

KIC 010387742

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})
010387742-01	OBS	2583.01	3.032638	134.076738	40.6	1.919	12.9	15.0	0.92	5640	0.69	469.63
010387742-02	OBS	2583.02	251.753391	271.039779	152.1	2.739	7.4	7.5	0.92	5640	1.36	1.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010387742-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010387742-02	OBS	FP	0.22	1	0	0	0	MOD_NONUNIQU_ALT

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

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

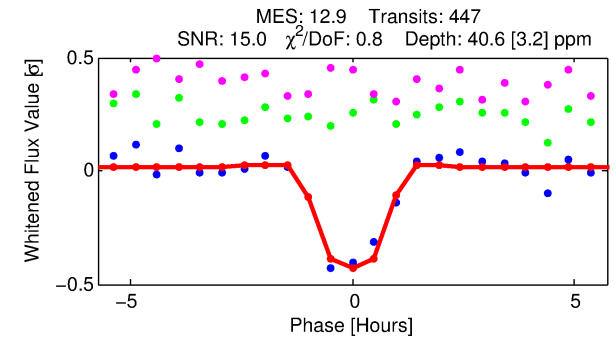
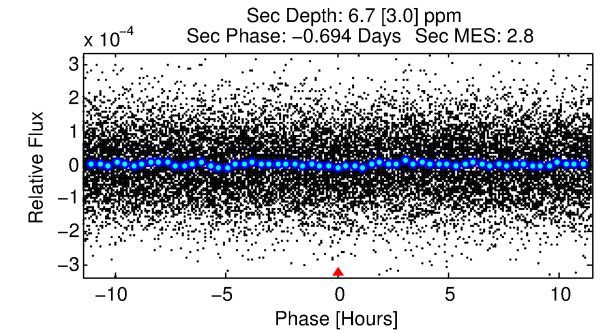
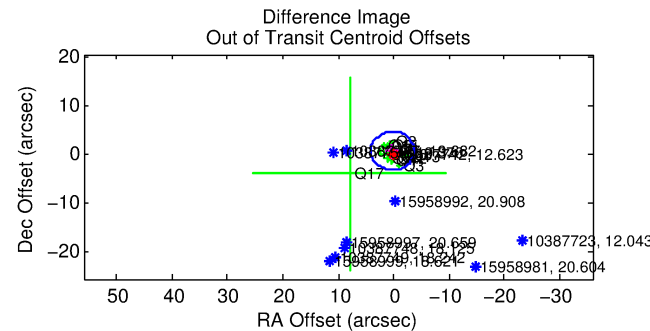
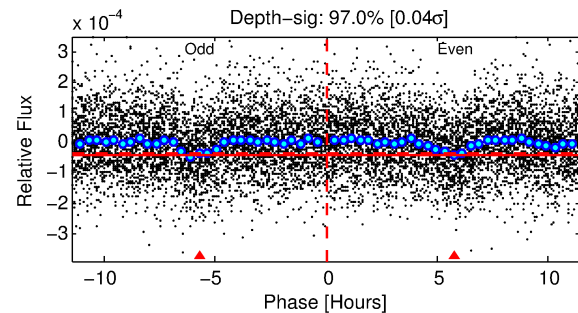
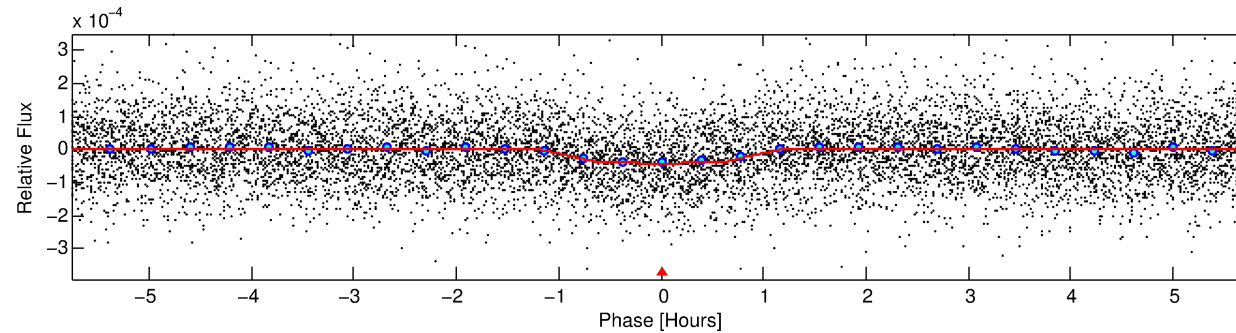
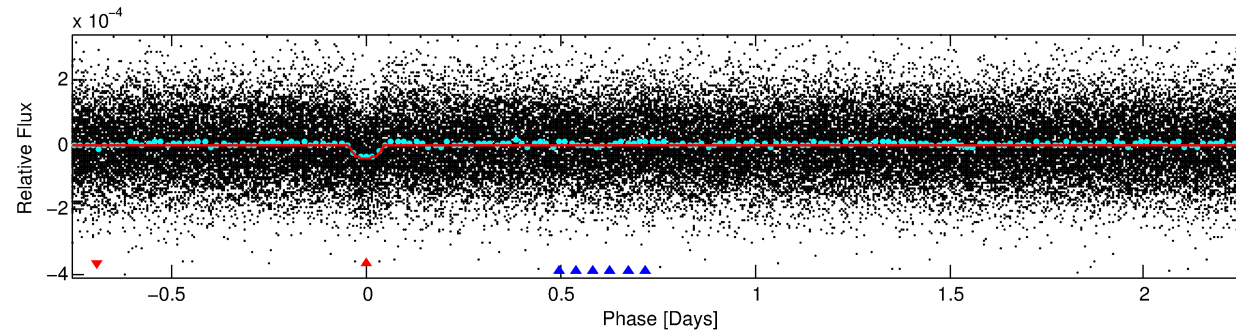
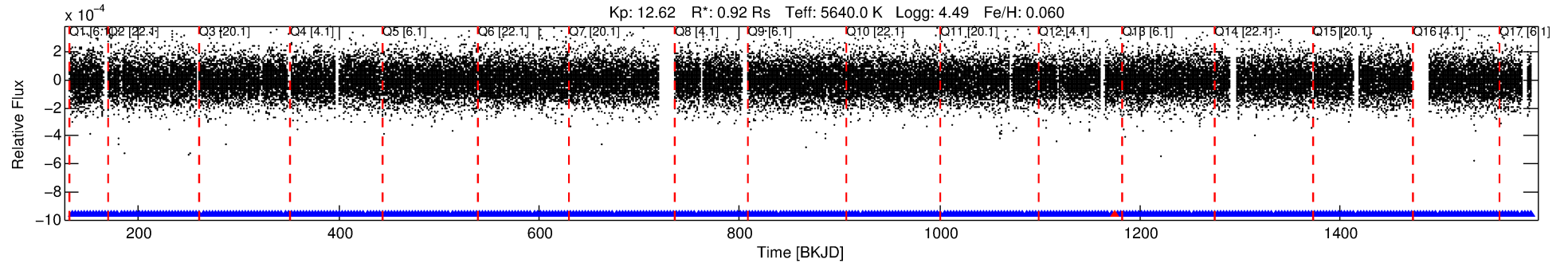
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010387742-01

No Significant Match Found

DV One-Page Summary

KIC: 10387742 Candidate: 1 of 2 Period: 3.033 d
KOI: K02583.01 Corr: 0.951



DV Fit Results:

Period = 3.03264 [0.00001] d
Epoch = 134.0767 [0.0022] BKJD
Rp/R* = 0.0069 [0.0029]
a/R* = 5.82 [10.67]
b = 0.89 [0.46]
Seff = 469.63 [100.18]
Teq = 1187 [63] K
Rp = 0.69 [0.30] Re
a = 0.0405 [0.0052] AU
Ag = 12.48 [11.95] [0.96σ]
Teffp = 3450 [811] K [2.78σ]

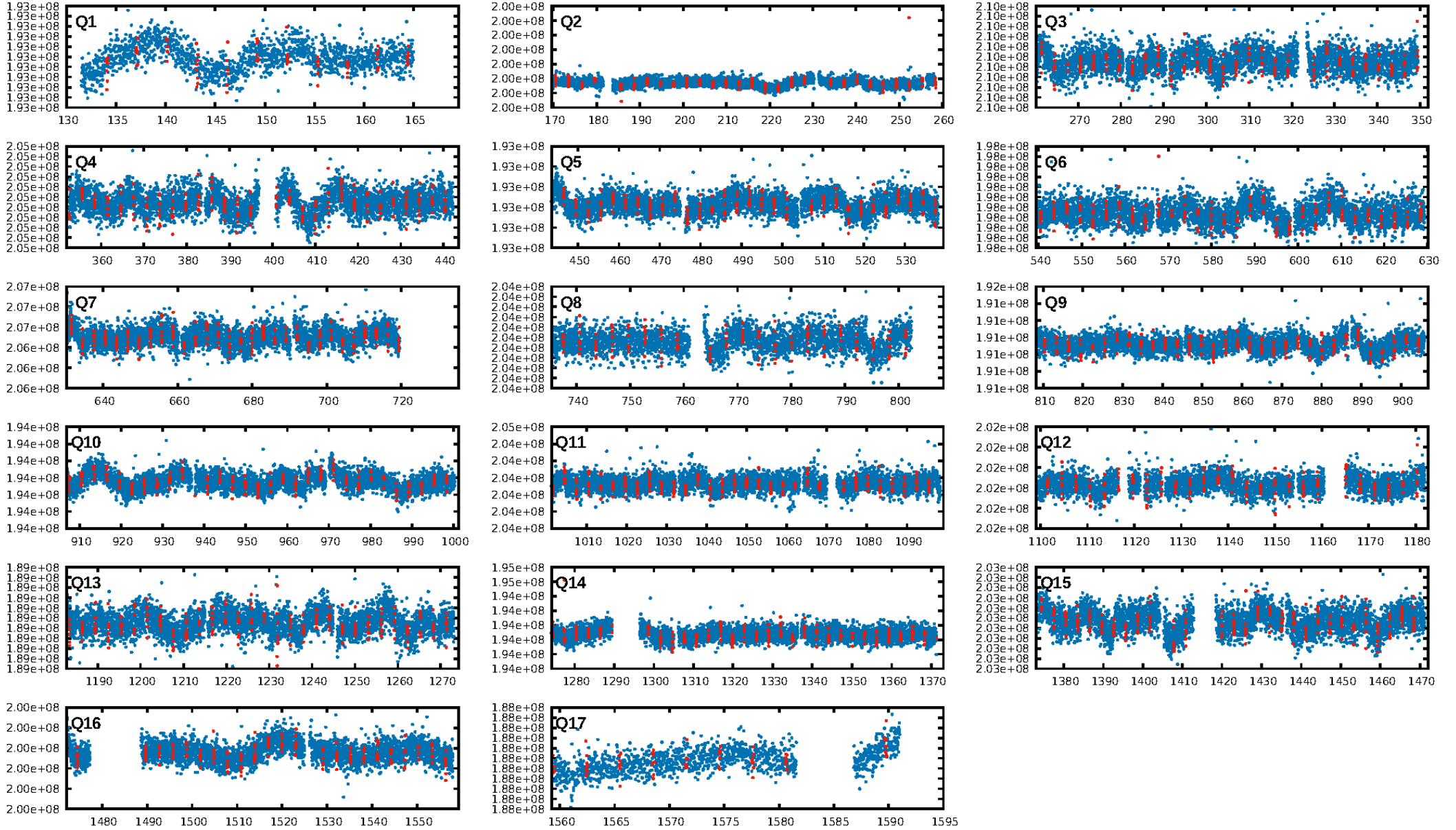
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1784.84σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.28e-36
RollingBand-figt: 1.00 [426/427]
GhostDiagnostic-chr: 3.208
Centroid-sig: 0.0%
Centroid-so: 2.328 arcsec [2.69σ]
OotOffset-rm: 0.763 arcsec [0.58σ]
KicOffset-rm: 0.512 arcsec [0.40σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.87 [13/15]
DiffImageOverlap-fno: 1.00 [17/17]

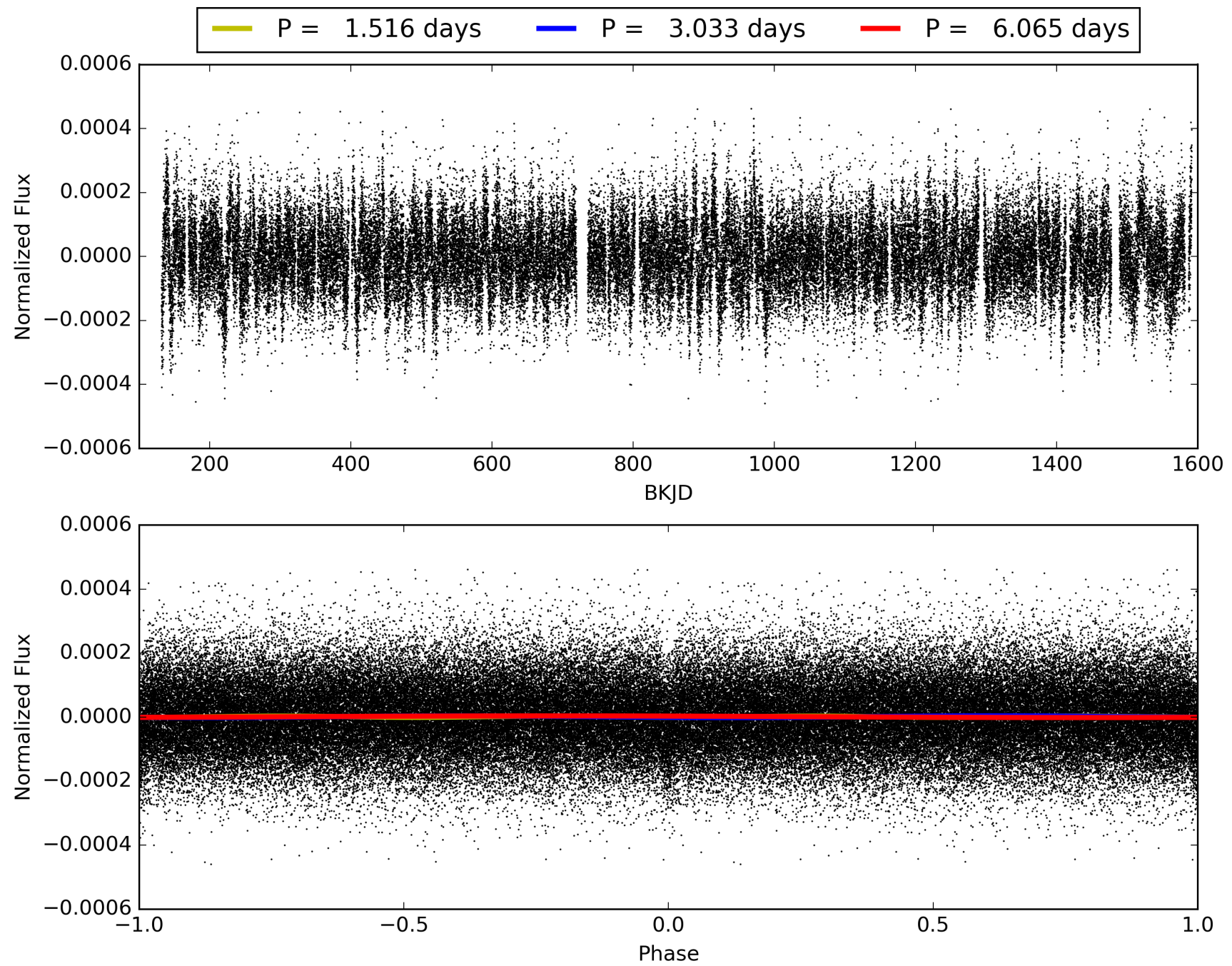
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:48:40 Z

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

TCE 010387742-01, PDC Light Curves

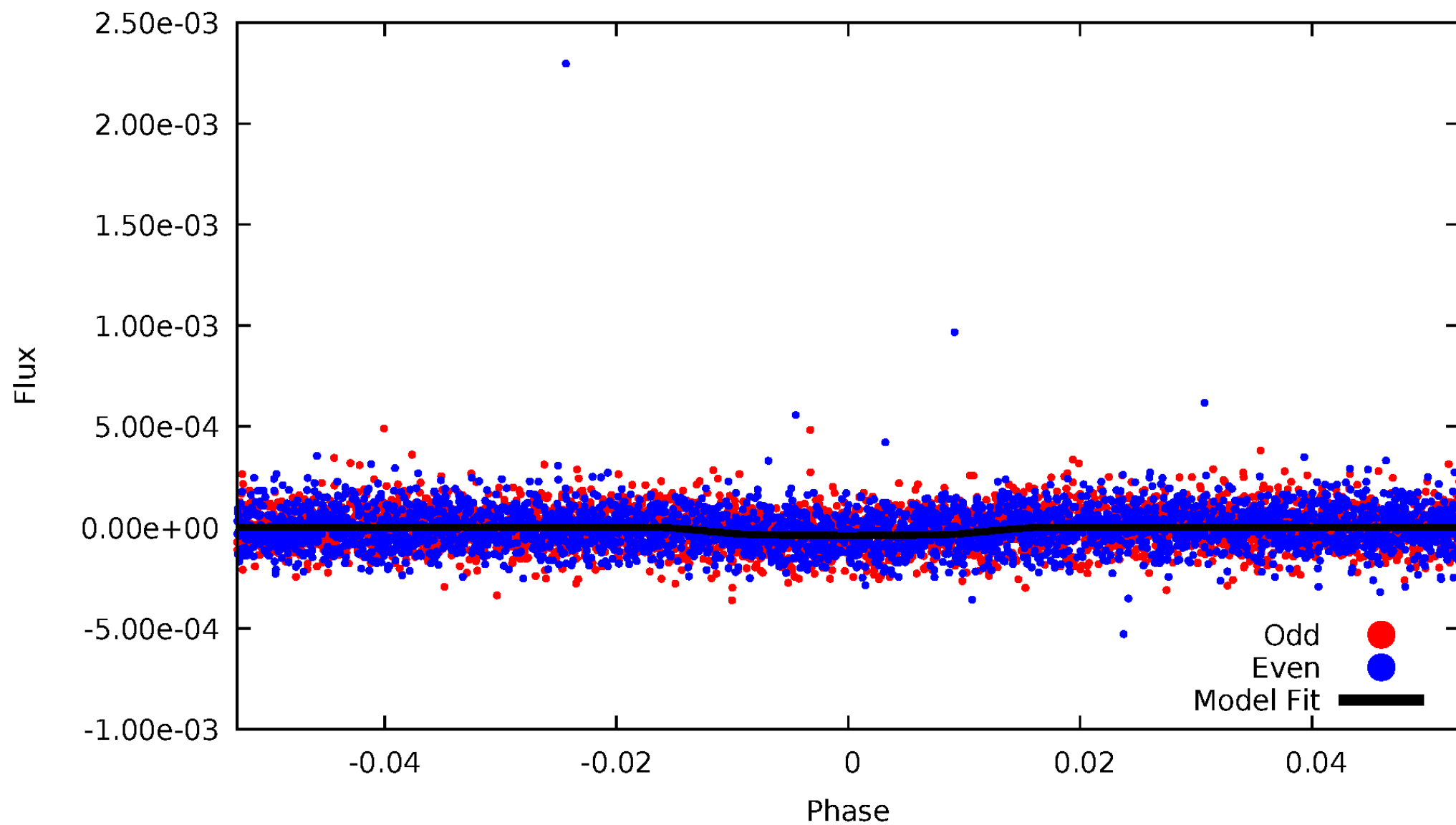


TCE 010387742-01



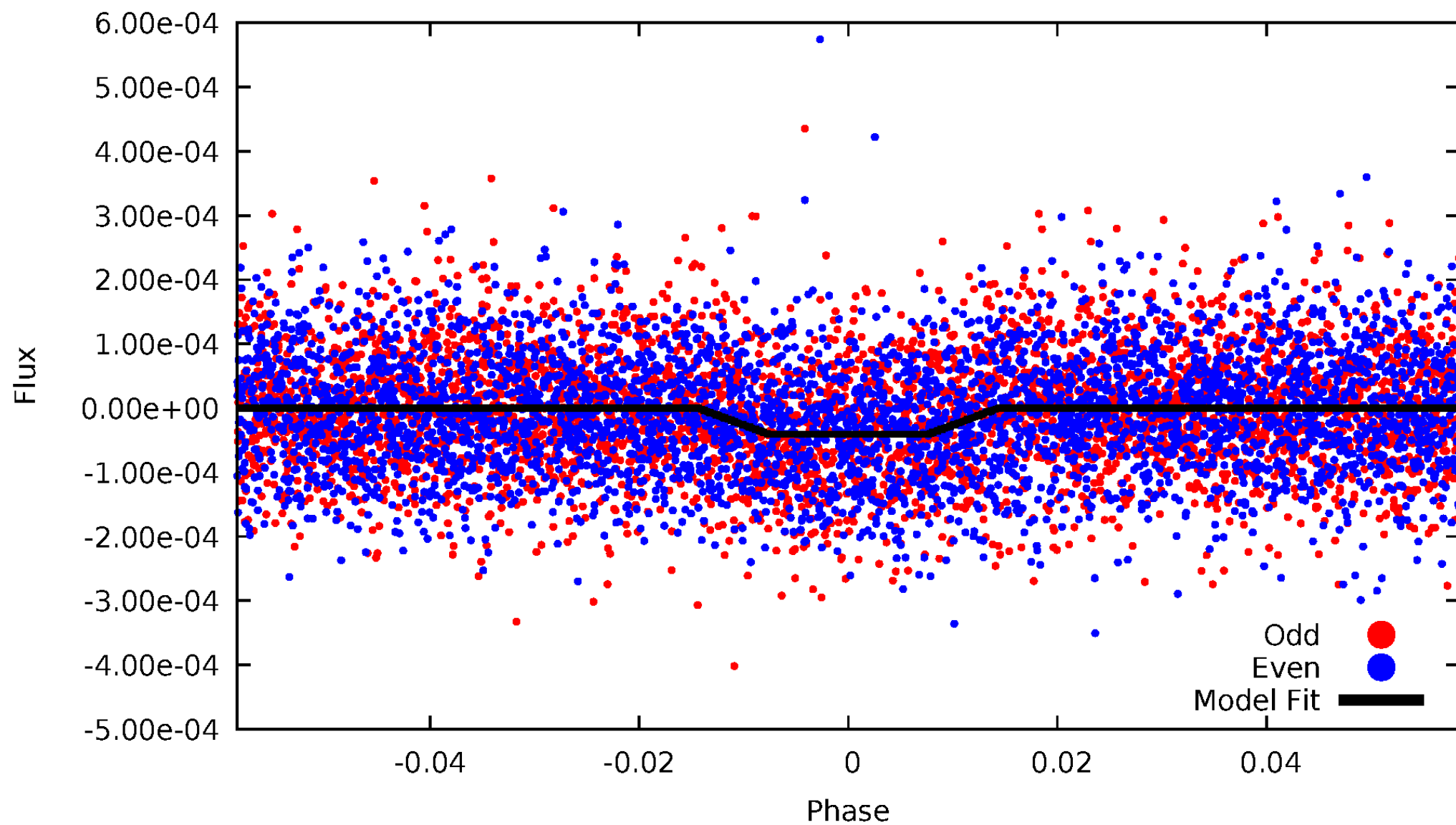
DV Odd/Even

TCE 010387742-01



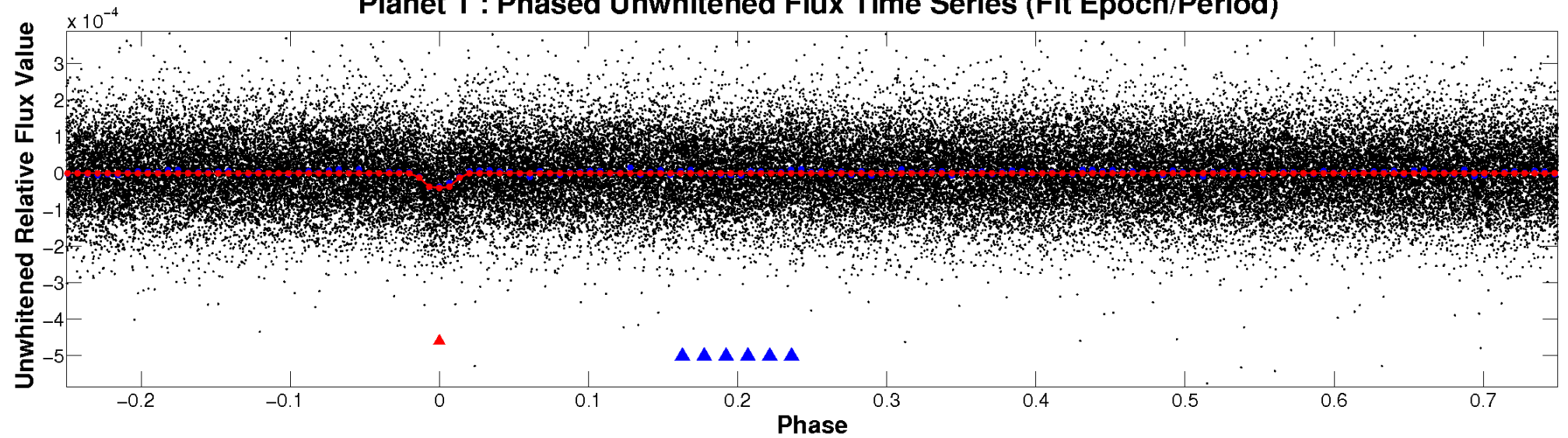
ALT Odd/Even

TCE 010387742-01

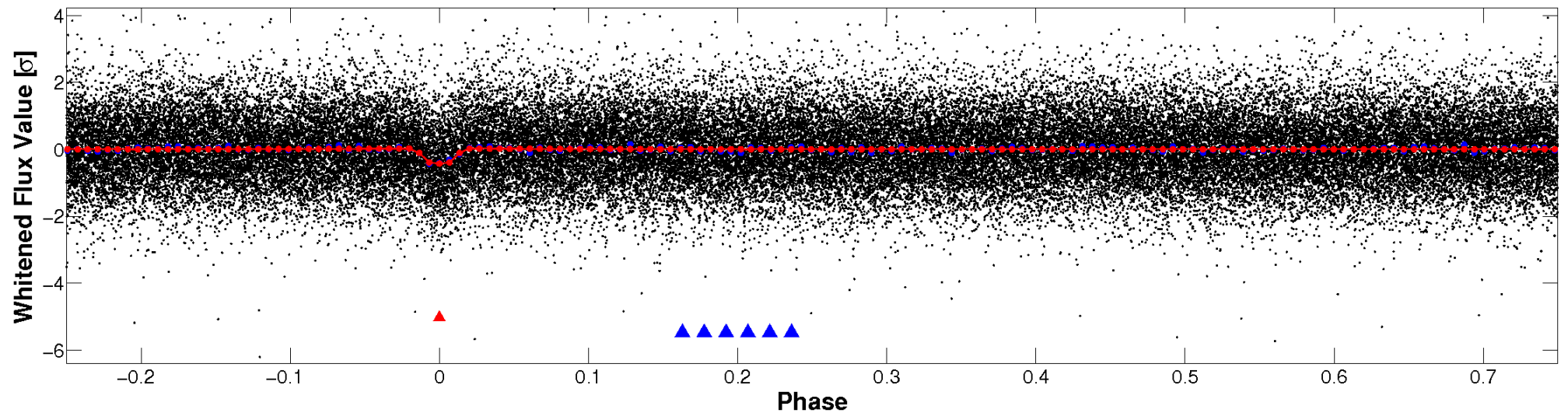


Non-Whitened Vs. Whitened Light Curve

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

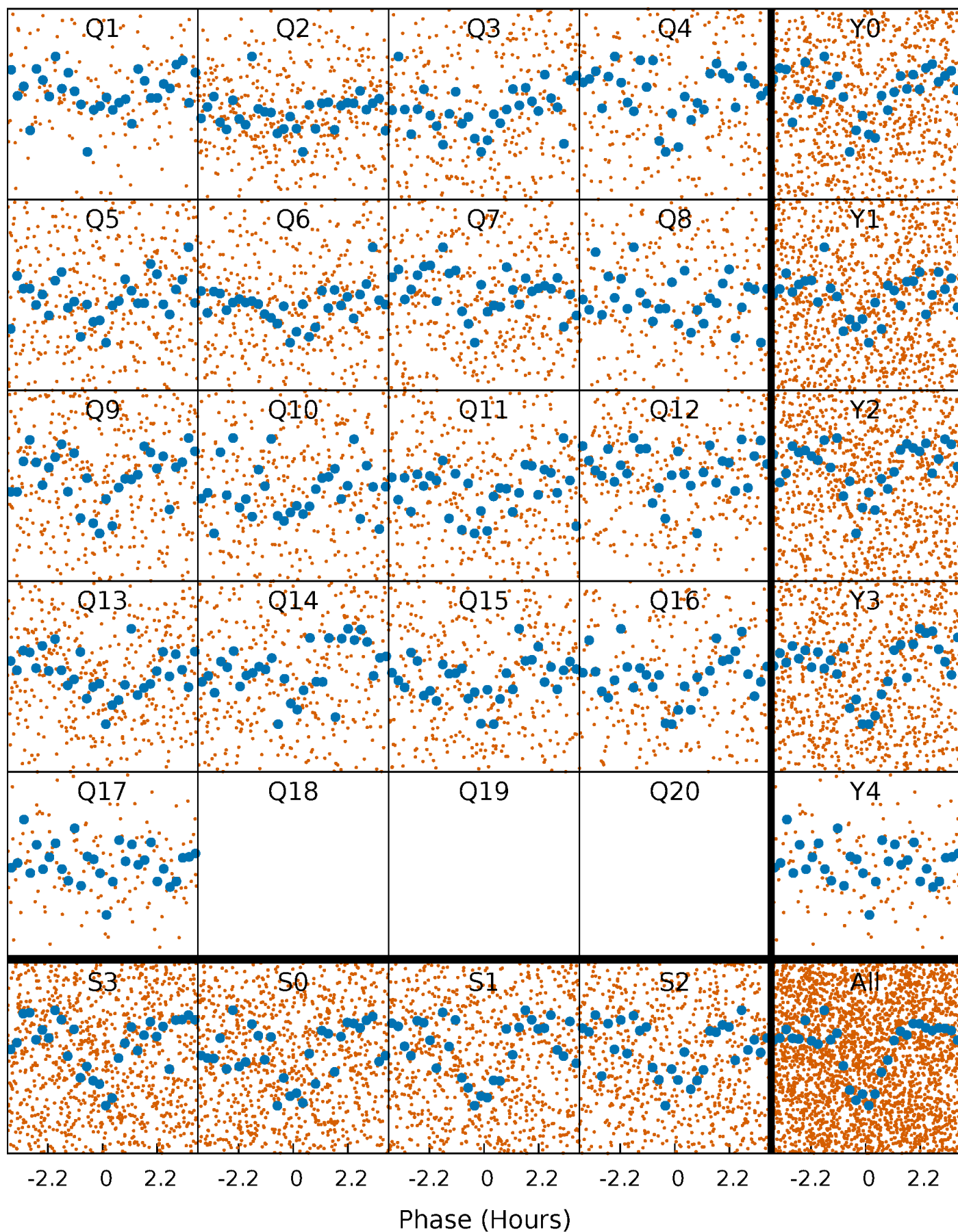


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



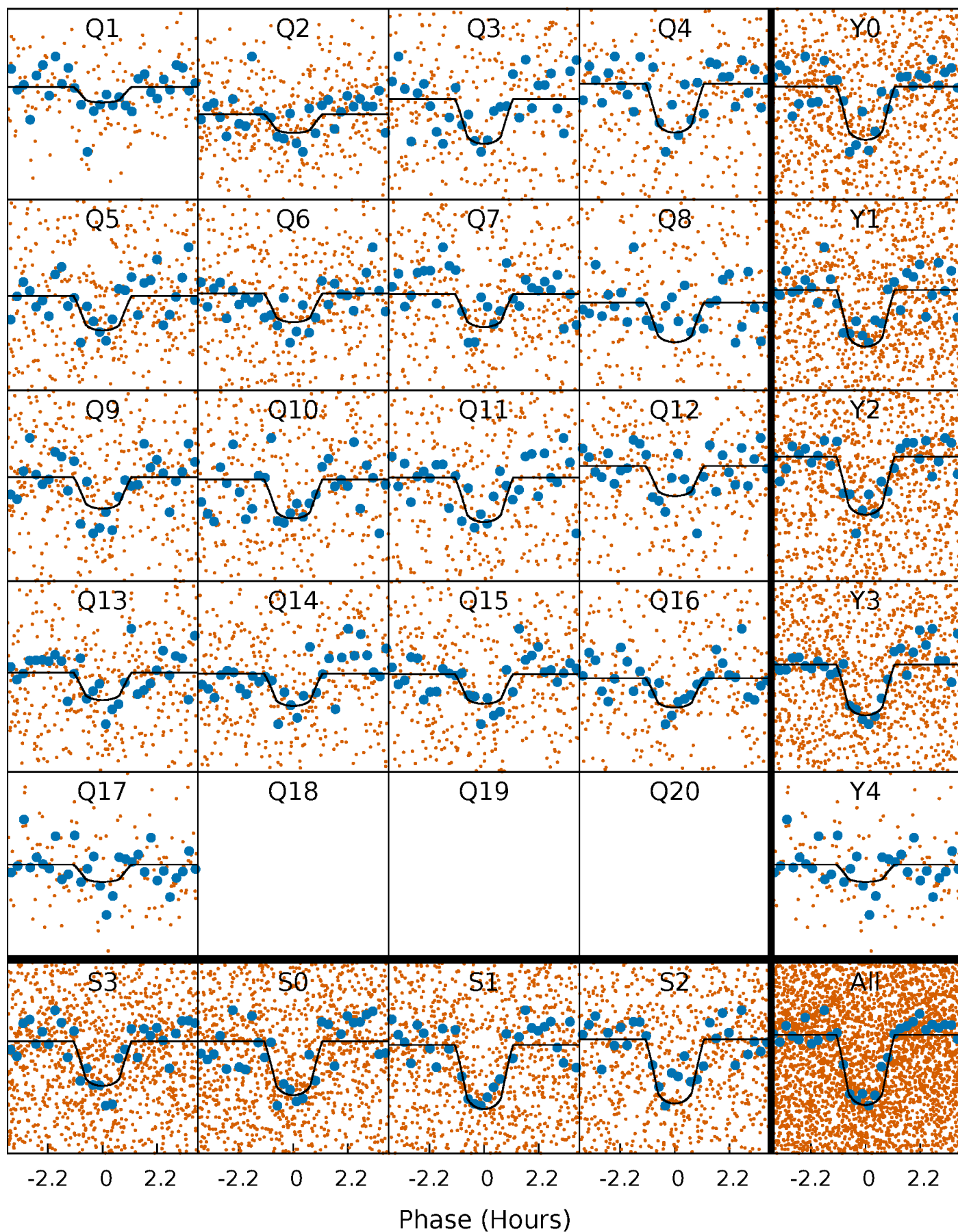
PDC Quarter-Phased Transit Curves

TCE 010387742-01 P= 3.032638 Days $T_0=134.076738$ (BKJD)



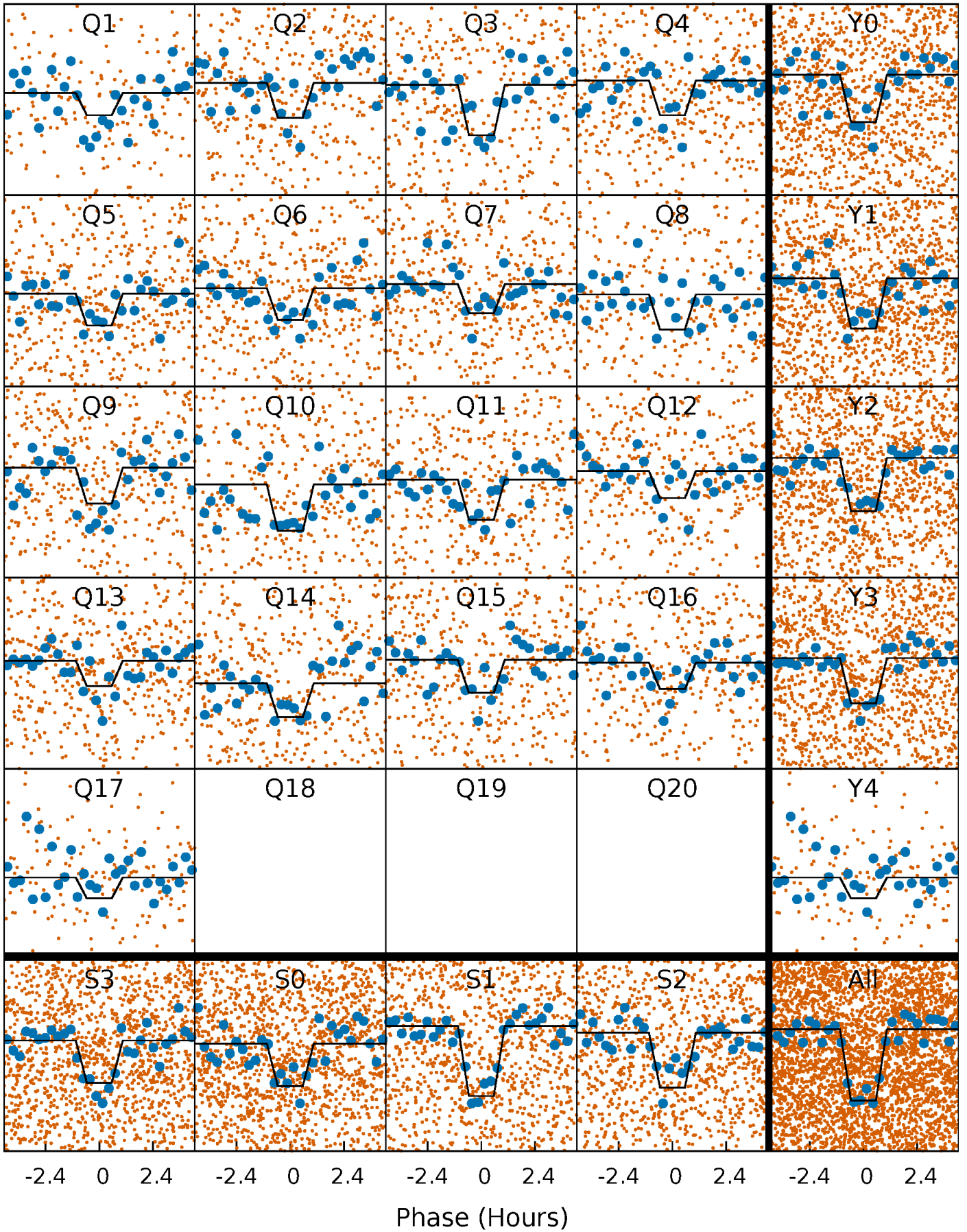
DV Quarter-Phased Transit Curves

TCE 010387742-01 P= 3.032638 Days $T_0=134.076738$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

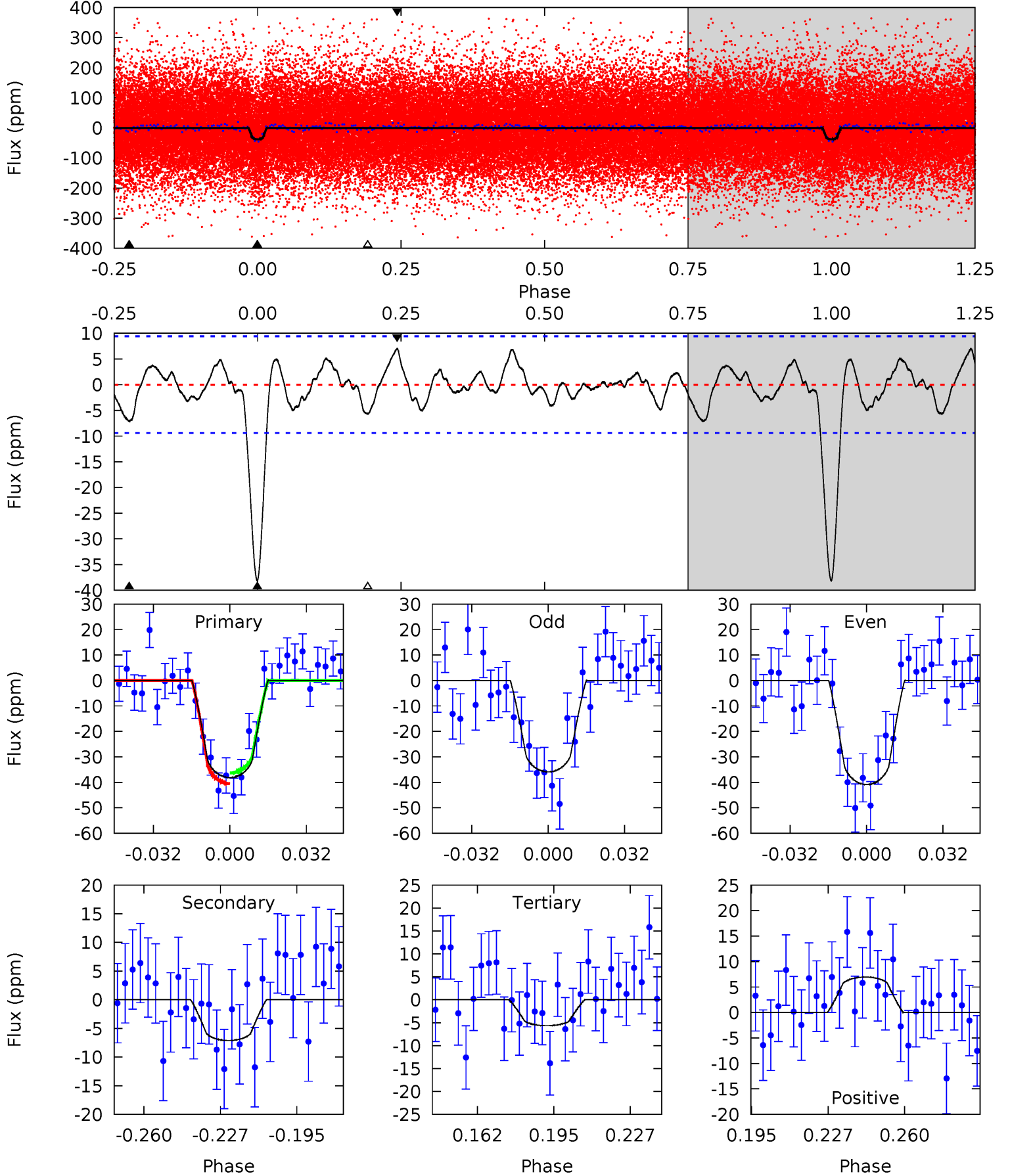
TCE 010387742-01 P= 3.032676 Days $T_0=134.065805$ (BKJD)



DV Model-Shift Uniqueness Test

010387742-01, P = 3.032638 Days, E = 131.044100 Days

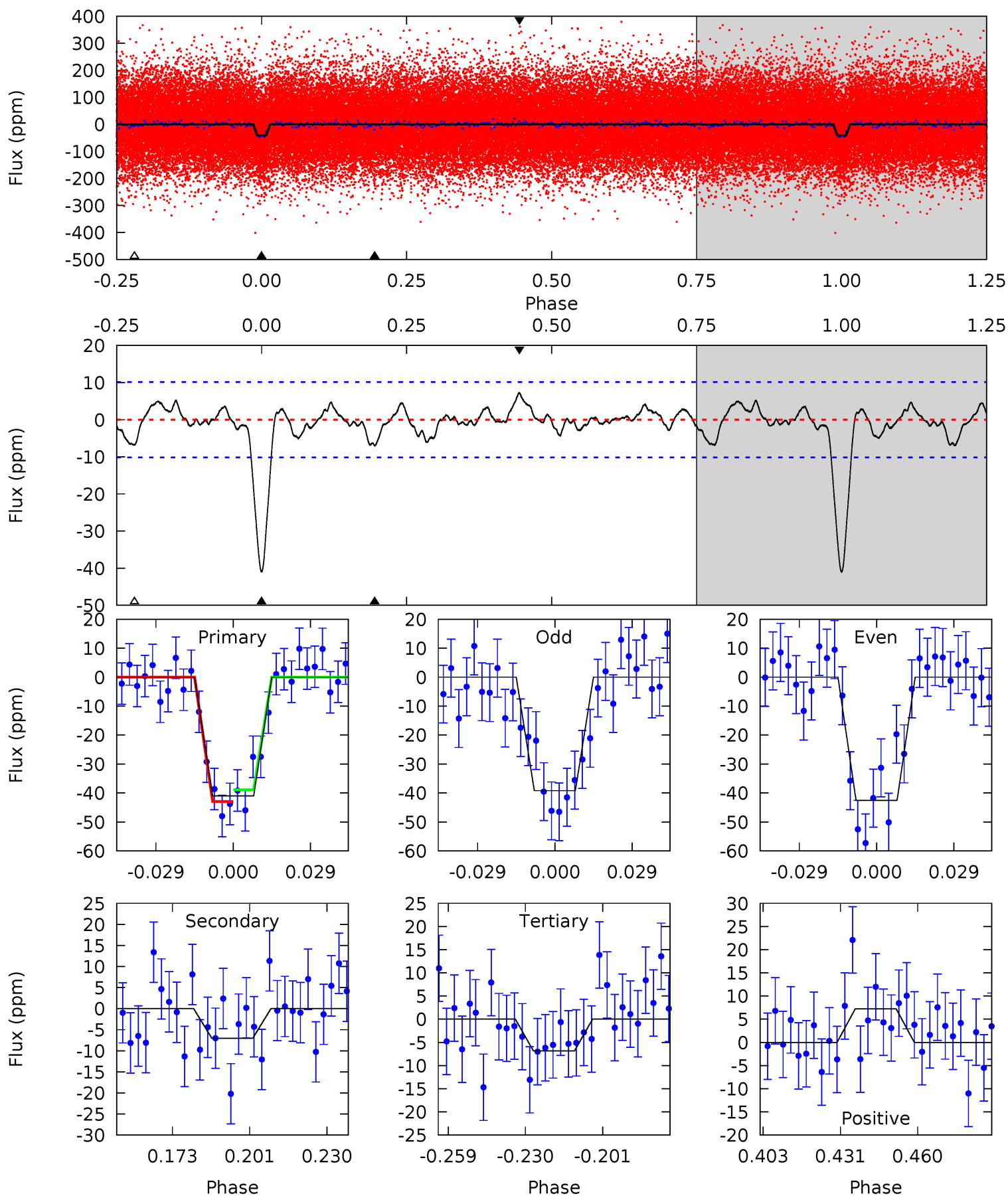
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	3.62	2.88	3.54	4.80	2.14	1.33	16.5	15.9	0.74	0.08	1.27	0.96	0.15	1.07



Alt Model-Shift Uniqueness Test

010387742-01, P = 3.032676 Days, E = 131.033129 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	3.32	3.25	3.42	4.82	2.19	1.22	16.2	16.0	0.08	-0.10	0.79	0.96	0.15	0.96



Stellar Parameters For KIC 010387742

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5640^{+101}_{-113}	$4.492^{+0.045}_{-0.113}$	$0.060^{+0.150}_{-0.150}$	$0.921^{+0.131}_{-0.061}$	$0.962^{+0.054}_{-0.068}$	$1.731^{+0.309}_{-0.550}$
	+2%/-2%	+1%/-3%	+250%/-250%	+14%/-7%	+6%/-7%	+18%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010387742-01 / KOI 2583.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-7 ± 2	$0.72^{+0.32}_{-0.28}$	1675^{+62}_{-59}	3795^{+819}_{-502}	12^{+22}_{-7}
Alt.	-7 ± 2	$0.66^{+0.29}_{-0.31}$	1674^{+66}_{-51}	3942^{+1133}_{-516}	14^{+39}_{-8}

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 $A_{obs} \gg 1.0$

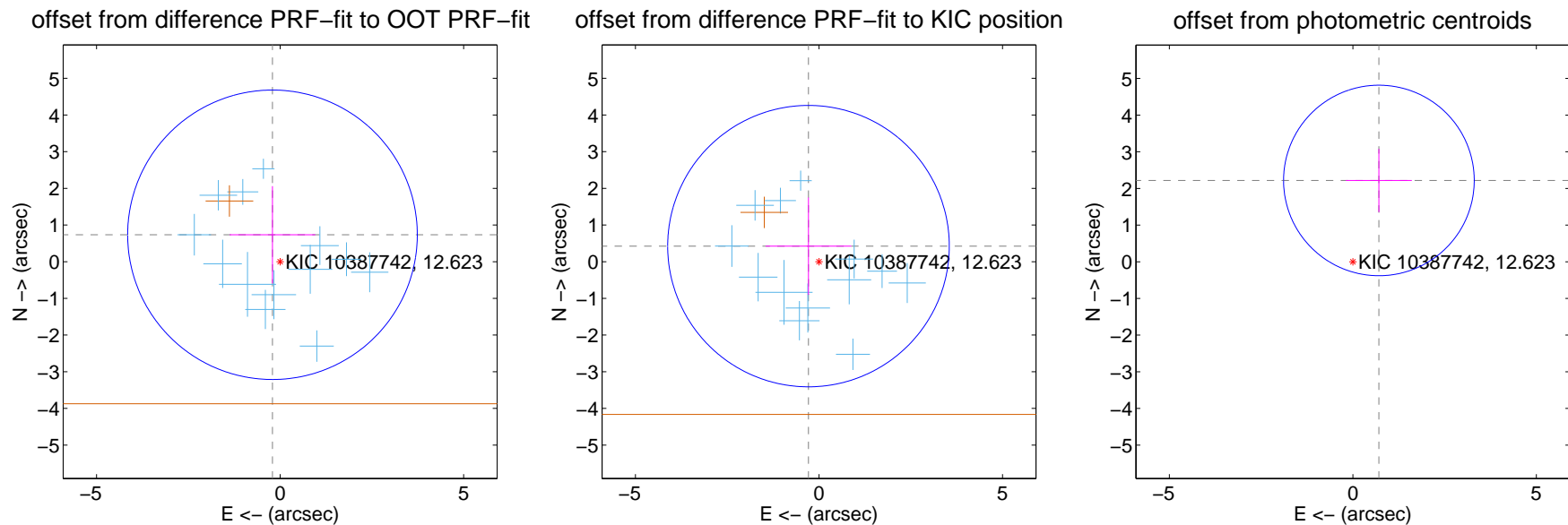
DV Centroid Data

Supplemental centroid analysis for 010387742-01. Kepler magnitude: 12.62. Transit SNR 14.99

There are 13 quarters with good PRF difference image offsets

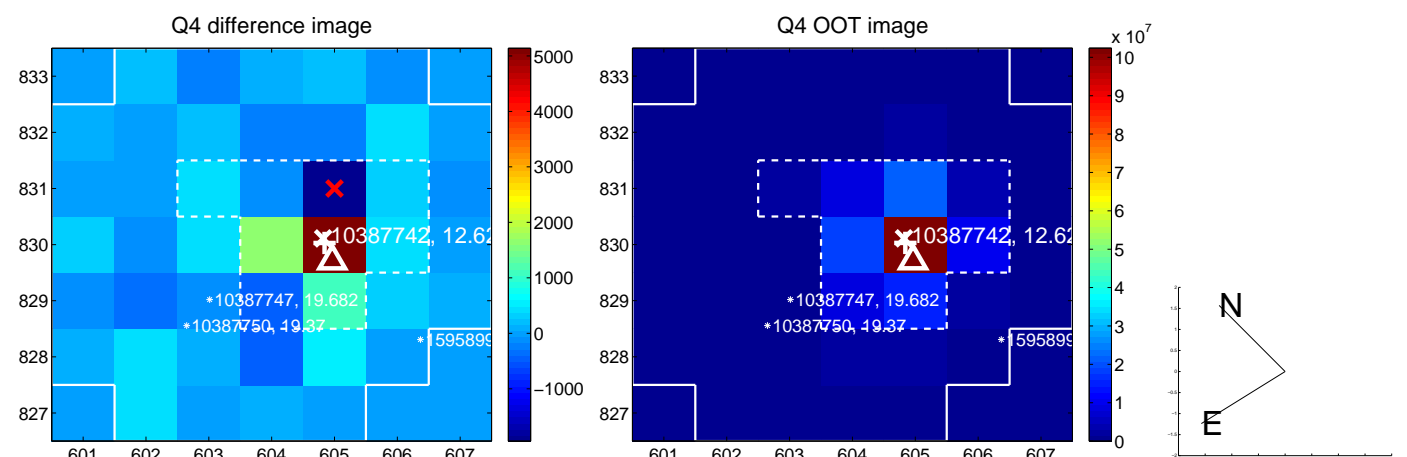
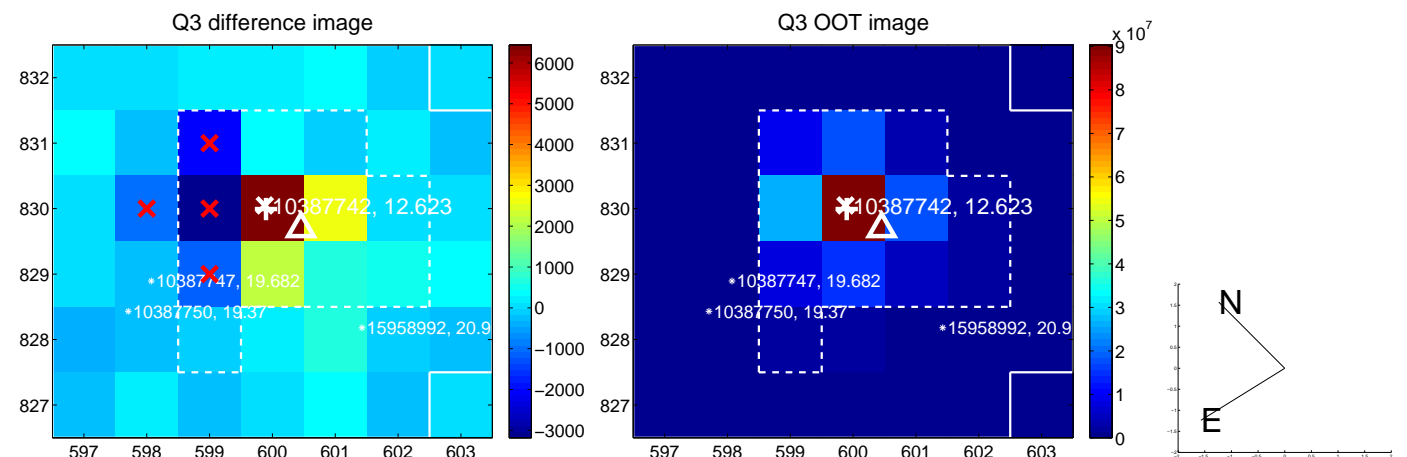
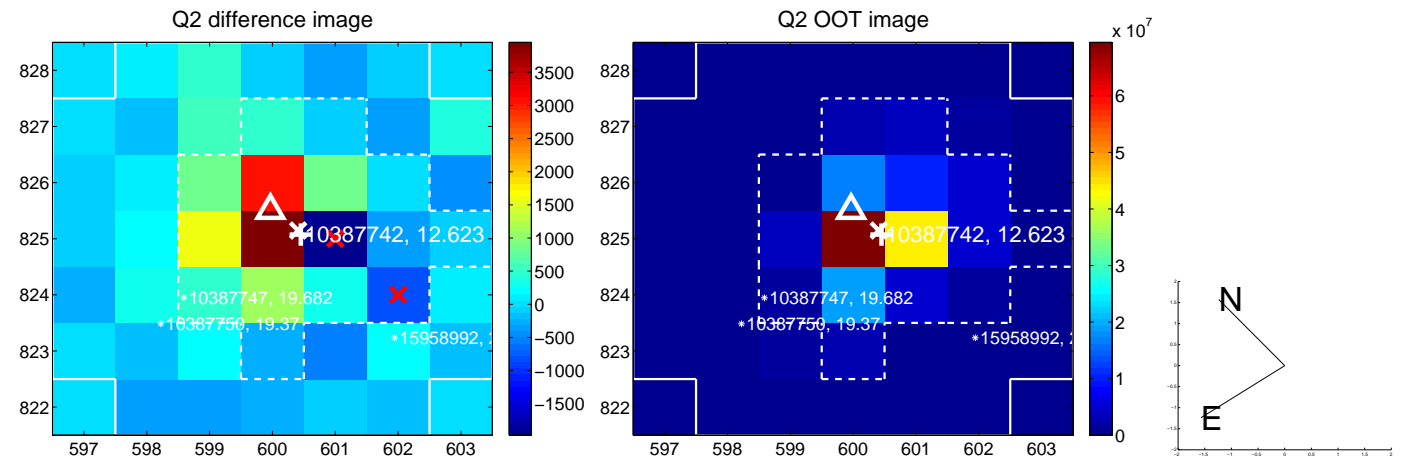
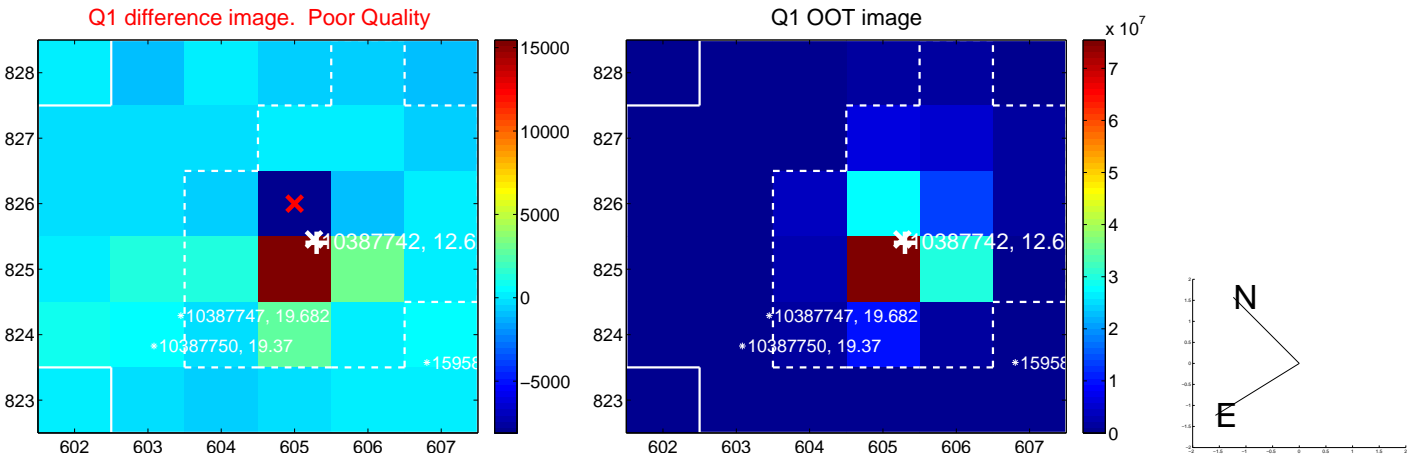
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.763 ± 1.315	0.58	0.208 ± 1.167	0.734 ± 1.327
PRF-fit source offset from KIC position	0.512 ± 1.279	0.40	0.286 ± 1.167	0.424 ± 1.327
photometric centroid source offset	2.33 ± 0.87	2.69	-0.71 ± 0.90	2.22 ± 0.86

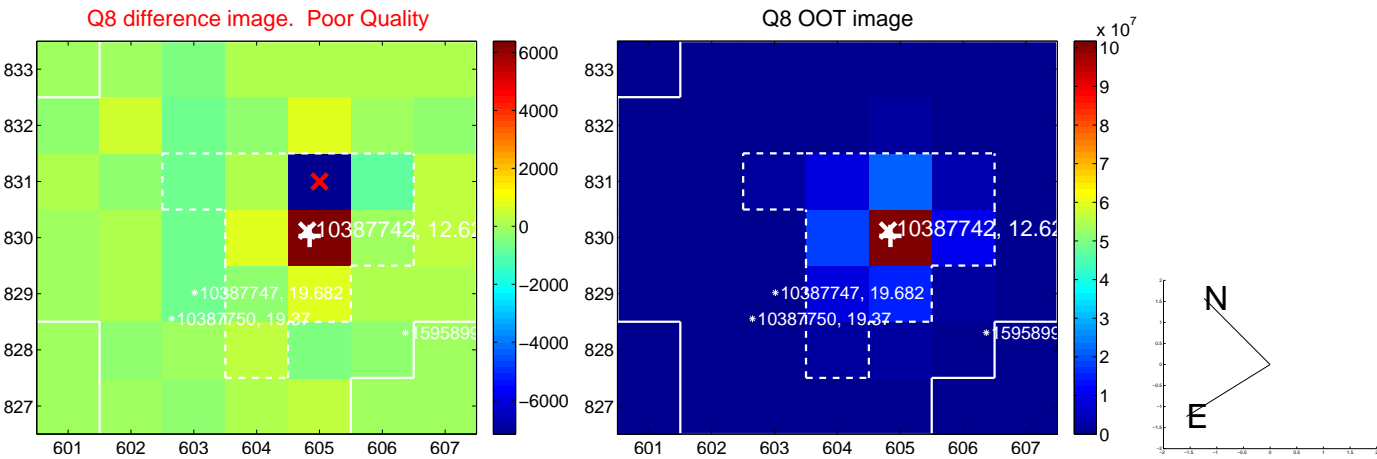
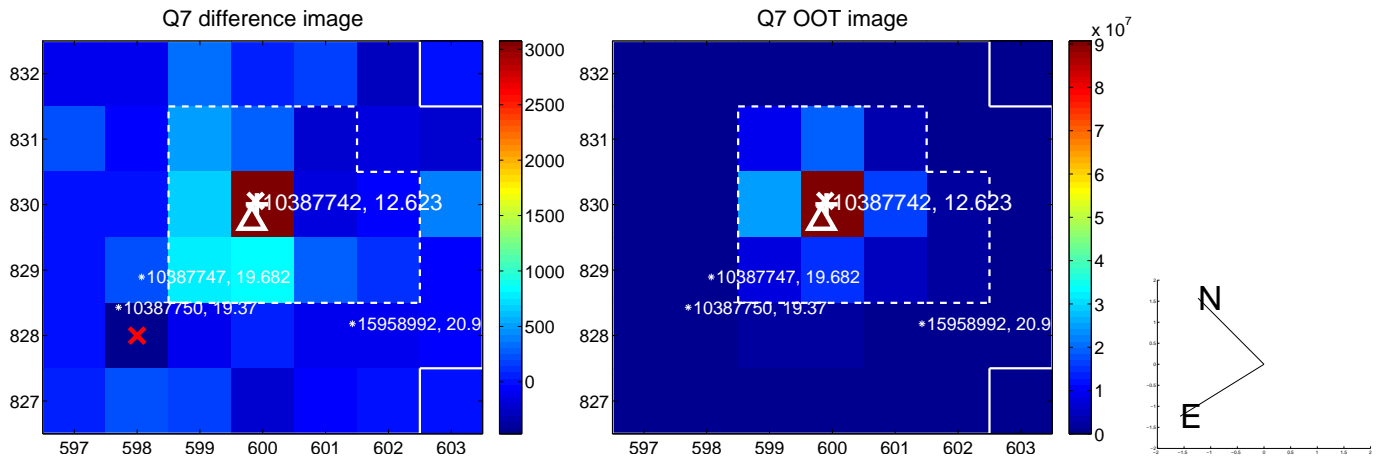
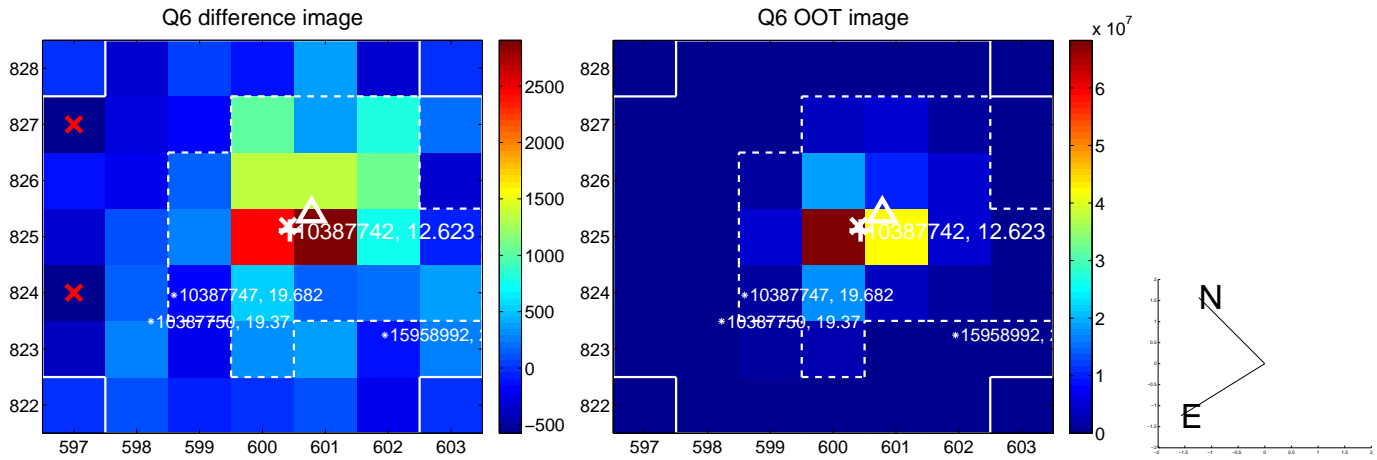
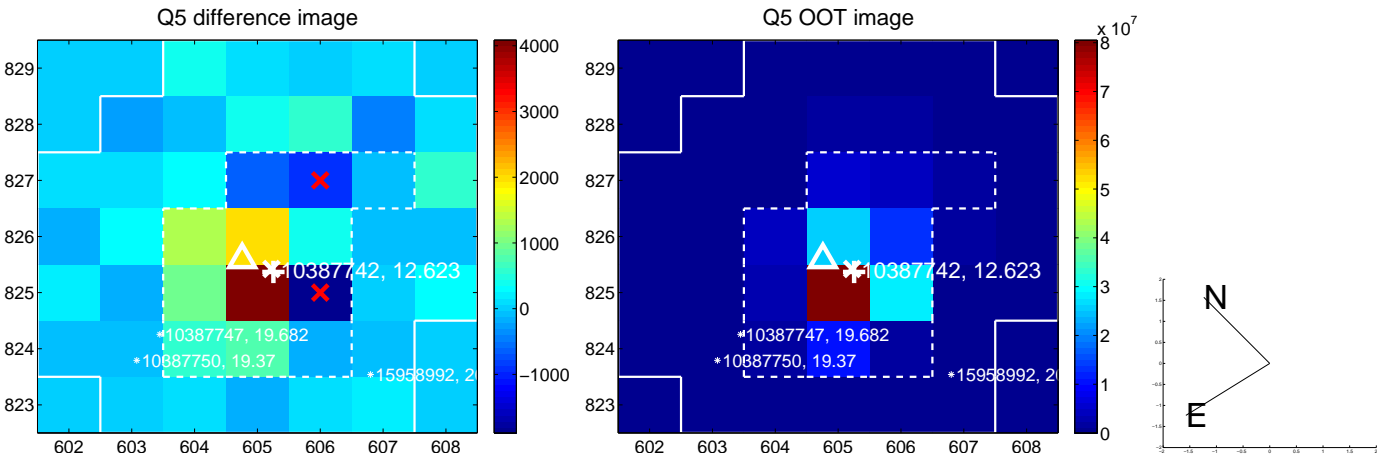


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

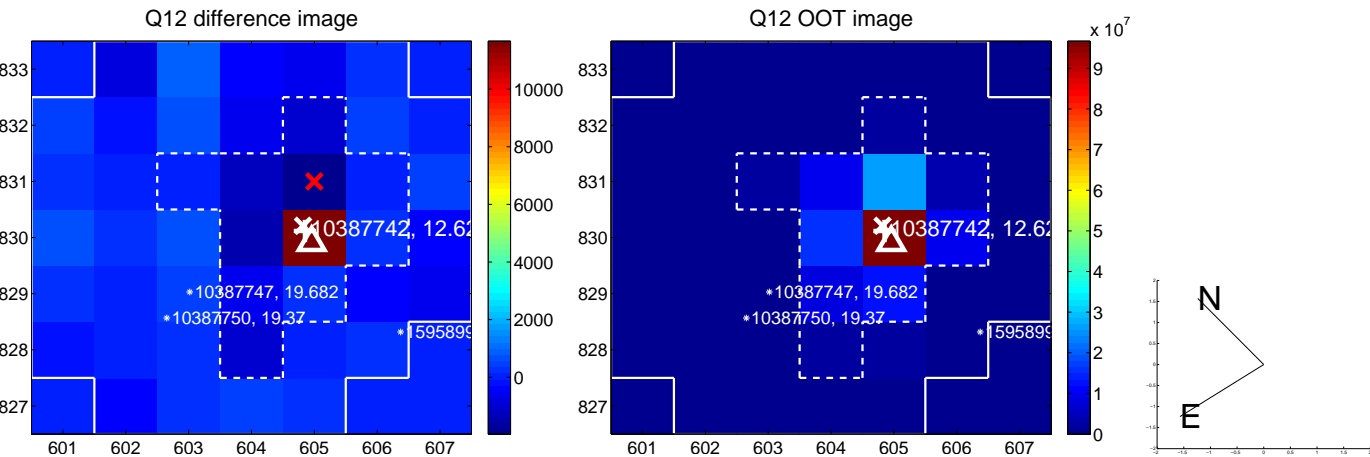
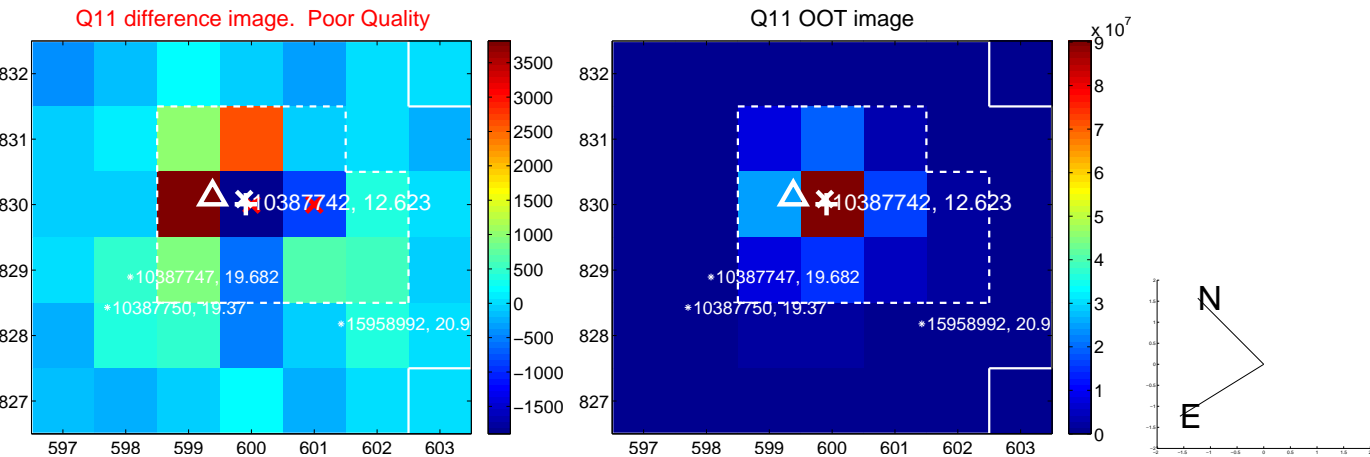
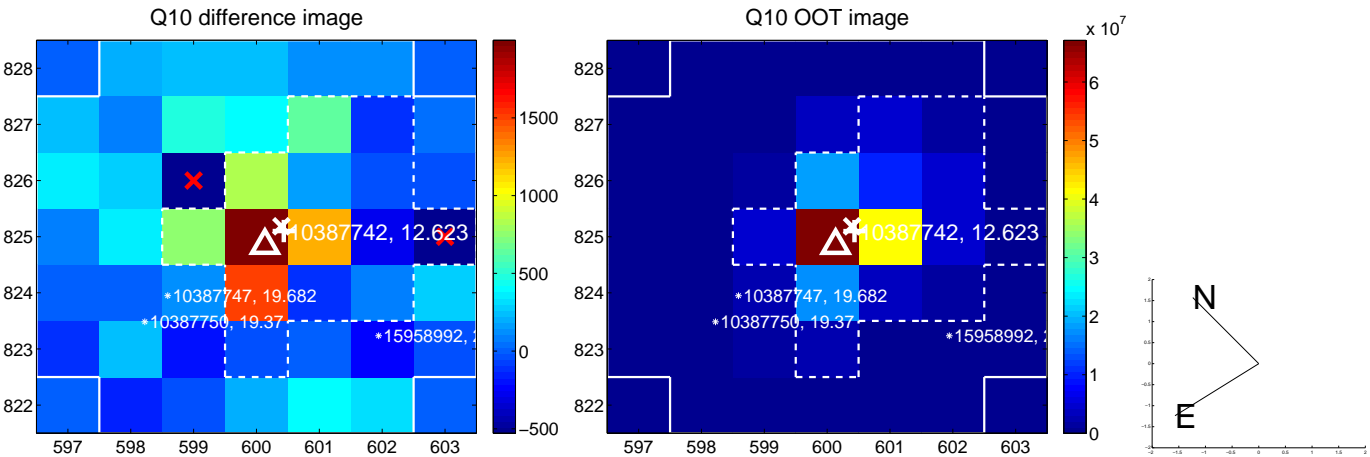
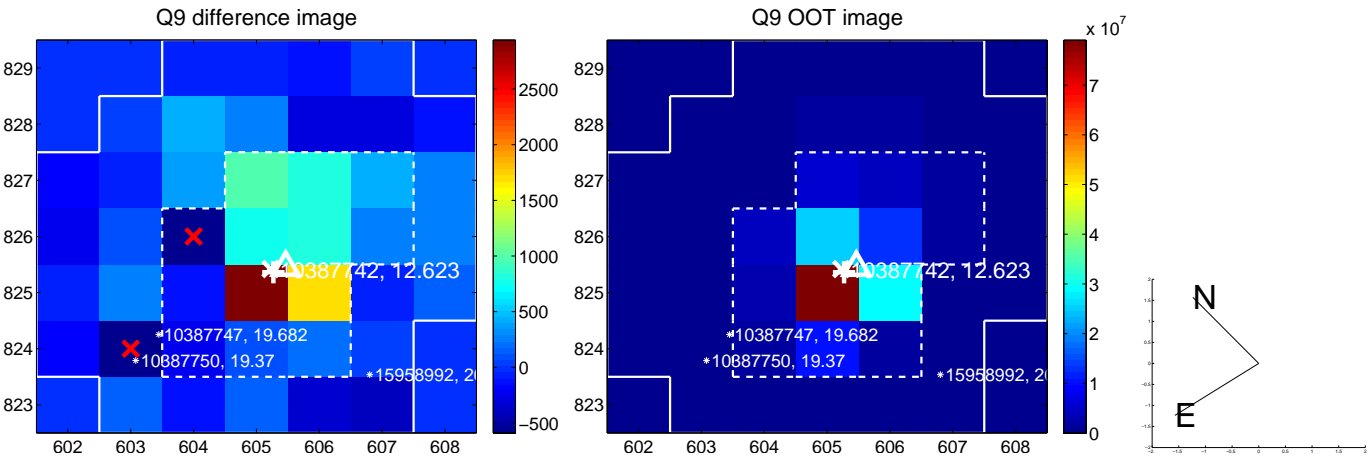
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



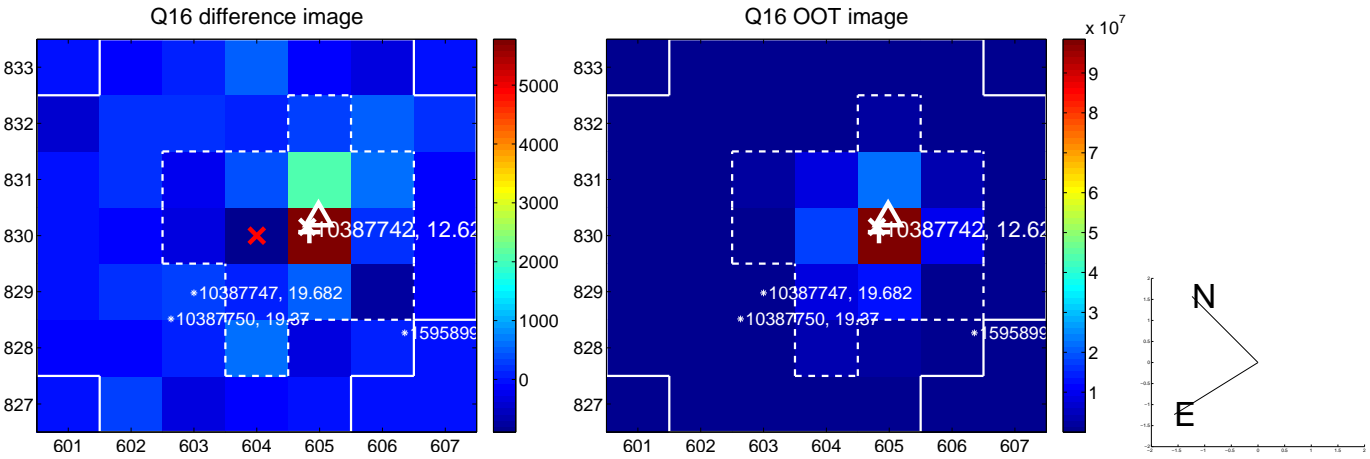
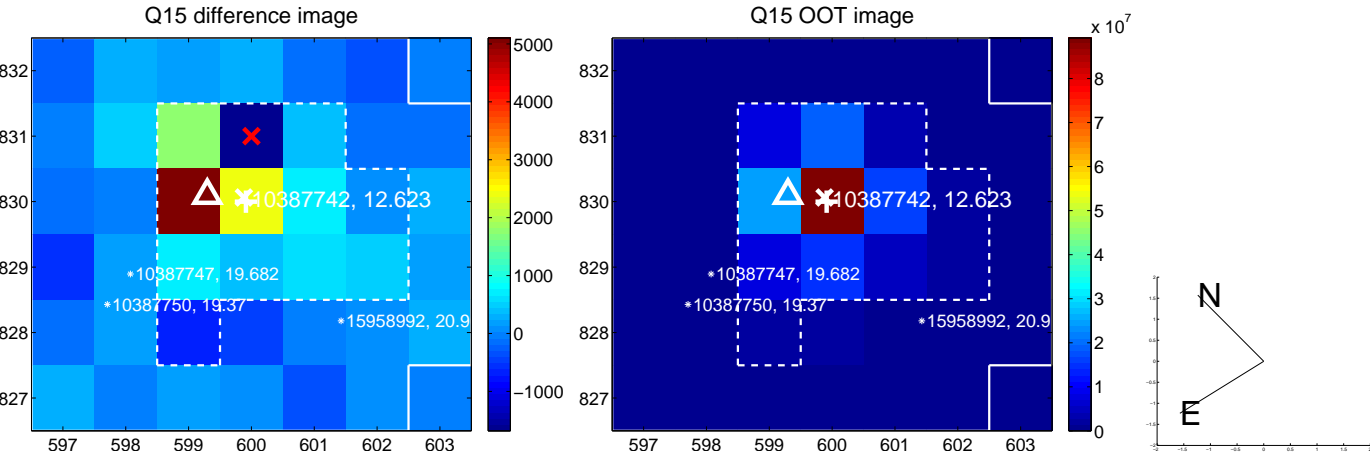
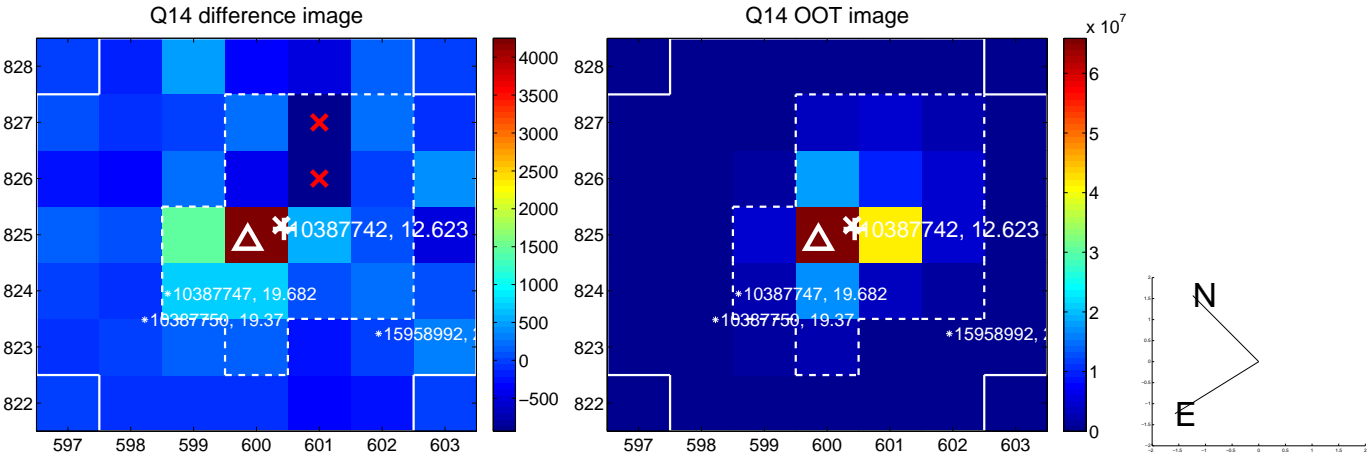
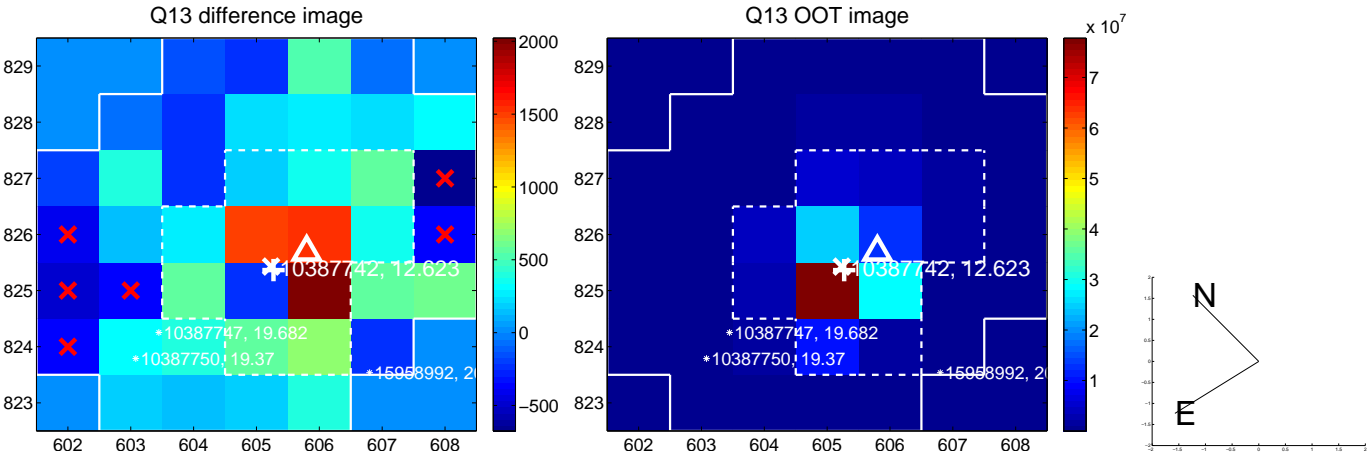
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



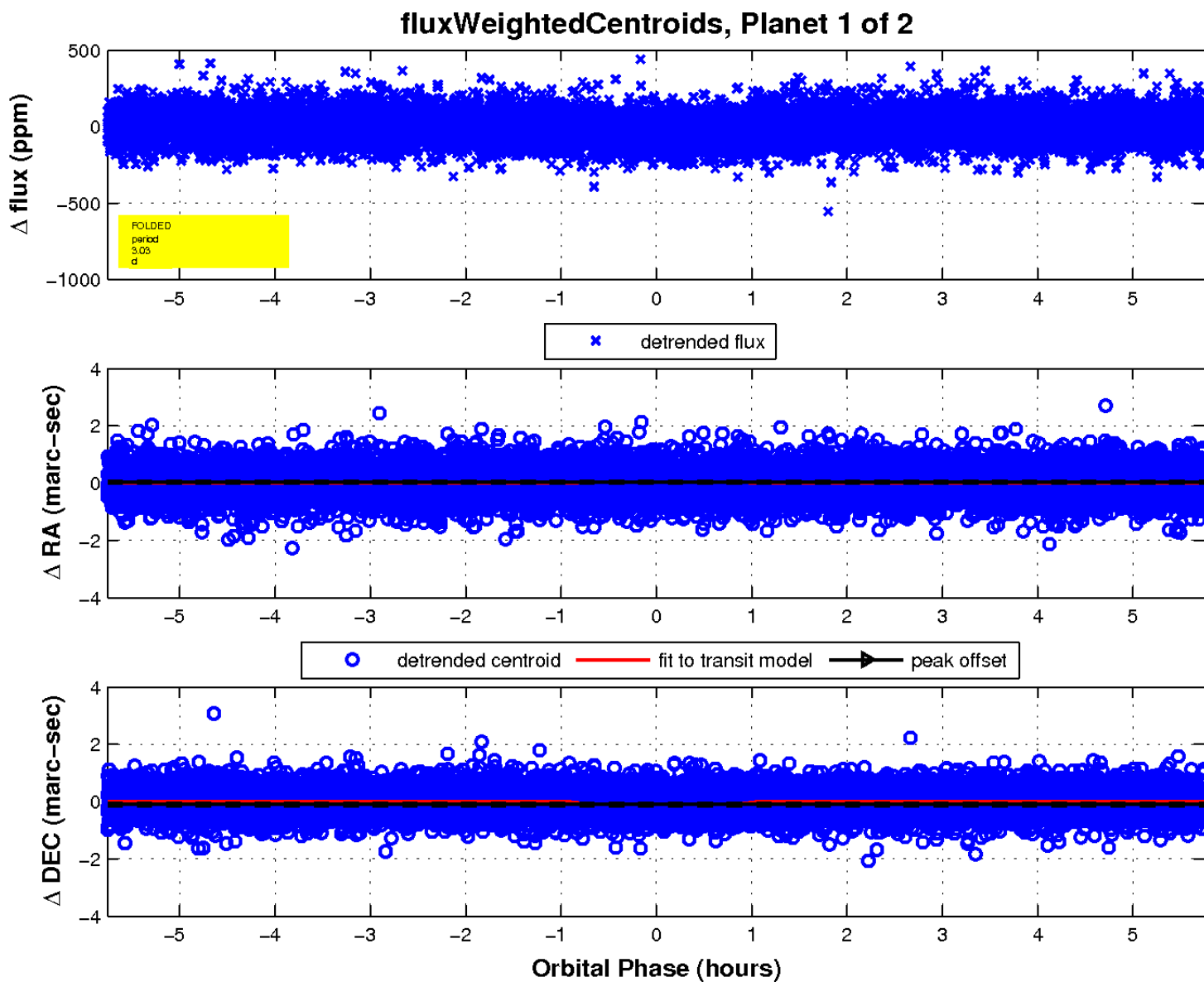
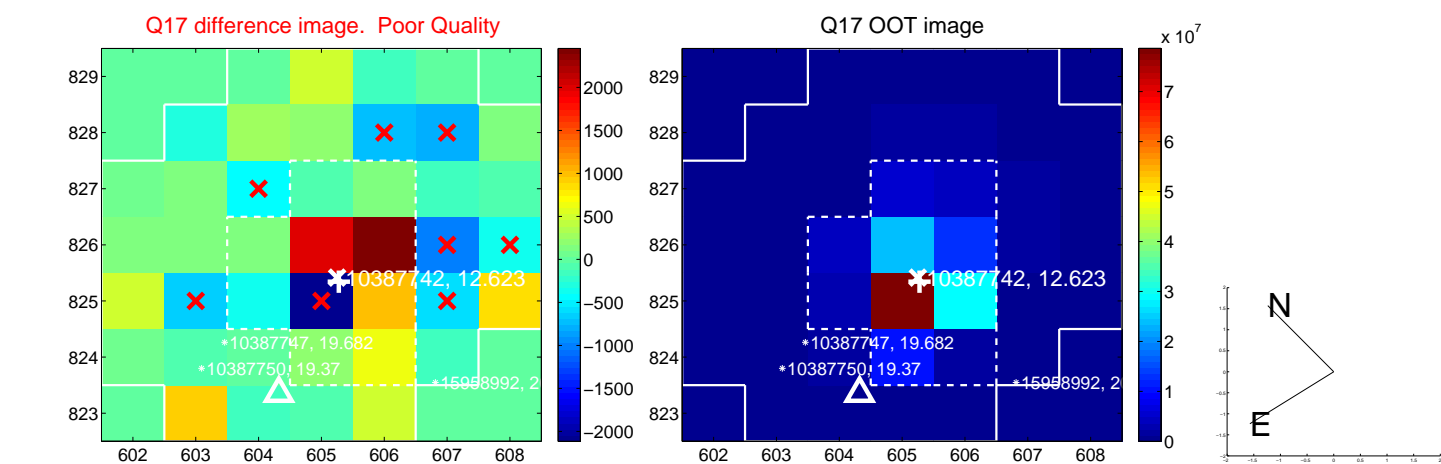
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



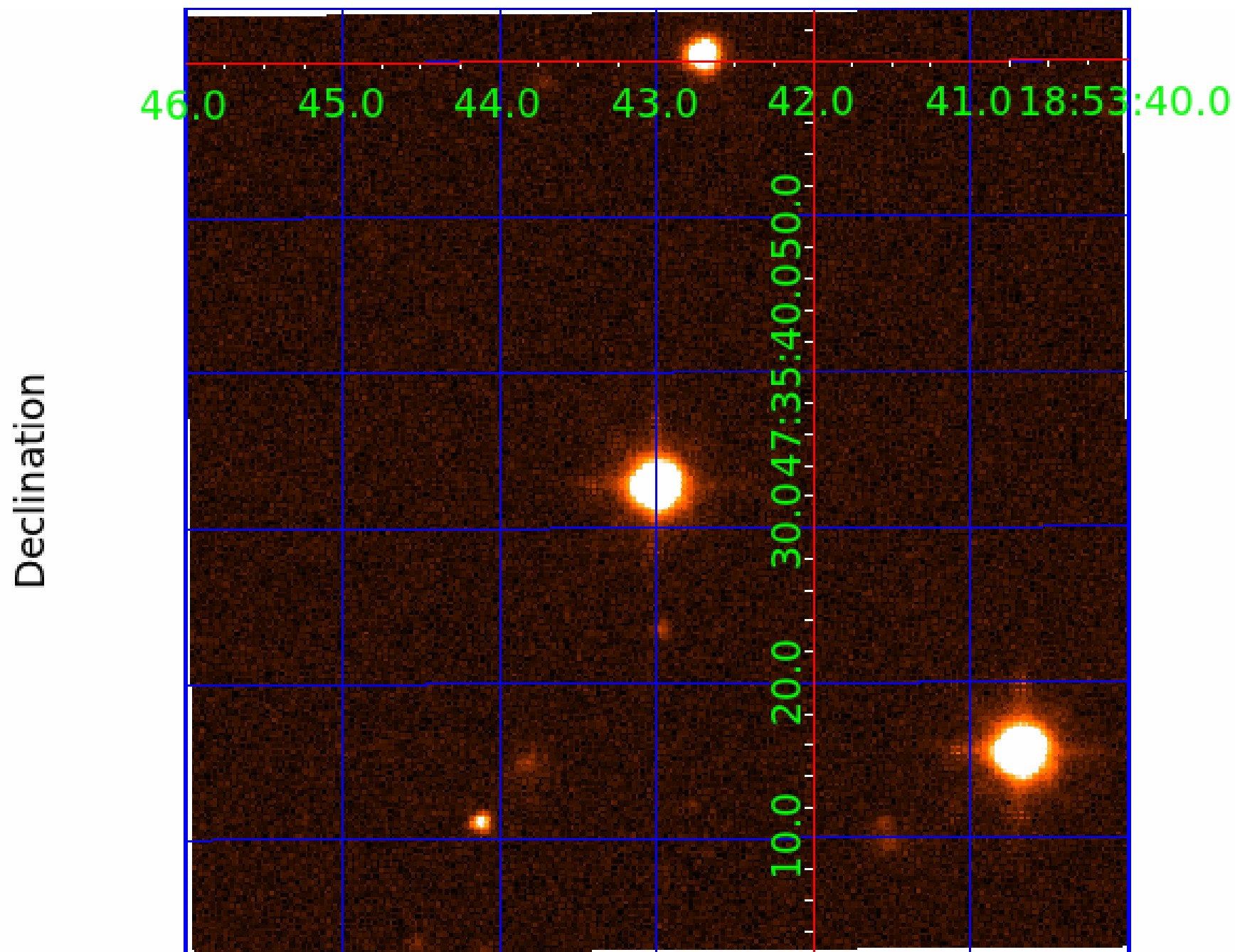
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010387742

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})
010387742-01	OBS	2583.01	3.032638	134.076738	40.6	1.919	12.9	15.0	0.92	5640	0.69	469.63
010387742-02	OBS	2583.02	251.753391	271.039779	152.1	2.739	7.4	7.5	0.92	5640	1.36	1.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010387742-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010387742-02	OBS	FP	0.22	1	0	0	0	MOD_NONUNIQ_ALT

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.

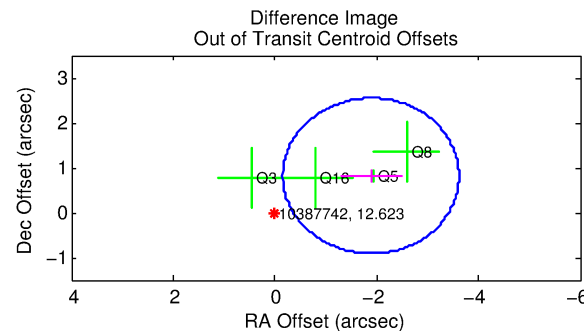
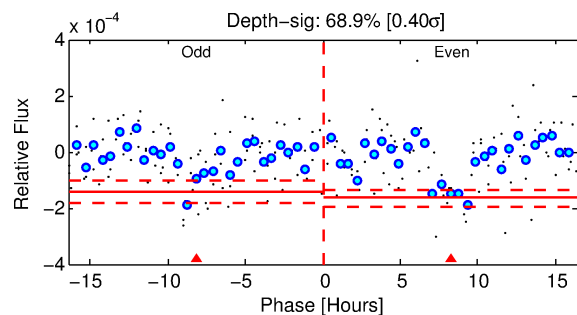
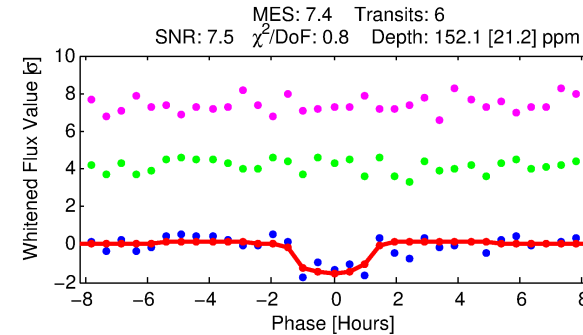
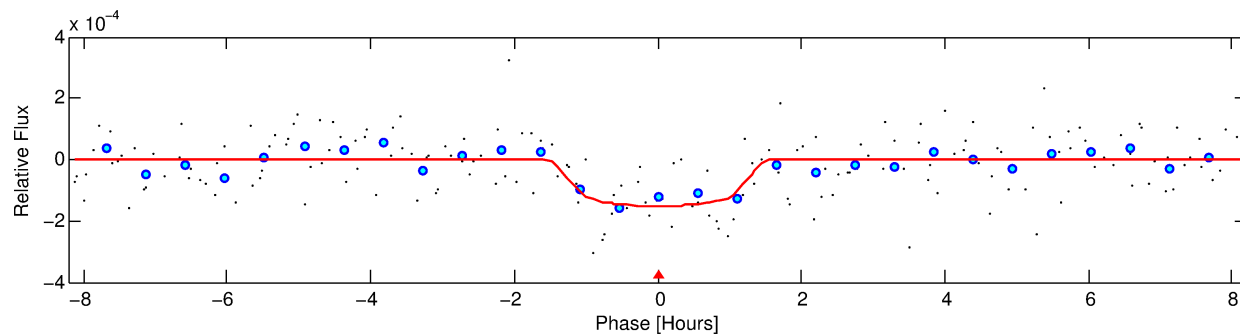
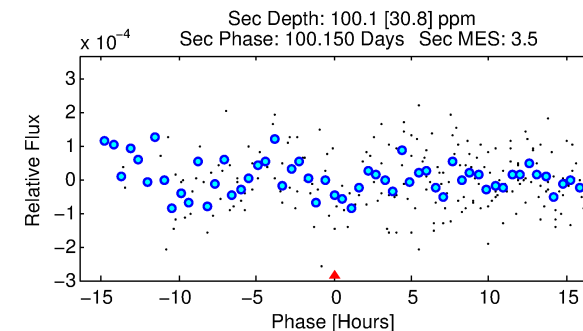
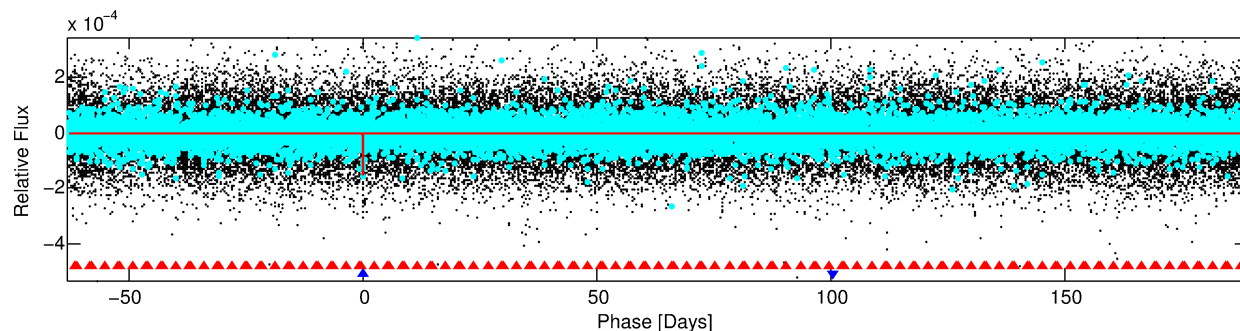
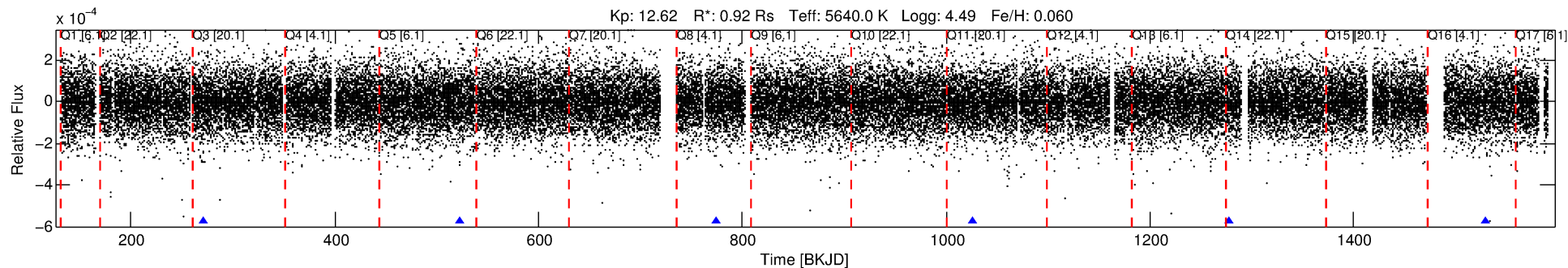
Ephemeris Match Information For 010387742-02

No Significant Match Found

DV One-Page Summary

KIC: 10387742 Candidate: 2 of 2 Period: 251.753 d
KOI: K02583 Corr: No Ephemeris Match

Kp: 12.62 R*: 0.92 Rs Teff: 5640.0 K Logg: 4.49 Fe/H: 0.060



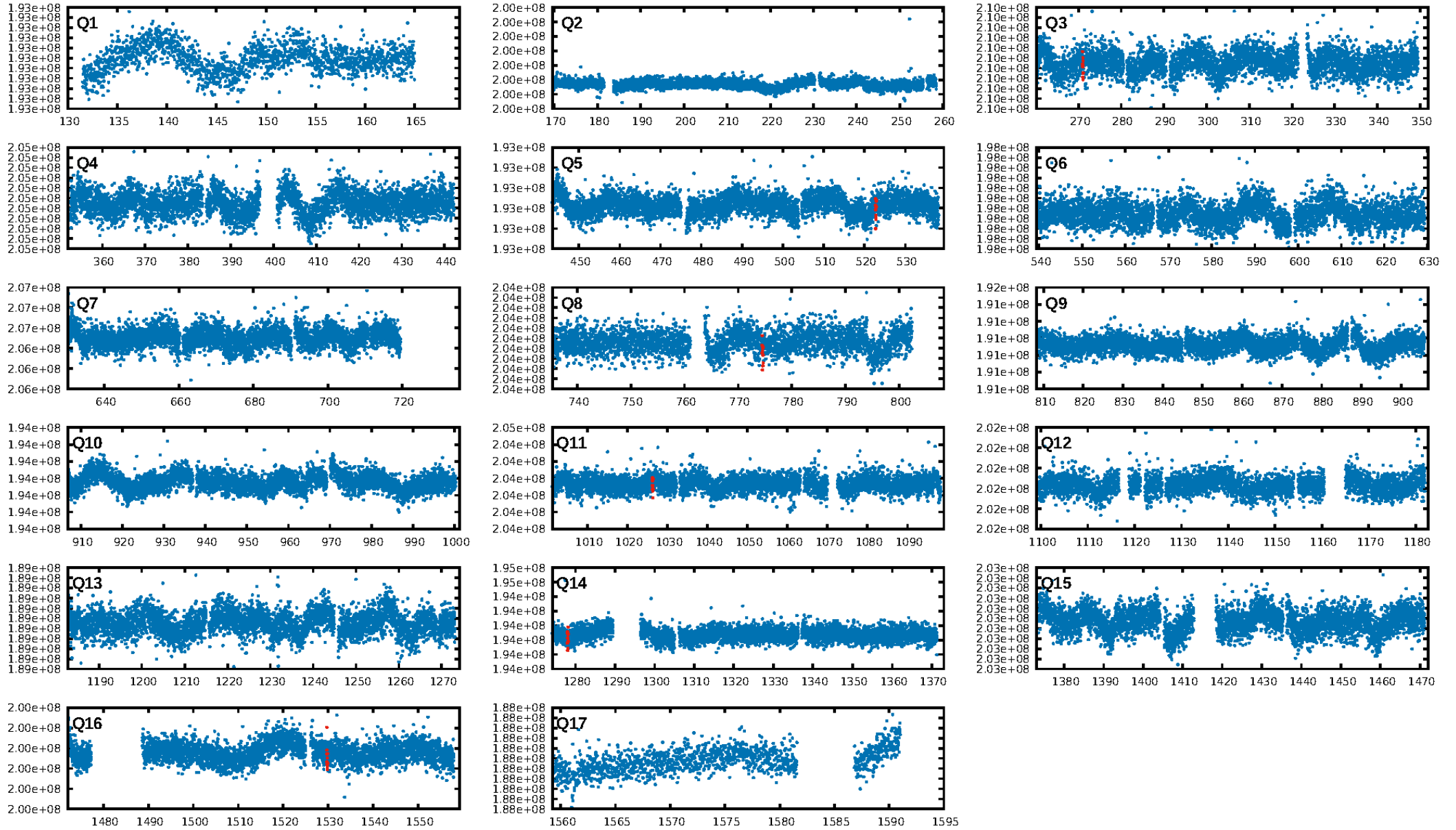
DV Fit Results:

Period = 251.75339 [0.00248] d
Epoch = 271.0398 [0.0080] BKJD
Rp/R* = 0.0135 [0.0125]
a/R* = 327.74 [1390.92]
b = 0.90 [0.92]
Seff = 1.30 [0.28]
Teq = 272 [15] K
Rp = 1.36 [1.27] Re
a = 0.7701 [0.0990] AU
Ag = 17728.14 [33434.80] [0.53σ]
Teff = 4855 [2278] K [2.01σ]

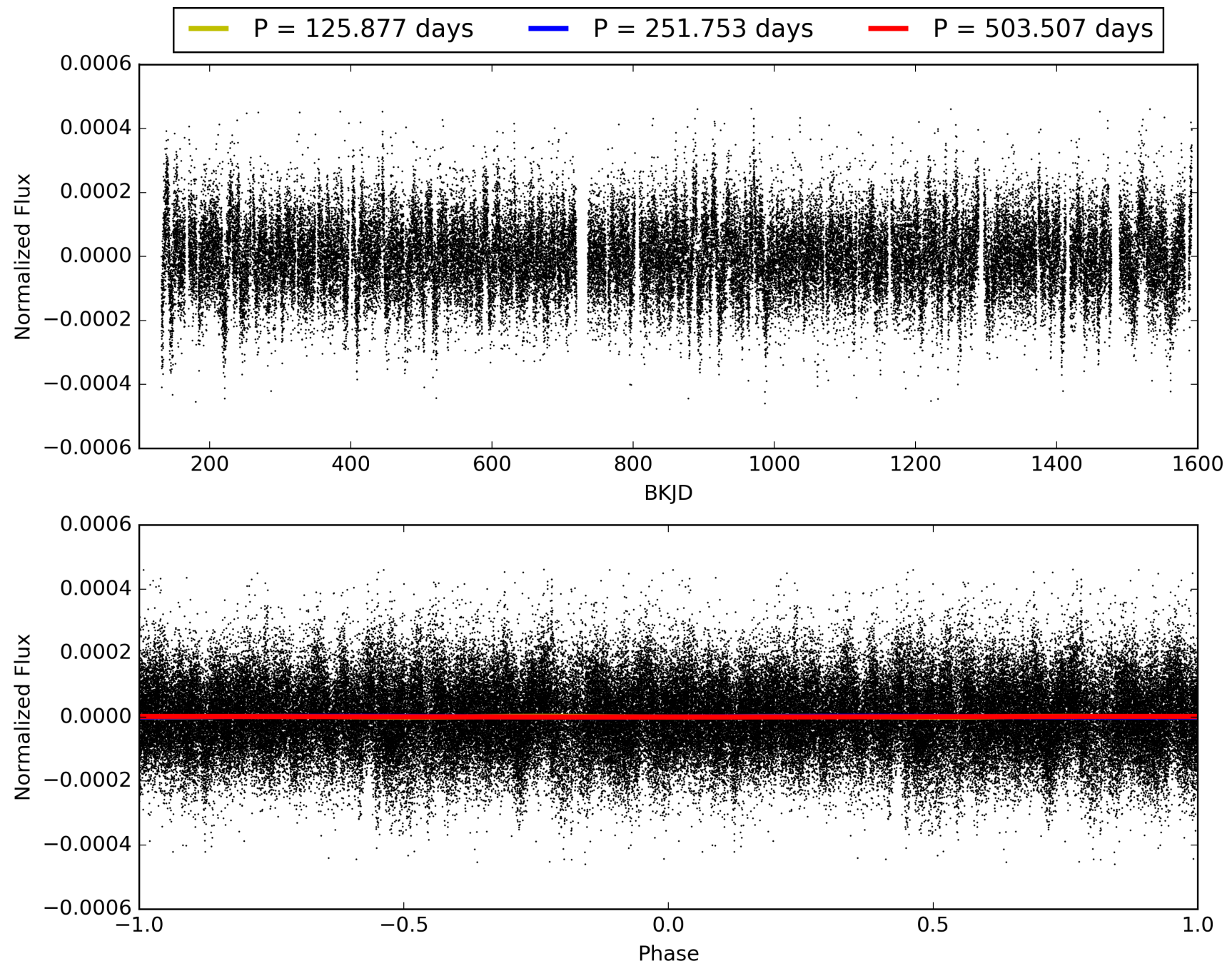
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1784.84σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 85.7%
ModelChiSquareGof-sig: 99.3%
Bootstrap-pfa: 2.48e-12
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -1.624
Centroid-sig: 66.5%
Centroid-so: 1.372 arcsec [0.76σ]
OotOffset-rm: 2.055 arcsec [3.56σ]
KicOffset-rm: 1.999 arcsec [3.28σ]
OotOffset-st: 0/1/2/1 [4]
KicOffset-st: 0/1/2/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [6/6]

TCE 010387742-02, PDC Light Curves

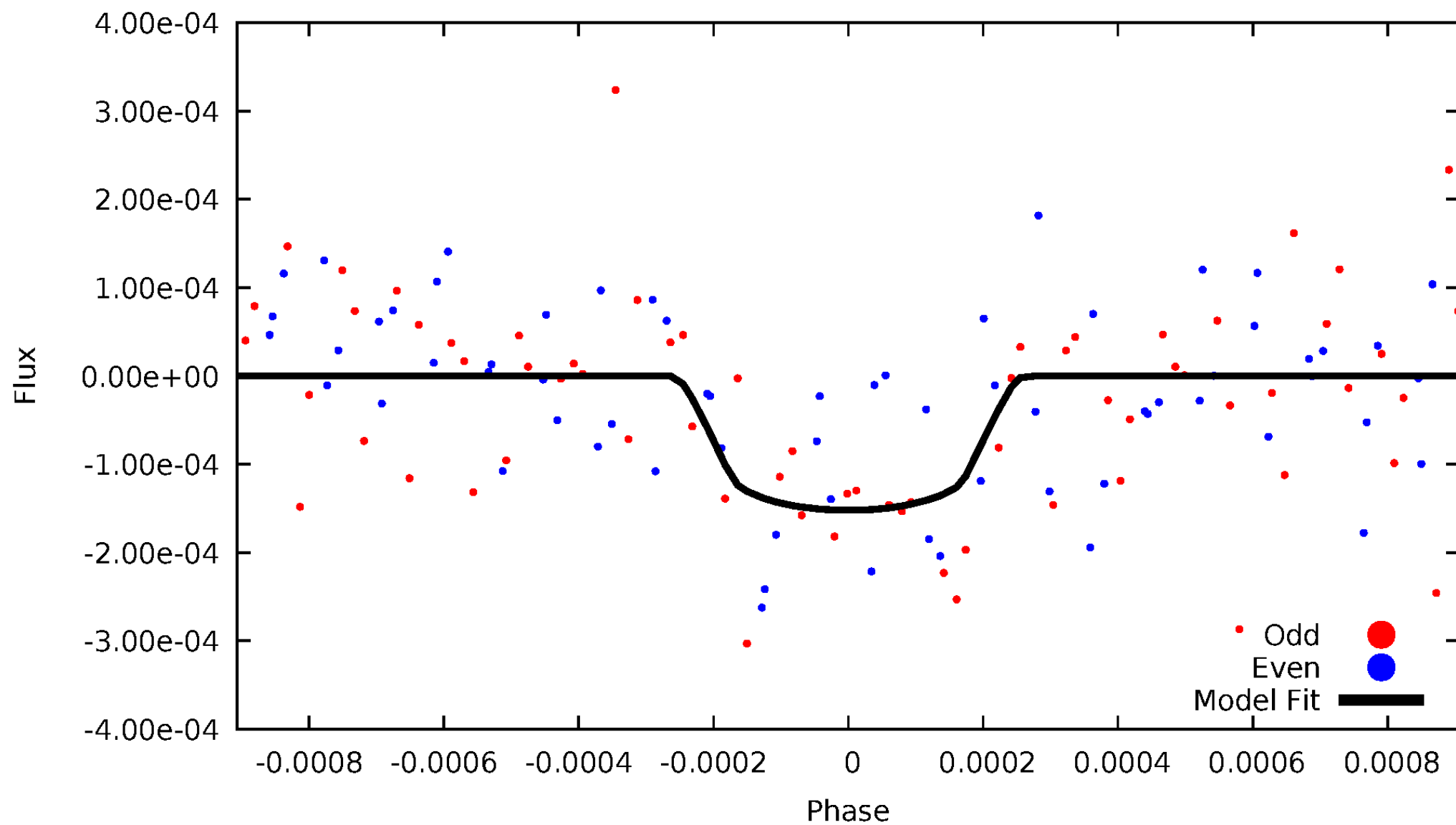


TCE 010387742-02



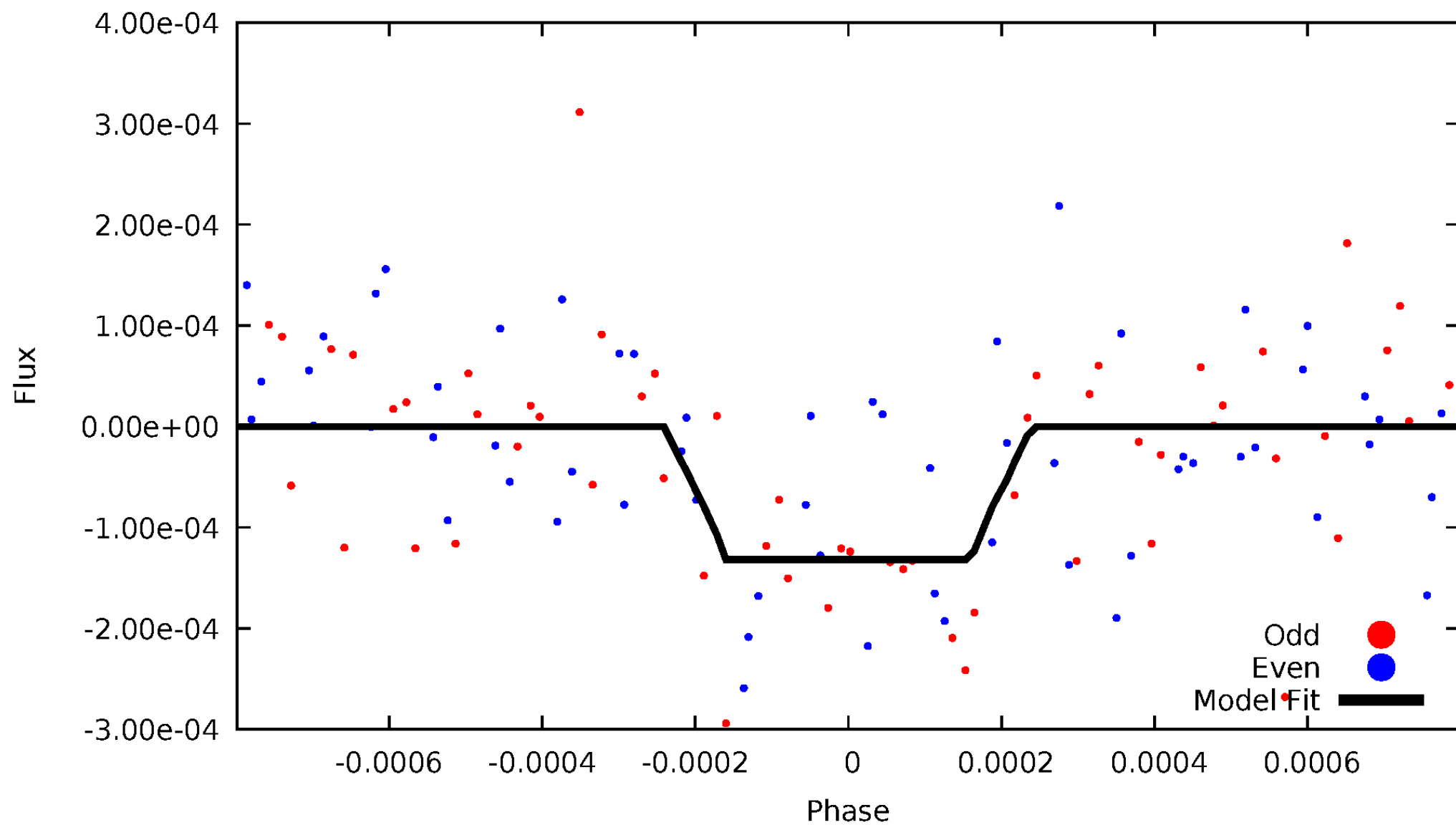
DV Odd/Even

TCE 010387742-02



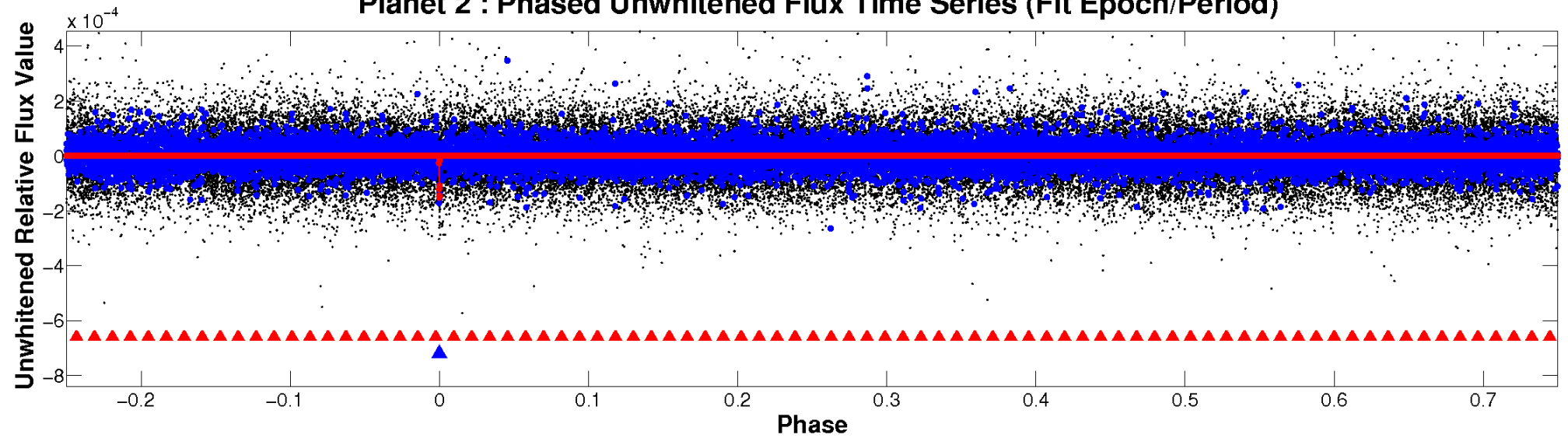
ALT Odd/Even

TCE 010387742-02

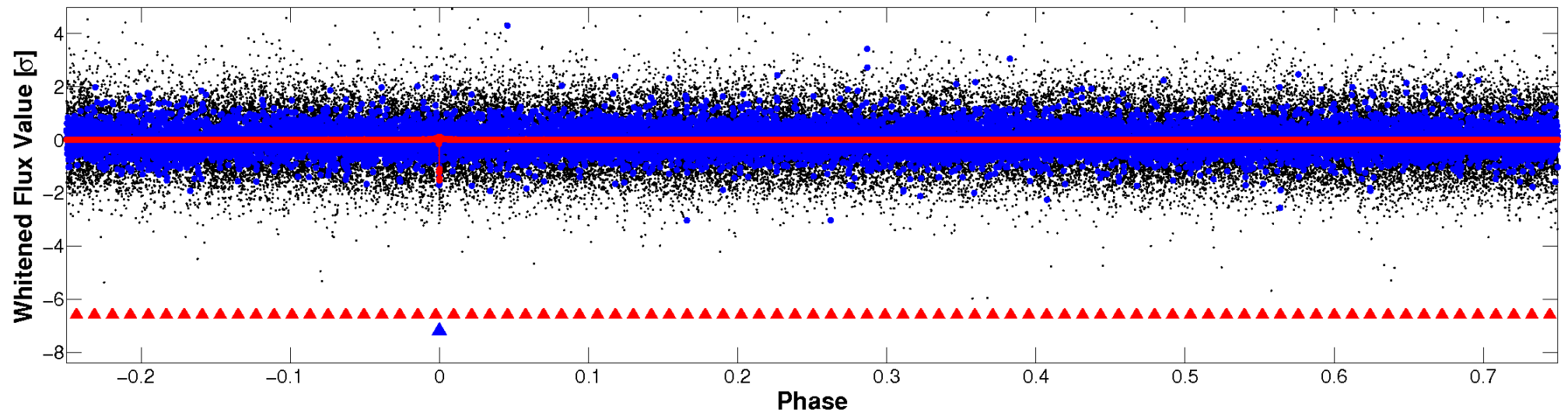


Non-Whitened Vs. Whitened Light Curve

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

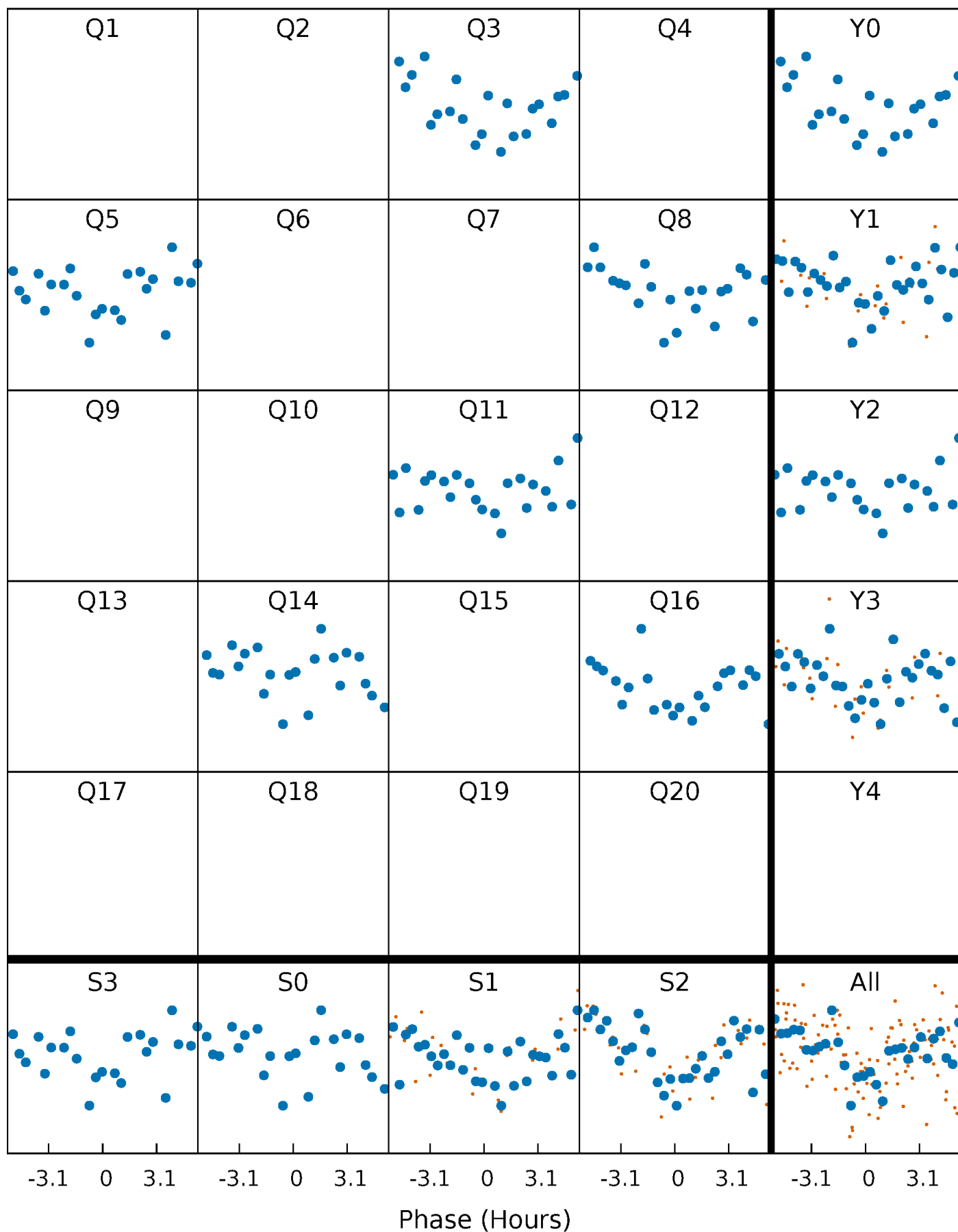


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



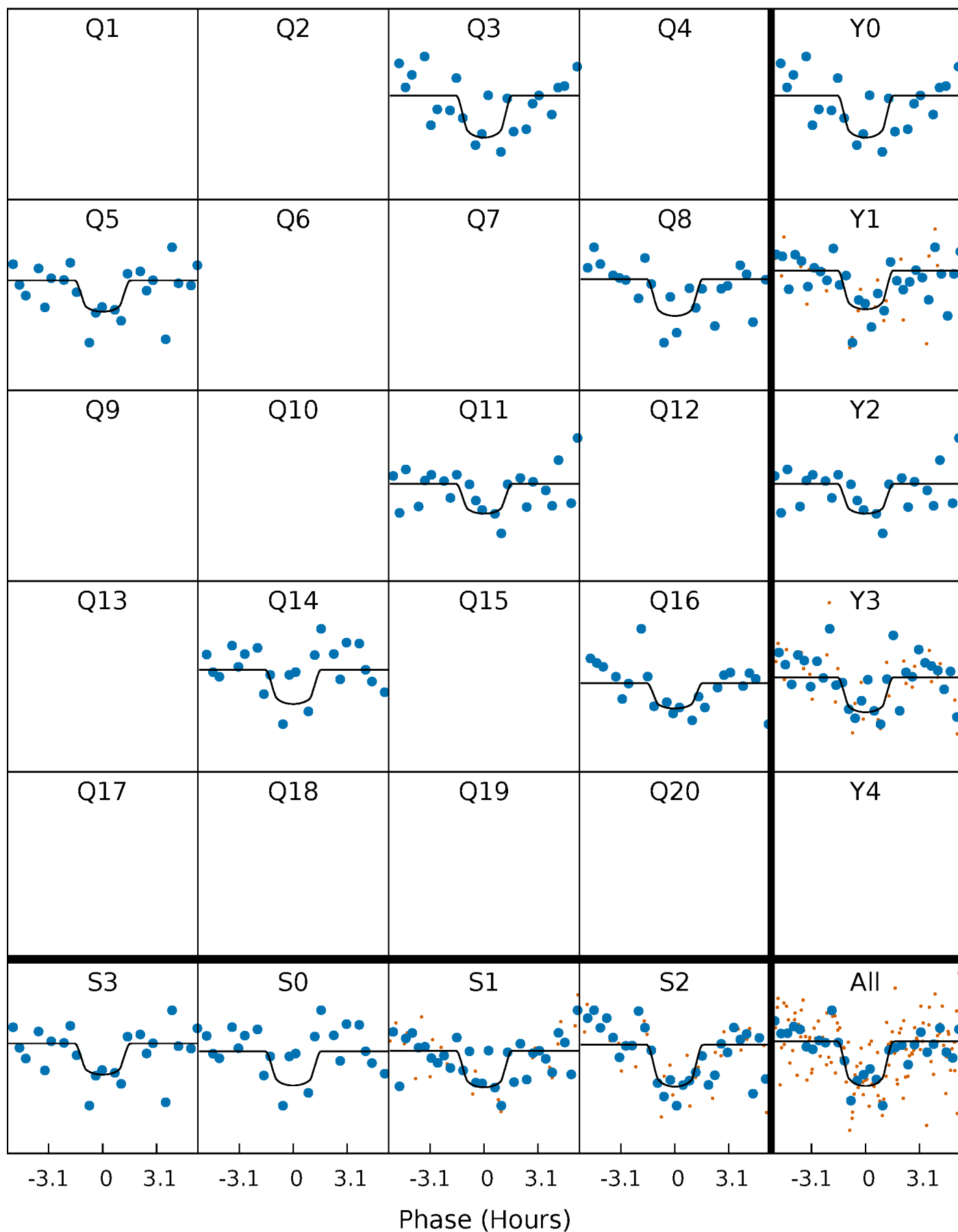
PDC Quarter-Phased Transit Curves

TCE 010387742-02 $P=251.753391$ Days $T_0=271.039779$ (BKJD)



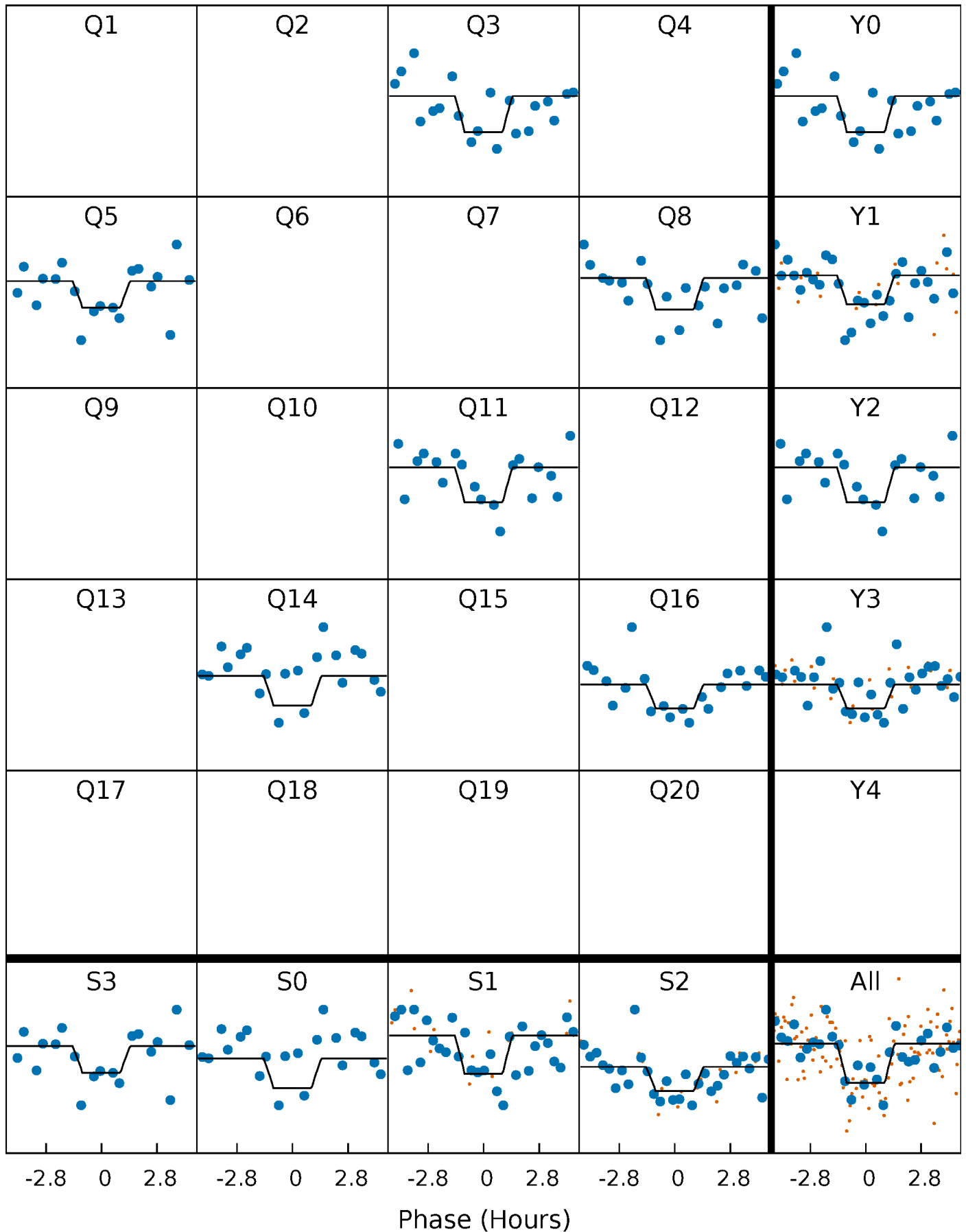
DV Quarter-Phased Transit Curves

TCE 010387742-02 $P=251.753391$ Days $T_0=271.039779$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

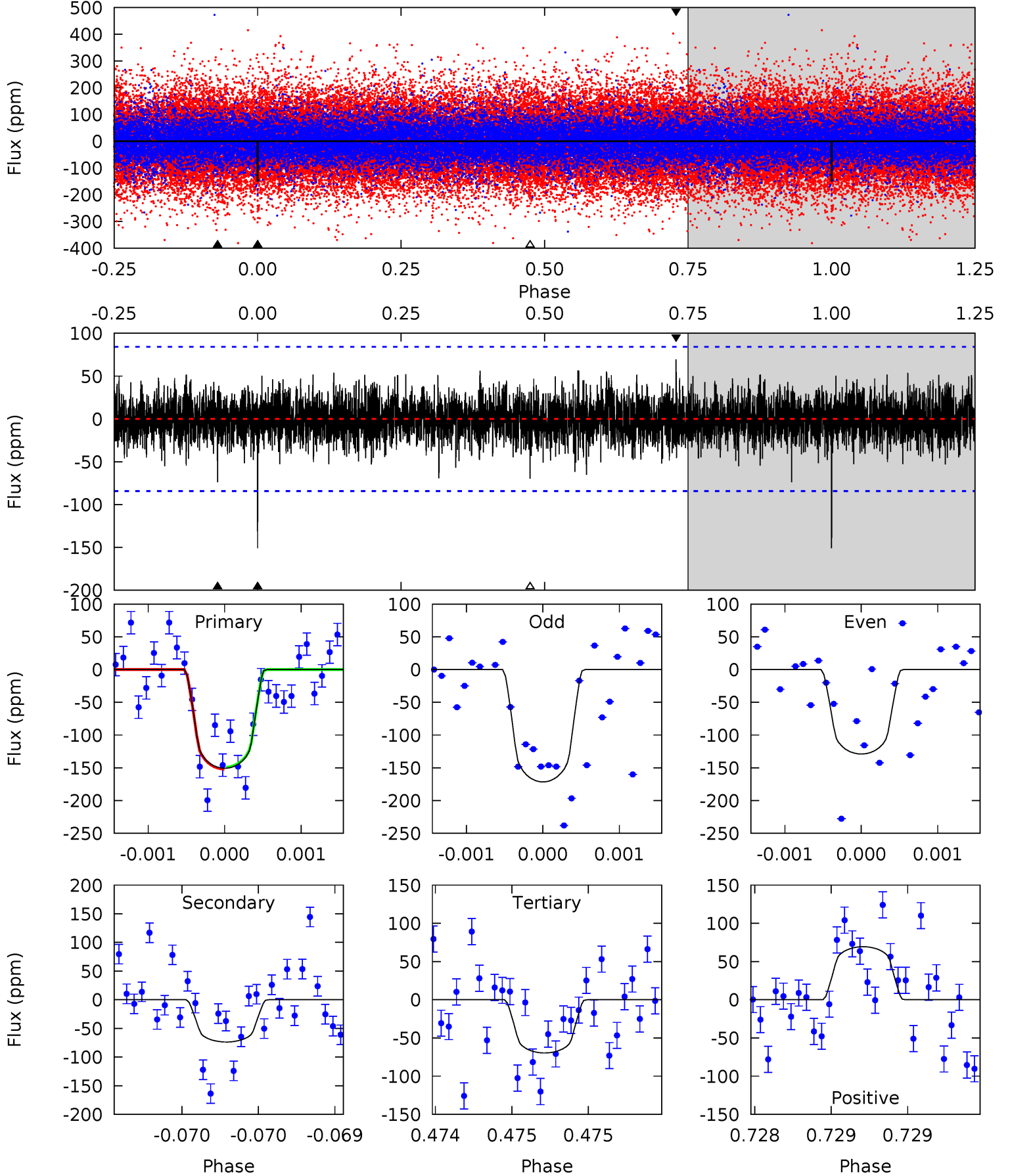
TCE 010387742-02 P=251.753160 Days $T_0=271.042398$ (BKJD)



DV Model-Shift Uniqueness Test

010387742-02, P = 251.753391 Days, E = 19.286388 Days

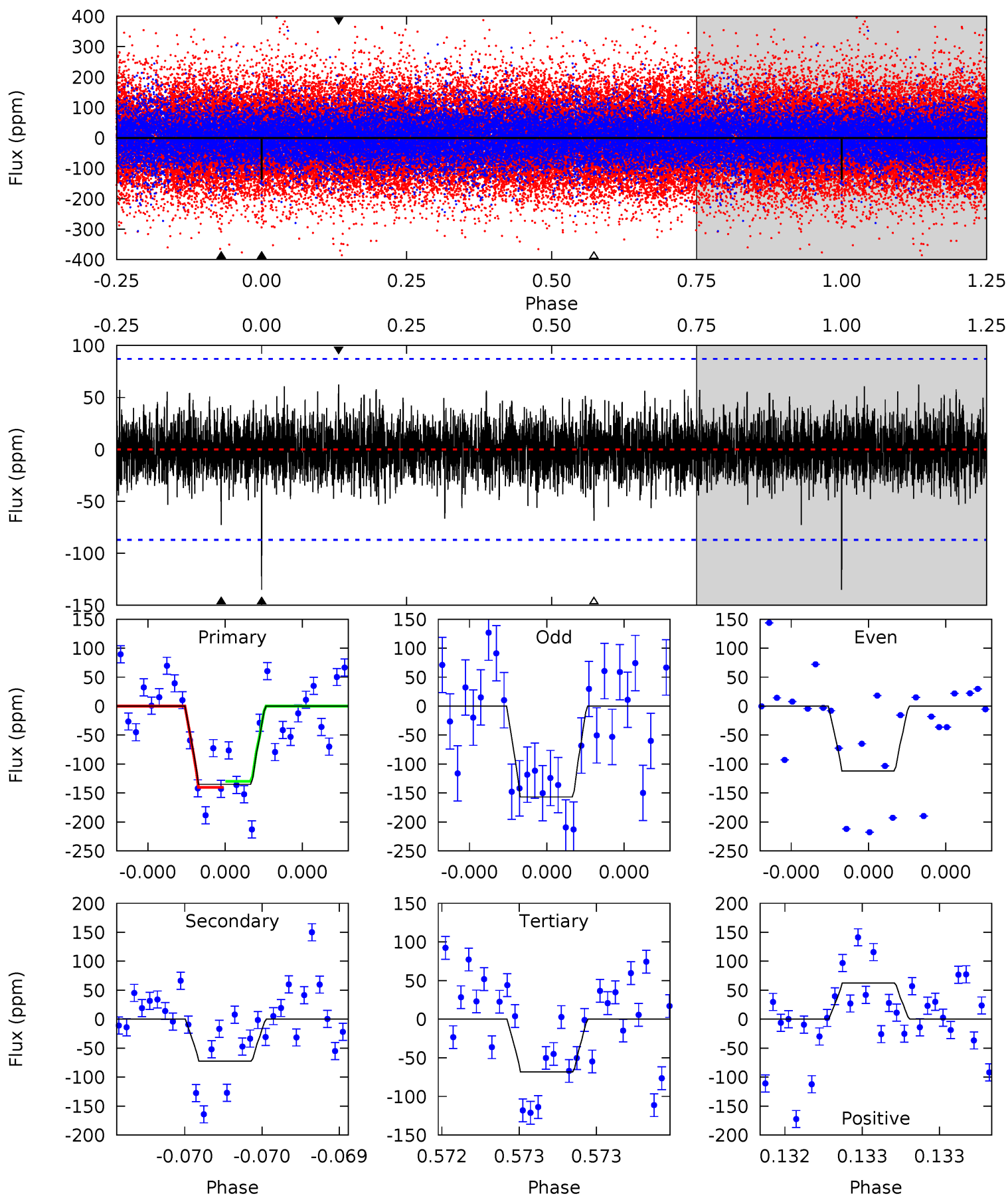
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.97	4.88	4.61	4.59	5.57	3.48	1.14	5.37	5.38	0.27	0.28	1.41	1.03	0.32	0.09



Alt Model-Shift Uniqueness Test

010387742-02, P = 251.753160 Days, E = 19.289238 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.66	4.66	4.39	4.00	5.59	3.50	1.09	4.27	4.66	0.27	0.65	1.44	0.98	0.32	0.34



Stellar Parameters For KIC 010387742

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5640^{+101}_{-113}	$4.492^{+0.045}_{-0.113}$	$0.060^{+0.150}_{-0.150}$	$0.921^{+0.131}_{-0.061}$	$0.962^{+0.054}_{-0.068}$	$1.731^{+0.309}_{-0.550}$
	+2%/-2%	+1%/-3%	+250%/-250%	+14%/-7%	+6%/-7%	+18%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010387742-02 / KOI 2583.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-74 ± 15	$1.56^{+1.19}_{-0.89}$	383^{+15}_{-12}	4374^{+2018}_{-759}	9136^{+44751}_{-5911}
Alt.	-73 ± 16	$1.45^{+1.11}_{-0.90}$	383^{+14}_{-11}	4547^{+2621}_{-854}	11294^{+67458}_{-7870}

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

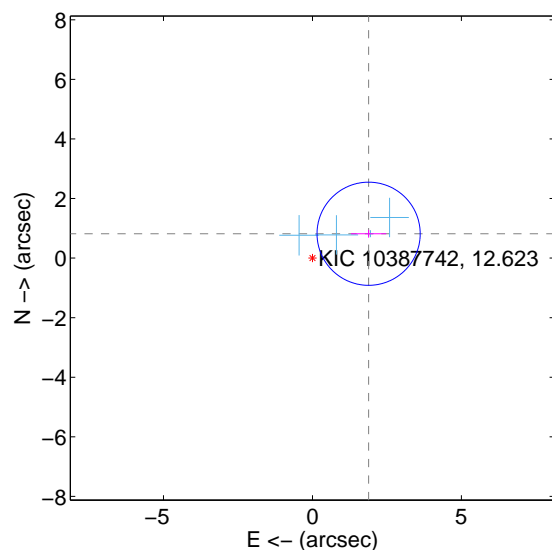
Supplemental centroid analysis for 010387742-02. Kepler magnitude: 12.62. Transit SNR 7.51

There are 4 quarters with good PRF difference image offsets

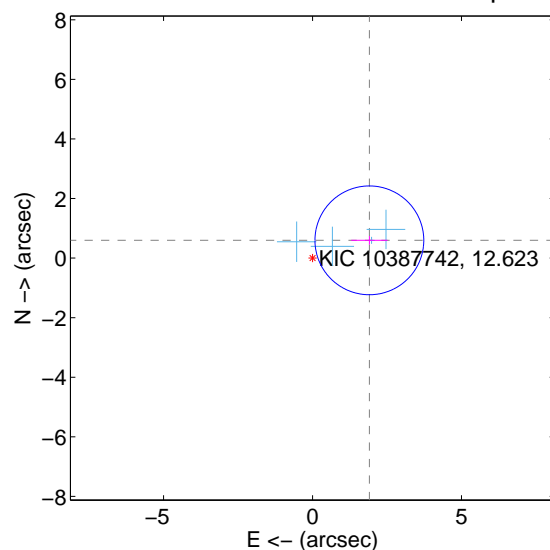
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.055 ± 0.577	3.56	-1.886 ± 0.591	0.817 ± 0.130
PRF-fit source offset from KIC position	1.999 ± 0.609	3.28	-1.908 ± 0.609	0.596 ± 0.145
photometric centroid source offset	1.37 ± 1.80	0.76	-1.20 ± 1.81	-0.67 ± 1.76

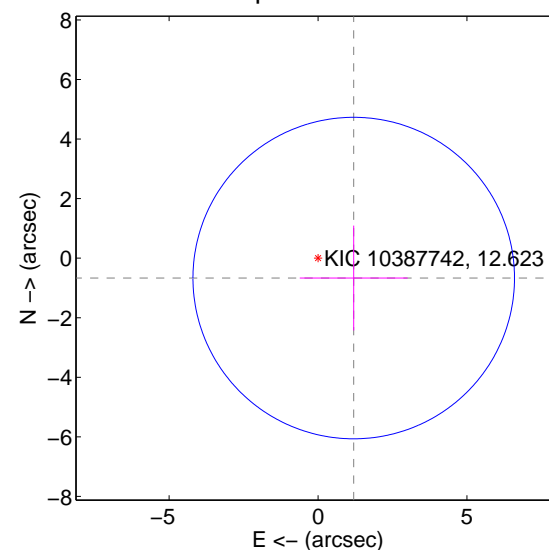
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

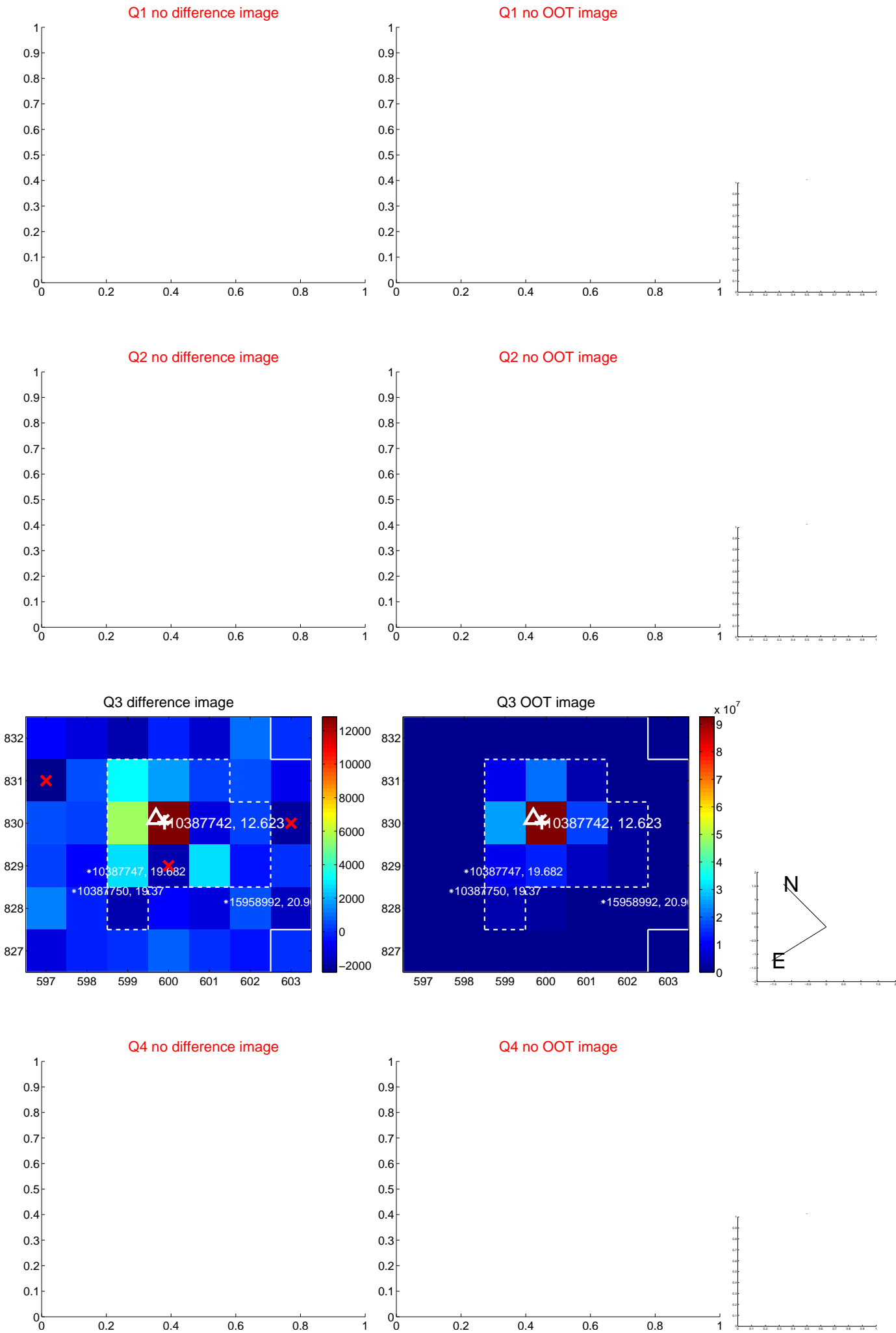


offset from photometric centroids

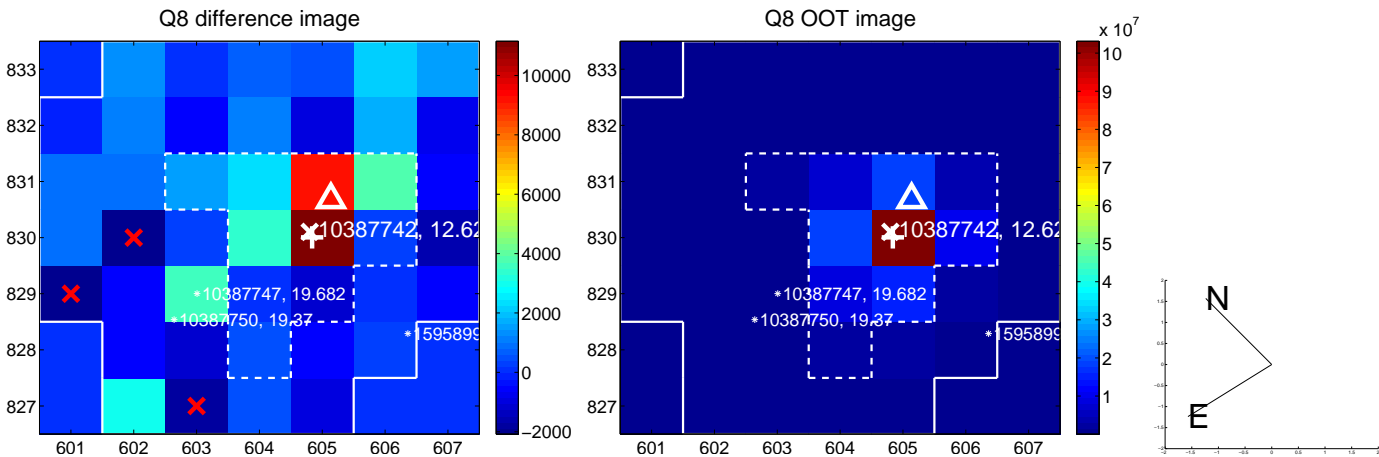
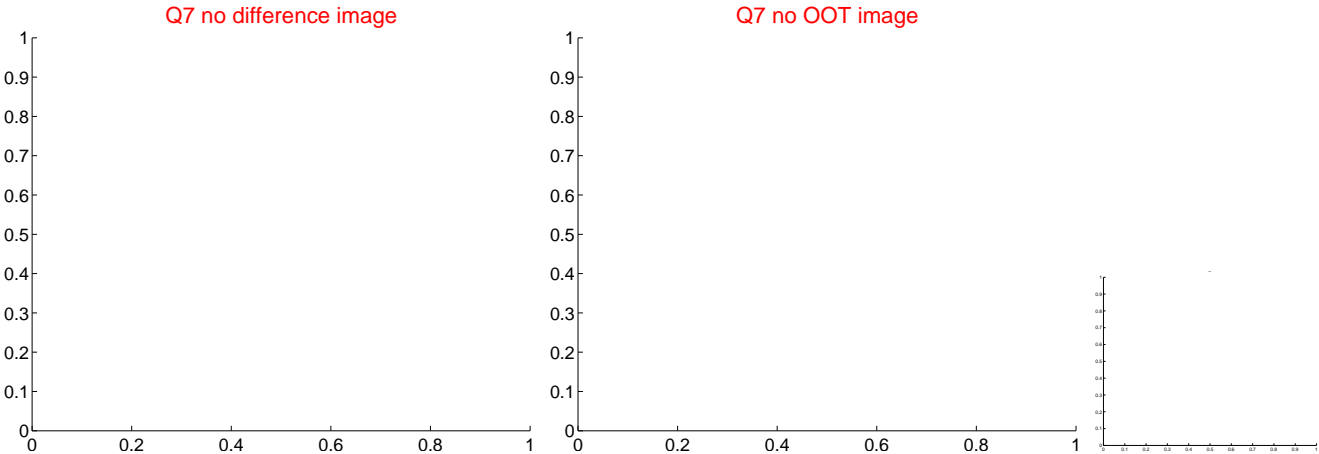
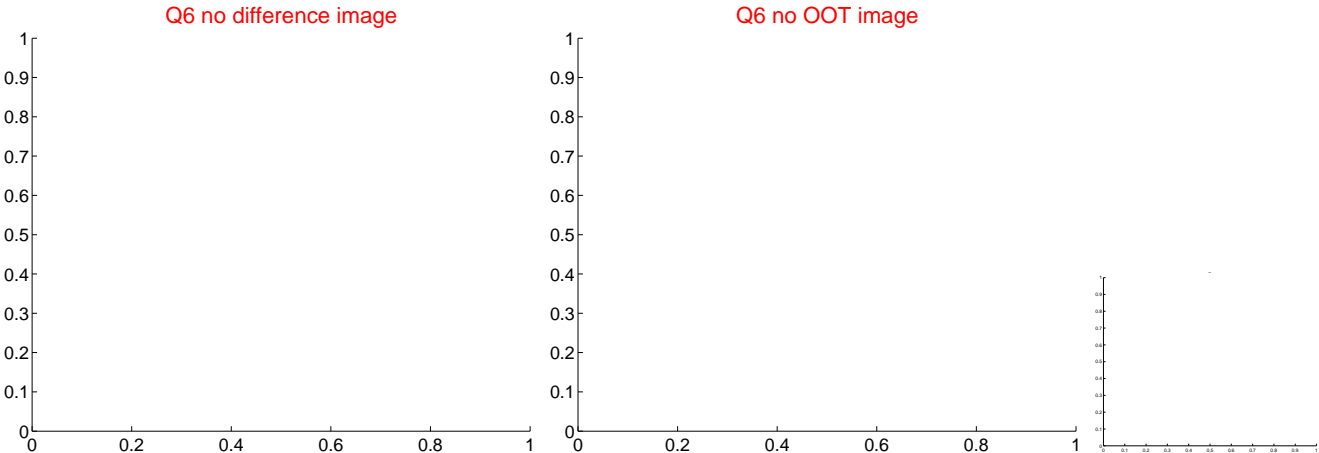
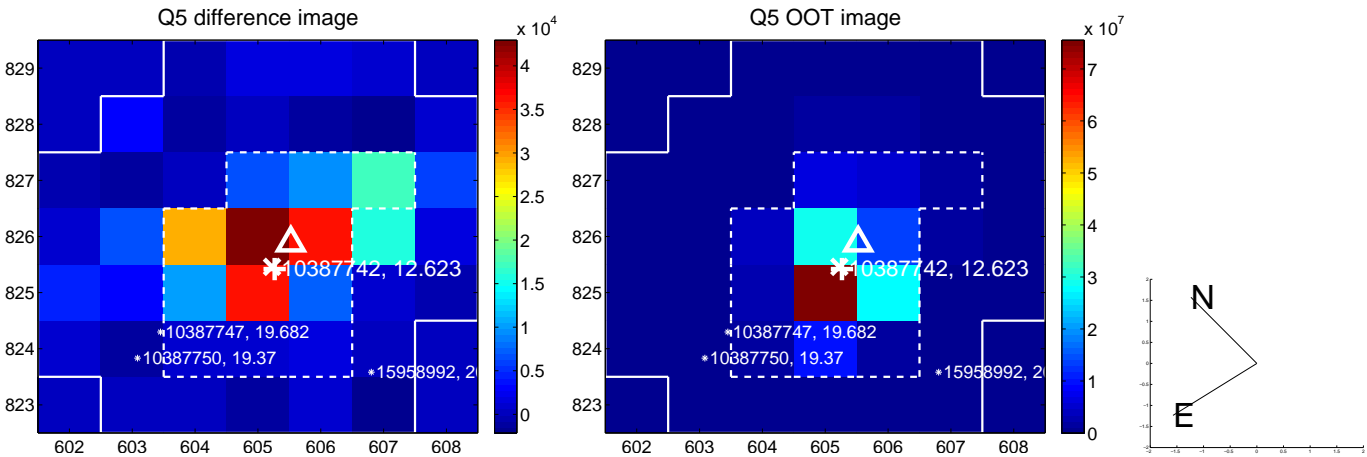


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

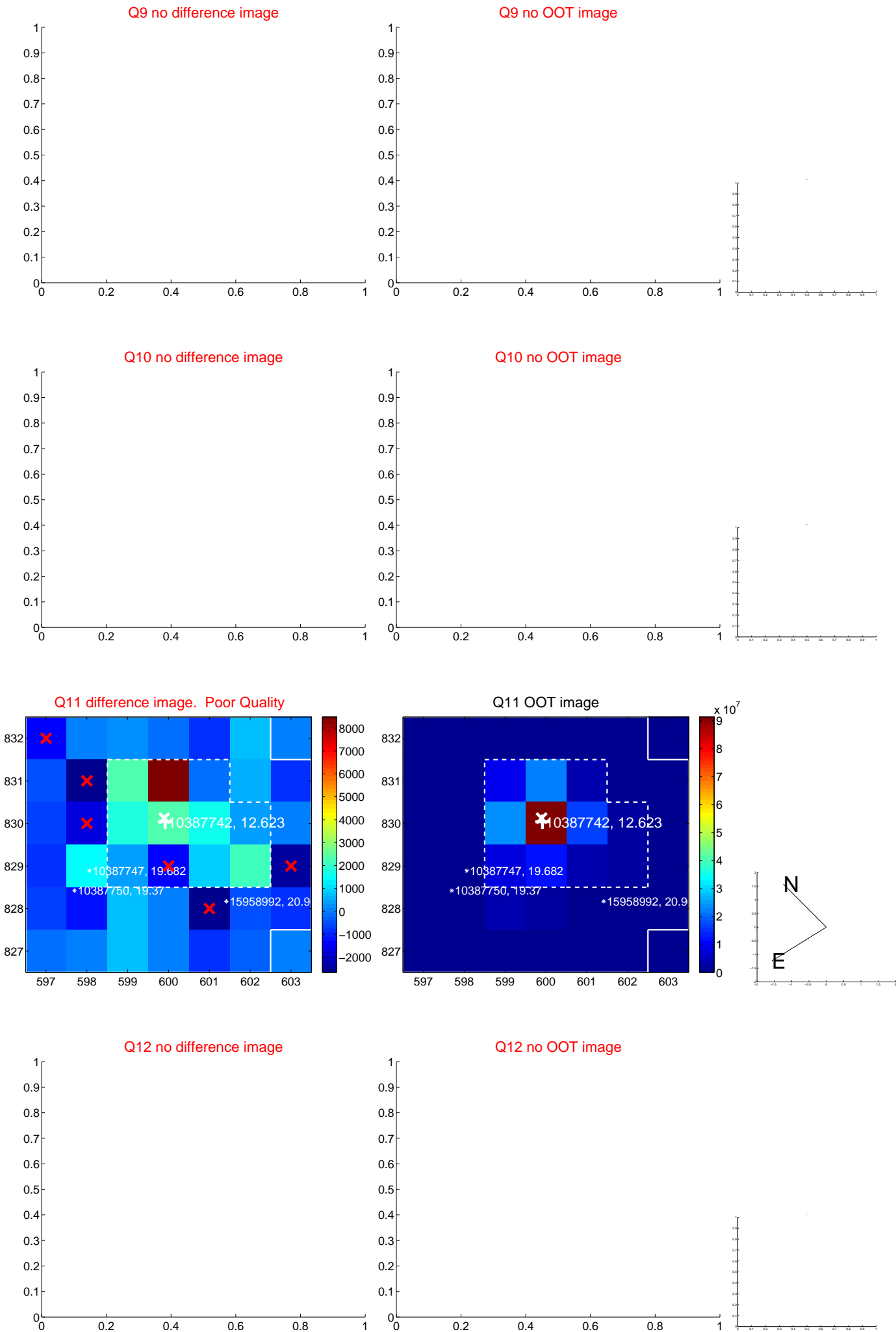
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



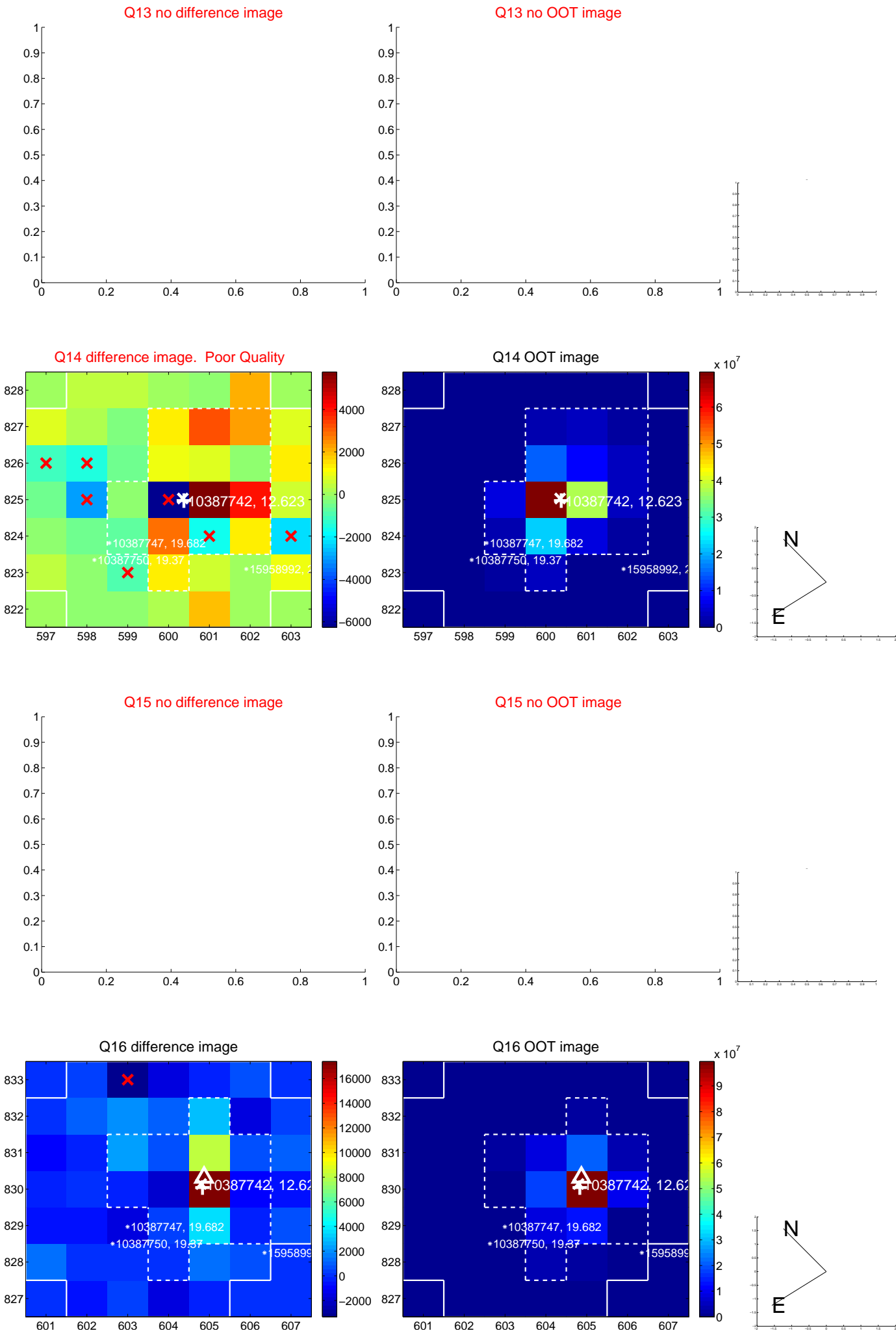
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



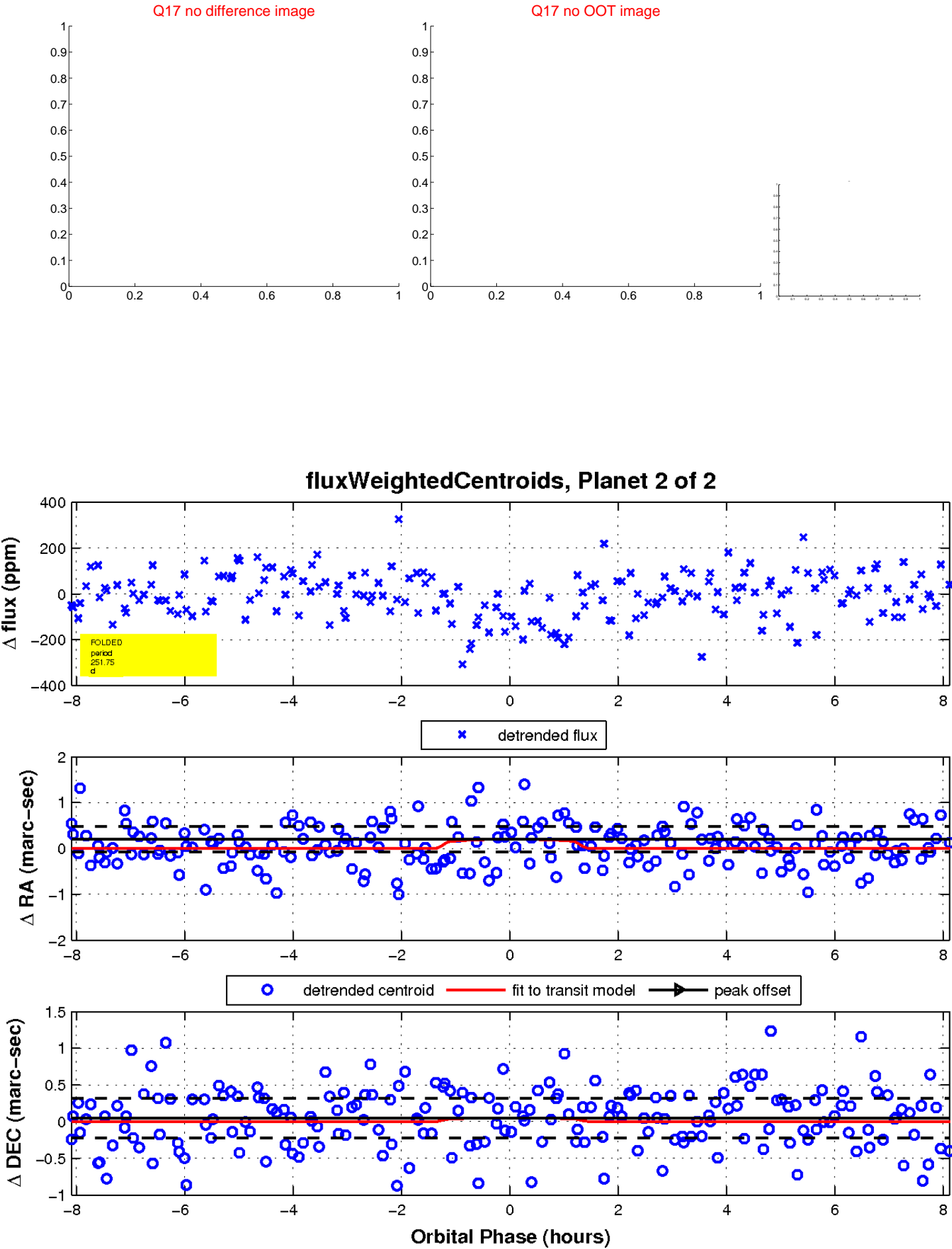
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

