

KIC 010337258

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})
010337258-01	OBS	0333.01	13.285372	143.290569	371.4	6.228	42.0	45.5	1.90	6534	3.97	424.24
010337258-02	OBS	No	379.430634	250.644594	317.4	3.601	7.8	8.0	1.90	6534	3.77	4.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010337258-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010337258-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—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.

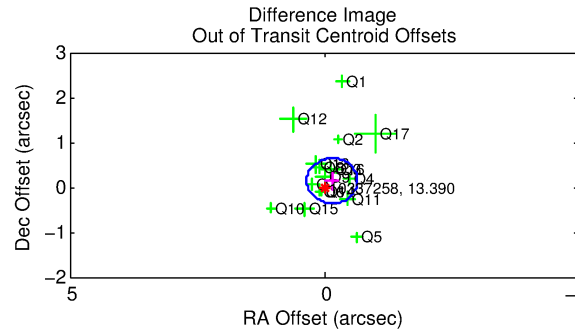
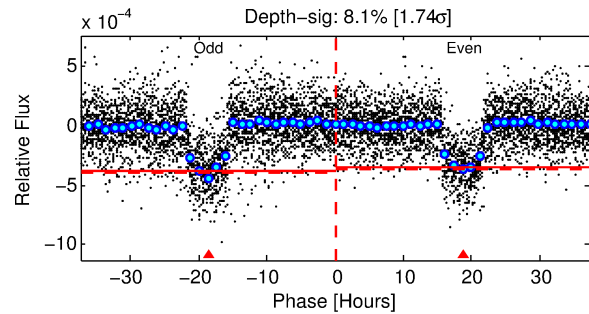
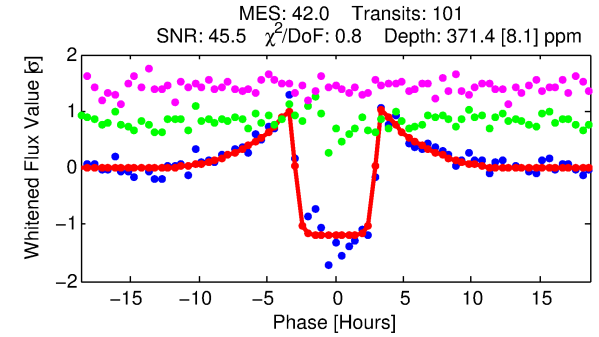
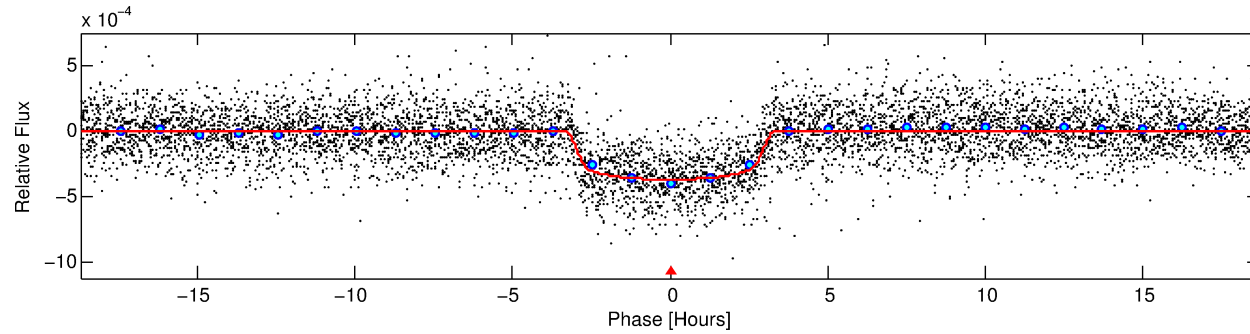
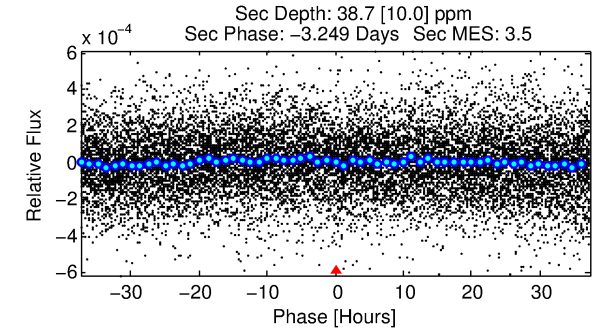
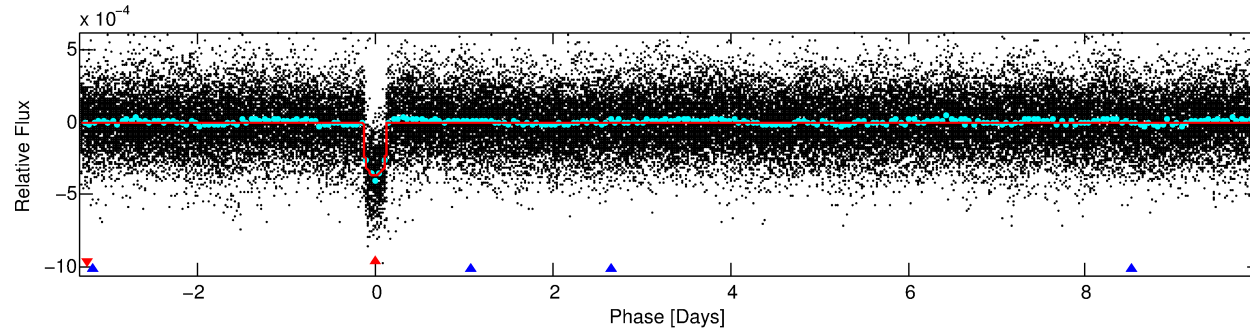
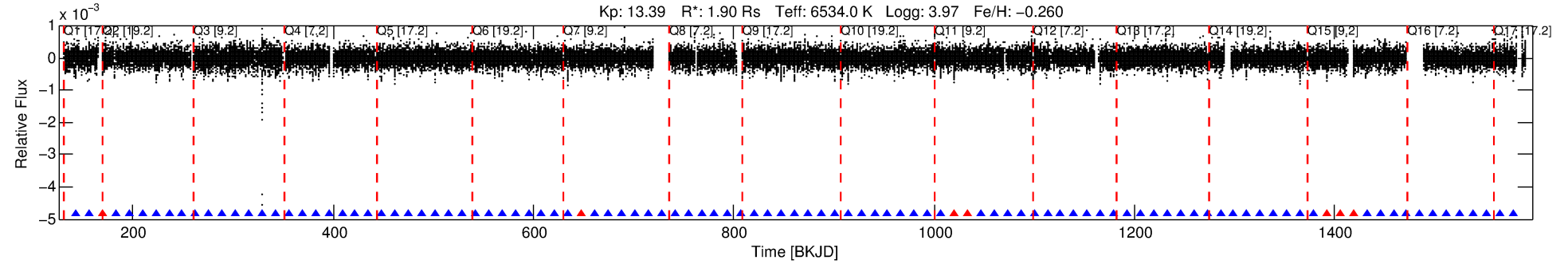
Ephemeris Match Information For 010337258-01

No Significant Match Found

DV One-Page Summary

KIC: 10337258 Candidate: 1 of 2 Period: 13.285 d

KOI: K00333.01 Corr: 0.996



DV Fit Results:

Period = 13.28537 [0.00003] d
Epoch = 143.2906 [0.0016] BKJD
Rp/R* = 0.0191 [0.0013]
a/R* = 11.35 [4.23]
b = 0.75 [0.22]
Seff = 424.24 [199.27]
Teq = 1157 [136] K
Rp = 3.97 [1.25] Re
a = 0.1179 [0.0342] AU
Ag = 18.78 [10.21] [1.74σ]
Teffp = 3724 [292] K [7.97σ]

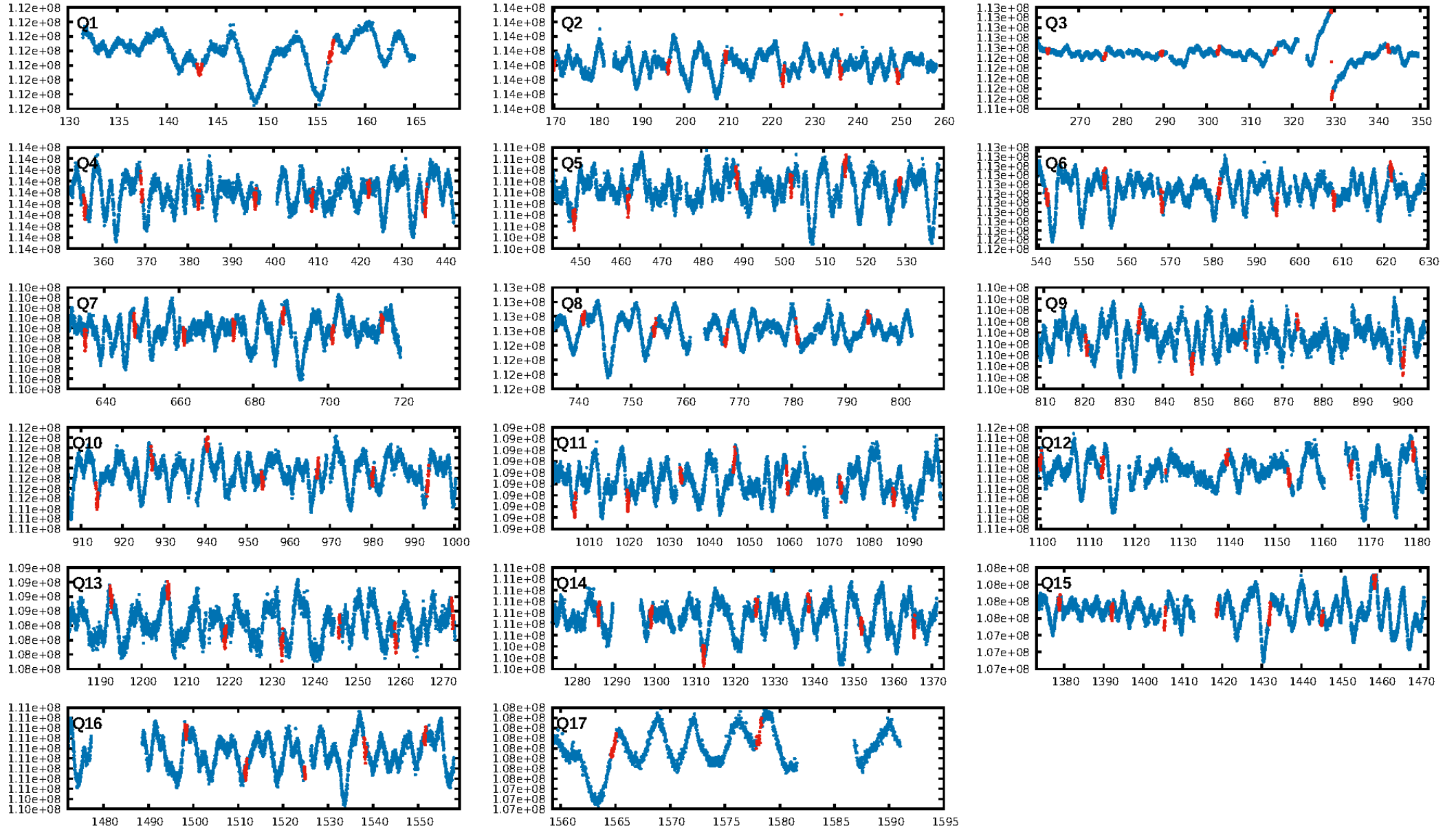
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1221.56σ]
ModelChiSquare2-sig: 94.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.93 [90/97]
GhostDiagnostic-chr: 3.62
Centroid-sig: 0.1%
Centroid-so: 0.278 arcsec [1.50σ]
OotOffset-rm: 0.207 arcsec [1.24σ]
KicOffset-rm: 0.267 arcsec [1.30σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

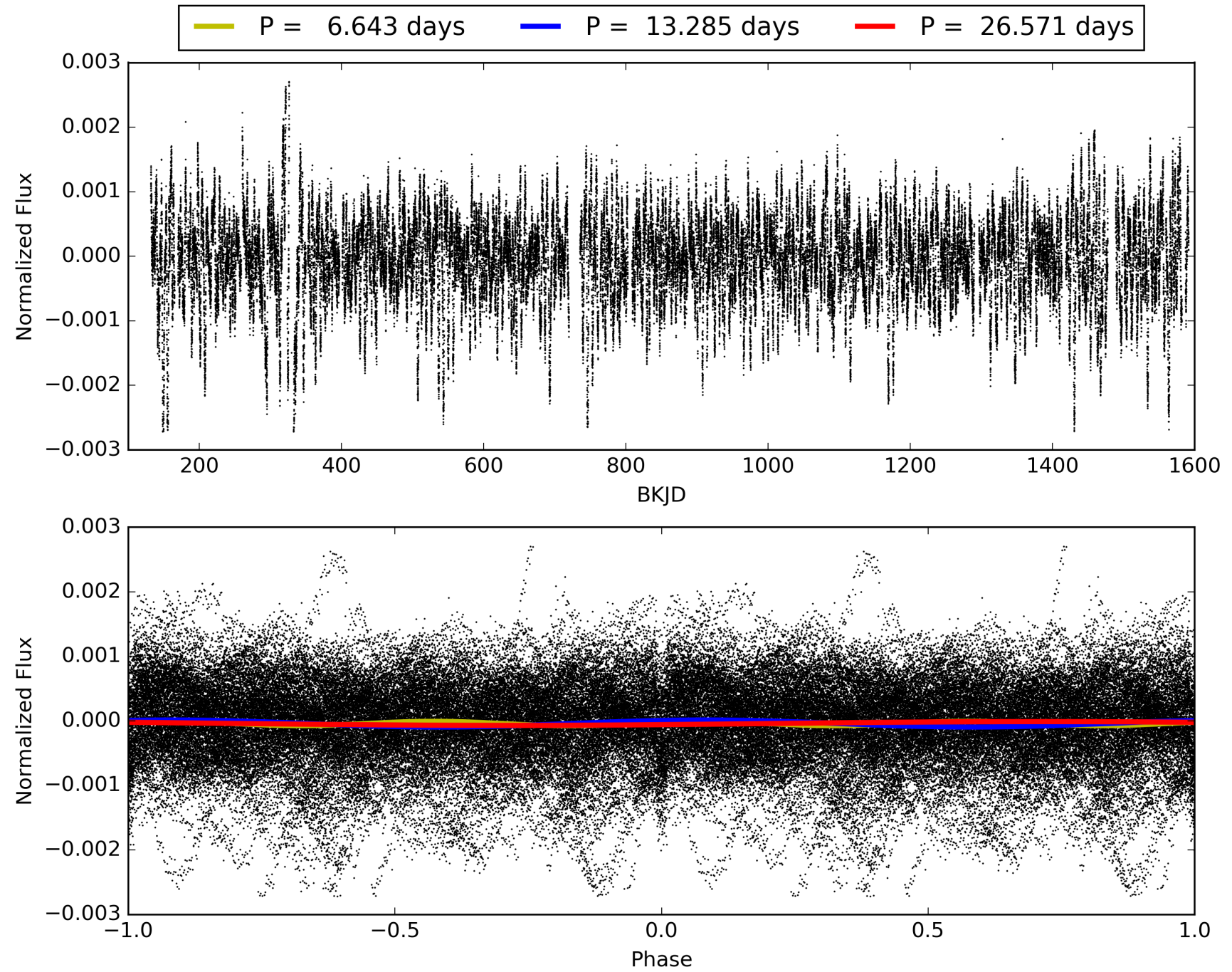
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:38:20 Z

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

TCE 010337258-01, PDC Light Curves

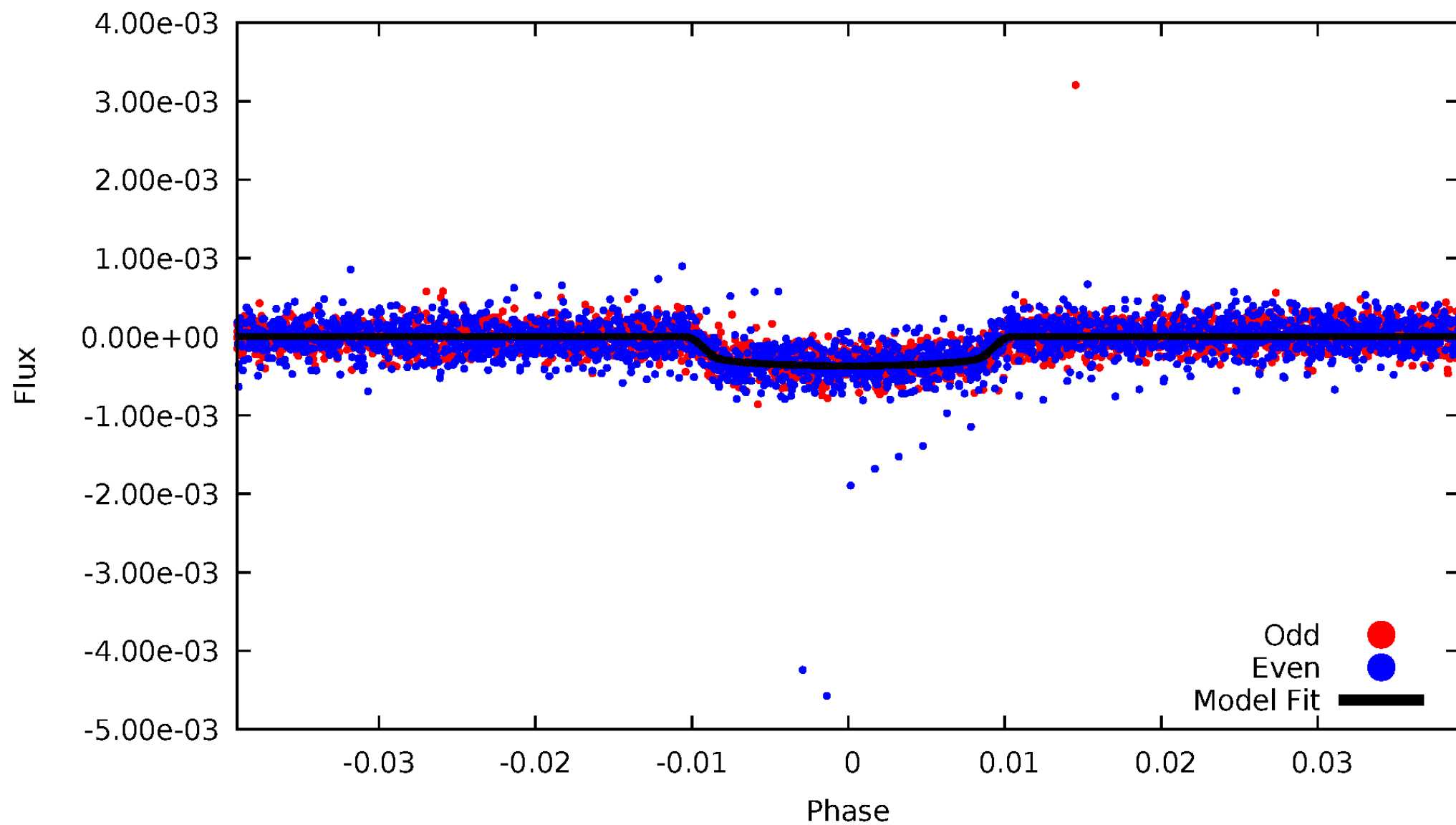


TCE 010337258-01



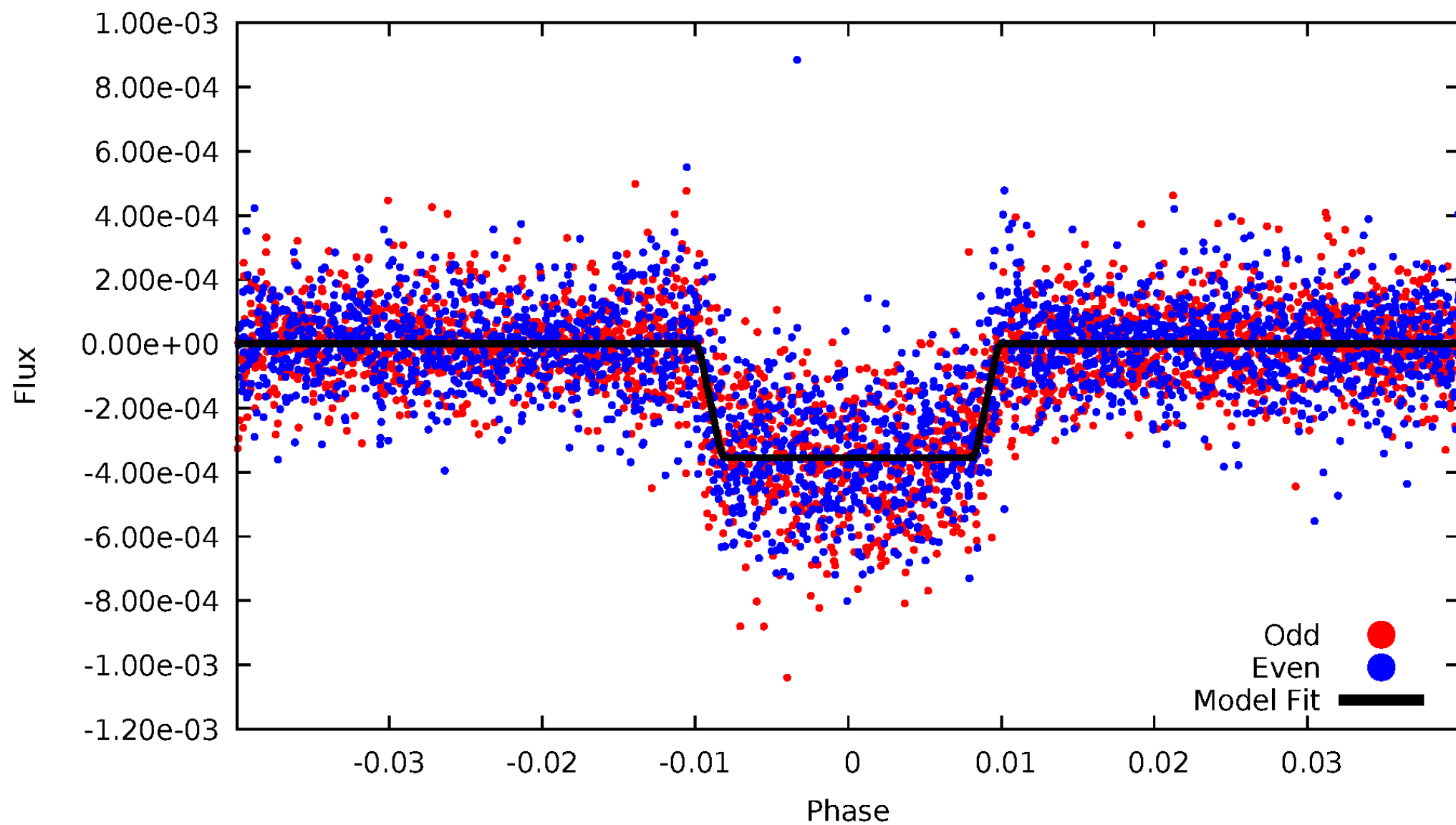
DV Odd/Even

TCE 010337258-01



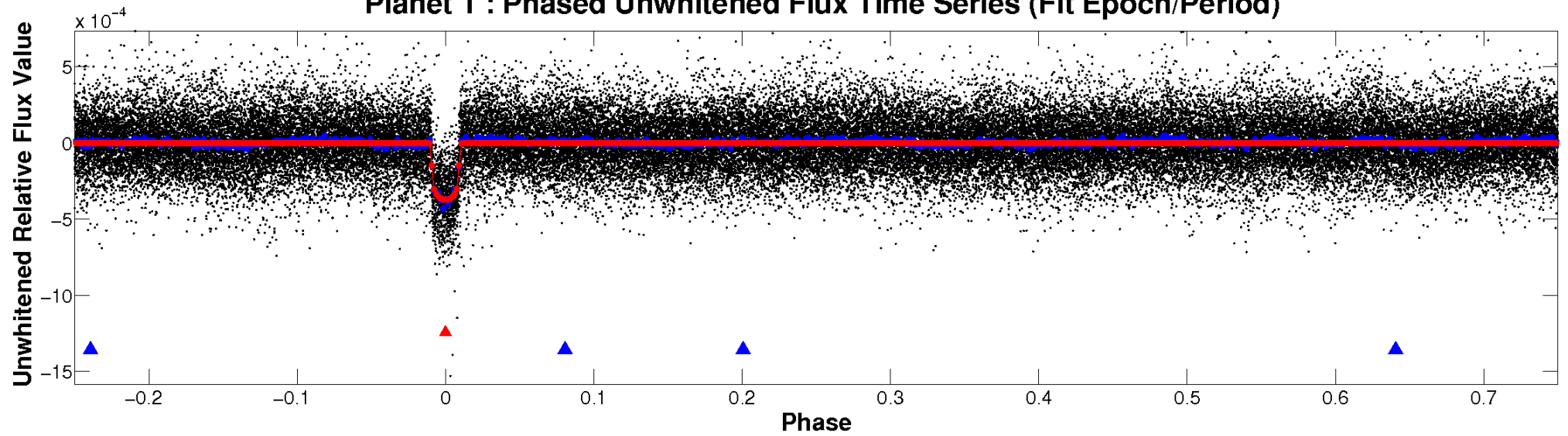
ALT Odd/Even

TCE 010337258-01

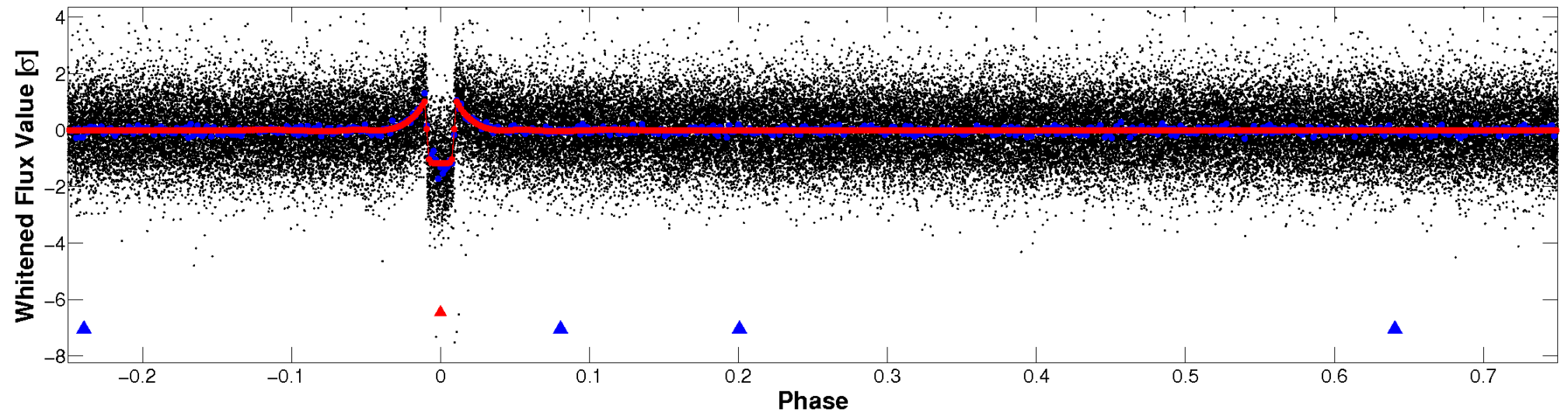


Non-Whitened Vs. Whitened Light Curve

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

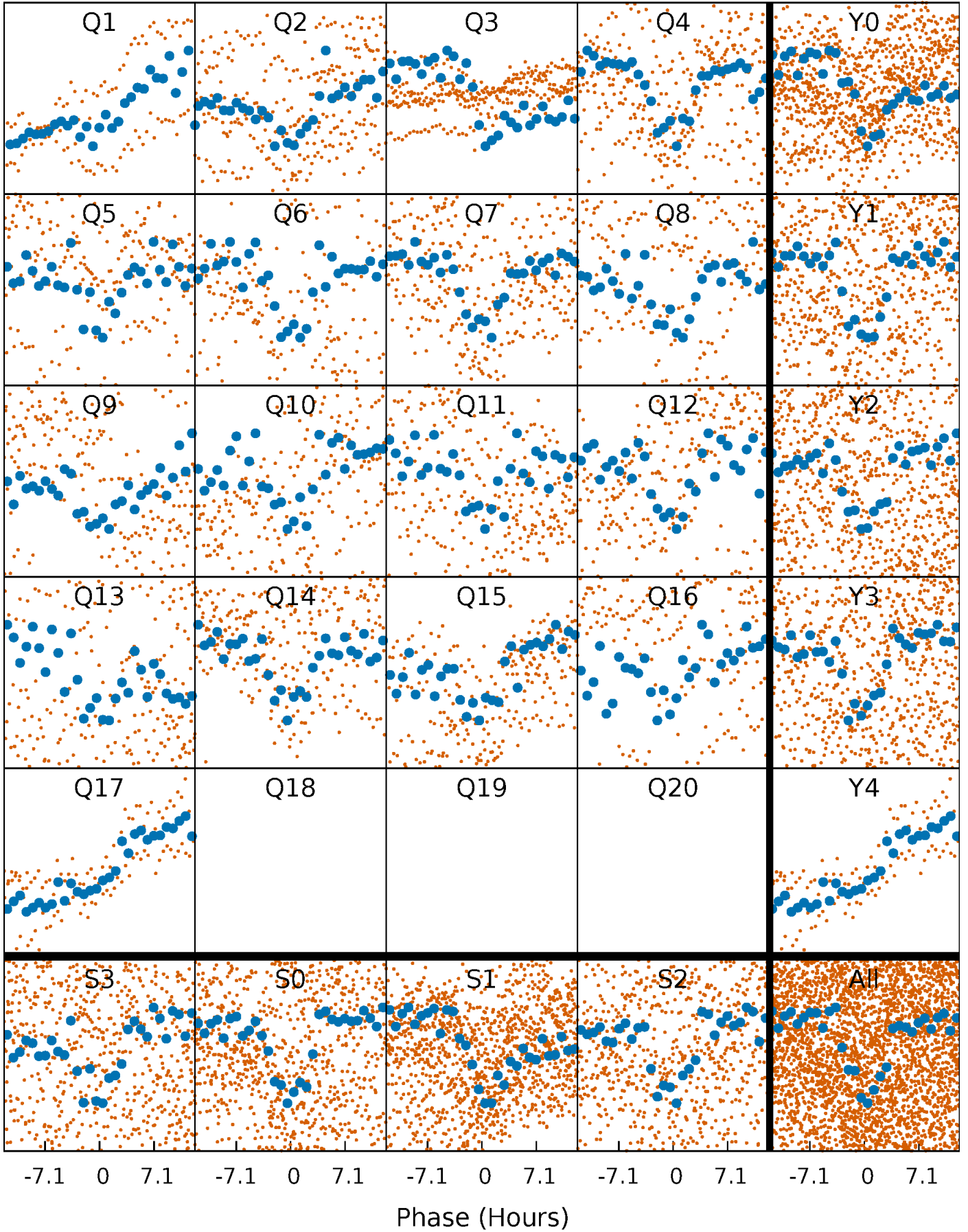


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



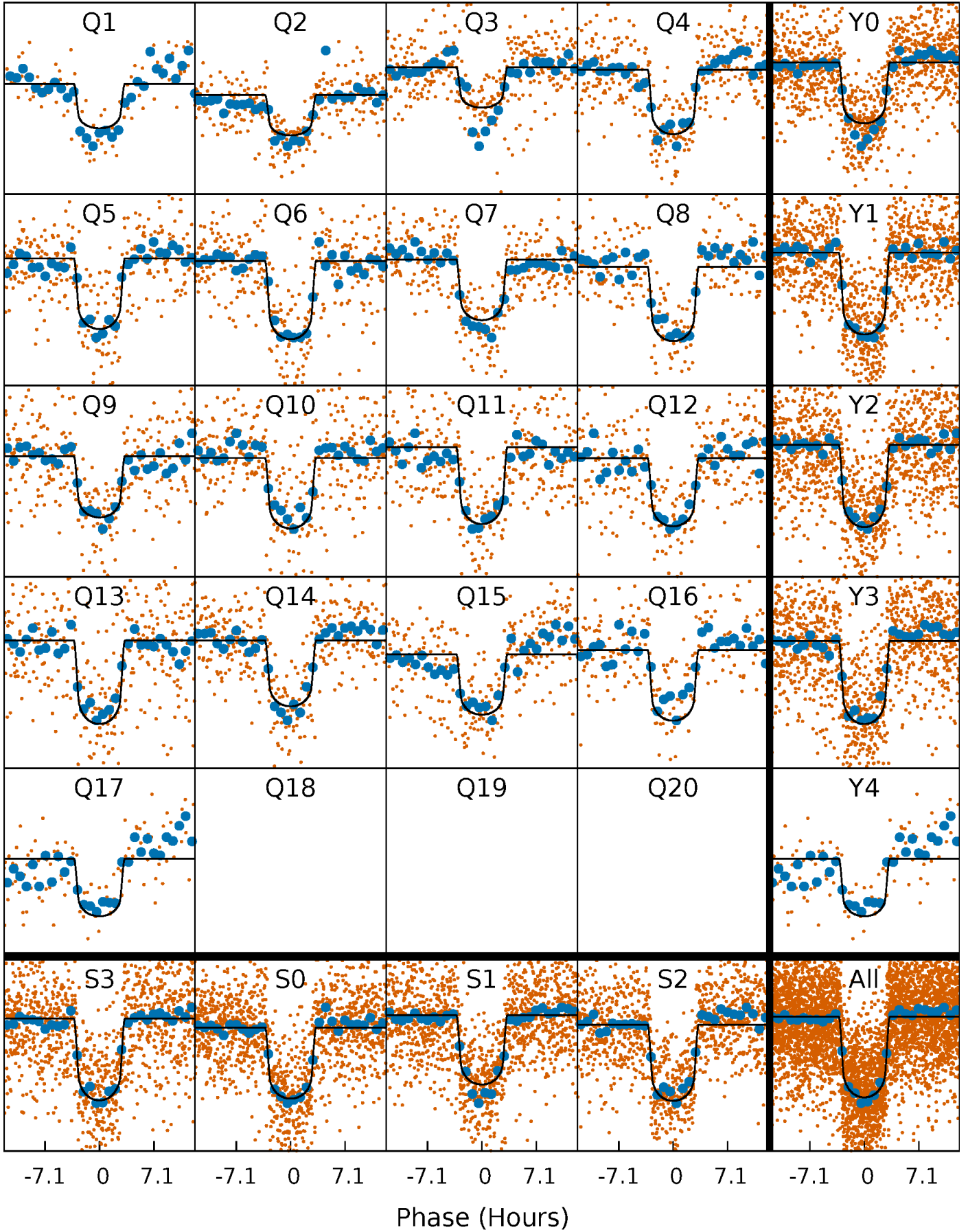
PDC Quarter-Phased Transit Curves

TCE 010337258-01 P= 13.285372 Days $T_0=143.290569$ (BKJD)



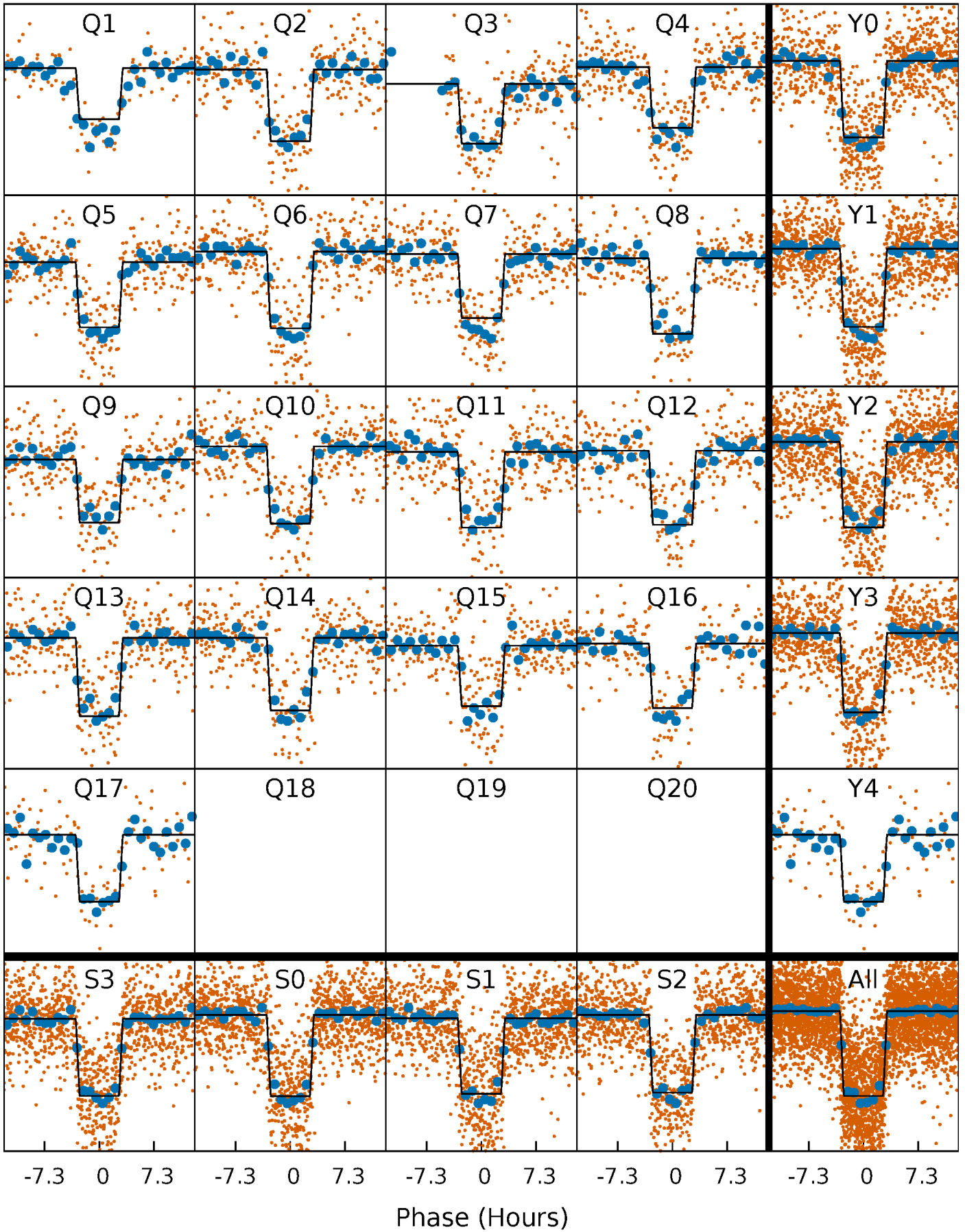
DV Quarter-Phased Transit Curves

TCE 010337258-01 $P = 13.285372$ Days $T_0 = 143.290569$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

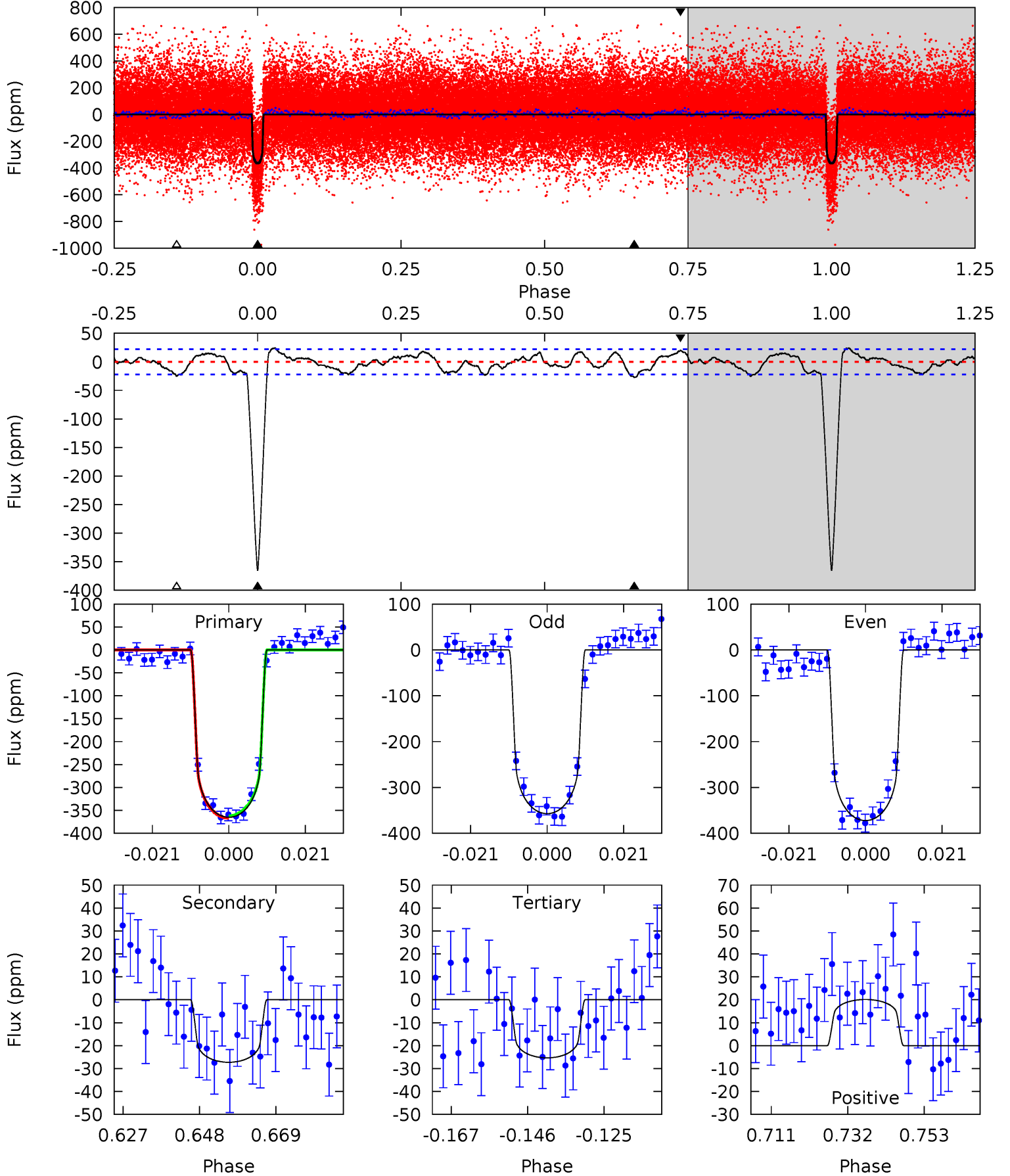
TCE 010337258-01 P= 13.285241 Days $T_0=143.298189$ (BKJD)



DV Model-Shift Uniqueness Test

010337258-01, $P = 13.285372$ Days, $E = 130.005197$ Days

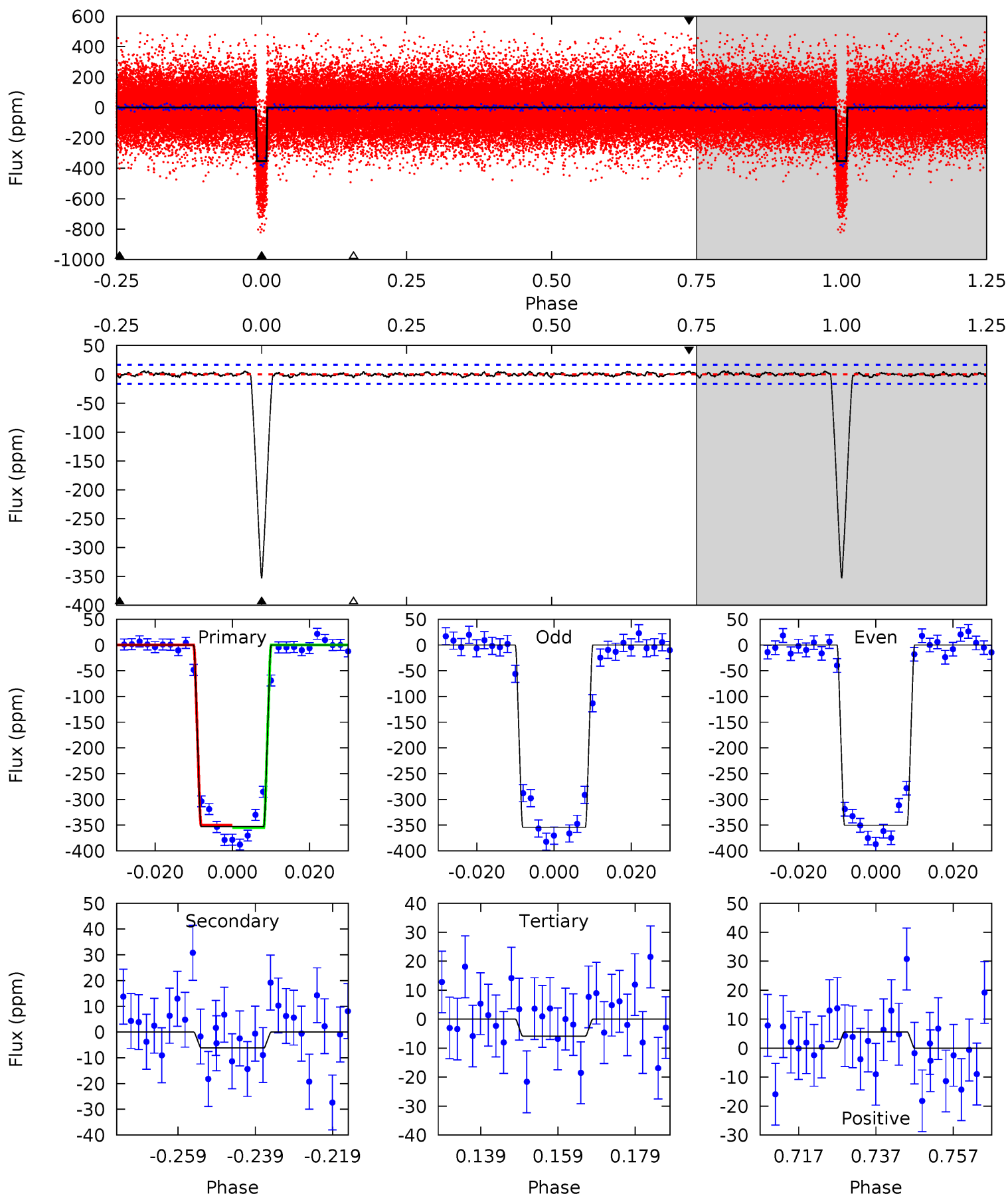
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.5	6.01	5.58	4.43	4.88	2.31	2.47	74.9	76.0	0.43	1.58	1.68	1.01	0.06	0.55



Alt Model-Shift Uniqueness Test

010337258-01, $P = 13.285241$ Days, $E = 130.012948$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
104.1	1.82	1.72	1.65	4.89	2.33	0.64	102.3	102.4	0.10	0.17	0.61	0.97	0.02	0.66



Stellar Parameters For KIC 010337258

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6534^{+156}_{-176}	$3.973^{+0.266}_{-0.114}$	$-0.260^{+0.300}_{-0.250}$	$1.900^{+0.440}_{-0.586}$	$1.238^{+0.211}_{-0.192}$	$0.254^{+0.385}_{-0.099}$
	+2%/-3%	+7%/-3%	+115%/-96%	+23%/-31%	+17%/-16%	+151%/-39%
Source	PHO1	FLK73	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 010337258-01 / KOI 0333.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-27 ± 5	$3.84^{+0.59}_{-0.66}$	1582^{+94}_{-125}	3770^{+154}_{-158}	14^{+6}_{-4}
Alt.	-6 ± 3	$3.80^{+0.63}_{-0.65}$	1596^{+102}_{-132}	2981^{+234}_{-377}	$3.256^{+2.528}_{-1.930}$

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

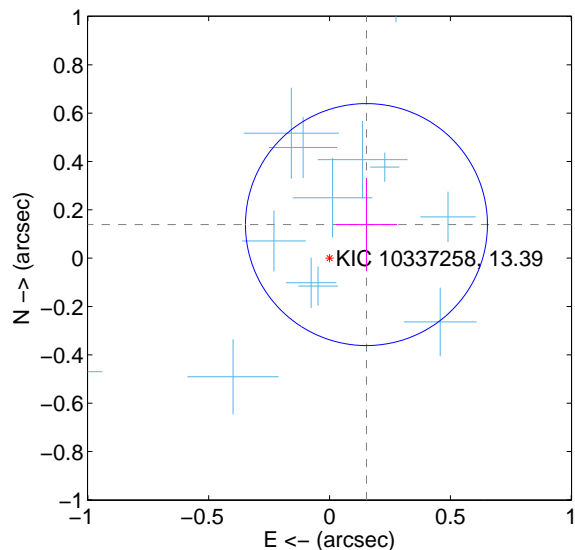
Supplemental centroid analysis for 010337258-01. Kepler magnitude: 13.39. Transit SNR 45.49

There are 17 quarters with good PRF difference image offsets

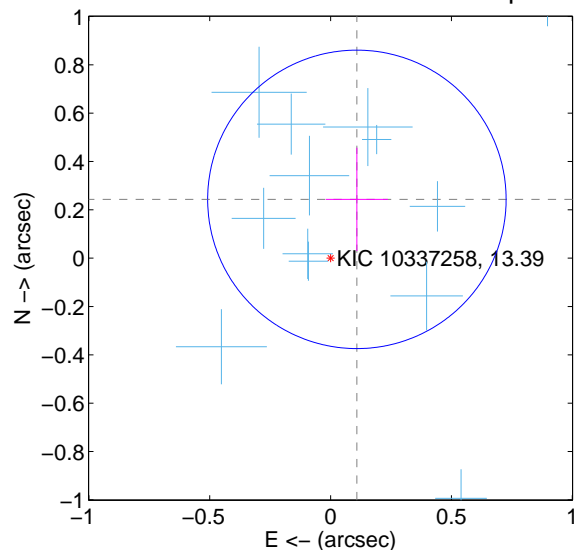
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.207 ± 0.167	1.24	-0.153 ± 0.127	0.139 ± 0.192
PRF-fit source offset from KIC position	0.267 ± 0.206	1.30	-0.109 ± 0.128	0.243 ± 0.214
photometric centroid source offset	0.28 ± 0.19	1.50	0.13 ± 0.20	-0.24 ± 0.18

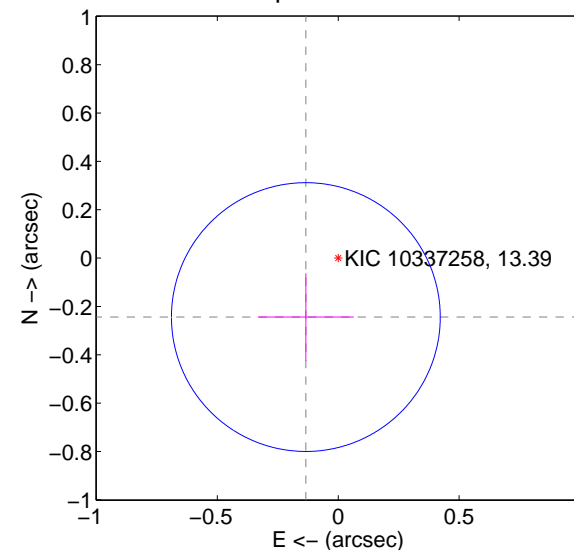
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

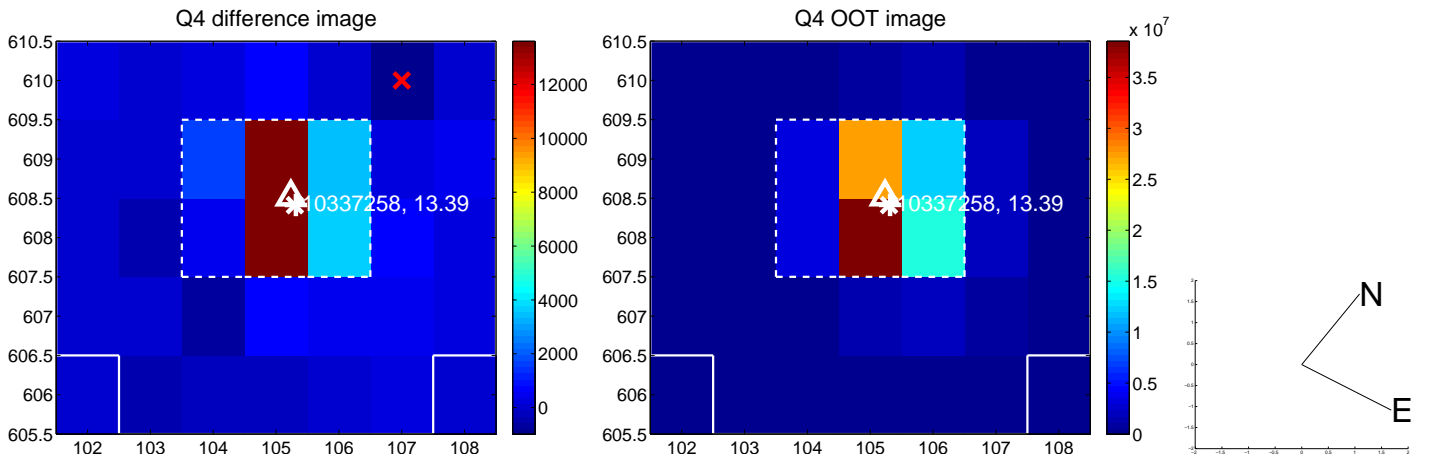
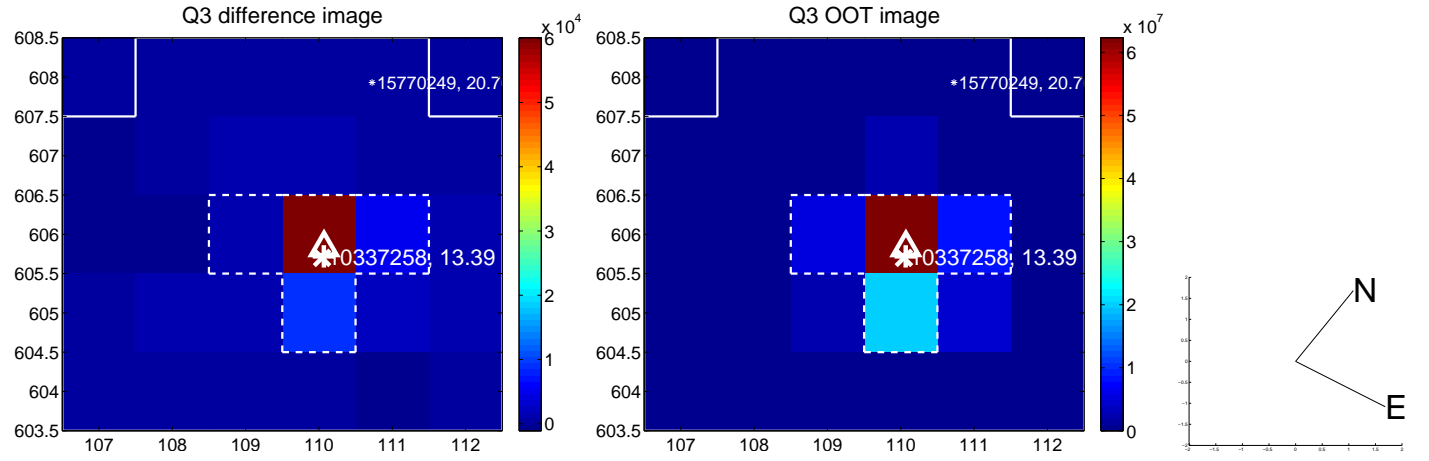
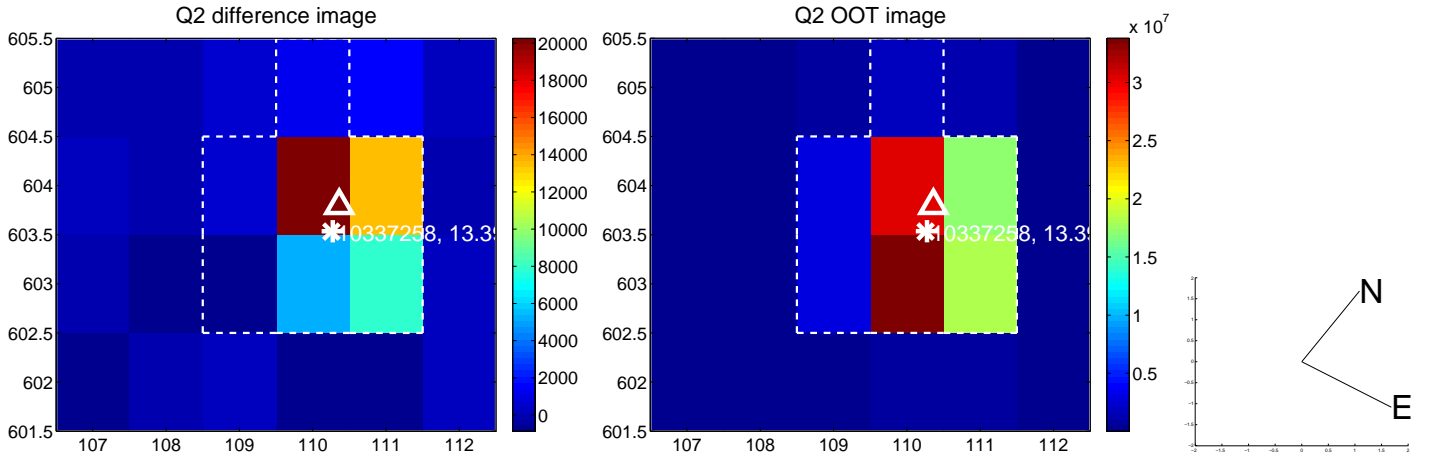
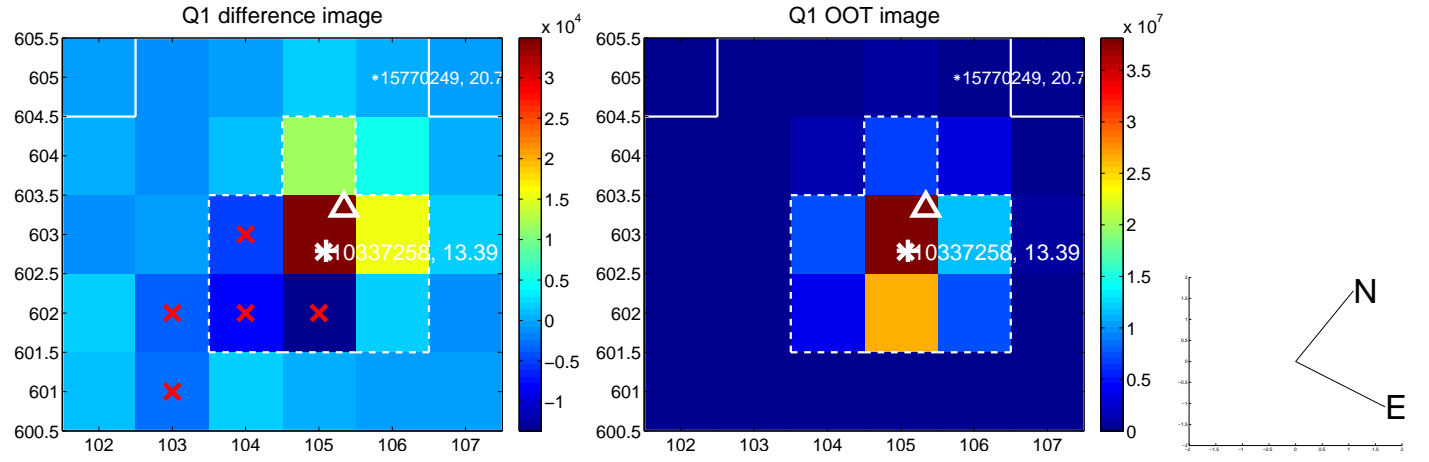


offset from photometric centroids

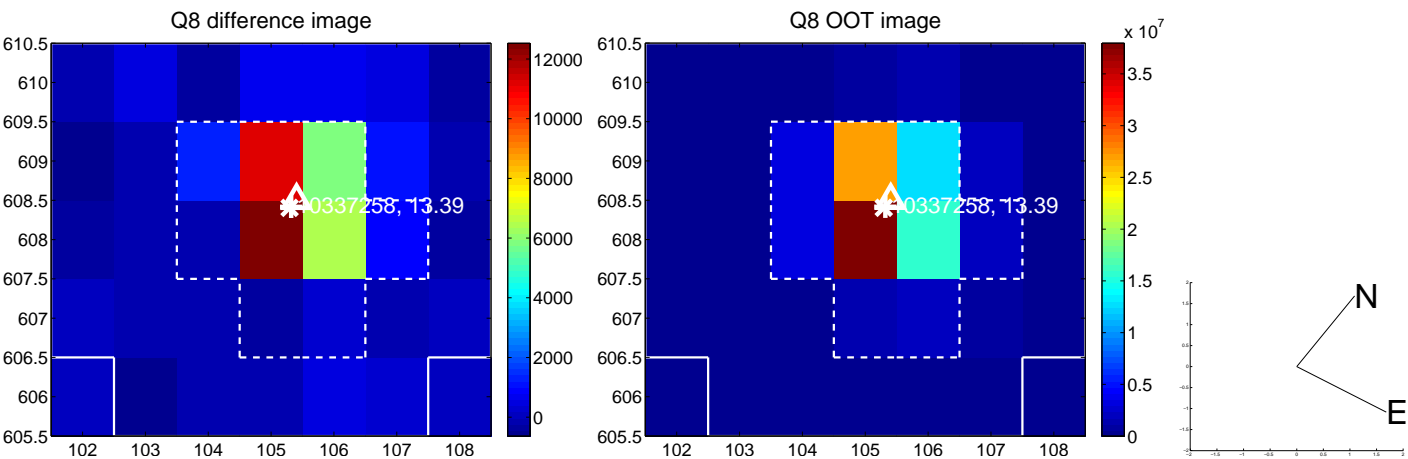
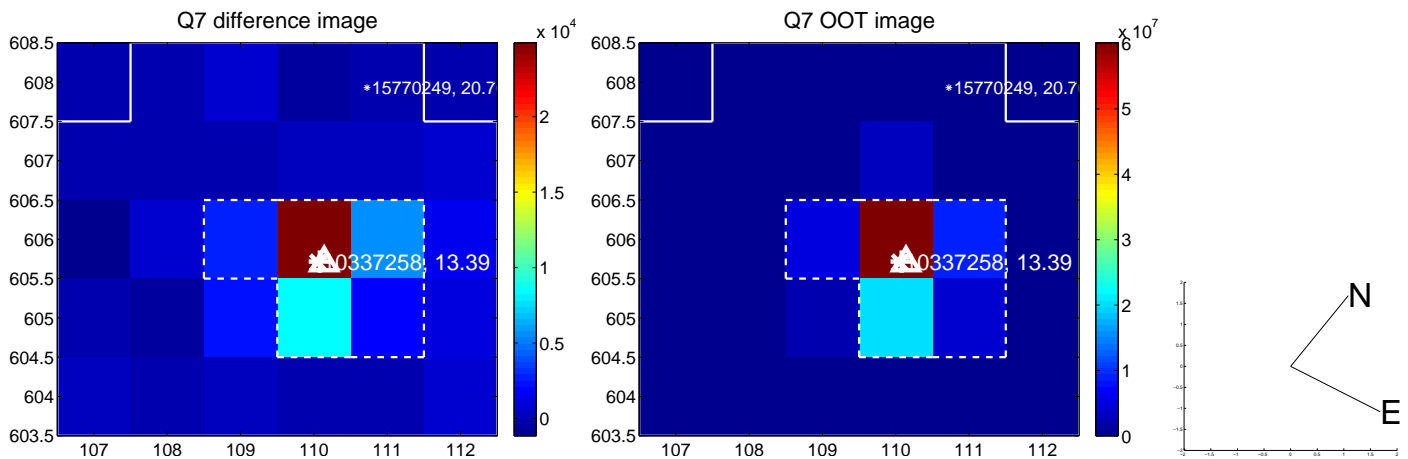
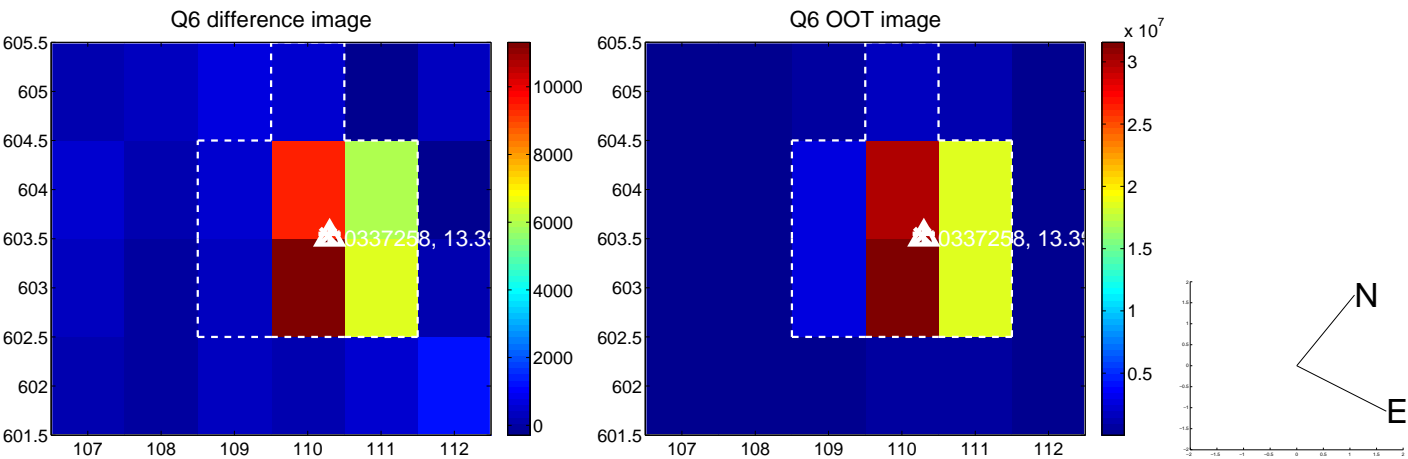
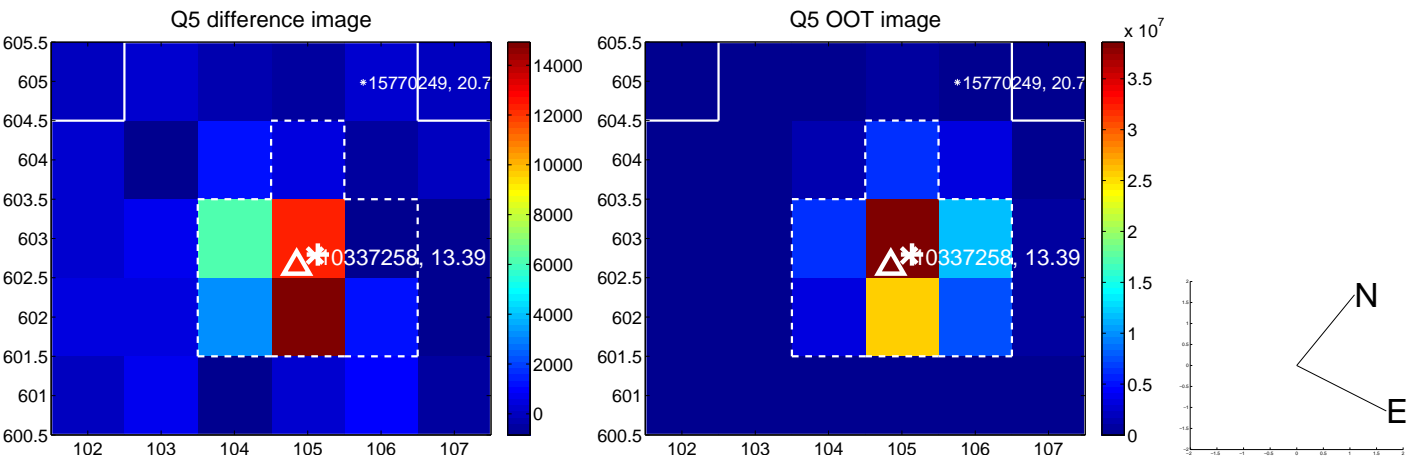


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

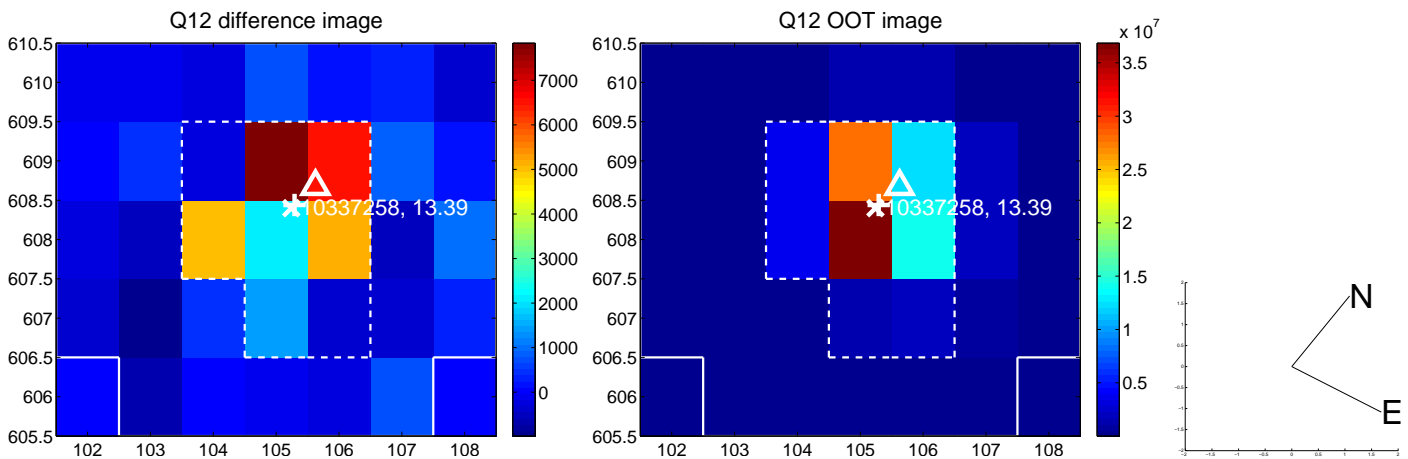
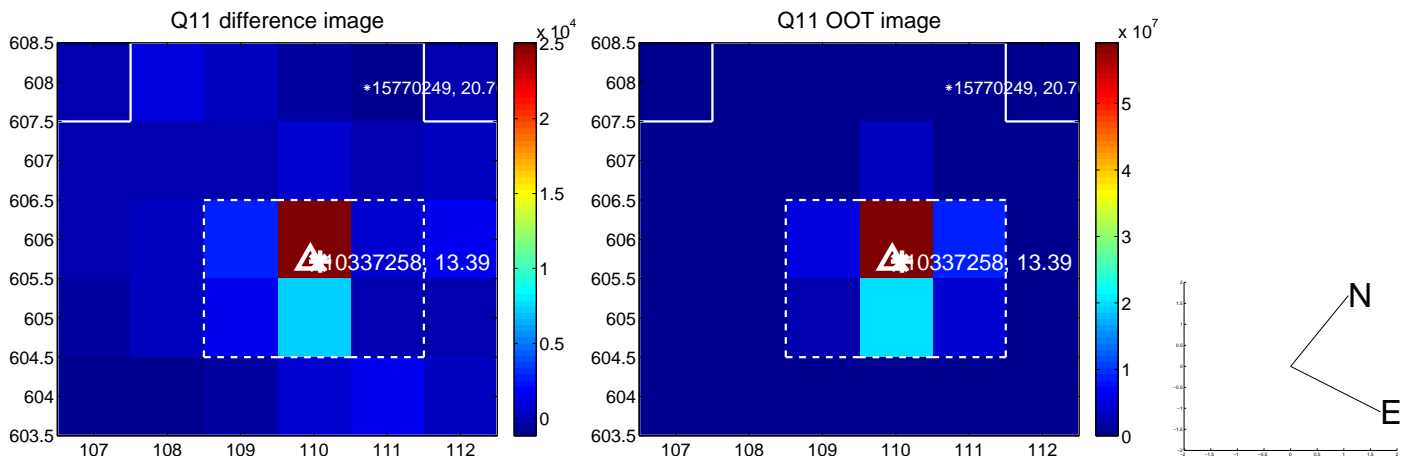
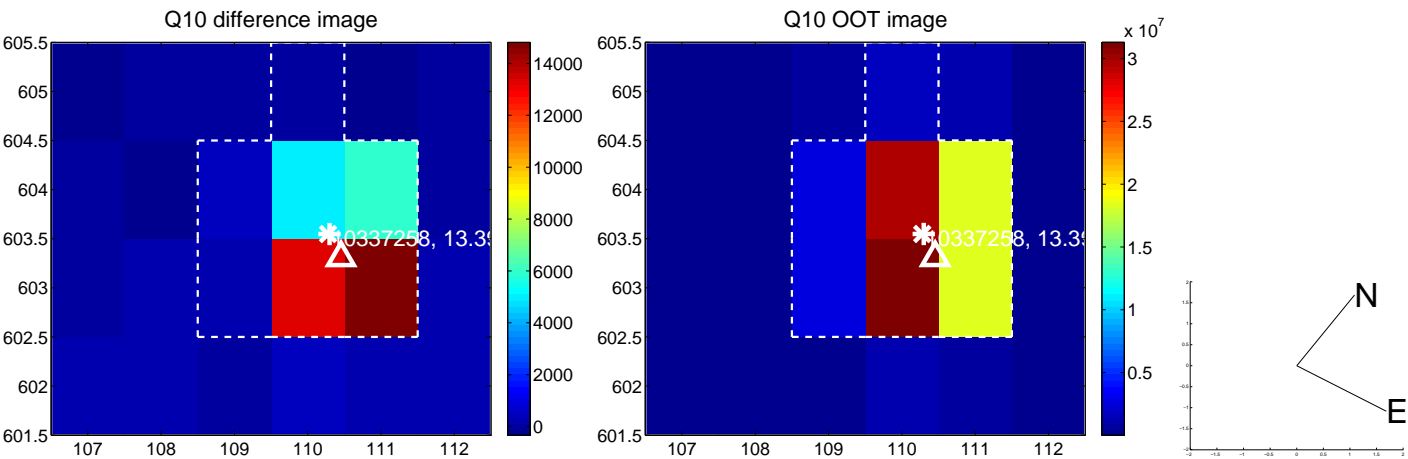
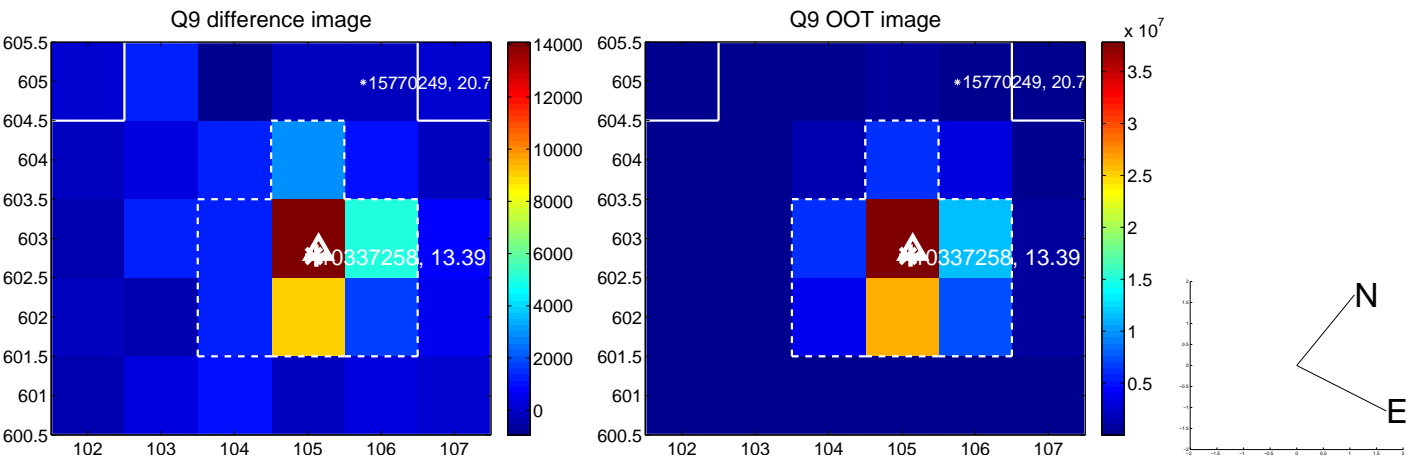
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



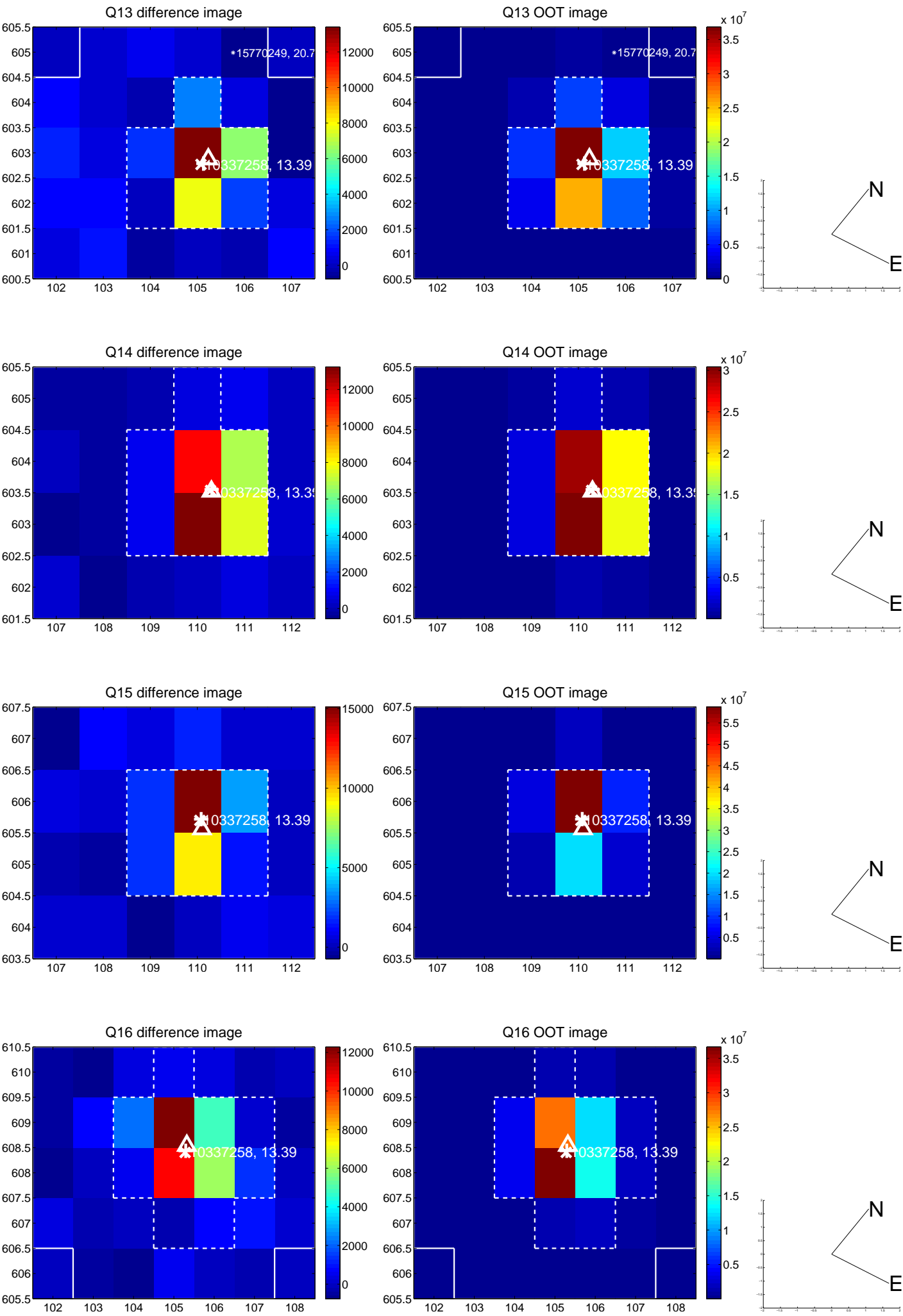
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



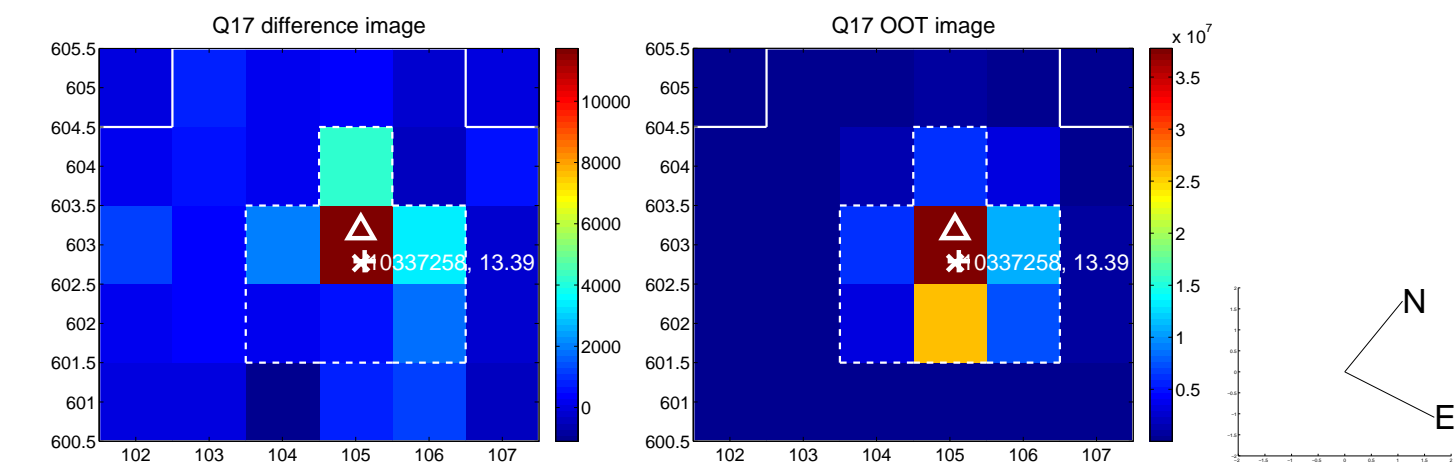
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



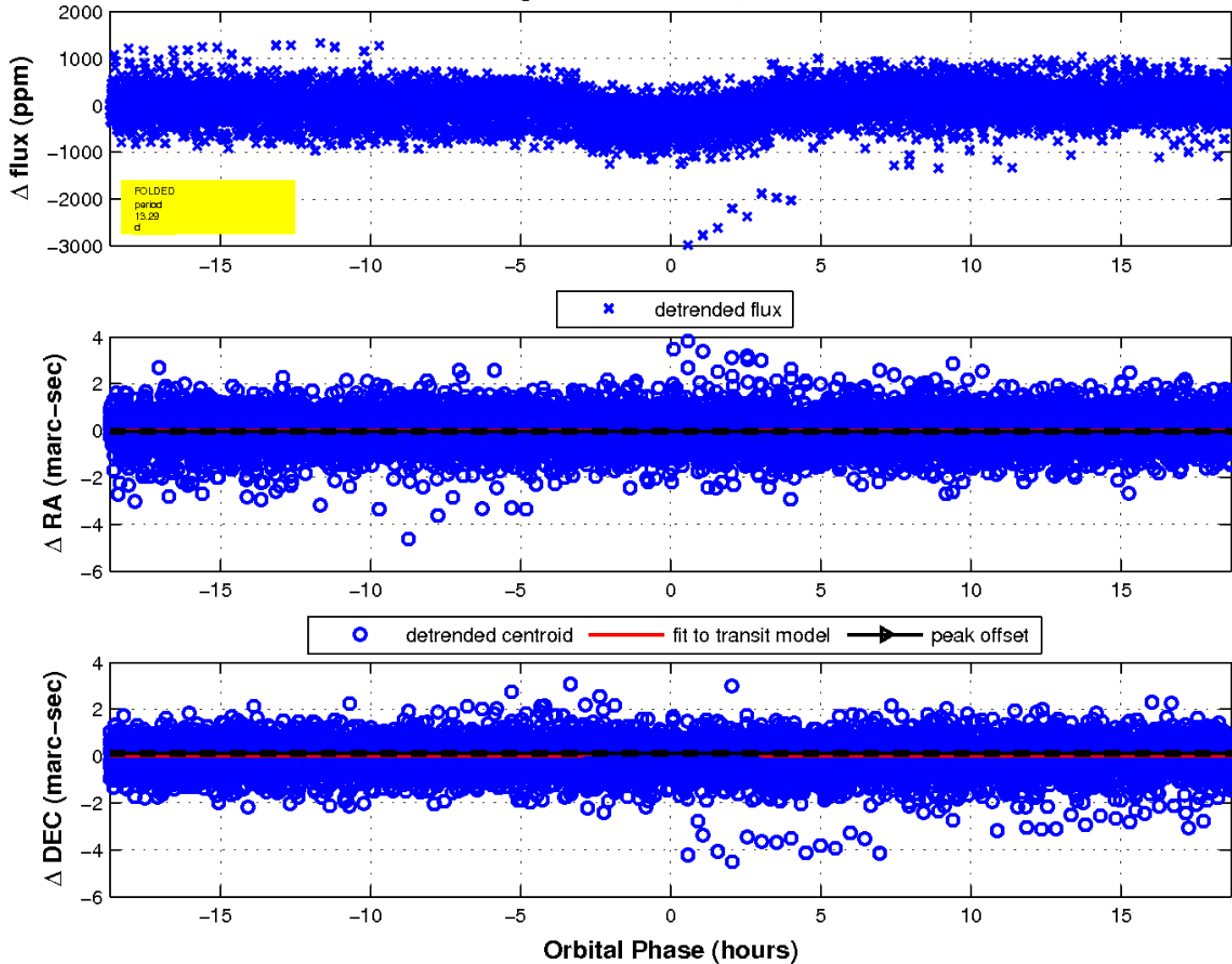
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

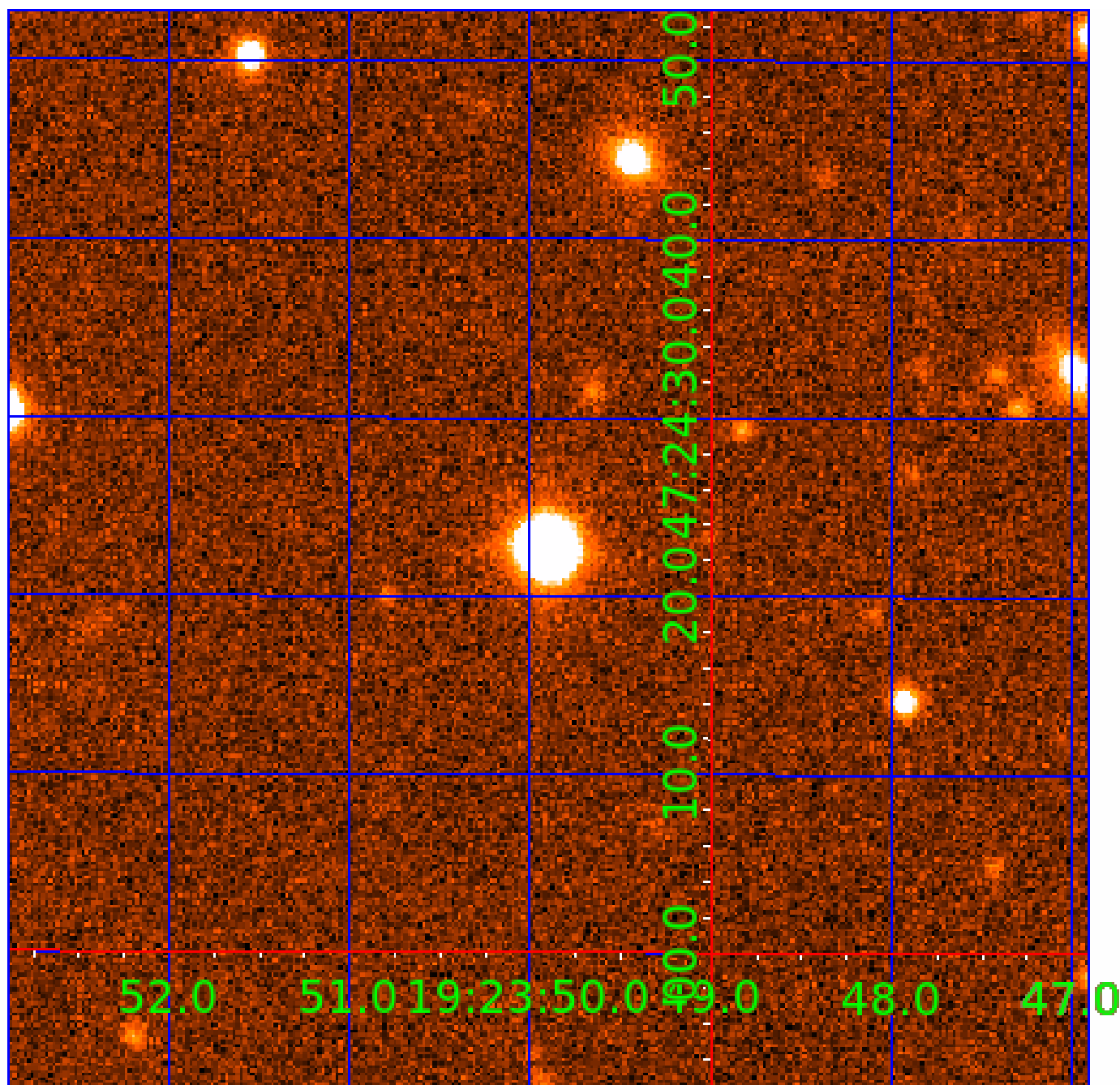


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010337258

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})
010337258-01	OBS	0333.01	13.285372	143.290569	371.4	6.228	42.0	45.5	1.90	6534	3.97	424.24
010337258-02	OBS	No	379.430634	250.644594	317.4	3.601	7.8	8.0	1.90	6534	3.77	4.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010337258-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010337258-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—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.

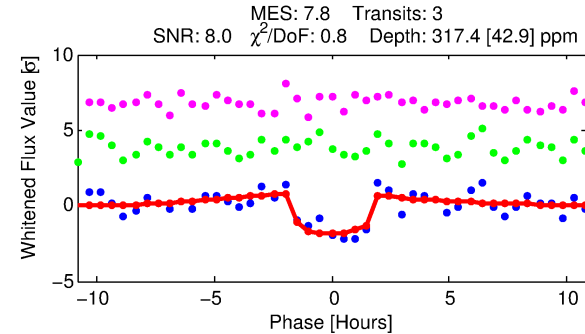
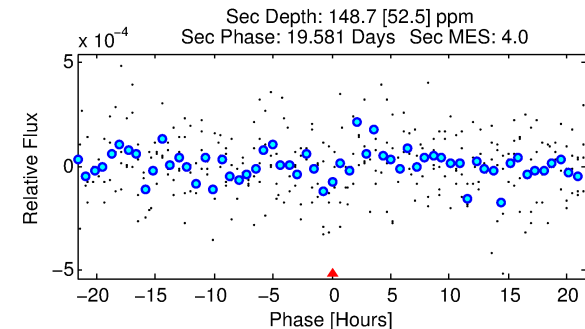
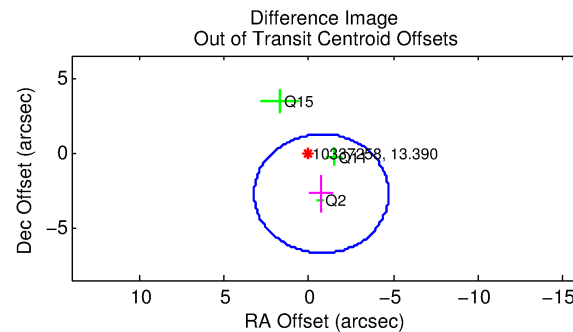
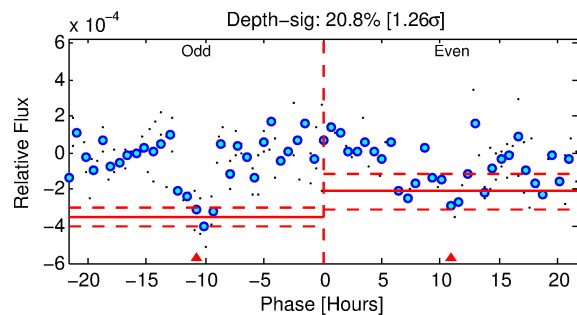
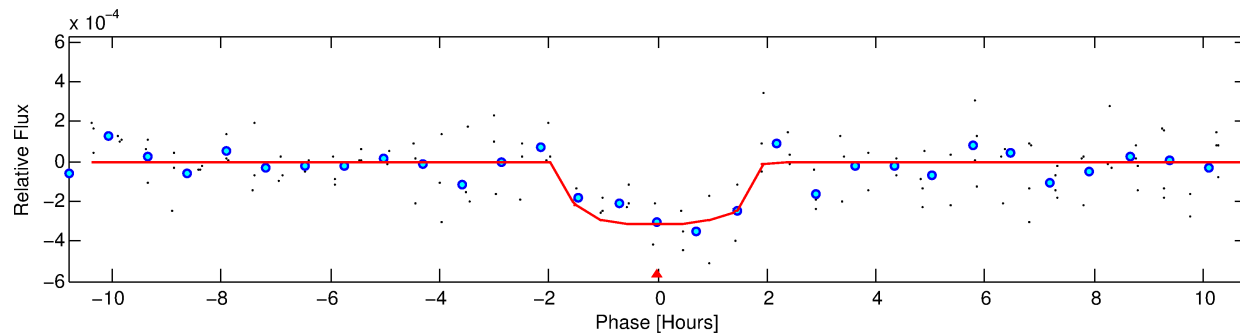
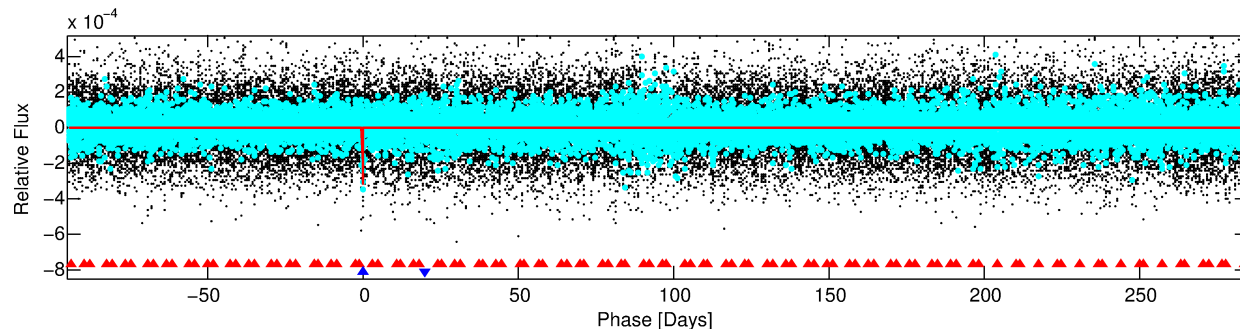
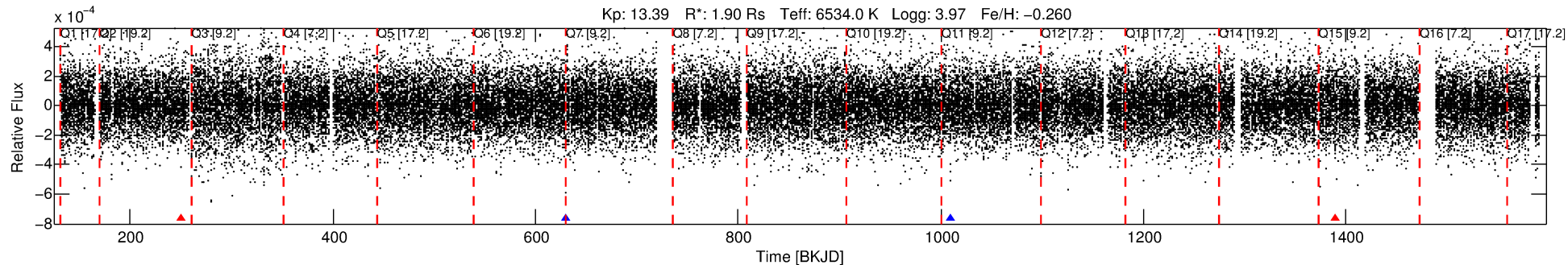
Ephemeris Match Information For 010337258-02

No Significant Match Found

DV One-Page Summary

KIC: 10337258 Candidate: 2 of 2 Period: 379.431 d
KOI: K00333 Corr: No Ephemeris Match

Kp: 13.39 R*: 1.90 Rs Teff: 6534.0 K Logg: 3.97 Fe/H: -0.260



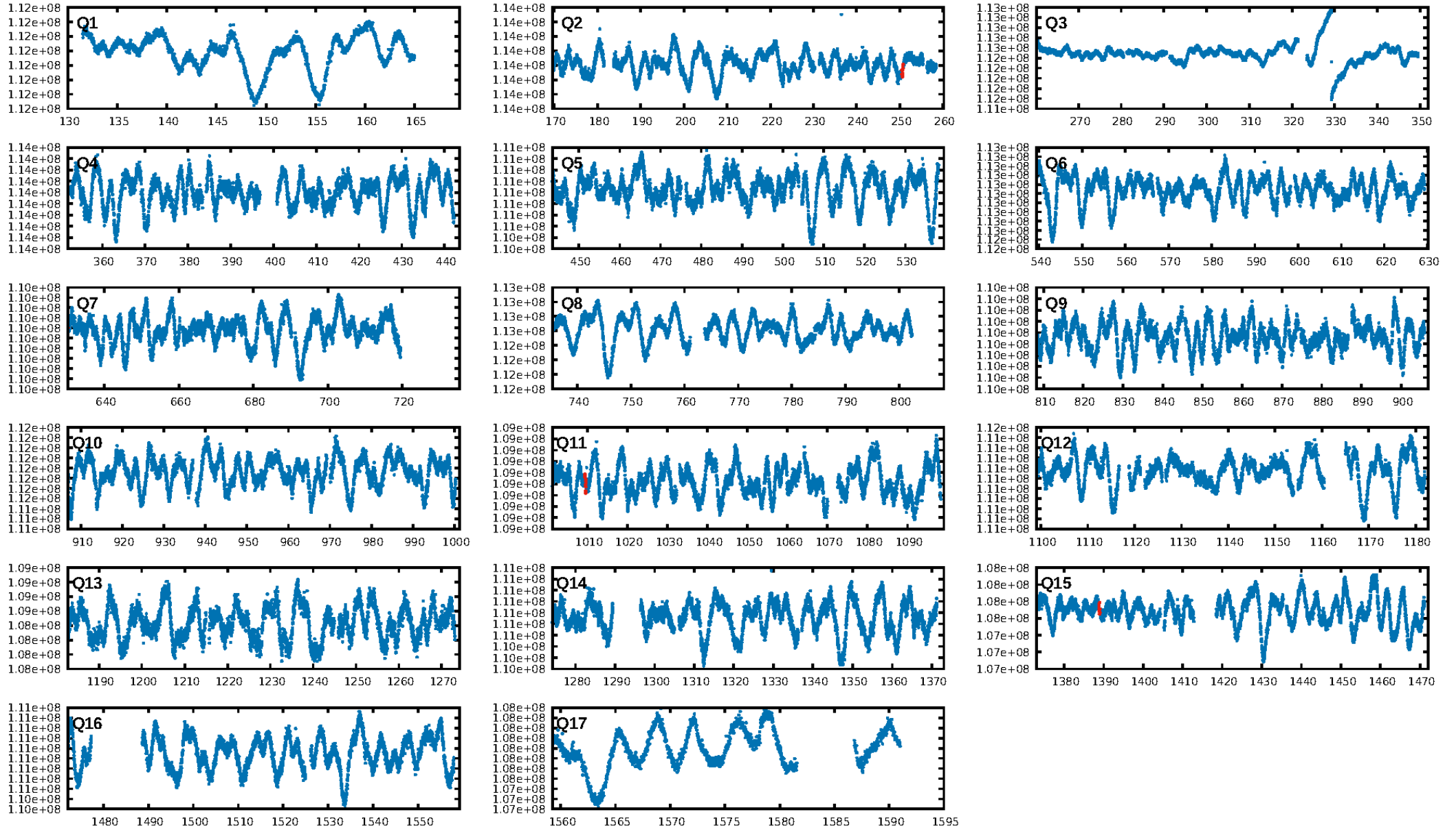
DV Fit Results:

Period = 379.43063 [0.00355] d
Epoch = 250.6446 [0.0064] BKJD
Rp/R* = 0.0182 [0.0080]
a/R* = 482.98 [1143.96]
b = 0.82 [0.94]
Seff = 4.86 [2.28]
Teq = 379 [44] K
Rp = 3.78 [2.03] Re
a = 1.1014 [0.3191] AU
Ag = 6963.29 [7334.63] [0.95σ]
Teff = 5347 [1277] K [3.89σ]

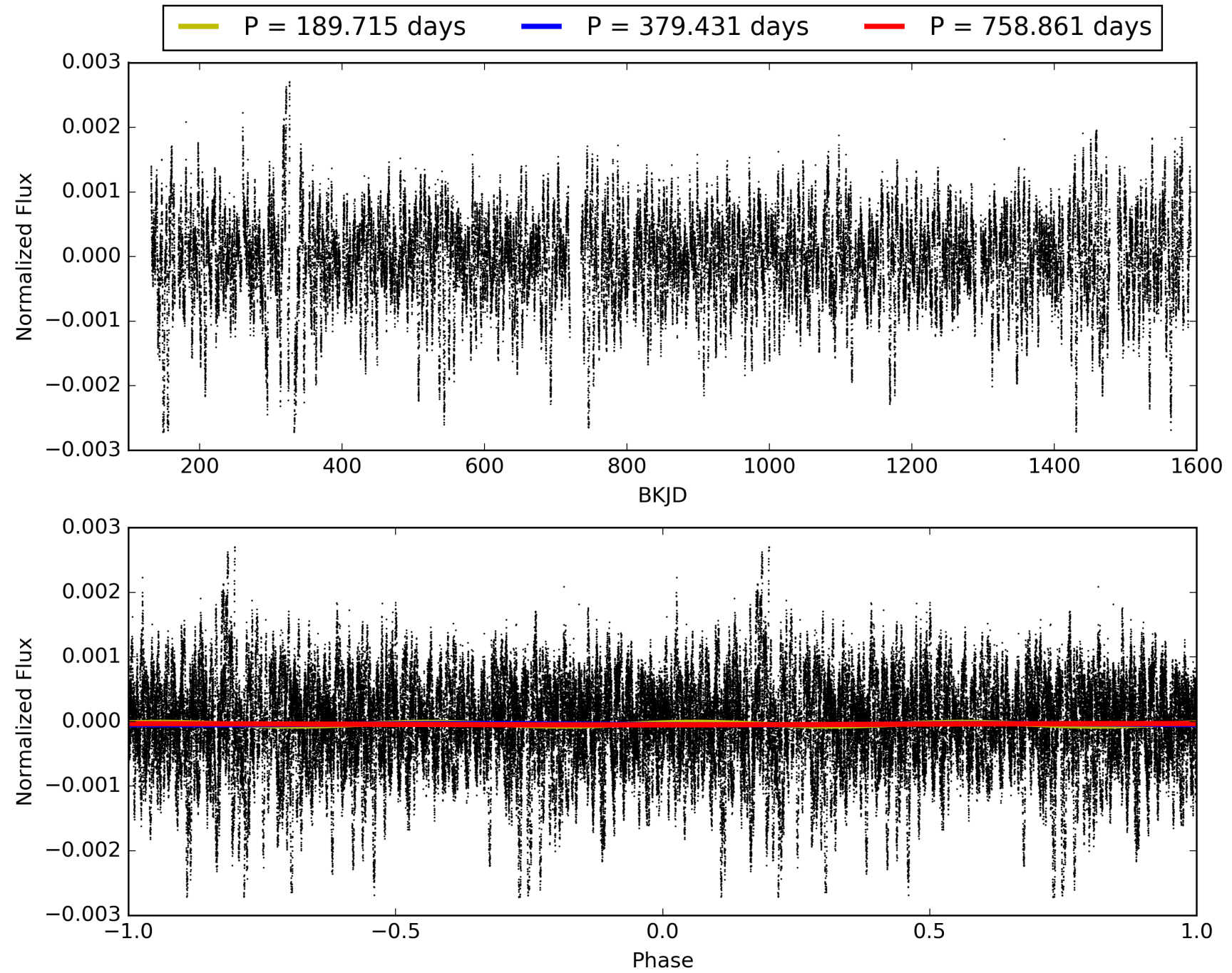
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1221.56σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 44.2%
ModelChiSquareGof-sig: 95.2%
Bootstrap-pfa: 3.45e-10
RollingBand-fgt: 0.33 [1/3]
GhostDiagnostic-chr: 4.444
Centroid-sig: 77.0%
Centroid-so: 1.005 arcsec [0.56σ]
OotOffset-rm: 2.832 arcsec [2.14σ]
KicOffset-rm: 2.767 arcsec [1.49σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 010337258-02, PDC Light Curves

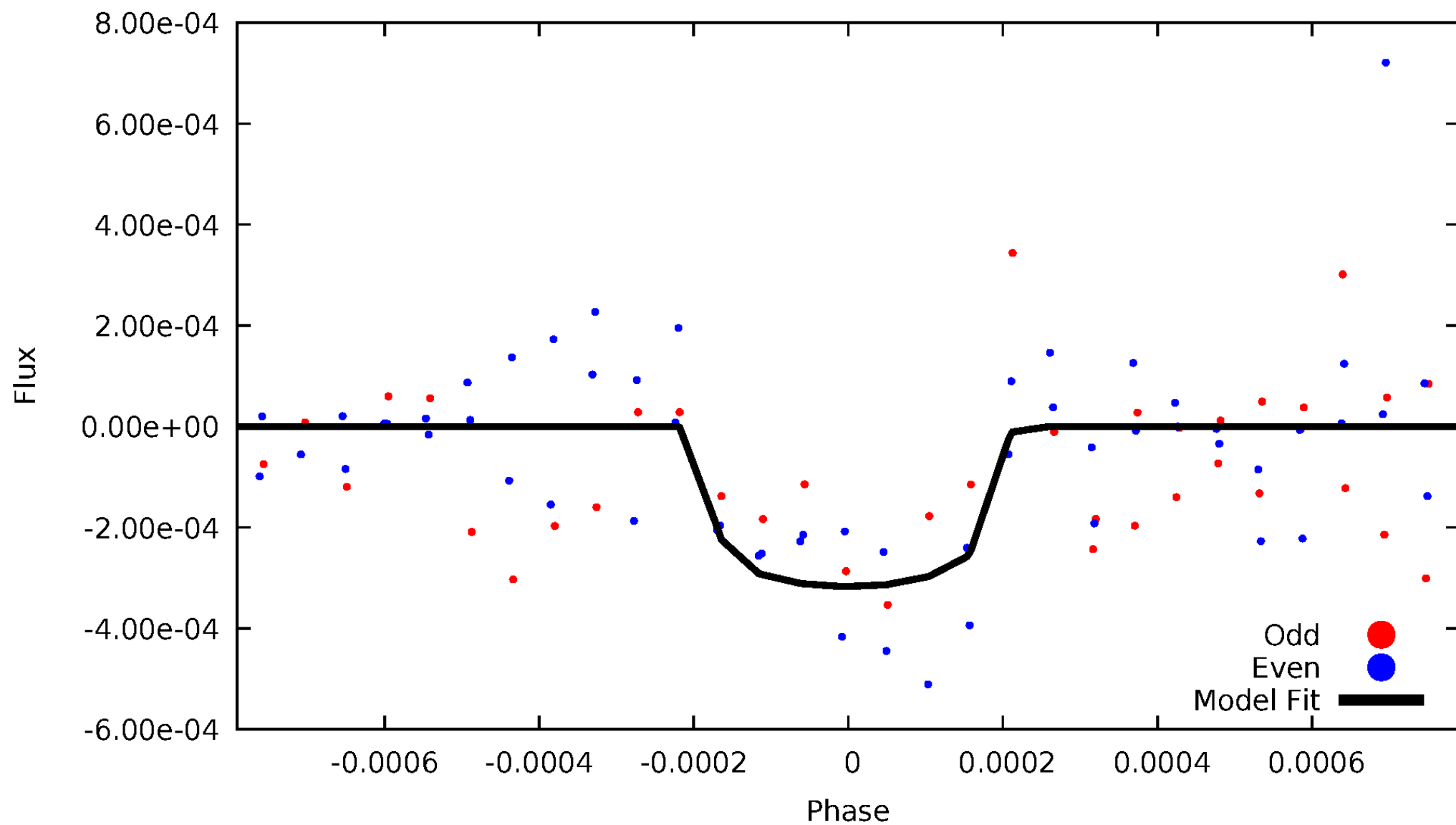


TCE 010337258-02



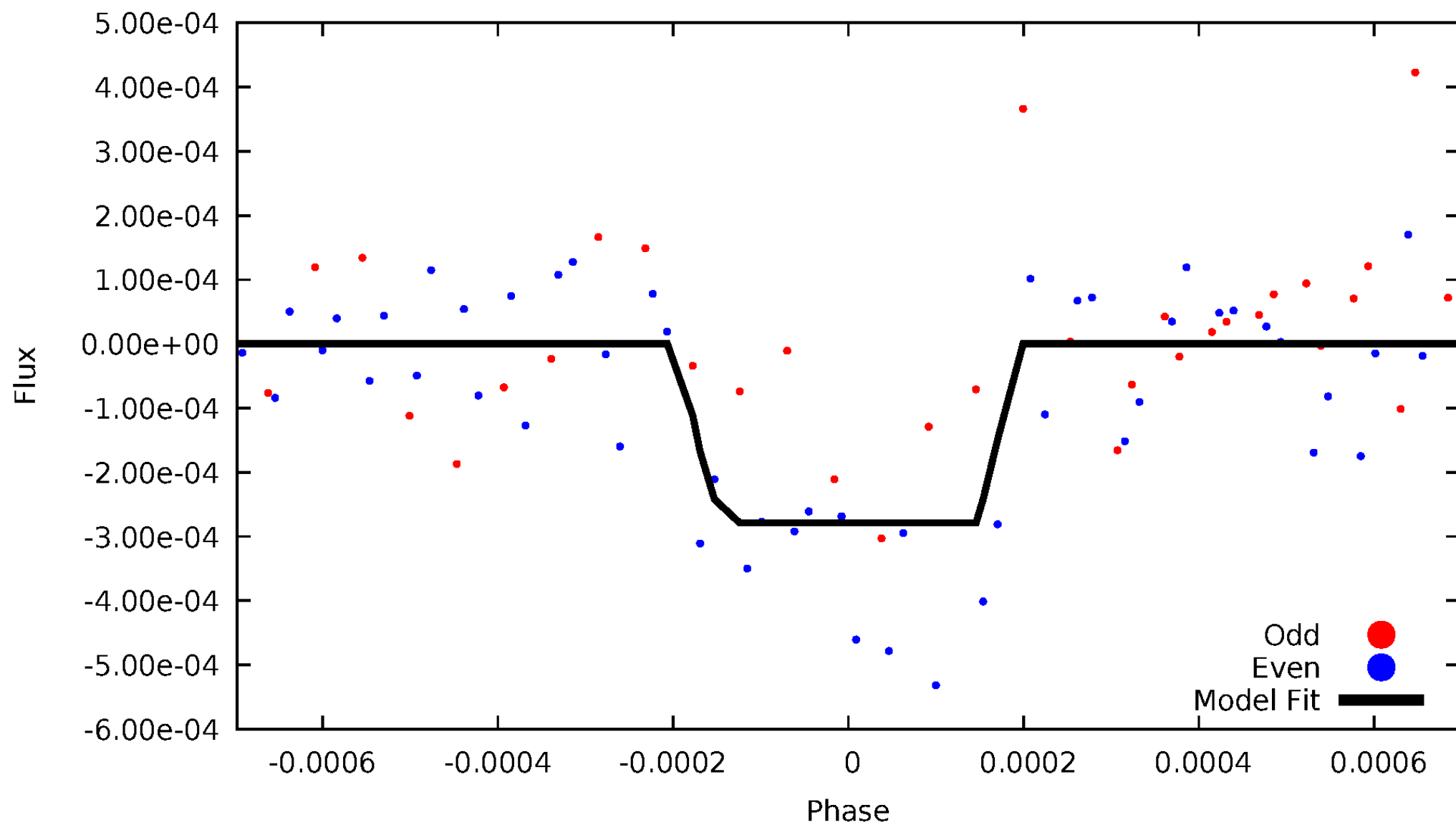
DV Odd/Even

TCE 010337258-02



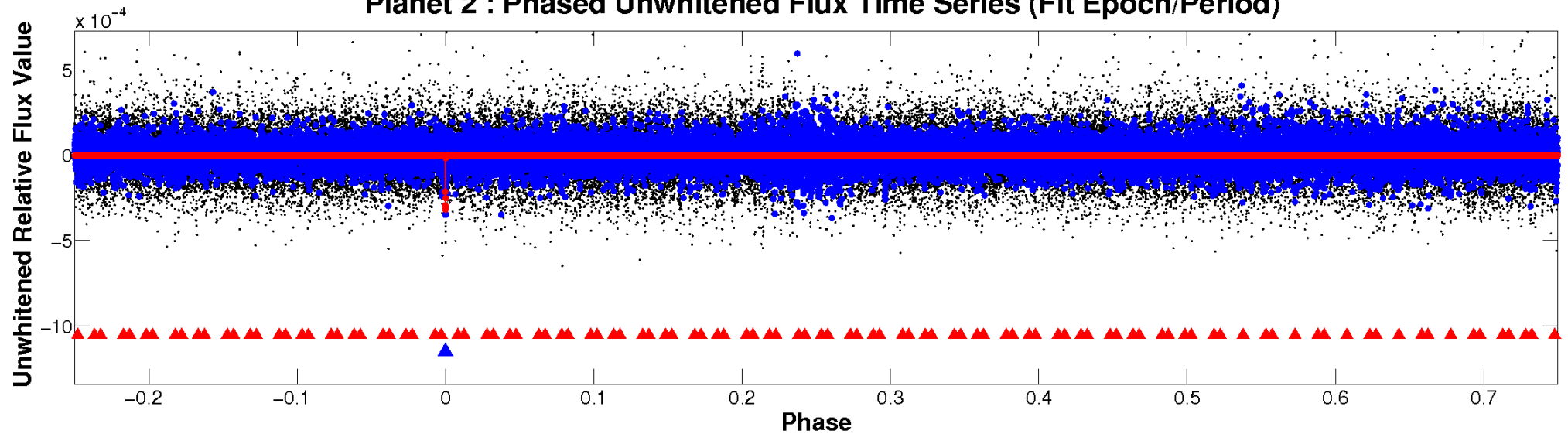
ALT Odd/Even

TCE 010337258-02

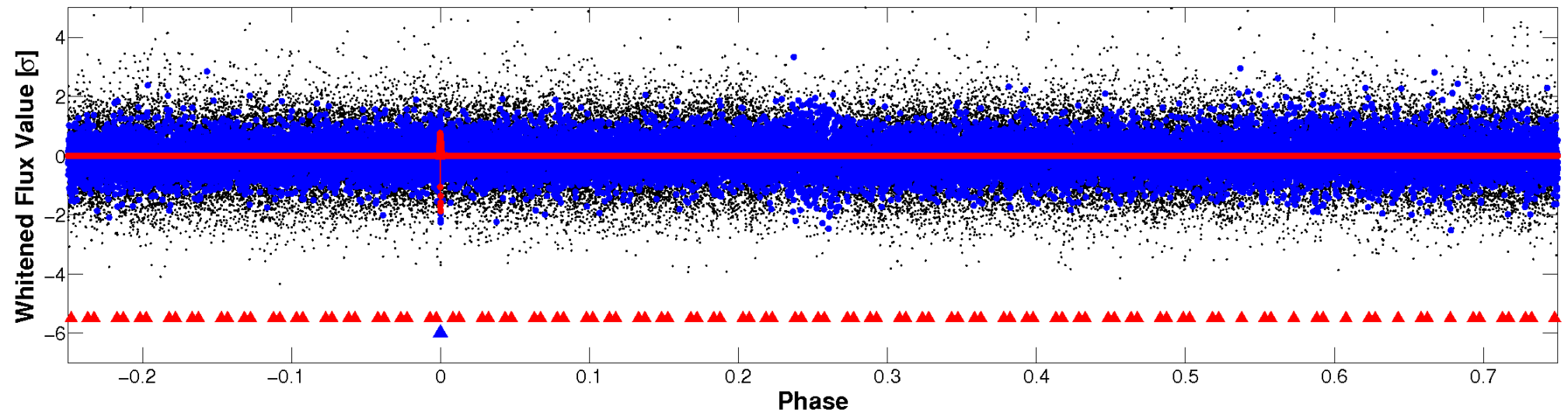


Non-Whitened Vs. Whitened Light Curve

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

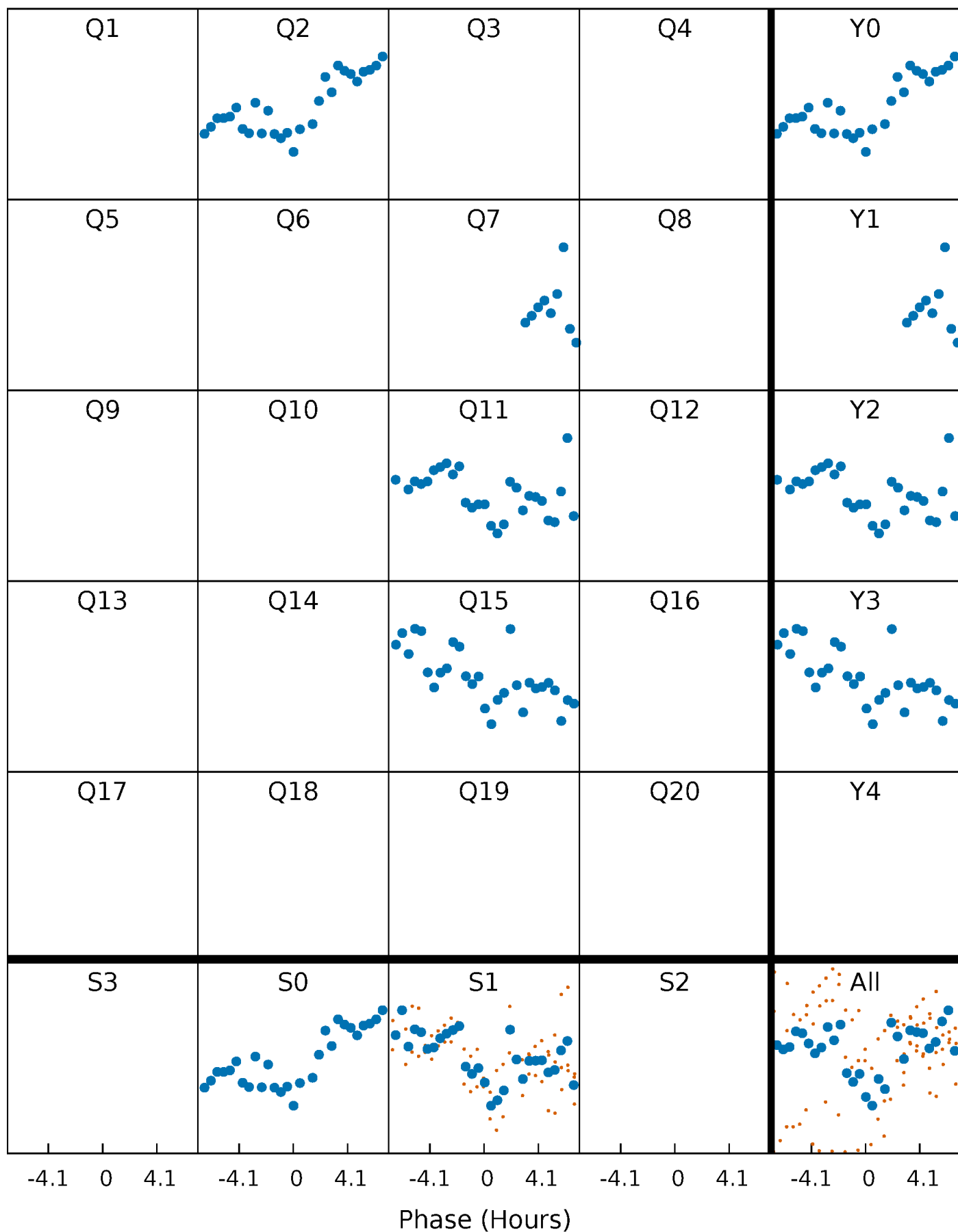


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



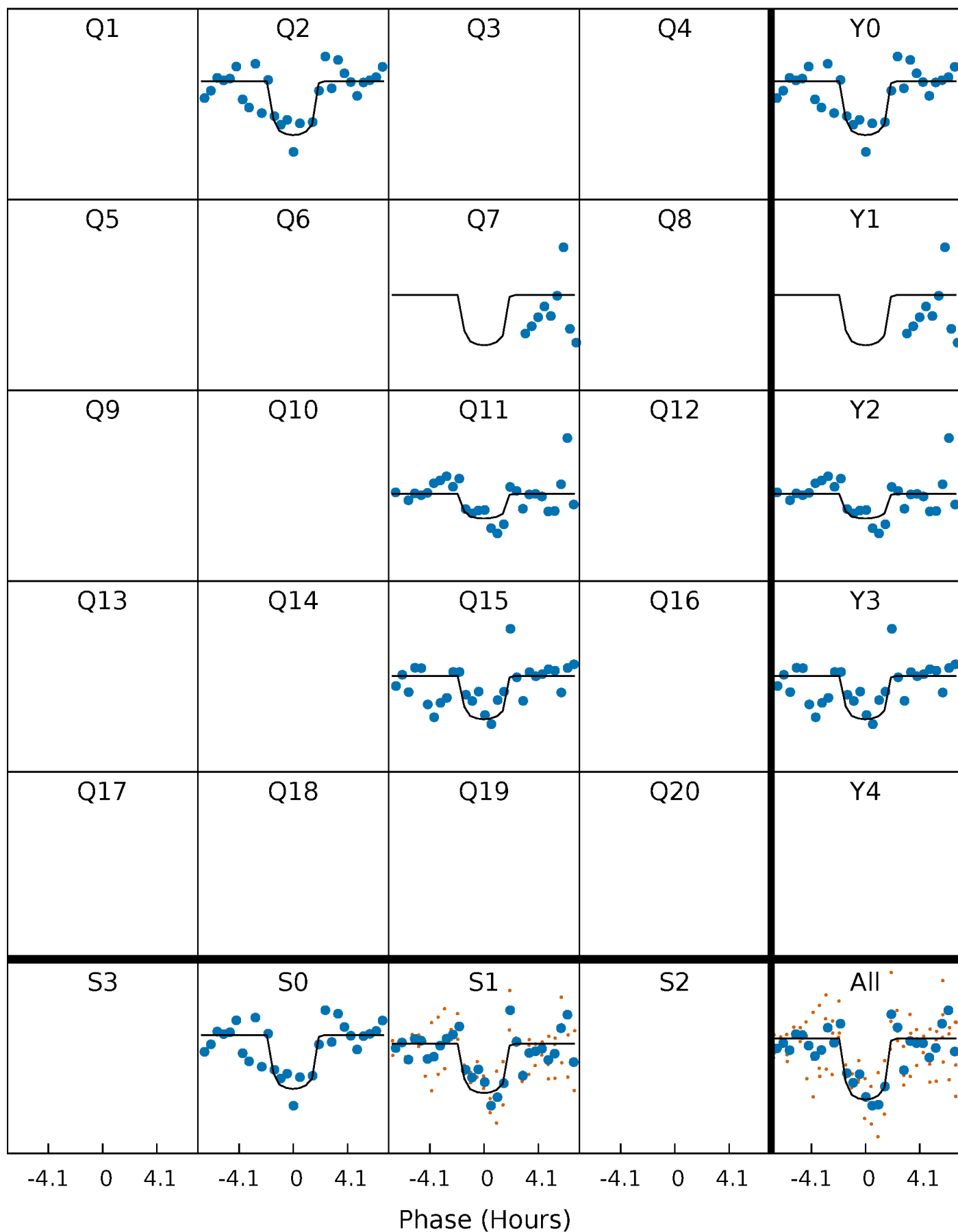
PDC Quarter-Phased Transit Curves

TCE 010337258-02 $P=379.430634$ Days $T_0=250.644594$ (BKJD)



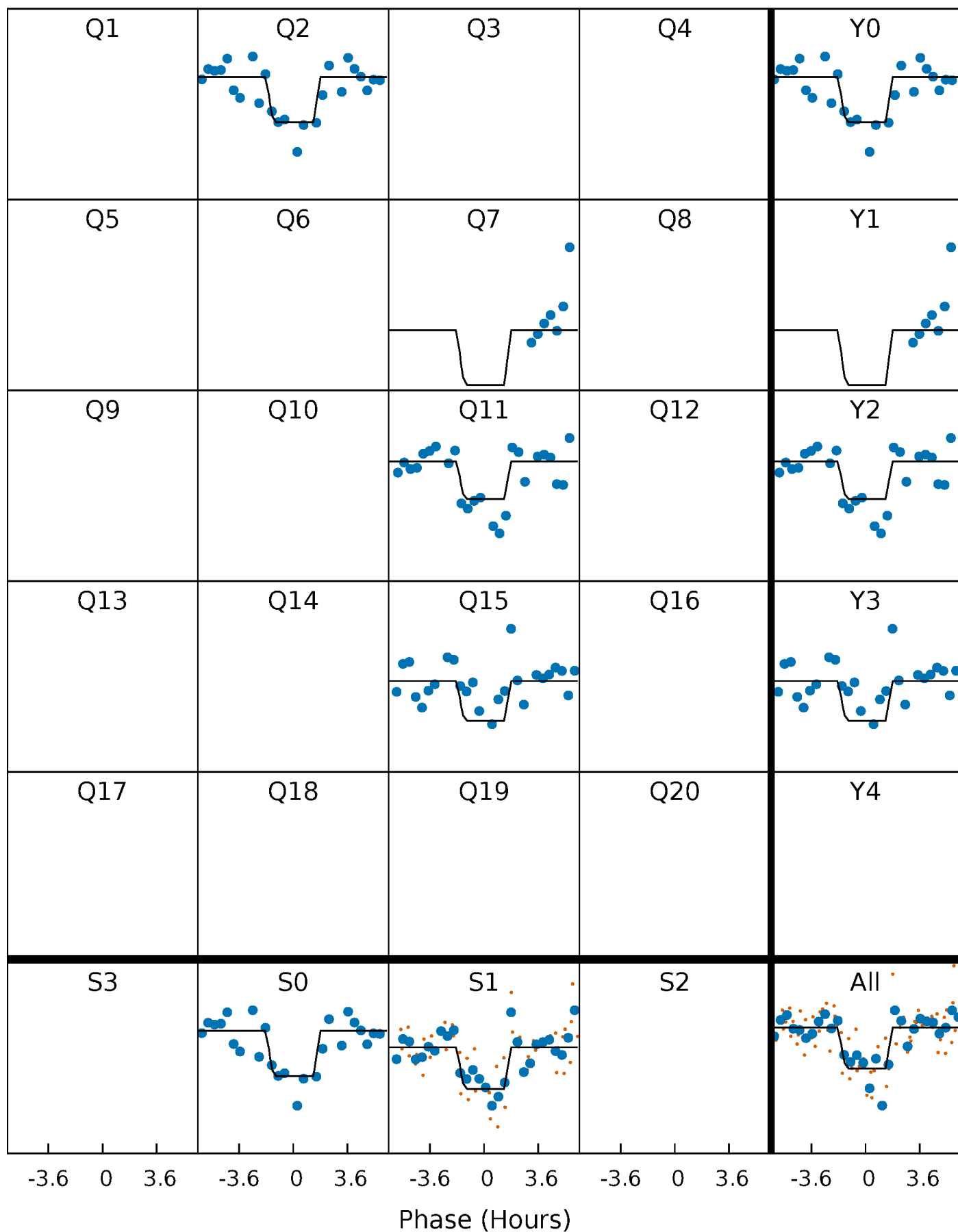
DV Quarter-Phased Transit Curves

TCE 010337258-02 $P=379.430634$ Days $T_0=250.644594$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

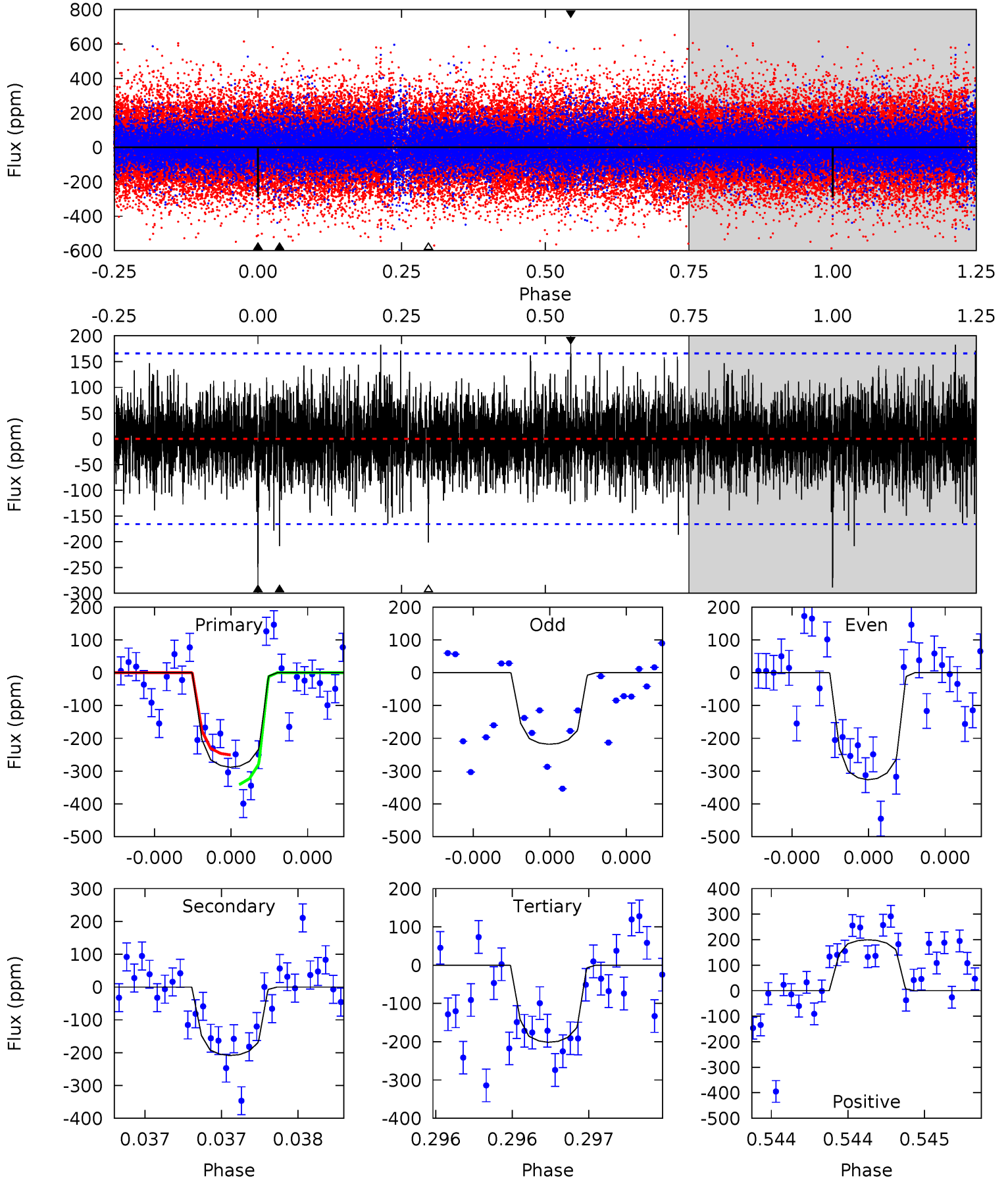
TCE 010337258-02 P=379.434440 Days $T_0=250.638153$ (BKJD)



DV Model-Shift Uniqueness Test

010337258-02, P = 379.430634 Days, E = 250.644594 Days

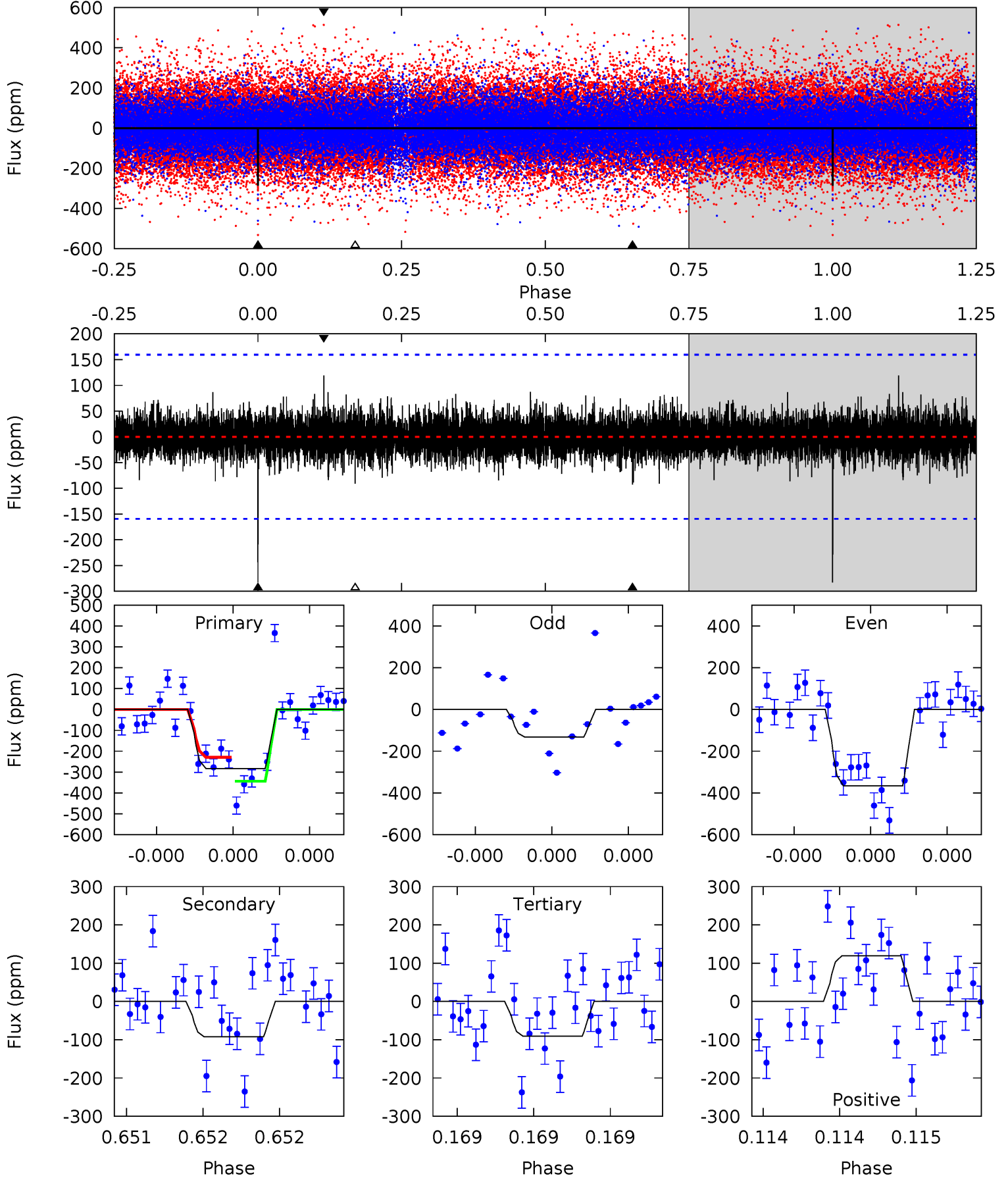
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	7.04	6.80	6.73	5.60	3.52	1.46	2.93	3.00	0.24	0.31	1.71	0.96	0.41	1.52



Alt Model-Shift Uniqueness Test

010337258-02, $P = 379.434440$ Days, $E = 250.638153$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.00	3.27	3.21	4.21	5.64	3.58	0.80	6.79	5.79	0.06	-0.94	3.92	0.88	0.30	2.02



Stellar Parameters For KIC 010337258

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6534^{+156}_{-176}	$3.973^{+0.266}_{-0.114}$	$-0.260^{+0.300}_{-0.250}$	$1.900^{+0.440}_{-0.586}$	$1.238^{+0.211}_{-0.192}$	$0.254^{+0.385}_{-0.099}$
	+2%/-3%	+7%/-3%	+115%/-96%	+23%/-31%	+17%/-16%	+151%/-39%
Source	PHO1	FLK73	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 010337258-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-208 ± 30	$3.64^{+1.73}_{-1.65}$	522^{+32}_{-41}	5759^{+2029}_{-842}	10510^{+22275}_{-5642}
Alt.	-92 ± 28	$3.29^{+1.73}_{-1.50}$	520^{+34}_{-40}	4972^{+1703}_{-753}	5523^{+13201}_{-3403}

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

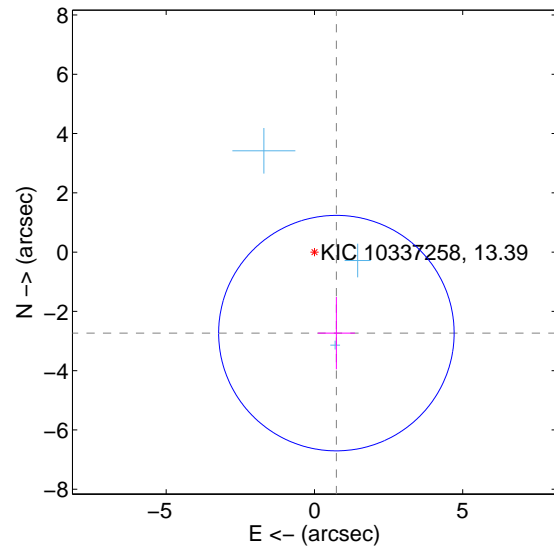
Supplemental centroid analysis for 010337258-02. Kepler magnitude: 13.39. Transit SNR 8.04

There are 3 quarters with good PRF difference image offsets

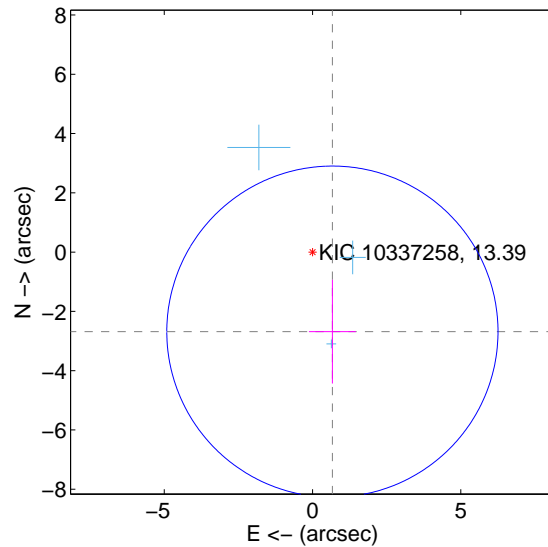
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.832 ± 1.324	2.14	-0.740 ± 0.625	-2.733 ± 1.220
PRF-fit source offset from KIC position	2.767 ± 1.862	1.49	-0.671 ± 0.793	-2.684 ± 1.750
photometric centroid source offset	1.00 ± 1.80	0.56	1.00 ± 1.80	0.13 ± 1.94

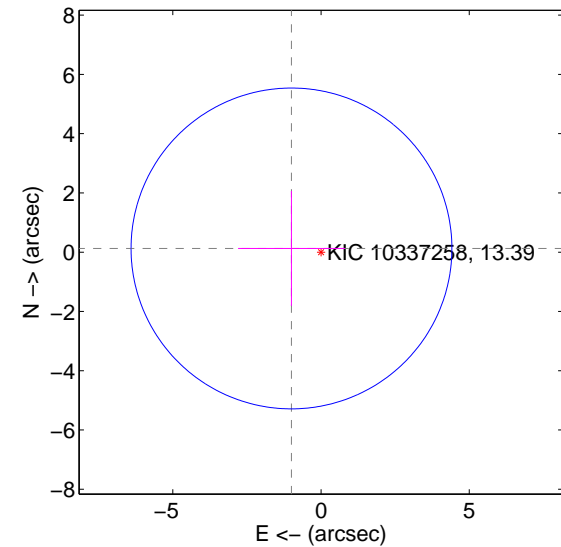
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

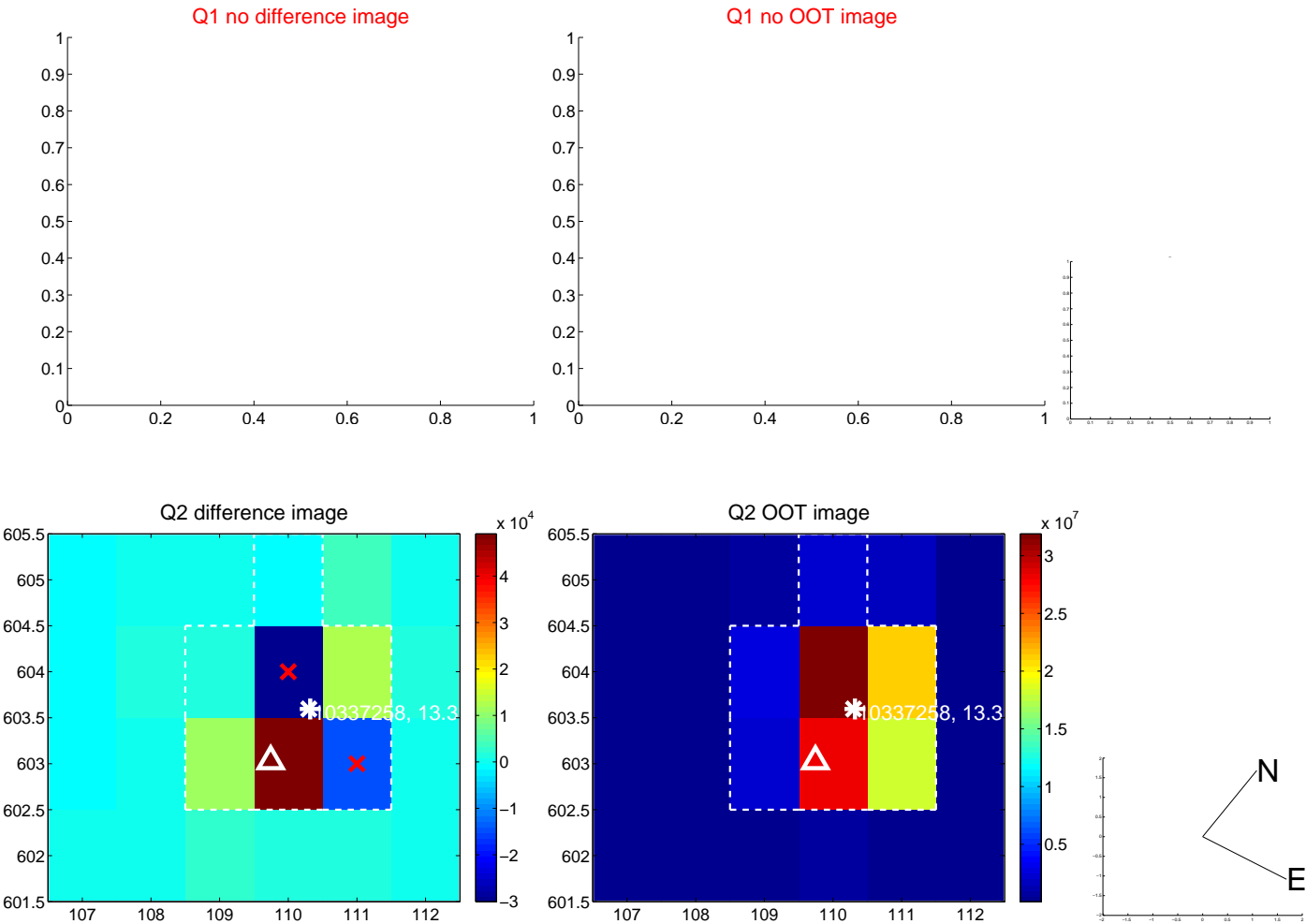


offset from photometric centroids



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

Q9 no difference image



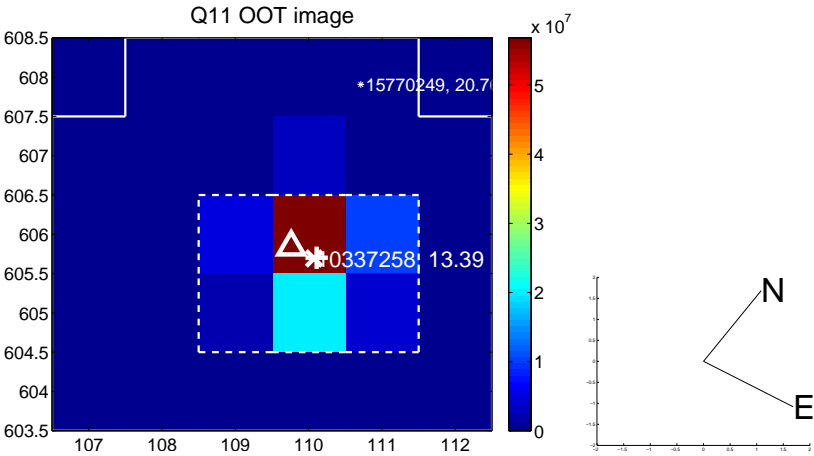
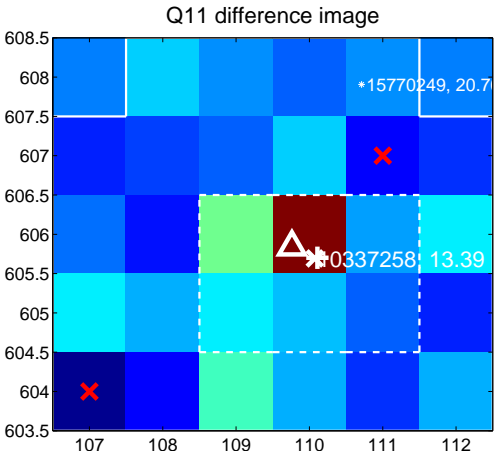
Q9 no OOT image



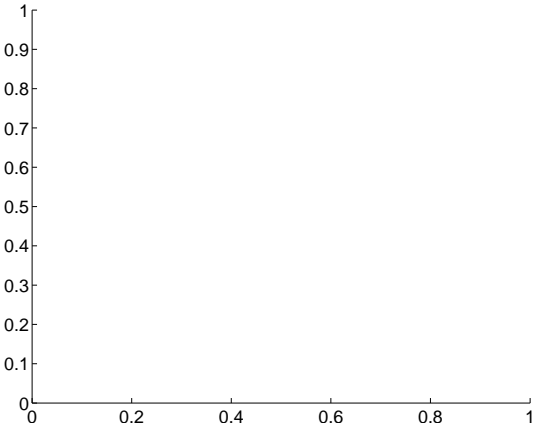
Q10 no difference image



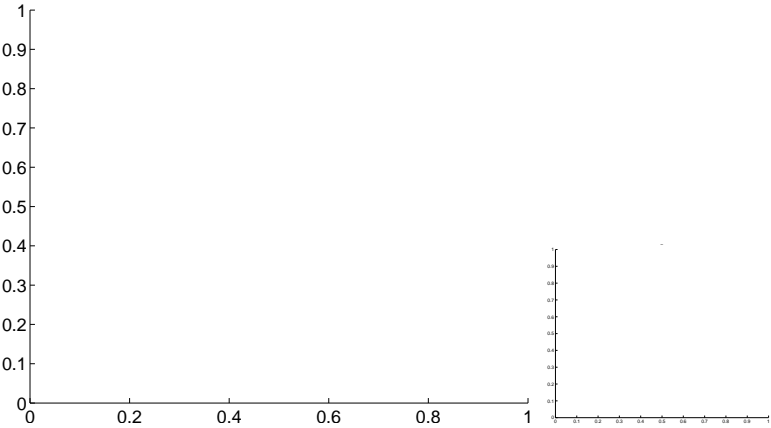
Q10 no OOT image



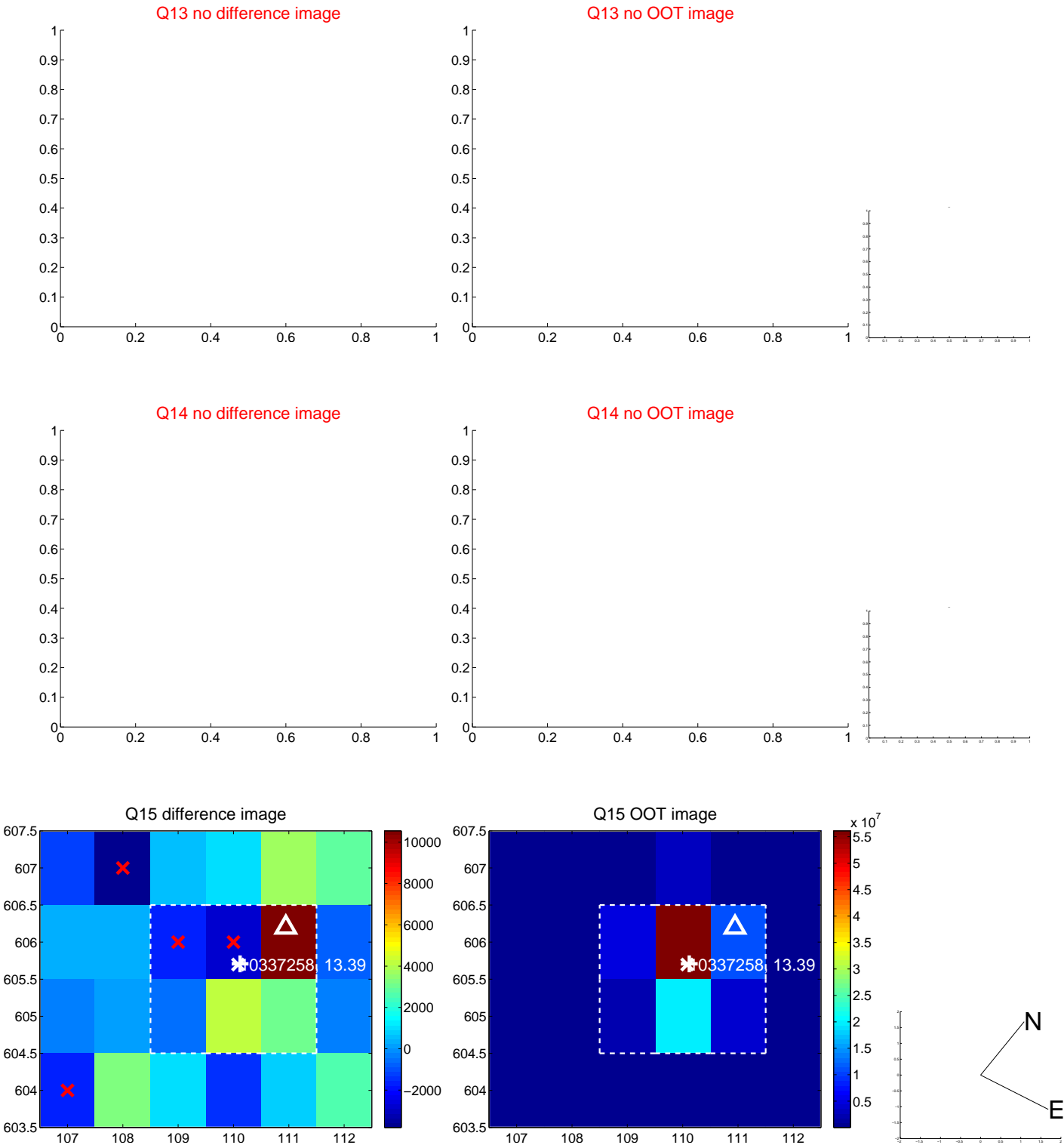
Q12 no difference image



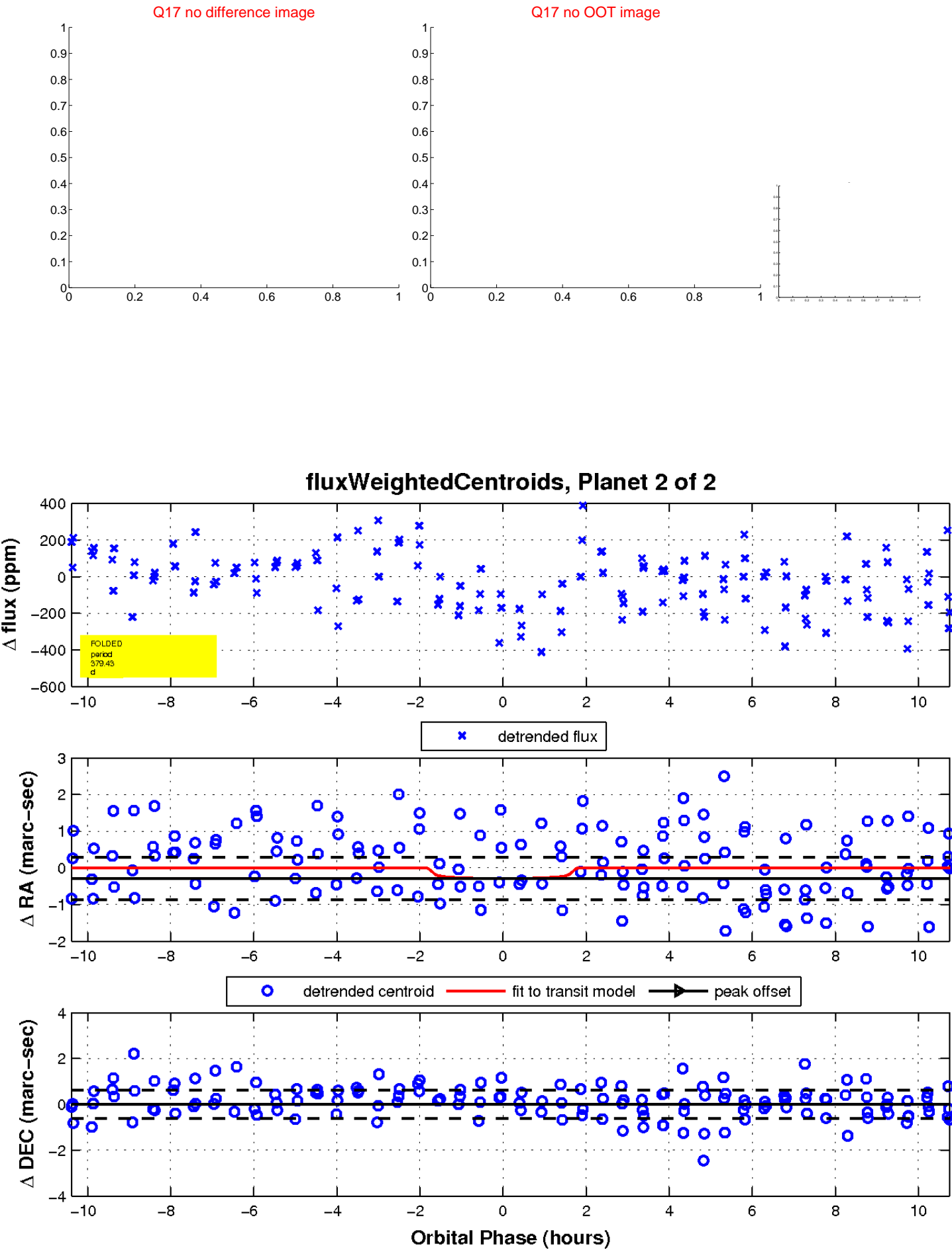
Q12 no OOT image



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

