

KIC 006037987

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})
006037987-01	OBS	No	215.835719	331.519196	1314.1	3.041	7.7	7.3	0.83	5857	3.28	1.55
006037987-02	OBS	No	0.941567	131.779962	81.8	8.156	7.4	10.2	0.83	5857	0.74	2181.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037987-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037987-02	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

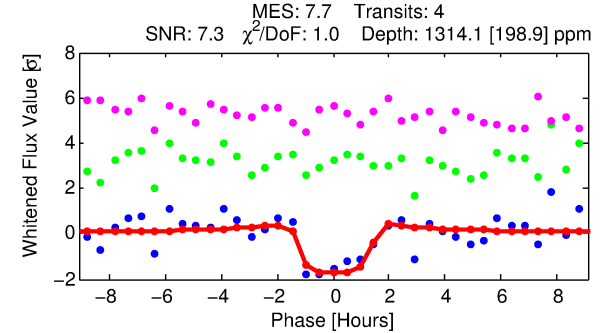
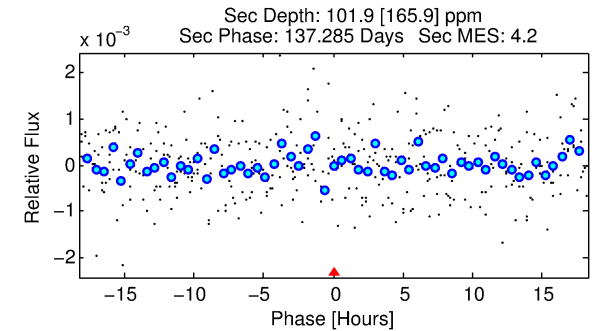
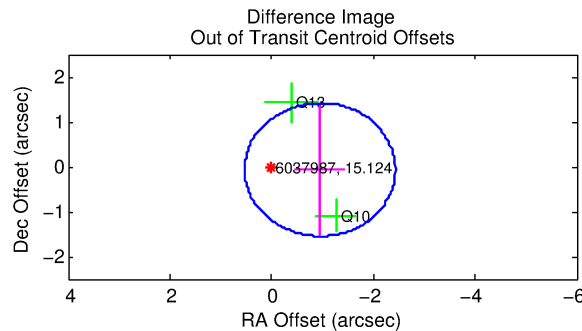
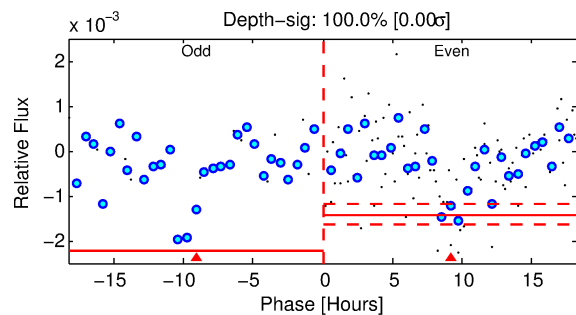
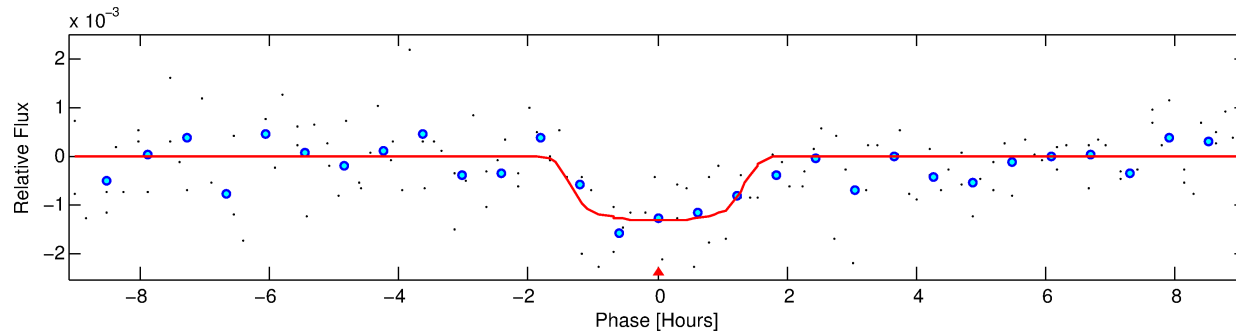
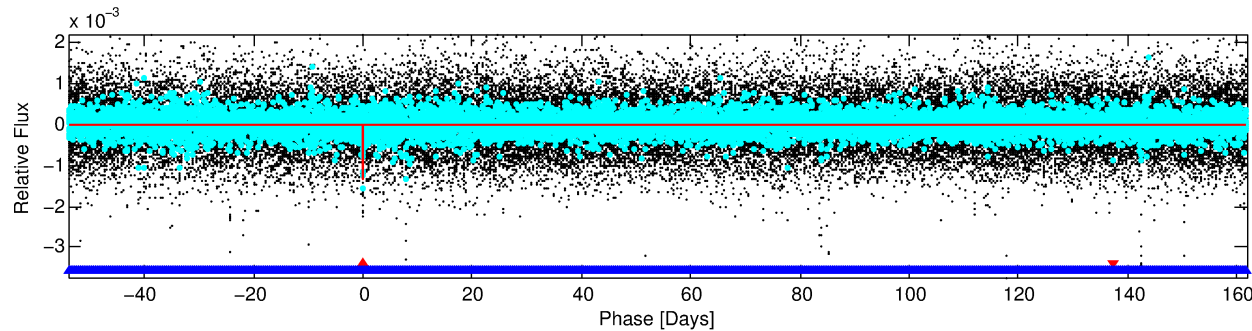
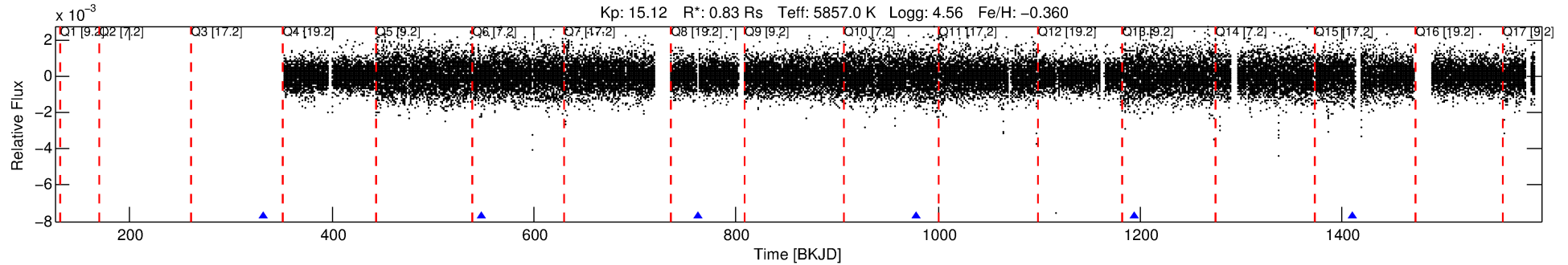
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037987-01

No Significant Match Found

DV One-Page Summary

KIC: 6037987 Candidate: 1 of 2 Period: 215.836 d



DV Fit Results:

Period = 215.83572 [0.00299] d
Epoch = 331.5192 [0.0108] BKJD
Rp/R* = 0.0363 [0.0280]
a/R* = 376.95 [1370.81]
b = 0.77 [1.96]
Seff = 1.56 [0.59]
Teq = 285 [27] K
Rp = 3.28 [2.70] Re
a = 0.6810 [0.1652] AU
Ag = 2414.75 [5482.65] [0.44 σ]
Teff = 3086 [1733] K [1.62 σ]

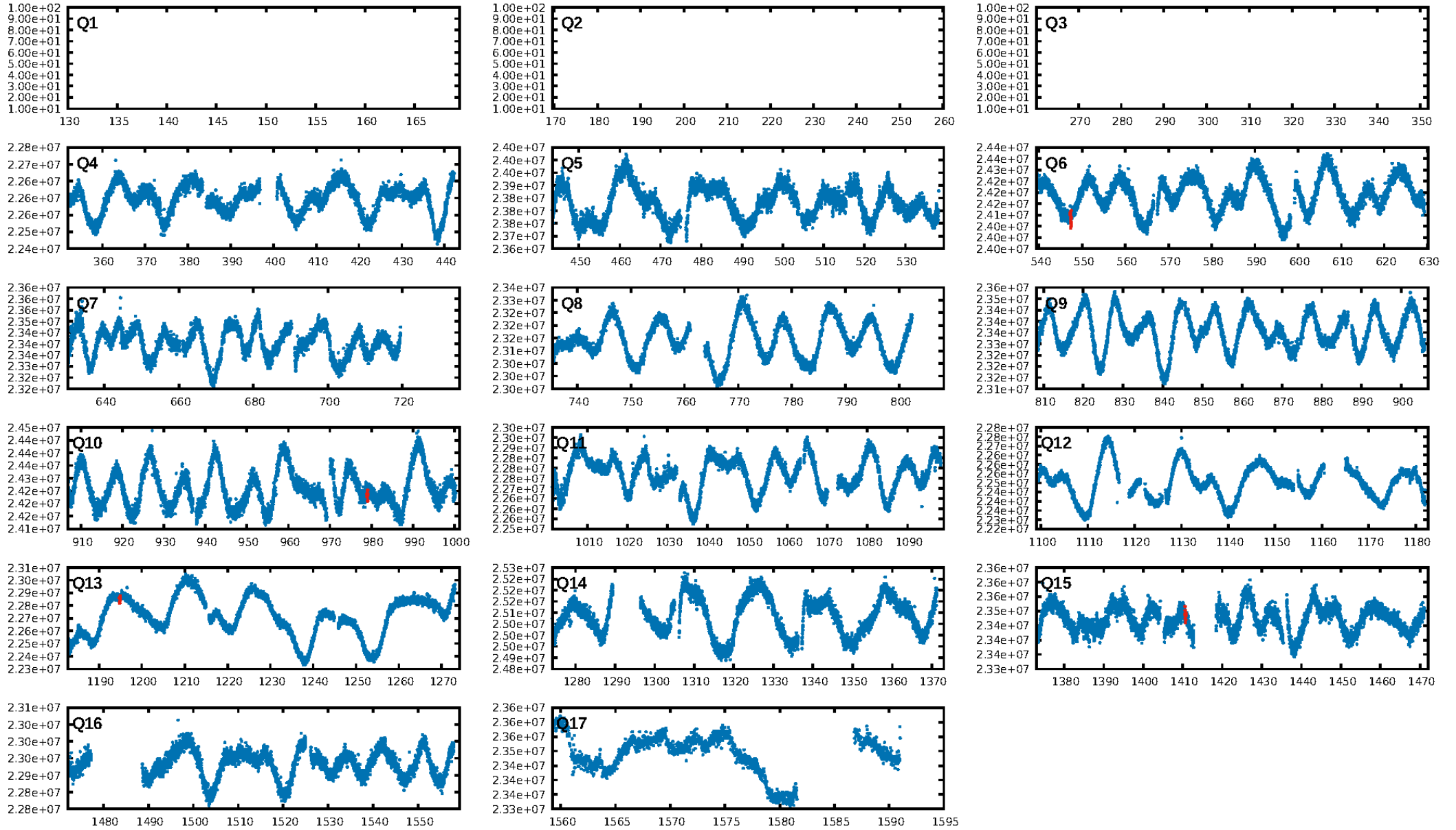
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [592.50 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 11.5%
ModelChiSquareGof-sig: 92.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 3.085
Centroid-sig: 45.5%
Centroid-so: 3.985 arcsec [18.00 σ]
OotOffset-rm: 0.954 arcsec [1.93 σ]
KicOffset-rm: 4.402 arcsec [7.37 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/4]

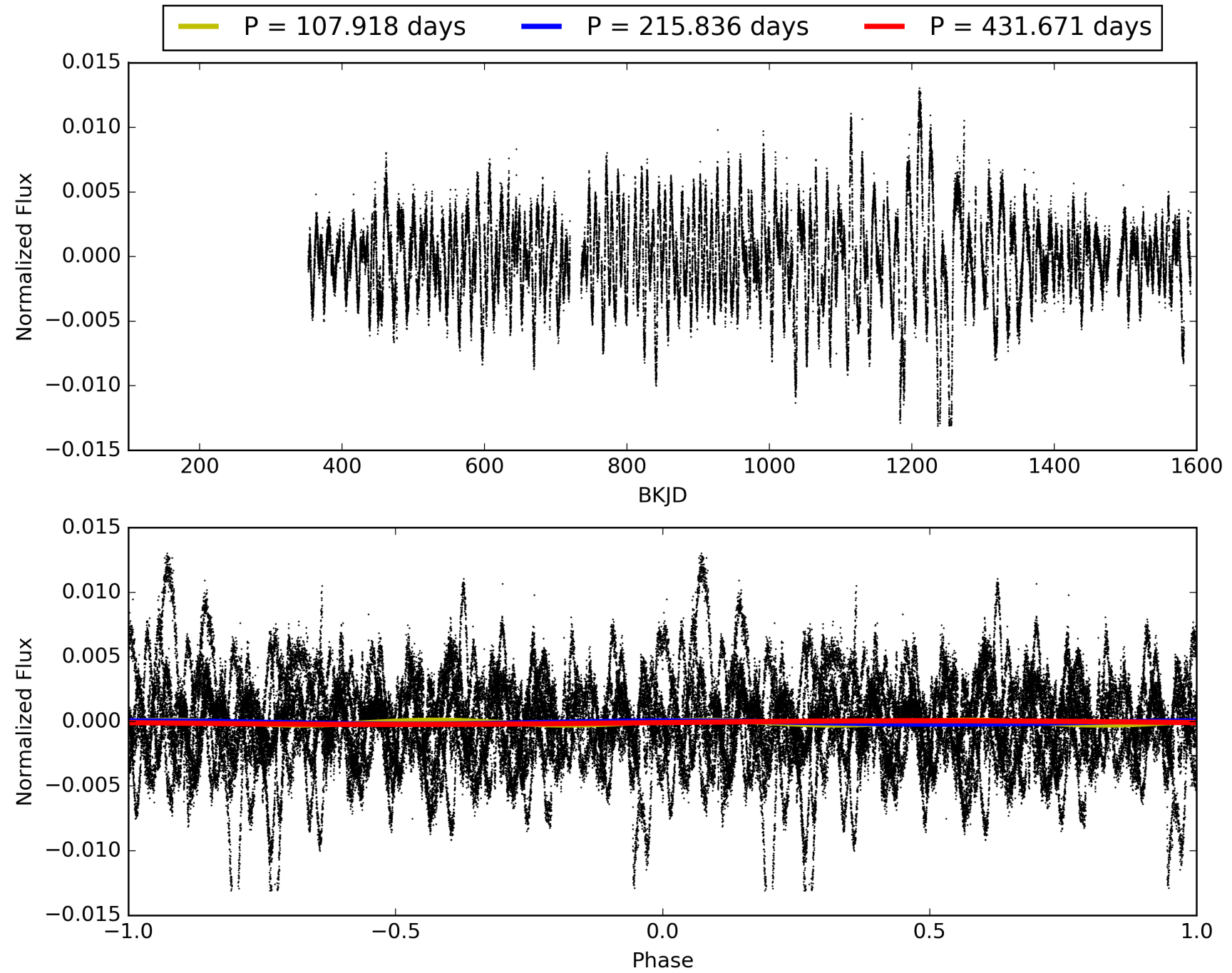
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:42:03 Z

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

TCE 006037987-01, PDC Light Curves

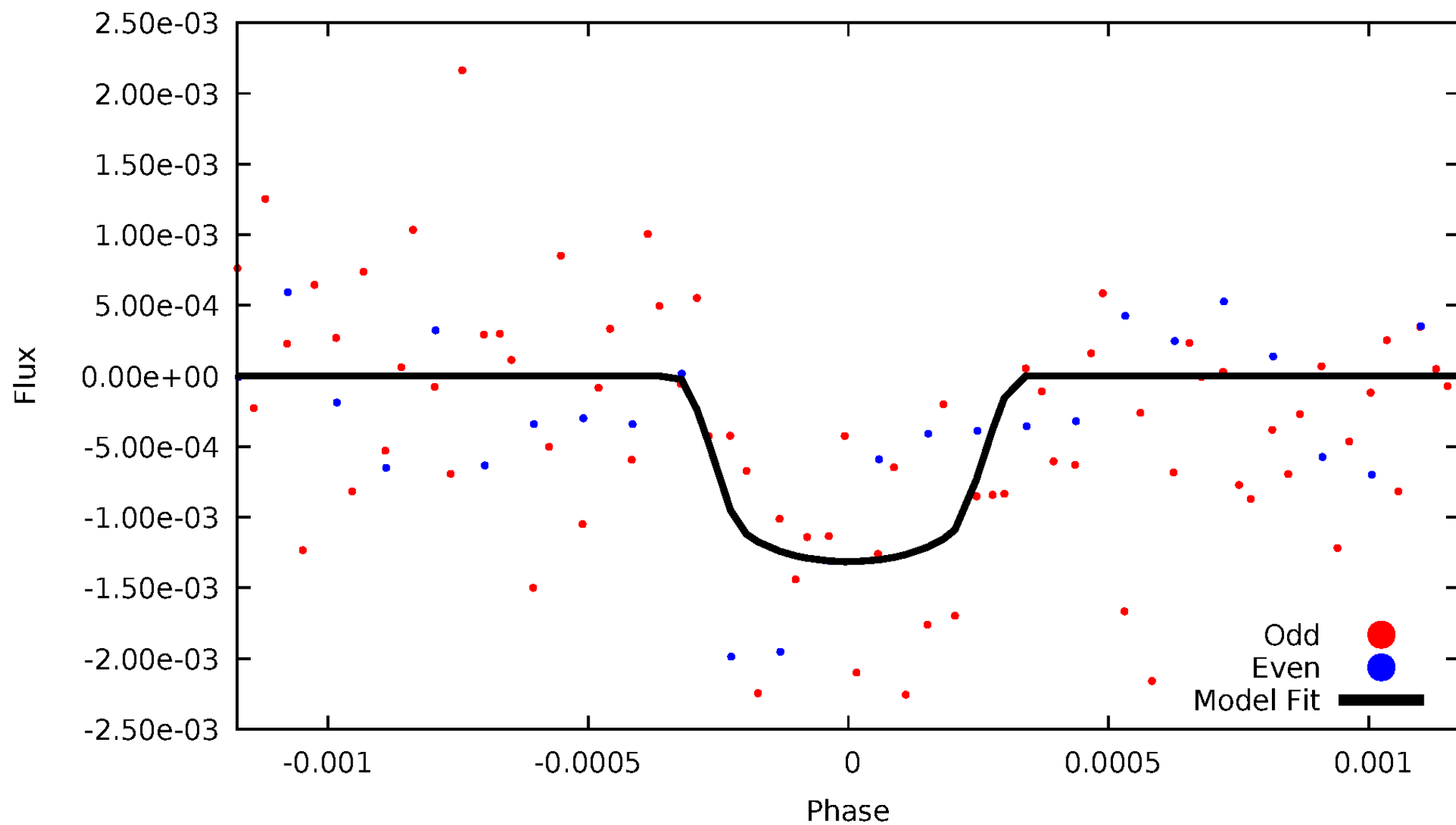


TCE 006037987-01



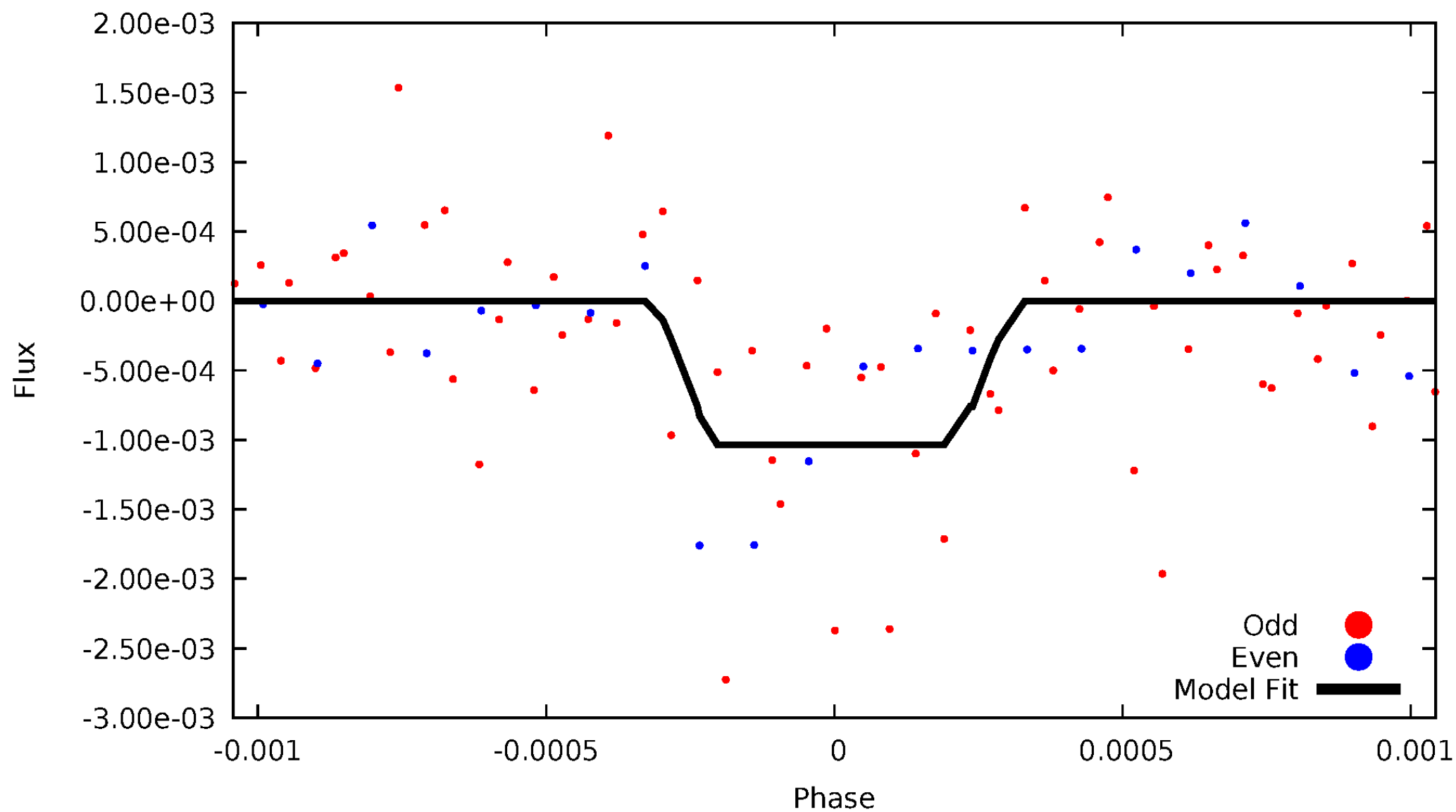
DV Odd/Even

TCE 006037987-01



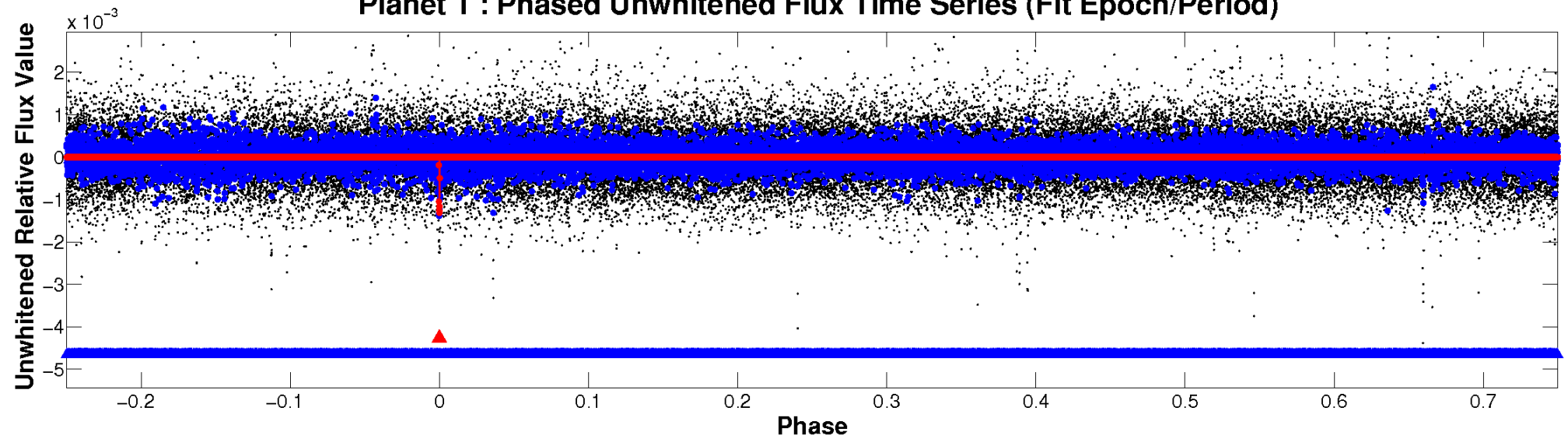
ALT Odd/Even

TCE 006037987-01

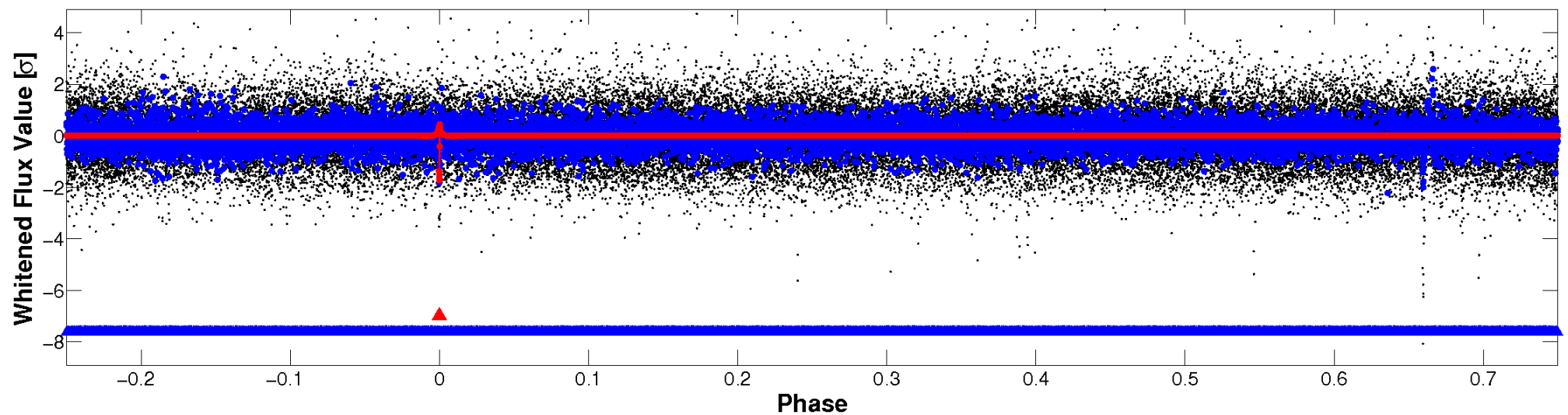


Non-Whitened Vs. Whitened Light Curve

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

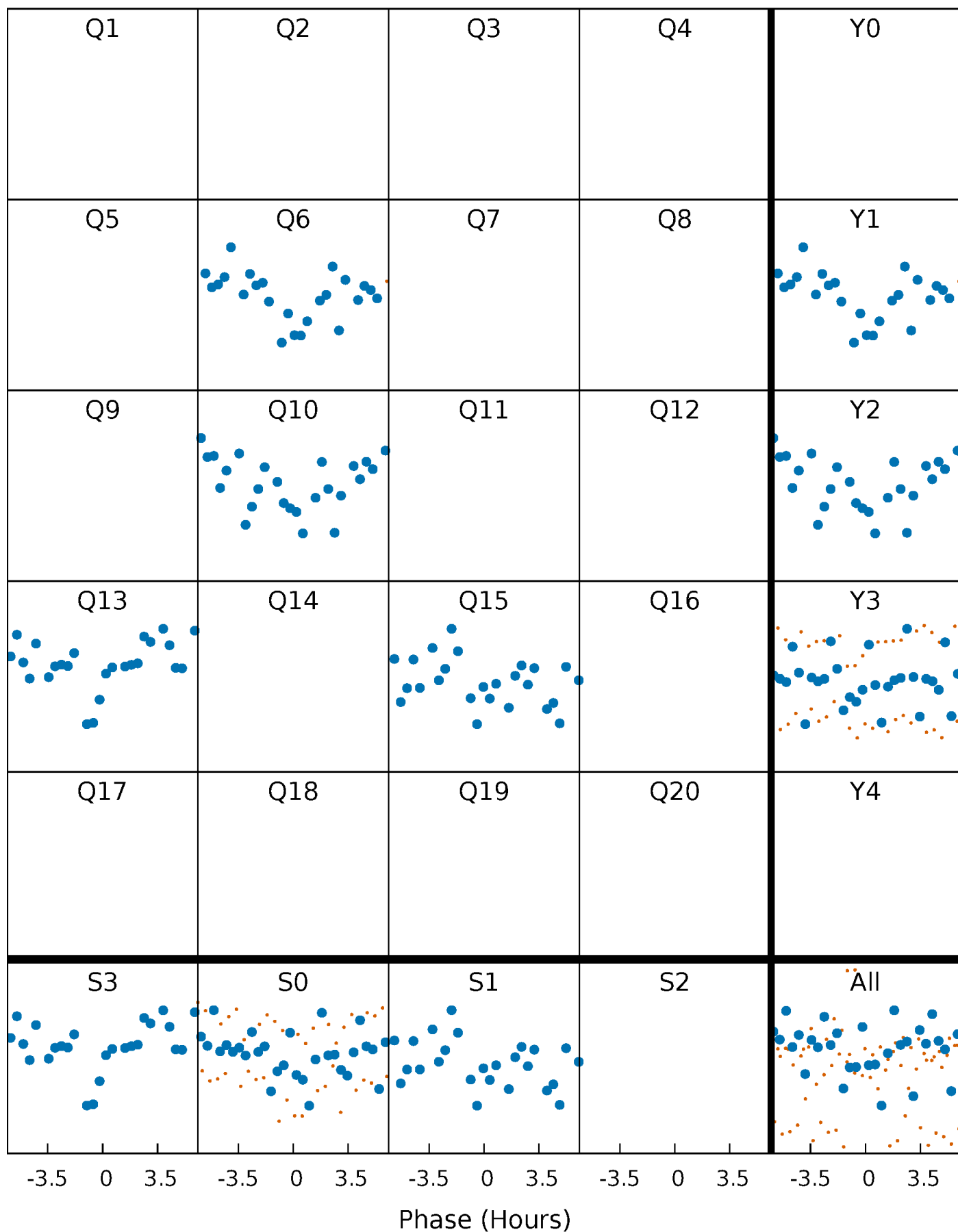


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 006037987-01 P=215.835719 Days $T_0=331.519196$ (BKJD)



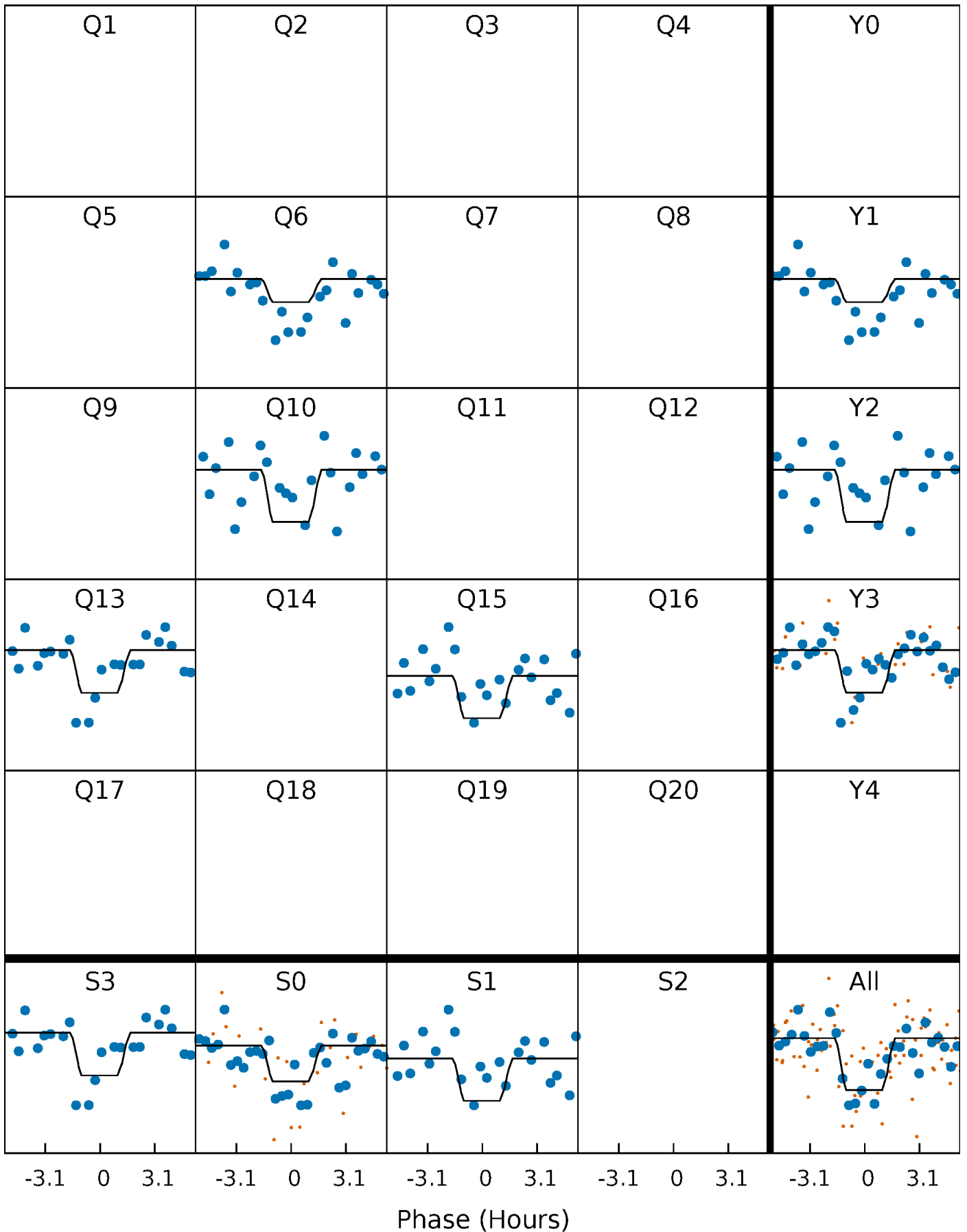
DV Quarter-Phased Transit Curves

TCE 006037987-01 P=215.835719 Days $T_0=331.519196$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

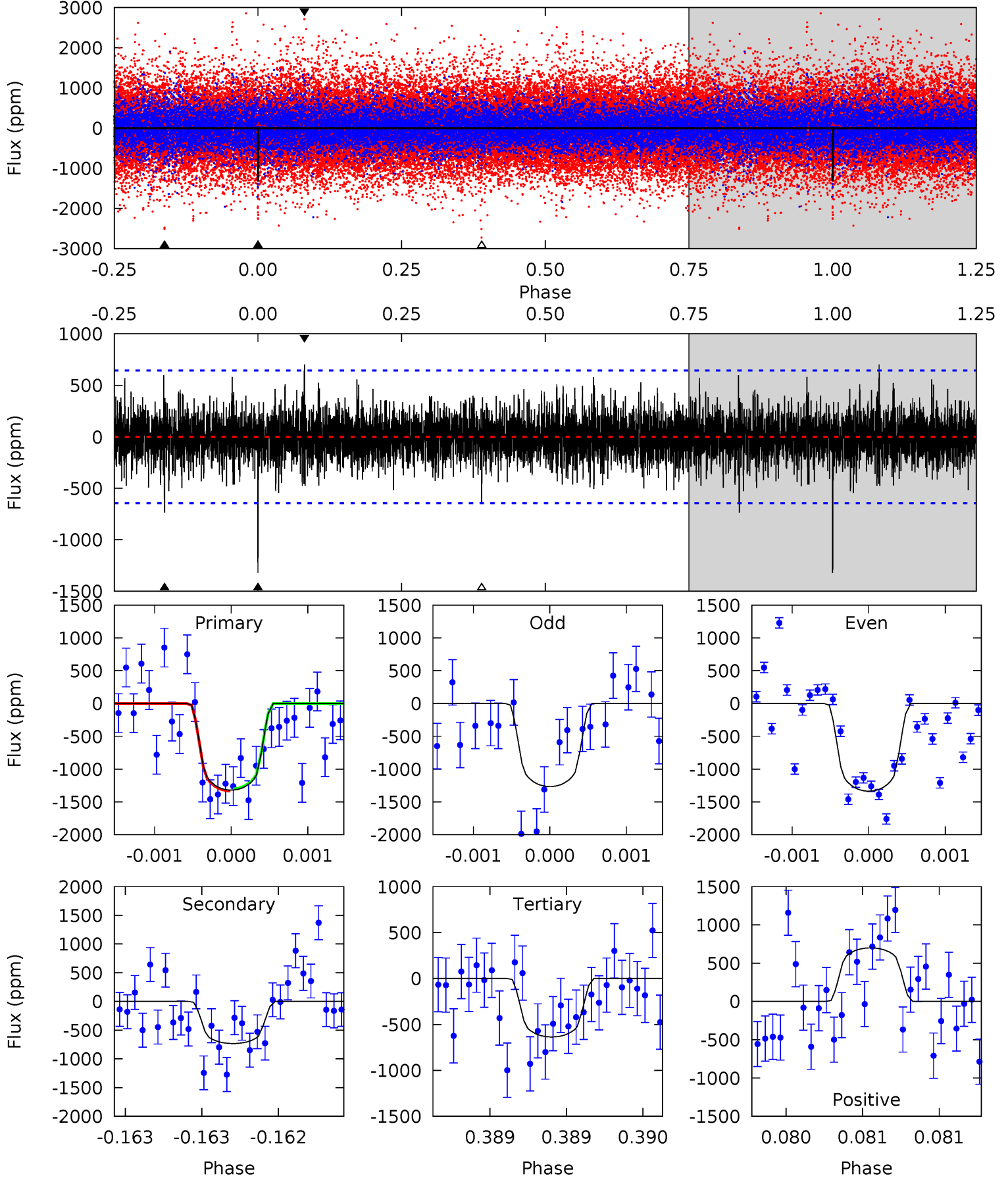
TCE 006037987-01 P=215.835294 Days $T_0=331.522763$ (BKJD)



DV Model-Shift Uniqueness Test

006037987-01, $P = 215.835719$ Days, $E = 331.519196$ Days

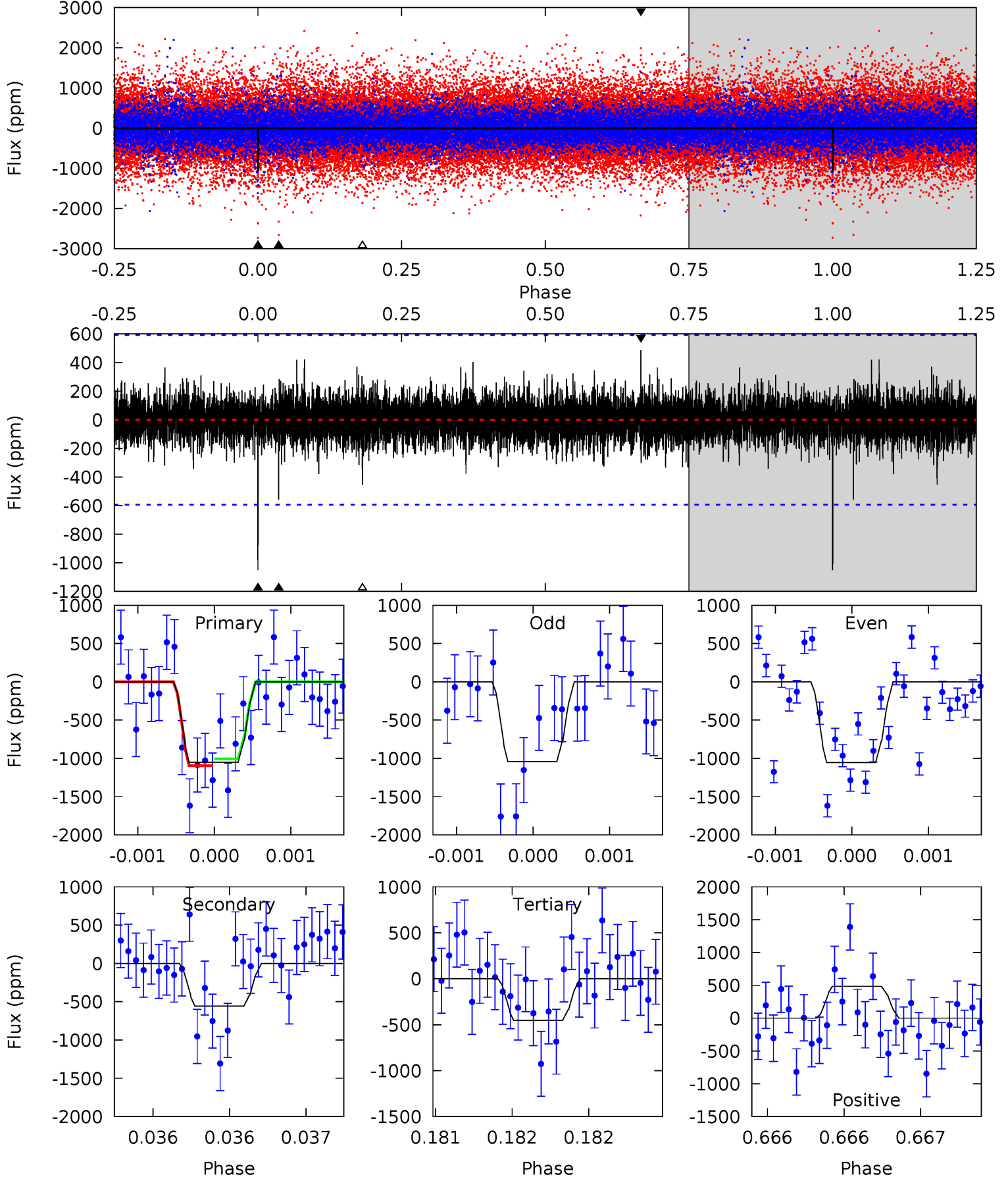
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	6.30	5.47	6.02	5.54	3.42	1.36	5.87	5.33	0.83	0.28	0.28	1.04	0.35	0.14



Alt Model-Shift Uniqueness Test

006037987-01, P = 215.835294 Days, E = 331.522763 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.80	5.20	4.22	4.53	5.54	3.43	0.93	5.57	5.27	0.97	0.67	0.05	1.36	0.32	0.42



Stellar Parameters For KIC 006037987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5857^{+175}_{-193}	$4.559^{+0.046}_{-0.196}$	$-0.360^{+0.300}_{-0.300}$	$0.827^{+0.236}_{-0.079}$	$0.904^{+0.097}_{-0.108}$	$2.254^{+0.426}_{-1.121}$
	+3%/-3%	+1%/-4%	+83%/-83%	+29%/-10%	+11%/-12%	+19%/-50%
Source	KIC0	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 006037987-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-733 ± 116	$3.74^{+2.73}_{-2.21}$	405^{+27}_{-19}	4912^{+2801}_{-919}	12958^{+66173}_{-8598}
Alt.	-557 ± 107	$3.51^{+2.46}_{-2.15}$	406^{+27}_{-20}	4796^{+2631}_{-920}	11065^{+59890}_{-7388}

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

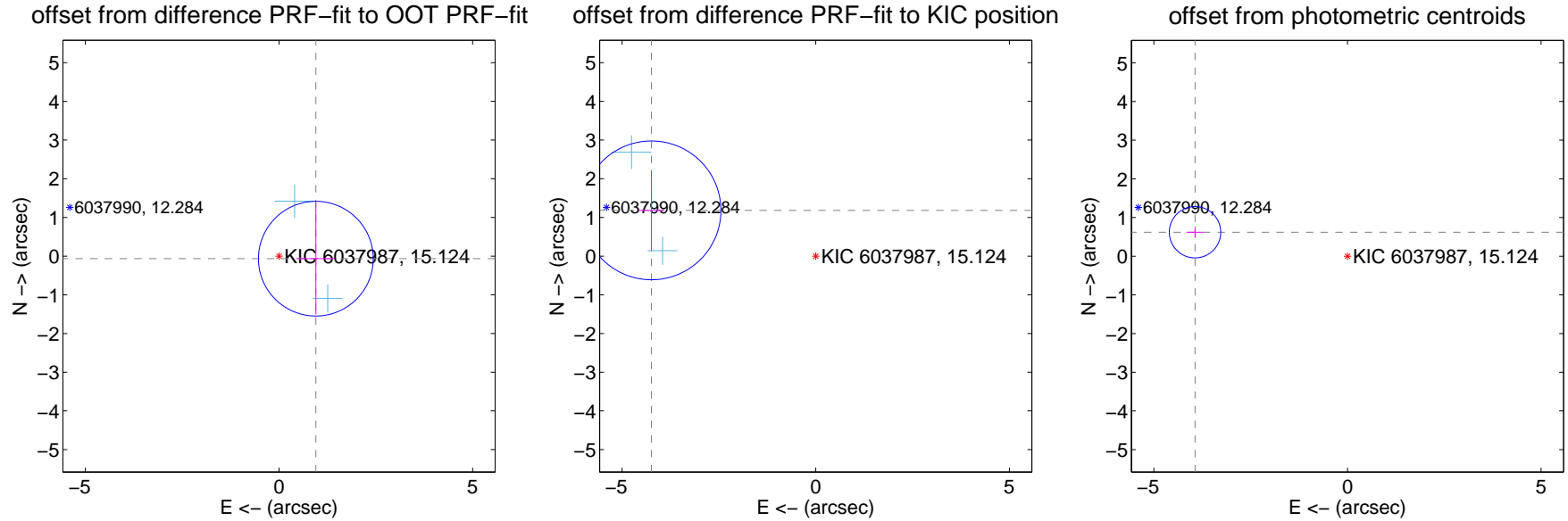
DV Centroid Data

Supplemental centroid analysis for 006037987-01. Kepler magnitude: 15.12. Transit SNR 7.26

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 5.31 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	0.954 ± 0.494	1.93	-0.952 ± 0.485	-0.066 ± 1.446
PRF-fit source offset from KIC position	4.402 ± 0.598	7.37	4.240 ± 0.334	1.183 ± 1.041
photometric centroid source offset	3.99 ± 0.22	18.00	3.94 ± 0.22	0.62 ± 0.15



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.

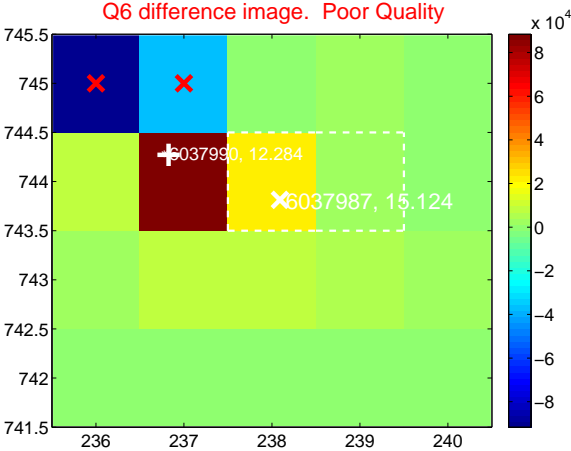
Q5 no difference image



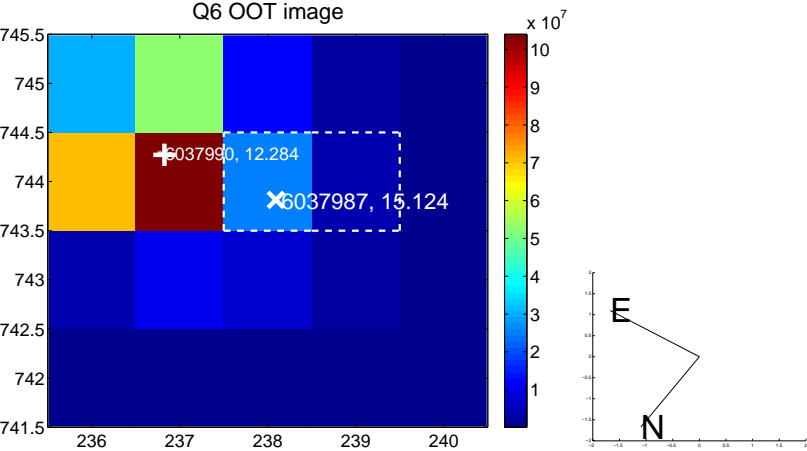
Q5 no OOT image



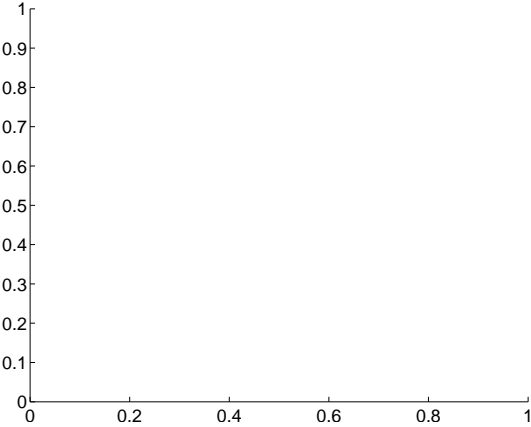
Q6 difference image. Poor Quality



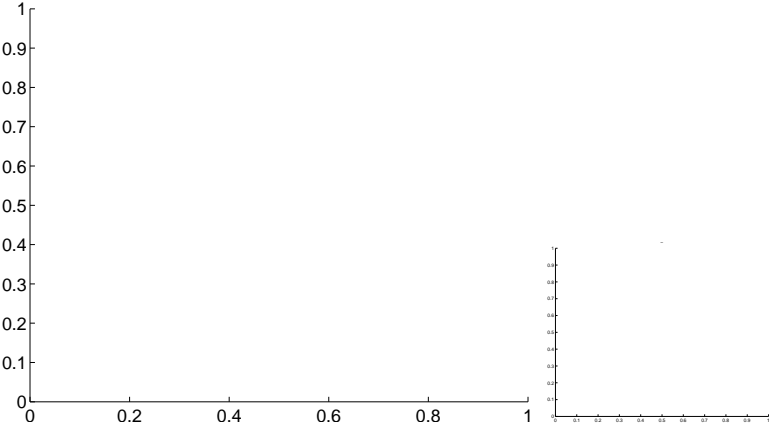
Q6 OOT image



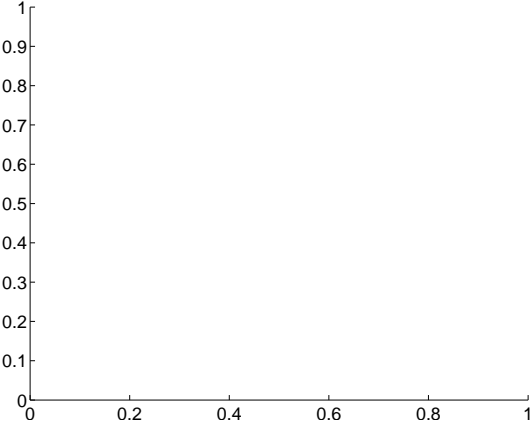
Q7 no difference image



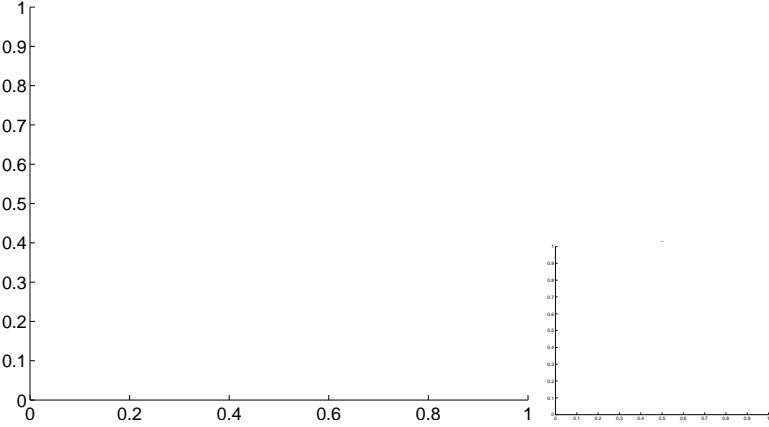
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

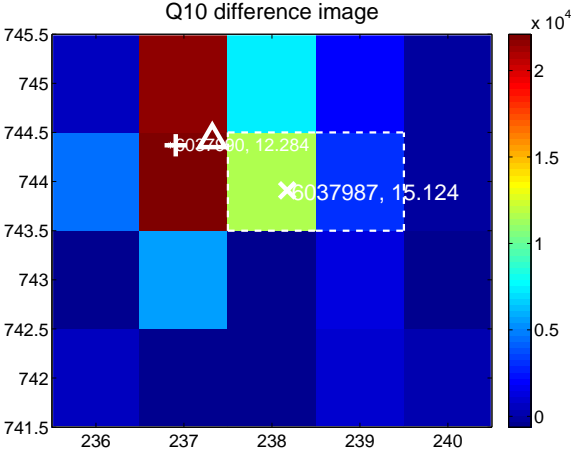
Q9 no difference image



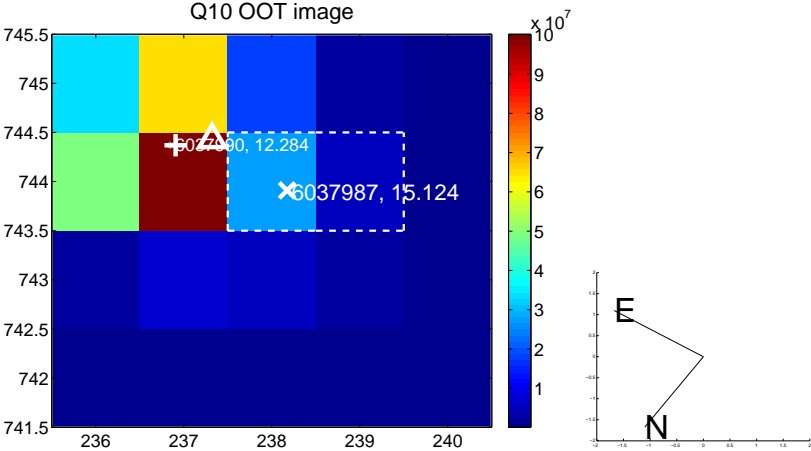
Q9 no OOT image



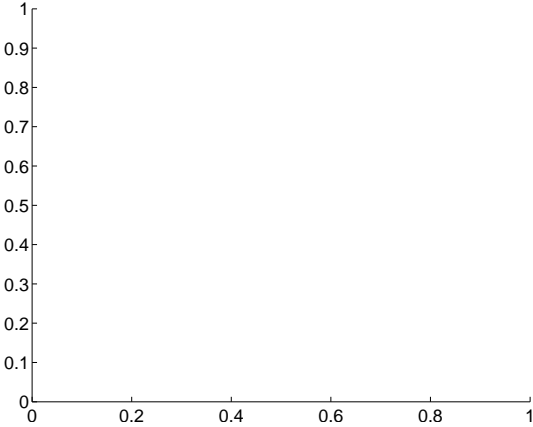
Q10 difference image



Q10 OOT image



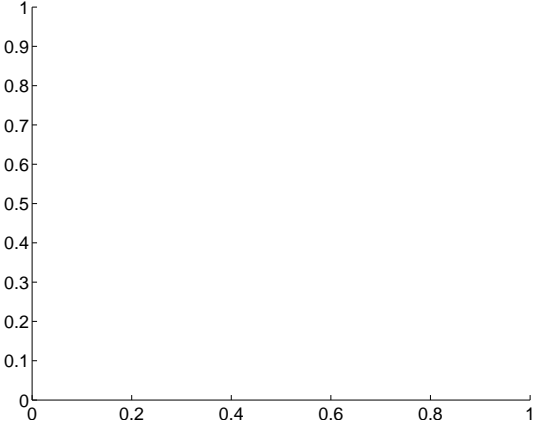
Q11 no difference image



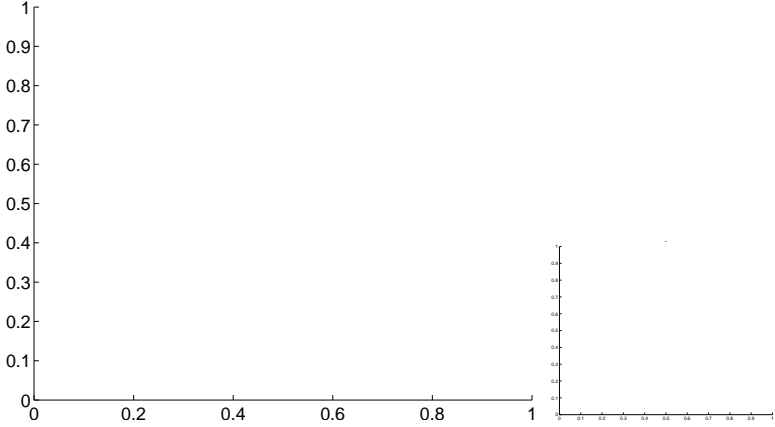
Q11 no OOT image



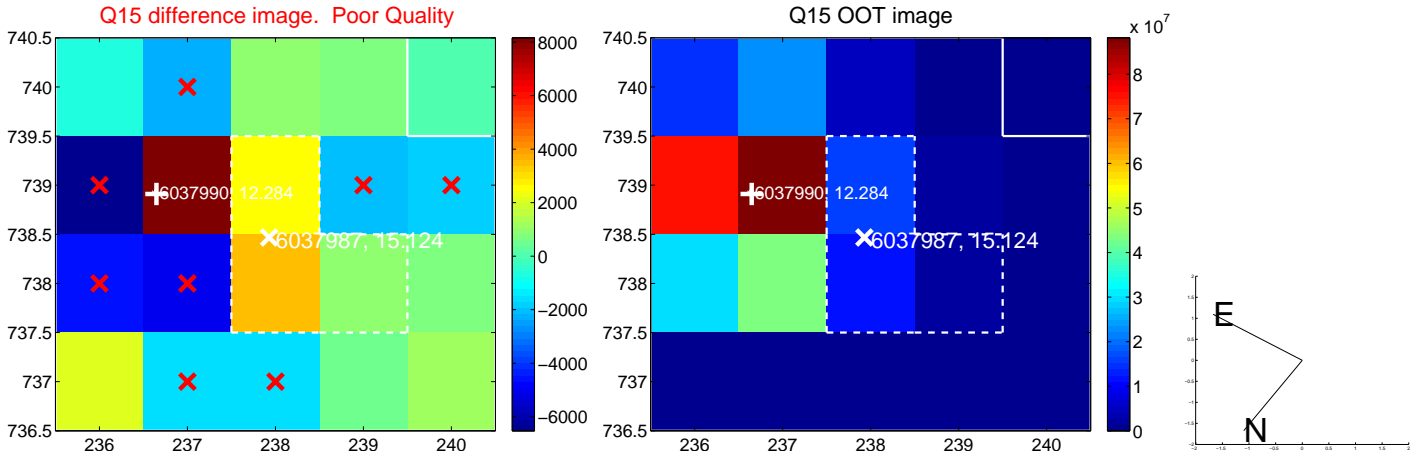
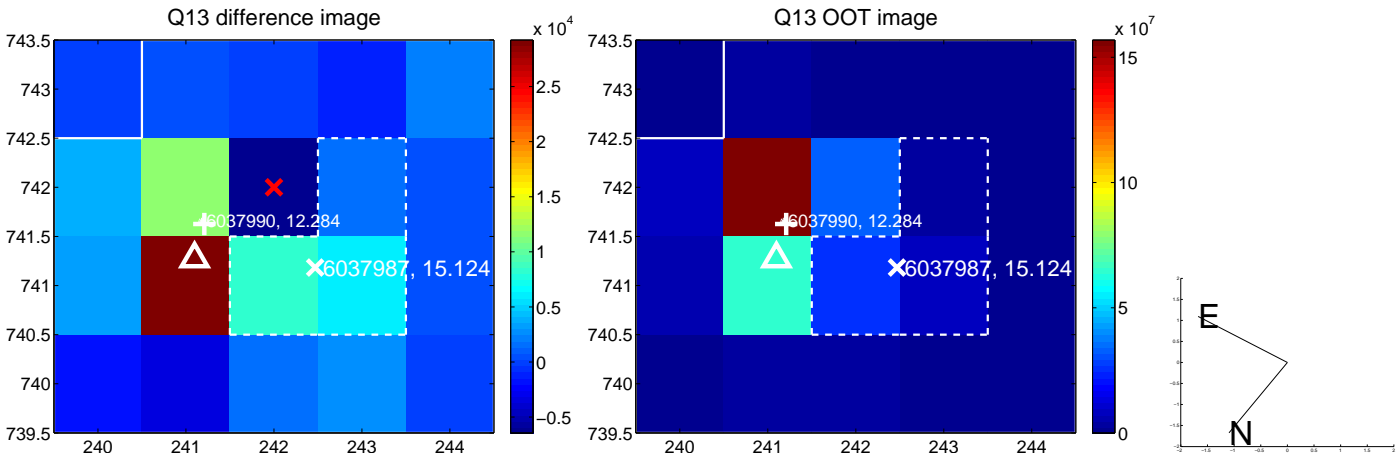
Q12 no difference image



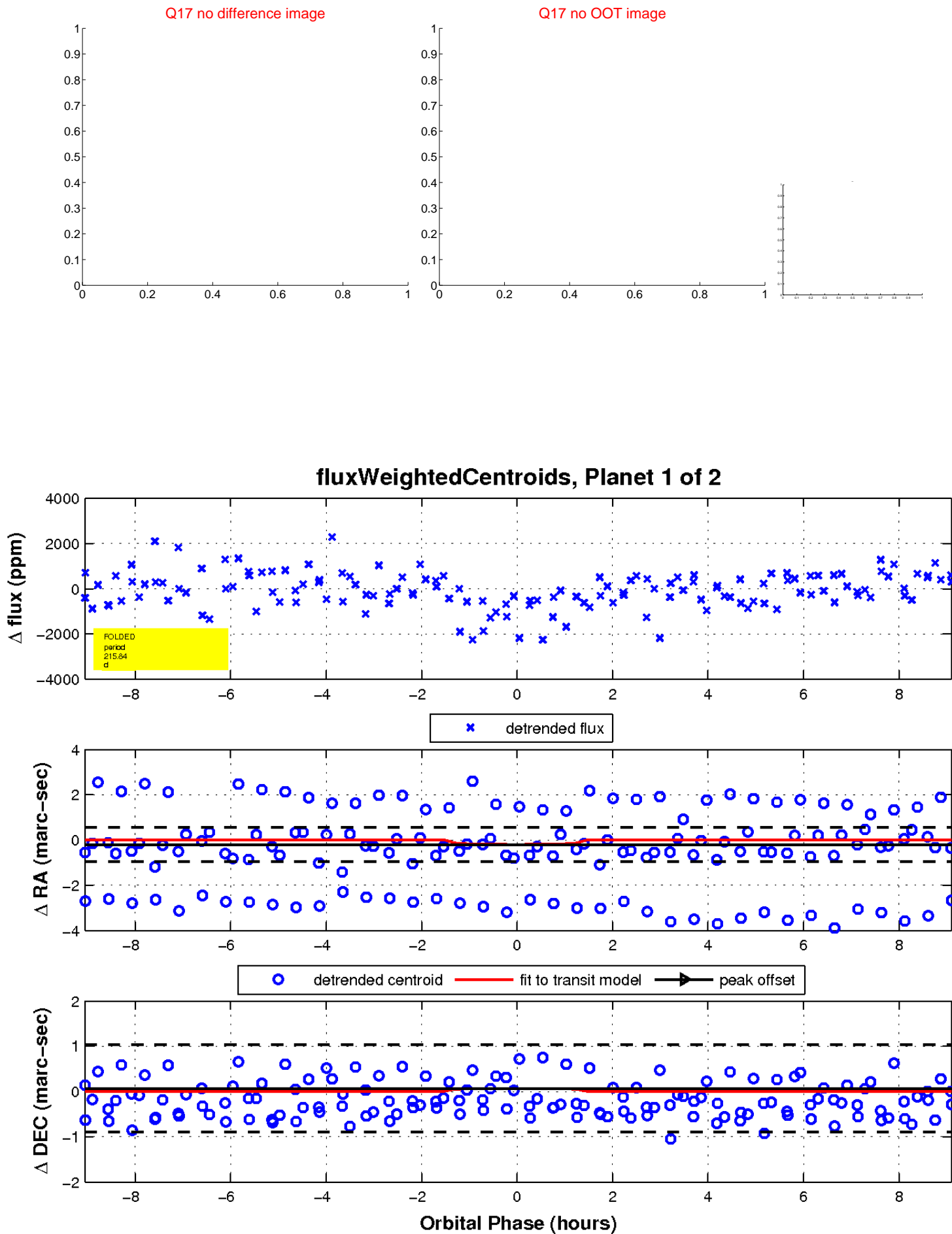
Q12 no OOT image



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

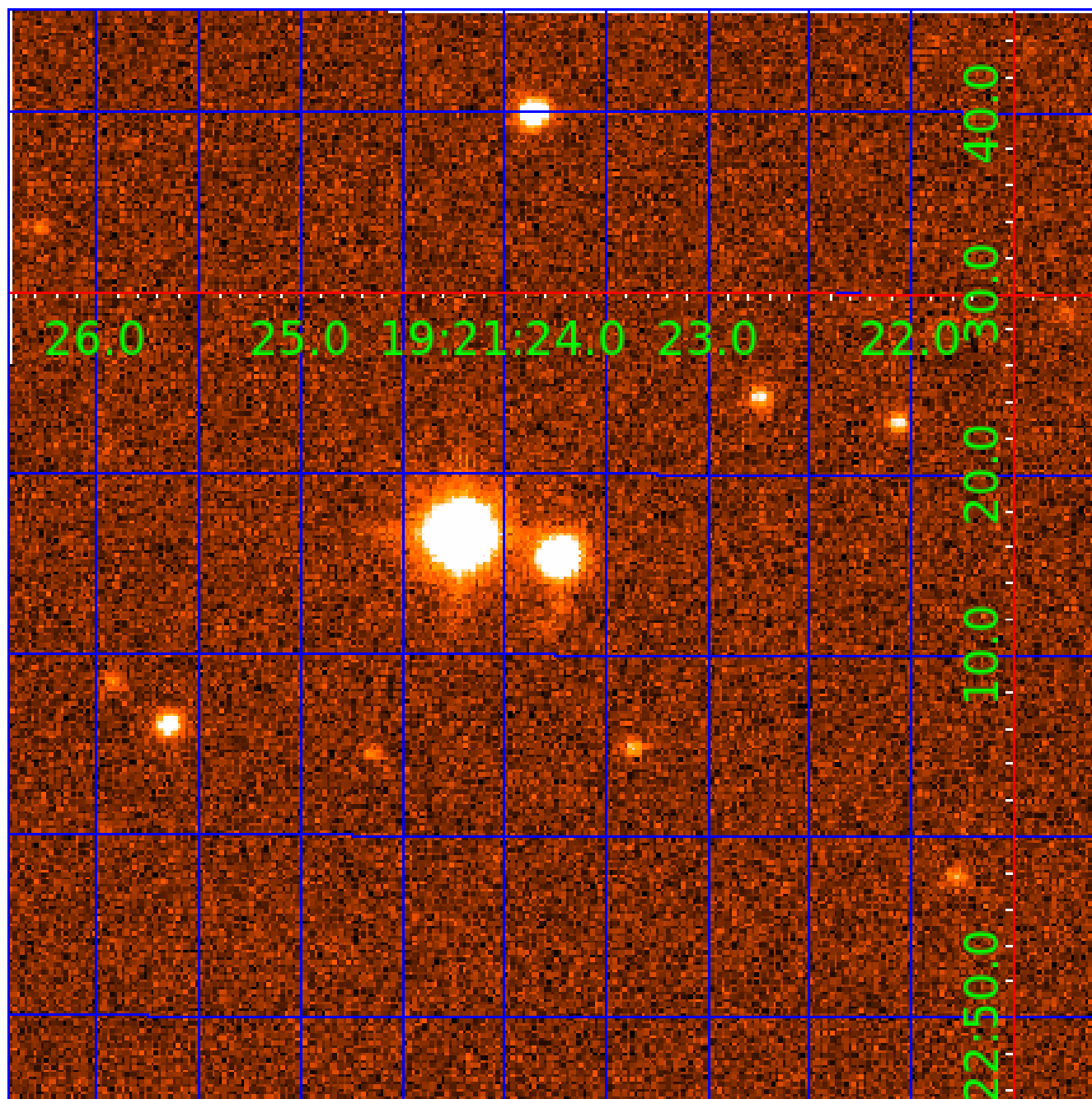


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006037987

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})
006037987-01	OBS	No	215.835719	331.519196	1314.1	3.041	7.7	7.3	0.83	5857	3.28	1.55
006037987-02	OBS	No	0.941567	131.779962	81.8	8.156	7.4	10.2	0.83	5857	0.74	2181.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006037987-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006037987-02	OBS	FP	0.00	1	0	0	0	LPP_DV—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.

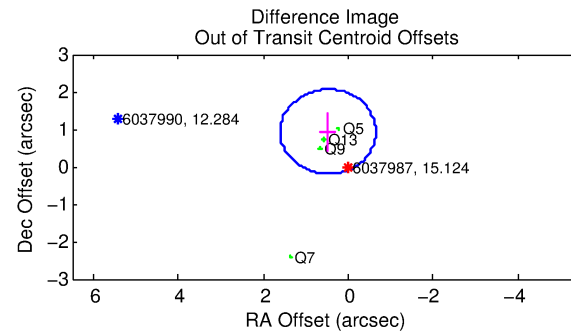
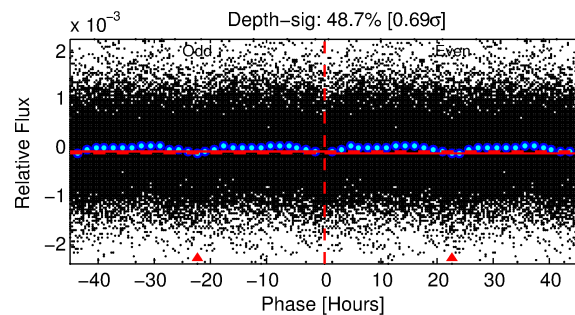
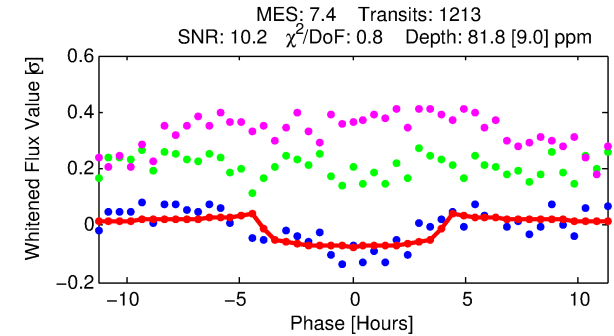
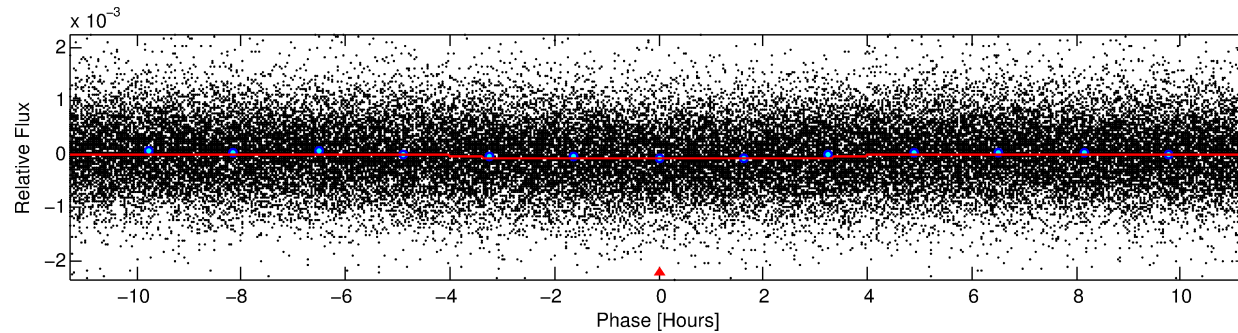
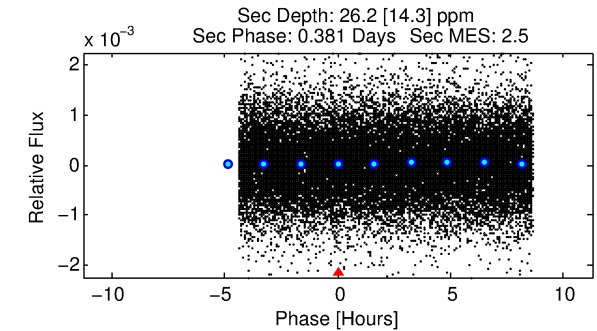
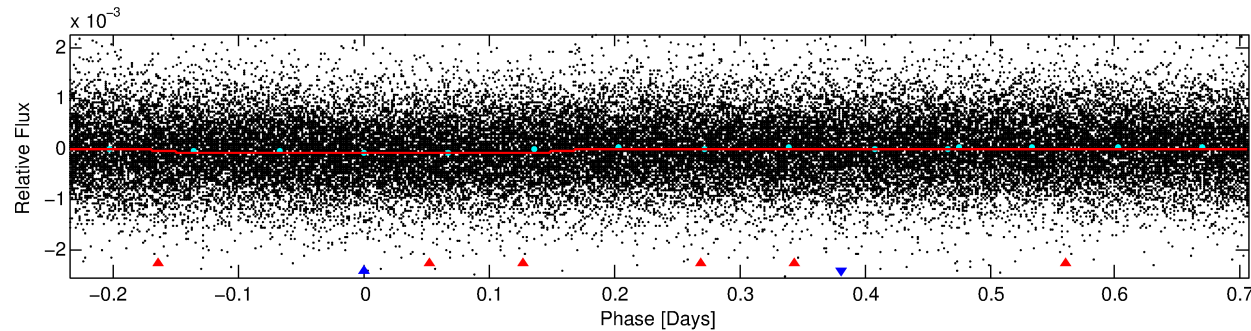
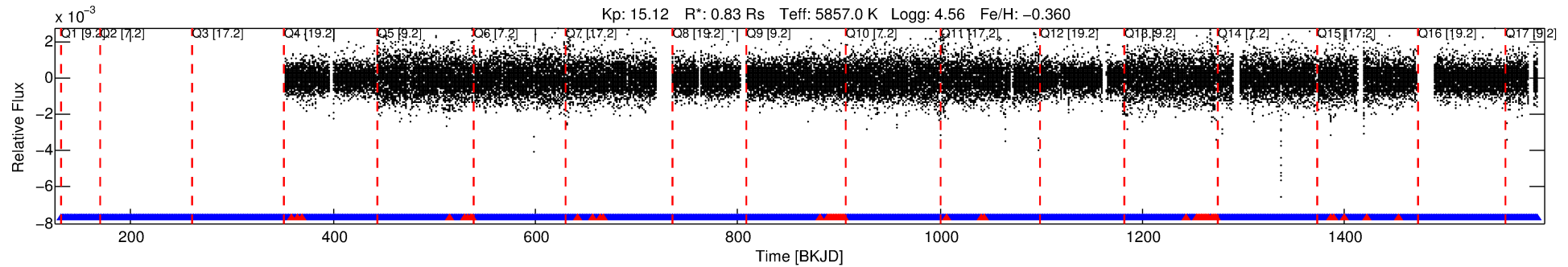
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006037987-02

No Significant Match Found

DV One-Page Summary

KIC: 6037987 Candidate: 2 of 2 Period: 0.942 d



DV Fit Results:

Period = 0.94157 [0.00001] d
Epoch = 131.7800 [0.0054] BKJD
Rp/R* = 0.0083 [0.0092]
a/R* = 1.11 [1.12]
b = 0.03 [177.50]
Seff = 2181.71 [828.16]
Teq = 1743 [165] K
Rp = 0.74 [0.86] Re
a = 0.0182 [0.0044] AU
Ag = 8.59 [20.02] [0.38σ]
Teffp = 4612 [2661] K [1.08σ]

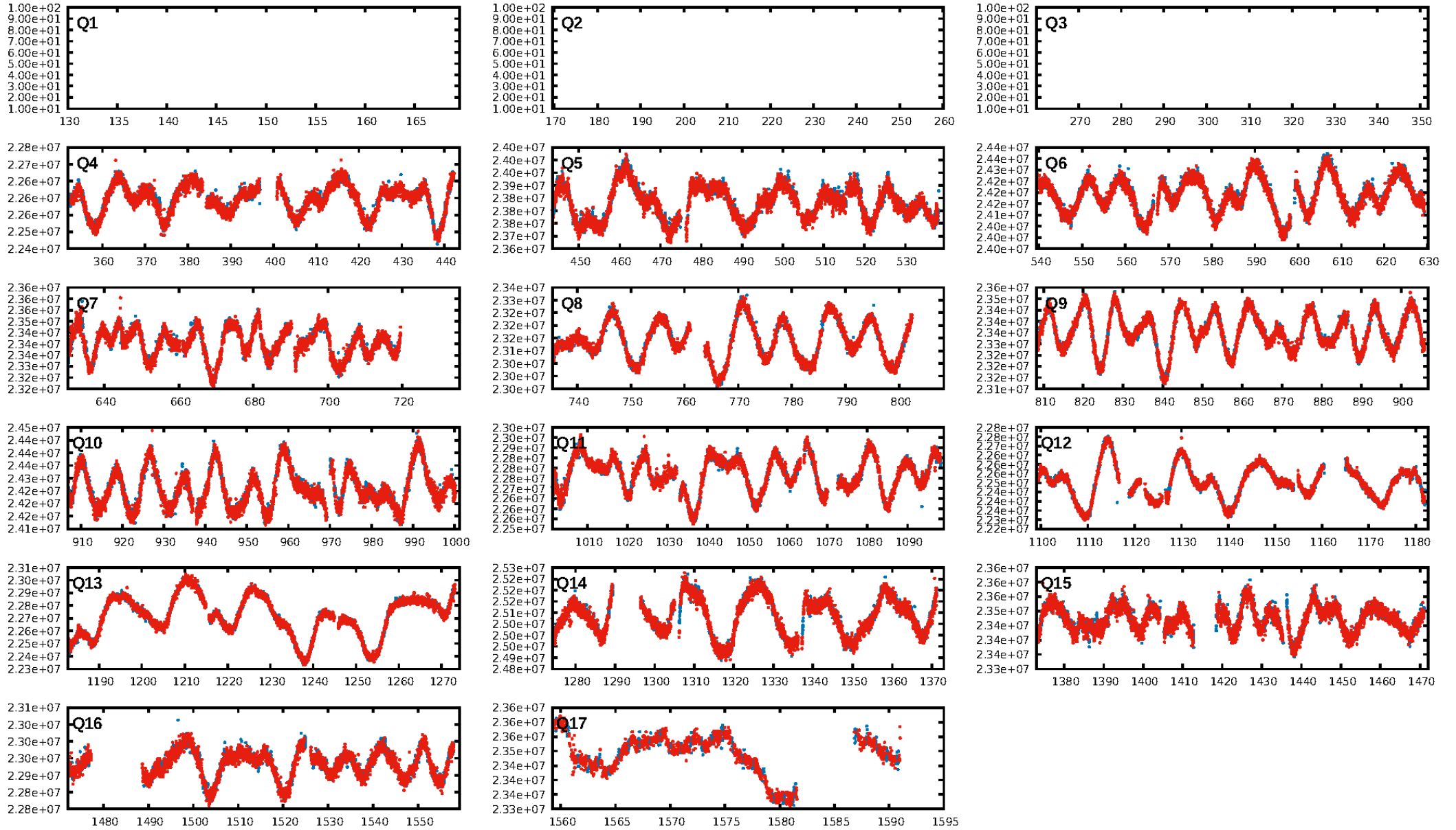
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [592.50σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [1121/1185]
GhostDiagnostic-chr: -6.798
Centroid-sig: 0.0%
Centroid-so: 4.697 arcsec [29.19σ]
OotOffset-rm: 1.046 arcsec [2.78σ]
OotOffset-st: 0/1/0/3 [4]
KicOffset-rm: 6.024 arcsec [20.17σ]
KicOffset-st: 0/1/0/3 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [14/14]

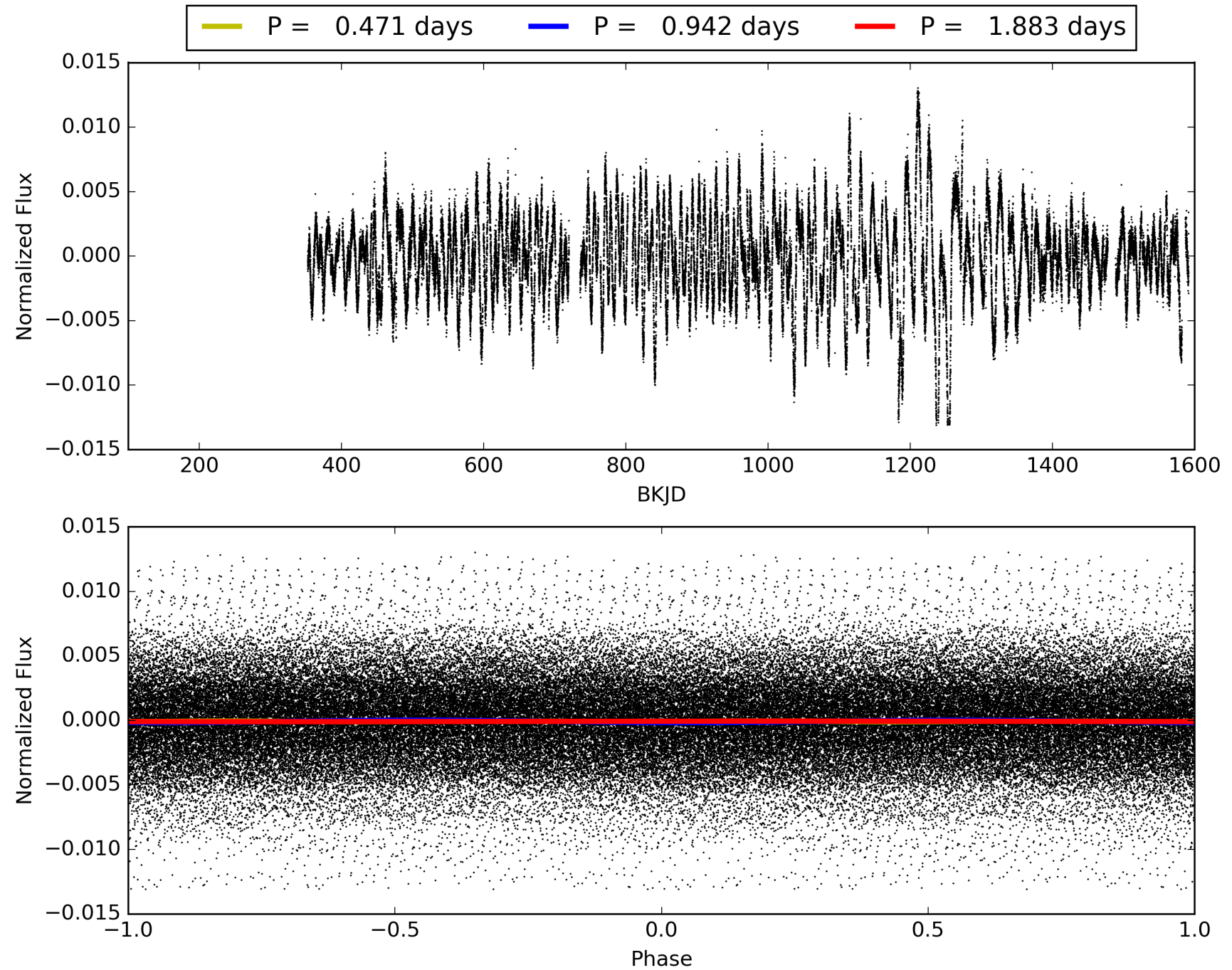
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:42:13 Z

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

TCE 006037987-02, PDC Light Curves

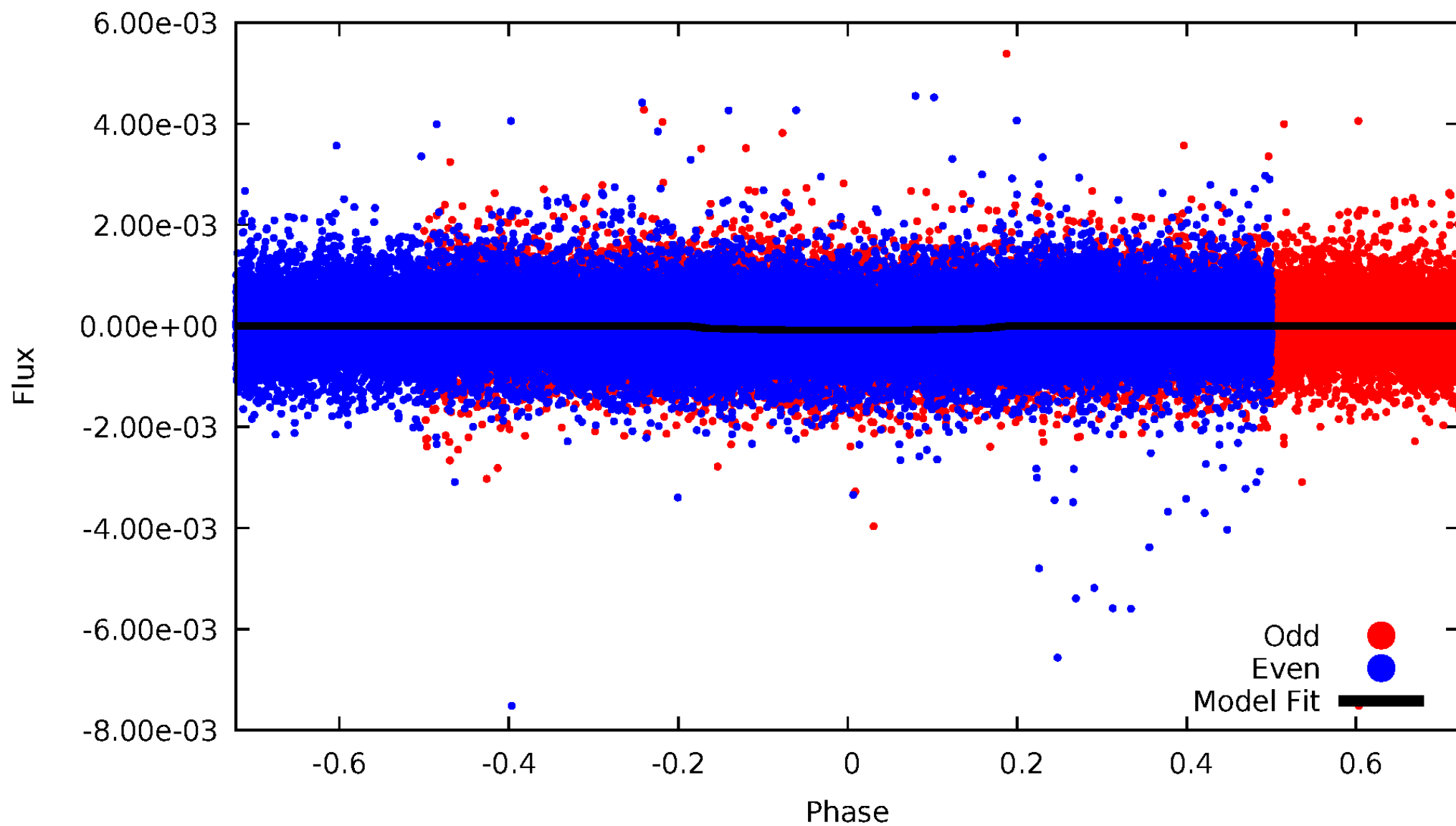


TCE 006037987-02



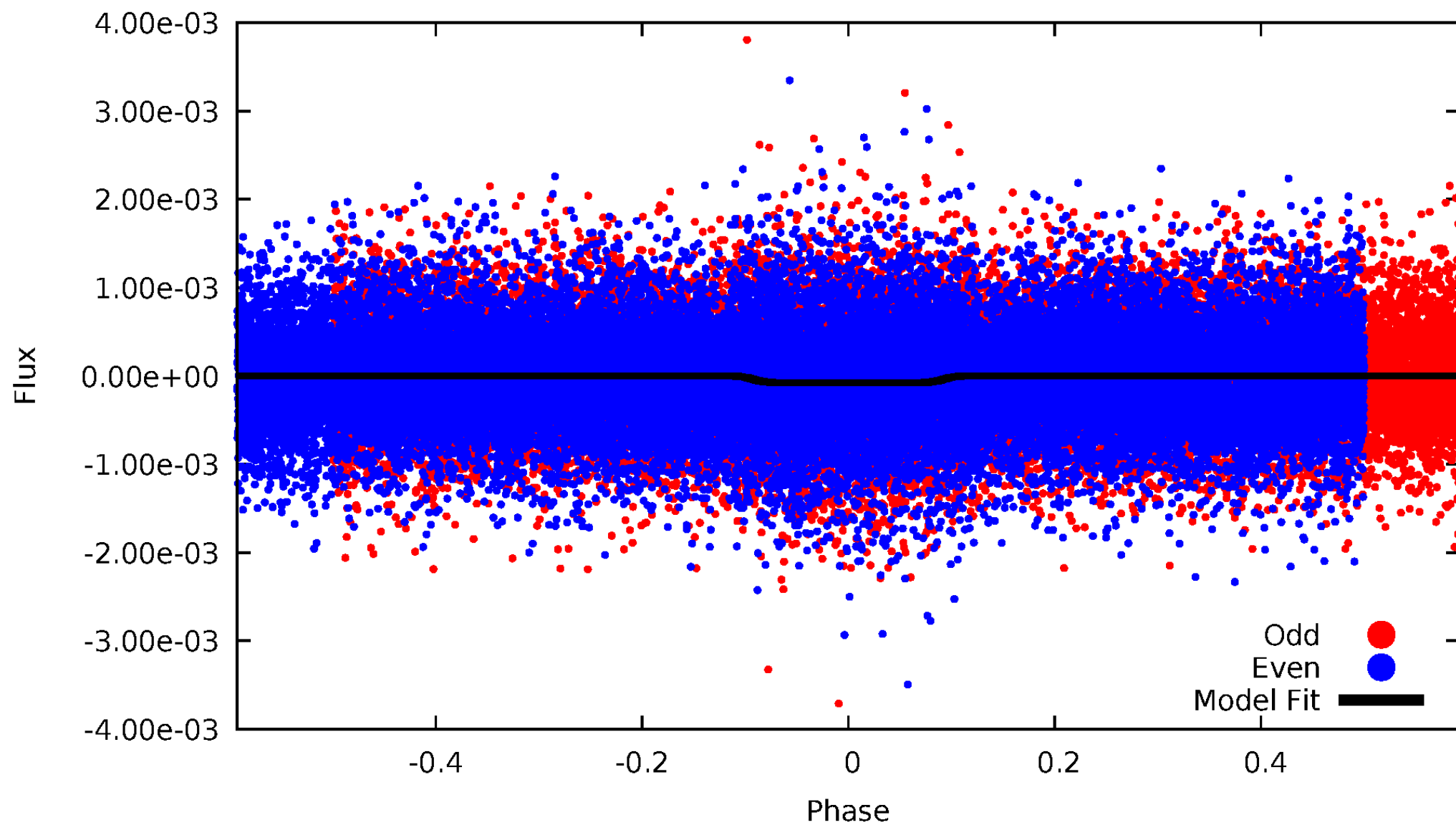
DV Odd/Even

TCE 006037987-02



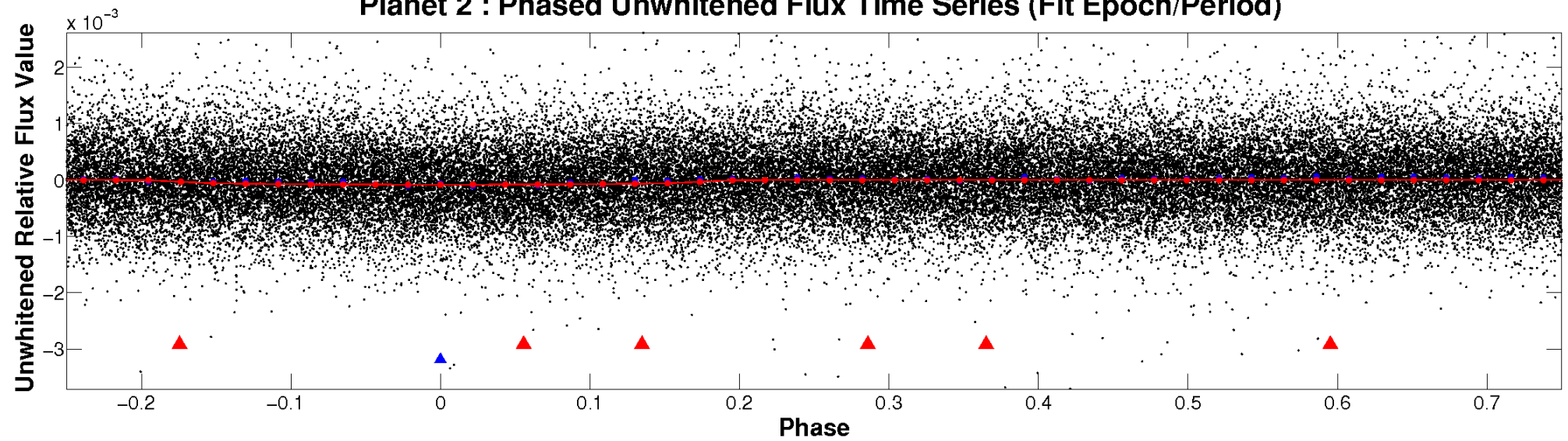
ALT Odd/Even

TCE 006037987-02

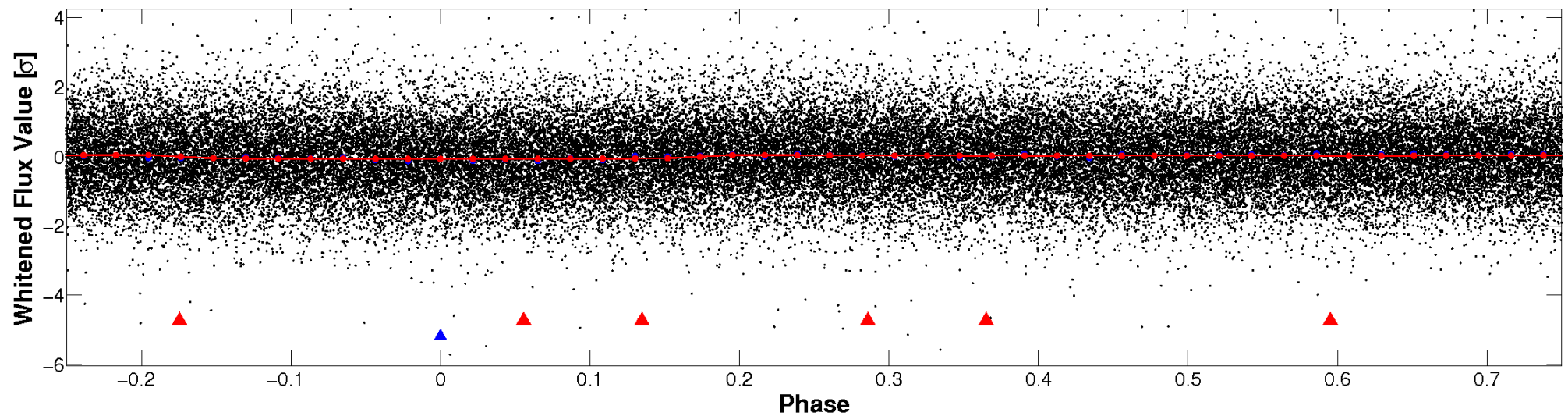


Non-Whitened Vs. Whitened Light Curve

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

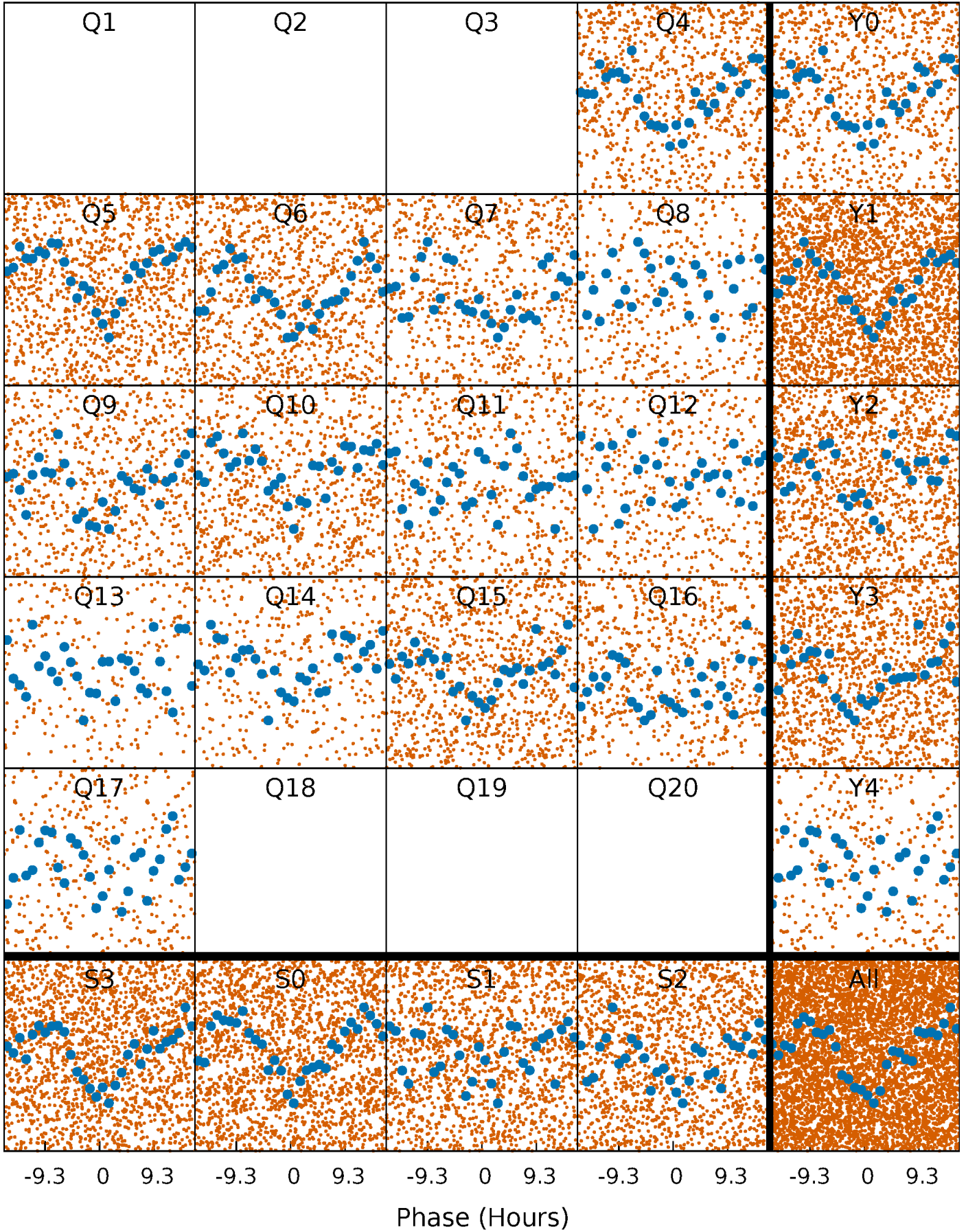


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



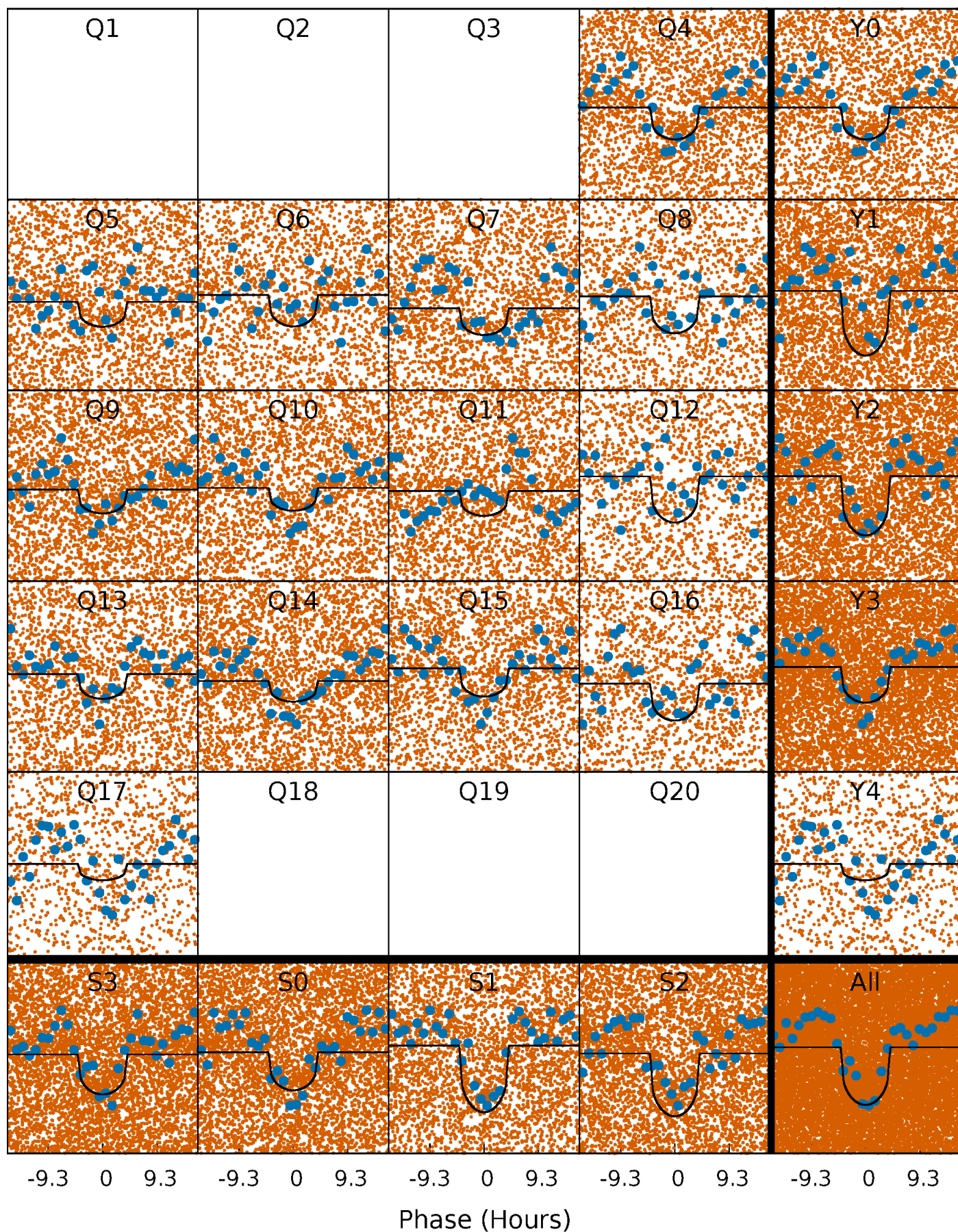
PDC Quarter-Phased Transit Curves

TCE 006037987-02 P= 0.941567 Days $T_0=131.779962$ (BKJD)



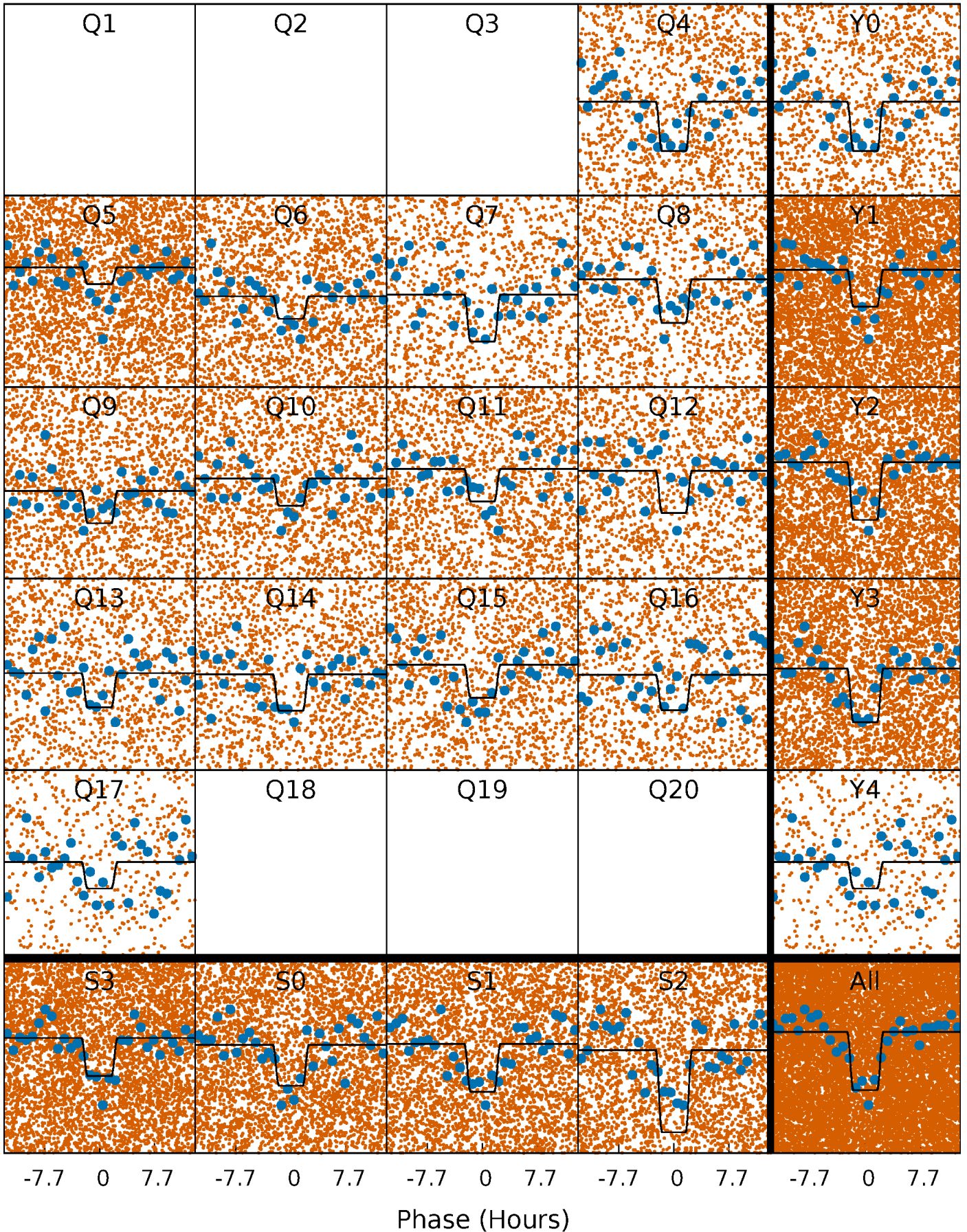
DV Quarter-Phased Transit Curves

TCE 006037987-02 $P = 0.941567$ Days $T_0 = 131.779962$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

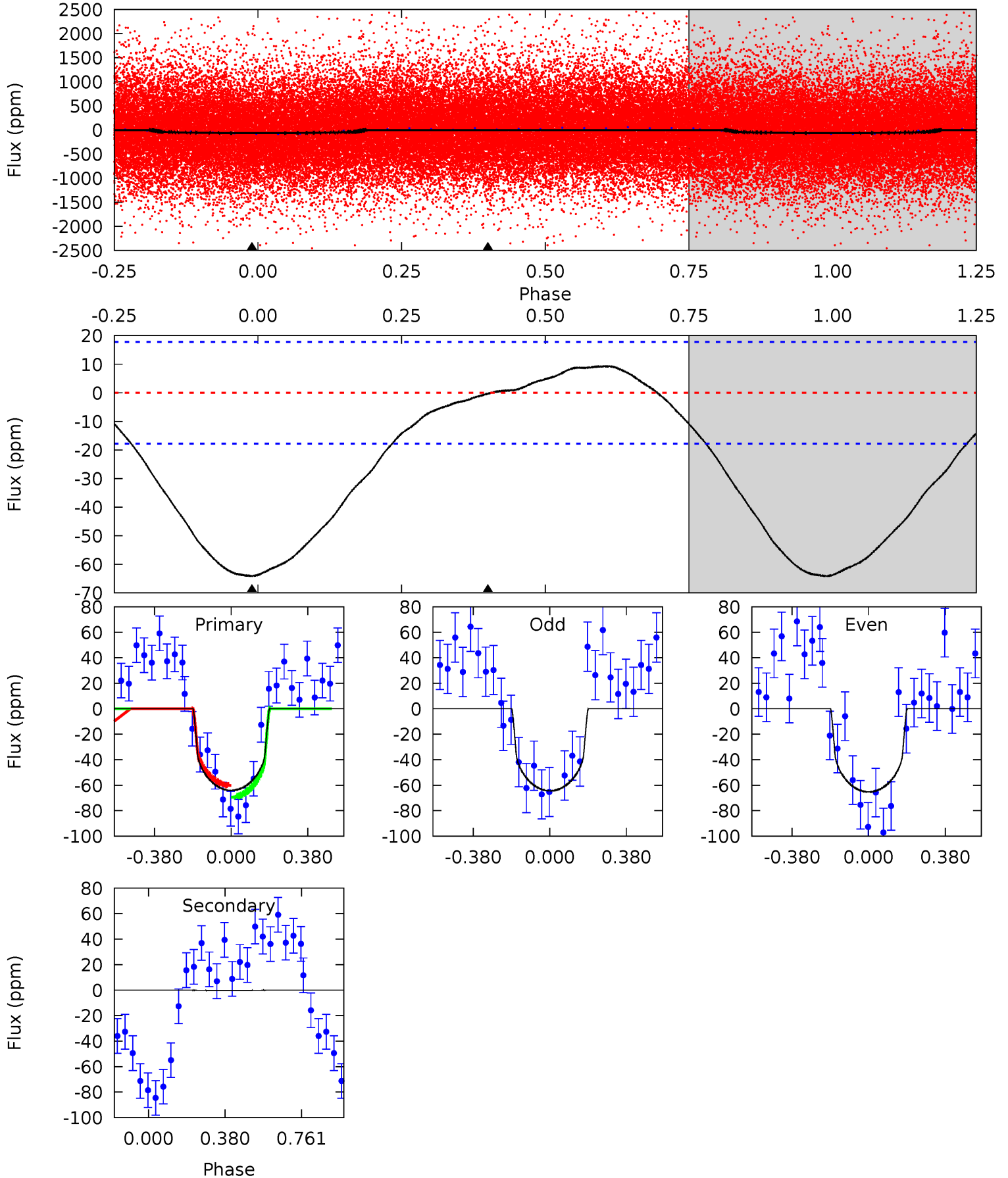
TCE 006037987-02 $P = 0.941552$ Days $T_0 = 131.813611$ (BKJD)



DV Model-Shift Uniqueness Test

006037987-02, P = 0.941567 Days, E = 131.779962 Days

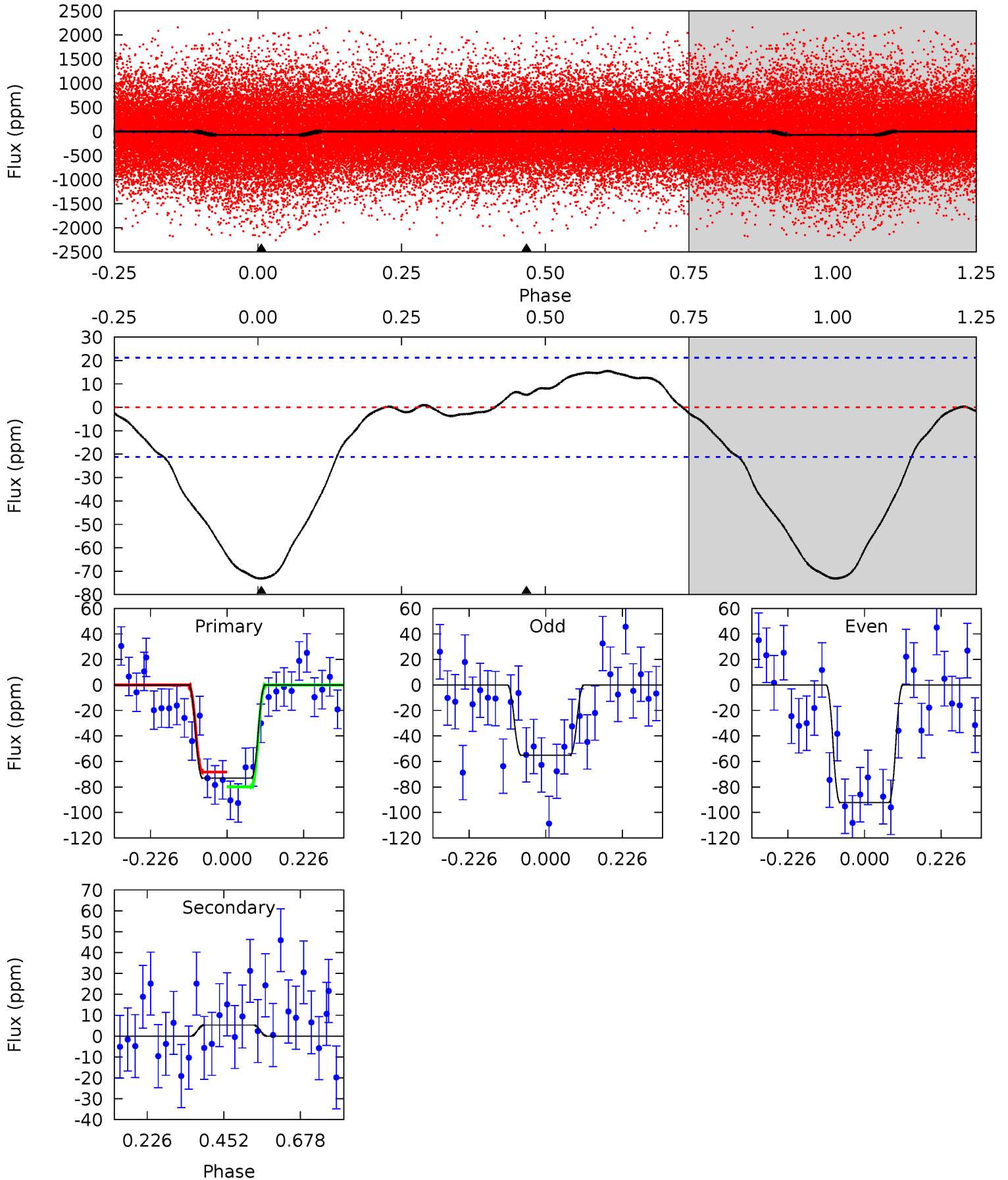
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	0.07	0	0	4.28	0.88	1.18	15.4	15.4	0.07	0.07	0.11	0.89	0.13	1.09



Alt Model-Shift Uniqueness Test

006037987-02, P = 0.941552 Days, E = 131.813611 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	-1.10	0	0	4.39	1.21	1.13	15.2	15.2	-1.10	-1.10	3.90	0.92	0.18	1.21



Stellar Parameters For KIC 006037987

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5857^{+175}_{-193}	$4.559^{+0.046}_{-0.196}$	$-0.360^{+0.300}_{-0.300}$	$0.827^{+0.236}_{-0.079}$	$0.904^{+0.097}_{-0.108}$	$2.254^{+0.426}_{-1.121}$
	+3%/-3%	+1%/-4%	+83%/-83%	+29%/-10%	+11%/-12%	+19%/-50%
Source	KIC0	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 006037987-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-0 ± 4	$1.01^{+0.82}_{-0.66}$	2488^{+155}_{-125}	-2787^{+6098}_{-773}	$0.014^{+1.295}_{-1.215}$
Alt.	5 ± 5	$0.97^{+0.79}_{-0.59}$	2492^{+163}_{-119}	-3366^{+516}_{-1222}	$-0.739^{+0.682}_{-5.821}$

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

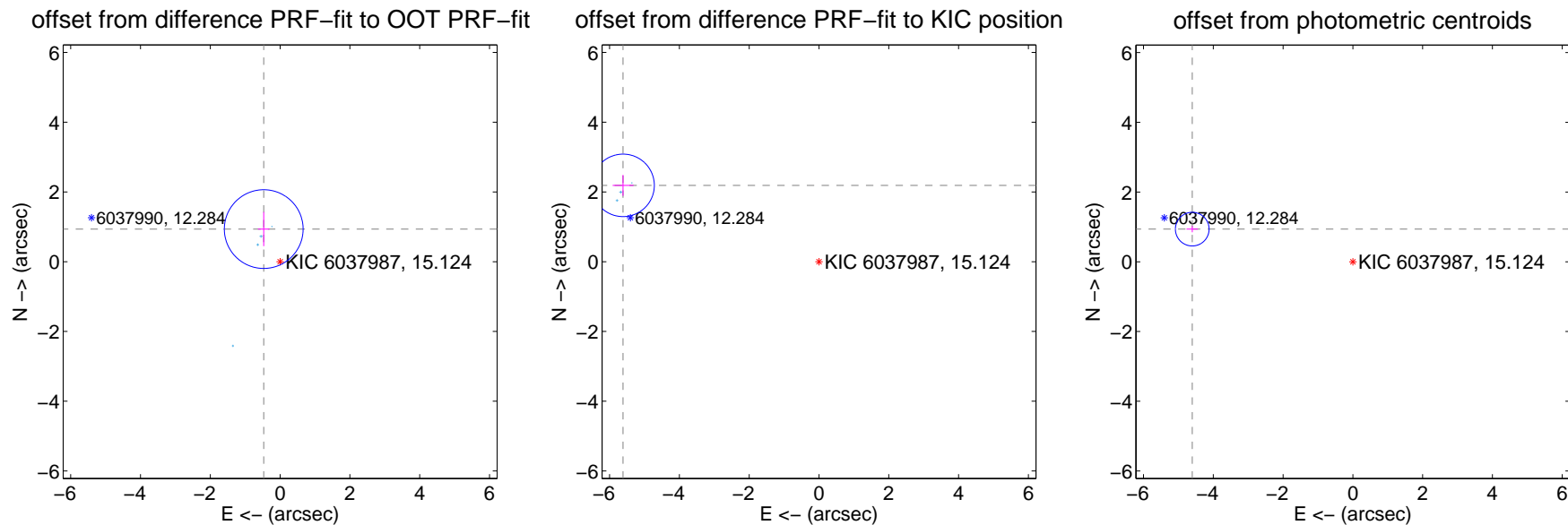
DV Centroid Data

Supplemental centroid analysis for 006037987-02. Kepler magnitude: 15.12. Transit SNR 10.17

There are 4 quarters with good PRF difference image offsets

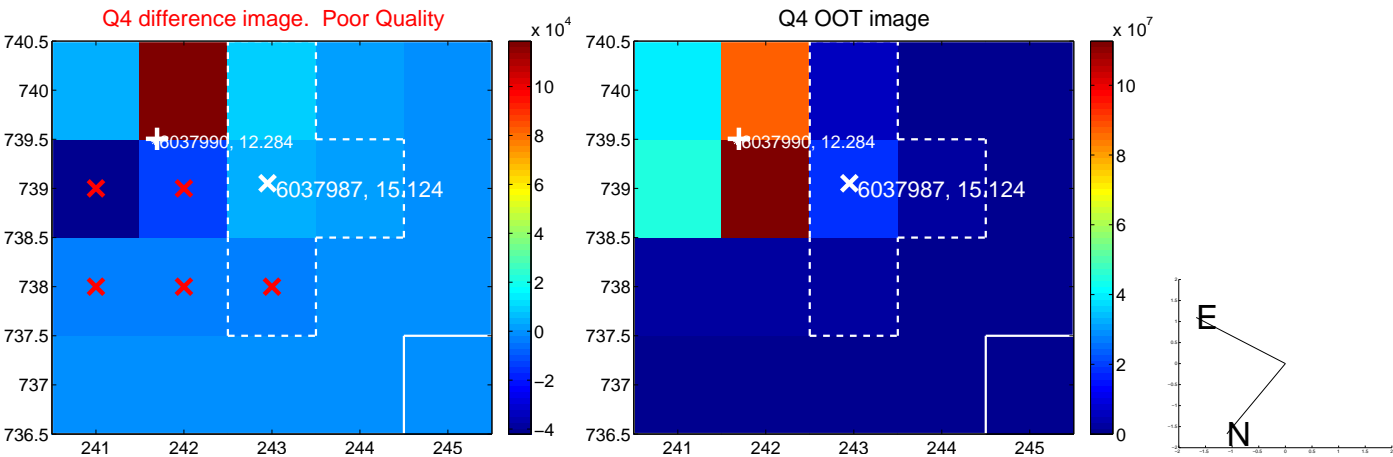
The OOT PRF centroid is offset from the target star catalog position by about 5.29 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.046 ± 0.376	2.78	0.469 ± 0.164	0.935 ± 0.489
PRF-fit source offset from KIC position	6.024 ± 0.299	20.17	5.613 ± 0.298	2.188 ± 0.300
photometric centroid source offset	4.70 ± 0.16	29.19	4.60 ± 0.16	0.94 ± 0.09

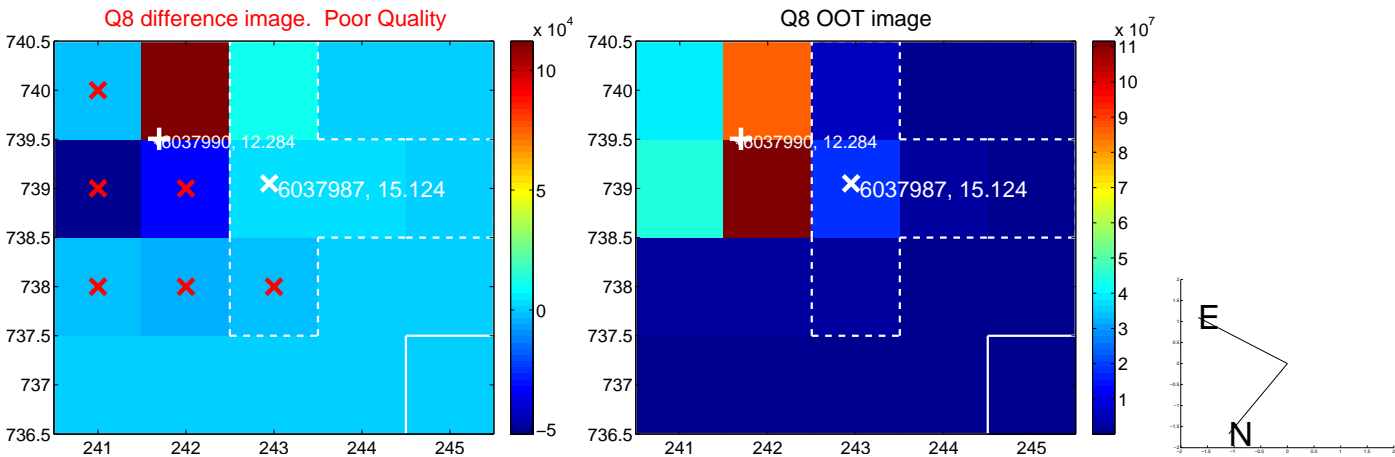
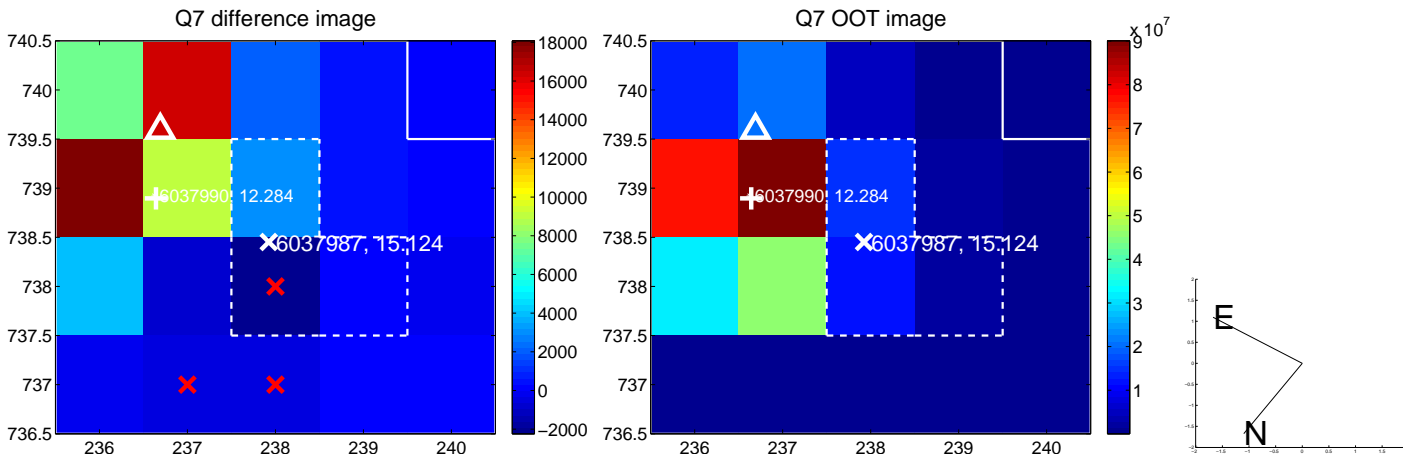
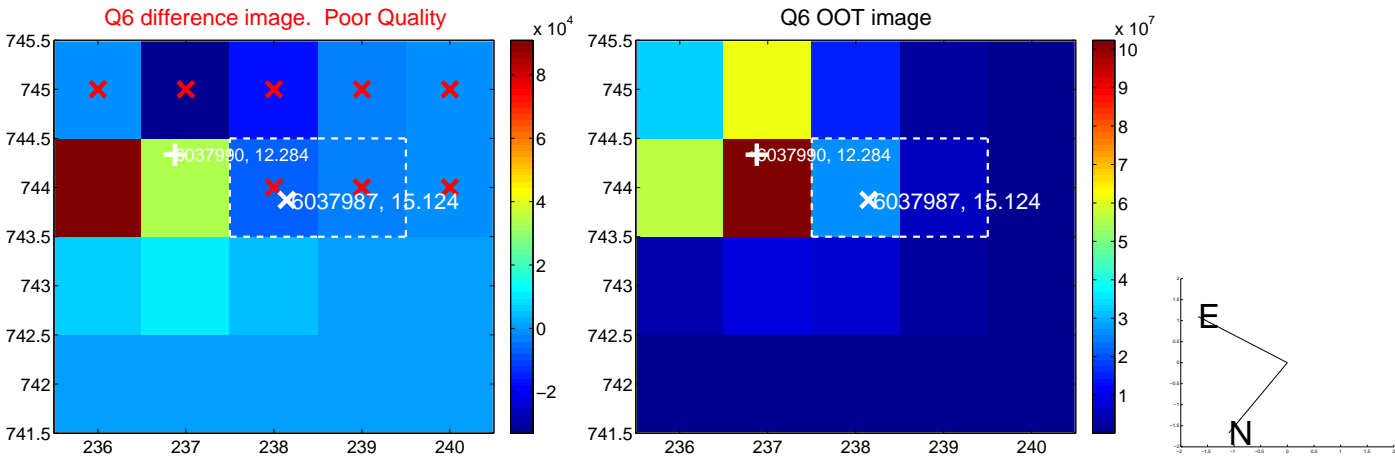
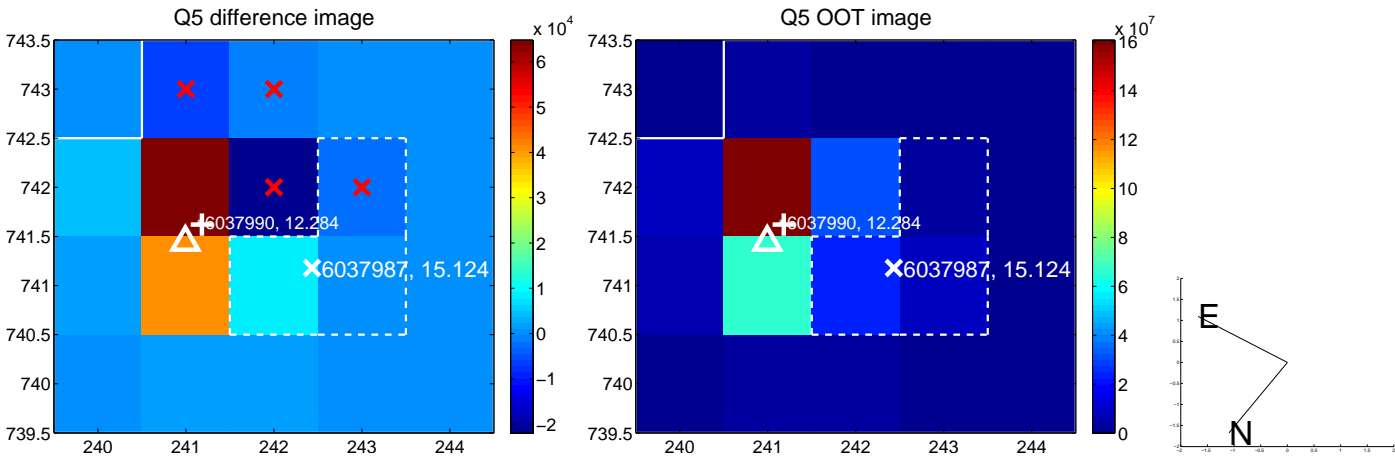


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

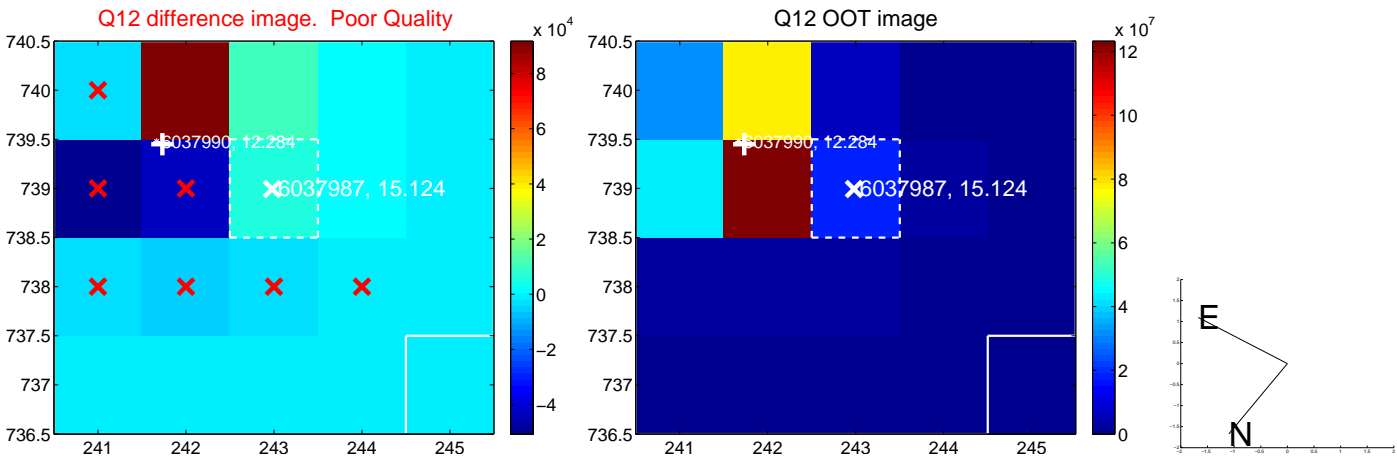
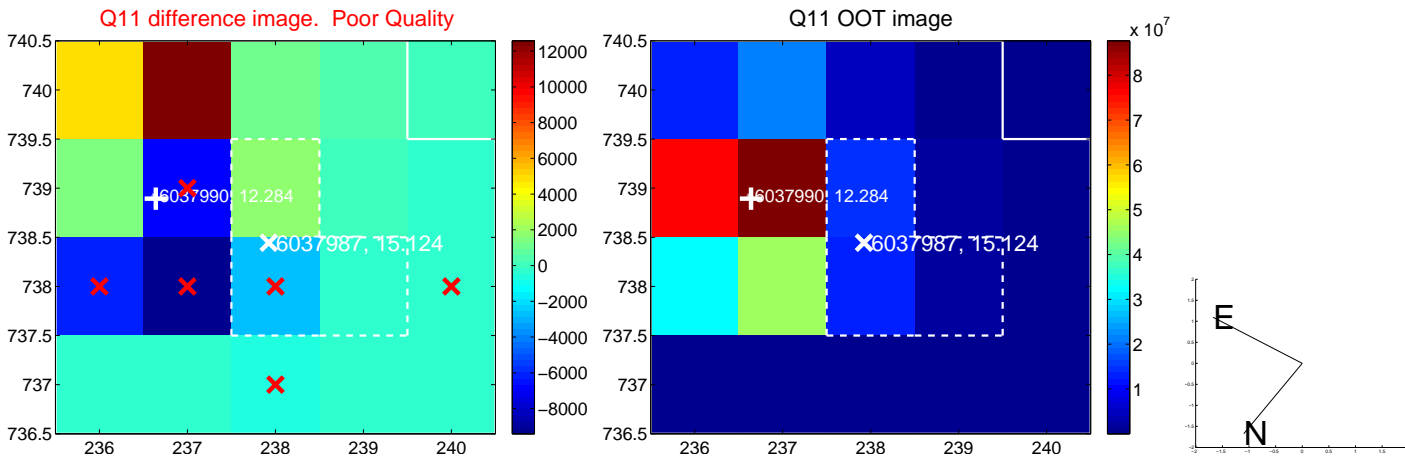
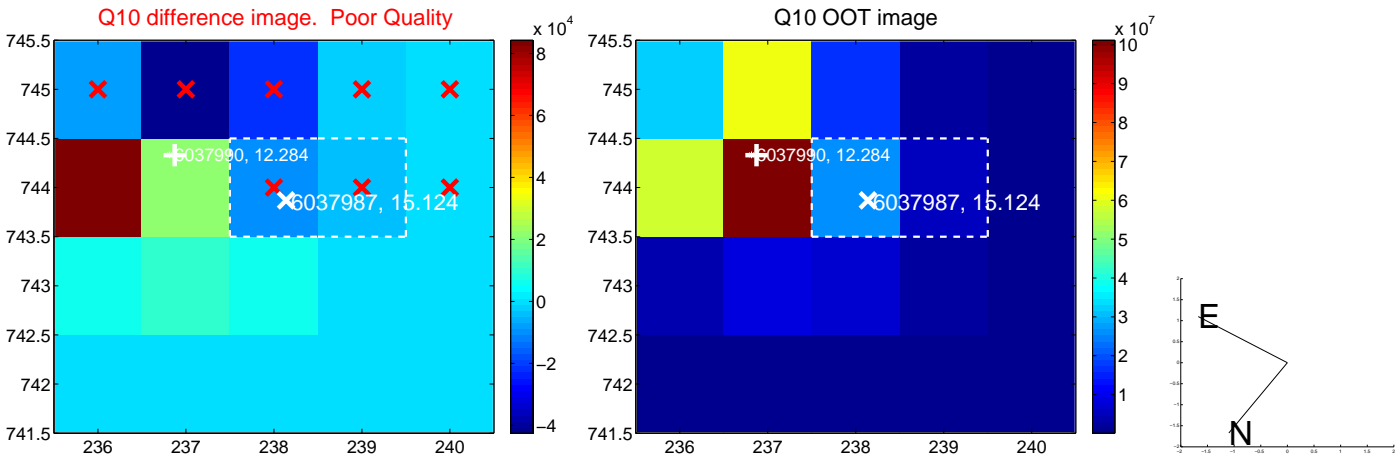
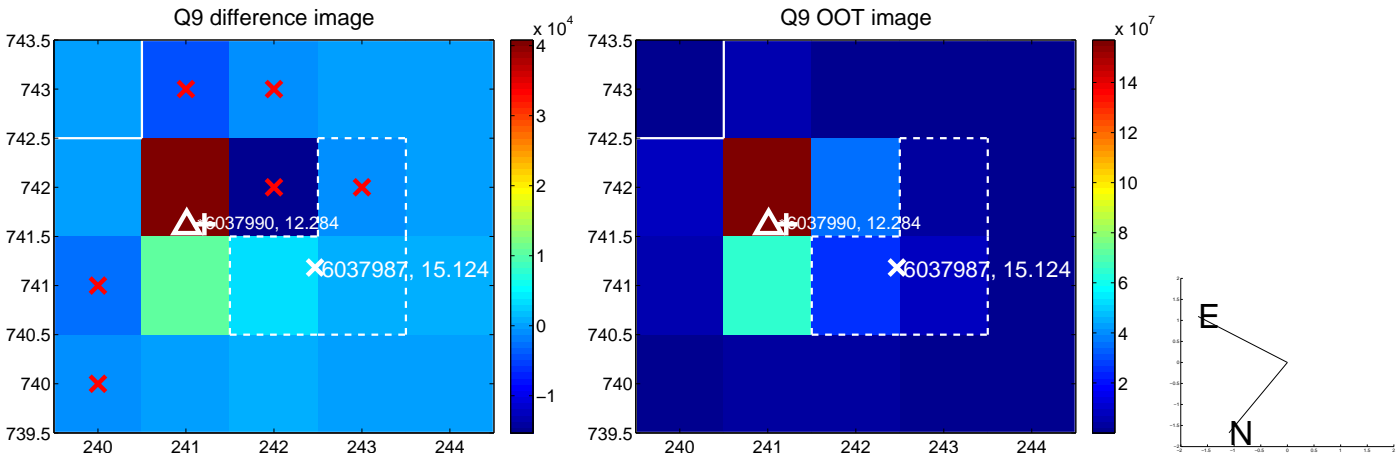
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



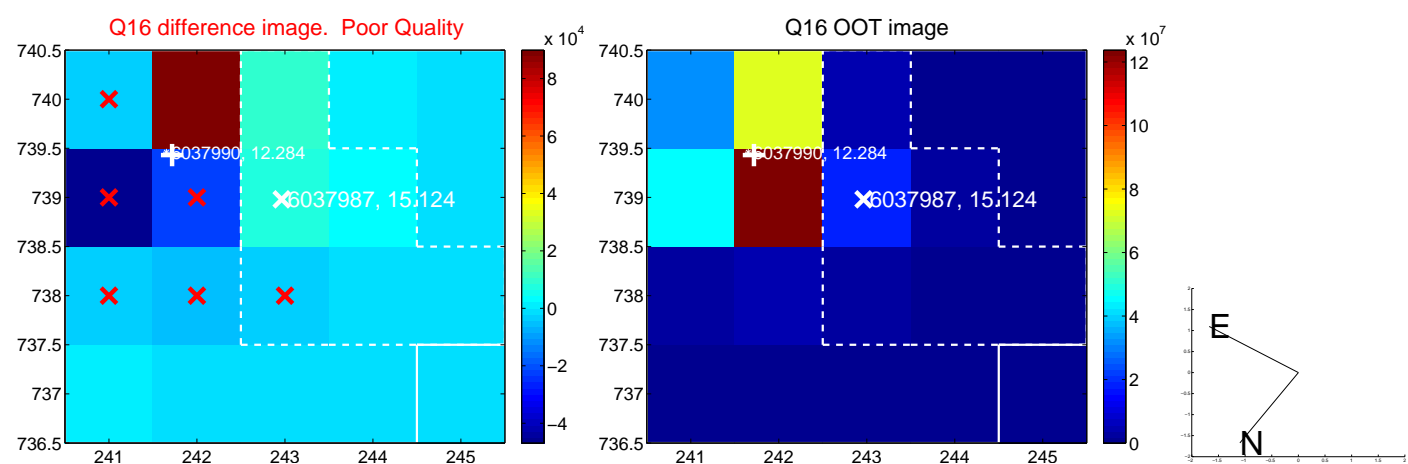
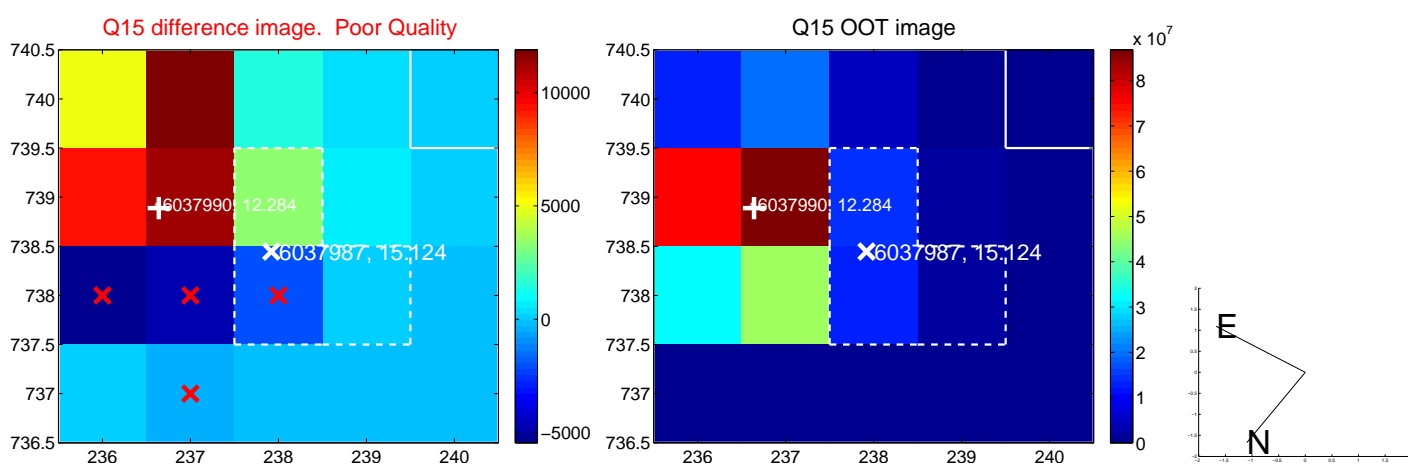
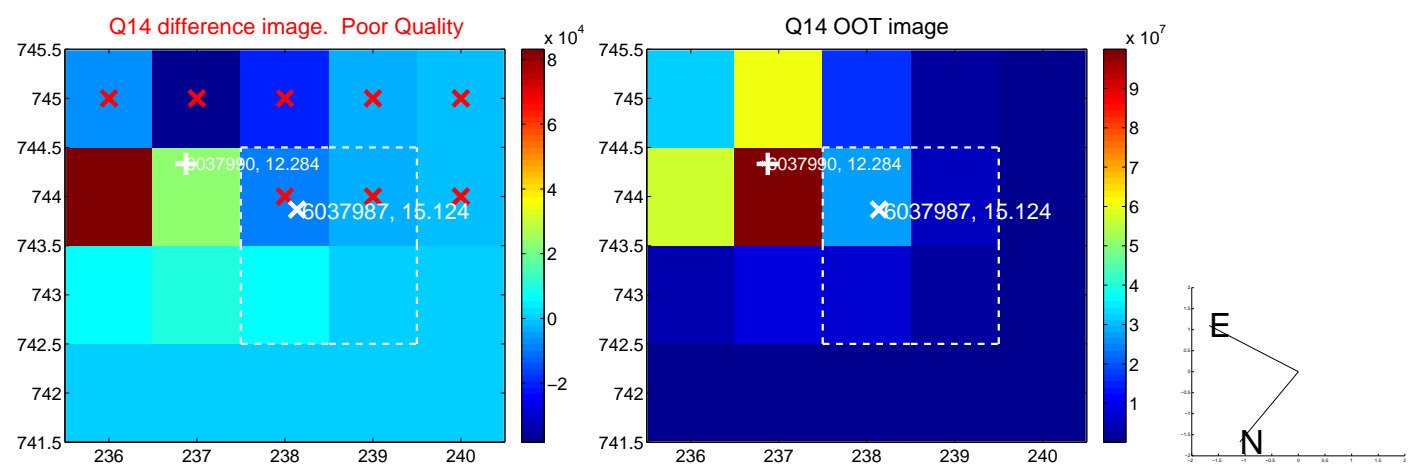
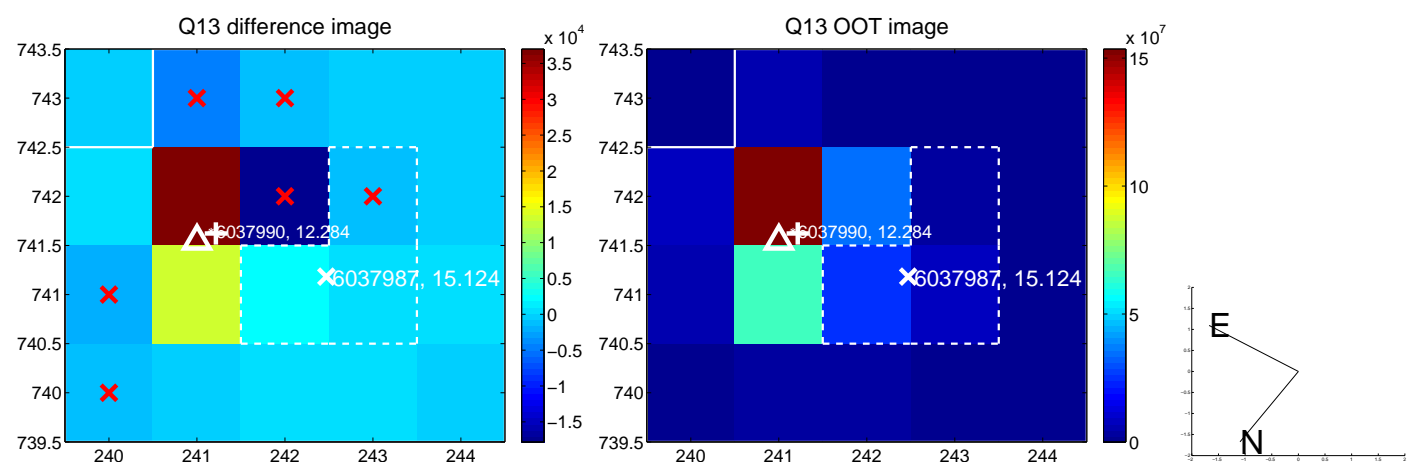
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



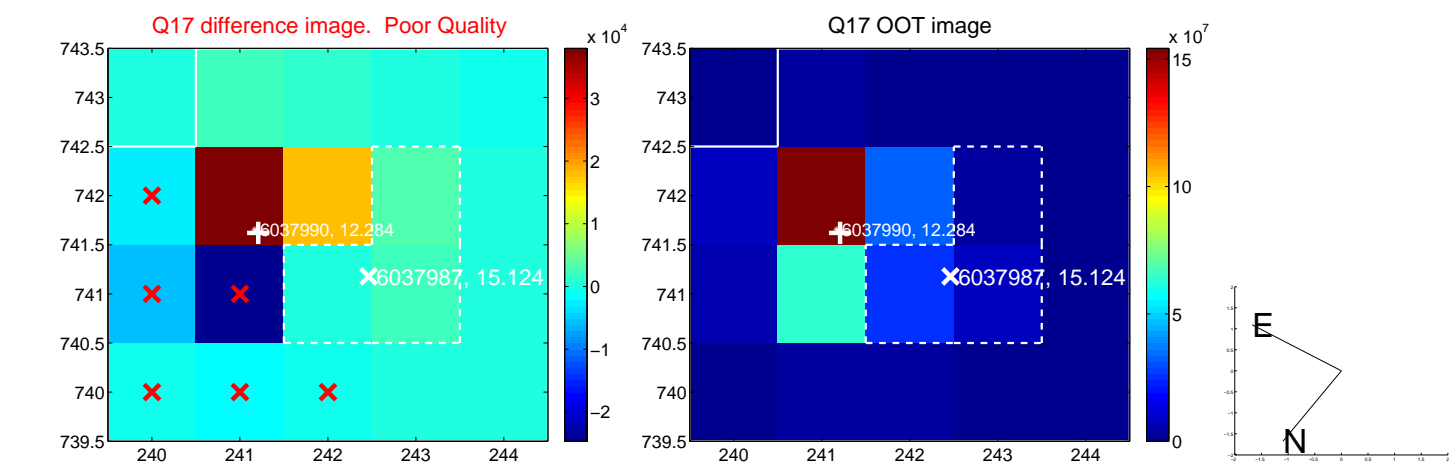
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



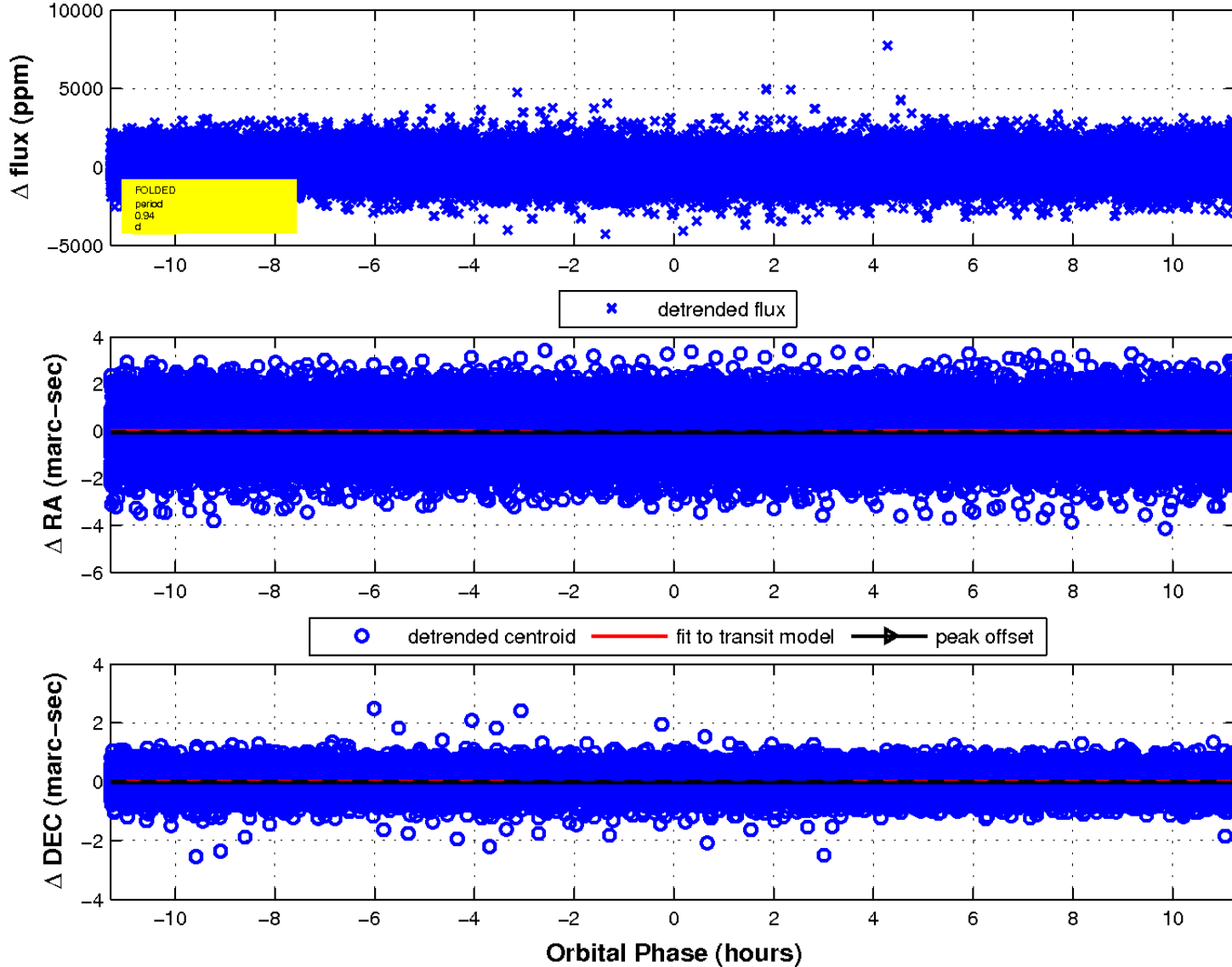
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

