Curves

TCE 003758987-02 P=503.307459 Days $T_0=522.143552$ (BKJD)



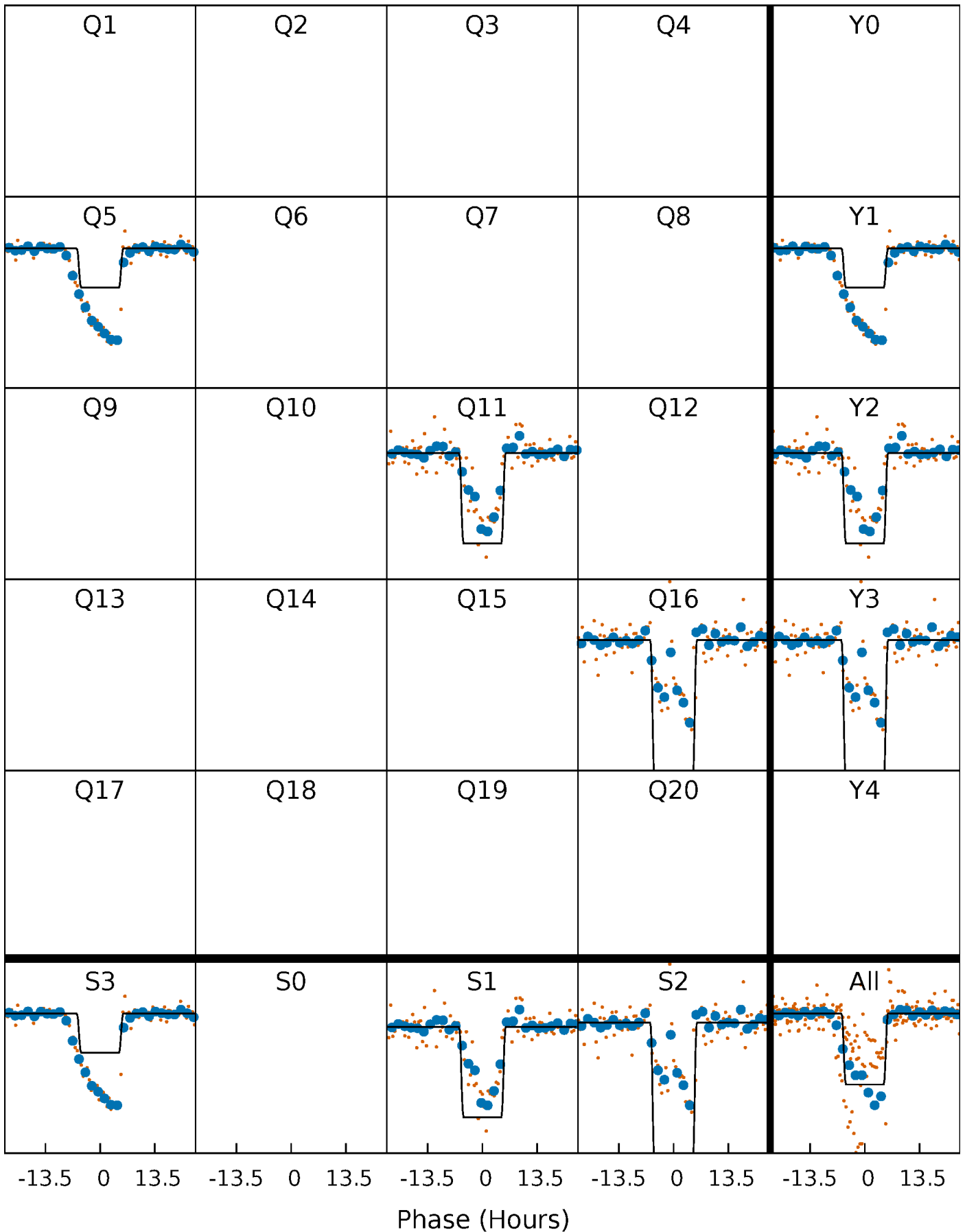
DV Quarter-Phased Transit Curves

TCE 003758987-02 $P=503.307459$ Days $T_0=522.143552$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

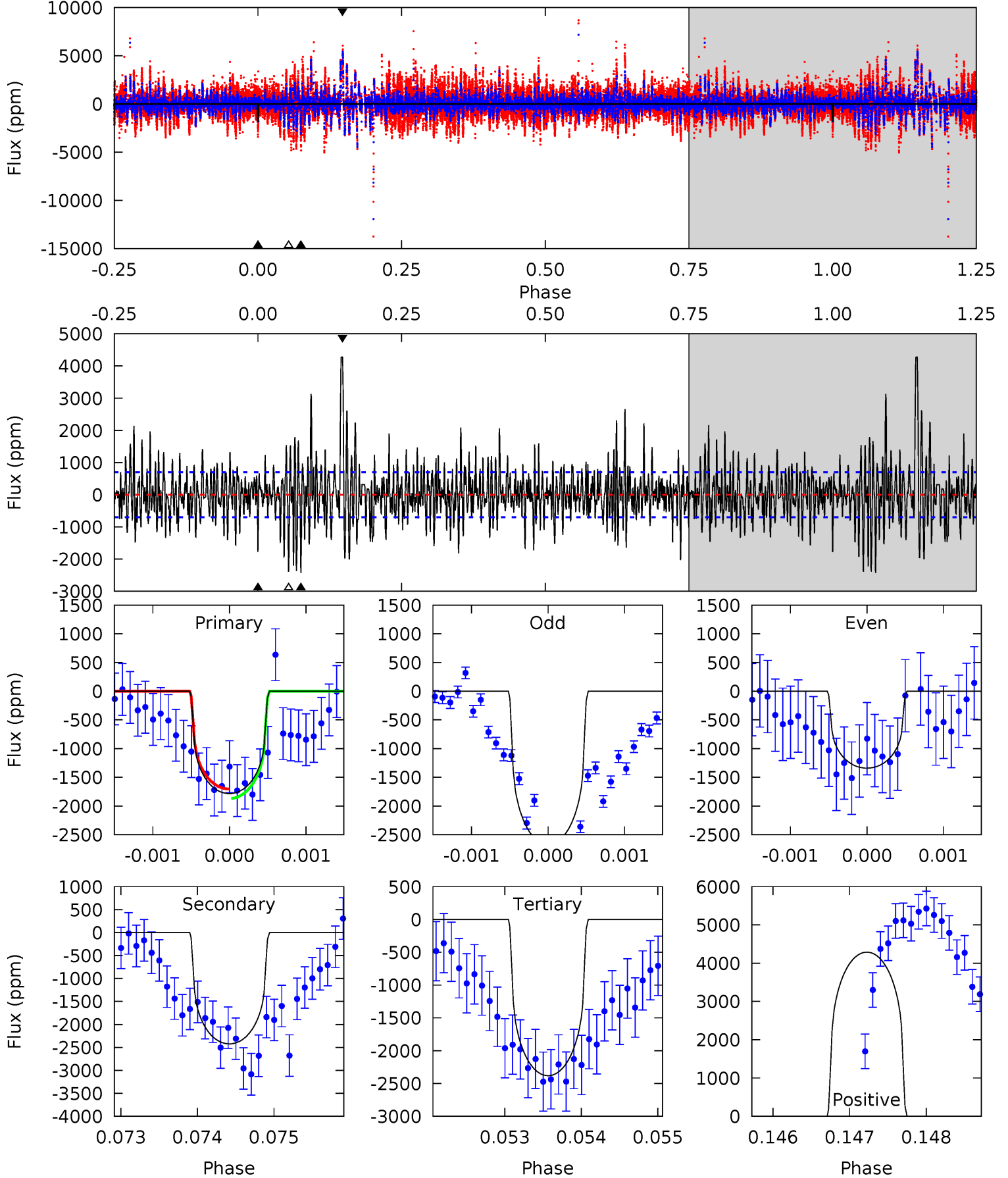
TCE 003758987-02 P=503.312639 Days $T_0=522.151763$ (BKJD)



DV Model-Shift Uniqueness Test

003758987-02, P = 503.307459 Days, E = 18.836093 Days

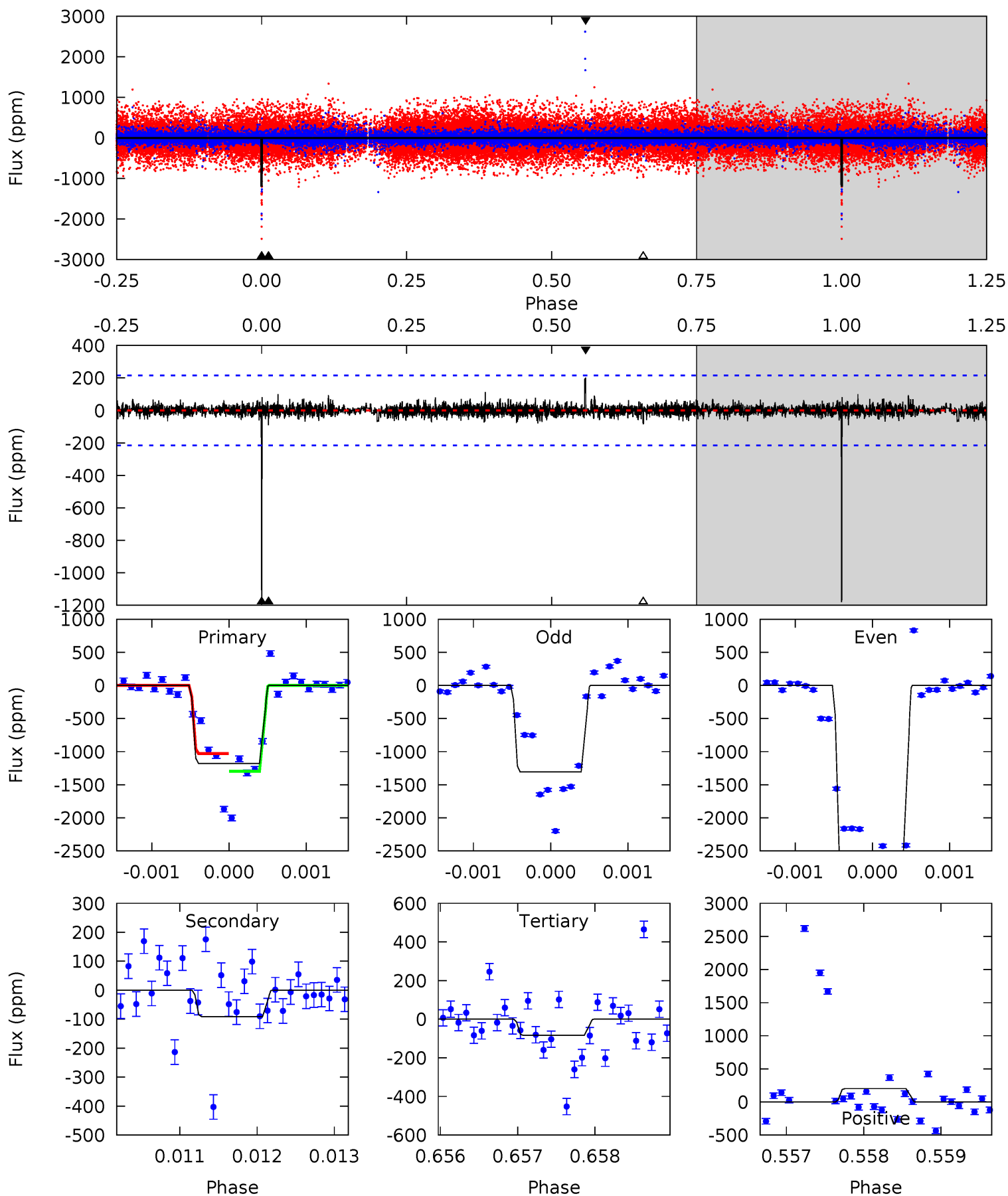
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	19.0	18.6	33.6	5.47	3.32	5.09	-4.67	-19.6	0.33	-14.6	4.56	1.15	0.64	0.65



Alt Model-Shift Uniqueness Test

003758987-02, P = 503.312639 Days, E = 18.839124 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	2.31	2.13	5.13	5.46	3.31	0.51	27.8	24.8	0.19	-2.82	21.5	1.63	0.15	3.46



Stellar Parameters For KIC 003758987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4987^{+151}_{-136}	$4.531^{+0.077}_{-0.056}$	$-0.080^{+0.300}_{-0.300}$	$0.773^{+0.072}_{-0.079}$	$0.742^{+0.095}_{-0.055}$	$2.258^{+0.692}_{-0.444}$
	+3%/-3%	+2%/-1%	+375%/-375%	+9%/-10%	+13%/-7%	+31%/-20%
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 003758987-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2423 ± 128	$2.41^{+1.12}_{-0.98}$	255^{+10}_{-9}	6441^{+2394}_{-1076}	$295378^{+512524}_{-159294}$
Alt.	-91 ± 39	$3.95^{+1.12}_{-1.10}$	255^{+9}_{-10}	2917^{+291}_{-256}	4130^{+3882}_{-2054}

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

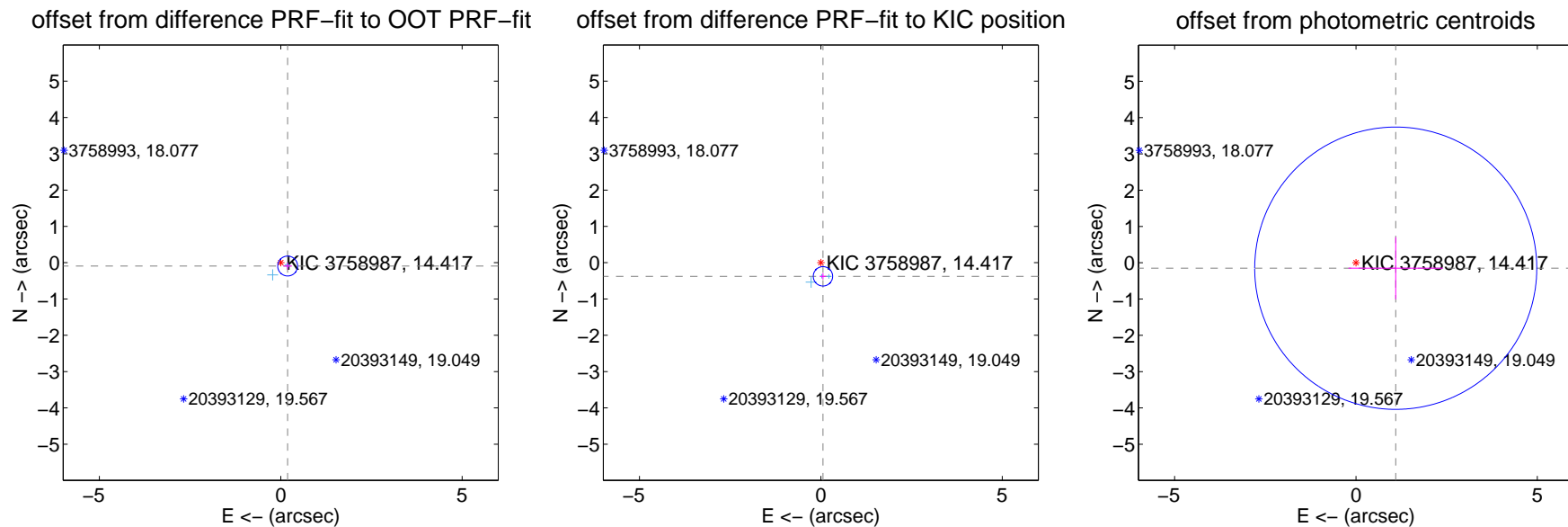
DV Centroid Data

Supplemental centroid analysis for 003758987-02. Kepler magnitude: 14.42. Transit SNR 6.25

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.211 ± 0.091	2.31	-0.190 ± 0.118	-0.092 ± 0.090
PRF-fit source offset from KIC position	0.380 ± 0.089	4.27	-0.058 ± 0.088	-0.375 ± 0.089
photometric centroid source offset	1.11 ± 1.30	0.85	-1.10 ± 1.30	-0.15 ± 0.86

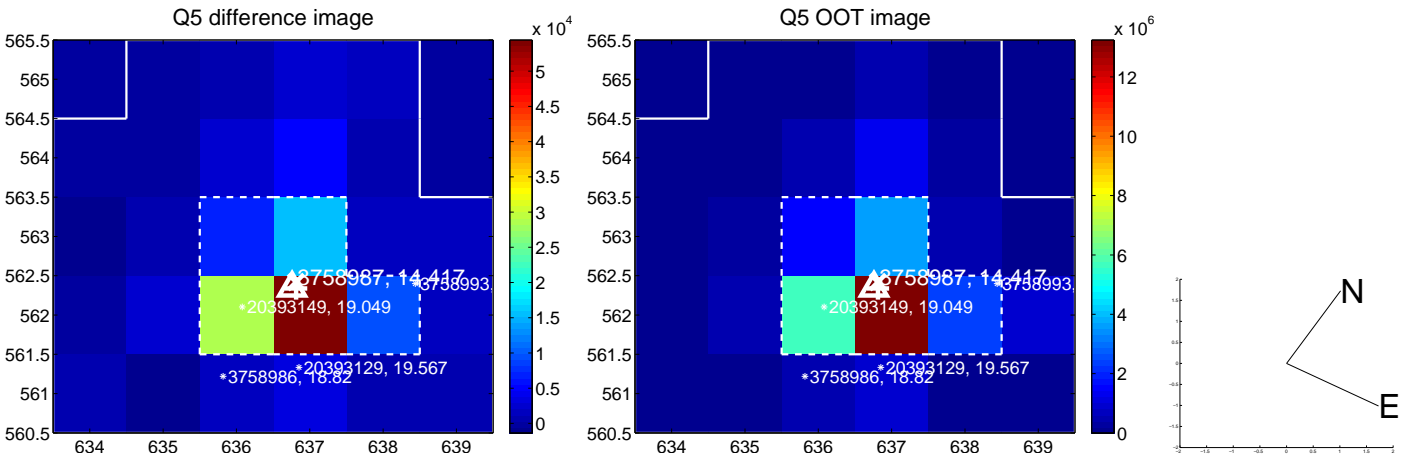


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

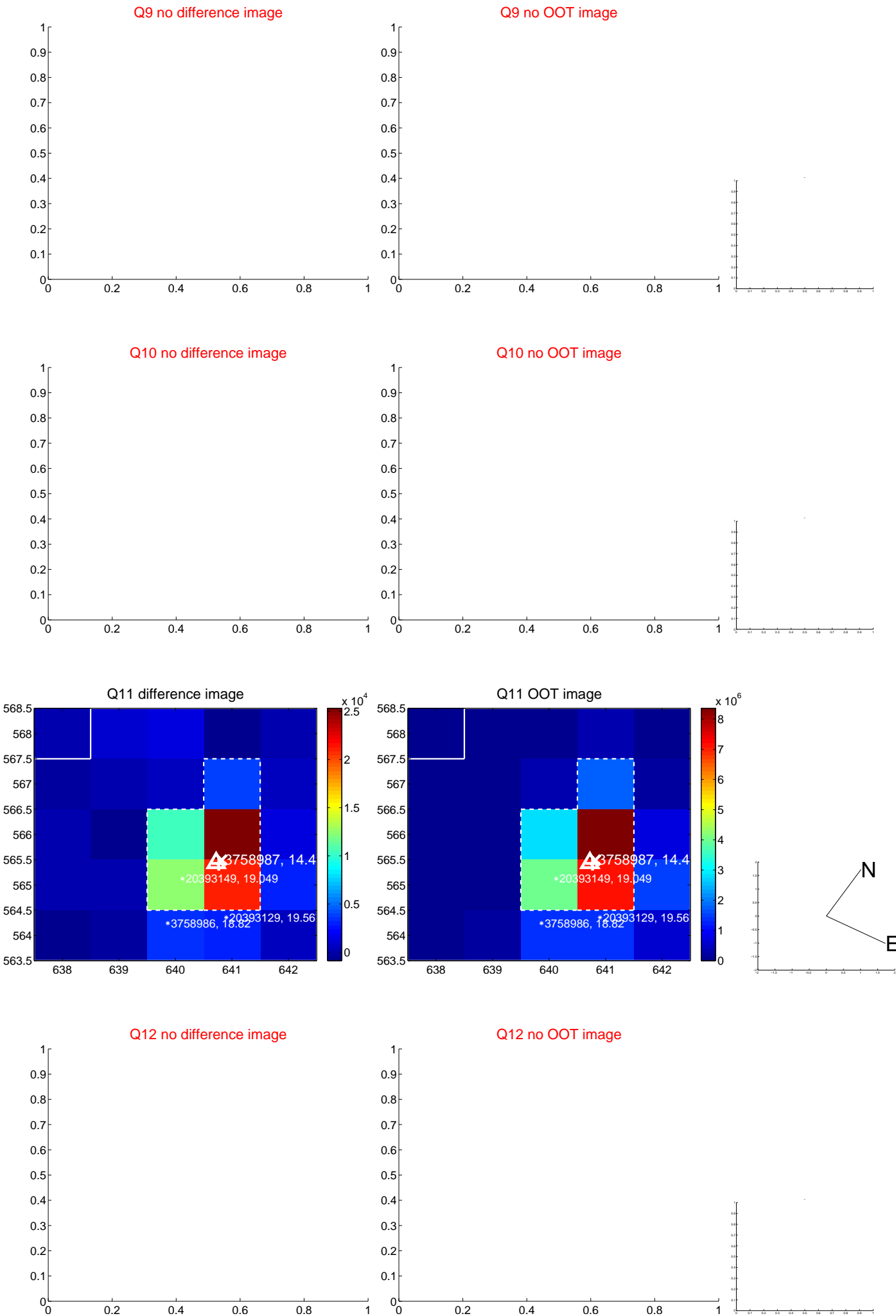
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

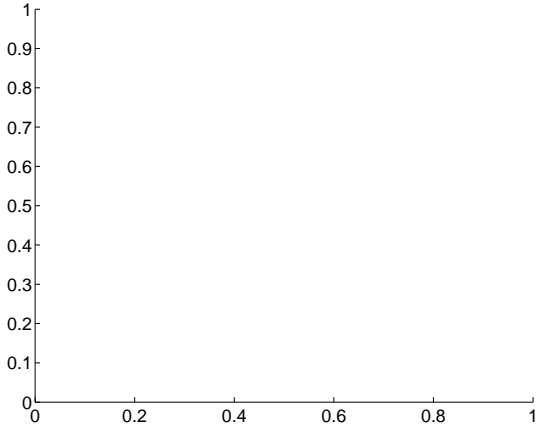
Q13 no difference image



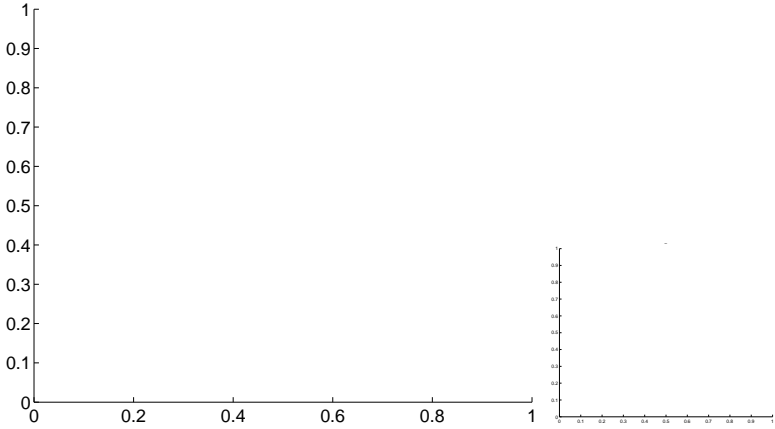
Q13 no OOT image



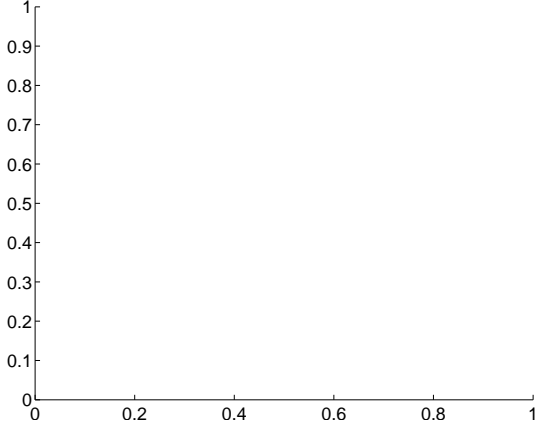
Q14 no difference image



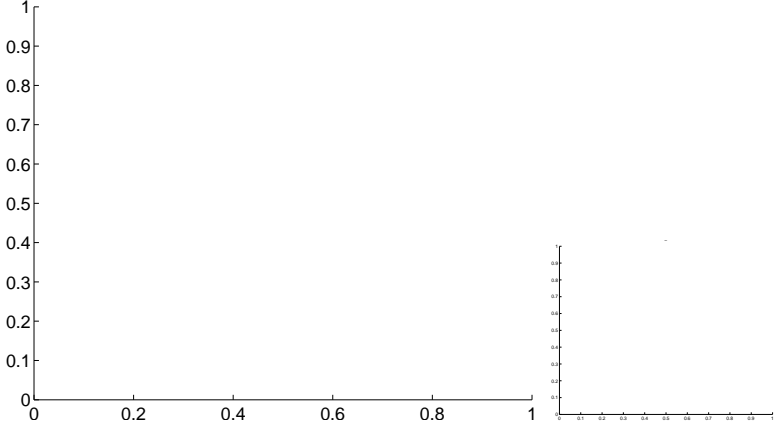
Q14 no OOT image



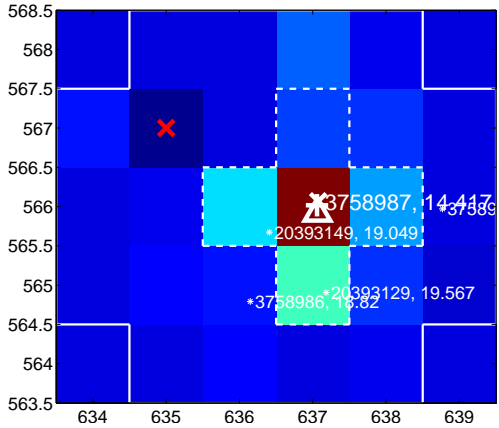
Q15 no difference image



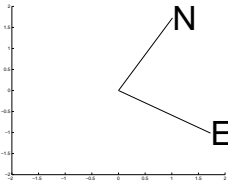
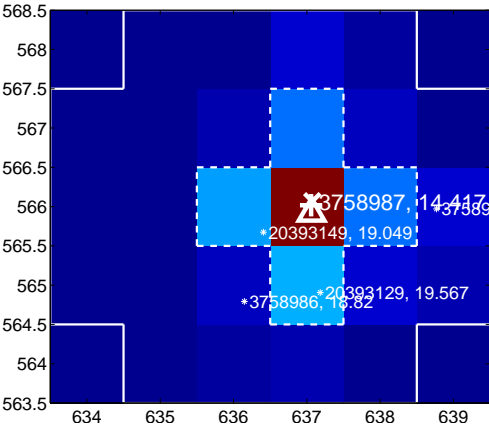
Q15 no OOT image



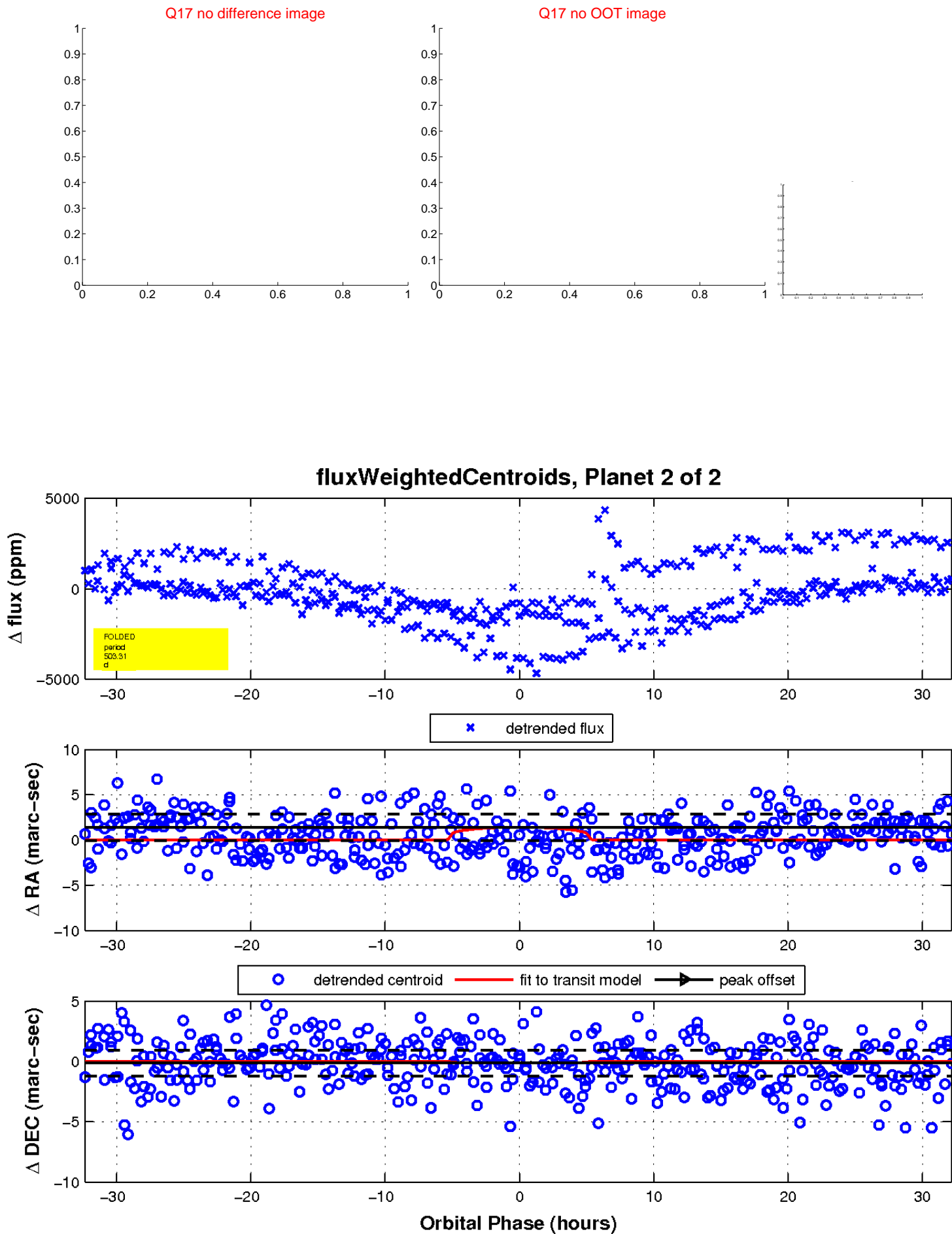
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

